

Design-led future forecasting model for mobile communications

A thesis submitted for the degree of Doctor of Philosophy

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- Part 2/2 -

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July 2016

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1 Appendix

1.1 Exploratory interviews: questionnaires and transcriptions

This section displays the questionnaires submitted to the interviewees during the data collection stage of this study as well as the transcriptions of these exploratory interviews'. Before introducing them, it is important to highlight two key points.

Firstly, to maximize the process and gather relevant inputs from the approached experts, each questionnaire was tailored to fit their background, experience and roles in their business. As the interviewees presented a heterogeneous training and work experience, a standardized set of questions probably would not capture the most accurate information required for this research.

Next, due commercial sensitiveness's/non-disclosure agreements the names of interviewed experts, their positions/roles and names of firms that they work for were removed from the transcripts presented in this section.

In the next pages, the chart exhibiting the profiles of the experts approached will be displayed (reproduction of Table 4.2, Chapter 4 - Methodology) followed by each applied questionnaire and the related interview transcription.

Table 4.2 - Chart exhibiting the profiles of the professionals interviewed.

Proficiency	Interviewee profile	Remarks
Design director	<ul style="list-style-type: none"> • Founder and director of his own design consultancy company. • Design director of an international design consultancy firm. • Holds a PhD degree in design from a world class British University. 	<ul style="list-style-type: none"> • Interviewee (1) • Face-to-face interview
Head of user experience	<ul style="list-style-type: none"> • 10 years of working experiences as interaction and UX designer. • Former creative director of a major British television channel. • Head of user experience at British design agency. 	<ul style="list-style-type: none"> • Interviewee (2) • Face-to-face interview
Senior lecturer	<ul style="list-style-type: none"> • Senior Lecturer (Information systems) of a leading British University • Holds a PhD degree founded by a major British telecom company. • Worked in several projects supported by wireless companies. 	<ul style="list-style-type: none"> • Interviewee (3) • Face-to-face interview
Design manager	<ul style="list-style-type: none"> • Over 10 years of working experience with different lines of consumer electronics products • Design manager for European market of a global electronic firm. • Coordinates a multidisciplinary team of professionals (including designers) from different areas of expertise. 	<ul style="list-style-type: none"> • Interviewee (4) • Face-to-face interview
Vice president of brand experience	<ul style="list-style-type: none"> • Over 10 years of working experience with mobile communications. • Works across different departments to create consistent product and brand experience through numberless consumers' touch points. • Coordinates multidisciplinary teams (including designers) 	<ul style="list-style-type: none"> • Interviewee (5) • Face-to-face interview
Head of research	<ul style="list-style-type: none"> • Head of research of a global mobile telecommunications company. • Solid design research experience (qualitative and quantitative tools) • Work alongside with distinct research departments and multidisciplinary teams. 	<ul style="list-style-type: none"> • Interviewee (6) • Face-to-face interview
Head of research	<ul style="list-style-type: none"> • More than 10 years of working experience with design research. • Head of research and associate director of a world class British design consultancy. • Coordinates a multidisciplinary group of professionals, including designers working mainly with qualitative research methods. 	<ul style="list-style-type: none"> • Interviewee (7) • Face-to-face interview
Head of product marketing	<ul style="list-style-type: none"> • More than 15 years of working experience in the automotive sector. • Head of product marketing team of a British luxurious car brand. • Holds a PhD degree in design from a world class British University. 	<ul style="list-style-type: none"> • Interviewee (8) • E-mail interview
Strategic planner	<ul style="list-style-type: none"> • Planner of a British design agency working primarily with consumer electronics companies/clients. • Solid working experience with trends, design research and UX. • Holds a PhD degree in design from a world class British University. 	<ul style="list-style-type: none"> • Interviewee (9) • Face-to-face interview
Independent Consultant	<ul style="list-style-type: none"> • Former VP of a global leading mobile telecom consortium. • Solid experience consulting for different firms/sectors worldwide. • Holds a PhD degree in psychology from a leading British University. 	<ul style="list-style-type: none"> • Interviewee (10) • Face-to-face interview

1.1.1 Interviewee 1 - Questionnaire and interview

1. How important is the briefing process for a design manager (and the design team) with respect to a new project?
2. In your opinion, what are the major challenges that a design manager meets when a new project is started?
3. Usually design teams are composed by professionals from different backgrounds and skills. What are the major challenges of this approach?
4. What are the key benefits of using a multi-disciplinary team in design projects?
5. From a design manager perspective, how design can help in the new product development process?
6. From your perspective, how important are forecasting trends with respect to NPD?
7. What design tools can be employed in this task?
8. What are the contributions that design can bring in order to understand and address unmet customers' needs?
9. In your opinion, what are the most practical tools to assist in this task?
10. In your point of view, how customers' insights can benefit an on-going design project?
11. Where (in which stage) in the project flow these ideas can be mostly used??

• Interviewee 1 – Interview transcription

Rafael: Could you please introduce yourself including your background and your work or business that you run?

Interviewee 1: 'Feel the Future' is a design-led consultancy. It helps companies in two ways: firstly, it assists firms to deal with their problems and second; it helps them to find new business opportunities. It employs design thinking to aid

companies to deal with their internal issues and uncover new opportunities. 'Feel the Future' origins can be tracked back to the time of my PhD thesis that carries the same name. This study was based on 100% qualitative research approach combining distinct qualitative methods and tools that we currently use here in the company to tackle different clients' assignments. This methodology can be divided in three stages: 'discover', 'connect' and 'construct'. All the projects that we work on here use this methodology as a basis; foundation. I am the owner and design director of the consultancy and our team is very small, comprising only 6 people. Most of them have a design background but we work in partnership with several other professionals in Brazil for extra support depending on the nature of the project that we are involved with. We are based at Curitiba (downtown) in a very traditional neighbourhood. The office is located in extensive 'open plan' building with access to a nice balcony enabling us to have creative workshops and meetings in order to support innovation in our design process. 'Feel the future' also is 'backed up' by an international alliance of partners. It is called REACH and it was established in 2008 by companies from 11 countries. It works as a networking platform where we collaborate in different ventures, generating insights or offering our services through design research to companies seeking to gain knowledge in different markets/countries.

1) Rafael: How important is the briefing process for a design manager (and the design team) with respect to a new project?

Interviewee 1: The project briefing is the signpost of any project. From what I learn as a student, the briefing is where design starts. What we do at 'Feel the future' is, we 'jump over the counter' and work side by side with the client to write the project briefing instead of just receiving this document. To me, assisting in the development of the client's briefing is as important as the outcomes of the assignment that we are commissioned to do. The reason behind this is... When you don't have a proper briefing, a briefing that takes into account all project stakeholders since the very beginning, the chances of having 'distorted' or 'skewed' outcomes is very high... It is just like sailing, if you set sail making a 1 degree mistake in the beginning; you will end up, I don't know, 10 kilometres...

very far away from where you are expecting to arrive. So, the briefing is the compass; the sign post of any design project. It is a key document as important as the project's final result. It's a document that gives you an overview of the whole project allowing you to align people expectations. I believe that this is a major characteristic of a good briefing: align [people] expectations. Then, you call the stakeholders from different departments - marketing, design, and engineering - and tell them that 'this is the way'. So, we prefer to lose a bit the 'wow effect' related to the designers' creativity to have a well-planned briefing to guide the whole team.

2) Rafael: In your opinion, what are the major challenges that a design manager meets when a new project is started?

Interviewee 1: I think that the biggest challenge is... As I said, it is to align different [stakeholders'] expectations. Design is a horizontal activity that by its nature is used to facilitate communications between different areas within a firm. At 'Feel the future' we say that the designer is the facilitator of the process... that goes beyond the task of creating something nice and beautiful. He facilitates the process; he establishes dialogues between marketing and engineering; between the aesthetical and the engineering... between logical and creative mind sets. The designer is the professional that make this link. A manager, a good design manager is the guy that is able to juggle among these three different areas: design, marketing and engineering. His challenge is to establish communication channels with these areas and keeps his team (design team) motivated. There is no good design without motivation. You can even sort out an engineering problem using a professional that is not motivated because $1+1=2$ and that's it. However, you cannot design like this; you cannot design properly without a motivated team.

3) Rafael: Usually design teams are composed by professionals from different backgrounds and skills. What are the major challenges of this approach?

Interviewee 1: Ah... It is the combination of... different skills... within Design, there are designers that are more technical while the others are more creative...

them, you are able to.... build up a team of professionals with different characteristics that complement themselves... This is potentially the biggest challenge: having a team comprising professionals that work with logical thinking, with a more structured way of thinking and others with a highly creative mind set.

Rafael: so, basically, it is about finding something in the middle, a balance?

Interviewee 1: Finding this balance is the [design] manager's responsibility. It is not that the team must find a perfect balance; the design manager is responsible... If you have a good creative professional here, you have... Usually, I say that 'two-half good things' are not equivalent as a 'one good thing'. Having said that, I believe that you must have a creative person and a professional with a logical way of thinking and you (in that case, the manager) are responsible to make things work. It is not worthy to have just a 'reasonable' person here and another 'reasonable' person there because you won't have a very good team. In that case, 'half way professionals don't make a good team, professional team'.

4) Rafael: What are the key benefits of using a multi-disciplinary team in design projects?

Interviewee 1: Sometimes.... There is an Edward de Bono's statement saying that you won't be able to find the solution digging a deeper hole; you need to dig different holes. If you search on Google, you will find this quote. So, there is no way... Sometimes you have a problem.... And you need different perspectives about it. Different perspectives of the same thing, that's it. Having a team of professionals with different characteristics helps you having different perspectives about the same thing. There are certain things that a creative person won't be able to see and engineer won't be able to see because of their training and mind sets. That's why a multidisciplinary approach is important... different professionals looking at the same problem or opportunity... the possibilities whichever they are come from different perspectives.

5) Rafael: From a design manager perspective, how design can help in the new product development process?

Interviewee 1: I believe that the design is... a part of the whole process. Not necessarily the most important part. I believe that when you are developing a product, you are part of a big team. In many cases, design is regarded a major tool or key aspect when you look at a product. When you talk about a product, a physical artefact, people see the design of that product (e.g. appearance and shape). However, the engineering part; the selection of materials are as important as the shape and the product's interface. When you look at a product (physical artefact) it is very easy to 'identify' the design there; but when you interact with a product ('outcome') of a service, for example, financial services that works... or when you take a flight - you are properly served alongside other branding attributes - you can see clearly the applications of design in that service. It's less tangible but design is used there. But probably it is not perceived, not immediately. Design is just part of the whole process. That's why, more than never, designers act facilitating communication, bridging different areas. Tim Brown describes designers as 'T-Shaped' professionals. Designers are those professionals responsible to understand the 'big picture'; however, when it comes to their area of specialization such as graphic, product or interface design, they must know their field in depth.

6) Rafael: From your perspective, how important are forecasting trends with respect to NPD?

Interviewee 1: When you talk about trend forecasting... it depends on how define it. It depends on the industry, the product that you are developing and the needs that lead you to go walking around the streets to check what is going on in society, capture that buzz and bringing this information back. In my opinion what can be named as a 'trend' is what can be seen on the streets... obviously, it is something that was developed and designed. So, you can try to match different pieces, pictures or images together of things that already have been designed 2,3,5 years ago and can be easily spotted on the streets. When you put different evidences together, it doesn't mean that... a trend can be represented by a just single piece (of evidence). I don't believe that it should be done like that. Yes, you should know what is going on around, in society, but you have to approach users to

understand their dreams and aspirations. This is much more than just listening to his opinions. In our design process here at 'Feel the future', we are not interested in the users' opinions; we are looking for something more abstract... their aspirations, what they think about the future; how they imagine it; their perceptions and insights. This is far more abstract than trends themselves. When you make a visual board with different evidences that can be seen on the streets, what we call... the users' desires are another element together with the designers' intuition. I believe that all of these factors are linked. Trend forecasting can be used to validate an information or insight that you already have. As important as 'checking' this information, it is walking around and collecting insights by yourself and also taking into account the intuition of the designer, the professional that is involved in all the process. So, I believe that a good product is a combination of consumers' insights and the designers' intuition. When you talk about innovation, you are talking about risk. There is no way that you can come up with a new product, a new service, a new business model without considering the risks involved. It is really hard to access risk factors, because the information is... using your intuition you make connections and by putting things together you set future goals. You can create a future scenario and a plan to achieve that.

Rafael: Then, in the case of design, how this discipline can be used to decrease risk while conducting a project? Because the project usually is commissioned by a client that wants something that is well accepted by the audience and the market; on other hand you are relying heavily in the designers' intuition and abstract ways of thinking...

Interviewee 1: It's all about trying to reduce risks... That's what everyone does. That's the reason you cross the street in the zebra; that's what you do to reduce risks. We spend the whole life doing it. When you look at Maslow's pyramid, you try to a jump to a higher level by decreasing risks, so you can... When you talk about product development, is it important to diminish the risks involved in the process? Of course, it is... but you won't be able to eliminate it completely. If you take a look on iconic products developed overtime, those considered innovative products, there was always high risk elements involved. The Ipod's on/off (single) button. Why there isn't an explicit sign to show the 'on/off' button in the Ipod?

There wasn't any survey stating that should be like that.... Probably it was the intuition or Steve Job's imposition that might have said: 'there is no need to be explicitly signed. The user will understand at the moment that he uses the device for the first time that it is not necessary to have an 'on/off' button and a 'play' button. He just need to press 'play' and it works'. There wasn't any survey or research to validate this decision (about the single button). Some of the great innovations were based on someone's decision to take responsibility for the risks involved. On the flipside, there are also cases of failure of products that wasn't accept by the audience and the market. A recently example is the 'Google Waves'. Google launch the services and said: 'now the use of e-mail is over'. Absolutely! They won't kill the use of e-mail! The users are not ready for that type of innovation... the way that it was introduced in the market, not respecting the first wave (of users to adopt it). Firstly, it should be offered to 'technology savvy people' and after that... I suggest you to check a book called 'Diffusion of Innovation' written by Everett Rogers, an American sociologist. He approach this topic, how to introduce innovations in the market and doing what Google did. Google relied on its dominance and experience to launch something that they believed that audience will loved and it didn't work at all. They should have introduced this firstly, to developers and after that to other people in a continuous way... It's nice to see that some companies with a huge market presence make serious mistakes relying on their strengths and brands to minimize risks. No, the risk is the same! If you launch a product or a service, the risk factor is the same to everyone.

Rafael: Should move to the next one?

Interviewee 1: Sure, sure!

7) Rafael: What design tools can be employed in this task?

Interviewee 1: At 'Feel the Future' we have a tool box that grows everyday... We have lots of books about methodology and tools and a good one recently available in the market called 'Service design thinking'. This one in particular display different methods and tools and most of them are qualitative approaches focusing

on engaging with people, users and experts... The user centred approach is not a theory but a 'practices' and it has been used for long time where the most important thing is to approach and interact with the user. In terms of tools... ethnography and other established methods are very efficient. What we try to do here at 'Feel the future' is to combine 2, 3 different methods and create one new 'tool'. That's the reason why our tool box is always evolving. Another important issue is that for each project commissioned we try to use a different methodology that comprises several tools. For instance, we just cannot use a methodology used to research about an elevator/lift and apply them on a medical or financial services project. Today, designers are demanding more tools and methods to work with. More than never, ethnography is a very a popular tool; however, we believe that we must push to find new ways of establishing emphatic dialogues, let's put this way, with users. This is our goal. For example, in a given project we must interact with users. How do we that? How should we approach a user to investigate how he is using a mobile phone? What kind of content he is experiencing with that handset? This methodology is not that same employed to design a new lift. That's why we always find the need to adapt or combine different tools. In addition, our toolbox integrates several ludic and highly visual methods and approaches. People prefer to interact with ludic and visual stimuli that they don't have contact in their daily routines... 'Survey-like approaches' (e.g. questions and answers) do not necessarily make people relaxed and to engage in rich conversations.

8) Interviewee 1: What are the contributions that design can bring in order to understand and address unmet customers' needs? Ok... reinforcing the idea that the designer is a facilitator to establish this dialogue. Exploring 'unmet customers' needs' is about observing what people do and also trying to understand their perceptions. My PhD thesis addresses exactly this issue: investigate people's perceptions towards design and branding. That's what I tried to do. There is a gap between what companies communicate and what the market understands. If you look from the brand's perspective, every single company is perfect: they are innovative and offer great deals to their customers' and so on. But what really grabs my attention is what people perceive from these messages. The gap between what is perceived [by people] and what is communicated [by firms] it is something that I spent four year looking at. Companies can tell whatever they

want. If I am in this side (company's side) owning a company that sells plastic cups, I can say that they are the most innovative, the most sustainable and eco-friendly.... So what!? From a consumers' point of view the information that they receive from advertising, word-of-mouth or whatever channel, how do they perceive that? In the case of my study I focused on the automotive industry. This is an exercise that we do in regular basis. The more information people have; more empowered they are to engage in a process to develop something... Take a look on what is happening with the news, printed newspapers' today. I can be a journalist as well: 'Today, at RCA...' I can write something that can impact an audience more than an editor of 'The Guardian' (newspaper). Do you know what I mean? This is my perspective, a designer point of view... Also people are concerned about the quality and how fast they can reach information. That's the reason why printed media, newspapers are struggling. They cannot be that flexible to address these customers' demands. Your question is how design can assist in this particular issue? By employing design thinking, the way that designers scoop the landscape and create new insights and ideas... making this link and bridging consumers and companies. For many years, there was a gap between these two dimensions (consumers and companies) and consumers have got tired of just being 'pushed' information and making choices. You pay a visit to a supermarket and you can say: 'this brand of fruit juice is good; that one is not' or 'I saw this brand's advertisement but I have never heard about that one.' Today people are more proactive and engaging. If it is the case that a product doesn't fit their needs, they get together 2 or 3 people and develop a brand new alternative. Hence the open-source approaches and processes. You see this happening anywhere in the world. If you look at the software industry... software under development, mobile applications, that's incredible! Small companies or just start-ups ... Let's say, I am consumer looking for a product that is not produced by any company. Then, I team up with other people to create, design and make it happen!

Rafael: Ok, That's great! The next one.

9) Interviewee 1: In your opinion, what are the most practical tools to assist in this task?

Rafael: You mentioned about understanding users by observing them...

Interviewee 1: Observing people is something that I particularly do. For example sitting in square's bench and looking at people passing by... How much you can learn just by looking at people? When I say observing people is considering their daily routines and not necessarily submitting them to a specific task, for example, 'how they use a mobile phone?' and things like that. People follow... they present some patterns regardless their own background and culture. In 2009, as part of REACH, there was a project that we ('Feel the future') have got involved called 'charging up'. There a growing number of electronic devices that we carry: a mobile phone, an MP3 player, a recorder, a video game, things like that. So, how are they placed in someone's home? Discussing among the REACH members, somebody said: 'in my place, in a specific corner under a furniture, there is an outlet extension and we plug everything over there... in Netherlands and in Denmark people do it as well. Based on these evidences, it is possible to understand how people are dealing with this situation. We ('Feel the future') and the 11 REACH members started looking at this issue, how different users charger their mobile electronic devices at their homes. What is the impact on their electricity bills taking into account that they currently might have 1,2,3,4,5 different devices that 5 years ago they didn't possess? Are the users aware of or concerned about their electricity bills? Does the electricity provider communicate them about their raise in their bills? Does their homes' architecture layout and position of outlet plugs encourage this type of behaviour? Are they located in an appropriate place? Does the architecture was aware of this issue when planning their homes' blue print design? There are many questions that emerged from this typical global behaviour. In the end, we found out 9 major general insights about this global pattern of behaviour. Everybody has an 'spaghetti-like corner'; a bunch of wires where they plug their devices. This illustrates the use of very simple (research) tools such as observation, taking pictures and enquiring. These are very practical ways of understanding users' behaviours.

10) Rafael: We are almost done. In your point of view, how customers' insights can benefit an on-going design project?

Interviewee 1: It brings lots of benefits. You can learn a lot through the process... When you are designing for someone you must know him well and also envision what he can do with that thing that you are designing for him. In one of our projects for a mobile phone company, some insights emerged. For example, 'a girl that is studying nursery and working as a nurse assistant uses her handset to record different things during her shifts in hospital such as a pregnant lady delivering her baby and other things. She has an Orkut (social media platform) account where she uploads that material in an exclusive community where only few friends that have the password can access that content. What can we conclude about this situation? Basically, she is infringing an education system. She captures that primary information and displays it in a free social media website sharing that data for free without charging for it.

Rafael: Also, I believe that there are some privacy issues regarding those people that appear on these movies such as patients...

Interviewee 1: Yes, all of these without mentioning ethical and privacy issues. Based on that fact that she is a nursery student, how this type of behaviour impacts on the whole education system? How relevant information given by a lecturer in a class comprising slides, schemes and sketches about formal medical procedures used to assist a woman to give birth can be in comparison to a 30 seconds movie recorded by that girl showing exactly the same thing to a wide audience? Who developed this 'system' envisioned such situation? Probably he didn't. What is the impact delivered by a product, service or their combination when used a person? Also, the number of opportunities that can be envisioned and developed from the insights and information collected are endless.

11. Where (in which stage) in the project flow these ideas can be mostly used?

Interviewee 1: Currently, these insights help to build a good briefing and then we can go back to your very first question. This demonstrates something that is paramount in a design research process that is designing a good project briefing. Everything that we have been talking about is related to build a good briefing for a design team, essentially. Here (at 'Feel the future') this information is employed

to validate something that... In the past people didn't use this process or they just received a marketing briefing and kick off the project. Later, when they had to justify some decisions made, for example some shapes, colour and style, they would say: 'I believe that this is beautiful and that is ugly'. Therefore, everything becomes very subjective. Today, through design research, you are able to have proper arguments to support what you are designing. However, in the end is the combination of these two factors. You cannot just say that: 'this emerged in the research and it means that this what the users want'. This happened on project that we ('Feel the future') worked on. The project was to develop a lift for a given company and through the research something that emerged... in one section of the research process we asked users: 'elicit key attributes that a lift must have'. What came on top from all interviewees was 'safety; 'the lift must be safe'. After the data analysis, I don't know how many attributes such as 'comfort' and other 'safety' always appeared on top. The user wants a safe lift, this is obvious. This is similar to 'when I break my car, it stops'. For a lift, 'safety' is bottom line. So, a full page of our report described arguments that 'safety' is a paramount attribute because the alternatives available in the market today, either are not 'safe' or for some other reasons users didn't feel safe in lifts. So, when you are selling a lift, you just cannot say that 'my lift is the safest'. This is must be an intrinsic attribute everywhere ranging from the brand, the website up to the tone of voice of the seller. Consumers must feel the 'safety'. They cannot receive just a tagline 'our lift is the safest'. Therefore, is it important to receive users' insights and be able to interpret what they are saying; their desires and how will engage with them. So, how important it is? Very important! In which stage? In all the stages. From the moment that you are designing the product up to its market release and communications efforts. Design research will support the whole process not only product design, but also communication efforts... when launching the product and positioning it. More important than knowing how to employ information; is analysing it and understanding how a product is perceived.

Rafael: Alright, that's all. Thank you very much!

1.1.2 Interviewee 2 - Questionnaire and interview

1. Could you please briefly describe your roles and responsibilities at (name of the company)
2. What roles does design play in the (name of the company and specific department)?
3. How design is currently managed within (name of the company and specific department)?
4. Do you aim to offer users the same experience across different channels (computers and mobiles)?
5. If not, what are the major differences?
6. How can design create and deliver compelling experience through a mobile phone?
7. In your opinion, what should be the future roles of design (name of the company)?
8. What are challenges and opportunities that emerging technologies (e.g. smart phones and computer tablets) brings to the (name of the company and specific department)
9. From a (interviewee's role/position) perspective, how important are forecasting trends and identifying unmet customers' demands?
10. How can design disciplines assist in forecasting trends and unmet customers' demands?
11. In your opinion, what are the major (social, technological and design) trends that impact on (name of the company and specific department)?
12. In your opinion, will these trends continue to drive the (name of the company and specific department) in the next five years?
13. If not, what might be the key drivers for this industry?

14. What are the future challenges and opportunities in the (specifically online) industry?

15. How can design be used to address these emerging challenges and opportunities?

• **Interviewee 2 – Interview transcription**

1) Rafael: The first question is: could you please briefly describe your roles and responsibilities at (name of the company)?

Interviewee 2: (Interviewee describes his position and roles. Also, it presents details of company's structure and number of employees of a given department).

Rafael: So, basically you were responsible to manage all this team?

Interviewee 2: (Interviewee provides further details about his roles). I was responsible for deliver a portfolio of products.

Rafael: Those products were more related to media, broadcasting or different?

Interviewee 2: Yeah, so an example of product might be the search experience across (name of the company) or it might be the (name of specific featured show/live event) or it might be the (name of the company/corporative) web site.

2) Rafael: According to your perspective what roles does design play in (name of the company and specific department)?

Interviewee 2: This is an interesting question... a large question.

Rafael: Take your time!

Interviewee 2: In my perspective, design is crucial in helping product managers and product designers to visualize and understand the future for that product... a potential future for that product that is placed on what audience needs are.

Rafael 2: So, basically design is helping this company in order to forecast these needs and to understand them?

Interviewee 2: There are different perspectives of what a designer does in an organization and for my perspective the designer should try to understand how the audience is likely to/want to interact with the product whether it is the Olympics' coverage or the search function and visualize how the product should be or how it might develop over time.

3) Rafael: I am sorry for this question, because at the time I didn't know that you left (name of the company) but according to your experience how design is currently managed within (name of the company and specific department)?

Interviewee 2: It's a time of change for (name of the company and specific department). In the last 18 months, design has become a central function. So, there is now one director... I think one general manager (name of a specific department) and I think that this is the first time in the organization that, in the recently history (that's being the case). Previously there has been individual design heads who reported to other parts of the business.

Rafael: Basically, now this manager concentrates all the efforts and all the other directors and managers report to this main manager now?

Interviewee 2: (Interviewee presents more details about the past structure highlighting processes and names of different sectors that integrates a specific department). So, it is centralized the design function. So, the designers work as a resource for product managers and product designers.

4/5) Rafael: At the time that you were at (name of the company), does this company aimed to offer to users the same experience across different channels, let's say broadcasting on TV, radio, internet (computers/laptops). Is it the same experience, the same level or for each channel there is a different approach?

Interviewee 2: There was perhaps a different approach for each channel. But again, more recently it has been more consolidated. So, what you see is, the experience across the (name of a proprietary product/function) is designed appropriate to fit the platform. So, you have a slight different experience on the full screen (name of a proprietary product/function) to website. But the overall experience on branding is the same across platforms and that was purposively decision. (Interviewee explains in details how this proprietary product/function works

across different corporative platforms emphasizing their names regarding the type of media/channel where it can be accessed by the general public).

Rafael: So basically, it is the same experience across different channels?

Interviewee 2: The experience is according to the device and there are constrains there as well. There are constrains in terms of licensing. For example, sometimes a video clip is made available for one platform but not to another. Its rights have been agreed in that platform and this is true in all media organizations and it is one of the biggest challenges that they have. Very often the owners of the rights sell those rights according to the delivery platform. For example, formula 1: they might have the rights of Formula 1 and sell them on the internet to one person and give them to another organization for broadcast. Movies that has just made say 'we found you having clips or trailers and play them on the internet because they generate buzz or enthusiasm about the forthcoming movie, but we are not going to allow you even if you broadcast the movie to have the movie on a repeatable catch up platform.

Rafael 2: So, you mentioned that considering different platforms you have this problem of licensing and the person, basically, that is developing, creating or selling let's say to (name of the company) , sometimes doesn't allow this company to fully broadcast across different channels...

Interviewee 2: That's right agreements. That's the way of how rights agreements are structured. People cannot necessarily offer exactly the same experience across all of the different platforms.

6) Rafael: Let's talk about more specifically to mobile phones and mobile communications. How can design create and deliver compelling experiences through a mobile phone, especially considering the approach of (name of the company) towards the mobile communication?

Interviewee 2: Humm... I don't know where they match. I was there to do cross-platform experiences. I didn't do that much on mobile platforms.

Rafael: Ah, ok, ok....

Interviewee 2: I can try to answer that...

Rafael: It is up you, if you just can try, it's alright, it wouldn't be a problem... anyway, so your experience is more related to cross-platforms, ok....

Interviewee 2: There are colleagues looking for delivering experience via mobile phones that I worked with and I was familiar with their work. An example might be audio & music, (name of the company) audio & music. Colleagues there are looking for delivering... look to what young people are doing which is sharing media content... and I did some research about sharing media, socializing media. That's how people discover media... A theme that we came up quite often is, sometimes the rights frameworks, for example, rights for music radio are different to the rights for talk radio. Some users may expect to be able to listen to the radio and/or (name of specific radio station)...

Rafael: I am sorry, could you just repeat please, because I was just.... I was focused on.... I am really sorry for this. So you were talking about music...

Interviewee 2: Music rights are different depending on the platforms.

Rafael: If these rights of music for different platforms are different, it is possible to say that for each platform there is a specific target and segment?

Interviewee 2: No, this is not specific. There is no audience segment that says that only people of this age will use or only if it is fit to use in a mobile. What we do is trying to understand how young audience has been using platforms to send music to each other, to share clips, to play music on the bus. But in terms of what we developed as a product, that's where the rights constrains came in. And this is a... the rights frameworks, rights licensing is one of the biggest hurdles that as a designer working for a media organization comes across. Because when to talk about, you talk with about their experience... sharing clips and this stuff, very often, the rights theme comes into play for the discussion. Media is just free, to younger people, it is just free... you get by Bit torrent or Limewire or whatever means, there is no cost associated to media; they expected it to be free. I think that this, actually, this is what drove, a few years back, Nokia to come up with that 'Comes with music' proposition for the mobile products.

Rafael: The Engage, the one with a video game?

Interviewee 2: No, they packaged up the theme 'Comes with music'. That was the proposition. Because they (Nokia) have done some research into how young people were using media on mobiles. They realized that they (consumers) expected music to be free. So, they packaged up as a proposition. Nokia allows you to get what you want.

Rafael: This is a very interesting aspect, because at the same time we talked about rights for a specific product delivered through a platform and in the other side, in the costumers' perspective they don't want to pay to listen [the music/media content] for the first time. But if they have to pay, probably... they would pay? That's my point. Because they want to enjoy the experience a bit...

Interviewee 2: If I understood, they will pay for added value...

Rafael: Let me give an example. You just come here with a mobile phone and you say 'Rafael, I just downloaded this music and you have payed Apple store and you listen [the downloaded music]. But I am not paying to listen to this [music]. You are just sharing with me as you said before. Then I say 'this is nice. Can I copy it?' Again, I am not paying the rights anymore. Later, this music will be on my mp3 player and in somebody else. Maybe I like so much this music that I will buy the CD of that artist. So how does the 'rights managements' comes into play?

Interviewee 2: Well, it contradicts what people want to do with media. Sharing media is free, you know. The way that people perceive it is: I have got this [file] and if I think you might like it, I will share with you. But the way that rights agreements and frameworks are structured is if I share it with you, you have to pay some money. That's what I am saying, this contradiction inherits in all media companies and developing and designing products that meet people needs for those media companies.

7) Rafael: In your opinion, what should be the future roles of design at (name of the company)?

Interviewee 2: I would like to see it getting more involved in strategy. I think that (name of the company) is unique and it has the ability to develop products that people don't yet know that they want.

Rafael: Develop products...

Interviewee 2: Develop products that they yet don't know that they want. What makes (name of the company) unique is these products don't have to make money at first; whereas, often you find a commercial organization system that a product has to make money quite quickly otherwise it gets concealed. For example, I worked for (name of interviewee's previous employer/firm) before [working for] (name of the company) and there the products have to make money quite quickly.

Rafael: Considering this approach, what is that amount of time [expected] for the return of the investment for like a product displayed on the internet that reaches millions of people almost immediately?

Interviewee 2: Where?

Rafael: How long is expected the return of investment in developing this kind of product?

Interviewee 2: (interviewee mentions the name of the past two companies that he worked for)?

Rafael: At (name of the company).

Interviewee 2: There is no return of investment. (name of the company) can make products that only few people love because it remits to serve all audiences. Whereas a commercial organization, can't make products that only few people love because they might not be much successful; they may not make enough money for the company. So, the chef executive (CEO) and the shareholders, looks down the list of things that the company is making and they say 'why this company is making this product if only a couple of people is using it?' and this product is cross out of the list quite quickly. So your question is: what makes (name of the company) unique?

Rafael: No, what should be the future roles of design at (name of the company)?

Interviewee 2: So, I think that it should use design to innovate and add new products and experiment. I don't know now if it does or not and I wonder if they are becoming more commercial or something in that sense.

Rafael: So, making products more commercial?

Interviewee 2: It's not making the products more commercial, it can't be. It's an approach to product development becomes more commercial... and there good and bad thing about it. The good things about that it make things more accountable. Where it is spending its money. And the bad thing is that it becomes less innovative, perhaps. Or less willing to take risks.

Rafael: In that case, how (name of the company) checks and evaluate if a specific products becomes a success? It is the number of downloads, the number of viewing or..?

Interviewee 2: Yes, all those. For example, (name of a proprietary product or function) is very carefully monitored and how many people are watching programs, how many downloads and the viewings.

8) Rafael: In terms of future trends, what are the challenges and opportunities that emerging technologies such as smart phones and computer tables bring to (name of the company and specific department) in your point of view?

Interviewee 2: From my perspective, it seems that (name of the company) is perhaps less willing to take risks to develop.

Rafael: So these are the challengers?

Interviewee 2: Yes. And the opportunities are... The main one I guess is the ubiquity of the experience of the organization. We can be sat here and I can say 'there is a program broadcasted on the radio or tele and I pick up my phone and listen to the (name of a specific radio station) and.... I think, I think some of the opportunities for new technologies come in perhaps... New technologies make things easier to do than they were a couple of years ago. So, an example is one of the government's aspirations is to bring hard hearing audience online. An example is: my wife's mum never used a computer because she never got... it scares her. But if you put an iPad in front of her, she can start playing with that.

So, as technology becomes easier to use, that opens up services like (name of a proprietary product/function) to her. She will never go to a computer again to listening (name of a specific radio station). But she loves (name of a specific radio station) and she may pick up an Ipad to listen to (name of a specific radio station).

Rafael: Basically, because of the change on how the customer interacts with product, it can make easier for the customer to have a completely new experience that he wasn't able to have before..?

Interviewee 2: So, (name of a proprietary product/function) is there and it has been around for a few years now but it hasn't been accessible to my wife's mother. New technology makes it more accessible to...

Rafael: So, you are talking about this specific case that is your wife's mother, that she is not a very young person anymore, I believe... In here we are talking about a very unique and new product addressing a person that... as you said before, she is scared about technology, but she can reach it very easily. When you are developing contents for a specific platform or media you have to consider different approaches for different targets and segments let's say, young people or people with some kind of disability (ex. hard hearing) or people that don't have any experience with technology. There is a concern at (name of the company) to deliver these experiences to all of these categories or segments through different channels?

Interviewee 2: Yes, that's the part of the organization remits: try to make it available to all.

9) Rafael: As (interviewee's role/position), how important are forecasting trends and identifying unmet customers' demands?

Interviewee 2: I have to say that's really important. Sometimes the organizations can be a little more conservative rather than looking ahead, looking what else is going on now. So, rather than anticipate what people might need for products, it tries to say 'what is everyone doing now?' For example, social media. Everyone now has Facebook, so stick a button on the products to make it socially enable rather than saying 'why is the social media relevant or important? What parallels can be draw and how we can develop a product?

Rafael: So you are telling that the organizations are looking to the market right now considering a very short-term [consumer] need or trend and they are not thinking ahead in terms of benefits and value that they can bring to the customer?

Interviewee 2: Yes and because these products take a while to be developed, it means that you are always behind the curve and when somebody else comes with a new feature, you have to put that thing on. Then, the product becomes messy has too much stuff on.

Rafael: So that's the reason we see too many 'me-too' solution in the market.

Interviewee 2: That's because of the speed of how technology develops. I am afraid of that many people say that very shortly e-mail will become obsolete because the way that people communicate now is via social networks, via messenger or via twitter. E-mail is becoming obsolete

Rafael: But this leads to important thing, at least for me, if you twit or you just drop a new status in the Facebook, at least as a user, it has an expiring date since it will last for some hours or days until you do it again [update your status]. While an e-mail, for me, it works, for me as a 'picture' but with letters. So, if I look back to [an old] e.mail, one year ago, I was doing this, I was doing that. There is kind of a more strong feeling embedded in this kind of thing. I don't know what do you think about this... it's kind of 'instant'... a thing that I had in that moment. I can just drop down a twit right now and say: 'I am having an interview with Mr. (name of the interviewee) right now' and half an hour later [I can say]: 'the interview is over'

Interviewee 2: It's dropped off!

Rafael: It's dropped off! In an e-mail you have the sense of... kind of more...I don't know, it's a sense of property, or belonging... something that lasts more.

Interviewee 2: So, the analogy is that there is a difference between being able to download a piece of media or just listen to a track on the radio and once it is finished, it's gone.

Rafael: Yes, yes, that's it.

Interviewee 2: But if you bought the album, you can keep it, you can refer to it and you can listen to it.

Rafael: Yes, that's my point.

Interviewee 2: But, if I pull out my phone and look to the conversations that I had, there is a track. So, I can look back to it and it has the same thing. This was an instant communication but, it has a sense of, you know... the timeline still maintain them. Do you what I mean?

Rafael: Yes, ok. I see your point.

10) Rafael: How can design discipline assist in forecasting trends and unmet customers' needs, according to your perspective?

Interviewee 2: By working together with researchers... to illustrate how these (users') needs may take shape and be delivered. So, designers illustrate...or they create the future by what they do. I read a lots of statistics were people said that 'designers are just problem-solvers' and that's true. But, very often, the problem is presented by the people that say that. The problem is presented by the client: 'we have a new piece of technology that we have designed and we need to make an interface for it.' That's the problem of the designer, representatively. But you can also consider that designers are problem-solvers in a in a long term. So, you identify what people are struggling to do now and make easier for them to do in the future.

Rafael: In a broad perspective, this is the role of a designer?

Interviewee 2: Yes, that's design. So, I think that there are 2 perspectives on design and it depends on who wants the designer to be a problem solver. [First:] designer is a problem solver if there is a piece of technology that has been developed and the designer can develop an interface to fit that technology into it. That's one perspective. And that, perhaps, is the designer in an agency. [He] is often in that situation. The client comes to him and say: 'make me this, design an interface to go with my thing.' Then, from other side is ... having no idea of what people will want to do. So, [the designer] looks how... what products need to be developed to meet those needs. Understand what these needs are around/in

specific space and then look what products could potentially be developed to meet these needs. So, I think that, from that side, it is about more service design side of this [design] discipline, product development side and industrial design, perhaps. On the first side, you see, perhaps, more of web design agency, I don't...

Rafael 2: So, basically... I am sorry if I am wrong, but can I understand that in the first case, the designer is using a limited amount of skills and creativity just to deliver a solution that a client needs for a more specific...

Interviewee 2: For instance, [client]: 'We have created a product because of these features. Make an interface that suits these features.' The second is this: 'Try to understand what people are doing and create a product that helps people do that better or make it easier for them to do it.'

Rafael: So, in the first case it is a more short-term approach while in the second case, it is a long-term approach.

Interviewee 2: Yes, maybe. But both of them [designers] are problem-solvers.

Rafael: Both of them?

Interviewee 2: Yes, in both of them designers are problem-solvers.

Rafael: So, in there, they [designers] are focused on products and here, they are focused on customers?

Interviewee 2: Maybe. But, I really didn't say that...

Rafael: Here we can say that the designer is working as...

Interviewee 2: ...App (application) strategist, developing products, developing how the organization is going to approach something. Here, the designers (*inaudible due too loud background noise*) the lead with strategy. Because strategy is 'we have got a faster technology and we need, I think, a craft person to put all together in a interface with that technology'.

Rafael: In the first one?

Interviewee 2: [Agree].

Rafael: So, in here we can say that the designer is kind of working as market researcher and maybe a future forecasting somehow?

Interviewee 2: Maybe it is branding and strategist comparison more. Maybe this is more about developing interfaces.

11) Rafael: In your opinion, considering your experience at (name of the company) what are the major social, technological and design trends that impact on the (name of the company and specific department)?

Interviewee 2: I guess that we have talked about this. So, it is being able to meet up people expectations, what they can do with ubiquitous media and the needs of right holders to make money out of that contact. Can you repeat the question?

Rafael: In your opinion, what are the major social, technological and design trends that impact on (name of the company and specific department)?

Interviewee 2: I guess that, also, another one is social broadcast. As you can see, recently, there are lots of concerns about the ferocity of tweets and how... It has been lots of tweets about media organisations right? Media organisations, if they broadcast something that may help them to be accountable, whereas something that appears on twitter there is no accountability. So, I think that there is a big debate, discussion about that. Perhaps, this represents an opportunity for media organisations to gain some ground and recapture that grown as providers or content developers.

Rafael: I am sorry, I didn't get your point when a company starts to count a specific product is placed on tweeter...

Interviewee 2: No, no... this is about media. How technology is affecting media and not product design.

Rafael: Ok, ok.

Interviewee 2: So, it is about media and technology in a broad sense. Because the question was: what is the impact of major social technological trends on (name of the company).

Rafael: Yes. Do you think that these trends will continue to drive (name of a company) in the future or...?

Interviewee 2: (Interviewee informs that the insights related to this question and the follow up related questions contain sensitive information that he do not want to disclose). The key points can be summarised as follows:

- Conducting user research is expensive and hard involving risk;
- Benchmarking what other companies are doing is faster, cheaper and less risky.

Rafael: But do you think that there is space for innovative thinking?

Interviewee 2: Yes, I think that there is, but it's hard; very, very hard to do. It's very hard to be successful. There are so many competing factors... timing, opportunity... All those things... everything has to be like...

Rafael: Aligned in the same time?

Interviewee 2: Yes, aligned in the same time! Often, people tend to say exactly why it is successful. It's because it has the guy on the top as sponsor, right? He is everything.

Rafael: Then, we have the creation of icons such as Steve Jobs and so on...

Interviewee 2: (Interviewee makes further comments about the sensitive topic that he addressed previously.)

Rafael: Ok.

Interviewee 2: (*inaudible due too loud background noise*), like the circles...

Rafael: Ah the story...yes, yeas, I remember, I remember... ok... Interesting, I have never thought that the market was so wild... so much! I am sorry for my English!

12) Rafael: The next question is... so those trends that you mentioned before, do you think that they will continue to drive (name of the company and specific department) or they will change over time, at least in the next 5 years?

Interviewee 2: I don't know actually... I don't know what is going to drive...

R: Do you think that they will evolve, they will stop or there is a new event or technology that will come along the way...?

Interviewee 2: Well, there always will be a new technology. That face of change will never complete without the use of technology. How it affects or how it will continue to affect media organisations, I am not sure, I don't know. I guess that we have to wrap up for here...

13) Rafael: Alright. So, considering (name of a specific department) what do you consider that are the key [future] drivers for this industry? Are those that you mentioned before?

Interviewee 2: What are the key drivers in the industry? The portfolio... The need of have delivered products. So, I think (name of the company) may experience an overlook in service design. What I have seen there in the last few years, it's a shift towards product design focus in shaping products.

Rafael: So, from experience to products?

Interviewee 2: Well, from service to products.

Rafael: So, this was the shift that you spotted there?

Interviewee 2: Yes, and I am not sure if I agree with that [the shift from service to products].

14) Rafael: What are the future challenges and opportunities in this specific industry, media industry?

Interviewee 2: It sounds a lot what we have talked about... we talked about this earlier.

Rafael: So, it is similar? Ok.

15) Rafael: Finally, the last one. How design can be used to address these emerging challenges and opportunities?

Interviewee: I guess that we have talked about these points as well... Design work in either two ways: to identify unmet needs and the create products or services to fill these unmet needs or it can be used in services that looks to the interfaces of the technologies that has been assembled. Have seen... it's increasing... the technology is driving the product.

Rafael: So, if the products are made for customers, it's not customers that are driving the technology; but the technology is driving customers...?

Interviewee 2: Yes! I wish it wasn't that way. I wish that design was driving products. I hope that it was useful.

Rafael: Sure! I really appreciate! Thank you very much for your valuable time and insights!

Interviewee 2: No problem, thank you.

1.1.3 Interviewee 3 - Questionnaire and interview

1. How can design help to improve users' experience with their mobile phones?
2. In your opinion, what design tools can be employed to build a compelling mobile phone user experience?
3. From your perspective, how important are forecasting trends and identifying unmet users' needs in the wireless industry?
4. How can design discipline assist in this task of forecasting trends and unmet customers' demands?
5. In your opinion, what are the major (social, technological and design) trends in the current mobile telecommunication industry?
6. In your point of view, will these trends continue to drive the industry in the next five years?
7. If not, what might be the key drivers of the mobile telecommunication industry?
8. Recently many companies from the computing industry (e.g. Microsoft, Apple, Google) are penetrating strongly in mobile telecom industry offering different products (e.g. handsets and OS). What are the major challenges and opportunities that these companies (and their products) bring to the telecom industry?
9. In your point of view, how can design assist in the task of creating it a compelling user experience through Operational System such as iOS, Android and others?
10. Mobile Applications have been making a revolution in how customers interact with their gadgets. How can design help in enhancing the interaction between end-users and these products (apps)?
11. In your view, what are the future challenges and opportunities for these products?

12. The most recent disruptive innovation is Apple's iPhone. In your opinion, what will be the next disruptive innovation/ technology that will rule the next generations of mobile phones?

13. The emergence of computer tablets has major impacts in the mobile telecommunication industry. In your opinion, will they be a bridge between mobile phones and laptops?

14. What kind of experience these devices can deliver to customers that are different from mobile phones?

15. From your perspective, what are the future challenges and opportunities in the wireless industry?

• Interviewee 3 – Interview transcription

Rafael: So, just as an introduction could you please tell me your position and your responsibilities at (name of the university and position)?

Interviewee 3: (Interviewee introduces himself including roles and position within the department/institution that he works for).

Rafael: In your department or overall?

Interviewee 3: Overall for our department.

1) Rafael: Okay so let's begin. The first question is how can design help to improve users experience with their mobile phones?

Interviewee 3: Well I think something like human centred design can help users experience with their mobile phones because that puts the user and their requirements at the centre of the design process. So, in that respect human centred design is very important to users experience with mobile phones and applications.

2) Rafael: Moving onto the next, how can design discipline, in your opinion... What design tools can be employed to view their compelling mobile phone user experience?

Interviewee 3: Well again it depends on you know are you talking about, you know prototyping tools are, you know, high fidelity prototypes or low fidelity prototypes?

Rafael: Well, I am, basically, focused on more on the product itself, yeah the final product.

Interviewee 3: Well, I would say, obviously, things like android have shown that people can have a compelling mobile phone user experience and I think I saw somewhere recently that sort of android applications are taking over from iPhone applications but I am not sure how true that is. But I think you definitely need more than one platform because not everyone will be able to afford to buy an iPhone for example. Okay, number three?

3) Rafael: From your perspective, how important are forecasting trends and identifying users' needs in the wireless industry?

Interviewee 3: I don't actually know a lot about forecasting to be honest... I don't know a lot about it, but also, I think it is important but also as you will know from your own reading for your Ph.D., people's use of technology is quite organic as well because people end up using it in ways that no one envisaged. And I don't think that's something that can be picked up quickly by forecasting trends, you know? For example, if you look at sort of political recent events, you know, people have used Facebook; their mobile phones to organise themselves to go to demonstrations and things like that. So, I am sure people in the forecasting industry wouldn't necessarily have had that in their sights, I may be wrong though...

Rafael: So, basically, it is most related to mobile service?

Interviewee 3: Yeah...

4) Rafael: How can design discipline assist in this task of forecasting trends and customers' needs?

Interviewee 3: I don't really know actually. Again, only by looking at and observing the way people use the technology. So, if, you know, mobile phone companies or marketing organisations can do everything to win and, you know,

conducting some longitudinal studies to observe different aspects of sort of mobile technology use to make an idea of how people are using technology.

Rafael: So, I can consider that is more like a 'human' approach; it is like some kind of ethnography?

Interviewee 3: Yeah, if not... Ethnographic, yeah if they saw it yeah definitely.

5) Rafael: In your opinion, what the major social technologically designs trends in the current mobile landscape? (6. In your point of view, will these trends continue to drive the industry in the next five years?; 7. If not, what might be the key drivers of the mobile telecommunication industry?)

Interviewee 3: I think, well, I think two areas are important or probably get more important. One is education; the other is healthcare.

Rafael: How these do work?

Interviewee 3: I think in terms of education, you see that people use mobile technology to access the internet and social media sites like Facebook to engage in informal learning practices. I think it will be good for institutions like schools and organisations, companies to look at this to see how they can... For example, from an education perspective, how they can incorporate some of these methods into their teaching and delivery of subjects and also the companies in relation to continuing professional development courses. Obviously for things like health care, lots of people have been able to, you know, maybe use their mobile phone if they have got diabetes to check, you know, what their glucose level is like they could use their mobile phone as an alarm, you know, informing if they have got problems. Also, it is useful for the hospitals themselves, doctors and nurses are moving around seeing patients, they can record their information into a mobile application and it gets stored on a central server that is, you know, sort of patients records. I think, I think these will be important, you know, in relation to your question six and seven I think these are the ones that will I think will be important over the next five years.

Rafael: These will be the the....

Interviewee 3: It's just my opinion.

Rafael: Okay, sure. Is there something that you would like to add or do you believe these two will be the drivers of the industry?

Interviewee 3: I also think that people will maybe look at gaming... Gaming could become more important as well in relation to education in particular.

Rafael: So, involving the customer in a more persuasive and easy ways to inform and educate them?

Interviewee 3: Yeah, to educate especially in an educational context, you know, like schoolchildren.

8) Rafael: Ok. Recently many companies from the computing industry like Microsoft, Apple and Google they have been operating strongly in the mobile telecom industry offering different products such as handsets and mobile operational systems. What are the major challenges and opportunities that these companies and their products bring to the telecom industry?

Interviewee 3: I think the opportunity is that they offer people choice, you know. You just don't want to have whereby... you have one kind of operating system dominating the mobile handset, you know, in terms of you know android or iPhones because you have to remember, you know, that not everyone can afford these smart phones. And I think that's in relation to that I think one of the major challenges for companies in relation like Microsoft, Apple and the telecoms companies themselves is they have got a bandwidth problem.

Rafael: Bandwidth? How come?

Interviewee 3: Because the people are using their smart phones to access YouTube, you know, BBC I player and things like that and that uses up a huge amount of bandwidth and what you might find is that, well, you have seen it... O2 have started to charge people they offer packages people accessing the Internet via their mobile phones, you know, in terms of how much they can download and things like that. So, I think they have got a problem, a technical problem in terms of if you really want to develop the mobile application industry you have to look at the bandwidth problem, how you going to solve that? Because they already,

they are talking about you know, you know... Similar companies are trying to... You see, the major players are trying to amalgamate, you know, like say Orange and T-Mobile are joined together now, you know, to use the bandwidth...

Rafael: So, do you believe that after they overcome this problem what kind of service can we expect...? Because this is a technological issue; so, sometimes one company develops one standard and because of the whole market doesn't follow it immediately, they have to wait, but this is already published in the media and the customers have this in mind in that I want to do this but unfortunately I cannot. So after they overcome this problem what kind of service can we expect?

Interviewee 3: I think, if they can overcome that problem. People will then expect to have the same Internet experience to your mobile application as they do with their laptops and fixed PCs, you know, they expect the speed of access to be the same they don't want the same connection problems. But again, because you are mobile you're always going to have some connection problems. It is like, you know, when you are on... If you are using one of these satellite navigation systems, tom-tom, you can be driving and the GPS system loses the connection, the signal to the satellite and it goes quiet; so, you're always going to have connection problems to an extent. It's just again getting that changed in people's minds to accept it and what is an acceptable level of...

9) Rafael: Number nine. In your point of view, how can design assist in the task of creating a compelling user experience for operational systems such as the IOS and the android that you mentioned before?

Interviewee 3: I think again this relates to what we were saying right at the beginning with number one. I think, you know, if you take a human centred design approach that can offer people a compelling user experience. Again, in my opinion, you know, I think it is always the user has to be the centre of any design process and so in that respect design can, has got a lot to offer.

10) Rafael: Next one. Mobile applications have been making a revolution in how customers interact with their gadgets, how can design help in enhancing the interaction between the end-users and these products?

Interviewee 3: Again, I think it's, I sound like a broken record, sorry, Rafael...

Rafael: No, it's okay...

11) Interviewee 3: I think that is what it is you have to do, you know, understand, you know, what people want, you know, what's the context that they are going to use these applications and how can you give them a good experience. Again, taking a human centred design approach I think, it offers them that. And then in relation to number 11 (the question is: In your view, what are the future challenges and opportunities for these products?) In your view what the future challenges and opportunities, I think there is a lot of opportunities as I have said in relation to what we have spoken about in question five about, you know the social and technical trends in the future what the challenges are. They need to overcome these technical issues in terms of bandwidth, but they also have to in my opinion adopt a human centred design approach you know if you want to look at forecasting they should take a graphic approach to find out how people are using it, how they would like to change the technology.

Rafael: So, considering this do you think that, the market drives what customers' needs all the customers' needs drives the market?

Interviewee 3: I think by and large a lot of times it is the market drives, you know. They tell people what they need, you know. For example, I have done quite a lot of work for the different mobile phone companies like (interviewee mention distinct names of companies), you know. Sometimes from a marketing perspective they do put out these things like you know our pay-as-you-go contract and you can get 5 MB data per month, but we asked some users, customers what did that mean. And a lot of them did not understand the technical jargon; so, they were pushing all these technological benefits whereas people didn't really understand it. And I think the problem for mobile phone companies is that, fundamentally, people think they are getting ripped off because if you want to use any of these smartphone applications, you know, you have to sign up to contracts that are 18 months or two years. So, although they are pushing it, people still think they are not always getting good value for money, but the flipside is now, people. A lot of people do shop around, you know, like if they were talking about market segmentation you get people, younger people who are really interested in

technology, they will go round, go online and shop around and then choose the best deal for them.

Rafael: Basically it's like... is it possible to assume that those services that are... these (the names of the companies mentioned before by the interviewee), they are offering a 'market basics'. Basically, it is just to compete with other competitors, not only to give the best experience to the customer...?

Interviewee 3: Yeah, it is a very competitive field because, you know, these companies when they paid for their 3G licences, they paid over the market odds for them; so, they are having to re-coop their money. So, there's obviously for them the idea is always to have a big technological push and if you think about it and from my experience, what I have seen is, you know, you were talking about design tools and things like that, if you go to different companies from some of the research I was doing and we were talking about a new product design and things like that. At the table, we had the HCI people, we also had the salespeople, and they had a big impact on sales and marketing had a big impact into the design process saying well you need to... We said this product was going to be launched in the third quarter of this year; so, we have to make sure that it goes out. But, that might mean that you don't do the proper background, you know, design development, you know, in terms of building a rough prototype, evaluating it, you know iterative design, making the changes like that so it's.....

Rafael: So, it's kind of a designing, the product development... they are hostage of marketing and sales?

Interviewee 3: I think they are, definitely. Just from what I have seen you know.... I think, I can see what the problem is, They don't, because it is such a fast-moving market. They don't have the same luxury that we do, say when we are doing our HCI research, you know, we can have an idea, you know, use cards and sketching, build a prototype, test it, we design it, you know, and that could take six-month period. These guys they don't have, they really don't have that luxury, you know. Because they are watching their competitors and their competitors are firing out new applications. But they are also quite smart because companies like (name of a company) and things like that, people would send in ideas, you know,

about how to develop apps and send them in and say what you think of this? And so, a lot of the time the creative work is getting done elsewhere.

Rafael: So, it is a free benchmark?

Interviewee 3: Yeah exactly.

12) Rafael: Okay number 12, the most recent disruptive innovation is the Apple's iPhone. In your opinion, what would be the next disruptive innovation or technology that will rule the next generations of mobile phones?

Interviewee 3: I don't understand what you mean by disruptive?

Rafael: Well, considering my research, it seems that the mobile phone industry was in a continuum, but this particular company, Apple, that it's not originally a telecom company, made a product that they said it was a mobile phone and, basically, it started setting all the trends and standards in the market.

Interviewee 3: Right, it was like a real quantum shift.

Rafael: Yeah that's my point! So, my question is that since this is the kind of, the peak, what will be the next big thing in this industry? It can be more than one or a combination of different factors?

Interviewee 3: I think it will be, and mean I know they do it already in places like Holland, I know that people with their phones with money. I think that that could be, you know, in terms of maybe an application, you know people using their phones...

Rafael: As a mobile wallet...

Interviewee 3: As a mobile wallet, I think that could be But again, I think it is really, really hard to predict because, you know, you think what are the things that people use that... I mean, if you were, you know, involved in marketing with the mobile phone companies, you know, the big sellers are obviously downloads, you know, music downloads and entertainment, using things like that. So, you would, probably, think it could be something along those lines.

Rafael: So, okay. So, basically it's going to be more related to mobile commerce?

Interviewee 3: Yeah I think definitely mobile commerce. But, what is quite interesting... I was reading this guy, I can't remember his name, in America, he was saying that in about 10 years' time, he reckons that people will be changing their name by dead poll because of all the personal information that people have thrown up on Facebook and things like that they will be... So, they will not want to be associated. And, again, I think you get things like more sort of social media, you know, through the mobile phone will come up.

Rafael: It is interesting because now we have a big shift saying that at least in the developing market, it's people using more and more social media and it seems that in the future we're going to have more technology, easier access and people will be hiding more themselves because they are afraid of, they are concerned about their privacy and personal data online.

Interviewee 3: And, also what is quite interesting is, you know, seeing the developing countries, you know, you have places like, say the Sudan and Jordan, they don't have a great landline network; so, they have invested heavily in Wi-Fi, broadband and things like that. So, they will be you know, really embracing mobile sort of technology that way. (Interviewee describes details of a past research/project conducted in a given country/market to address particularities of wireless communications. Due to its sensitiveness this information cannot be disclosed).

Rafael: That's interesting! So, basically, again, it's going to be everything related to more social issues, yeah?

Interviewee 3: Yeah. When you think about it just now, say, in Libya, people, the rebels they are using you know social media, mobile phones to coordinate their activities.

Rafael: A question that comes to my mind, if they don't have the Facebook, how can they organise themselves in Egypt, in Libya in Tunisia and those places?

Interviewee 3: Yeah, I think it's or even in Britain. I mean, they had these, say the student demonstrations and you had UK Uncut, you know, they organise themselves just through text messages and things like that. So, I thought that's quite a good idea. Having said that, I do think that things like twitter are

completely pointless that's an example of a technological push that has been really hyped up from marketing, you know, it doesn't really give you anything that you can't do in a text message or MSM or messenger. It's just something that's been really forced upon people and it is very clever marketing because people say: 'ah, you know, I can find out what this celebrity had for his breakfast and things like that', But, you know, it's completely pointless, but again, you know...

Rafael: Of practical value, you mean?

Interviewee 3: Yeah, yeah.

13) Rafael: The emergence of computer tablets has major impacts on the mobile telecommunication industry. In your opinion are they a real bridge between mobile phones and laptops and desktops?

Interviewee 3: I think so. I mean, if you look around, if you go down any high Street and you look in the mobile phone operators like Orange, Three, T-Mobile, you know O2, lots of the deals that they give people now for smart phones they also give them for these notebooks..... So, they have, obviously, made the connection because they know people still find it difficult accessing certain types of information from the Internet on their mobile phone and it's all about this, you know. You are going from a PC screen that size to one on your mobile handset, you know, there are design issues there in terms of information complexity, navigation issues and things like that. So, there's, you can see that they are trying to straggle both markets, but also, it helps them in one respect as well and that is because they still offer the mobile broadband dongle and things like that..

Rafael: Ahhh....

Interviewee 3: So, they offer you a mobile, they give your mobile phone, a smart phone because they want you to have the best phone. But they also offer you this idea about having a tablet and perhaps the mobile broadband because that helps them out as well because of this broadband issue.

Rafael: So, basically, they are giving more options to the customer..?

Interviewee 3: Yeah, but they profit from it.

14) Rafael: All of them of course... Okay, what kind of experience these device such as tablets can deliver to customers that are different from the mobile phones and other smart phones?

Interviewee 3: I think just, actually, in relation to what I said, in terms of the, you know, people might find it easier to navigate on the Internet due to having a larger screen, also for what might be a benefit to some people is the keypad's bigger... And also, there might be faster download speeds when they do want to download, you know, music or films or clips, video clips.

Rafael: But considering this last issue that you raised this may be because of these devices they can, they have more powerful processors and technology...

Interviewee 3: Yeah. Again, you know people talk about the processors are getting quicker all the time. Obviously, and then they talk about nanotechnology, how you could, you know, nanotechnology could have an impact on this, which would obviously help mobile phones.

15) Rafael: 15th. From your perspective what the future challenges and opportunities in the wireless industry in general?

Interviewee 3: I think we kind of touched upon those in sort of question 5? You know, in terms of education, healthcare, but I think, again, there is sort of connection and the speed of access. And also, I mean, no one really knows, but we'll find out for another 20 years is healthcare in terms of health care of the users. I mean, what are the effects of people using this type of technology, you know, your mobile phone, you know, that yourself... When you talk on your mobile phone for more than a couple of minutes you can feel your ear getting warm...

Rafael: Yeah, yeah. I completely agree.

Interviewee 3: There is that, you know, you get these sort of microwaves and everything through your head, there is also, you know, about Wi-Fi, you know, no one really knows if there is going to be any long-term health issues associated with that... I think that will be a challenge to make sure that has to get sort of monitored properly. You know, like things, like the men shouldn't have their

mobile phone switched on in their pocket or have their laptop on their lap because of testicular cancer and things like that is what people say, you know. There is not a proven link but some people say there could be a danger.

Rafael: So, basically, the challenges are more related to health issues?

Interviewee 3: Health and technological issues.... And design can begin particularly a human centred design approach, you know. Again, you mentioned it yourself, like taking an ethnographic studies, doing healthcare studies as well. Again from ethnographic perspective you will see how people are adapting the technology to their own needs and, you know, the designers see people are using this. It is their job to see how they can come up with a redesign that meets the way people are using the technology now and, you know, to design the devices.

Rafael: Okay that's fine

Interviewee 3: I don't know if that is any use for you Rafael?

Rafael: No, I think it was really nice. I am trying to conduct some more exploratory interviews because of, since my research is related to... I have to develop a framework, a design led, a design led framework for future forecasting. So, basically, I am trying to collect, I mean the biggest amount of information that I can have and try to match it with what kind of tools designers and people related to mobile phone industry use to understand the customers and address their requirements. Anyway, thank you very much for your time and ideas.

1.1.4 Interviewee 4 - Questionnaire and interview

1. Which areas does design current contribute at (name of the company)?
2. What would be the future roles of design at (name of the company)??
3. From a (interviewee's position) perspective, how important are forecasting trends and identifying unmet customers' demands?
4. How can design disciplines assist in forecasting trends and unmet customers' demands?
5. What tools does (name of the company and specific department) currently employ to identify unmet customers' needs?
6. Can these user research tools also be applied to track and forecast trends effectively?
7. If not, what methods and tools does (name of the company) use to track emerging trends in the market?
8. What kinds of tools are practical from a (interviewee's position) perspective?
9. In your opinion, what are the major (social, technological and design) trends in the current mobile telecommunication industry?
10. In your opinion, will these trends continue to drive the industry in the next five years?
11. If not, what might be the key drivers of the mobile telecommunication industry?
12. Recently many companies from the computing industry (e.g. Microsoft, Apple, Google) are penetrating strongly in mobile telecom industry offering different products (e.g. handsets and OS). In your point of view, what are the major challenges and opportunities that these companies (and their products) bring to the telecom industry?

13. Recently, Nokia announced a partnership with Microsoft. As a result, the Windows mobile OS will be embedded in all Nokia handsets. What kind of challenges does this partnership bring to (interviewee's company)?
14. Today different handset manufacturers are offering products embedded with different OS. For instance, (name of the company and partners' software). What is the main objective for (name of the company) to use this approach and what kind of value these products deliver to customers?
15. The emergence of computer tablets has major impacts in the mobile telecommunication industry. In your opinion, will they be a bridge between mobile phones and laptops?
16. What kind of customers' demands does this type of device (tablets) aim to address?
17. What are the future challenges and opportunities in the mobile telecom industry?
18. How can design be used to address these emerging challenges and opportunities?

• Interviewee 4 – Interview transcription

Rafael: First of all, could you briefly describe a bit of your background and your roles here at (name of the company) and your position?

Interviewee 4: (Interviewee introduces his background, position, responsibilities and roles in the company that he works for).

1) Rafael: Ok. Let's go for the first question: Which areas does design currently contribute at (name of the company)?

Interviewee 4: All areas, all business areas. (Interviewee introduces business departments/sectors and line of products). The key points can be summarised as follows:

- Design is heavily involved in all of business areas of the company.

Rafael: So, you could say that design is a very special tool and component in all (name of the company) business?

Interviewee 4: Yes, that's right.

2) Rafael: So, what would be the future roles of design in (name of the company)?

Interviewee 4: Currently, we are very much product focused and we started to initiate user experience based product. So, inside and outside, both are becoming very important. Therefore, we no longer call ourselves as product designers, but a user experience designers. So, even product designers have to know how it operates and UI designers or UX designers, also, must know how physically they have to bring it to the market. So, we combine ourselves as inside/outside designers. So, I think that for the future, (name of the company) needs to initiate innovation, based on user experience and not based on the product innovation.

Rafael: Hum-Hum, ok.

3) Rafael: From a (interviewee's position) perspective, that is your current role in here how important forecasting trends and identify unmet customers' needs?

Interviewee 4: It's very important. It's because (name of the company) always seek innovation in the near future not in long term future. Near future means 1+2 or 1+3 [years]. So, if you consider 1+2 or 1+3 years, then, definitely, forecasting trends is important. Because you need to forecast just 2 years, 3 years ahead; you re not going to forecast 5 years in the future; just what is going to come up in the next year or 2. So, you have to be very careful on trends. Sometimes, not to follow a trend, but create a trend. That means that you have to know the [current] trends in order to create the [future] trend. Therefore, forecasting trends is very important. Also, trend is composed by several elements. Technology is one point, market, industry. But, one important element is consumer and finding out customers' demands and needs is very important. We call it 'consumers' insights'. Analysing consumers' unmet needs and understanding [them] deeply, we always develop consumers' insights about their needs. So, both trend forecasting and finding customers' unmet needs are very important.

4) Rafael: How can the design discipline assist in this task of forecasting trends and understanding customers' needs and demands?

Interviewee 4: It's a little bit tricky, because, currently, our designers are not much disciplined to be honest with you, as a regular researcher. They see differently when they forecast. Design is often... 'doesn't have an evidence'. It's more emotional, emotive. Also, it is [more related to] trend leading and not trend following. Therefore, it's really difficult to say that designers have a discipline for forecasting. However, designer is always looking for customers' demands; the difficulties that customers have. Therefore, designers have more discipline to find customers' needs, especially using observation. (The information cannot be disclosed too due sensitiveness). The key point can be summarised as follows:

- The company and its designers have different ways of observing users including proprietary approaches/facilities to investigate and evaluate products with users.

5) Rafael: What tools, as you mentioned before, does (name of the company and specific department), currently employ/use to identify unmet customers' needs?

Interviewee 4: Hum... his is case by case. I think that we use all the quantitative research and qualitative research [methods]. Quantitative methods: interviews, focus group obviously, observation and street visit.

Rafael: Street visit? This is related to customers or to stores?

Interviewee 4: Yes. It's related to both, customers and stores. Observe carefully consumers in their environment, especially. We divide this area in three: 'on-the-move' usage, which consists on transportation. We look carefully on how they use their mobile phones on transportation. On the street: [we look on] how they walk and use their phones or they use their phones outside. We call it 'outdoor usage' and we look very carefully on how they use their phones. Indoor activities: home, offices, school. Those areas we pick, go there and look them carefully. So, observation is very important. (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- The applications of a specific quantitative user research technique; how data is collected and used by the company.

- The applications of a specific qualitative market research tool; its benefits and how it impacts on design process.

Considering both of them [qualitative and quantitative research approaches] we use almost all research [methods] that are available.

Rafael: So, considering, as you said before, case by case, you choose the methods that fit better each market?

Interviewee 4: For the design only, we tend to use qualitative research more because we have to create the concept and the data (numbers) is not that important, finding the [consumer] insight it's more important. For the marketing side, they use the quantitative data more, because they must have the evidence that this product will sell better in certain markets. Therefore, it's related to market promotion and [product] launching.

6/7) Rafael: This user research tools can also be applied to track and to forecast trends effectively? Or do you have different methods to look for trends?

Interviewee 4: Regarding a product designer or as corporative perspective?

Rafael: Well, as a products designer...

Interviewee 4: [Considering] a product design [perspective] we have 'future experts'. (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Overview of the process that includes in-house and external steps.
- Frequency of meetings, stakeholders involved; processes and outcomes generated and findings utilization/benefits.

8) Rafael: According to your perspective as a (interviewee's position), what (which) among all of these tools are rely practical to forecast trends?

Interview 4: I think, based on my point of view, we use several tools, such as scenario, scenario building is very good. There are many forecasting methods that we use. (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- The unique perspectives of key stakeholders about unique processes and trends research.

However, because the future doesn't follow only one way, there is need of many people with different professions. Design is just one area, with need [professionals] from marketing, product planners, researchers, engineers, supply chain managers... All those professionals come together and define/build [future] scenarios together, basically. Scenario is the best method to define strategies. So these guys come [together] and [check] what will happen in 2 years, build scenarios and choose the most effective scenario that they want to bring to the table. Then, [we] build the tactics and strategies based on that [particular] scenario. So, scenario planning is the best method... I think, am not so sure, because I am not the expert.

Rafael: Ok.

9) Rafael: The next one is: In your opinion, what are the major social, technological and design trends in the current mobile telecommunication industry?

Interviewee 4: In which number we are now?

Rafael: Number 9...

Interviewee 4: In the mobile telecommunication, [regarding] technology, LTE is the most important. LTE = long-term evolution.

Rafael: IT?

Interviewee 4: No, LTE. Because with LTE will change everything. Because of the high data [transmission] speed, you need more than a phone. So these will be the main driver for the telecommunication carriers, device manufacturers, content and service providers. This is going to be another move. That's we call 4G. (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Different companies that create similar products are currently struggling to compete with Apple.

- As a result, there is a trend in the market that these companies will pursue different approaches to compete with Apple
- Examples of strategies might include the use of different materials and finishing in product design.

[In terms of] social trend in the mobile communication, I always believe that Facebook will grow...

Rafael: Interface?

Interviewee 4: Facebook... And Facebook functionality will be inside the device, better than it is right now. You can see some of this trend from the HTC devices like Cha-Cha (model) and Salsa (handset). You will see the 'Facebook button' there; it's pre-installed. And it will be more optimized. From the manufacturer side, it (Facebook) will come and people will use it. Because it will be optimized and already installed, it won't need to be installed by themselves (users).

Rafael: So, it (Facebook) will be like a commodity...

Interviewee 4: Yes, it's going to be very common. It (Facebook) will be stronger than never and it will catch Google in some point. Because I am sure that they will expand their business and people (users) are already *locked in*. So they will use it [even more]. Many other social networks and services will die soon, I think. The network effect, it will be the triple amount, because of people (users) are getting in. The network effect will increase businesses. So, it will be a social trend in the next few years... because of the Long Term Evolution (LTE), the increase of social network services, the design in terms of products' finishing and better materials. Therefore, we will make better optimized devices. (This information cannot be disclosed too due sensitiveness). The key point can be summarised as follows:

- Potential and strong competition based on hardware innovation to gain market presence and dominance

Rafael: You mentioned before about Apple, that the best way to compete against Apple is not following what Apple does. In your point of view, this question is not in here (questionnaire), but it just came into my mind, what you think that Apple

did so well that, basically, it started setting the trends in an industry that it's not original from Apple's business, because Apple comes from the computing industry. But now it reached a very good position in the mobile industry. What do you think that they (Apple) envisioned and they delivered to customers that other handset manufacturers missed?

Interviewee 4: (This information cannot be disclosed too due sensitiveness). The key point can be summarised as follows:

- Apple use its manpower to focus in the development of only one product; a 'complete product'.
- Other companies operating based on an extensive portfolio of products to avoid/decrease the risk of relying on one single product.
- Looking for differentiation becomes paramount for product development and marketing competition

10) Rafael: In your opinion, those trends that you described before, the social trends, design trends and the technological trends they will continue in the next five years? (11. If not, what might be the key drivers of the mobile telecommunication industry?)

Interviewee 4: Yes, yes, those are the main drivers and will not change. Long Term Evolution will be there and already is in Northern Europe (Nordic Countries). The materials and finishing also includes hardware innovation that we are seeking will be there. Social Networks is always going to be social networks. All of these will be there. If not, what might be the key driver(s) for mobile communications industry?

Rafael: I think that you already said that you agree, according to what you said, things won't change that much...

Interviewee 4: Yes.

12) Rafael: Next one: recently, many companies from the computing industry like Microsoft, Apple and Google are penetrating strongly in the mobile telecom industry offering different products such as handsets, mobile phones and even

operational systems. In your point of view, what are the main challenges and opportunities that these companies, their products bring to the telecom industry?

Interviewee 4: If you think about this computing industry, you only mentioned software-based companies. Software-based companies are getting into the [mobile] telecommunication [in order to] increase the market in the mobile area and they are succeeding now. So, I think that they have no challengers. The only challenge that they have is that they don't have [their own mobile] network [provider]. They don't have a carrier. I am not so sure about Microsoft... they are struggling regarding their OS. Apple and Google, now have enough power to negotiate with the carriers. Sometimes, they are even more powerful than carriers.... I don't think that they have any challengers now. In the other hand, Microsoft... I am not so sure about that...

Rafael: Considering the penetration of these three companies that I just mentioned, what kind of challenges they bring to (name of the company) business and what kind of opportunities they might give to (name of the company)?

Interviewee 4: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- The company in which the interviewee works for act as a 'supplier' for another firm without any other business arrangements.
- The company in which the interviewee works closely with other global firms using their software and expertise on the development of its products.
- Due new market conditions, some of these partnerships can be lost.
- Software based companies are becoming very powerful with a solid bargain power over other firms in the wireless telecom chain
- Software based companies that can select the 'best' partners for releasing new products (hardware/software) and services.
- List of products used as platform for the introduction of major software updates of a given firm.

13) Rafael: Recently, Nokia announced a partnership with Microsoft. As a result, the Windows mobile OS will be embedded in all Nokia handsets. So, what kind of challenges this partnership brings to (interviewee's companies)?

Interviewee 4: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Partnership between interviewee's company and a software firm is not working as expected (poor market performance)
- Interviewee's company partner struggles in the market and a new resolution for a business deal with a competitor can help both of them compete in a more sustainable way. The establishment of this 'new deal' can lead to fierce market competition.
- Most of interviewee's company direct competitors are performing well in the market through partnerships with another software firm.
- Interviewee's company aims to work alongside with different software partners to create new market solutions
- Product differentiation can be achieved through the integration of series of hardware functionalities and distinguish form factor.

14) Rafael: Today's different handset manufactures are offering products embedded with different operating system (OS). For instance, (name of the company and partners' software). What is the main objective for (name of the company) to use this approach? I mean, by choosing different operating system to offer to customers what kind of value these products deliver to customers?

Interviewee 4: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Apple uses its own proprietary mobile operating system (OS).
- Interviewee's company do not use proprietary operating system (OS).
- Using multiple operating systems (OS) strategy makes consumer products more appealing and reduces business risk/constrains.

- The use of multiple operating systems (OS) is an established business strategy.

Rafael: What is the benefit for customers, regarding this approach?

Interviewee 4: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Apple uses its own proprietary operating system (OS) linked to proprietary services (closed platform). Users have to follow Apple's way to interact with its products.
- The company's multiple operating systems (OS) approach aims to offer choices to users regarding products and related services.

Rafael: So, basically, (name of the company) is going to follow a strategy looking for open source operating system?

Interviewee 4: Yes.

15) R: Ok. The emergence of computer tablets that 1 year ago, it wasn't a big thing but I just came back from the World Mobile Congress at Barcelona in the beginning of this year and it is becoming a major thing in the market and it has been impacting a lot in the mobile communication. In your opinion, this kind of devices, they will really make the bridge between mobile phones and laptops or still there is something that will come up to fill this gap?

Interviewee 4: I think tablet will never be a bridge. Tablet will never be a bridge between mobile phone and laptop. Still, a tablet is too heavy. Still, tablet is hard to carry, the portability is not good. The operating system is not high-speed (fast) as in the laptop, it is just 'in-between'. But... as a 'bridge', it is just an incomplete product. Therefore, we need many years to make this [a] complete [product]. It will take some time. Mobile phone, also, it took more than 10, I think 10 or 11 years to get into the [current] stage and become a smart phone. I think that tablet will require some time, but it won't be like a mobile phone, like feature (standard) phone started and now smart phone that took 10 to 11 years. Tablets will take some time, like 2 or 3 years to reach computers and laptops' performance. For 2 or 3 years (companies of same nature) will struggle and won't bridge them (mobile phones and laptops). But within 2 or 3 years, I am sure that tablets will be

very complete pieces [of equipment] and some people will switch over. Some people will switch over from phones to tablets. Because the phone is just a handset, you can just attach it to your ears. You could have just a slim, paper like phone and do all the multimedia functionalities in this tablet. Tablet can switch over (replace) phones in the next few years, but not currently (today). You will see many tablets from many manufacturers and all of them will fail because of the sales are limited.

Rafael: Basically, the market for tablets will increase little by little?

Interviewee 4: Yes.

16) Rafael: What kind of customers do you think that currently are looking for these devices? What are their needs? When a customer wants to buy a tablet, what do you think that they are looking for?

Interviewee 4: There is a difference between consumers. But I am sure ... (interviewee describes a specific market segment and its characteristics). Unless we (companies) find a killer application for the tablet, only 'pioneers' will use [them] for couple of years. But as you can see, the iPad2 is increasing customers' segment. So, grandmothers (elderly) are using iPad now. I guess that there are different customers' demands for different devices' type. (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Interviewee explains overall approaches to address this specific market segment.
- Approaches involve a combination of marketing and product design elements to create and deliver optimum users' value/solution.

17) Rafael: The two last questions deal about the future in the market and in the industry. What are the future challenges and opportunities that you can see in the mobile telecom industry?

Interviewee 4: Challenges are [related to] Google and Apple. They are becoming too powerful and carriers are 'controlled' by Apple and Google. So these are the main challenges. They cannot have their own power (control) over content anymore. I think that opportunities for telecom industry are related to data transmission that is increasing. People are using more data transmission than never.

Therefore, the ARPU, I think it is increasing... They (specialists) say that it is decreasing because of voice, voice has not been used that much. The voice tariffs, their (carriers) voice revenue is getting lower. But I think it is because of data tariff is increasing. I think that there are opportunities. People (specialists) are saying that computing [industry] will overcome the telecom industry, but I still believe that voice market always will be there, [mobile] internet market will increase dramatically for the next few years because of devices can make it happen and contents can make it happen. So, there are opportunities.

18) Rafael: The last one is: How can Design be used to address these emerging challenges and opportunities that you just mentioned before?

Interviewee 4: It is because of these challenges that design cannot survive without service design and user experience design. The physical design itself (of a handset) will not change dramatically, because the screen (display) is already there even though it is becoming less. Or what you can do with product design is finding a better material and finishing in comparison to other competitors. Because it (mobile phone) won't change a lot. It has a big screen. So, there is less and less to innovate in design. It's very difficult. But, if you are aware of challenges and opportunities, you know that you can change inside better than others. That's what Apple is doing. It (Apple) is creating better software out of a beautiful box (physical appearance of the handset). (This information cannot be disclosed too due to sensitiveness). The key points can be summarised as follows:

- Apple is setting the standard regarding usability (of products).
- Consumers tend to believe that many companies are just 'following' Apple without offering something innovative.
- Interviewee's company and similar competitors are looking for unique ways to create differentiated solutions.
- While some of them will focus on creating and integrating new hardware functions; others will venture to into software and user interface (UI).

Rafael: Ok. I really appreciate your time, your insights and your kindness to help in my research.

Interviewee 4: I am not so sure it helps.

Rafael: No, definitely it helps. Anyway, it was a really big pleasure that I had the opportunity through (name of a person and position) to meet you and to come to here and see a little bit about your perspectives and what (name of the company) is doing and you point of view about the future of the mobile telecom. Thank you so much.

Interviewee 4: No problem.

1.1.5 Interviewees 5 and 6 - Questionnaire and interviews

1. Which areas does design currently contribute at (name of the company)?
2. How does (name of the company) currently use design to enhance (name of a specific business)?
3. What would be the future roles of design at (name of the company)?
4. From a (interviewees' positions) how important are forecasting trends and identifying unmet customers' demands?
5. How can design disciplines assist in forecasting trends and unmet customers' demands?
6. What tools does (name of the company) currently employ to identify unmet needs?
7. Can these user research tools also be applied to track and forecast trends effectively?
8. If not, what methods and tools does (name of the company) use to track emerging trends?
9. What kinds of tools are practical from a (interviewees' positions) perspective?
10. In your opinion, what are the major (social, technological and design) trends in the current mobile telecommunication industry?
11. In your opinion, will these trends continue to drive the industry in the next five years?
12. If not, what might be the key drivers of the mobile telecommunication industry?
13. (Name of the company) is the pioneer who established one of the most widespread platforms known as (name of a proprietary product/resource). Recently, the company announced (name of business approach and name of a

specific company). As a result, the (name of a specific product/feature) will be embedded in all (name of the company) products.

14. Will (name of the company) stop using the (name of a proprietary product/resource)?
15. What is the aim of the (business approach and name of a specific company)?
16. How will this (business approach) affect (name of the company and nature of its business)?
17. The most recent disruptive innovation is Apple's iPhone. In your opinion, what will be the next disruptive innovation/ technology that will rule the next generations of mobile phones?
18. The emergence of computer tablets has major impacts in the mobile telecommunication industry. In your opinion, will they be a bridge between mobile phones and laptops?
19. What kind of customers' demands does this type of device (tablets) aim to address?
20. What are the future challenges and opportunities in the wireless mobile industry?
21. How can design be used to address these emerging challenges and opportunities?

• **Interviewees 5 and 6 – Interview transcription**

Rafael: First of all if it at all possible, I would like both of you to describe your roles and responsibilities here at (name of the company)?

Interviewee 6: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- A specific team explores the relationships between different products and services within the company's portfolio and relating these with social trends and users' behaviours patterns.
- Use of 'big data' in order to track handset usage patterns ('users' intelligence') and cross reference/analyse with other insights collected through other tools.
- Use of bespoke user research methods to explore product briefings and create specific product concepts
- Support efficient portfolio planning using a wide range inputs including users' behaviours insights and social trends.

Interviewee 5: What do you do with the rest of your time...

Interviewee 6: Well, I am often found up here drinking tea...

Interviewee 5: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- A specific team works across the firm supporting the development of products, services and ecosystem (including hardware and software components).
- Supports consumers' touch point experience in different levels ranging from packaging up to handset digital content
- Assists in unifying and delivering consistent and coherent users experience across the company's product portfolio.

Rafael: All of them designers?

Interviewee 5: Yes. We should get on with the questions?

1) Rafael: Yeah, so the very first one is, which areas does design currently contribute at (name of the company)?

Interviewee 5: So, design covers what I would call the more traditional things that we have always covered like industrial design, so the look and feel of the product; as I have just mentioned the colour and material technologies and then there is the UI side what we call UX. It is basically user interface, it is the actual look and feel

of the interface and all then we are involved in the sort of visual side of the services and then the whole eco system in a way that I have just described that my team is working, you know, as a consumer journey from the point where you are first told about the handset... Design to some extent is involved in how we tell the story of, you know, why you should want to buy this product, but then the packaging, the experience of opening the packaging and taking it all out, firing the product up for the first time. So, the actual sequence of events that the consumer would go through is all part of what design is involved in.

Rafael: Ok

Interviewee 5: Do you want to add to that?

Interviewee 6: (interviewee 6 introduces different departments/teams, their duties and how they cooperate).

Interviewee 5: It is a (name of specific team) isn't it basically? Yeah I have forgotten about that.

Interviewee 6: Yeah. So, design almost has a relationship where it touches every single part of the business.

Interviewee 5: Yes and that's the way I tend to describe it is that we... Yeah, every consumer touch point you can imagine we are involved with, basically.

Rafael: So, basically, I can assume that design is rooted in the Nokia business in every single aspect?

Interviewee 5: Yes, yes, yes and you know (interviewee 5 introduces a name of a person his position and a specific corporative approach). So, design is embedded right to the top of leadership.

Rafael: Very interesting! (Interviewer highlights and probes interviewee 5 to provide extra details about the topic mentioned).

Interviewee 5: Yes and it is an important point, (name of the company) has always valued design, but it has taken many years to get to that point where we have that sort of influence.

2) Rafael: Ok, so my second question is: does (name of the company) currently use designs to enhance its (name of a specific business)? Maybe, I don't know if you have already covered everything during your past explanations or do you have something more to add?

Interviewee 5: Anything more to add?

Interviewee 6: I think... it is such a broad question. I think, it is probably better to come back to that at the end once we have kind of talked about it, because I think as we talk...

Rafael: Yeah, probably...

Interviewee 5: But it is really design is used across every touch point... That's how (name of the company) perceives design being used is really to influence across those touch points.

3) Rafael: Ok, so what would be the future roles of design at (name of the company)?

Interviewee 6: Well, I think, yeah, as (interviewee 5) said it has been, you know, to get into that position has happened with (name of specific person). So, I think you know what we have sort of described to you is again is the ideal situation for us currently.

Interviewee 5: Yes, I have an answer actually – I do think and it comes to your, the subject that you are studying. I do think that design and the way design works and the processes we use, the way we tend to look at opportunities. Problem is, you know, in a large organisation there is a reality that it offers a lot of value to a business. Hence if I go back to when I started twelve years ago I was an (Interviewee 5 background/position) and designing a piece of hardware and now very often I think our teams are used to actually help with processes to find out how to find the right approach forwards and I think going forwards that is something that a lot of businesses have realised that design is valuable from a thought process point of view as it is actually delivering tangible things so you know I don't want to use the work facilitation but often that is something where

design I think going forwards will be used more and more, which I think is very relevant to design management, it's an approach.

Rafael: Ok.

Interviewee 5: I think part of that is when you look at research and consumer research is this constant reminder that we are designing, we are here for people for a particular reason and, you know, even from an (interviewee 6) point of view speaking on your behalf but it's that constant reminder that there is a person that has certain habits that does things and, you know, it's very important.

Interviewee 6: Which is so important actually given that (name of the company) has traditionally been a very engineering and technology driven company and so you know I think that a lot of good designers and just inherent translators of social need and I think that a designer by their very training sees a problem... He is empathetic and he then wants to respond to that and so I think from a research perspective design is actually a great place for user research to exist and consumer understanding because there is an inherent you know

Interviewee 5: Connection, yeah

Interviewee 6: And I think that is part of design discipline anyway. What comes into play from a research aspect... Really, when design is communicating ideas to the rest of the business is then, you know. If the designer is working with a product manager, for example what comes into play is the business and technology kind of needs for quantifying and risk assessment and that's been somewhere where our role becomes more... (Interviewee 6 give the name of specific teams) and also to a certain extent, when a designer has got to take a decision it's often we also run an internal benchmarking process with experts and it is a very good way of taking decisions based on expert design empathy and understanding of very detailed parts of the experience which people may not be, you now ordinary people may not be aware of and that's part of what helps to make design really refined and really successful.

Rafael: Ok. So, basically we are talking about having a Delphi panel in order to assist designers and managers to deliver better solutions to customers?

Interviewee 6: Yeah so there are sort of several key moments where research starts to come in and assist design, but I think some of the really important benchmarking work especially has to happen with a team of experts and a team of designers with a wealth of design experience and practice and also a kind of wealth of, kind of empathy for the consumer and a kind of good knowledge of technology and the technology landscape.

4) Rafael: Ok, the fourth question is from, considering (interviewees' positions) and perspectives how important is forecasting trends and identifying unmet customers' needs?

Interviewee 6: Yeah, that's pretty important! (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Different 'types' of trends are investigated and explored by specific teams.
- Social trends focused on product adoption drivers and users' behaviour.
- Trends are analysed by cross referencing data from different teams to develop insights about these issues.
- Investigating users consider their experience and expectations towards products. Insights are used to inform strategies and plans for new market solutions.
- The company can either try to influence/direct a trend or get involved and 'being part' of a specific phenomenon exploring it.

Rafael: So, basically all the insights that you collect from the market, from the user experience and behaviours you give back to an internal team and they quantify if it is a realistic and practical for the company to invest?

Interviewee 6: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Avoiding testing insights/ideas with consumers.
- Design opportunities can be evaluated using 'tracking data' that relates users' behaviours and technological features.

Interviewee 5: I think it is important to (interviewee 6) point to, fundamentally... Design is trying to do things better and I think, you know... When you ask this question here you know forecasting and identifying customer needs it has to come from the behaviour of people and trying to understand what might make their life easier, better, faster whatever, you know. It is they interpret, it is better... What it shouldn't do is be used to kind of just prove your idea is the right idea because it's always going to be skewed you now you can't say which one is better in that sense, is that right (Interviewee 6)?

Interviewee 6: Yeah, I agree.

Interviewee 5: I think the really valuable research is what (interviewee 6) describing which is about behaviour and it's about people giving you information they don't even know they are giving you because once they are aware it's you know it skewed it so it is very observational in that sense isn't it?

Interviewee 6: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Employing more specific research techniques into design and portfolio planning.
- Different teams work together to plan product portfolio.
- Strategists and planners are able to explore different market issues, including new technologies in order to support research efforts.
- Communications between different teams is essential to promote and support data cross referencing.

5) Rafael: Ok. So, if I guess maybe you have already described how can design disciplines assist in forecasting trends?

Interviewee 6: I think the best thing to say at this point is that you can't research the future unless you are with somebody who can imagine the future. By being with somebody who can imagine making a difference you are automatically giving observational research more of an opportunity to make a difference.

Interviewee 5: I think when we talk about observational research there is very often designers are involved in that research, all sorts of design disciplines.

Rafael: So, in terms of tools and techniques, what tools does (name of the company) currently employ to identify unmet needs? You already mentioned (name of distinct methods) trying to come up with different perspectives and also (specific data collection approaches). Is there something else that you would like to add?

Interviewee 6: Ahhh...what else do we have? Do you mean research tools or design tools?

Rafael: Yeah, design research tools!

Interviewee 6: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Different types of trends are classified and tracked including new phenomena.
- Specific research methods are used to explore and evaluate users' behaviour
- Personas and scenarios are employed to communicate ideas.

Interviewee 5: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows

- Prototypes help to visualise how the future could be.

Interviewee 6: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows

- Design research employes visual resources to explore users' behaviours and life context.
- Market research is straight forward documented process.

Rafael: So, it is possible to say that whereas marketing is more concerned with quantitative data than numbers; design is more interested in soft data and customer's experience?

Interviewee 6: No. I would disagree. I think marketing is just as interested in creative, you know, in qualitative work. And, you know, when you think about

marketing creation and advertising creation it is still very generative. So, those generative tools are very important but the thing that design research or that design brings to design research particularly is the ability to craft good communication materials with people and whether that's deployed, you know, whether that's in prototypes or whether that's in observation capture and diaries.

Rafael: Considering the customers insights that you mentioned before several times do you use this, do you involve the customer in a specific segment in, let's say, new product development? I mean, do you only use the customers' insights if they are invited to take a look at a prototype or to use a prototype or even before when you are researching about trends... Do you interview them or they come and have a big session like a focus group, are they very close or do you only consider this behavioural patterns?

Interviewee 6: Sorry I'm not sure I understand the question?

Rafael: The customer gets really involved in the process of creating your products or services or only their insights and ideas?

Interviewee 6: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Efficient planning works in way to avoid product cannibalization within a wide product portfolio that uses different software platforms.
- Users' inputs and trends support efficient product positioning.
- Concepts of products are tested to check tensions across portfolio.
- Comprehensive research combined with efficient planning leads to robust product briefings.
- Co-creation can be used in specific projects and marketing initiatives.

6,7,8,9) Rafael: The next one does these user research tools, do you apply them as well to track forecast trends or if it is not the case what methods and tools do

(name of the company) employ? Basically, everything that you already mentioned before?

Interviewee 6: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Trends research can be commissioned to specialised agencies. Data is cross-referenced with company's information data base.
- Design research, users' research and trends forecasting requires specific methods and are different type of investigation stream.

10) Rafael: Ok, so what kind of tools from (interviewees' positions) perspectives, basically, in your opinion what are the major social technology and trends in the current mobile technology industry?

Interviewee 6: This is something that one of my colleagues in (name of a specific team)....

Interviewee 5: I think (name of the company) has a sort of, you know, a very high level –we've reached a billion people and now we are after the next billion. And that next billion is really coming out of markets that are looking at the more advanced technological regions of the world and saying, you know, do you want that...So, I think a lot of these markets are not what you would term emerging markets, they are developing markets; so, you know, you wouldn't call China an emerging market but you know a lot of these regions of the world you know. China, India that have very rich and very poor populations and, you know, it's how do you start to offer something that starts to tap into those markets where for somebody buying a handset is like, you know, do I buy a fridge or do I buy a handset? It's like you know it's a month or two months or even more; it's a significant investment for them and I think that will have very significant social impact over time and already is. Actually, you know, there are regions of the world where people use handsets rather than computers; so, it's... I think... I think it's that type of trend that, it think is very significant going forwards. Alongside, I guess just the very obvious things that communication is so much more than voice and you know its, even if I go back five or six years we were sort of saying, you know, the internet is about getting... Again, it comes back to why

do you use the internet; what's the behaviour as I suppose to... it is about getting answers it's about talking to people, you know, it's the use that matters. If you see what I mean and I think its... I think my generation probably looks at communications as, you know, I will talk to somebody or I will call them whereas generations now, you know, the trends are very, very different they have significant if they (young generation) think about connecting to somebody there are actually seven or eight ways they might do that.

Interviewee 6: And, actually I think with certain things like, instant messaging being available on phones has changed a lot of how young people relate to each other. (Interviewee 6 briefly introduces the outcomes of a specific research conducted about user's emotional value towards phone interaction) So, yeah I think definitely each life stage is emerging with different attitudes towards technology and what it should enable and certainly there digital etiquette's vary and differ and I think what is interesting is when those digital etiquettes push over into the next life stage up and, sort of, the children are teaching their parents how to do something.

Interviewee 5: Yeah...

Rafael: So, basic technology becomes a facilitator to connect people from different generations and maybe the youngest can try to teach the oldest?

Interviewee 6: Yeah, I think that has been around for a while that sort of engaging with technology that idea has been around for a while. And I think, my personal feeling about that is that children are with technology are much more comfortable with experimentation but... But I do think that we are seeing that change with some of the different age groups and life stages and actually it is no longer really true that the youth will lead.

Interviewee 5: I also think that, I don't know whether this is a trend yet, it is a trend that is talked about is, in a sense that is there a saturation point where people actually start to reverse and want it simple. Because you hear about it more and more that people almost, sort of, having a reaction to, you know, you can do anything and it is almost beginning to have an inverse effect. So, it's a kind of slight assumption that everything is going to keep growing and, you know, data

will, you know, and it's like, you know.... There is a point where I think as human beings, we actually start to react against that because, actually it is not making things better and simpler anymore, and I think... You hear these little nuggets and think, you know, now where people reduce their Facebook to actually their ten friends rather than the 300 they are told they have got. So, there are some interesting things I think on the fringes of that but.....

Interviewee 6: I mean, there is some quite nice work that (name of a specific company) has been doing over the years... I mean, if you look at some of the research that that (name of a specific company) did in preparation for (name of a proprietary product/feature) and they did make, you know, they did make some decisions about yes you only have, our technology say, you can only have 150 friends and therefore... But actually there was some fascinating research that they did with people on their social networks where they discovered that privacy, well, actually, not realising that things were being made public was a bit of an issue. (Interviewee 6 briefly introduces a situation where online privacy issues can influence and impact a person's social and private lifestyle). So, I think that when you look at what (name of a proprietary product/feature) has done now with the development of the circles and recognising that you have to say different things in different context with different relevancy to different people there are some interesting observations born out of that. So, that's public and has been on the internet for a while. It's just that (name of a specific company) did something about it. So, yeah I think, I think also the other thing that really controls the mobile telephone communications industry is actually the medias treatment of, you know, when these people not understanding what's public that will really depend on how the media decide to tackle that. So, if you look at the media stories about (name of a brand of handsets) tracks your every move if you look at the media stories about (name of a specific company) and how it affects them it really trying to... The media is a really good sense maker for public opinion on certain aspects of technology that may not be aware. So, that's another good sort of audit to do.

11,12) Rafael: So do you believe these social trends and technologies are going to move and all these issues they will continue to drive the industry over the next five years or there will be different drivers?

Interviewee 6: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Different types of trends need more careful ‘supervision’ than other due to their less stable nature.
- Design and social trends are different streams of ‘phenomenon’. They should be cross referenced for research purposes.

Interviewee 5: It’s a very hard one to answer. I think, underlying the fact is that we are human beings and we are not as that unpredictable as maybe some people, you know, there is a ‘predictability’ to what, how we behave and what drives us. I remember a few years back when really we were moving into a world of data and with all the possibilities that that meant on the handset and there was a sense that maybe the physical device isn’t that important anymore and it’s all about, you know, it’s all just streamed to you through your brains or something. But the fact is that as human beings we need a physical embodiment of it, you know, something that we own and something that we are proud to own and it’s the reason why you buy a watch and this kind of thing. And I think it; I don’t think it goes away. There are certain things that will disappear but I think you know people will always want to communicate; so, the way that happen will change, but fundamentally, there are things that will always be there and that’s why this industry is still here and it will have a future.

Rafael: Basically, you mentioned this need of having a physical device to communicate and I can make an analogy with the internet. So, the next thing is ‘ok, so, we have the internet’; so, we are going to print less and it’s the opposite. Now we are printing more because...

Interviewee 5: Having said that, sorry, just to finish on that having said that I think that as a company that makes something that generates something we are, being kind of (name of specific country/region). It has always been in the psyche of the company to stop and think about, you know, how we can be sustainable, environmental and all those things; it’s is very, very important. So, again it’s like the trend of ‘do you need to keep buying a product every year’ or ‘do you keep it longer term’? And this kind of thing and, you know, (name of a specific senior

person) said, you know, even recently sustainability side of a company like this is incredibly important; so, I think those things do slowly start to become something that people are slightly more aware of and that could have an influence on the way people think and how long people keep something and how they use it...

13) Rafael: Ok, (name of the company) is a pioneer who established one of the most widespread (nature of the product and name of proprietary product/feature) and recently it also end up in (specific business approach and name of a specific company). As a result, the (name of a proprietary product/feature) will be embedded, I don't know maybe I am wrong, in all (name of the company) products. So, my question is: Will (name of a company) stop using the (name of a proprietary product/feature) operating system or what is the plan? Because I remember that you mentioned before that you have three different operating systems and I don't know if you are going to segment the user based on operational systems considering high end or low end?

Interviewee 5: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- A specific software has been used across a wide range of the company's products. Probably, it will be decommissioned somewhere in the future.
- The company has been working on another proprietary platform.
- Company starts working closely with a software based firm using a new service platform in high end products.
- The company operates with several services platforms spread through a wide range of wireless products.

14) Rafael: Ok, so what's the aim of the (specific business approach and name of a specific company)?

Interviewee 5: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Two software based firms already have established their independent mobile ecosystem
- Specialists affirm that there is a space for a third mobile ecosystem and the company envisions potential to develop it through a specific business venture.

15) Rafael: So how this (business approach) will affect (name of the company) and there is something that you would like to add what kind of value this (business approach) brings to customers?

Interviewee 5: I think I have just said it but I will say it a different way it's about how we bring um value to people in terms of services in effect.

Rafael: Ok.

Interviewee 5: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Costumers' value sits on handset interface. The company's believes that the venture with a software based platform can help addressing this issue.

Interviewee 6: No I think you definitely know more than I do on that one.

16) Rafael: Ok. the most recent disruptive innovation is the Apple iPhone. In your opinion, what would be the next objective innovation technology that will rule the next generation of mobile phones?

Interviewee 6: I don't know. I mean, obviously it's going to be quite difficult to answer that because, you know, even if we did know it would probably be secret. My personal feeling is that level of the touch screen and the idea of the aps, you know, that was a big whole chunk, you know, that was a whole package if you like. My feeling is that anything disruptive next will probably happen in the form of new functions or new ways of interacting or new features that kind of come out I don't know I ...

17) Interviewee 5: It's terribly hard to answer that one! I think you are right, yeah. It's about how you interact but I think also, I mean, it's in your number 17 (the question is it: the emergence of computer tablets has major impacts in the mobile

telecommunication industry. In your opinion, will they be a bridge between mobile phones and laptops?) interesting because I would have said, you know, when you said most recent disruption, disruptive innovation we are talking about handsets but the most recent disruption is the tablet. But obviously that's not something you put in your pocket. But I think as a piece of consumer electronics that has changed peoples' behaviour I would say it (tablet) is incredibly significant. It's not a handset but I think it goes some way. I was reading an interesting article about this the other day the guy was saying now I've got a tablet I don't use my (name of specific brand of handset) anymore. And, I think that his point was that actually there are certain things that I want to do on a screen that size and now I have a tablet I have realised how difficult it is to do it there, you know, it's human nature you need something the right size. So, I think there is something very interesting about how we use devices and it think...

Interviewee 6: There is a very interesting statistic that says and I forget it, but, essentially, the implication behind the statistic and I think it's available publicly that the majority of the people buying a tablet didn't have specific use for it when they bought it. So, it was a purchase without a plan in effect was what I kind of read into that and then when, you know, certainly, when I have done research and just anecdotally talking to people that certainly born out in their description "well I just really wanted it and wasn't quite sure, but now I've realise I can do this and I can do this". So, I think that's also where, you know, understanding all of the touch points and the experience from a design perspective because, you know. If you go into the market, one way and you help people understand their usage and another way that's very different. I mean, I think what's interesting about the (name of specific product) is that, constantly, I mean, there is this constant myth surrounding how (name of a specific company) spotted that the (name of specific product) should happen and I have yet to read any research material that has said that yes they looked at behaviours and they looked at. I don't think the myth is sustainable, but I do think that there are, that's a really good example of an industry deciding to lead and not waiting for, you know, and deciding to develop something to generate a following rather than perhaps letting consumers dictate.

18) Interviewee 5: Sorry, I'm jumping forwards here, your question 18 (the question is: What kind of customers' demands does this type of device (tablets) aim to address?) which customers' demands, what kind of customer demands does this type of device aim to address. I think to (Interviewee 6) point, maybe people didn't actually know what they were going to use it for. I think... There is a sort of sense that they know that it is going to somehow bring the digital universe to them and then it's like, 'well how are we going to use that' and I think it aims to address simply doing certain things more easily. I mean, you know, my family has one and it's used as something that you can pick up and search for something in a few seconds and it's just simply a window to do that. Hum... maybe it's not trying to be anything more than that in a way, but that in effect makes it very powerful.

Interviewee 6: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Successful upgraded versions of given product demonstrate a firm's strategic approach to design a product that influences the audience at the same that they understand its functionalities.

design a product capability of understanding its products and how it impacts on people's life.

Interviewee 5: I think it is simply about making something easier.

Interviewee 6: Yeah, it's creating the opportunities although you are not sure what the opportunity is.

Interviewee 5: Angry birds is a lot easier on an tablet...

Interviewee 6: Is it?

Interviewee 5: I've done it all!

Interviewee 6: Have you...?

Rafael: What has just come to mind now we are here sitting in (name of the company and nature of its business), what kind of market gap that companies such

as (name of a specific company) that originally is not a telecom company envisioned, in your opinion, envisioned and addressed so well with (names of distinct and specific products)? Because basically, with this huge transformation in the market, it seems that all the other companies are following it and... This company is leading, is dictating the how market goes. Do you have a kind of idea what could be this market gap that they address it so well?

Interviewee 5: (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Interviewee 5 company presents a strong background of hardware development and experience in wireless communications.
- New entrants (e.g. software based firm) are known by their strengths in platform and interface creation and experience in computing.
- Industry/market paradigms changed from ‘analogical’ (e.g. device) to ‘digital’ (e.g. software) supporting the establishment of the internet in mobile telecom.
- Other industries’ technologies have been integrated in the mobile telecom sector (e.g. digital camera).

Rafael: Oh, I see...

Interviewee 5: Do you see what I mean and that’s what makes it fascinating in a way and if you want to look and say where is the next trend coming from then you have to look at probably other industries than your own and see where those things might come crashing into your industry. But it’s one thing to see the trend and it’s another thing to actually act on it.

19) Rafael: So the last two questions, what are your futures challenges and opportunities in the wireless mobile industry?

Interviewee 6: I think you last kind of answer did a lot in that...

Interviewee 5: Seeing and doing are two different things, you know, and the world is accelerating... I mean, you know, when (name of a specific company) announced and put the (name of specific product brand) out within about three

months there were a hundred and four tablets available on the market; so, that's the world we live in. I am not saying all of those were of high quality but the point is that, you know, the world is fantastically competitive and it's actually an extremely difficult task to put anything out there that is truly innovative for very long and I think that's probably the challenge is that when you do create something that is innovative how long can you keep that going for you know. I don't know the answer, but I would challenge whether any one company can um be innovative for anywhere near as long as maybe companies were maybe twenty or thirty years ago because it's simply so fast moving that you have an envelope of opportunity and then somebody else takes over, you know. It's not the world of the IBMs where you can stay a leader for thirty or forty years. I very much doubt that it will ever exist, but I may eat those words, but (name of a specific company) may still be there when I am retiring, you know. The point about (name of a specific company) is that it is not an end game, (name of a specific company) has done something very good and we recognise that and we are all designers and it's like good on them they have done something, they have raised the bar but it doesn't mean that is it if they are in their envelope of opportunity at the moment. But who knows what will happen next and that's what makes this industry very exciting. Not sure if that answered the question.

20) Rafael: It's ok, so how can design be used to address these shall I say emerging challenges and opportunities is it going to be from a product a process or...?

Interviewee 6: I think that goes back to what I said earlier that design is a fantastic discipline for innovation, design thinking. Also, as (interviewee 6) said, it is a really great development in process; so, I think that coupled with a research perspective if you are... By doing analysis with designers, with people who can imagine possibilities I think you know you are upping the opportunity to hopefully develop something that is more innovative and I think, you know, within that I would carry that on by saying you can't just take any old designer, you know. (This information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Company employs different design specializations, skills and strategists in the front of the design process.

Interviewee 5: And I guess the challenge is that you can have a very strong sense and opinion about the future but the challenge is acting upon it fast enough before the rest of the world catches up again and that's becoming an increasing challenge I would say. When I started my career the world was a much slower place. And that's quite a frightening thing, you know, it really is. Everything is probably... the biggest challenge that is involved in manufacturing or making anything hardware or software is how do you generate that idea quickly enough but with it, it has to have quality and it has to have the fundamental reason for why it is going to make somebody's life better or add value.

Rafael: Ok

Interviewee 5: There are not many companies can do that whole combination. There are companies that can do it very quickly but the quality is not there or the reason why isn't there, you know, and it's just like getting that balance that is really important.

Rafael: Alright, this was the last question, thank you, both of you for your time and insights this is going to be very valuable for my research and thank you for the opportunity to come here to Nokia and talk to you.

Interviewee 6: You're welcome

Interviewee 5: Sorry it's been a little while...

Rafael: It's ok, I completely understand.

Interviewee 5: On a last note we are very busy (laughs) everything is running at a million miles an hour so...

1.1.6 Interviewee 7 - Questionnaire and interview

1. The Design Research team/department, usually, is composed by a multi-disciplinary group of professionals (from different backgrounds). What are the advantages of working with a heterogeneous group of professionals?
2. What are the possible disadvantages of this approach?
3. As a Design Researcher, probably you have been employing different qualitative and quantitative tools to collect insights and ideas for projects. What are the advantages and disadvantages of these two types of tools (qualitative vs. quantitative)?
4. In your opinion, how these two different approaches complement each other?
5. As a (Interviewee's position), how important is forecasting trends?
6. How different trends can impact/influence in the development of a future product or service?
7. How design disciplines can help in the trend forecasting process?
8. Considering your experience, which are the most practical tools to assist in this task?
9. In your opinion, how important are investigating and identifying unmet customers' needs?
10. How design can help to understand these new users' requirements?
11. In your point of view, what are the most relevant tools to explore these demands?
12. More than never, customers' insights (and personal engagement) have been used in new product development processes. What are the main contributions of users' ideas (or engagement) for the design process?
13. In which stage(s) of the design process these user's engagement/insights are more useful?

14. Is there any possible disadvantage using user's engagement in the design process? What should be the main drawbacks?

• **Interviewee 7 – Interview transcription**

Rafael: So, first of all I would like to ask if you can introduce a little bit of yourself, your roles here and your job that you do here.

Interviewee 7: (Interviewee describes her roles, position and responsibilities within a given department of a company that she works for)... So, shall I go through the questions?

Rafael: Sure, sure.

1,2) Interviewee 7: The design research team department (mutter question)...(The passage and questions are: The Design Research team/department, usually, is composed by a multi-disciplinary group of professionals (from different backgrounds). 1. What are the advantages of working with a heterogeneous group of professionals? 2. What are the possible disadvantages of this approach?)

Interviewee 7: Okay, actually this is... I can't start to answer this question. Well, in fact, here it is not so multidisciplinary. We, these days, it is more and more multidisciplinary than what it used to be. We used to have only people with a design background in our team, because we understood that to be 'key' to design thinking and the way we approach problems and because we are always looking for insight that would translate into product design briefs, it's really important to have designers doing the job. Saying that, in the last few years we have met people with other backgrounds like psychology or advertisement and they manage to do what we do very well, as well. So, I think it, it used to be a pre-requisite that they were designers. Now we are more open to other professions. By the way...even if it is another profession, we like them to think as a designer, do you know what I mean? So ..."possible disadvantages"?... of which approach? Of the approach of...

Rafael: Of having different people maybe with different backgrounds as you are saying that in the past it was like this, but today you are more open to accept

professions from different backgrounds but, as you said, they might have a bit of design thinking on the process. So, I can say this might be a disadvantage if they don't come up with this open mind and free thinking okay....

Interviewee 7: I think it is important that the people that you hire share the philosophy of your company. So, if you were to hire somebody with a different background but that person completely follows the philosophy of your company and understands what you are doing, that's fine. It doesn't really matter at the end of the day, but you need people that follow the same objectives and I think yes, multidisciplinary adds to the mix. (Interviewee presents her views about processes/approaches in given department). So, when you look at (name of the company) from the top, you can say that the company is multidisciplinary because you have strategists, researchers, designers, engineers...yeah.

Rafael: (Interviewer repeats the interviewee's comments and asks for further clarifications about mentioned topics)

Interviewee 7: (Interviewee provides complementary insights about the non-disclosed topic). Yes I add that, I said that before it used to be only designers and then we are open to more staff. Also, it is nice to have people with different backgrounds and different language skills....

3,4) Interviewee 7: So, "design research methods"? Yeah? As a design researcher probably you have been employing different qualitative and quantitative tools to collect insights and ideas for projects. 3. What are the advantages and disadvantages of these two types of tools? 4. In your opinion how these two different approaches complement each other? Okay, I will go back to your assumption here....we don't use a big deal of quantitative tools...

Rafael: Okay

Interviewee 7: So, I would say that the premise is not accurate there. Now if you, we don't commission any quantitative work ourselves. If for a project I need to read (specific reports/materials) that has quantitative data within, fine! I'm using quantitative tools, yeah? But I don't, I don't do it myself. I just buy a report from somebody else, but I do a qualitative job myself.

Rafael: Aha.

Interviewee 7: You should look for this in the future laboratory, you know the future laboratory?

Rafael: No...

Interviewee 7: Just make a note, the future laboratory. It's a company and they have a website with trends and this is a traditional company as well. But they create a division called the future poll, "p o l l" and that is an all about, it's a kind of strategy consultancy, but they offer the quantitative side as well.

Rafael: Ok

Interviewee 7: So, that will be interesting for you. So "the advantages and disadvantages of the two methods" I am sure you know...or do you want to know something else that you don't know?

Rafael: I know in the theory but it might be completely different in the practice from who really put the hands on this...

Interviewee 7: No, no I can talk through it. I am just wondering if it's a bit obvious some of them if you wanted to know something different... okay. On the qualitative side it is always about, I mean I am talking from my point of view. I am not going to talk generally, with qualitative research you get insights, you get inspiration, you get ideas, you observe, you immerse yourself in real life scenarios, with quantitative information you get data which is really static, it is not dynamic, you can't shape it, once you receive the data you may be able to make conclusions with that data but the data is like that it is not subjective, you can't do anything on top of it. When you are looking at a film and you are observing people doing something, you can make a lot out of it, you can go further than what the information is telling you. Sometimes, you need the two of them, sometimes your client may be really inspired by an insight that you have found and you think that there is a user need for a product but the client may go back and say 'fine, but how big is that market?' how many people with those needs do you think exist in Asia? So then you have to go and do some quantitative research. So, I think clients need both, designers need qualitative more than quantitative but you need to be prepared to offer quantitative, should the client

want so. Sometimes you need quantitative information to add rigour to what you are saying, or sometimes you just need it as a starting point. So, if I am going to start a project, I don't know, on telecoms as you were saying, telecoms in South America, I can't just go blind without looking at data of what's happening. So, I think the data is good to kick off then you do you qualitative research and then you may need quantitative again at the end to validate or support...

Rafael: Ok.

Interviewee 7: So, I think that answers how they complement each other. I think that quantitative is good to learn and it is also good to test but you won't discover and qualitative is about discovery.

Rafael: You said before that quantitative is good to test?

Interviewee 7: Test and learn, meaning get quickly up to speed with something.

Rafael: Ok. So should we move on to the next one?

Interviewee 7: Yeah.

5) Rafael: As a (Interviewee's position), research how important is forecasting trends, considering you experience here?

Interviewee 7: You know the answer?

Rafael: I guess that it is probably yes!

Interviewee 7: Yeah, yeah very important. How different trends can impact and influence the development of a future product or service? Is your question about how many different trends or how trends can...

6) Rafael: How trends can impact or influence in the development of a future product or service?

Interviewee 7: Well, it depends on... It depends on what you make with it. Like, you could be aware of some trends and you don't do anything about it, that would be bad or you could be aware of those trends; so, you plan your new product or service based on those trends. Is that answering the question?

Rafael: Yeah....so basically you are taking into account these trends in order to develop something?

Interviewee 7: Yeah

Rafael: Okay

Interviewee 7: But that is kind of obvious, I think you should look for questions that push you. Because you.... This is a fact, every design agency will use. Well, not every but the best design agencies will use trend forecasting either in-house or they will buy it off somebody else, and that will help them plan products and services. So, I don't think you are getting anything new with the question, do you see what I mean? Unless if you just want to corroborate it is a fact?

Rafael: But sometimes the fact what happens is different companies, they have different approaches and they are thinking of different ways sometimes they have these different insights, in house and sometimes they....

Interviewee 7: Okay but that is what you need to ask, yeah?

7) Rafael: Yeah, it's alright. So how do design discipline can help in these trends forecasting process or kind of support or help or aid?

Interviewee 7: Okay. If it wasn't design disciplines, who would be doing the trend forecasting?

Rafael: It can be a statistical...

Interviewee 7: No, no, that's fine, I just want to see what you are thinking...yeah

Rafael: So, I can just refer to somebody that come ups with qualitative instead of a quantitative... So, considering the approach of design that is very broad and holistic, how this, the design can help in this, in this process of trend forecasting?

Interviewee 7: Well, so...I think probably...I am just trying to get to the bottom of the question, probably what you are trying to ask here is...because the designers who are not design researchers, don't do trend forecasting themselves, so they are not helping the process, yeah? The design researchers do trend forecasting and they are helping the process, then you can find a scenario where a design

discipline creates innovative products and services which when they are launched on the market, they shape trends...

Rafael: Aha...

Interviewee 7: Do you see what I mean?

Rafael: Yeah, yeah, sure

Interviewee 7: Then that changes the forecasting. If your question is about designers being open for trend forecasting I think...

Rafael: No, I think, maybe, it is more of what you have just said right now...

Interviewee 7: So you modify, so it's like...ehem

Rafael: So basically design researchers they create innovative products and services that at the end of the day they influence the current scenario of trends?

Interviewee 7: Yeah

Rafael: Okay

Interviewee 7: It's kind of like... You know, you see, you understand trends, you work with them and probably by the time you understand them it's too late (laugh). Probably, by the time... all the trends are new, if you go to trends websites everything that they will be talking about, in my opinion, is not trends, in my opinion it is characteristics of today's society, you know. You read about authenticity, I don't know, rural life going urban. You read about so many things but by the time you have read about them, they are already happening, you know. So, I think people confuse them, you know. I go to many trends presentations by clients and clients will say 'oh I have got all the trends, latest trends – I don't need research, I can tell you what they are' they show me and I go 'yeah, fine you know, you are just telling me'..

Rafael: The facts

Interviewee 7: The facts, how society is today. Yes I understand that people want to go back to nature yeah, but so what? you know... So, I think that a proper defence for forecasting is always taking that step further and is taking those trends

that everybody has established as trends and just going a step further and in that step further you need to know what do they mean to your client.

Rafael: So, basically we are moving on from understanding the trends to setting up the trends which is more valuable to the client at the end of the day?

8) Interviewee 7: Yeah...And then on question 8, 'Considering your experience, which are the most practical tools to assist in this task?' I think, I don't know if it is a practical tool, but the best is observation, awareness and being alert. You know, I mean always open, take everything in from a movie to an article in a magazine to a comment you heard on the radio to something you read in the paper, an email with a link that a colleague sent, you know. I think you need to... the best tool for me, I don't know any...I don't know of any practical tool that really helps on this task.

Rafael: No, but that's alright. That's okay

Interviewee 7: And I don't think practical tools help, you know, on these kind of forecasting I would say fine, in a practical way you should have a good [trends] archive system and you should have good tags and you should have good folders where all your information always goes... So, everything that I was saying there, in a practical level you should find a way of cataloguing and....

Rafael: Collecting everything?

Interviewee 7: Yeah, because then you forget... But, it doesn't matter because if it was a good article or if it was a good...actually that's a good point: everything that you have to archive because you will forget about it, probably wasn't that strong you know things such as comments that you read that just go into your head and then you use that for something else..

Rafael: So basically, every piece of information either visual or in an article or some letter that is important and can trigger the certain spark for the whole process...

9) Rafael: Alright...so let's go for number 9. In your opinion how important are investigating and identifying unmet customer's needs?

Interviewee 7: Very important. Have you met anybody that said that it is not important, to number 9 and number 5?

Rafael: No... be honest with you...no but sometimes I have to, like you said, to corroborate things, it's just a kind of...more formal as a student.

Interviewee 7: Yeah

Rafael: I know that sounds redundant, I am sorry.

Interviewee 7: No, no, no. I am only saying it because sometimes you can write the question in a way... you don't only get the answer but you get something else...

Rafael: Ahh... I see

Interviewee 7: Do you see what I mean? As a researcher, from my point of view, if I am interviewing people or users, I just telling you this from experience, not for...

Rafael: Yeah sure...

Interviewee 7: I wasted a question, you know... do you see what I mean, when you are doing design research, I am telling you because you are doing design research. In fact, here you wasted a question and you wasted somebody's time... I mean you didn't waste my time because I'd tell you in one second; So, it's not that the point, but you wasted a question, a useful question, so..

Rafael: I see...

Interviewee 7: You need to write, if your assumption is important, the assumption plus something else, do you see what I mean? Like... "As a design researcher I understand that forecasting trends is important to you, how would you say these trends change in the last five years?" Do you see what I mean? I believe investigating and defining consumer needs is very important to your job, how do you think these will change in the future? Do you see what I mean? You get something else out of it.

10) Interviewee 7: Okay, how design... 'How design can help to understand these new users' requirements?'...this is again like you question 7...

Rafael: Yeah, yeah it is, somehow, similar...

Interviewee 7: So, are you going for a circle here? Are you saying...design is to understand or... because we have two things: we have research and we have design and the trends and the user research tasks are part of research...

Rafael: OK

Interviewee 7: So when you ask how design can do it, I don't understand what you are asking...?

Rafael: I am seeing if the design can... If there is a tool or a process or a way of thinking or a methodology that it can help to understand users' requirements or how you go there and find out this information. Because in my next question is "In your point of view what do most relevant tools to explore these events?" because some companies they have different tools to research, trends, and some companies they have different tools to understand the users, but some companies they use all the same and I want to check as well if they, they are connected.

Interviewee 7: Yeah, but you see, these tools help designers, designers don't help the tools and your questions are asked in a way like if the designer is helping...

Rafael: The design discipline... yeah... basically the design tools I should put in here, yeah.

Interviewee 7: So, you are talking... because design doesn't help to understand user requirements, user requirements help understand design, do you see what I mean?

Rafael: ...no, no I don't get the full..

Interviewee 7: A user requirement helps understand the design process.

Rafael: Ok, ok...

Interviewee 7: Not a design process helps understanding... do you see?

Rafael: I see.

Interviewee 7: All these techniques are there to help design, it is not design is there to help the techniques.

Rafael: Ok

Interviewee 7: Yeah

Rafael: I see, I see...

Interviewee 7: So what are your hypotheses? What type of things you are testing? Or you want to learn?

Rafael: I have to come up with a framework in order to help design managers, as I said before. So, I am trying to investigate what kind of tools are available for design managers and design researchers that can help them to forecast the future in terms of trends and customers' needs.

Interviewee 7: Yeah

Rafael: So what kind of tools they use, as you pointed before, you said observation is most valuable for you; so, this kind of thing. But sometimes, for some companies, they use a different set or mindset, to address future trends and sometimes they have different tools to address users' needs. For instance, I had an interview back in a company that it said we don't have any kind of trend research in-house and it is a "big" global company so they just bought everything from somebody else.

Interviewee 7: Yeah

Rafael: But, maybe, at (name of the company) you have a different approach; you have a different idea. That's what I want to reach. To see the whole picture, that's the point.

Interviewee 7: Ok

Rafael: So the... I understood your point in the number 10.

11) Interviewee 7: Yeah, cool. ‘From your point of view, what are the most relevant tools to explore these demands?’ Well, it goes back to ethnographic research and observation, because it is about user needs. So the best way to get at user needs is by observing users and learning and analysing and studying. So you are familiar with observation and ethnographic research?

Rafael: Not that much, a bit. I mean, in theory yes because I don’t have a very strong work experience with this, but even though I....

Interviewee 7: Well, ethnographic research is when you spend time with users in their real environment, analysing their everyday life without putting them under any test or any task or you don’t give them instructions. So, if I am designing a washing machine, I want to spend time with families and Mums or Dads, whoever does their laundry in the house and I just want to be with them. I don’t know, probably twice in a week, for a week and understand the cycle of laundry in the house and where the dirty clothes go. Who does the washing? Where do they hang it? Who does the ironing? Where do they keep their washing powder? Who buys them? Do you see what I mean? I am not going to go and say now come to my office and I am going to give you a washing machine, just can you wash some clothes, I want to see you doing it? I want to go to the house and see everything in action as it really happens. And when you do ethnographic research you tend to film everything; so, then you can analyse the material more carefully and you can discover things that you didn’t see the first time.

Rafael: Alright

12) Interviewee 7: So, “Users and design process, more than never customers’ insights and personal engagement have been using new product development....” (The passage and the questions are: More than never, customers’ insights (and personal engagement) have been used in new product development processes. 12. What are the main contributions of users’ ideas (or engagement) for the design process?)

Interviewee 7: What do you mean by personal engagement?

Rafael: When you ask the customer to engage in the process, some people say that is co-creation, so people say...that's my point. My question here is more focused on the co-creation part. If it, this engagement really help in the design process.

Interviewee 7: Yeah. It does, I mean it depend on what you are doing. You have two schools of thought when it comes to co-creation. The co-creation work is invaluable to you. The people that think that is the best way of doing it because you get the user involved in the process and the user helps you to understand the problems and comes up with the solutions and then you have the other school of thought that says that professional know better, so you do not need a user to come and tell you how to design it. So, you can have the user to help you identify the problem, but then the designer comes up with the solution, not the two together. Because in the co-creation process, both users and designers are meant to collectively come up with a solution, that's different from just doing user research. When you do user research and you uncover the insides, when you move into co-creation you get the user to help you come up with a solution. Some people think that that is really important; some people think that that is not very good because professionals are in charge of doing that. Co-creation is used a lot in service design and I think it has proved more useful in service design more than product design.

Rafael: So less in product design?

Interviewee 7: I think it is less used...

Rafael: Ok...

13) Interviewee 7: "In which stage(s) of the design process do the users engagements are more useful".... (The question is: In which stage(s) of the design process these user's engagement/insights are more useful?)

Interviewee 7: Okay in my opinion, in the early stages, when you are discovering what the problem is, discovering opportunities and insights and I draw a line there. I won't take them (users) into the solution stage.

Rafael: Why not?

Interviewee 7: I would rather use them at the first stage and not later on. Sometimes, it is good to carry on and doing some testing's as you go along, but I think more progress in the organisation is done by just going with your instincts and do what you as a professional think is the right thing to do.

14) Interviewee 7: 'Is there any possible disadvantages in users engaged with the design process...' (The question is: Is there any possible disadvantage using user's engagement in the design process? What should be main drawbacks?)

Interviewee 7: Well, you have to kind of be careful here when you talk about it, because on the design process, I am using the user engagement because I learn from it in the beginning, I carry my learning throughout the whole process, so I don't think it is a disadvantage. I think it is the right thing to have an engagement through the process, but if you are talking about constantly spending the design process with the user that is, probably, going to be a problem to what you are doing.

Rafael: Ok. I think that is it, we have covered everything, because I was just looking to build up an exploratory questionnaire in order to have a holistic view because I don't know in details the work you do here at (name of the company), as I said before, maybe I cannot record everything on a tape, so I prefer to use this approach.

Interviewee 7: No, I think it is right, the questionnaire, I think you are doing the right thing. I am just saying there are questions that are so obvious that you could just write something else to get something more out of the conversation.

Rafael: (Interviewee describes a given project that he engaged and the processes employed).

Interviewee 7: I think it is different when you understand the, I would say user not customer. When you [have to] understand the users' needs, ethnographic research is ideal. When you are talking about trends is ethnographic research in a smaller portion and it is more about the things that I told you about being open to what's happening, reading the news, looking for discontinuities, things that are different, looking for anomalies... Talking to experts in the field or different fields and

gathering expert opinion, forming your own opinion, it doesn't have to be the user, probably you need an expert.

Rafael: So... in here you are talking about a Delphi panel?

Interviewee 7: Delphi?

Rafael: Yeah, it's when you have different experts from different backgrounds and fields of industry that basically you interview or you put all together...

Interviewee 7: Oh a panel, you say. Sorry. Yes you could put them together, you can go one to one.

Rafael: Ok

Interviewee 7: And you call it "delphi panel"?

Rafael: Yeah, I think that is all. Yeah? I hope you are on time I don't want to make you late.

Interviewee 7: Yeah. If you want to switch that off I will just tell you.....

1.1.7 Interviewee 8 - Questionnaire and interview –

1. Which areas does design current contribute at (name of the company)?
2. Considering your views as a (interviewee's position), how important is identifying unmet customers' needs?
3. How can design disciplines assist in this task?
4. What are the design tools employed by (name of the company) to investigate and understand customers' needs?
5. In your point of view, how customers' insights can benefit an on-going car design project at (name of the company)?
6. Where (in which stage) of the design project these ideas can be mostly used?
7. In terms of future and trends forecasting, how these two areas influence the design, creation and/or improvements in (name of the company, specific department and line of products)?
8. What kind of design tools or methods does (name of the company) use to track current and forecast emerging trends?
9. In your opinion, among these techniques, what are most valuable tool(s) to assist in this task?
10. What are the current major social, technological and design trends in the automotive market and industry?
11. In your opinion, will these trends continue to drive the industry in the next five years? If not, what might be other key drivers in this industry?
12. During your presentation in (name of a university followed by specific date of event), you mentioned that (name of the company) is a conservative company. How (name of the company) manage the need to offer innovative products and features without changing customers' perception of the established company's brand image?

13. Does design can help in this process? If yes, which disciplines or tools can support this procedure?

14. In your opinion, what are the future challenges and opportunities in the automotive industry?

15. How can design be used to address these emerging challenges and opportunities?

• Interviewee 8 – Interview transcription

1) Rafael: Which areas does design current contribute at (name of the company)?

Interviewee 8: Design plays many roles at (name of the company) from being a core component of the products appeal to the customer, through the central element of the product emergence process to customer facing activities and materials.

2) Rafael: Considering your views as a (interviewee's position), how important is identifying unmet customers' needs?

Interviewee 8: We are in constant contact with our customers, either directly or through our dealers. We follow both formal and informal processes to understand their needs and desires. At a number of stages of a new product programme we conduct formal market research to capture trends and opinions. When customers visit us, we are in constant conversation about their likes and wishes. Often they are asked for feedback on new design ideas as part of their visit. When customers want something slightly different from our normal offer, we can help create that through our bespoke (name of a specific division/sector).

3) Rafael: How can design disciplines assist in this task?

Interviewee 8: We use design tools like renderings, models and virtual images to explain different options and to take preferences. When a customer wants

something unique, we have a team of designers who will sit with the customer to discuss and visualise ideas until they arrive at the ideal solution.

4) Rafael: What are the design tools employed by (name of the company) to investigate and understand customers' needs?

Interviewee 8: We use a mix of traditional techniques like drawings and renderings through to full-size design models.

5) Rafael: In your point of view, how customers' insights can benefit on on-going car design project at (name of the company)?

Interviewee 8: Customers wishes are vital for the success of the product and therefore, the business!

6) Rafael: Where (in which stage) of the design project these ideas can be mostly used?

Interviewee 8: As I indicated earlier, we will seek [users'] opinion at a number of pre-defined stages of a development project, from very early ideas through to final product positioning.

7) Rafael: In terms of future and trends forecasting, how these two areas influence the design, creation and/or improvements in (name of the company, specific department and line of products)?

Interviewee 8: We are always keeping an eye on trends and developments, whether it is social trends (for example, demand for different vehicle content), technology (for example, communication connectivity in the car) or legislation (for example, China fuel consumption laws). These social, technological, legal and other trends, will have an impact on future product strategy for the (line of products of a specific company).

8) Rafael: What kind of design tools or methods (name of the company) use to track current and forecast emerging trends?

Interviewee 8: We commission [trend] research agencies to forecast, as well as using the vast knowledge and resources at our parent company, (name of another company)

9) Rafael: In your opinion, among these techniques, what are most valuable tool(s) to assist in this task?

Interviewee 8: The picture needs to be built through many sources. The best tools will provide a consistent and targeted message.

10) Rafael: What are the current major social, technological and design trends in the automotive market and industry?

Interviewee 8: I've mentioned some like connectivity, but others include niche vehicle concepts and environmental efficiency. I also think customers want to be thrilled and excited with their purchases. So, there will always be demand for really well executed solutions, made with an attention to the highest quality, authenticity and a sense of uniqueness.

11) Rafael: In your opinion, will these trends continue to drive the industry in the next five years? If not, what might be other key drivers in this industry?

Interviewee 8: I think these trends will continue as the possible solutions aren't yet fully integrated. I think that a very interesting trend that may develop relates to the Chinese market, where currently the demand for western luxury brands is very high. I see a possibility that local values will become more prevalent in the future. Also, there is a move towards fewer people owning cars in some markets. Leasing will become increasingly important.

12) Rafael: During your presentation in (name of a university followed by specific date of event), you mentioned that (name of the company) is a conservative

company. How (name of the company) manage the need to offer innovative products and features without changing customers' perception of the established company's brand image?

Interviewee 8: The comment about conservatism was made in the context of the auto industry as a whole. It is a very mature industry that utilises some traditional design techniques. (Name of the company) is innovative in a way that is true to our values. For example, we currently hold the world ice speed record, with a production car that was also a convertible - the idea to do this was innovative and unusual but it is something that is completely at home with the pioneering spirit that has always been associated with the brand. It really depends on how you define innovation.

13) Rafael: Does design can help in this process? If yes, which disciplines or tools can support this procedure?

Interviewee 8: I'm sure design can help, but again innovation requires some definition for a complete answer.

14) Rafael: In your opinion, what are the future challenges and opportunities in the automotive industry?

Interviewee 8: The challenges I listed in Q11 will also be opportunities.

15) R: How can design be used to address these emerging challenges and opportunities?

Interviewee 8: Design will play a role, be it in creating new vehicle concepts, features or technology solutions. It also has a role to play in developing new service solutions. If you think of design as a problem solving activity; there are many problems to be solved.

1.1.8 Interviewee 9 - Questionnaire and interview

1. Which areas does design current contribute at (name of the company)?
2. Does design research methods used to understanding customers' unmet needs also can be used to track/research future trends? If not what are the major differences between them?
3. In your opinion, how important is identifying unmet customers' needs?
4. How can design disciplines assist in this task?
5. What are the design methods employed by (name of the company) to investigate and understand unmet customers' needs?
6. In your point of view, how customers' insights can benefit an on-going design project at (name of the company)?
7. In which stage of the design project these ideas can be mostly used?
8. In terms of future and trends forecasting, how these two areas influence the design and creation of a future consumer electronic product (e.g. mobile phone)?
9. What kind of design tools or methods does (name of the company) uses to track/research current trends?
10. With respect to future trends, are previous mentioned techniques suitable for this process? If not, what are the most valuable tool(s) to assist in this task?
11. In your opinion, among all the tools/methods/techniques that you have worked with/studied/currently work what are the most valuable and practical research about the future?
12. What are the current major social, technological and design trends in the mobile telecom market & industry?
13. In your opinion, will these trends continue to drive the industry in the next five years? If not, what might be other key drivers in this industry?
14. In your point of view, what are the future challenges and opportunities in the mobile telecom industry?

15. How can design be used to address these emerging challenges and opportunities?

• **Interviewee 9 – Interview transcription**

Rafael: Alright

1) Interviewee 9: Fine. Yes, so, we... when we talk about design we mean the form, the physical form but what we actually offer our clients is, you know, is a product strategy. So, it's looking not just that form but also, you know, how it is going to function, you know, who it is targeted at and what it does and how well it does it. So, in that sense we are more proposing an experience, designing a user experience than, you know, specifying, you know, a particular product... and as a strategy consultancy that is where it starts, we don't do any prototyping, we set up a quite high level, we basically say the design brief for the designers. So, they, you know, the big consumer electronics companies come to was and they say, you know, what shall we make next? And then we will say 'you should make this and this and this and this is your roadmap'. This is why, you know, we get lots of justifications as to why they should go a particular direction and... So, in terms of how.... going back to your question, 'Which areas does design contribute at (name of the company)?', firstly the majority of the people that work at (name of the company) are from the design background. In fact, yeah, one of the guys is a professional designer, you know, he designs furniture and, you know, sells some of his furniture in the shops around in London but we don't, it's interesting that we are all designed trained but none of those actually do, the output of the consultancy is more design specification it's not actual, physical product designs. That's what (name of the company) does...

Rafael: Ok.

Interviewee 9: Yeah... So, output is... So, the output is a strategic document, it is a report.

Rafael: So, much more related to directions?

Interviewee 9: Yeah, exactly.

Rafael: Ok.

Interviewee 9: So, question two.

2) Rafael: Question two, yes, does design research methods, I mean, in terms of tools that they use to understand the customers and their needs, they also can be used to track and research trends? Are these tools completely different? And if they are different, what can be the major difference between them?

Interviewee 9: I think that understanding customers unmet needs... I mean, we do user research where kind of ethnographic research where we follow users around and look at how they are using products and ask them questions... And then and of course, you know, you can't ask consumers what their needs are or to appoint you can and say what is missing from this experience? But then you have to do is through analysing the data from a number of people that you start to see gaps. So, that is, you know, your standard user research. But also often we do trend research, which is a separate operation because it involves desk-based research. It involves, it tends to involve, yes people putting the time in, reading newspapers, reading the blogs, reading what other trend agencies are doing and then coming up with, you know, the directions, where we think things are going. Then at a later point, when you start to translate these two streams of information into products and specifying a type of products then you start to combine them into, you know, into a persona or a scenario or something where, you know really products that fits. So, they are all kind of pieces of the puzzle, it all fits together and you are just building as much evidence as possible and it's. So, you are leaving as little as possible to guesswork, you want to build as much evidence and that's, you know, everything we say has to have some justification, whether it's, you know, trends, whether it's statistical data or new like a collection of related stories or events and then the consumer data. Then, the third source is experts. So, if we are particularly interested in an area, we have read as much as we can read, you know, gathered as many trends as we can related to that subject, get ourselves to a certain point and then identify who the world's leading thinkers in that area and then, so like these could be, you know, a leading professors or they could be managers or senior strategists in advertising firms or, you know. In whatever sector you are interested in then speak to them and ask them what you think is the future and whether we

are on the right track and then, you know, you get, you know... It's exactly like you are doing, you know, you have some ideas about what, how you think design fits with trend research and then stretch those ideas into questions and then you end up with a higher level of understanding.

Rafael: So, basically, it's kind of a delphi panel somehow, kind of informal...

Interviewee 9: Yeah, yeah, but it's not a formal network, its ad hoc. So, we identify who the experts are and when we need them, keep in touch with them afterwards. So, I am saying that the customers the sort of customer consumer research is a separate stream but they, you know, but they complement each other at the end and they are sort of combine... All right?

3.4) Rafael: Alright. So the next one, in your opinion how important is identifying customers' needs and I feel this question is somehow related how can design discipline assist in this particular task?

Interviewee 9: It's very important its, I mean, we are getting to the point where products can't compete... you can't just rely on your brand or, you know, pushing the product out and people not knowing about alternatives. Consumers nowadays have instant access to review this and feedbacks from the products they buy; so, there is a negative aspect to the experience of using or buying a product and you will know about it. So, you can't hide, there is nowhere to hide, everything is just very transparent. So, in that sense, a product, a new product has to be relevant and appropriate for the consumer and see it very important and I guess design disciplines and designers in general are trained through both, through their sort of mindset and the structures and processes they follow to empathise with consumers. So, to be able to 'detache' themselves from their own reality and to think about what their consumer might want or need and unless you... If you work for Apple, you are lucky enough to be, basically, designing products for yourself because you know you're designing a product for a trendy 25-year-old, whereas if you're working for, you know, like a medical equipment company, you are designing equipment for a doctor to use. So, that is a very different mindset and they might have a very different understanding of ergonomics or, you know, intuitive controls. So, you have to be more able to get into their mind and that is how

where design, research and user research and human factor research and all these sort of aspects which I would say fit under the design disciplines. That is where they all fit in there to help with empathising. And then and in the sense the long-term, the trend stuff that you do is then starting to project these into the future and to start understanding how these mindsets, existing mindsets might evolve in a future context..... Do you want some coffee?

Rafael: This time I need a Coffee (laughs)...

5) Interviewee 9: Yeah, I mean question five (the question is: What are the design methods employed by (name of the company) to investigate and understand unmet customers' needs?), we have sort of mentioned a lot of the design methods already in a, you know, in a user kind of ethnographic research, where I guess, yeah, I mean, do you mean design research methods or design methods? Kind of?

Rafael: I put in design methods but you can see in a broad way it can be methods, it can be research or even tools or....

Interviewee 9: I think tools is, they have, you know, the company has developed approaches to do things, I guess you could call our tool, but it is more just they have done it lots of times and then, so they have they now the best way of doing it and so.....

Rafael: So, it is like more 'proprietary things'?

Interviewee 9: Yeah and it is just, it is not standardised across the industry and I am sure it is fairly similar to what other companies do, but it is just a standard process of, you know. If they are doing user research then it is all about getting hold of the users and then, you know, arranging to spend time with them to follow them around, taking notes, you know, taking photos and recording and, you know, speaking to them while they are going about their day, not interfering too much. With all these sorts of good practice elements and that is partly learned and partly developed on-the-job and so that is your sort of standard user research and then there... The design research side so kind of thinking about aesthetics is more about scanning, looking at what's happening in the shops, what other companies are doing, looking at the kind of market both from an aesthetic and from a

business perspective, you know. All these aspects contribute and I guess that still fits within the scope of design in that you are, that competitive analysis is still.... And then you start to put a time component on it and you start thinking about all these things that you are looking at will evolve into the future. So, like these are the major competitors in the market but will they be major competitors in two years' time?

Rafael: I'm sorry I didn't hear the first part?

Interviewee 9: So, you are doing some competitive analysis. So, you are saying well we're making some mobile phones... So, Nokia is doing this at the moment and they have to start to think about 'well, they are doing that now but what will it be doing in two years' time?' And will what they do now have an impact on the doing two years, and you know, tracking technologies and things like that.

6) Rafael: Alright. So, number 6 in your point of view how customers' insights can benefit an ongoing design project let's say at (name of the company)? You mentioned a lot about different user research tools...

Interviewee 9: I mean, mainly as evidence, as contextual evidence. And that's the most important thing is that every... our clients expect from us. Is that when we say we think you should do this it is based on, it is not just our opinion, it is based on evidence that we have gathered and then analysed and that showing that we are not making it up. There is a traceable repeatable process that we have gone through that has led to this decision being made... That's the main thing, evidence and then you know that gets translated into sort of inspiration and guidelines, directions.

7) Rafael: Okay, in your opinion in which stage of the design project these ideas can be mostly used in the case of (name of the company)?

Interviewee 9: While... because it is not a full design project it's more the strategic beginning, it is the beginning of the design project. I mean it is setting, it sets the whole, the whole framework. Otherwise, if you're doing it, problem is that you know, a lot of design consultants that do their research and the design if they are doing it all at the same time that they have very little time, you know... There is a risk that they are going to be fitting the carbon idea for a product and they will

fit it to research data rather than having a big body of research data and not thinking about ideas yet just thinking about, you know, specifying, I think that is a difference, and so our plan, what (name of the company) offers is to have all these ideas, kind of without a solution in mind and then they evolved to the point where we start to be able to come up with ideas. So, it is before the idea generation of research. And then you can keep referring back to it during, it is important to have it finished before...

Rafael: So, basically, you come back to confirm...any of the detail that you may have seen?

Interviewee 9: Say again?

Rafael: And probably your go back to see any detail that you may not have seen before?

Interviewee 9: Exactly. So, yeah, it is a reference point throughout the project from then on but it's definitely important to have it done first.

8) R: Okay, so if... Eight, in terms of future and trends forecasting how these two areas influence the design and the creation of a future customer electronic product such as a mobile phone?

Interviewee 9: Okay, so I guess that we, if you talk about design in this question it is more talking about the design of the actual product, or are we still talking about design methods?

Rafael: I'm talking more related to the act of forecasting of future forecasting trends... And how can this impact on the development of a future product?

Interviewee 9: What they do is, again it is evidence, guidelines which gets down to, kind of, like say, the design. Our design researcher might say these seem to be the relevant kind of styles that you should be thinking about like metallic and he won't specify exactly, he won't draw the phone for you exactly how it is going to look but he will say this is a sort of set of materials that would make sense, but appear to be attractive to consumers in this timeframe. But then, it's the same with the contextual stuff as well when you are talking about how the product is go to function, how it is going to cost and who it is targeted at. Again, it is guidelines

and inspiration for the designer. At the end of the day, it is the designer, at the client side, who ends up designing the actual product and it is more of a design team rather than designer. They are the ones that translate information into something tangible, then they can test, they can build a test.

9) Rafael: Alright. So, what kind of design tools or methods does (name of the company) use to track and research current trend? So, basically, as you mention those before, basically it is related to desk research?

Interviewee 9: Desk research is keeping track, you can't just immediately track trends like 'okay we know trends now!' You have to do it over a period of time, because you have to see how things are developing and you also have to, you have to form opinions on things as well; you have to develop your instinct. So, that's why you can't just teach someone to be a trend researcher because in a way... And that's why often companies, people who are very cynical and we often don't talk about trend researchers specifically, we talk about contextual research, because there is a lot of stigma associated with the word trend and a lot of people think it is just futurism, futurology it's just guesswork. But actually it's intelligent, experienced people, gathering insights and then discussing them and exploring how these insights can evolve into the future. So, I mean different trends agencies will have different approaches and some of them are you know, it seems to be more about the buzzwords in the keywords and things. But I am sure all, when it comes down to it, all these agencies they have their front end whatever it is, their website, their report, but underlying that business big old database or big wall of pictures and post it notes with some kind of timeline.

Rafael: So, just like mood boards and these kind of visual representations they have?

Interviewee 9: Yeah and whether it is visual or whether it is text-based, you know, it is just a collection and they keep track of it and they update it and depending on how much of their resources they can assign to it. They will have someone keeping it ticking over all the time, maybe it will be a specific trend researcher or maybe all the designers, because you know, designers are instinctively, they are tapped in, they are wired in to culture. So, people in a normal design consultancy

would... they are e-mailing around you should see, there is this new exhibition either V&A, or 'have you seen what Saatchi and Saatchi is doing?', or there 'is this new trend in France that they are all wearing this, clothing or something?' That just happens naturally; so, people wouldn't necessarily realise they are doing it, but that is an ongoing process of trend research. So, you just take that step further and do it in a more organised way and keep on recording and noting and you know build a database of all that information and then, you know... It will be hard work to start with but then after a while you will have this working, whether it is a spreadsheet or whether it is a proper database it will just be ticking over and then when things, if things evolve or if they become irrelevant and you can delete them and then, it is just an ongoing process and then... The idea for consultancy is that by having that thing going on in the background to start with is a big 'ball ache' to get it to, you know, to build it. But once it's going along a kind of manages itself and then you can say to the clients, you can sell this information is the clients the same amount each time, but actually gets easier each time because you are accessing an existing resource.

Rafael: This is interesting!

Interviewee 9: I don't know whether that's.....

Rafael: So, basically what you're trying to say is that is an example of (name of the company). (Name of the company) has a huge data collection of different subjects and company 'A' comes here today and wants to have a project with you and you work on it for the next six months... In two years' time they come back, again, and you have this knowledge upgraded and you are selling them a different product but with the evolution of this data?

Interviewee 9: Yeah. So, you are building on that data but it means it is easier each time because you got a starting point. So, don't get me wrong I'm not saying that we are selling nothing for something. All I am saying is that once you have a starting point it is much easier to see how things have evolved.

10) Rafael: Don't worry. I'm just concentrating on overall insights, at this time in my research it is more related to focus on exploratory and so on. I want the data as you said before, to collect different pieces of the puzzle and see if they match

and going to divide in sections as you doing your.... So, in respect of future trends, the previous mentioned techniques suitable for this process, if not what are the most valuable tools in this task?... So it's.....

Interviewee 9: Well, I think the most valuable tool is people. So, it doesn't matter, you can have all these, only one could go on to... Anyone could build a database of trends just using existing information from the web, you can get all your PSFK, you get your trend watching, the free reports that are already out there, future labs, I can say these more slowly, for trend watching PSFK, these guys are...

Rafael: Some of them I am already used my Ph.D. (laughs)

Interviewee 9: They are releasing more and more information; sometimes it is just keywords, Trend Blend, another one... yeah.

Rafael: With 'E' or 'A' ?

Interviewee 9: E, blend. Trend Blend but they do stuff with keywords and you can get the keywords but it's more... small keywords is about seeing how they fit together, understanding how these sort of individual micro-trends fit together into something bigger. To do that, you need intelligent people to talk about it and negotiate it. You need people who have read, up-to-date with news, they have been reading and they have been a part of culture and may have been part of an evolving context for a while so they can see how these things evolve and, you know, from your experience you can say, you can judge whether or not something is going to, you know, be big in the future. Yes; so, the people, and that, when we have reached the peak of where we can get to that is when we bring in the experts. So, it is again more people.

Rafael: So, then you go first to common citizens after that you go to the experts...

Interviewee 9: Yes. So, you push it and you say this is as far as we can get, this is like, without evidence beyond this point is guesswork. So, then we need to get experts in.

Rafael: And in here in this stage, the expert stage you basically confirm or you look ahead based on the.....

Interviewee 9: A mixture. And you have got to be careful with how you ask the questions. Just like this, you know, you have to... it's just good interviewing practice, you don't want to be too hypothesis driven, you need to be kind of open questions and then towards the end of the interview you can start to ask closed questions about specific ideas that you have and say get the best of both.

Rafael: Alright

Interviewee 9: yeah

11) Rafael: So, now considering all your experience in life, considering your studies and now your work experience, among all of the tools, techniques and methods and everything that you came across in your life what is the most valuable practical tool to research about futures?

Interviewee 9: It is the social negotiation process. To get a number of people in a room with some post-it notes and with all this information, all these evidences and then they get their heads together and I think about it and they discuss it and then move things forward and it is the fastest, most valuable process. I mean that applies to all of the design. When you do something, if you have a well-designed workshop, then you can make such big rapid steps, if it is not well-designed that they can be a nightmare. Yeah, it's when you get clever people together, that's when good stuff happens.

Rafael: Okay. Twelve. Considering your experiences as a Ph.D. that you did your research on mobile phones, this set of the questions is more related to the telecom industry.

Interviewee 9: Yeah

12) Rafael: In your opinion what are the current, major social and technological design trends in the telecom industry right now?

Interviewee 9: Big question! I would say that, techwise, 4G should be interesting, payment technology, location....

Rafael: In terms of payments you are referring to NFC?

Interviewee 9: Yeah, and the variations of it. I think that if, people are still shaping, I guess in the kind of terms of the social trend is more of the social technical; it's a situation where people are. As you add more functionality to the device, I think the most exciting thing is that people and just regular consumers can start to shape it to be whatever they wanted to be, you know apps are an example of that-you can start to change, extend the meaning and the function of the device.

Rafael: So, basically it is much more related to the experience of discovering what we can do that it was not designed to be done?

Interviewee 9: So, when you... it is the standard kind of part of, when technology evolves it starts off as being... I think, I talked about this, it starts off by being quite far and then people get used to it and then they start to shape it to be whatever they want to be and that is called domestication.

Rafael: Alright I remember from your presentation.

Interviewee 9: Yeah, and domestication is one sort of theory around it but it definitely applies to mobile and,... You know, you can either defend against it; you can be like, know there is no hacking or writing software or you can create a platform that allows people to create apps and to shape it into their own experience. So, right now you have to be a developer to write the app, but that is still opening up the device for it to be what you wanted it to be, whether it is a gaming machine or a camera or you know....

Rafael: So, can I assume that we are going to a world where open platform will, actually they are already reaching the top because of the android it can be at the same type the consumer and the producer of their own applications.

Interviewee 9: I mean, yes that is a direction; I think that there is a lot of closed platform still doing very well. I think android has its problems and also it is still a very small percentage of the population that have the ability to create software for mobile devices. I would say that, I think there is definitely space for more than one platform. But I think that, in terms of design trends, I think what will be interesting will be, again, going back to how people shape products and shape technologies... Yeah. That, I think in the future that these open technologies will

allow people to shape and customised product to be physically what they want to be as well in terms of its software and functionality.

Rafael: Ok

Interviewee 9: So, yes these are definitely big five-year trends.

Rafael: Five-year trends...

Interviewee 9: These are not, I said sort of short-term payments and things like that. I think those are examples of, micro examples of extra functionality that can add to the phone but it is when you start to think about them in a social context, that is when you start to think about how they will evolve over five years. And once people start to shape it themselves....

13) Rafael: In your opinion do you believe that these trends will continue to drive the industry in the next five years?

Interviewee 9: I don't think it's going to drive the industry. I think that, as I said, the industry is very constrained at the moment; so, I think for the next five years it's going to continue to look quite similar to how it is now. Yeah, I just don't see, unless someone comes along with a radical [idea], you know. It's just going to be price variations but fairly similar things being offered at different price and I don't think that anything, you know, fantastically different is going to come along, apart from, maybe if someone can work out a way of having more than one phone that could be interesting but it's still not going to be a huge, it's not going to be big.

Rafael: You mean people will use two phones?

Interviewee 9: Yeah, so like two phones, one number. Once you realise you can have two phones, your second phone doesn't have to be amazing it could just be very niche; it could be very specific. It's not very good in terms of the environment, but on the other hand, if you have a second phone and you buy it because you want it. So, maybe you keep it for longer and you would have to spend more money on it and you treasure it more rather than it being just a throw away. So, I think that's, you know, changing meanings and, yeah. So, if you had a more of an emotional connection with you device then you wouldn't necessarily

throw it away every year like we do at the moment. Yeah, that's all I have to say on that.

14) Rafael: Ok, so the next two, from your point of view what will be the future challenges and opportunities with the mobile telephone industry?

Interviewee 9: I think it's making money, because everyone's margins are going to get smaller and smaller you know and, you know, with Google and Apple taking away more and more revenue from the operators, the operators are going to get more and more desperate to find ways of making money; sorry for the networks. Because, yeah, I think it might get to a critical point where they are not making any money and maybe some of them will disappear, but yeah I think the challenges will be in the medium term to continue to make money and then in the long term to do something radically different that creates a whole new revenue stream.

15) Rafael: Alright, the last one in your opinion how can design be used to address these emerging challenges and opportunities?

Interviewee 9: Hum... difficult, you know, as I said in my presentation the problem with current business structure in the West is, you know, it doesn't matter who well designed the product is it's still going through the networks. So, it's not being sold on merit. But if you start to consider design in terms of a more holistic perspective in terms of the user experience, the entire user experience of using a mobile then, you know, starting with the, you know, initial retail touch points and then moving on to using it from day to day and then disposing of it I think that, if that perspective is taken for mobile then companies, networks will start to realise that they can improve the experience by....

Rafael: So, basically, making an analysis of the cradle-to-cradle... cycle?

Interviewee 9: Yeah and if you think about it that way then you can realise where all the pin points are and then it think that you could see where the gaps and where maybe you could compete but yeah, I think that in the next five years it's going to be more business models, yeah.

Rafael: So, basically, design will be more related to developing new business frameworks and strategies. Is it going to be on a different level?

Interviewee 9: Yeah, it will be, design will be manufacturing 'design like' process; design to make things cheaper and cheaper, you know, try and preserve the margins or like target a niche audience or something, industry is getting saturated. Oh I need to go I'm running late.

Rafael: Alright, I'm sorry I really appreciate, thank you very much for your time and insights and just to finish if it is possible to give that to you and submit and if you can evaluate it I mean your ideas, what is wrong, what is right if I can put it like this and like that.

Interviewee 9: Yeah alright no problem

Rafael: Alright, cheers, thank you.

1.1.9 Interviewee 10 - Questionnaire and interview

1. Could you please briefly describe your background and work experience?
2. In your opinion, what are the roles that design play in the mobile telecom industry regarding the development of new handsets?
3. What are the main changes from that period that you worked as (interviewee's position in a specific company) and now regarding users' relationship with their mobile phones in terms interaction experience?
4. Is it possible to say that we are in the third wave of 'user experience' that started from 'hardware (functions)', moved to 'software (mobile operating system)' and now is related to 'integration of services (ecosystem)'? What do you believe that will be next step?
5. Based on your professional experience, what are the main challenges and opportunities in the wireless sector for handset manufacturers?
6. Several authors (e.g. Martin Evans and James Woudhuysen) explain that design is a discipline that looks ahead and is committed with the future, by upgrading current products or creating new market solutions. Do you agree with these ideas? In your opinion, how design can help shaping, creating and delivering the future, particularly in the wireless sector?
7. The literature says that HCD puts the user in the centre of design research process. Therefore, understanding users' needs is crucial for the NPD. In contrast, some professionals from global companies and design consultancies explain that they use consumers' inputs only in the beginning of the design research process to discover the main problems/issues and do not engage with them in the next design research stages. In your opinion, what is the reason for this gap between the literature and the practices in the design research?
8. Some experts say that engaging with users during the whole design process lead to a limited level of innovation towards new products. On the other hand, limiting the influence of users in the design process (by interacting with them in beginning of the process) helps companies to achieve deeper levels of products innovation.

What is your opinion about this issue? Is there any other factor(s) that help(s) designers to achieve a higher innovation level in NPD?

9. Do you believe that the mobile telecommunications is a user-driven or business-driven sector? Why?

• Interviewee 10 – Interview transcription

1) Rafael: Could you, could you please briefly describe your background and work experience?

(Interviewee 10 offers insights about his work experience including firms, positions, roles and achievements).

2) Rafael: Ok. So the next one is: In your opinion what are the roles that design plays in the mobile telecom industry regarding the development of new handsets?

Interviewee 10: Well, my experience is that design is pretty central to that.

Rafael: Uhum.

Interviewee 10: And the handsets... the new product handsets are very development led I would say, because the functionality of the handset part is really done by the operating systems. So it's the look and feel and other design aspects that give the handset a competitive advantage, it's always been that way really. I mean, in the early days Nokia I think, had more appealing handset designs and helped them be market leaders. Then, Sony Ericsson came in and did new things. And then since we've been in the days of smartphones it's been Apple and now Samsung and other people coming from them. So it's been... the design has always been right at the centre of that and the role of design has really been about understanding people and what they want, and to see you know what they want emotionally for their handset. You know things you need it to portray and that kind of stuff and what that means for aesthetics. So that's the handset, I mean obviously design has got a lot to play on the on screen interactions as well and it

has become ... you know usability of apps has become a huge issue because there's so many functions in such a small space.

Rafael: Uhum.

Interviewee 10: So I would say, I would say design is central.

3) Rafael: Okay. So, the third: What are the main changes from that period that you worked as (interviewee's position in a specific company) and now regarding users' relationships with their mobile phones in terms of interaction experiences?

Interviewee 10: Well, I think, first of all, a mobile phone does a lot more than it used to, although I say does a lot more it doesn't necessarily do a lot more; it does it much better. I mean in the days when I was at (name of a specific company) was the days of WAP and things like this and using that on the phones was very clunky and it didn't really ... it wasn't ... you know, they used to market it to search the web online but it was nothing like surfing the web online, it was really like surfing text online.

Rafael: Uhum.

Interviewee 10: But now you've got, you know, more or less equivalents of, of what have of the web, you've got more or less the equivalent of the web on a phone. So, each interaction with mobile phones I think they... in terms of interaction experience or in terms of interaction things like touchscreens and dragging icons and things, things like that tend to dominate interactions now; whereas in the old days it was scrolling menus and it's the experience must be so much more, so much better. Well you know, it can't even be so much more but the things you can do like the internet is infinitely better, their cameras are much better, their videos are much better. Hum... and then of course applications, you didn't really have applications in those days and you couldn't download apps. So, a phone is a much more sort of organic thing that grows with you I think, and it's much more personalised because you can download your own apps and you can play music on... so I suppose the phone has become ... first of all it's become much better at everything it does and secondly it's become easier to use because obviously the screens are much bigger. And thirdly you've got an awful lot of new things in the shape of these apps that you can do.

4) Rafael: Ok... So, the fourth one is... Is it possible to say that we are in the third wave of 'user experience' that started from hardware (function), moved to software (mobile operating system) and now it is related to integration of service (eco systems). What, what do you believe is going to be the next big thing?

Interviewee 10: Oh that's the question? I mean the honest answer is I don't know. I suppose... I would, I would imagine there will probably be a period of this integration getting a lot better and smoother than it is now, and I have noticed it improving all the time. I dare say, you know, for example, I noticed recently... I mean, I was asked the question recently "What does it feel when you see an advert on your phone (*inaudible*) on it with your phone?" Well, now you more or less can, but that's social data coming in and I can imagine the phone becoming more and more, you know, linked in kind of in almost everything. At the moment there are still some things you can't really do.

Rafael: Like a 'convergence'?

Interviewee 10: Yes, probably yes. I mean, you know... at the moment, you know, I think, okay if you said to me when is, when is the next... 'where is the nearest Chinese Restaurant to here?' It would take me a while to find it on my phone, I can go into Google, I could probably put in my post code, you know, that would be quite a long process, but you might have more and more dedicated apps for different things. But it's a good question, I mean the other way it could go is instead of having dedicated apps, you have apps that were... or functions that were very broad in what they do; so, they could somehow answer almost any question you have. So, the same question that would tell you about a Chinese Restaurant would also tell you, you know, how far, how many miles it was from here to the United States, or how long would it take you to say buy a book about or an app of some kind. But I honestly don't really know where it's going to go. I mean, I think there'll be a period of improvement with other detailed systems but what will come after that, I don't know.

5) Rafael: Alright. So the fifth is: Based on your professional experience what do you believe are the main challenges and opportunities in the wireless sector for handset manufacturers?

Interviewee 10: I think the main challenge is to make sure they're not commoditised by the operating system providers and this; you know, this is the same issue that goes back to Symbian (OS). The reason Symbian was set up was because handset manufacturers were worried that if Microsoft developed a system then people wouldn't care what phone they had as long as it ran Microsoft Mobile or whatever, you know. Like PC manufacturers are basically commoditised by Windows, nobody really cares what PC they have as long as it runs Windows. So that's, that's kind of the challenge for handset manufacturers.

Interviewee 10: Hasn't this already happened? I mean people usually look for Apple phone or Android phone, they...

Interviewee 10: Well, I mean it's happening with Android, it's not what's happening with Apple because the handset manufacturer and the operating system happens to be the same one, but yes I mean it could happen with Android. I mean, at the moment with Android. I think Samsung are fairly dominant among the market, but yes, I mean it could get to the stage where people just don't care as long as they have an Android phone. It's interesting though isn't it, I mean, is it the offers... if we look at the feel of an Android... of a Samsung phone the same as any other phone running Android is there a level in between.

Rafael: There is a difference...

Interviewee 10: Yes, the interaction designs are the difference, so I guess it's... I suppose what's going to happen is... because perhaps Windows is more of an operating system, Windows is also an interaction isn't it. But I guess with an operating system... if a company builds an operating system and an interface that is the same across all phones that could be quite attractive to consumers just because of the level of consistency, in the same way that if I buy this computer I don't have to... I mean, if I had it previously, I don't have to learn the interface again, it's the same interface. But I think if an operating system provider creates a common interface that will be a huge issue for... that was what Microsoft were trying to do back in the early 2000s, you know, trying to have Windows for phones, essentially. If somebody creates an Android version of Windows for phones that will threaten a lot of companies, I think. As for opportunities, that's a difficult question that is, I mean I know how... I mean I think they've all got

opportunities in terms of moving to emerging markets. So, you know obviously Apple have already developed their licence to sell in China and I suppose India and places like that. So, I think that's probably some of the biggest opportunities, I think if you can create a type of budget Smartphone, to address a huge demand at the moment, but also I suppose the increasing wealth of partners certainly coming to restore plenty of opportunities at the luxury end of the market.

Rafael: So, considering that you just mention before there's still... you're talking about the, the, the interface that from one brand to another brand they are slightly different, do you feel the manufacturers they're going to push a little bit more to go on the software side in order to personalise their specific brand like Samsung has the touch Wiz and HTC has the HTC Sense and this kind of stuff?

Interviewee 10: Yes. I mean, I think that's where... I think that's what brands need to do to give themselves value, you know. I suppose the danger for a brand is that somebody comes along with a Smartphone let's say, they come along with the equivalent of Windows Smartphone and then every... all consumers want that in their phone in the same way they want Windows in their computer. And they don't... you know they wouldn't... if you did, for example, if you've got a unique interaction, for example, especially for Windows people would want it because I think they don't have to learn the whole thing again. But that's obviously a danger for some manufacturers because then they won't have any unique added value they'll all be the same as each other basically and that's always... as far as I... as long as I can remember that's always been the fear of handset manufacturers, that's the thing they've been most concerned about because they see... they saw it happen to PC manufacturers and they don't want it to happen to them.

6) Rafael: Alright. The sixth. Several authors (like Martin Evans and James Woudhuysen) have explained that design is a discipline that looks ahead and is committed with the future by upgrading current products or creating new market solutions. Do you agree with these ideas? In your opinion how design can help shaping, creating and delivering the future particularly in the wireless sector?

Interviewee 10: Okay, first of all, design is about looking ahead and looking to the future; what handsets can deliver in the future. Yes, I mean I do agree with that

because I think design is more than just those things, but mostly the part of what design is, I mean, design can also be very much about you know dealing with current problems that aren't being dealt with, even in the present, or including parts of the population who can't do things. You know, so there are a lot of things that design can do in the present there's a lot in the future, but I agree that half of what design is about is this. I think design, the role of design is understanding people and then understanding how technical developments can be used to meet those people's needs and I think that could take the design anywhere really, whether it be current technology or future technology. So, I think that's how design can help. I think it's in understanding what people might want to do and finding a way that they can do it which is both useable and emotionally engaging.

Rafael: Uhum.

Interviewee 10: I mean, I think the thing about the wireless sector is that wireless is a sector with almost infinite possibilities, there's so many potential things you can do on a phone now and I think design as this understanding of people and the understanding of how to deliver things well, has a role in making the selection about what we choose to focus on.

Rafael: Uhum. By... making priorities?

Interviewee 10: Yes, I think making visions for the future you might say and seeing, seeing if those visions are appealing and positive. Yes I think designers have the ability to visualise possibilities and help other people understand what those possibilities are and how they might work. So, I think that's where design can, can really benefit people in this context, and then ultimately you know when, when decisions have been made about what's going to be done then design is central to doing that in a good way.

Rafael: So, then design becomes specifics?

Interviewee 10: I think, yes, you'd have to have a procedure where... but I think it also becomes operational you might say in terms of once the strategy has been decided then design has also got a role in executing that strategy.

7) Rafael. Uhum. Okay, the next one is: The literature says that HCD puts the user in the centre of the design research process, therefore understanding user's needs is crucial for new product development. I talked with other professionals and they explained that they use consumers' inputs only at the beginning of the design research process to discover any problems or issues and they do not engage with them in next design research stages. In your opinion what is the reason for this gap between the theory and the practice in design research? Is there something in the business world that's more urgent?

Interviewee 10: Well, there are certainly issues I think, there are a number of reasons why it can happen. I think one is that, one is that people don't believe it's a good idea to engage users throughout the process. So, I think there's a difference... I mean, first of all there's a difference between understanding people and understanding people's needs that's different to including users in all stages of the process.

Rafael: Okay.

Interviewee 10: So, sometimes you find that users tend to have a... users are quite good at making you aware of their problems and you know what they would like to happen, but the trouble is sometimes with users if you, if you start telling them ideas they have a tendency to go with those they are most familiar with, so if you find something radical and innovating they can often throw that idea out. That's one issue, I think a lot of people in industry believe that and I partly believe that myself as well, I think it depends on how you involve the users but I can see the danger of that. There are other practical things like confidentiality in the sense that companies are frightened that users are just going to give all their secrets away if they see things that have been developed.

Rafael: Uhum.

Interviewee 10: So, I think those are probably two of the reasons, but then, you know, I think there are companies who do bring the users' view wide way through. I mean, most companies I know will certainly use the user somewhere near the end, they may not use the users in deciding which direction to take, but once they've decided on the direction they'll bring them in to look at usability

styles and those kind of concrete issues that need to be sorted out. I'm trying to think of...but yes I mean, this is probably where inputs from users tend to come in right at the beginning and right at the end post-design and sometimes in between but not always.

8) Rafael: The next one is a bit related to what we've already talked about: Some experts say that engaging with users during the whole design process leads to a limited level of innovation towards new products. On the other, limiting the influence of users in the design process (by interacting with them in the beginning of the process) helps companies to achieve deeper levels of product innovation. So do you agree with this? Is there any other factor of factors that help you manage to achieve a higher level of innovation in the product development?

Interviewee 10: Yes, I think I generally agree with what's been said. I don't entirely agree but I think there are ways you can bring in users, I think you have to use the input from users in a way that you interpret it intelligently, if you just say "We're going to do what users tell us" then yes of course you limit innovation. But if you say "Okay, well, users said they liked this one but it's probably just because it looks like what they're used to but what's the lesson we can learn from it?" So I think there are intelligent ways of bringing users in but yes as a general rule I understand what's being said here. I think anything that helps people understand the needs of the user better, I mean a lot of its techniques like you know I've come across designers who are very good at empathising with users and use techniques like immersion where they pretend to be the user for a period of time and they create scenarios so they live it first-hand. I think that's important because it's not just enough to say "Well here's a lot of data I'm going to design for that," I think it's important to try and live through that. I mean traditional tools like personas are very helpful as long as they're from a rich characterisation with a lot of information. The stuff you talked about, you talked about before like lifestyle change in the future, that can be you know, useful. Think about what the world might look like in ten years' time, how will that affect people's needs, those things can be valuable I think. So, you know, I think anything that helps people empathise with users but also there's room for just kind of wild brainstorming about ideas. There is nothing to do with users but could we do this, then you know, then you say well some of them once we've got these ideas out to users.

It's something users might like but some of them they don't. It can be also something purely technical as well...

Rafael: So, basically, if I consider the process, perhaps, I have to consider both, both users input and also professionals and stakeholders opinions?

Interviewee 10: Yes, I mean I think you could... you know there's still a tendency in design, you know, and if you've followed development over the last 20 years or so it has become very user focused process. In the old days it probably wasn't user focused at all, but I think maybe you know both have their merits, I think you can learn a lot just from these purely technical advances as well, but then you want to balance that against users' needs. But I think, I think you know coming at it from both angles, coming at it from both sides is worthwhile.

9) Rafael: Okay. This is the final question. Do you believe that mobile telecommunications is a users' driven; business driven or both of them type of sector (as a hybrid) or what kind of approach you could say about this business?

Interviewee 10: Yes, I think probably both, you know. I mean, the two are very strongly linked aren't they because, you know, people were... people were accustomed to using and they're kind of then getting more or less the same thing aren't they. But I think it's both, I mean, again, from my past in the industry and from what I see now is that a lot of new product development is very feature driven, there's still a lot of pressure to be first on the market with a certain set of features, even if you haven't had time to properly user test it.

Rafael: So, that this is more related to technology than the product?

Interviewee 10: Yes, I think... because, I mean, I suppose the business would say 'okay you know we've got this... we can make a business case or marketing case out of being the first on the market to have, I don't know, an application for buying things online, buying things by scanning the barcode or something?'. Well, you know, even if it doesn't work that well that's not user centred, you want to be the first on the market with it; so, it's let's get it on the market and worry about how you make sense of this for the next generation. I think, you know, the mobile industry is a bit like that in some ways, in fact you could argue that it's business driven and that's a traditional motto of business "Let's just be first on the

market.” But at the same time an awful lot of whether a company succeeds now is about its interface and its usability, and the emotional experience and user style. But I think it’s still... I will probably be looking at it quite like a business driven in the sense that you know businesses come up with ideas and then they you know throw them out there to see how people respond rather than necessarily running 100 focus groups to ask people what they’re after. And because it’s... because it’s still a young industry so...

Rafael: Okay.

Interviewee 10: You know if you’ve have designed something like, I don’t know, a kettle or a television or something that is very traditional, then probably a very user led process is really the only way to do something new, or to come up with something better than the alternatives. But if you’re doing something where the technology is evolving all the time, then I think a lot of it is about being first on the market with a particular technology and so I would argue it’s probably a business driven model not a technology driven model.

Rafael: Uhum. Yes that’s it, thank you very much.

1.2 Model evaluation interviews: questionnaires and transcriptions

After introducing the primary data gathered in the early stages of this research (e.g. data collection), this section is dedicated to present the outcomes of the questionnaires applied in a later phase of this study to evaluate the drafts of the design-led future forecasting model for mobile communications.

In this particular stage, the researcher created a simple and standard questionnaire to evaluate key topics related to model drafts produced such as practicality, usefulness and comprehensiveness. During the model development process, two drafts of the framework were created and tested through two rounds of in-depth experts' interviews using the same questionnaire.

The interviews' transcriptions shown in this section do not display the name of interviewees, neither their roles nor names of companies that they work for. Due to commercial sensitiveness's this information were removed from the documents transcript.

In the following pages, the profiles of the experts approached for the two rounds of model evaluation interviews are introduced (reproductions of Table 7.2 and Table 7.3 introduced in Chapter 7 – Model development and evaluation) followed by the applied questionnaire and the transcriptions of the interviews.

Table 7.2 - Profiles of the professionals interviewed (draft 01 evaluation)

Proficiency	Interviewee profile	Remarks
Independent consultant & lecturer	<ul style="list-style-type: none"> • Founder and director of his own design consultancy company. • Part time lecturer in the field of design, design management, branding and innovation. • Extensive international academic and industrial experience 	<ul style="list-style-type: none"> • Interviewee (11) • Face-to-face interview
Design director	<ul style="list-style-type: none"> • Founder and director of his own design consultancy company. • Design director of an international design consultancy firm. • Holds a PhD degree in design from a world class British University. 	<ul style="list-style-type: none"> • Interviewee (12) • Skype interview
Senior lecturer	<ul style="list-style-type: none"> • Senior Lecturer (Information systems) of a leading British University • Holds a PhD degree founded by a major British telecom company. • Worked in several projects supported by wireless companies. 	<ul style="list-style-type: none"> • Interviewee (13) • Face-to-face Interview
Head of strategy	<ul style="list-style-type: none"> • Head of strategy for a leading British design consultancy firm. • Solid expertise developing strategies across different areas such as technology, packaging and transport. • Coordinates distinct multidisciplinary teams and professionals from different backgrounds including designers and engineers 	<ul style="list-style-type: none"> • Interviewee (14) • Face-to-face interview
Design director	<ul style="list-style-type: none"> • Founder and director of a leading design consultancy company. • Over 20 years of experience in design across different roles including design research, design strategy and design management • Manages and coordinates multidisciplinary teams of professionals including designers from different backgrounds 	<ul style="list-style-type: none"> • Interviewee (15) • Face-to-face interview

Table 7.3 - Profiles of the professionals interviewed (draft 02 evaluation)

Proficiency	Interviewee profile	Remarks
VP, Head of Integrated Design & Strategy	<ul style="list-style-type: none"> • Over 10 years of working experience with mobile communications. • Works across different departments to create consistent product and brand experience through numberless consumers' touch points. • Coordinates multidisciplinary teams (including designers) 	<ul style="list-style-type: none"> • Interviewee (16) • Face-to-face interview
Director of Visual Communications	<ul style="list-style-type: none"> • 10 years of working experience with mobile communications • Works across different areas focusing on brand experience through different touch points (from both end-users and corporative sides) • Manages different teams of professionals particularly bridging design, branding and marketing areas. 	<ul style="list-style-type: none"> • Interviewee (17) • Face-to-face interview
Head of Technology	<ul style="list-style-type: none"> • Over 10 years of working experience with wireless technologies, Research & Development (R&D) and software development • Manages a global team of professionals, focusing on user experience design (liaising directly with the design team) • Holds a PhD degree in Physics from a leading British University 	<ul style="list-style-type: none"> • Interviewee (18) • Face-to-face Interview
Independent Consultant	<ul style="list-style-type: none"> • Over 20 years of experience working and consulting for international companies across different industries • Solid experience in the field of innovation (including future-led strategies, branding, NPD, packaging and marketing) • Founder and owner of its own innovation consultancy firm 	<ul style="list-style-type: none"> • Interviewee (19) • Face-to-face interview

1.2.1 Standard questionnaire for expert model evaluation

Rafael

- Brief introduction: about me, research topic, model rationale and key points

Interviewee

- General information/profile: name and expertise/position/roles

Questions about the model:

1. Would you consider the model to be comprehensive? If not, please identify missing factors/links/information.
2. Would you consider the model to be useful? Is it adequate and helpful in promoting assistance and clarification?
3. Would you consider the model to be practical? Can it be applied in the industrial context?

1.2.2 Interviewee 11 – Interview transcription

Rafael: Yes. So, I'm going to introduce myself and later on I will ask the questions. My name is Rafael Mello. I'm a final year student in PhD at Brunel. My research topic is design-led future forecasting model for mobile telecommunications. Basically, what I'm trying to do is to develop a future forecasting model from a design perspective. In order to do so, I had to understand the key factors that should be considered, the links between these factors, and where they sit in the design process. So, basically, my model comprises five dimensions that are integrated to design in the middle. Each dimension...dimension has specific factors that links and relates to each other, okay? So, I would like you to take your time to look at this, and then I will ask some questions.

Interviewee 11: Okay. Okay. Okay, I will, as much as I can in a few seconds... No, no that's fine, I would rather you ask the questions.

Rafael: Okay. So, just very briefly, just give your name, your position and the for the record.

Interviewee 11: (Interviewee 11 introduces his working experience including activities and expertise).

Rafael: Okay. Thank you. I have a set of these four questions. First of all, based on what you see [in the model] and your expertise, do you believe that this model is comprehensive?

Interviewee 11: Okay, the... the one word that I...I find missing is... kind of, context, actually other than that...you've got trends and you've got the wireless industry business, which I am assuming is market driven, is...is...you're talking about this is the market of wireless industry?

Rafael: Yes, the structure of the industry.

Interviewee 11: Okay, what I'm...what I'm wondering is that...increasingly in innovation you get breakthroughs from sectors that aren't traditionally seen as your sector. So, you could argue, this is a, sort of, broader context within which your product works. So, in here, yes you've got wireless industry... I would say, you know, where for example so, you know, does social media or this kind of things have...or social media companies, you know, have an impact. And they may not be considered core wireless industry, but they could be considered to...to have an effect. So, it's like, if you go back to [Michael] Porter, you know, it's the '5 force model', I think it's the 5 force model', where you're talking about substitution by, you know, by others. So, I think that...that would be one issue. In some ways what you're probably talking...you know, it may just be about words, it might be semantics because in event trends you do cover, you know, a lot of things there, you know. I'm wondering whether in trends, kind of...social, it's quite...it's quite default and again, you know, you've got things like convergence, and quite technical things in the wireless sector that whether in terms of emphasis, whether things like social political, trends have a...you know, have a quite a big impact. So, I suppose the argument would be, again if you look at, sort of, social media, it...it's an amazingly, powerful trend that seems to shape all sorts of industries, you know, from brands to I guess to politics. But, is it there forever?

And if it suddenly dried up would it... you know, would that be a trend just going round, you know... Experts, I'm not, you know, arguing in terms of the technology. Because, the other argument would be, I'm, kind of, crediting this experts, and I'm not necessarily picking up... is it technical expertise, or market expertise, or some other form of expertise?

Rafael: Well, in that case, considering the broader view of this model should be in different areas, not necessarily related to technology, it can be also to psychology, social sciences, yes.

Interviewee 11: I think if somebody coming, you know, as I am fresh, probably would look at the quite, strong hooks like technology that I wonder whether, you know, sort of expert...is this expert, is it experts as in there... is opinion from experts and then there is also expertise where there are, you know, the best model or data set, or something, particularly in technology? There might be technology that actually exists; yet, at the moment, not coming to bear on mobile phone. Yesterday I was talking to a guy who works for a company that's now been taken over by a Californian company, and he was talking about the way in which the technology of data... kind of, graphical interface and things that are used for gaming are gradually finding the way onto handsets. And so, what we see on a big screen like that, which has, you know, a fantastic graphic processor the ability to replicate really well things that you see, I don't know, Grand Theft Auto or something that people are looking for that kind of quality for phones. So, that, you know, there is here some technology which might migrate to something else. Is that where that's been picked up?

Rafael: Yes, I think that in that, in this particular area [of the model] I was focusing on experts' opinions and knowledge that they bring and add to the...

Interviewee 11: Well, I think the, kind of, quite interesting words that, you know, expert opinion and knowledge, whether... it's easier for people, if you look at the model, to just maybe expand. I know there's...there's a question on the other side of this that, simplicity and clarity by having short words in there, but I don't know whether, it works. I would also... I would also think, if this is a future forecasting model, I would have expected experts to come into something that represents...

Delphi methods, for instance. And I'm kind of looking that, you know, that is something which through foresight Delphi, things that can be linked.

Rafael: I tried to bring it in here, in multidisciplinary teams, where I put designers, experts from different areas, and professionals from different departments within the company. I don't know if this answers your question.

Interviewee 11: I'm probably looking, you know, looking for comfort words that are, you know, quite well known in the specific area that you're working in. So, if it's forecasting, you know, especially technological forecasting... Delphi and things like that. So... Okay, I have got, okay, okay.

Rafael: Yes, in here...

Interviewee 11: Okay. The question of the users, so is this... this is a design tool?

Rafael: Yes.

John: It's... But...because the design actually, you know, you said that it covers both ends... then you could argue that these are design tools, they are research, but they're also...

Rafael: Yes, that's a point. In here in this outer circle, I tried to 'set' design as a general mind set and also as a strategic tool. In the second level, Designed as a research tool, so I have linked it to trends, it should be linked into experts, and into users, and also linked to the industry. And then, who performs the steps? Different stakeholders, designers, experts and professionals. And, inside (inner circle) they work together to define concepts that lead to personas and scenarios for future products and innovation.

Interviewee 11: Okay, so... this is a model, so as a model am I...am I looking at the output actually in a sense that it's...as a product that these are the outputs that this process might produce in your centre?

Rafael: Yes, that's it. So... if I take, for example, the [Design's Council] Double diamond, I think if this is the 'strategy' then this is 'data collection' and it is a 'concept development'...here it is related to 'manufacturing, testing, product release and evaluation'. So, my research is in this side (strategic part).

Interviewee 11: Okay. Okay. But, you're nevertheless coming up with this thing here as it is like a ...I'm not sure I like the word 'brief' but it's close to that isn't it? It's a new definition of 'brief' here, isn't it? And I wonder whether, you know, graphically that is shown, if you...I don't know, how you say it, but yes, you know what I mean, it's all, kind of, coming into this, isn't it? This is meaningful word, you know, 'product direction' or 'vision' or I'm trying not to say the word 'brief' but, I mean, what you're talking about is proper scope isn't it, a project scope or something. And whether, in terms of colour, you know, or something that, you know, because quite often...quite often in models you...you tend to get where does it start, the beginning of it and it sort of swoops out, you know, all of these things are playing in.

Rafael: Yes, yes... my drawing skills are terrible, I am sorry about that.

Interviewee 11: No, I understand, okay. Okay that...I mean, to me is...I wouldn't necessarily comment on that because I think that seems quite technical. So, I'm assuming that...that there's nothing missing in there, that there is another way of defining, you know, certain aspects of wireless telecom or whatever. So, I'm probably not qualified to make a comment, I think I understand it, and I think it's alright, but it's probably I won't make a point about there, because I might be wrong...

Rafael: Ok...

Interviewee 11: So, again, from a user perspective, what is linking...you know, because...because again I'm...I'm assuming that these are quite fluid interactions that... that results in something coming out but you've got something in the centre here. Why is that in the centre?

Rafael: Yes, so... maybe, I don't know if I should stretch this arrow to here. Because, basically, I'm trying to show these two parts in here. A mobile phone is made of hardware and software parts, and what brings them to the interface. On the other side you have a network provider that enables the signal; so, you can make a phone call and use your phone. So, this is related to the experience that users have. So, when they really...experience is related to the interaction and usage patterns. So, they (users) are driven by psychological drivers such as

aspirations, needs and difficulties. And, the physical driver is... how long they need to adapt to their phones; they can customize it; they can shape it... So this is all related to the interaction. So, users, in the way that I understand it... I understand that I need to develop...

Interviewee 11: So, are you...are you actually talking that, sort of, is it the whole of that...

Rafael: Okay.

Interviewee 11: I mean, I don't know, is...?

Rafael: No, no, it's fine.

Interviewee 11: Because, that's another way of, you know, of not being, quite as (*inaudible word*) isn't it? You're then having a very elegant line. But, you're then, sort of, saying actually all of these things, they don't just come out as a single point but they're like gradually, like, a focus of ideas into the centre, maybe. I don't...I mean, I don't know where they should go to, if that's the right place they should go to, I would have thought...

Rafael: You feel free to draw because I think this is best way to...

Interviewee 11: No, I think that, you know, that for example here... I'm not sure that probably does that go into there... or is it actually, you know, sort of, I don't know, maybe all of these things, are they [*inaudible word*]. You know, is it that actually it's the interaction of, you know, a number of... it's more, sort of soft cell isn't it? I don't know....

Rafael: Okay, like more an organic approach...

Interviewee 11: Yes, so you're saying that...that actually it's not a single direct answer coming out, but it's a...it's a slow...it's a slow, I'll use the word data, which then goes to something in the centre processing information and finally into...

Rafael: Hum-hum...

Interviewee 11: I think that there was something in a dissertation, I think and there would be a little chart which shows...which I thought was quite good and it was like data, information, insights. And... somebody had drawn something like a triangle, and I can't remember what was the top one, but in a sense it's that...that what you're processing stuff here but it comes through as I suppose, you know, is it, I don't know, is it in the findings that come through, or it's insight and information that then gets processed in this...this area?

Rafael: Okay, yes. Because... I'm focusing on traditional handset manufactures like Nokia. I'm not focused on iPhone, because they have their own closed ecosystem. But, with the emergence of the internet and how these, computing and software companies took over companies like these and they have an increasing power in this market and how they [traditional handset manufactures] survive, or what they should consider to keep moving...

Interviewee 11: And presumably some of the things that you could have said then, you know, Apple and Microsoft popped in. I don't know, you know, if you were trying to...I mean, those things are going to happen so, you know, the impact of an acquisition by somebody like Microsoft, you know, Google...what would happen, you know. I mean even Apple, say like Apple bought... Blackberry, so, you know, how would you set up and be able to process some...something like that, I don't know. Okay.

Rafael: Yes, so basically I would like to check your opinions if this is comprehensive, if it's useable, if it's practical, and if it's missing anything. I already found that I am missing a lot. Is there anything wrong; any critique...

Interviewee 11: Well, I think...I think comprehensive it is...is always a difficult one to answer.

Rafael: Okay.

Interviewee 11: You've got a quite a fast moving industry all the time, so...so maybe, you know, that is there is a certain flexibility to take on, you know... changes, unexpected changes that...that might happen. And, I can certainly sense it's...it's quite a...it's a very rich diagram, so one guesses it, kind of, covers most eventualities.

Rafael: Uhum.

Interviewee 11: So, if it appears, you know, but apart from the comments earlier about words, and, you know, where the things like non-directly relevant markets and stuff like that go, I would say it's comprehensive. Is it useful? Yes, I think it very clearly shows the drivers affecting an industry. And, if I was an industry person I would just use it as a way of saying, you know, have you got, and can I tap in these areas and try to connect them in some kind of rational way. Where it's not just the technology driving whatever it is I'm doing, but it's this innovation model, you know, it's the whole, it's the whole context, and the trend, and the social, and the cultural issues have a relevancy to the technology that fair amount of what can be considered quite holistically in a model.

Rafael: Uhum.

Interviewee 11: Is it practical? Yes, I mean, yes, I think these things... I think unless you're, you know, an inherently brilliant chess player and you can do it without any thought at all, it's just there in your head, that these things are really good. Because, they help you to think about... Am I thinking about everything, you know, am I accessing everything, as a manager, or a director, you know, is there something I'm, sort of, missing? And, although you can't maybe look in all of those areas in the depths that you really want to, but you can... There's an opportunity to priorities and say, 'right, I think we're kind of happy with it, so we won't necessarily do anything formal, but I'm not sure this trend stuff in here... as a company we've got the right antennae out in the world looking at some of these things, so perhaps we should be'. I think that...that's in a sense is a very strong visual, kind of, check list about whether it's applicable in the real world.

Rafael: Uhum...

Interviewee 11: Anything missing? Yes, a title

Rafael: [laughs]

Interviewee 11: Yes, and another is the copyrights.

Rafael: Oh, okay yes.

Interviewee 11: No I think...I think it's good, looking good isn't it. I think what you're doing...I think this is really, really interesting to... capitalize on it, to go back and talk...presumably you're going to talk to, I don't know, to somebody in the technical field and...

Rafael: Yes, I am looking for people from handset manufactures and also considering service providers as well

Interviewee 11: And, I think, you know, they will create their own views and opinions and I think then it gives you the confidence that what you've got, you know. if your second supervisor comes in and says, well I...you know, you can say, well I had to. The world out there begs to differ, or, you know, backs me up rather than what you're saying, I think that's good.

Interviewee 11: Yes, this particular issue that you mentioned that Microsoft acquired Nokia... something that design managers from some companies already raised, you know. What if a software company buys a handset manufacturer? The funny thing is that before the merger or acquisition Nokia was already working only with Microsoft, using windows Mobile in high end devices. And, this something that I would like to make it clearly in here, because of Nokia is not 'attached' with anyone...

Interviewee 11: But, I think... I think the Nokia guy actually has gone to run Microsoft, I am not so sure about that. Didn't he move over?

Rafael: I don't know...

Interviewee 11: I think the CEO of Nokia has gone to actually manage something, either, you know, as the number one because, you know, the whole issue here was that Microsoft has never really, really got to grips with the web has it? They were saying that it never got to grips with, you know... how the hell it should work on, mobile, where everything is mobile. This is a bit about other industries coming in and saying, you know, it could be Phillips, saying, how can mobile, sort of, communication work on a jug kettle? Because I'm not going to have a phone, I am not going to have totally internet enabled, you know, the internet of things kind of, I can just fit in a room. And, if I'm going to (*inaudible* word) the kettle, you know, this may not be totally true of a kettle, it might trip me up. And, if I'm

walking upstairs, you know, it might be a Phillips light bulb, something like that. I don't know, if you've seen that, but, looking at...the Chinese I think, are looking at light bulb as Wi-Fi....

Rafael: a hub, hub.

Interviewee 11: In a hub, which is, kind of interesting, because then you know, you might have all sorts of benign things around that enables data traffic without you knowing. But, they're saying... and again it's the industry... it's a radicalisation of what the definition of what is a mobile phone, you know, how is that...

Rafael: Yes, the boundaries now are so unclear that the last thing you do with your mobile phone is make a phone call, you know, it's mostly tweeting, messaging and everything....

Interviewee 11: Absolutely. I've just got a...where did I put mine...

Rafael: Did you put it in your car?

Interviewee 11: You know, this were telling me I've got...I've got to leave here in 15 minutes. Right, if I put, you know, I put notes in now to remind me that I've got to go to a lecture at quarter past two, you know, it's in room...it's a diary, you know...

Rafael: Yes.

Interviewee 11: I think sometimes that...that lines...the only visual thing I think is maybe, you know, do lines actually, you know, suggest this very... is it the only way it can go.

Rafael: Alright.

Interviewee 11: Where, you know, I don't know if it's the right way of doing it, something that's a bit more fluid suggests that a richer data exchange...

Rafael: Okay.

Interviewee 11: I think...I think one of my students has just done a dissertation about how you collect...how...the... there is a framework for trends, which is

quite interesting. So, you know, because there's nothing written about how you deal with trends. So, there's, you know, that is a very simple little circle, that is trends. But actually, even in that, for a lot of companies there's, you know, quite...I'm not sure they'd know how to do it, are they? I think there's some quite, you know, it looks... I am saying well, you know, there's lots of...you know, it could be a combination of data, information and insight and moving ahead can be a two way process, and how stuff from here might inform out that part.

Rafael: You are telling me that it looks quite simple. Are you expecting to see this more developed?

Interviewee 11: No. No. No, I think that way will do. I could think that, you know, I'm sure when you're writing it that how...how you elicit information here and here, you know, in some areas, you know, it's not straightforward is it and...

Rafael: No, because I'm not telling [in the model]... there is something behind it.

Interviewee 11: Yes, absolutely, absolutely. No...no...no I wouldn't complicate it anymore, but I just think, you know, that the stated comment in the narrative is that, you know, there are tools and processes here, that are gradually evolving to help, you know, managers work better in this area and I suppose from... because you're doing a design based PhD, it's about how design tools are actually helping to clarify and communicate, and visualise, these issues. And, I think that's always this kind of thing that I have in my mind...Okay, that's all.

Rafael: Yes.

Interviewee 11: But, no I mean I...

Rafael: Okay, yes that's all.

Interviewee 11: Thank you.

Rafael: Thank you very much for your time.

Interviewee 11: My pleasure.

1.2.3 Interviewee 12 – Interview notes

Interview 12 was conducted by skype and the findings collected from this process are presented in the following narrative.

Before addressing the questions of the standard questionnaire about the proposed model, interviewee 12 provided general opinions about it. To begin with, the interviewee 12 stated that the presented model draft seems to be very complete allowing multiple possibilities to be addressed and explored. In addition the design dimension displays different elements related to NPD (New product Development) that are employed to investigate and explore different issues at the same time, for example, trends and users.

Taking into account the graphic display of the framework and its several elements, the interviewee 12 made clear that different ‘topics’, ‘tools/methods’ and ‘actions’ should be ‘differentiated’ one from another, creating a ‘hierarchy of information’. He pointed out that the use of different colours for these visual elements as well as different thicknesses, colours and type (e.g. ‘dotted’) for the lines linking them could help achieving this ‘hierarchy’ facilitating readers to interact with the model in easier way. In addition, interviewee 12 enquired about the possibility of a potential digital version of the model to complement the ‘flat’ draft presented.

From a different perspective, the model can be regarded as an innovative platform considering its structure and information. Also it can be used to foster innovation in the wireless sector as this industry presents a low level of radical solutions. According to the interviewee 12, 90% of the innovations are incremental and not disruptive in this business sector.

After introducing his general comments, interviewee 12 addressed prepared set of questions about the model.

Interviewee 12 declared that the model is comprehensive. However, to convey the information in a more convenient and easier way for readers, it is necessary to adequate and organize its information considering a ‘hierarchy’ (as previously mentioned).

With respect to benefits offered by the model, interviewee 12 explained that the information exhibited in the proposed framework is very useful and adequate considering the nature of the research undertaken and the topic addressed (e.g. design-led future forecasting model in the wireless industry). In addition, from a different perspective, the interviewee 12 pointed out that model presents a very good strategic potential and flexibility. For example, it can be employed for firms operating in other business sectors to design for the future (after makes changes to address their industry). Moreover, this level of flexibility can also be regarded from an academic point of view, generating further topics for discussions and future research.

Concerning its usability, the interviewee 12 stated that the proposed model is a practical asset for designing for the future. Depending on the type of venture employed, potentially one more dimensions of the framework will be more or less used, for example, 'Trends' or 'Users'. That is were the 'flexibility' of the model makes a positive impact and value for business. Furthermore, in the case of the 'Experts' dimension, it should also be considered that experts' ideas and insights are extremely inspiring and can be also related to new ways of thinking (e.g. 'mindset') and organizational or hierarchical models.

Finally, since interviewee 12 regards 'future forecasting' as 'designing something for the future', three key topics should be taken into account in order to have a good project outcome/solution. First of all, designers should look at the material collected and confront information gathered from both 'Users' and 'Experts' deciphering and interpreting these insights to explore potential data convergence. Next, the length and nature of the project should be also considered. In short term ventures, users' insights tends to be critical; while in long term projects, experts insights are paramount as they have a good idea about how different factors evolve through time. At last, involved risks should be evaluated and taken on board. In here, designers' intuition and experience can play a role supporting decision making during the different stages of the design process.

1.2.4 Interviewee 13 – Interview transcription

Rafael: My name is Rafael Mello and I'm a final year PhD student in the Brunel University design department. Basically, my dissertation, the title is Design-Led Future Forecasting Model for Mobile Telecommunications. So, what I'm trying to do is, basically, understand what are the key elements that traditional handset manufacturers (Nokia, Samsung and LG) should be aware of in order to develop the next generation of products. I am not trying to design the next product and I'm not trying to understand or test any kind of product with users. So, basically, from my research, from my primary research and secondary research, I found these five key elements [displayed in the model], that are all connected to design. And, the aim of this interview, basically, is to check your opinions regarding those four questions about this model.

Interviewee 13: Okay... let's have a look through.

Rafael: Yes, take your time, no problem. If you need some explanation I can...

Interviewee 13: Yes, yes, okay. This is really very comprehensive, what I would think about is how you would go about testing this model for validity and reliability.

Rafael: Yes, that's what I'm trying to do exactly right now.

Interviewee 13: Within a kind of...

Rafael: My validation is through expert interviews.

Interviewee 13: I see you doing connectivity... is it a connectivity thing or?

Rafael: No...

Interviewee 13: I mean for me, for me to test the model I would look to collect data, you know. You could say, I mean, you could look at experts and they would tell you that I think you've got the main components of a model. But, for me, you would... I couldn't actually say how good this model was unless till you actually did some testing. That would be my opinion. Which one of these factors are more important than others...?

Rafael: Uhum.

Interviewee 13: Or, you know, on a particular context.

Rafael: So, you mean by testing in a practical way, I mean, looking at...

Interviewee 13: A practical way or you could...I mean, one way of doing it was if you collected a lot of data through a questionnaire or something like that that had all these different components and then you could do some type of, you know, something like that.

Rafael: Uhum. I was thinking about...I mean, this for me is a kind of, I can't say it's a trial, it's a way of validating, because I was looking forward to have experts' opinions based on the questionnaire. if it [the model] works....

Interviewee 13: If you had...

Rafael: I'm not supported by any company. So, for me it would be quite hard to achieve that.

Interviewee 13: Yes, yes, no, no, I understand that. I mean, I think, for example, If I was the examiner one question you could possibly get in your viva, for example, could be a question like - how do you know this model is valid? You've got experts, but you know, how do you know their opinions are valid. I mean, it's good enough, you know, you've got an expert that's there but in the final that's something that they could ask you.

Rafael: Okay.

Interviewee 13: I mean, I think it's very comprehensive, you know, the stuff you are talking about here. You've got different types of ecosystems and you took the product right to the centre. You know, is there anything significance in the fact that some of these circles are bigger than others, or is that because it's just getting the information in?

Rafael: I'm sorry I didn't...

Interviewee 13: The experts' circles are smaller than the users' circles. Is that symbolic of anything, or is that just that?

Rafael: No, I didn't...I didn't look in that way.

Interviewee 13: Yeah

Rafael: Yes, it is just a representation.

Interviewee 13: Okay.

Rafael: Do you think that there is a potential issue related to the organisation of this [shapes of dimension]?

Interviewee 13: No, no, I was just wondering. No, no, you know, sometimes people I've seen it in sort of research, you know, there's a bigger bubble or a bigger circle that will say that that's much more important.

Rafael: Ah, I see.

Interviewee 13: If there's a colour, a different colour, or different target stops, I thought that was significant but it's not, it's just a drawing thing, so.

Rafael: No, but any kind of information related to the content, the shape, or like this information... information regarding colours, I can apply in...in the...next.

Interviewee 13: Yeah, no, no, it's not...

Rafael: I got your point.

Interviewee 13: Yeah, I'm not sure if that's... it's just basically a question.

Rafael: Uhum.

Interviewee 13: I mean, basically, this looks very comprehensive. But for me, again, from my kind of background, I would be more interested to say okay, these guys have said that it's valid, and you know it's good to put down what the experts say, maybe again, you could say well, the next stage in continuing this work would be to try and carry out some sort of validation of it.

Rafael: Uhum.

Interviewee 13: Because that's just the experts are saying that but I think you then have to take that to the next stage where you actually apply it in a real context.

Rafael: Okay. So, you mean, empirical tests, not only a qualitative analysis?

Interviewee 13: Yes, I would say theoretical and empirical. In fact, you know, for you, one thing to discuss with your supervisor is can you do it, you know? But, if not, you could put it down as... You know, in your final chapter as saying, you know, the next step if I were to continue it would be to do some quantitative evaluation of the model. Because then you'll find out, I suppose that is part of the question, because you don't know which aspects of this model are more significant than others.

Rafael: Okay.

Interviewee 13: And that's not clear.

Rafael: Okay.

Interviewee 13: You know, out of all this you want what are the critical success factors that you think are important. You have success factors of high importance, medium importance or low importance.

Rafael: Okay, so basically, kind of like 'a hierarchy of the information' on this for other things we are working linked together should be something like this.

Interviewee 13: Yeah. And that's something you could ask people, experts.

Rafael: Uhum.

Interviewee 13: So, I mean, in terms of that, yeah. On the face of it looks, I would say yes, it looks comprehensive. Is it useful? That's clear. So, is it practical? I think (*inaudible word*) from your link. I don't know if it's practical because I would like to see an application of your model.

Rafael: Okay.

Interviewee 13: In terms of, you know, what factors are more important than others to the success, you know, critical success factors. That's how I would answer.

Rafael: Okay.

Interviewee 13: You've obviously done a lot of work to it and that's impressive.

Rafael: When you mention about a qualitative, a quantitative analysis, so, this survey should be divided into professionals from both the design industry and also from the telecom industry, or people that are working in the department of mobile telecommunications?

Interviewee 13: Or if you can have any who... who do you think would benefit from the model?

Rafael: The design team and design managers, they are the main beneficiaries of my model and those people are from handset manufacturers. I'm not talking about Apple or Google

Interviewee 13: Okay, well in that case they would be the two who I would test it on.

Rafael: Okay.

Interviewee 13: I don't know the other people you are interviewing, but if it's all kind of academic researchers you could then carry out a similar type of analysis with the experts of the handset designers, you know, then you've got comparisons of two different groups and you can see what differences that come out of it.

Rafael: Um-hum. Okay. So, basically trying to make similarities and differences of how they think and what they consider more valuable in their work.

Interviewee 13: Yes. And then you'll find out... That's a sign of is it practical or is it useful because then you've actually shown it to people, to the intended audience, and that would give you better... I would think more useful than survey itself.

Rafael: Okay.

Interviewee 13: Then that will fix the problem of maybe having to do a massive quantitative study.

Rafael: Okay.

Interviewee 13: You know what I mean? If you get 5 people or something I'm just thinking from the top of my head, this is something you could bring up with your supervisor usually 5 people of something that works in that area, I don't know if that would be a problem for you or not. Do that. I think that would really...I think that would give you a whole different dimension in terms of, you know, these questions and your model validation.

Rafael: Uh-hm. So, basically the mix of qualitative in the beginning and also a quantitative approach and one leads to another and then...?

Interviewee 13: Yes.

Rafael: Okay.

Interviewee 13: I know that you are in the final year probably chomping at the bit to have something that I didn't know.... you could save that for future work ... the quantitative stuff.

Rafael: Okay.

Interviewee 13: But you would need to talk about that with your supervisor. Another thing as well, you could say in your last chapter, you could say that in the next stage you get people in the industry to evaluate it and see what do they think are key... You know are comprehensive... And what they think are the high and low important factors in that and then following on from that, the next stage after that would be to do the quantitative. Because then that shows that you are actually thinking about how you can do work and intend to develop it further and not just the finished article.

Rafael Okay. Yes because I pursued a more qualitative approach for the course of my research. All the way.

Interviewee 13: Then in that case I would definitely stick to that... And then perhaps the next stage would be to get the manufacturers in and the quantitative as well.

Rafael: This is kind of a validation process that I am trying to do now. Basically, I am trying to mix people from different backgrounds... and have experience in

mobile telecom, consultancies and people from the industry such as designers, design managers and all of these people together; so, they can have a different...

Interviewee 13: So how many people are you going to get altogether for this task do you think?

Rafael: I am aiming high, for 10 people.

Interviewee 13: I think that's quite a lot then.

Rafael: At this stage I have 7 or 8 names listed and there are still more to be added.

Interviewee 11: Once it's there I would get your supervisor, once you've got that there, to just have to look at it. The key thing that someone you will ask you or you should ask would be what this, I forgot, what was it... handset manufacturers are the intended audience, what would they think about it or their designers, you know that.

Rafael: Yeah, ok

Interviewee 13: It's important that you answer that question.

Rafael: Yes.

Interviewee 13: I'm biased. I would put the users at the centre as these are the most important people, they do real important work. Obviously, designers are important... but users are the first and foremost, basically.

Rafael: I don't get it

Interviewee 13: The users follow the design, those are the people I would put right in the centre [of the model].

Rafael: Okay, okay. This somehow is a kind of paradox that I have found through my research. Because when we are talking about future forecasting, they say that you have to design for the users. But at the same time they don't want to take the users on board all the time. Otherwise you cannot... Back to 100, 200, 300 years ago... 'What do you want?' 'I want a wagon with 3, 4, 5, 10,000 horses' and... they developed the locomotive at that stage, the steam machine.

Interviewee 13: Yeah, I know it's difficult...

Rafael: There is a paradox around there.

Interviewee 13: That's why I think it's comprehensive because you've got trends; you've got research, design, users, experts and the technical aspects. All different platforms

Rafael: If you think it is missing something or something that I could have done better you can feel free to write down anything important that you think could be better.

Interviewee 13: I think it's comprehensive for me personally. Right, I would give it to the handset manufacturers and see what they think and then on the basis of that I would then look at it and get an idea of is it more comprehensive and are there other factors that are much more important than others for success.

Rafael: Okay. So basically analysing these key factors and making a hierarchy of them.

Interviewee 13: Yes, I don't know that's my opinion.

Rafael: That's why I'm here talking to you. I think that is extremely valid because I came across with some observations before. Maybe you could organise this maybe saying the actions, or put in columns or different shapes... it seems that in terms of content there are some issues, but in terms of hierarchy of the information considering what are the most successful factors and what I should consider first and other things. I have to be more aware and check.

Interviewee 13: Yes. I mean I would like to, if we do this, get a chance to do the handset manufacturers, when you finish let us know, see what they say. Because you could put it into the hierarchy, or anything like, it would be interesting to see what the results are.

Rafael: I am scheduled to talk to some of them but the thing is that those people are very busy as well. I would take this opportunity to ask, do you know anyone from any of these companies that work in the design area or have a relationship with designers so that I can try and get in touch

Interviewee 13: I used to have contacts at (name of two telecom companies) but they have gone. So, I don't have any contacts there. But I'm sure there was somebody in your department, one of the lecturers I've met.

Rafael: (name of person)

Interviewee 13: Yeah.

Rafael: Ok, I've got it.

Interviewee 13: She had contacts in (name of a company), if I might be wrong but I cannot... I can't remember.

Rafael: A lady or a man?

Interviewee 13: A lady...

Rafael: Probably my first supervisor, (name of a person)?

Interviewee 13: Yes, that's it, yeah. So we got together to do a project that was going to be sponsored by (name of a company) but then I couldn't commit to it because I was doing other things, so it might be good to talk to her.

Rafael: In fact, both of them are my supervisors. I had an experience of working for (name of a company) them in the past...

Interviewee 13: yeah

Rafael: It wasn't in the mobile telecom area... but it was long ago by the way... It is in another line of products. However, I can give it a try, yes, of course.

Interviewee 13: (name of a person). He must has some contacts...Yeah

Rafael: (name of a person), right? Okay, I will try and talk to them then.

Interviewee 13: It's not easy trying to find people, you know, or even I would go for the first time and everything like that, you need experience, you know. It definitely goes worth to go. I think you need to talk to the supervisors to see what they think about that but you know because then at least it shows you've got input from them you know for the validation of it, the initial validation of it because I think that's important... On the face of it I think it's really comprehensive

Rafael: Okay

Interviewee 13: Talk to for the people who would use it and inspect it.

Rafael: Okay, yeah. I will consider everything now. If I have to change some...I mean, not change but actually try to grab those people to reply to my emails.

Interviewee 13: It's a hassle, isn't it? Do you know what I mean and then after that you set up a meeting then you go along and it doesn't happen... and all that kind of stuff, you know, so it's very time-consuming, you know.

Rafael: Yeah, and that's the point. I am right in a situation where I am finishing writing everything that I can and I am, basically, waiting for this data to carry on writing.

Interviewee 13: You maybe just have to, after a certain point, just think, right, I've got enough. You've got to talk with some people about technology, write it up and say that this is what you would do.

Rafael: In the next step?

Interviewee 13: Yeah, if you can do that in the next step it shows people that you have really thought about it and you are not presenting something, just the finished article. I think that that's obviously important...

Rafael: I think that's all.

Interviewee 13: If you want to have a think and... If you want to come back to us in a different time you can feel free to set up another appointment if you want.

Rafael: Okay. I appreciate it. I think for me it is quite important having these ideas because you are a (interviewee's position) and you did your PhD in related to this field. As far as I can remember you had a link in the industry before, right? And also you are still working and have knowledge about these issues. It is really, really important for me that I have this kind of opinion because as a researcher you are immersed in the things that you do and you just don't see and end up missing a lot of important points.

Interviewee 13: Well, hopefully this has been useful.

Rafael: No definitely, definitely. I appreciate it. Thank you very much.

Interviewee 13: No, no. I'm sorry, I haven't visited but some designers asked me... I think that someone dropped out and they needed someone to help out in the interviews. There are a few jobs advertised in your department

Rafael: Really? Right now? I didn't know about this. I will check it. Thank you very much for interview!

1.2.5 Interviewee 14 – Interview transcription

Interviewee 14: This one looks pretty sensible. So, this is kind of your way of modeling the space?

Rafael: Yeah.

Interviewee 14: It is like you are trying to present all the different factors in different parts.

Rafael: Yeah, that's what I found through my literature review and primary research... through interviews with people from the market, lecturers and consultants with experience in the mobile telecom field. I realized that, since I am studying Design and proposing a Design-led future forecasting model for mobile communications, everything is related to. So, Design in a strategic level... as a research tool and also integrating different professionals that could propose future visions of products. And this is what I found. I found out that it was the most relevant aspects.

Interviewee 14: Yeah.

Rafael: And before I go to, to the questions, I just, could you just give me a kind of a, very quickly, description of your roles here, and your name, just for the record?

Interviewee 14: (Interviewee 14 introduces his background, his position and roles in the company that he works for).

Rafael: OK. Thank you very much. So, should we jump in for the questions?

Interviewee 14: Yeah, yeah, please, yeah.

Rafael: So, the first one after looking to the model and based on your opinion, your perspectives, as a (interviewee's position) do you think that this is a comprehensive model?

Interviewee 14: Yeah, I think it is. I mean, it certainly looks very comprehensive. There are things in there that I was kind of quite pleased to see, yeah, especially, it's just the way that you've broken down the product between hardware and

software and broken down the experience, as well. The one, the one thing that I did wonder that is related to one thing that you said at the start, but I think you mentioned technology at the start. But, often a new technology is a good start-point as well. I mean it's a tricky one, because we're ... because what you've got on this paper kind of describes our role in things... But there are times that the clients want to be a bit more involved in the technology and the engineering of it. So... they tend to, sort of, start from the position that anything's possible, what do people want and what's going to be good for businesses and then sort of, hand over different technologies to try and embed them in... But I do think that technology can often be a valid start-point, as well – but, you know, a new special feature comes along, and that can be kind of quite a ...

Rafael: Are you...

Interviewee 14: Yeah, I, guess, I mean, I'm just ... I trying to get a good example as I talk, but...

Rafael: You mean like NFC or augmented reality, these kinds of things or do you think that these are already in the mainstream?

Interviewee 14: Yeah, I suppose, I'm... I mean, we just had a really obvious example of the iPhone that's can combines internet and telephony or mobile computing and stuff like that... That was ... arguably quite tech-led and then might ... because the layout and all the design things related to especially to test that. So, that, that was a test-led opportunity to combine internet and mobile.

Rafael: Uhum.

Interviewee 14: So, I would, I would think part of this, part of the process... we needed to design how it... reflects the sort of technology road-map or the idea that ... new things or new disruptions might be happening from the top side. Because it usually is on the users' side... But, I can't remember what you said at the start, I'm not sure, I think you, you mentioned... you did mention technology at the start, didn't you? And that that was ...

Rafael: In fact, this is ... this is where the ... this is a modified draft, the middle stage, and, yeah, I didn't include the word technology in this model ...

Interviewee 14: Right.

Rafael: But if you think that's necessary to include it in here, then I think it's that kind of information that I am looking for.

Interviewee 14: Possibly. In hindsight, I mean, I've made that comment and you've got trends and you've got kind of... wireless structure, so... You, you have the kind of technology which I guess are implicit in that.

Rafael: OK.

Interviewee 14: So, in fact maybe it's for me... probably the way that... I could advise you, I think... the way that the designers talked a lot is about everything going into the internet. So, I do agree with that until a certain point that... I mean, I've got into my final position that definitely put the user first ... But I don't think user-led necessarily means that every idea becomes familiar to start with. So, I mean, there's... you know, when you're doing a map like this there's all sorts of different places that could be the part of a new idea or a new product concept. And then the final product concept needs to have consistency all of it, and put it all together and ... um ...

Rafael: So, it's kind of, you incorporate the user's ideas in some stage of the process, but I don't think ... I don't think they will be leading all the process, right?

Interviewee 14: Yeah, yeah. So... I don't know if it was coming up in the questions, but while we're talking about it, I think...

Rafael: If you want to draw it, or you kind of, put new information, write down the highlights, feel free.

Interviewee 14: Yeah, yeah. There are some things in common, from sort of, what we find most useful here, which is a lot of ethnographic research in users' research. Usually, it is a big one to kind of collect recent news and understand the kind of things that we think our audience want. That tends to tell you about is kind of what people want now, within their current frame of reference. So, the general outline just kind of goes the same. Or talking with users but them, the iPhone probably wouldn't have come out of a context ... out of a focus-group, or out of a

piece of users' research. It would have come from their understanding of what people want, but ... There is a lot, I would imagine if you'd spoken to users 'pre'-iPhone and you'd asked them what would be cool to have in the phone they would have been thinking in terms of telephony rather than mobile computing.

Rafael: OK.

Interviewee 14: But, so... users would give you great stuff, but often it's kind of, incremental. Unless you, sort of, really deconstruct and get to what's underlying it all, and that's maybe then ... they can't or lead you to something completely new.

Rafael: OK.

Interviewee 14: Hum... experts, I guess, are sort of a counterpoint to that in future framework expertise, you know. They're people who are... who have a deep understanding of the industry, where it's been and where it's going. Oh, and you can get great nuggets from experts about what's going to be... the next thing. Trend is... a difficult one in that, again, we do a lot... I mean, we do all of these things, but we do a lot of trends work. We have been trying to use trends in two different ways.... And I think we certainly have a preference on which is the most useful way, but ... you can use trends for inspiration. You can use them to sort of spark some ideas ... and that's not necessarily... that doesn't necessarily require trends as the truth of what the future's going to hold, it's kind of trend, this might happen. Where, what sort of things would that thing imply and then you'd validate those ideas later. In other cases, with ... in our studies in trends we can predict... say using... trends for sort of defining ... with a bit more certainty what the future will hold and therefore, what should business do as a result.

Rafael: So it is like a starting point?

Interviewee 14: Using it less as inspiration and more as, like a... So, we would kind of, you tend to get an idea, and then the trend has then become less important, and it's the idea that's the most important thing and you're going to validate the idea. Whereas other... in other instances, you have a thing starting to be a trend and that's the important thing, and then everything springs off the trend... I think that's tough because I think the ... I think it's just very hard to predict the future. It's hard to say with what certainty you can guarantee that a trend is going to

happen. And I guess ... there are different kinds of trends. So, there's... well, more fast-moving, ephemeral trends around things like fashion, which you probably can't predict very far into the future. But then there's more underlying trends, like globalization or population growth or ageing populations and those are the, I guess, are things that are more dependable and reliable where we can build strategies on them.

Rafael: OK. So, basically you are talking about mega-trends and micro-trends, that's it?

Interviewee 14: Yeah. And I think there's different ways you can use them all. And then ... your other one ... excuse me ... I guess that, for us, is something that we kind of consider throughout the process. I don't know whether here we would use it as a spark-point. But we would certainly; we certainly would do kind of business models canvases or different models or systems. But I think the way that we'll use them is... probably more in the stage where it gets to the crafting of an idea or a concept, rather than to use it as the thing that would spark that idea in the first place. So, I think ... we try and define 'this is something that we think people will want', or 'it's a new piece of new technology' or 'it is going to appeal to a specific direction and way that the world is heading with trends'. And I think then we would think, well, we have to capitalize in that value. So, what's the best business model or system... or help bring that to the world. In one or another making profit and run the business. Because there are other companies... I think probably we'd use the business model as a start-point – this is probably not how we... Sorry, I'm going on a bit of a monologue, I don't know if I'm telling something useful or something... Is that the sort of stuff that you're ...

Rafael: Yeah, yeah.

Interviewee 14: Interested in, or ...?

Rafael: Yeah, yeah.

Interviewee 14: Yeah?

Rafael: The second one is: do you believe that this [model] is useful?

Interviewee 14: Yes, I think... I mean, I think it's a ... a good map to tell you where to look for things. Could you... could you just talk about what your hopes are for it? Did you talk... did you talk about it as a forecasting model?

Rafael: Yeah. What ...

Interviewee 14: Sorry, when you talk about it as a forecasting model, does that mean that you're sort of ... Compiling information that sits behind this model for ...?

Rafael: Yeah. The model should deliver this kind of flexibility for a company that use it, and maybe could be applied in different businesses, in different sectors.

Interviewee 14: Yeah.

Rafael: What I came across is that, overall, future forecasting means planning ahead in order to stay ahead of their competitors.

Interviewee 14: Ok. So... not so much forecasting in terms of predicting the future, but forecasting as in kind of presenting opportunities.

Rafael: Yeah, somehow, yes. Because if a... As you said about the iPhone, if you ask the users, what they... What they would like to have in a future? They probably would think about a telecommunications device... But because of the insights of the company, maybe they had different experts, such as lectures, professionals from market, consultants, whatever, they could transform those ideas into actionable insights to help them. So, that's why this timeline, this forecasting map was created for...

Interviewee 14: Yeah.

Rafael: And in the other way that... there are many things that we already talked about and we agreed that you can use users' inputs in some part of the process, but you cannot let them lead the whole process. Because the level of innovation would be incremental, they (companies) are not going to be a leader... And soon they are going to be just another player in the market. So, if they just consider the users, it will be incremental. So this is kind of, part of my model. This is how I look at forecasting.

Interviewee 14: Yeah. Well, in that case, I think it's definitely very useful. I mean, I think it... probably when it becomes most useful is when, when you've got all these parts that... it's almost... when you kind of absorb all of them. You need this just to, just to, kind of, bear in your head. I think it's difficult when you've got kind of lots and lots of reports, and the information is kind of ...

Rafael: Scattered around.

Interviewee 14: Yes, it's scattered, because... ultimately, what you'll probably kind of do is make links between things in here. So, the more it can become sort of, facilitating your... people's minds, the better. So, we've got clients who ... actually like workshop processes. I mean, that's a lot of what we do is very workshop-based, like, we'll see if they'll actually go into a workshop. We've probably already got a lot of the ideas, but then the workshop is where the client gets involved and work with them on a group and ... give people sort of socialize and share a lot of ideas... But we do have clients who are ... who are a little bit anti- or skeptical of that process, because they think it doesn't worth it's ... just in that, short time, a short workshop, you're not kind of sitting in for a while and absorbing yourself in all this information.

Rafael: Ok.

Interviewee 14: Whereas ... I don't think they're exclusive of one another, but people are quite keen on this idea of sharing like, you've, kind of, got all information up on the wall, and people just spend time working in that environment and they can absorb all this, all these different parts, and, you know, by having them surrounded by this stuff, there's more stuff and more stimulus there for them than they could naturally hold in their heads... If they were just working alone at a desk and the...

Rafael: So, it is like the different personas and scenarios should be...

Interviewee 14: Yeah, exactly. So, you would have, you know, like some opinions from experts or you might have a... yeah, the phone or you might have to pin this model stick it up on the wall and to all ... by being surrounded by all those parts, you can, sort of, more easily make the links and hold it all in your head, yeah? So, that's ... I guess that would be a ... a platform that you would think. It's how do

you get it from being a really nice... definition of the space, and from probably more flashback, you can it into people's heads, and have to... have these sort of social argument, communicating... Some of the ideas that are overtaking from behind this, yeah...

Rafael: overtaking, yeah...

Interviewee 14: But it, as a way of structuring the information, I think, very useful. It's just... structured information doesn't count for long till it's in someone's ... conscience and then they will be sparking things. I guess a similar point on that would be about how you communicate from this platform? You can have a long... trend reports or you could have something sort of very visual and all these things I've put together, short videos, perhaps, that try and illustrate a future scenario. In doing that will, kind of, communicating the, kind of, ideas, but you're doing it in a way that's a bit more projectable and also a bit more real...

Rafael: So, that means it's more related to...kind of, more ... intuitive. Instead of texts, I think that you... when you get it, it's easier for ... grabbing people's attention, people can work more freely without so many guidelines...

Interviewee 14: Yeah, I think so. I think it just makes it a bit more memorable ...

Rafael: Ok.

Interviewee 14: If you think there's something there that people can relate to a bit more easily. Hum... this is maybe going beyond what you're interested in at all, but as a ... as you know, our background is product development sort of the company, more kind of traditional product design business. So, we see a ... we do an internet related extensions. But that's ... I mean, that's so useful, especially when, when you've got multi-disciplinary teams in the centre. But having that object that kind of captures all of these different ideas in something, ...in something that's real and tangible is then a really good way to get multi-disciplinary teams talking to each other because often different teams have different language, and, you know, different priorities, but if you've, if you've got this sort of thing, and it's a concept, a draft product idea, but in tangible form... Like a, like a really good way of marshalling teams, and giving them all kind of a common, a common goal to work towards.

Rafael: Uhum. So, maybe this is kind of... kind of encapsulates the visions of a potential solution.

Interviewee 14: Yeah. Yeah. And I touched on it a bit earlier, but I think there's a... there is a difference between innovation and design where innovation is, kind of, hanging out, having ideas and then the design part will deal with the crafting of those ideas. So, there's... and I think you would use this input in different ways, to have an idea that help you craft and define that idea.

Rafael: Uhum . So, somehow they are linked?

Interviewee 14: Yeah, yeah, I mean, they do ... yeah, they're very much partners, so they're ... it's the difference between having ideas and delivering them.

Rafael: Ok.

Interviewee 14: There's kind of different skills and talent, and there's ...

Rafael: Uhum... The next one is... Do you believe that it's this model can be used it in the real world, in a real assignment?

Interviewee 14: Yeah, I think certainly... I suppose the obvious practical pressure ... there's two related to cost and time. So, when it ... whatever project we start, there's a ... usually, you had two scenarios, you had ... this is all the information we'd like to know. And then, that's a given, but we've only got this much money and this much time and these are the important things that we're going to have to focus on.

Rafael: Ok.

Interviewee 14: So, depending on how you use this model, you would probably need to prioritize where... where you're going to... focus your efforts, or you know, if it's an ongoing tool, which are the things that you update every month, which are the things that you update every five years, where, how will you ... say, allocate a resource for... keeping it up to date... So, I think that would be the main practical thing on that. I guess, another practical consideration is probably this... because again, that's innovating versus design.

Rafael: Uhum.

Interviewee 14: I think there's this... that moment of having an idea is quite, is kind of ... a matter of probability I think. When you're sort of, talking about having ideas... because if there's going to be quite a random process coming up with any idea. So, you can definitely, you know, present information, or approach problems in a way that practically ... the odds in your favour of coming up with a good idea... Because generally the best ideas don't come from an entirely sort of analytical and logical approach to get them. It's often sort of some wild-card or some idea that comes into people's heads in just that... it's a strange connection that they might have made, that's easy to pin down at that moment. But, I guess what I'm getting at is... in the process of structuring you should leave a little bit of freedom for that to happen... and that's quite, certainly the flexible part that can be quite tricky, sometimes tricky. You suggest a model and you use that as a platform and you might have an idea that it doesn't quite fit within that model. So, you've got to kind of, ok (*inaudible words*) to develop or helping convince them of why they might don't quite remind the model that was created.

Rafael: OK. Yeah, the idea of this model is like... let me think about it, somehow this flexibility... because, I guess this is part of the idea generation is just before all of this right?

Interviewee 14: Yeah.

Rafael: So, you try to read something interesting, you see a kind of a connection between the two different things and then... what can I do with this, you know? Then, I think that's really important to incorporate, and probably it comes when you are collecting the data and analysing data, isn't it?

Interviewee 14: Yeah. Yeah, definitely. I think it is, I think it's certainly practical, it's just a matter of prioritization, I guess. I'm, just now I'm just trying to think of anything useful to say about how we prioritize.

Rafael: The last one is related to things that you believe that there is something missing, something that I should... That you believe that it is not in the appropriate place?

Interviewee 14: Well, I haven't, I mean, paid a lot of attention to this central part just yet, so ... so this is about design team and activities, is that ...?

Rafael: Yeah, this part, yes.

Interviewee 14: Yeah, OK.... And team's tools to search... yeah.

Rafael: Yeah. Basically, these are related to different design tools and how they can be applied. This is just like a flow... So, you have a wide spectrum and they are converging for the 'vision' of what can be a future solution.

Interviewee 14: There's nothing that... well, we talked about technology at the start... I think, you've got it in here, other vectors... but I think that... they will go into a scenario. Well, it's... what can you draw from, from computing, or from other areas that might be the next thing because... you're very specific; there a lot of more opportunities, I think. So, I don't think you can sort of over-emphasise the importance of what might be sort of, a narrow definition of (*inaudible word*).

Rafael: You're saying to, probably, to look into other things that might impact or influence and opportunities to your own industry.

Interviewee 14: Yeah, because if you look, if you look back at some of the things that have, you know, you have to be able to think back on telephony recently or telecom. You look at things like music or internet connectivity or banking and they're all things that have come from beyond a classic definition of telephony or telecom, you know? All these like, companies like BT now, and they're buying up broadband network and you would never... that's like, that is in the future that you would haven't seeing probably or from the users point of view. So, I think that looking beyond the sector is very important.

Rafael: So, it is not only related to the product itself but also related to the business model, where they can try to push to where they think that...

Interviewee 14: Yeah. What else would be an interesting addition...

Rafael: Yeah, I think that Microsoft just bought Nokia. I see now that the link between computing and telecom is fully done.

Interviewee 14: Yeah. Yeah. I mean, something that you might have in here, but it's the... I imaging that you've got it, but the idea of ecosystems and of what you agree yourself and what the market can provide, I think is also quite an important

one. So, you know, if you provide... if you have some contact to deliver it or, as Microsoft and Nokia, or partners that open that to managers say hardware manufacturers, and that's add value in the portfolio or ...What can an army of developers produce for you that you don't need to spend time and money and risk doing yourself...

Rafael: Maybe this is related to... if you look back at mobile telecom you had two different value chains, the manufacturers and the service providers. They together provided and sold the whole package to the users. Now you have one part that produces the handset; the other part, the software; the other part produces the applications, the other part sells the signal...so you are telling me to look where they meet?

Interviewee 14: Yeah, yeah, definitely. You've got handset manufactures, you've got the platforms, you've got the networks, but I just wonder about other pieces... sort of open sources....

Rafael: Ok

Interviewee 14: It might relate more to users, I'm not sure. But you can, you can look at sort of app market data and see your ... there's a lot of interest in this kind of apps – not Apple/iPhone that can then become a bit of an area of conflict. What will interest the users, where that could be typical, or maybe not being so viable, or ... you know, because there's... yeah, I think that's the why it is inconsistent. Because there are certain things that open sources can't provide, because they're small companies and they don't necessarily have the capital or they don't necessarily have the infrastructure to be able to produce as well as distribution. Actually, there are different roles for each player throughout the ecosystem. And I'm guessing your usage proposition for this tool sits within that, within the ecosystem. So, it sits through their... there are some things that they will provide that the market can't.

Rafael: OK. Do you believe that thing that we are talking should be the link between this area and this one? Or do you think that it's kind of a ... an open-source – the open-source technology is probably in here, but there's open-source

development of new software, application... Should it be place here or it should be...?

Interviewee 14: For simplicity, I would put it in here, where it goes... I think that's primarily where it's interesting. It is... it's more like a sort of business model or a conventional model... That might be something related to that... yeah, you're definitely right, because there's an... increasingly blurred line between the user and the developer. So, yeah, if you could definitely tap on that you probably would have a... some sort of leap into users' but and I think accuracy is clearly hard to determine regarding this issue.

Interviewee 14: But most generally, I think it looks it looks a pretty colourful and useful... it reflects how we have been approaching a lot of projects. You can look at something else as a.....

Rafael: This model was the one that I could print at the time, black ink on white paper aiming to inform different aspects of the design process and ... The beneficiaries of my study are design managers and the design team itself. Do you think that maybe adding colours, different shapes it should help to understand it or, I don't know, somehow visually prioritizing the different things that they should take into account?

Interviewee 14: Probably. I don't know quite at the moment what those would be. I mean... It certainly takes a little time to read it all and process it. But I actually think there's some... simplifying, not quite a ... a complicated space ... I think maybe an interesting question to ask of it, and I don't know what the answer would be, but if you take this to Nokia, or a Vodafone, or Google it would be interesting to find out how different it is from; how they're currently thinking about stuff. I mean, they probably won't tell you specifics, but... I would, I think that would be a good test to put on this if... what does it add to the business that... that's going to need it? Because, when I look at it is kind of familiar to me, I mean, it looks like stuff we do, but I don't know what... whether there's a ... and it's probably different for each company, but like, what the ... what's the thing that contains if you're ... like my own approach. So, and I think the way to build that into it is to get a leap on what companies can't understand and...

Rafael: Yeah. In fact, I have some, I have an interview with a person from (name of a specific company) but I'm struggling to find those people, because they're, this is quite a ... time is something... it's a such important aspect that it is really hard for them to to confirm the date of a meeting, to have a meeting – but the idea is to take this and have interviews with three or four people from (specific type of company operating the wireless industry) ask them to look and to make the same sort of questions that I made to you, so I can collect the different ideas.

Interviewee 14: Yeah. Because, I would think what their ... I would imagine that you could approach them and they would say, 'yeah, these are all the things that we look at'. But maybe where that could get interesting for them is about how you see certain things, because you know, there's a ... well, users, especially, there's a number of different ways that you could approach, kind of understand users. And I would have thought there would be more... more, sort of, opportunities currently in use to... telecoms business when you start talking about how do you approach these things, rather than, rather than just questioning whether they are covering all of them. So, yeah, those – I think that would be the two things that I think would be really interesting to build on... it would be ... what, what considerations might there be for how you prioritize; effort in maintaining the tool. And... you know, what techniques or approaches might there be in how you – how you build your information. I think those two things could sort of really ... and that's where you ... I would...

Rafael: Ok.

Interviewee 14: I would think that there may be interest in that sort of thing.

Rafael: OK. Since we are here talking about this, do you know any professional... other professionals from mobile phone companies that you could recommend to get in touch in order to have an interview?

Interviewee 14: Yeah, I certainly. I know one or two spring to mind. What I could probably do is, I would contact them and see if they're happy for me to pass them over to you, and then if they are happy with that.

Rafael: Ok.

Interviewee 14: Yeah. So, yeah, there are certain people that we have... clients we have who would be thinking about this sort of thing.

Rafael: At this stage, I am trying to have a big data collection and evaluation as well... more evaluation, but ... there are a so many things in the background that are not only related to the model, but are running in the background to explain the things, and what things should consider later on... For now... I'm structuring the draft of this model as I am having interviews. In one group, design experts and professionals and also experts, lecturers and consultants or academics that are linked to the design industry or to mobile telecommunications. Another group should be more related... to handset companies, to mobile phone companies... I hope that I can cover the whole sets... have the big picture, the whole perspective.

Interviewee 14: Yeah. Yeah. What are your ... what are your hopes, or your plans for the model, and what ... ultimately what do you want do with it?

Rafael: Well, you know, after conducting the analysis, if it could be applied in the industry, of course, I would engage in the process and be able to see these things happen... This should be the... let's say the best thing. Until there, since I'm not supported by any company ... if it doesn't happen, maybe it will be more, kind of, theoretical ...

Interviewee 14: Yeah... So, as I said, it's interesting, it's a really interesting subject. I think looking at kind of, sort of innovation. So, have I answered all of the...

Rafael: Yeah, yeah, yeah.

Interviewee 14: So, where... is it comprehensive? Yeah, I think so, the technology bit, you said is it useful... I mean, that was probably that last part - prioritization, and how you approach funds in these things. So an example of the how, usually, I mean, what are you using, quantitative and qualitative methods? Is it about collecting sort of this data on the mass market or is it about funding in progressive users, and studying their behaviour? Is it about ... you know, asking people about their attitudes, or dreams and behaviours? There are all sorts of different ways that you can approach some of these things it's ...

Rafael: Uhum. Do you believe that's kind of, these types of methods, they fit?

Interviewee 14: I'd say... yeah, definitely, I would add big data... for users' survey but I think this is quite an interesting way to look at users. Because there's a kind of tools, ethnography is quite interesting, we've got some ideas about what people want, but... it might become quite of trendy, but when you look at the underlying data, it tells a different story. But I think that's quite ... I think this is a consistent way of capturing information and proceeding to the processes of the analysis.

Rafael: Uhum. It could be very different.... Considering what people say and what they do.

Interviewee 14: Yeah, potentially I thought, I might just, putting down in here... business model ...

Rafael: If you can write for me your thoughts...

Interviewee 14: Yeah. That might be quite good to... I don't know if you've ... if it's something with ... that book, just to have a look at that, as well, because, they've a sort of template. But it's quite well-used around different business models. And... it covers a lot of the different parts to consider, from suppliers, partners to, well, consumer, and your value proposition – there might be areas from that you find, you can survey... from the other names. If you just give the business model canvases should come up... one of the.... something like this... it's, it's kind of various options on that, and each one... This is your value proposition that sits in the model, well, and then you have... Well, I can't remember what it looks like there... I think it's kind of suppliers on this side, which would be about partners and supply chain – demand on the other, which would be about the public/target... It may not be if it is like this, I'm not sure.

Rafael: No, I think that... it's valuable to have a look at this...because in one of my chapters I'm covering all of these instruments that help develop things ...and try to kind of, I mean, to grab what is it in the mainstream, what has been used, what is useful...

Interviewee 14: Yeah. I would think, as well, while you're... working out, I guess, that same prioritization... you know, where, things like where you can make the most useful contribution to what, what's going on out there, because users, of course, are talked about a hell of a lot by a lot of different people, but you might find that there's less information about how all these experts, for example... Or how we work business models into the process ... I'm not, I'm not too sure where you might find the biggest holes. But I'd imagine it could be useful just to make sure that you're kind of contributing with something really valuable throughout the different agendas. I think that was good, interesting. Yeah, really good, so ... yeah, thank you for sharing that.

Rafael: Well, thank you very much for your time, I appreciate that. I am trying to imagine how busy you are. As a (interviewee's position and company) you must have, I don't know how many things to consider, to deal with, and travelling, and meeting clients, and ... it's ...

Interviewee 14: No, there's quite, I like ... it's always... it can make me think in interesting models like this. So I'm quite happy discussing that sort of thing, because it ... it helps clarify things in my mind, as well. Yeah, thank you.

Rafael: Well, thank you very much. I...

Interviewee 14: I can't think more about other things that ... I don't know, even if, when you look back to your record if that wasn't quite a good help... then the best thing is trying to contact me again...

Rafael: Yeah, OK, and if it's possible. Maybe... if I need to contact you later on, is it all right for you?

Interviewee 14: Yeah, yeah. No problem.

Rafael: OK. Because I'm quite sure that this will be improved and... I feel, so far, I think that I had six or ... I have six or seven interviews, I have a couple more to go...

Interviewee 14: Fine. Are people saying similar things, or they've all got different angles?

Rafael: No, so far, there are some, some things like prioritize information. In terms of content – I think that somehow people are quite pleased with what they see, they think it's... they believe that it's comprehensive, on a practical way or probably they believe that I should talk with people from handset manufacturers, mobile phone companies.... I think in terms of a visual aspects this is one, is the prioritization of information, how to highlight things in here and also understand what those people from those companies, what they believe it's more important in one stage or in the other.

Interviewee 14: Yeah. Yeah.

Rafael: I have been quite busy during those interviews that I have been running.

Interviewee 14: Yeah. Yeah, I guess that the technology point I made at the start, and you've covered in Trends. But I think there is another angle, certainly just about available technologies... this might be sort of a new innovation that's come from the R&D team or it might be... it might also relate to acquisition or something... So, again, picking up the Apple example... they become quite innovative over the years through acquisitions. So, they have been sort of quite aggressive... I forget the name of the Scandinavian company... (*inaudible word*), or something. So, there was another company creating that sort of software that they bought in and then they fused into the business.

Rafael: OK.

Interviewee 14: So, I think they, kind of, axed down part of it as well. Obviously there's a lot of new technologies are out there, and how might they be relevant?

Rafael: Uhum. So basically, I can assume that Microsoft is not buying mobile phones, they are buying patents...?

Interviewee 14: Yeah, exactly, exactly, so it's not so much technology as trends, as ... yeah, available patents or for things like that. And that's an area that... it's probably more appropriate for partners and handset manufacturers, when they merge. Design agencies – Well, that might be something... when you talk to people from Samsung and Nokia, for example, they might produce sort of a

different perspectives on that, because I'm a bit more ... but I think that's a very important part of the process.

Rafael: OK. Right, all right. Thank you very much!

1.2.6 Interviewee 15 – Interview transcription

Interviewee 15: I have top-level feedback to you before we get into your questions.

Rafael: Yeah, sure.

Interviewee 15: I've got one, one piece of top-level advice for you... it's something that... everyone who's joined (name of the company that interviewee 15 runs) gets an induction into the thinking.

Rafael: Ok.

Interviewee 15: And it's from the McKinsey. Have you heard of MECE? It's like a model from McKinsey that stands for, Mutually-Exclusive; Comprehensibly-Exhaustive or something. So, what that actually means is... Comprehensibly-Exhaustive means have you looked at everything. Have you looked at everything that you need to do.

Rafael: Ok.

Interviewee 15: And then the Mutually-Exclusive is, have you come up with a framework that makes sure there's very little overlap. So you, you pull things apart – the things that complete things. But if you, if you Google that, MECE, McKinsey and MECE, it's a very, very useful way of thinking. But, I won't go into the detail now, but it's worth taking a look at it.

Rafael: Ok.

Interviewee 15: Now why I say that is that, you've got ... I think... of that, I think the collectively exhaustive allows you to discover a lot of things through MECE. It's more problematic around the MECE is that you've got kind of an overlap. And to me, it's, all of this, I would have thought, that's about trends or something. So, you know, you want trends around users you want trends around the wireless industry... and you've also got a mix of different things here you've got ... when you've got content areas ... so this is business... I would say trends... see, the statistical thing that you see is 'People', 'Business, and 'Technology', and then there's trends across all of them. Because... and I think one thing, when you're thinking about the future is, it's important to think about change and continuity.

So, some things are maintained – you know it's not like everything is maintained ... some things will remain the same, some things will change. Yeah? So, I would expect people to separate out the content for the main areas – and I'm not saying it should be 'Users' or 'People', 'Business' and 'Technology', so they're critical kind of buckets if you like, of subject area. And then, then your data, you're looking at the change across those areas. And then there's different techniques, or different models, so ... that's the methodology, experts from the market is one methodology, desk research is another methodology. So I think some of these circle schemes for me... you know, you would have overlap... you'd have design in the middle, people, technology, business, or something like that – and then you're looking for notable change across all of that. So there's, there's different sort of topic areas within this as I can see... and then there's another layer of, in terms of appropriate methodologies – now... I'm not sure how important it is to mix... content with methodology, you could, you could separate methodologies out of... trend scanning, user-research, industry reports, experts' interviews - people and methodology. You might want to sort of separate those out to put them somewhere else because at the moment they're a bit mixed up with ...

Rafael: Ok.

Interviewee 15: So I think ... you know, if you're talking about the future foresight, it's all about trends. But for me, that's why (*inaudible due too loud noise in the background*). You've got... experts yeah. Yeah, so, you know... the economics is very much related to business; social is very much related to people.

Rafael: Ok.

Interviewee 15: So... that would be my top-level... and just if you're interested in strategy, I'd really recommend looking, learning about MECE. It's incredibly useful, because developing models ... if you get your head round that it will really help you. And, you'll be able to find stuff online, but if you want to get a book on it, there's a book called 'The McKinsey Mind'... and that's, that explains it in quite a lot of detail. It's basically about having kind of logic thinking. So you had ... when you make sure that all these are... you find patterns that are not overlapping, it means that you're talking at each level, so at the same level of

(*inaudible word*). I mean, it's a simple idea. But it's something that you don't get overnight, you have to work at it, and work at it, and you get better and better and better, so it's a great mental clarification model.

Rafael: Ok.

Interviewee 15: I used it ... it sort of as a religion. But they talk about, at McKinsey they talk about it being like a religion at McKinsey... it's a bit of a religion at (name of the company that interviewee 15 runs) as well. And so I'm a bit of an adept of it. But I think that would help you clarify thinking to different levels. So that's, that's the really top-level stuff. If this concerns when you get into the centre of things, here... there's ... I haven't got the answer to this, because that quite interesting thing that I wouldn't mind breaking down more myself – but you've got products ... you've got questions around individual products, but probably more importantly, you've got a question about your portfolio. So, how many ... you know, so ... Apple now have two phones. They used to have one, now they've got these two. Motorola have got two phones... in here it will be an extra. Samsung has... like Galaxy S phones. And it's not purely to do with how many phones are selling, I mean, it's ... partly it's. Samsung has a huge portfolio, because they're the biggest manufacturers, so they need to cover more markets. It is different from Apple that has a small portfolio, because they focus on the premium end of the market. But... the portfolios companies... And then there are individual product companies, so that's at hardware level... but then you've also got platform stuff if you like, so ...

Rafael: You mean the operating systems, right?

Interviewee 15: Yeah, but also technology, technology protocols and things like that, so some might be four players some might be three... So, that's, I guess that's all about portfolios. So, I think it's quite useful to think, at a very, very simplistic level, to, to break things down to portfolio questions, and individual product questions. Do you understand?

Rafael: Yeah, yeah.

Interviewee 15: And then to a certain extent, all the ecosystem and technology questions are all essentially a portfolio question rather than an individual product

question. So, for example, Samsung, also have some windows there... So, that's all the things that you should think about... Because they imply different trends, so just have a think about those. So, I think most trends are relevant across the portfolio, you could say. Yet if you could keep your focus on one product, it might be a really high-end product, so it might be a super-user product and things like that – then different trends become more important...at the product level, so it's, you have those general... When you're thinking about portfolio, you're thinking about the general industry trends, but then when you think about a particular product, more general trends about colour; exterior finishing; high-end, or something, are a lot more important. So, I would, I'd have a think about anything that's coming into the centre, have a think about what you, what you're actually thinking about, are you thinking about individual products, or a portfolio of products?

Rafael: Yeah, in that case, I realize exactly just what you said; different products use different trends, to address different markets. And some companies have a bigger or a smaller portfolio depending on their strategies... But assuming the model is just like this, I would say that it's better that it should be planning part, the vision. So, considering what you said, how to implement this – so, I'm going to design a mobile phone for this specific user, OK, so what are the trends that they are more ... the more important trends to this specific niche what can be used, yeah.

Interviewee 15: Yeah. So, one way of thinking about it is... you know – if you've got a portfolio that might be very complete... I don't know, saturated... there'll be some trends that work across the whole portfolio, you know. What I mean, so there's a portfolio-wide relevant trends about... you know... what's a contemporary one that's portfolio-wide? Something like ... maybe it's just a more personal usage, so, you know, there's been a bit of a technology arms-race, but as smartphones mature ... people have got all the features they're in, and now they're focusing on apps. God, this is so complicated, I just want to get things done. I am less excited about how many things I can download, I'm less excited about whizz-bang features. I want to navigate this complex interface as effectively as possible, so it's a bit, it's just almost pruning back some of the features, for example. I think that... critical factors for portfolio-wide – apart from, you could

say – say you’ve got some very (*inaudible words*) focus products, you might make an exception. Then, for that, say, I want to make the ... certain parts of the interface more powerful, and more considerable or something like that. So, then, say, the obvious example is, say you’re looking at the lower end of the portfolio, er, maybe at more youth-focused models, the trend towards bold colours is relevant.

Rafael: Uhum

Interviewee 15: But as a general rule, we’d generally make the case that before you start looking at trends, it’s really ... you could almost start at the middle, and kind of spread what you’re actually ... what the purpose of looking at trends is – and develop an interaction criteria, and say, look, you know, we’re ... for example, we’re a thoroughly mass-market brand and we’re not going to get sidetracked by lots of high luxury trends. Let’s say that way. I think, you find ... the important thing is to scan wisely, you know, not just focus on all sort of trends, or not just focus on few trends, or whatever. Scan wisely, but before you scan, develop some very goal-orientated selection criteria, that’ll help you... to filter down to a manageable number of things.

Rafael: Alright.

Interviewee 15: Yes, so I think there’s a... there’s a content layer, a process layer and a cross layer. I think that that should clarify things there. And I think more, more generally... I think it’s got lot ... as I’ve said, I think it’s important to scan on the content level. I think it’s important to scan wisely. But also, at a process level, I think it’s important to be interdisciplinary. So try and get hold of market data, you know, statistics and numbers. Try and cross-reference that with some super consumer ethnographic type of data. Try and also cross-ref-... - and that’ll give you a sense of consumer, consumer inputs and data is always a little bit backward-looking. It’s always from the past, ok? Even if you’re doing consumer research, it’s based on consumer understanding of what they want and what’s possible. On consumers aren’t very good at knowing what they’re going to want in a year’s time. That’s where experts come in. So, I think... I think it’s a good to start with, get some hands round... get some hands round the current situation. But I think a really powerful way to, robust way into thinking about the future is,

once you've got some trends together some hypotheses together, you then start talking to experts who are much more credible about thinking about the future.

Rafael: Ok

Interviewee 15: Sorry, I don't know who... there are some key remarks. But it is comprehensive.

Rafael: Are you following the references, or are ... are you sort of ...

Interviewee 15: I've written some of my remarks... But I'm going to ask you a few questions now. But, as I said, comprehensive it is... There, there's a bunch of... you've got software platform here; you haven't got really the hardware platform. They're the manufacturers. So, I'm talking about... NFC... his kind of stuff...

Rafael: Ah, you mean the protocols, the technology things?

Interviewee 15: Yeah.

Rafael: Yeah – I, I put them here, because they have incorporated in the trends...

Interviewee 15: Some of them are old; some are new. But, the new, this is operating systems... But there is a stack of hardware and software protocol. You know, which I think it belongs somewhere... And that, for me... that's the confusing thing about this, you've got the ... you've got the domain, and then you've got the, the important stuff that is not new – the continuity – and then you've got new stuff that you've then got to make a decision about whether it's important or not

Rafael: Ok.

Interviewee 15: So, yeah, but for me that is not so clearly to be pulled out... So, in here you have got... the service providers there ... yeah? If you ... the interesting thing ... if you're going to split up the, the wireless industry. You've got the, the device manufacturers, you've got the platform, you've got the OS platform providers, you've got the operators, or carriers, as they're sometimes called... You've also got, I would say, the third-party content or third-party app developer... All that kind of stuff, so I think there's something there with that

third party... You've got, that's the big problem that... Microsoft and not a big size of app developers for Windows... so they have that one that's different. I don't really understand why mobile phones there. So is that more in the middle?

Rafael: Yeah, the thing is that, all of these are related to users' experience. I tried to match what would shape users' experience. So, from one side I have the hardware, on the other side the software and the interface of that. On the other part, I have the network provider that makes signal available. So, the combination of these two factors delivers the experience. And experience can be broken, into psychological and physical drivers that impact on interaction...users' interaction with their phones.

Interviewee 15: But I think, if you're talking about mobile users, I'm not sure you have to put those in, I think people ... they're quite implicit. So, I'd be tempted to try and focus down on how you break down... And again, I guess, one thought that I had... having worked for a number of different mobile clients, they... I guess they normally think in terms of segments, user segments. But they, they have their problems, but...

Rafael: Yeah, I tried to label them here, but of course, I ...

Interviewee 15: Yeah, OK.

Rafael: if I try to break this segment ...

Interviewee 15: I know – It's a difficult one, that one... Yeah, so I don't think you want make it complicated but I think you basically want to be identifying between ... the key dimensions that you would break users down. So... yeah... so, try to make it solved... what do you mean by that? They've almost got more like... sort of interaction or something...?

Rafael: Yeah. Ah, the adaptation, it means... How they adapt themselves to the new technology. So basically I am trying to 'adapt' myself to technology, not a technology that fits me. The customization basically is related to ring-tones, applications, wallpapers or... how they use technology... This is a type of technology that make their life easier. For example, I don't have a pen, and a

paper to take notes about an interesting book. But I can take a picture – OK, now I have the cover from the book, I can go to Amazon and buy it.

Interviewee 15: Yeah. Yeah, I guess typical isn't working for me as a type of app.

Rafael: Ok.

Interviewee 15: Typical to me, when mobile phones... means the hardware... And where would you bring sort of their disposable income or something into this model?

Rafael: I am sorry?

Interviewee 15: Disposable income. You know... How much money people have got to spend, for example?

Rafael: I think that's more related to this segment.

Interviewee 15: Yeah. That's, these are all kind of segments? I don't think you can ... for me, I wouldn't bother trying to come up with a universal segmentation, but I would try and identify some tools to mention that you, that different people might segment along. And I would say that, you've got, some of them are using mobile operating systems... some of them are, I would... You know, two obvious ones are... about the socio-demographic and receiving income, and things like that. But also, how, they get the last use for the technology, how experienced they are with technology. I think that's quite important.

Rafael: I understand, I understand your point – In fact, in my opinion, I think that this comes from the findings of research. Because then you can allocate them, and you can develop something based on this... So if I have a rough idea about what are the key factors that shapes their experience. Then, I go to the market having all of these numbers and I scan it I don't know – 1,000, 2,000 people from different areas... post codes, countries – whatever... Then I'm able to see the pattern where they've met and where they don't met – and cross-reference these with different aspects like you said – using age, gender, income, life-stage, usability

Interviewee 15: Yeah. So that, I guess you... I guess I'm still a bit confused between the content and the process, so you can... if you're ... I'm not implying that you're ... what you're trying to break down in... put in users, but it's purely on content level, you could break down users into different dimensions, and then, whether it's patterns [of behaviour] or segments that's a methodology question.

Rafael: OK.

Interviewee 15: You know, consumer segments are highly related. It's almost, it's a process-point and about some people ... you know some people you want ... you know, but the fact of the matter is you're trying to break down customers into sections to help you develop products for them. You are not trying to come up with a universal product, you know. Yeah, OK. So there are some comments on that. It's always hard to see, to spot the gaps. But it seems pretty comprehensive.

Rafael: The other one is, is it useful? I mean, is it adequate, helpful? Does it promote assistance and clarification for design manager and design team, so they can consider it?

Interviewee 15: Well, I could say that I think it would be a lot more useful if you separated out content from process. So, the content is, like these are all these things you could consider. And then process is like... is how, these are five steps I recommend you take when considering them. But I find this a little bit confusing.

Rafael: When you, when you say processes, you mean steps or... are you talking about methods and methodologies?

Interviewee 15: Yeah.

Rafael: OK. The next question main is: is it practical? You could, like, just go to the market and, OK, here's something that you can consider?

Interviewee 15: What is the difference between 'useful' and 'practical'?

Rafael: 'Practical' I would say that... Ok, this can be 'Useful', according to your point of view, but I cannot apply this.

Interviewee 15: Ok

Rafael: And 'practical'... OK. It is like, you follow these references in here and see if the outcomes are those that we expect.

Interviewee 15: Right. Well... at the moment I would give the same answer to the question two.

Rafael: Really? Ok.

Interviewee 15: That I understand the principle that you did have something that is theoretically useful, but not practically.

Rafael: Ok....

Interviewee 15: At the moment, I don't think... It needs to be a better organized... methodology split from content. Yeah.

Rafael: Ok. Ok. And the next one is ... maybe you already have been talking about this through the whole process, do you think there is something missing? Any critiques or other comments?

Interviewee 15: Yeah. Again this is a comment that seem quite similar questions, that, is it comprehensive, is anything missing.

Rafael: Ok.

Interviewee 15: Missing points, missing ... and those two seem quite, quite similar... I think the best thing for me would be... calling out... technology – and maybe having a breakdown of different design elements – so for example, you could break down design into... well -... there's different ways of breaking it down: into space of the product, of physical and UX and then you break down physical into you know, internal architecture, colours and materials, physical keys and things like that and then you could break down UX in different aspects. So, to me, it'd be useful to have, you know – technology, business, people, design – it's the basic. And then you could relate trends to those... Then one method would be scoping the environment. So, a manager could pick this up and go, right, this is the breakdown of world. And they could say, right, for this particular project, um, I'm not interested in that, I'm going to cross off that, I'm not interested in that and a few areas we need to think about.

Rafael: Alright.

Interviewee 15: And this tool has helped me scope out ... you understand what I mean by scope?

Rafael: Yeah.

Interviewee 15: So, I've scoped out what I think's important. Right, I'm then going to go to a bit of a process map, and this process map will help me... will give me certain efficiency ... that'll help me to select an appropriate process for my... you almost want to say ... it's not, you don't want one strategy, you don't want always the same way of dealing with different strategic problems. And it, again, if you could have... maybe some very, very high-level steps, about, you know... design knows the problem... formulate additions, efficient planning, or something like that. But then within each one of those, you could say, right, here's a ... in the first step, here's five different methodologies that you might want to consider. Second step, here's three methodologies you want to consider. Here are some outputs you might want to consider. So, the phone... or things like that... Do you see what I mean?

Rafael: Yeah, yeah.

Interviewee 15: For me that would be, that would be really useful. And that... and MECE would really help you think these issues.

Rafael: All right... I have just two questions: from my research point of view, from the perspective of someone that have to write a thesis... many of the things that you addressed, like processes that you do... Do you really like to see these things 'visually'? I address them in 'words'. Let's say... I think the process of my dissertation... like this (the model) is the surface, visual and there (thesis) is the background.

Interviewee 15: Yeah.

Rafael: The fact is that, I am writing down and explaining these nuances, since I cannot put everything over here (model)... do you think that this is correct? Or do you really.... want to see all these key words? In the visual (e.g. model)?

Interviewee 15: Well, I guess, I guess one thing that I would like, I would like to see a title here – and I would like to have a, maybe a subtitle that gives me a clear sense of what I was looking for.

Rafael: OK.

Interviewee 15: At the moment it's ... it's quite abstract, and I'm not quite sure how I'm going to... you asked me, is it comprehensive, is it useful, to a certain extent, despite, I am not quite sure what the useful space is, you know. So what... I'm design manager, so how would I use it? OK, so if I've got a clear sense of the purpose and the space, it'd be a lot easier to have a sense of what I'd want to see here. I definitely don't think ... I don't think a typical conversation, I don't think this is necessary to list out every trend. But it's about, it's about thinking about... these levels of abstraction, so at this level there might be 100 items. We don't want that in the model, it's too complicated. But you might want to cover these few levels, where this is the surface, and then this level is what's inside the surface. But, for me, it's a very ... I think we need to talk about a design ... or a (*inaudible word*) model for the wireless industry, a very, very high-level trend. So I would probably prefer a ... two or three different models that break things down a little bit.

Rafael: So considering this suggestion – you have been talking about the separation between content and process. Do you think that two major models would help? Like, ok. I have trends, I have users, I have these, and I have that. Ok, this is trends in one piece of paper. Then another one is process, design. Do you think it can be done like this.

Interviewee 15: OK. Right, it's a good starting point. Well, we have to wrap up here... Good luck with it!

Rafael: Yeah – thank you very much. I really appreciate. Thank you very much for giving me a little bit of your time here to take a look at this and ... this kind of rich discussion really brings a lot of things for me to consider later on... because this is not the first draft, this is something in the middle, I will definitely consider this kind of a different things. Also bringing some colours to highlight it, define

priorities, to have the layers – it would be quite helpful for me also. And I think it can be helpful for somebody else.

Interviewee 15: Yeah. OK, great. Well, goodbye.

Rafael: Ok. Thank very much for your time and insights!

1.2.7 Interviewee 16 – Interview transcription

Rafael: How do you prefer: do you want me to explain something that is in here or do you want to give comments or should we just jump straight to the questions?

Interviewee 16: Probably explain to be on the safe side, but I understand what I am looking at.

Rafael: Ok, right.

Interviewee 16: Probably it is better to explain.

Rafael: Yes. So, after having a set of interviews in the first moment, I had roughly 14 people at the time, and also bridging these inputs with literature, considering design, the wireless industry, trends, and putting them together, bringing everything together, I found these four dimensions that are ‘users’, ‘trends’, ‘experts’ and the ‘wireless industry’ (business) and they deliver different kinds of impacts in that process. Since I am proposing a design-led model, how designers can cope with this challenge? So, basically, in the first level, in a strategic way. After that, I took... in order to collect information about these four dimensions they use different design research techniques; so, they are linked together. These inputs, they inform multidisciplinary teams (in the middle) where we have designers, we have experts, people from different departments and by working together through several brainstormings they are able to analyze the market, propose different solutions, help planning portfolio, proposing and developing personas and scenarios of potential products. Basically, that’s it.

Interviewee 16: Ok, good, ok. The first question is quite comprehensive.

Rafael: Yeah, my first question is..

Interviewee 16: I mean, again, what I’m looking for here, so this is all very logical, but obviously not everything is logical. So, one of the things I am looking for here is... disruptive... the possibility for disruptive technology or disruptive product category strengthened. So, what I mean by that is that when Apple came into the handset market, so it came in with a... computer mentality.

Rafael: Uhum.

Interviewee 16: So, if you like, you could say that we were designing mobile phones and trying to make them smarter and trying to offer people everything that they could possibly want. But Apple come with the computer mentality which will offer an end to computer and you fill it with what you want and that would disrupt the industry fully. It would definitely disrupt it. So that is what I mean by where is that disruption looked for and you could say that is within trend... but I am not seeing the words there or something similar to it.

Rafael: Ok.

Interviewee 16: So, it is a very fact-based system at the moment and actually. I think, you know, if there is one great experience I've learned it's that you get it through serendipity, you have moments that are just happy accidents and regarding this process are systems that allow those to thrive not be skill-based because it doesn't fit the process. Does that make sense?

Rafael: Yeah.

Interviewee 16: So, that disruption can be a theory, it can be a technology, it can be a completely different product category... where suddenly a connection is made and it changes the way you might approach the detail. So, what I am seeing here is a way of, you know, it could simply be something that you need to build on when you've done it when you talk about trends but it could also be another trend of something that has happened already but this may be made up.

Rafael: Alright.

Interviewee 16: Do you understand what I mean?

Rafael: Uhum.

Interviewee 16: And that can mean that, you know, it's not called that any more but it used to be called a 'eureka' moment. So, somebody, in the middle of the night, suddenly thinks like why aren't we connecting two things together and suddenly it's like 'wow', it could be quite powerful if you do that so...

Rafael: Uhum. What's that in English you said?

Interviewee 16: Eureka. You know eureka?

Rafael: Yeah. Yeah.

Interviewee 16: Not everything has to be... come through pragmatic, logical collection of data. Sometimes... a connection just happens and somebody will have a probing thought and it's actually a very good thought. And that's not to say that you can't promote that. Sorry, it's not that you just cross your fingers and hope that basically things happen randomly. There are ways that you can simply increase the chance of those happening. And, you know, there are agencies and facilitating agencies that specialize in that type of thing and it is sometimes just making people more aware of giving themselves those moments to stop and think because in a fast-moving industry often everybody is just flat out all the time, never stopping, and when you get those moments of clarity where people just stop, something comes to the fore. So, that has kind of been my... my only comment is always with any process or system there has to be this ability to allow disruption, random.

Rafael: So, it's more like flexibility in dealing with it on a certain level.

Interviewee 16: Yeah, whether you allow randomness to come into your system. And how do you promote that. Yeah?

Rafael: Alright.

Interviewee 16: Is it useful? As a case on its own and if you are asking me as somebody who manages a global team of designers... no, it's not. You know, the reason is that, I think, on its own it's like, yeah I get it, but it doesn't in that sense help me... maybe see another way of doing things or help me see beyond my current way of doing things that something's better.

Rafael: Uhum.

Interviewee 16: So I am looking for the challenge where it challenges me and the way I currently see the best way to do things. Does that make sense?

Rafael: Yeah, yeah

Interviewee 16: So, I don't mean that in a kind of... negative way it's just that it is static. It doesn't, within here it doesn't give me some way of saying... It's not challenging me considering with the way I see the world. It is kind of confirming that, yeah, we need trends, we need users, we need the wireless industry, we need experts and all that comes together but... how are you telling me that it comes together in a different way than it does now or if it is certainly like I've got a way of disrupting the way we do things then I feel like ok, tell me more, but I am not getting that from it.

Rafael: Ok. So, basically I can see that this is more or less linking things, I think.

Interviewee 16: Yes. See, I will give you an example... If you talk about trends, companies use trends in research in many, many, many different ways and you can say that we couldn't go for this and it's like if the people who get some facts and say that people like it then you are going to go ahead with something or you change your mind and we are not that kind of company that is led that way, neither is Apple by the way. So... so, that is not much use to us. What is interesting is research which leads to insight. So, where your... somebody is saying, you know... have you ever thought about the fact that, if you own a phone you are very likely to, it's the last thing you are seeing before you go to bed and it is the first thing you are seeing in the morning. How do you make the most of that? So, I had a sound team so, you know, that created a really nice alarm sound

Rafael: Ok.

Interviewee 16: Which we get fantastic feedback on those because people feel like it's friendly when... it's not like your traditional digital clock which goes (simulating sound) "duh-duh-duh-duh-duh-duh", you know, and it's like my phone, it is sort of empathetic to me, it, kind of, wakes me up in a nice way, you know? Because people look at it and say... That is the kind of thing where you think ok, how can we turn this phone into, you know, it's a piece of hardware but how can we make it feel more than that and feel more 'female' in that sense. So, that's where trends buck. How do you convert data into something actually meaningful? And even in this company you will get people that tend to tell you lots of data but that does not mean that you are designing something for people and that, that's where if you had a system that you're hoping is going to enable a

different vision of the future... then what is the important, you know, that line is probably between trends and how that can come into the centre is probably that conversion of the data into something important is probably the bit that I am most interested in. Does that make sense?

Rafael: Yeah. I just wanted to... I understand the link as a research method, as a way of kind of discovering data and of course this later on can be applied to analyse. So, everything can be developed based on this data, you can develop insight. I didn't get the point that you said that this is good for your...

Interviewee 16: What I'm saying... I'm saying imagine this is where you are putting in lots of different types of data. What really makes that data useful when you then try to turn that into something that is going to help a business or a design team or anybody that's sort of, creating a unique vision of the future is how you translate that data into something more useful. And that's where I would use the term 'how do you turn it into insight'? How do you turn it into something that the designers sitting there nodding and saying "ok, I get that", now I can use that fact to then maybe design something different, something that it is going to be, that is going to be right and give a direction to a spin-off. Do you understand what I mean?

Rafael: Yeah, yeah, completely.

Interviewee 16: Because, if I go back 10 years in (name of the company that the interviewee 16 works for), we had lots of data, it was probably the company which has generated vast amounts of research... Arguably is it useful? I will leave that hanging as a question though.

Rafael: Do you believe that the transition is placed in here? From data to insight?

Interviewee 16: You're saying to me that this inner circle is insight or...

Rafael: Yeah, I am saying that in this circle here we have a multi-disciplinary team, you have designers, you have experts that they can be from the company itself or you can bring somebody from outside and I have people from different departments working together.

Interviewee 16: Looking at this diagram, I would think this way, the second one out is where you're processing...

Rafael: Ok, ok. In this area, right?

Interviewee 16: Yeah. So, when you are looking at the lines, although the state of things... As I say, you know, this area where you are working out what the insights are and then inside that is where you have got to the experts' opinions but then have to, sort of, think about having used those insights. And it is a little bit confusing because I would say designers are also involved in research, in insight research, but qualitative research. But I would also say that... again, certainly these days, research is one of the tools. It is also a heavy emphasis on the expertise in knowledge and experience of the people we employ. Most definitely it is as important. And that's obviously difficult to quantify, but how do you make it common sense? Because at that certain stage you can't go and say when you come into the inner circle it's also just simply about the expertise of your team.

Rafael: So, basically, how you are manipulating new research data...because you don't have guidelines for this.

Interviewee 16: Yeah, or you say, I get what they're trying to say in that data but my experience is still and, you know, if you trust me as an expert then let's go this route not that route. So, it happens very often, that you understand the research but my gut feeling says something else. And I think with the process you definitely need to be careful that it is not digital it is analogue. Not everything the data is telling you is a threat. Does that make sense?

Rafael: Yeah, yeah. Because, as I understand, if you ask users 'what do you think about this'? 'I like this but at the end of the day they are using that'. So, we need to take that and do not consider this, consider that.

Interviewee 16: Yeah, yeah.

Rafael: So, basically it is in this area that comes up the insights that leads you to develop the contents, concepts, mood boards and visions of a special product. It is based on this analysis in here supported by the facts and data collected before.

Interviewee 16: Yeah. The way I'm seeing this at the moment is what you have put down here is that this has all been very... you could say, logical input. But, actually, here are the people that you have employed that are putting in an emotional input. So, this is kind of very rational and in a way it is an emotional part of the process that you have to let live, but you have to allow, you know, people designing for people. I don't know if it's missing or whether it's simply stated so it's like human traits, it's knowledge, it's expertise. Then you've got experts sitting in areas that some of them might need to have carried out more of like this, this human analogue side of things where if you have got people who have got different experiences that will lead to input. Another way of saying it, for instance, is... if you do... conceptual workshop, the work can be the design of a product, in my opinion, is there, it's in industrial design. What you actually need is maybe two industrial designers, two typical UX designers and two graphical designers and so you are mixing people with different experiences and then you get a completely different perspective on the world around them. And it is a completely different dialogue from those who are looking at the same things that are there. Does that make sense?

Rafael : Yeah.

Interviewee 16: And that's, you could say, that this is the process that you follow in order to not only have one type of discipline but it is a much richer approach.

Rafael: Ok. The next one. Do you believe that this is practical if you can take this and go to your team and say look we have some guidelines in here. Do you think that this work to bring you some expected results?

Interviewee 16: I think as far as it goes it is practical. I think I would say... interesting too. I think there is no question of that. I think the ... I think the thing you need to, as I said before, I think the thing you need to be careful of is when we talk about ecosystems, for instance. Both ecosystems are business models managed in very different ways from each other so... and, and constantly morphing into something new, this is what makes this industry interesting. So... say you've inspected three ecosystems but in a way that breaks the rest of the model from them because the rest you're... you've designed in a way that can be applied. Yeah, I mean, it's great if it's (name of the company that the interviewee

16 works for) but if it wasn't (name of the company that the interviewee 16 works for) you could still apply it. That's where you are being very specific and I wonder whether that is right or not. So...understand that, I think, be careful, because you're searching specifically for systems here and it may be better to say though these are ecosystems for what they are, as I say, it is hard to run them. So, so... for example, let's see, so Apple runs an ecosystem whereas it is completely closed. And, you know, that's one way of doing it. I think Microsoft will be seen as, you know, wanting to not do that as it's particularly not what they do, they are inclusive. I think Apple's exclusive. And then Android, again, will be inclusive but I think that it may be that they do something more exclusive. But they've all got different business models and I think, again, the way you put that down in there. I am saying that it is practical the way you put that down in here will then make people think about... you know, these days design teams get involved in thinking about the way to write business models because that can dramatically affect, you know, as I say, Apple are just an example of a business model and then actually write down objectives and then create the objects, the concepts and the things that get them the results. And that comes back to what I was saying in the beginning, that I am looking for things here that challenge me in terms of how do I... what do I put there? How do I... What would I be doing/planning here, what is the information that I need to put in here that eventually ends up here? Because this is telling me all I have got to do is find information, Apple or Google whereas actually it is quite there. Fundamental, now that these business models work...how might that become a distraction in the middle that leads to maybe a different business model, a different ecosystem approach that leads to a different way of seeing product. Am I making sense?

Rafael: Yeah, yeah, I understand. That's the why I am conducting this process, to evaluate the model and collect relevant data. This is a model that is as much as comprehensive as possible and of course, people have different opinions so that's why I am coming here, I am here to listen to all of them without any judgment and one question that I have been asking myself is that there must be information that people give to me, how I can put this visually? Because since I'm writing a piece of paper I referred, this is to be for me the surface and the explanation is the background so I understand the need to go in very deep detail of everything here

but how does this can be converted to like a 'label', 'a name' or something like this, yeah?

Interviewee 16: So I have one suggestion. What you are doing here is trying to tell me what the system looks like and maybe what I need is answers for where these things take place. Do you understand?

Rafael: Could you say it again?

Interviewee 16: So, again, it comes back to my how is this challenging me? So, it is telling me that these ecosystems here... So, it's in a way I am thinking which one I am. I know which one I am, I'm (name of the company that the interviewee 16 works for) If I want to use it to get to use a different business of the future or at least challenge the business of the future, I need to be asked what business model do you want to be? So, do you understand the difference? It is not asking me anything. It is not challenging me in any way. It is telling me how it is.

Rafael: Uhum.

Interviewee 16: And then because it is asking me, you don't need to record every specific complexity but you need to figure out... this will become useful as it is. If it is a model then it is saying why aren't they being questioned and that leads us to the next thing, you know, and that hopefully leads to the point where you are having a dialogue with certain information maybe. Maybe keep that in. And you can't possibly record, as I'm sure you will find, you can't possibly record every different way.

Rafael: Yeah.

Interviewee 16: saying that this is how you see the world and others, if they apply their knowledge to the way you see the world they will end up with something maybe slightly different from where you are at the moment.

Rafael: Ok.

Interviewee 16: Does that make sense?

Rafael: Yes, yes. And this comes to my mind like this. The point is if I come to talk to you, for me you represent (name of a company) if I go to somewhere else and talk to somebody else....

Interviewee 16: Exactly.

Rafael: And the thing is that if you should take this piece of paper, you are going to probably say 'ah, this part, for example, is less important but this is very important'. The other one will say 'this is less important but this is very important'. Or you think that this kind of, flexibility can be generated through my model or this is the decision of the company?

Interviewee 16: Yes, yes. But still, the thing you have to, which I'm sure you are, but the thing you have to recognize is that there is a lot of sophistication already talking to any client that we go to. We all have our way of doing things. And so, what you are doing here is making finally the way you think these things interact, and the way they're there but it can't... it's like ok, well that's how you see it. It is not asking me anything. It is not challenging me to do it differently. Does that make sense? And that is why I keep saying it's static, it's a diagram but it's not in a way, helping me get maybe to think are we doing things the right way... but let's try it, let's take it and see where we end up and there is no physical (*inaudible word*). There is no way I think I'll come in here and I'll ask myself lots of questions and then that will feed into here and I'll process it in this way and eventually that will lead me to then having workshops where I'm thinking about, you know, this information. That is not quite the way I would have done it. So, it is slightly different from, you know, the answers to come out of that is were you impressed?

Rafael: Uhum.

Interviewee 16: But I don't feel able to do that. I don't know where that leaves you but...

Rafael: No, I think that it's important to me. It's a bit challenging for me it's actually necessary to change something in my mind I am looking at in a different way. I understand that this is a 2D model just because I don't have no.., I don't work with 3D software and even though if I were... I put those things in 3D, then

ok, I will have a beautiful graphic, image... but then, are the connections right? And, again, as you say, then you go through the process, what can I gain through this process or what kind of information should I look for? Ok. Do you believe that these issues that I should be dealing with... because I have a lot of data that I can break down in such a way that I should have been even bigger and these sometimes are questions that I ask myself.

Interviewee 16: Again, when you talk about your developing a model... just to be on the safe side. You see this thing, is the model the same as the process? If it's your intention that, say you gave it to (name of a company) if it is you and (name of a company)... if they found it interesting enough they might try to use this model to create and come to a different understanding of what the future might look like, for instance.

Rafael: Well, in an ideal, in a very blue sky scenario, it should be like this but, point number 1, I am not sponsored by any company and, second, I have also to think in a way that I don't get too rigid, focused in on one specific company so I can...

Interviewee 16: I wasn't... I was just giving an example, I'm just saying if any company...

Rafael: Yeah, but, yeah, they said it should be like this if I could just give (name of the company that the interviewee 16 works for) could just go and walk in and see if this works and, next, what are the strongest links and what are the weaknesses of this and what I have to kind of improve the delivery of what we want, that should be...

Interviewee 16: So, I think in that case, would you call it more complex or would you call it... considered questions or considered... sort of, considered information... as I say, I will start with this one. It's like, what are the... what should you be... if I am going to use this, what am I supposed to be asking myself about using this ecosystem? What are the things that should be considered? What are the dynamics that drive successful an ecosystems. Do you understand what I mean? Because then, you know, if I was to say, right, workshop wise, it can be about, let's start with what are we trying to create here. Is it one of these that

already exists or do we want to be brave and do something completely different. So, the feel is quite... is it inclusive, is it exclusive, it's like... what are the different types of eco systems? What are the things they need to think about when they are worrying about ecosystems? And I am sure that you have that type of data and that kind of feedback. And if, say, you don't want to try and pile it all onto one diagram and that is why I specifically asked whether the model is the process you know, you can have.. you can lead people through a number of steps that start to lead from here to here.

Rafael: Yeah, ok. In fact, that should be like this. If you regard it as a process; then the outcome of this model should be a process. So what I am trying to do is to cover from the idea that comes from a technology, a trend, a business model, a users' need up to the development of a concept that is what I have put here in the middle. And, basically, what I am trying to do is to converge everything from these dimensions by using different methods and methodologies and also make sure the key stakeholders are involved in the process to deliver this. That is what I am trying to do in a 2D way.

Interviewee 16: Yeah, yeah. And I think we can but it might be that you need to break it down into different 2D. By Powerpoint... I'm dangerously describing Powerpoint here but it is that kind of, you know... What are the tough questions you need to ask yourself based around this kind of model and once you've asked those where do you take that information? What do you do with it next so that your.. you know, and, as you say, some companies might say they are only interested in this... they are going to bear left at that ecosystem. So there's always something different on that, there are different places you can come at it. This is where your flexibility needs to come in.

Rafael: So if I break down these, let's say, in two layers. First one, a piece of paper like this... the dimensions in a very detailed way and in the upper layer, design, in a strategic level, and in another layer, design research and how to collect everything. Then in a fourth layer, then I can...

Interviewee 16: Yeah, maybe. Yeah. You have to work it out.

Rafael: Ok. Yeah.

Anthony: And as I say, in fact at the beginning, having randomness, disruptions, you know, bother about these. You're halfway through this process and the reality is... you are halfway through conception and suddenly it becomes apparent there's a new technology that has gone below and you've got to the end of your own quota. How do you allow that in? Yeah?

Rafael: Yeah. Ok. I see... that's all.

Interviewee 16: The other thing, the other thing I am not seeing here is... the design principles. So, as a designer team, certainly what's the most critical are the three or four principles that you follow between, say, underdogs and leader, you know, they can seem very similar... Say, everybody wants simplicity and, you know, and things like that. But depending on what those are and also really drive to a different place so as much as all of this is going on, you do say what are the principles that end up following the design? Now, after that, a really good example of an insight we had into problems a few years ago now was that, you know, everybody's like this [looking down to a handset], when having dinner so, the head of design, said we want to get people's heads up. We still want them to use our technology but we don't want them looking down all the time. They need to talk to each other. So, that detail is one of the overriding principles is heads up. So, how do we get to make a technology so that, you know, I can go like that, I can tap it and I can see the time and it's only taken me a split second and I can even do that, tap it like that so I don't need to press buttons, I don't need to get involved with the technology. So, that throws a lot of then good thinking behind, you know, the inputs. So that, as part of your vision, is again, does it stem from insight or does it stem from the principle that everything follows?

Rafael: Um-hum. So basically this is a kind of a... very interesting to me this when you get to that, that moment that I have to, let's say, you, (name of the company that the interviewee 16 works for) see one situation from one perspective and a different types competitors will see situation from another perspective and how to put this in the model visually because I can write down in text that there are some companies that they have these drivers and the companies that have other drivers.

Interviewee 16: The fact that is really, really important, you know... any designer in our group will know those principles you know, that they are just burnt into their brain because from a very practical point of view on a daily basis when you are designing something you want those designers, to know them. It's like probably three or four is as much as they can, so that you want all the designers thinking those few things every day and that actually then becomes the thing that starts to come out through the work that they're doing. It's the gravity and the, you know, the kind of thing that binds it all together.

Rafael: Uhum. Like a glue.

Interviewee 16: Yeah, and it's, I mean it's nothing new, you know, I'm sure we have talked about it but certainly I am very, very like... these are the things that drive the design, that's very clear and, you know, some of that will come from systems to your knowledge and expertise and instinct of the designers and vision itself. But some of it is being backed up by the research that proves that is definitely the right way to, you know, follow that, kind of in and out. But coming this way but also coming from the middle out, from the design team. I hope that helps somehow.

Rafael: No, it is, it helps a lot. So, I can think this place was like a... should be the most competitive asset that a handset manufacture can have...

Interviewee 16: I have an awesome design team out here, but yeah. You know, when your own opinion working within a corporate environment it's also a powerful tool to make sure that you don't get, derailed. So there is a lot of pressure within a corporate environment to be consistent, to keep at it, add more to it, make it more complex and it's like 'no, we want it simple', you know. So, if you want to take it down even further, you know, two years ago I don't know, when (name of specific line of wireless products) started, one principle was noticed in that line so again, so like we already have done things that, basically, I am saying that the way you've made things or materials are the same, or aesthetics are the same but what you get is something that feels incredibly solid and just like nothing else. So, you know, that was the vision that we needed to do and actually it came from the principle that 'feels better'. This is nothing new

again, others have said that as well but that led us to a different way of making product. That was our vision. I've got one last suggestion.

Rafael: Yeah, that's alright.

Interviewee 16: One thing we could do is sort of understand some of the principles that we get from different designer teams and actually say if that's where they ended up how does that work back to your model that you have here... reverse engineering, you know, or if they started to think from the start with reverse engineering might they have ended up with different principles. In a way, it's like, you know, how did they get to the one they've got and how does your model maybe get them to question what they've got and maybe there's something even better. It's... a kind of hard to get if, does it work? So, say a design team as it is today as in model reverse engineering. Maybe it's not clear but do you get my point?

Rafael: Um-hmm. Ok, yeah. This is really useful. Thank you very much. Yeah, this is a... Thank you very much for your time. I think that in a couple of days these things will be absorbing these in my mind and...

Interviewee 16: Yeah. I understand that. It takes a while to process it. But the thing I would say overall is that... the simpler you manage design; the better. The design is never about complex systems overall. So the way your model throws something down, simple sets, the simpler ways of understanding and gathering and processing, the better. You will never get a design team to follow a really complex process or model.

Rafael: Ok. Yeah.

Interviewee 16: Very good.

Rafael: Thank you very much.

Interviewee 16: Ok.

1.2.8 Interviewee 17 – Interviewee transcription

Rafael: So, I'm going to give basically an introduction of what I've done. Basically, what I've tried to put in here is a summary of the findings that I collected from my literature review and also from interviews that I did before. And what I could see is that there are five key drivers to future forecast in the wireless industry. Four of them are related to external issues, 'users', 'trends', the 'wireless industry' itself, what I call 'business' and also 'experts'. And here what I see is the internal part of the company. So, this is external, this is internal. So, since, my PHD is a design-led research, I realised that everything should be linked into design or design playing a big role in connecting this and analysing these data and proposing new things for the future. So, I tried to be as comprehensive as possible, but of course there are many things that, I couldn't put in here, but they are running on the background and the aim of this interview basically is to check your views... if this map is practical; if it's useful for the design team; if it can be applied in the real world, not only in a theoretical way. And if there is something missing here that, some connectors or something, or some issues or key points that are missing. So I tried to populate everything here and those in italics, they are related to process and those written in regular letters, they are what I call 'content'. So at this stage, this is a 2D model, but I already have some feedback that I will probably create layers, so separating context, to process this kind of stuff otherwise

Interviewee 17: I think that's a really, really good bit of feedback for you, yep.

Rafael: Okay.

Interviewee 17: It, It looks amazing in terms of what you've identified, but if we are talking about forecasting or process, it would be really good to understand the depth of each part and also the feedback... How do you, how do you check that you are on the right path. Just, expanding on it a little bit, yes, design is a very holistic process, so how do you make sure that you're, you're maintaining that, that right direction?

Rafael: I'm sorry, I didn't get you?

Interviewee 17: If we are talking about process... What's really, really important as part of the design process is being able to check that you are on the right direction. So, what you are showing here is a load of input, lots and lots of input. And that can cloud the design process, because, more often you need a very clear idea, you need somebody that can, define that idea... or space and understand also what it looks like and how you need engage or behave, or what it usually looks like. So then it's just, sort of, ten seconds, what are those things that are critical to you? What are the inputs? Whether it's coming from your experts, or trends have been prioritised more highly for you, you just need to gauge how well you are performing...

Rafael: Well, this is a question that I've asked several times, and this was going to be one of the questions to you, because, since you are running a company like (name of the company that interviewee 17 works for) you...

Interviewee 17: I don't run it! I get run by it!

Rafael: Part of it, let's say. But, do you believe in this kind of thing, kind of a prioritisation to see what is more relevant or not to come from me as a researcher or from the company itself? It's a risk and maybe a company can say, "I'm not interested on this part, but I'm more focussed on that point of view because I believe it brings more competitive advantage"....

Interviewee 17: It's an excellent question. I think a company the size of (name of the company that interviewee 17 works for) it's very, very difficult to manage in that way. If we go back to your question about um, 'is this relevant for companies like (name of the company that interviewee 17 works for)?' It's wonderful, I just go quickly, sort of, go through the five areas that you've identified but, you know, it looks like you've covered all the areas that we get data on, or we've got teams working in. These things are getting you straight into the centre, because that's almost like, you know, into the ball's eye, things like the prototypes and scenario. We have a target consumer and we also think about, how we communicate it to them and also how that is a great halo for others. And that's something that all brands have. Of course, as you go further out into your rings, and into your other

areas, that invites more input. It goes back to my original point, actually, about iteration. How do you make sure that you're, measuring accurately the direction you are going? Because if you have too many inputs, it gets very cloudy because you are, you are inviting too much, information, too much stimulus. And if you look at the brands that have performed really well in the last ten years. I think, I personally, this is a personal opinion - there has been a person at the core of that. There has been the commander that has just said, "That's how I want it. That's what I believe we should design. This is scenario is interesting for us," and then they take them along on that journey. So, usually someone like Steve Jobs, Stephen Erick from Google as well. Google is a bit more flexible as well. (The information cannot be disclosed too due sensitiveness). The key point can be summarised as follows:

- Interviewee 17 makes a comparison between the company that he works for and another player considering a marketing perspective.

I'd actually say that Apple have got a very clear area and definition of them as a brand. And it comes down to often, to having one person who has got a very clear vision and idea about the future, which is exactly what you're saying here as your forecasting.

Rafael: Yeah...I'll try to answer your question. When I display design here, divided basically three or four different ways a design has been employed in companies. So, first, in the first level it should be in the strategic level. So, design working as a tool to solve a problem, to assist strategic decision making process and also as a holistic tool, bridging different departments, different teams and different people. Then you can go to the next one, the design used as research methods. Basically, what I tried to do is to divide several tools that are linked into this specific area. For example, so if I'm going to research trends, I should have a trend scan, or desk research or PEST analysis to see what is going on. The same thing applies to experts. You have expert interviews; Delphi panel; wireless industry, competitive analysis; users, another type of different data. So, all of them, all of these methods, they go outside, collect the data and bring them inside. They bring it to the multidisciplinary team, the basically comprise designers, experts from outside or even from inside the company itself, and other

professionals from different departments. So they work together, brainstorming, doing workshops, whatever the process. And they, what they do is, they translate those findings into visions. And this vision can be divided it into three key areas. First is the target market, the scenario and then the concept of the target itself. So, if I take the, for example, the design council's concept of the double diamond, this map (the model developed through my research) tries to, focus on the first diamond, not in the second part that is more related to definition, delivery and the performance evaluation for the product. But it's in the first part, so collecting data, the process and proposition of new things. For me as a researcher, I realise that the future forecasting means planning properly and taking actions to build up the future year to come and the future that you want it to be.

Interviewee 17: So how is this plan, thinking about, for want of a better word, back crafting? So when you think about your branding experience, how are you thinking... I'm just looking straight into here and so I'm thinking out loud. So we've got innovation....

Rafael: Alright.

Interviewee 17: It's a really interesting area, um, obviously, but how... if this is about creating a trajectory, it is about design going forwards, how are you also thinking about the proof points in the model? So, how are you building on the brand's promise with this model? Because at the moment this looks like it's very much about, taking the input from different areas that you identified, but how are you building a continuum for the brand? So, people, so you know, you and I, get a common sense about what that brand stands for, how it behaves and also 'not wanted' innovation, but not surprising that company brings it because it feels like it's a natural extension or, "Ah, of course we'd do that, because that's an area we've always been very strong in." I will give you an example, Google is always a bit of a funny one, right? Because it is a love-hate relationship, because, you know, they're, they're at the forefront of sharing all our information, but Google Glasses is one that fascinates me. Eighteen months ago, uproar. "Ah, it's invading privacy, it's the worst thing ever." And now you see people on blogs saying, "Oh my word, you can get this technology in contact lenses. This is amazing." So, already, we've adopted some of their ideas, that it doesn't mean that we've got

excited about it and actually now more people are seeing the benefit of those types of technologies. But it feels like there is a bit of distrust there. That is the word people used to describe the lack of privacy, that's it for. So how does this, this process, start to reflect back on some of those things?

Rafael: I would say that taking, for example, the Google Glasses explanation, what I can see is that Google is applying its core business that is providing information, which means, providing information in a different artefact. Google doesn't have expertise on kind of, a, visual information centre about manufacturing glasses that are practical for people. But basically what they are trying to do is find a new way of applying, their business model. So I think that innovation comes in that sense from one of the few trends that I realised a long time ago, I like to call it 'convergence'. So everything goes in digital today. If you take a mobile phones fifteen years ago, we only could make a phone call, texting and then this was all incremental innovation. When you go for the radical innovation because of the internet, then, crazy companies like Apple said, "Okay, I'm not going to put physical buttons on my phone anymore, it is going to be 'touch screen'". Probably, as a researcher I know that LCD has been around for more than twenty years, but nobody really, really found an application for these that are really could capitalise on that. So, they found a new way, a new artefact that they could apply the business model. So that's what I think that Google is doing with the Google Glasses. Maybe for (name of the company that interviewee 17 works for), it is something else.

Interviewee 17: That's a great point. How does your model start to address that? Because you've got things like 'convergence' listed, but how do you define, a vision for the brand. So you've got visions of the future, but I mean, I mean, as a consumer I need proof points. So everything that you've just said about Apple, I completely agree with you, because they didn't really innovate. What I mean to say is, they (Apple) reapplied it using technology and innovated in a software space, where suddenly things became much more interesting, much more interactive, and that's actually one of the things that got them excited. I think that people trusted Apple, because it had already started to... they had already commoditise the music space, because we already – there was hype about it, ready for it with things like iPods. Their music player wasn't the best music player in

the market. Microsoft and Sony had two really, really good products in there and you can map these things back to the time they released them. We're going a bit off-point, really, but I just think at the moment, and I think this is what other people have been saying to me as well, or maybe an extension, that I think you need to make a simpler version of this so you can feel the brand vision and the brand products and then also just sit back. For me, one of the things that I've always thought for my design projects is clear drivers; specific points that I can just go back to with my stakeholders or with my team and say, "This isn't up to standard, guys, in these and these areas," and be very clear in a way, which means you have to just fill in the input. It would become, say, a massive debate around the whys and wherefores of any number of different things. So, have very, very clear, accurate criteria that you can assess the direction of work against. Also going back to me, I'm a bit of a brand expert here, but for me, working in branding, I'm always looking at how am I building on the brand promise. How is the work that we are doing, making sense to the consumer?

Rafael: Okay.

Interviewee 17: And the last point in my little my little waffle is that these groups are all fantastic but it's then working out how – and I see what you are doing in this grind here. But it's also just making sure that as an organisation you are getting. I think you've covered everything, now to use the process from conception through to delivery very, very clear and in the way it makes sense. How, you know, because that's what Apple has done for the last ten years, and actually they're getting a little bit tired of their pace of innovation. And if you read market reports, that's what the financial sector is saying about Apple. Innovation has slowed down at Apple and they are now getting a little bit nervous about what they can bring. I mean, if we're (*inaudible word*) because I think Apple has actually been a company that has shown that it continually and incrementally improves. That's why, you know, we all know how to use iTunes and an update comes and it's like, "Oh, okay, that looks a bit better," but it's no longer the ground stage that it was ten years ago. It was like, "Wow, all my music is in one place." And that's, and that's a big challenge for the company. If you can back-task, I think you can back off, be more confidently and start to see, "Well

how they are going to address this issue in the future?” Does that make, um, make sense?

Rafael: Yeah, I understand. Yeah.

Interviewee 17: There is a lot – it came out in like a three-minute torrent.

Rafael: No, no, no, but I think that’s quite useful because, there are so many things that I had to consider and that’s why I’m here, to hear from you. Basic based on your experience, when you look at this model do you believe that it’s comprehensive, do you think that it covers a lot, that it’s complete?

Interviewee 17: To be really honest with you there is so much that it’s taken me about a day to actually work through all of it. But without being flippant... maybe in trends. You’ve got social media. I’m just wondering if... I’m slightly; maybe you put in a different way, because I’m trying to think the right word to use in here. I mean, as well as... overall it also affects other sectors, but that looks like it’s also, sort of, (inaudible word) in the side of the text. I think social trends are really, really important, and I think that the gist is there, but it might also just be a great endeavour as well. Which completely contradicts what I’ve said in terms of... there is a lot of information here, but I think it’s a really good call to present all these things in here. This is great as a shopping list, reference points that you should have and then need to work out. How do I bring that all in? How do they work for you? How do I create a direction for me to start driving the work? So, I would definitely, sort of, then focus a little bit on what you mean by social trends. And also I think there is the point of view about how brands are reflecting that. You’ve touched on it here. I mean, I interpret it as social media. I think it’s probably more and more powerful for brands in the way that we engage with our customers. And also that it can be seen as a... I mean, this is stuff that’s like five years old now, very well known, but it can’t just be a dead space where we just Tweet things and put things out. We have to have people there also engaging with this stuff. And so we are taking on board feedback. We are asking for people to invest, not only financially but emotionally in our brand. So maybe then some brand... So it is this simple thing we do in all our design projects. I asked my guys to look at what our competitors are doing, we desiccate some specific areas and then we just say what brands are doing well for you, who you... Which

companies have been seen as, being affable or open to their consumers. One that's been up in the projects recently just before Christmas is Barclays. Everyone is a bit anti-banking at the moment, but one of the guys was showing me how Barclays have updated their website as part of online banking. Really good, really good! Really nice and clear, and that was a good project or a good example or piece of evidence to show how to sort of simplify complex information and he's right. We looked at banking for one of our projects to get a little bit of inspiration from, and banking has had a bad rap recently so they need to work on their image a little bit so...

Rafael: Yeah, quite, quite a complicated...

Interviewee 17: So definitely focus maybe a little bit about what are the social phenomena and also how brands are responding to that. And also just thinking about your persona, basically your target audience, how that will also just, brings their focus to these areas. Because they will all be thinking about those devices that maybe won't matter to your persona. Say you are only focussing on teenagers from twelve to seventeen. There may be whole areas actually completely cut out because they haven't obviously been important to that target group, but they are all being replaced. Like, maybe health monitoring in converged devices are not interesting to your groups at all.

Rafael: Yeah.

Interviewee 17: Retail is something like that in there as well, so trends. You see, depending on what... (The information cannot be disclosed too due sensitiveness). The key point can be summarised as follows:

- Interviewee 17 explains the relevance of retailing (B2C) for the company that he works for.
- Interviewee 17 discusses strategies adopted by a major competitor in the wireless business and their impacts for that company/brand considering product retail experience.

So they've got different places but you know, it's, it's a great presence and it, sort of, personifies the brand a bit. I mean, that's a great space for brands to really

interact and people are really engaged ... and see what is happening in a retail space, things that pop-up, if that gets to your target group, you know, for the brand and there is probably experts as well. I mean, you've got – that's a very broad area, the mobile phone communication sector, so this could be an area of experts that you could just do a little bit more expansion on as well. So, I'm talking about your level one, if you are filling out this bit. It might also be good... okay, maybe I'm just, I'm going a little bit too, literal now for you, but these conversations where you have a brand in mind, because obviously this feels like um, this feels like a global brand. This feels like it's something that would be useful for a clear understanding... (name of companies previously addressed) even so you are mapping out all the types – all the reference points.

Rafael: Yeah, but that was the point, because since I am not linked to any kind of company. I am trying to be very down to earth but also, not to rigid. Because investigating the market if I go to... if I really go to every company they have their own way how they operate. And they... even though they have their own nature and... (name of the company that interviewee 17 works for) and companies like that, (name of a company) as well, it's, it's a completely different mindset.

Interviewee 17: Yes. Trends also vary if we think about emergent market, all the emergent markets, but the, sort of, new-world markets, China, Brazil. You, could put geographical in there or global markets. If you've got an eye on that, how your consumers are; what are the purchase patterns and the opportunities in those markets.

Rafael: Ok.

Interviewee 17: Which might then feed into your expert section. So, could you tell me a bit more about your expert panel here. What I don't want to suddenly start saying, "Oh, you need to expand on that as well," when it's not its intention.

Rafael: Yeah, this is straight forward. I think... this is the simplest way that I could put in a visual way. It could be much more complicated. I could be break down, for instance, mobiles telecom and go for, app developers, it could go to network carriers, from manufactures and so on. But at the end of the day, what I tried to put here is the knowledge and approaches of the experts and they are

really valuable when you must take on board on this process. So, not only experts from mobile telecommunications, but also from the other sectors, because more than never, again, these things are coming all together. So, they influenced and assist each other, when they are developing their ideas. So, a design team for one company should go to talk to experts. They are from our mobile telecom sector, or from other sectors to bring this little bit of knowledge to the company.

Interviewee 17: So in a way... what... this is a 'mirror'. Experts interacting with experts?

Rafael: Yeah, because experts can have a discussion and interaction.

Interviewee 17: Yeah, so it mean, it is happening then, they are part of your alpha ring we'll go through the (*inaudible word*). They are in, in those groups. You've got them there, so I mean, they are talking with each other. It might just make it clear that actually those experts will be reflecting your trends.

Rafael: Alright, alright.

Interviewee 17: Hold on, I can't do that. My guys go crazy when I do that in work so I've taught myself to stop doing that! I think it's, it's then – it's one of the things – these guys are starting and it's like, "Oh okay." One of the things that, with my experience with experts it's, "Oh well, you know, it could be any number of people and I think that it's part of a process." You know, one of the big undertones from working in a big company is that they are really hard on... So, you know, have your experts... you've got to make sure there is a logic behind how and why are you selecting them. Because, large companies are very good at putting in all numbers on experts, but normally experts are called in to express their personal views and that's why they can take part and they can't be part of a brand. What is it the brand stands for? How do we really show that over a period of time? How are we using that to date the quality of work we are doing and then also just to inspire a little bit, push back any resistance or any, counter arguments. It's very easy in a large company to get in an expert who says, "Oh no, we refute your ideas around that and therefore we think it should be – it should work in this way. These are the messages and these are the priorities for us, which is completely opposed to another part of the business." I find it's not very regular

part of the process but you know, probably depends on who you are working with. So, things like, you know, this is, it might be this intensive, but app developers. I wouldn't be... I wouldn't have them in my expert panel. I think they are great in the here and now, but for example, if we are producing any technologies, in it is suitable for things like that, it would be great to have the app developers a year in advance here and there to start building things, but they are not the people who are going to drive... Yeah, drive the change or create new direction. That's very short-sighted, which I know that can be taken in, in a number of different ways because they are also the people building thing for home... They are the side that are really putting an awful of interesting work on things like intelligent devices you know, you connect to your devices at home, or around us. They are kind of servicing a niche, that they identify and they are on its own. They come back with something like 'Nest' - very, very interesting. That wasn't an app. They've got a beautiful app, but it's so much more, so yeah, so they are, they are a group that I would cut. Be more reflective of this.

Rafael: In the wireless, in fact, among all of these systems, this is the most complicated one because I tried to 'match' the players, like a list of which side they come from, like traditional handset manufactures, software based companies and then you have app developers in that area.

Interviewee 17: Yep.

Rafael: But through some experts' interviews, I also realised that they operate in completely different ways that they connect to each other. So, that's why I put these two here because I tried to map also potential opportunities and possible strategies that they are taking right now. So things like... by the time I was developing this and collecting ideas, Nokia had a partnership with Microsoft, but they were 'together' here, but it's not together in the same 'bubble'. Considering that there is only one arrow that links them together.

Interviewee 17: It can change that in a couple of months...

Rafael: Yeah, and that's the biggest problem with technology, because everything can change and if you don't do... because I cannot cope with the speed of changes...

Interviewee 17: I think that's why it's so important as well with technology though to have a really clear sense of purpose, because things do change so quickly and you have to attack, but you still have to have a core promise something that you, you set out to do and I think... (The information cannot be disclosed too due sensitiveness). The key point can be summarised as follows:

- Interviewee 17 briefly analyse shifts in company's corporative goals, drivers and approaches to keep competing in the wireless sector.

And then as it... it's purely a personal opinion, but (name of the company's CEO) did a phenomenal job in galvanising the company again to generate, "Okay, these are now really... these stuff are out but these are the areas that we want to, push to develop." And the great thing is that not many people realise that they can do that because it takes a lot of time and money. But, you know, it's very easy to articulate.

Rafael: Alright.

Interviewee 17: I think... this all makes sense. This is very... you've got a very Western orientation to the wireless industry. Is that, is that on purpose that you really want to focus on Western markets or...?

Rafael: Yeah.

Interviewee 17: I was about to answer my own question then.

Rafael: No, I agree with you, because I don't agree if... Very good quality papers that in fact, the authors focus on Asian markets, specifically Japan and this was the reason that I draw a line there "I don't want to go there" because what these guys are doing is far beyond what we are doing here and as a consumer I can see that.

Interviewee 17: And how do you draw that line? What were, what were those distinctions that there was anything completely different?

Rafael: I think that, well, even before the year 2000, they already offered e-mail services for consumers in the Japan and this wasn't present in the, in the Western markets before that.

Interviewee 17: Uhum.

Rafael: So, at that time, alongside with e-mail, they already have, manufacturers already have online gateways. They provided ringtones, they provided wall paper and those things always reach the Western markets later. So that's why it's there, specifically it's in Japan. Not that much in Korea, but more in Japan things worked very fast. It's a kind of a paradox, how Nokia dominated the world since they (Japanese firms) were the first to establish these services. Maybe because they focused on their local markets. So, maybe they didn't the expansion like Nokia did, so that's why I drew a line. If I put all of them together, they are not going to have a – it's going to be a kind of a massive work. And I cannot just cover the whole spectrums.

Interviewee 17: Great, okay. That makes sense. That makes sense. It's still... it's important in your, in your trends area, just keep an eye on what is happening in those markets, both in the social and economic properties. Often the papers about marketing are downgrading their forecast because iPhone and Android have got vamped at the high end in Western markets and they are saying there is more growth. I mean, everyone there see more growth in China and Brazil to come, but at a far lower cost and where Google and Apple have been successful selling expensive devices to very wealthy people or very aspirational people in Western markets.

Rafael: Well in Brazil it's a very unique market. We can talk about this later.

Interviewee 17: Oh okay. So it, I can completely understand why you've done that then, but I mean, it's also very wise to keep an eye, an eye on those, on those markets as well, because I think the tipping point does come where, and it's not from saturation either. If you think that there are more interesting things happening in those markets in Brazil, Africa, China, where you start to see more innovation coming and it's driven by cost and connectivity. It's things like Africa, there is huge investment going on at the moment with connectivity I don't

remember, so you know, their first experience is actually, what we had three years ago when we were getting 3G. So they are getting internet now, their first experience and it's, it's creating some really, really interesting paradigms out there and the users. So here is, to me it's more an interesting place because you've got mobile phones, and by mobile phones you are including things like tablets?

Rafael: No, just mobile phones.

Interviewee 17: Just mobile phones.

Rafael: Yes, this, this was another line that I draw in my PhD, I'm not going for all the wireless products, only mobile phones.

Interviewee 17: Okay, so you are talking about a, you are talking about a smart device?

Rafael: Yeah, yeah. I've tried to be bit generalist. So, that's why I've put the different market segments and tried to break down the different aspects that shape the users interaction ad experience as a whole.

Interviewee 17: And just by market segments, can you explain that a little bit to me just so I can check we've got the same understanding?

Rafael: Well, you just can break different markets segments in different ways. You can go for geographical areas, you can go for high-end or low-end devices, you can go for cost, you can go for experience, you can go for life stage of the person or pattern of usage of the phone and it really depends how the company operates. This is not a decision that I, as a researcher have to make.

Interviewee 17: I think that it would help to prioritise data if it was in that chart. So, you've just explained, because I was... I saw it actually as geography, which then starts to put in questions about what markets you are looking at and price points. So if it is about... I would maybe just say prioritising locations or geography, that's people always want to use or regions. You've got different versions of that, and price points because then that is going to identify which software or platforms did you want to look at. You could do, you could do Western markets. I mean, I think you have got three here, again. It's, it's pretty clear that a company in the market uses one of the three platforms, so everything

will come from them. I think, you know, even we can start to talk about something like Samsung but, you know, that's an ambition. It's a way off.

Rafael: In fact I put them in here. I would say all the manufacturers; I just focused on (name of the company that interviewee 17 works for) because you have the expertise of it.

Interviewee 17: By referencing that, it then makes it clear that in this group here, what it is actually that they are going to be reviewing, because it goes... you need to define that a little bit better, because there needs to be... you need to set a context for what it is that you are reviewing, your group. That's a very, very broad area, so there needs to be a way to, to filter it. To give you an example, rather than leaving it as, like, a bit of an abstract statement. Facebook Paper. Have you seen that?

Rafael: Yeah.

Interviewee 17: They haven't got it on (name of specific line of products) yet. It looks, it looks great, it looks really, really good. Facebook tried a Facebook phone, it failed. There wasn't the consumer desire for that, and also because Facebook just put it out hoping people would like it, with not really a clear vision. Google would have put it out as "We're trying to go on social media". We'll try and have a play with it," like Google Plus. You know, everyone said, "Oh it's a flop," because Facebook is better. You know, it's building up the scene now, a little bit, you know, more and more people are getting into it, "Oh, I'll give it a go." So this is an example between how two brands put things out and let people start to play with it. The Facebook in Western markets is still quite an important experience for people. So, on (name brand of product) it's completely integrated into the... what do I want to say? It's completely integrated into the design. It's in your phonebook. It's in your home screen and that's before you even go into the Facebook app. Apple have allowed a little bit less, integration. It's still mostly through apps, but you can set on (names of specific brands of telecom companies), they are starting to loosen their control a little bit. Up until (name of a specific operating system OS) I think it was all purely end Facebook, operations completely through apps, you had to launch the Facebook app. But yeah, just setting some of those contexts; what is it that you want people to look at? Imagery

is one word that's my favourite thing. Um, you know, what are those contexts that you are already looking at. For you it's going to be getting really, really at the core because can that be your proof point as well, giving feedback into ... I'm kind of sorry, I'm saying on one hand you need to distil this to get the process to the forecasting, and on the other hand I think there is some little information to add in here on this, sort of helicopter view in the zones that are important. It's funny, over on the left hand side 'trends and users' you need a, you need a two-way street, if you like, to make sure that you are really, really... because these are, these are mirrors. Well, that's a mirror. And this kind of reflects back onto that one, but I think I completely understand why you've just concentrated on Western Markets. I mean, you've got everything in there, so that's good. Yeah, here you just need to make sure that you've got a very, very clear assessment criterion that feeds in both ways.

Rafael: Uhum. Ok.

Interviewee 17: I'm thinking about another example. Ok, it is about the context that you'd really focus on, because that matches into your proposal and your age group is that I'm going to focus on imagery, because people want to share stuff with Snapchat and Facebook and I'm going to also really focus on Facebook. So, those social apps for people, so a bit of this thing alright. So, those, those are your two. Then if somebody, another day a bloke comes and says, "Oh yes, but it's really interesting, we are seeing a group that's really, really hardcore for 'Mumsnet' and we really, really need to think about mums because it's really, really important. It does kind of fit into our age group, so I'm going to create a lot of divisions here, it's going to purely focus around this area." Suddenly, your consumer thinks that you are the brand that does an amazing job on integrating Facebook and imagery, but then there is a load of noise about 'Mumsnet' as well. It's a really whack example but we can see how usually that starts to affect people's opinion of the brand. Managing a brand demands an amazing... Is such an amazing skill, you've made it super easy to share. Stick it in a file, I can share any of my photos free in social apps, now you are telling me that mums are using that platform and I am a 17 year old girl. I'm clearly – I'm not a seventeen year old girl, but you know what I mean.

Rafael: Yeah, yeah, yeah, definitely.

Interviewee 17: Mums are the heavy users and there no other brand to me anymore. There is nothing wrong with making sure that your experiences can be translated into those areas, but it's having that clear sense that, "Ok, what are the things that are really being promoted around you?" – a lot of things that we are happy to respond and take on board quietly.

Rafael: Do you think that this is, let me turn around your question, basically it's the different lines of products that a company can provide. I mean do you think that...?

Interviewee 17: No. I think that's – actually that's not the case. You'll talk to loads of mums who will say – I'm sorry to go into mums again...

Rafael: No, it's the right sort of thing.

Interviewee 17: What's the most, abstract point I can take it? And I was like, "Yeah, yeah." I went to a conference seven months ago Mumsnet came up and it was like, "That's really interesting," and then suddenly you click back and it's like, "Yeah, it's great, let the guys that want to worry about Mumsnet worry about it, build the service and then we'll just make sure there is a platform for it, which really involves... we shouldn't be pushing that, it's not part of our brand vision. So, it's the Nokia/Samsung model where there are lots and lots of products and if you look at Apple, one product. I don't think anybody has got it completely right, by the way. I'm just saying that it needs to be carefully managed. And there are different business conditions as well, so one isn't an online operated and the others are. (*inaudible word*) their products. So, to jump back to the point, it goes back to that clear 'basis' that you can use to monitor. I can come back to your forecasting idea and also the process. It comes back to that clear 'basis', that line you have drawn that says "These are the things that we'll believe in. These are the things that we've done with the proof points. This is why the consumer believes them. These are the things that we're going to continue to innovate in. It's going to maintain that direction." And I'd be wary of adding more product in to try and correct that, particularly in a space that's much more physically led you'd be in a much more complex space than you were ten years' ago.

Rafael: Uhum, yeah. Okay, just to kind of... Do you believe that this is useful? I mean, is it adequate? Does it to promote assistance to the design team and other stakeholders involved in this process?

Interviewee 17: I think it's a great asset for all the areas that we could be considering. I think it goes beyond and one of the things that, you know, I can come back to expand - there is a really interesting book called 'The rise of the DEO - Design Executive Officer'. And it talks about, it talks about how... it starts as a little bit, you know, design has now become incredible discipline because it helps to sort a number of problems... I don't run... (name of a company) personal believe that it would be a very messy company (Laughs). But what the book talks about once you get a bit more into... creative problem solving, which I'm a massive believer in and I think that designers are a huge part of that group, well you can create their space, craft ideas, play with it, prototype it and see if it's going to work. I think that the, the CEOs that are really... the CEOs that are at the... designs icons these are great, these are great leaders, I think are the guys that are very near that sort of experience-led thinking. So, you know, in some respects it is... they are creative problem solvers. They are looking at how to simplify and define a problem more clearly and then work out what are the steps that you need to take and that is something we do with designers every day. And designers are trained in all of these as well. So, I think that this is an amazing map of all the different areas that we need to have in our focus, yeah.

Rafael: Ok.

Interviewee 17: I would say that this is a good tour to present by all the areas that we need to bring in. The next question is... and you've heard this probably from other people as well is then, "Okay, well, how do we control that? And then how... what's the next level down?" So we can start to bring clarity to the... we can begin to uncovering the areas that we want to develop, crystallise the direction, check it and then deliver." And then the boring word that every designer hates is "And then maintain." It then becomes that 'vicious' circle again. You know true observation and maintenance, are key areas that we then start to iterate on.

Rafael: Ok, alright. The next one: do you believe this is practical? You could say: “Hi guys, this is something that a guy came here and proposed to us.” (Laughter).

Interviewee 17: Maybe as a spec, not at this level. I think if you go into, if you go into the library... I believe that page three of this document, then I think it, it would start to make sense. This is, again, as a tool that is part of the process and also be very valuable what we share... So, a bit of anecdotal evidence. What I make sure my team share back into the business is our process. So, we never go and present an idea and say, “Tah dah! We think this look nice,” because we’ll get shot down straight away. Particularly when you are working here with marketeers, strategists, systems analysts.... You need to have a proof of concept and also proof of how we have arrived at the decision. Because then it becomes a very easy way for those conversations with very smart people about why we believe this is the right response. Also it creates a source of proper conversations. So we might have a conversation with a guy who will tell us, “Guys, it’s wonderful, but not to my market,” and then we can then use that to say that from the brand point of view we believe that this is the right thing to do but we don’t want to be the guys with the big sticks saying, “Bam, bam, bam, bam.” So we start to... we use that process as a conversation piece, it’s like, “Ah, okay, we understand what you are saying, Rafael, let’s go away and then we’ll come back in a couple of weeks. This is, this is how you work backwards. It’s not right based on that, on that context. We’ll see if we can address those points for you and we’ll come back in a week or two’s time.” You know, and you come back in, you tell the process, he starts to buy into as well with you. This is more or less how all brands proceed with that, you know...

Rafael: So basically what you believe that somehow is missing here is to categorise the drivers, I mean the prioritisation. And from things like related to dynamics and from breaking out information, this is what you mean by including a third document in here, it should be kind of a – not in a visual way, but in kind of a very straightforward statement. It should be like this?

Interviewee 17: Yes. What this does is, if you go back to this is about forecasting, this does a great job and there are few things I think you, you'd expand on, there is a great job to start to identify those inputs. There is a job, still for this, sort of, top level view about how you give the feedback to make sure they're being identified and managed correctly and then the forecasting task. Then I think you need to, sort of, plot a linear journey about how that starts to work and how you, how you manage that process. And you know, the, the team have always been very passionate about it. How is this going to help you build brand equity? And the only way to build brand equity is by showing, "I'm a company that's got strong principles and beliefs." What is... do you have Wally Ollins book 'On brands'?

Rafael: Yeah, I do have.

Interviewee 17: So it's a good, you know, and it is the first time we've really started to crystallise it, and you've got brands like Levis that don't really mean anything to me, but I do, I do respect them for how they manage the brand and how they've brought it back when there was a wobbly period in the late '80s.

Rafael: Ok, so basically the forecast map somehow resembles a flat road map?

Interviewee 17: Yeah, yeah. If you, if you take this downstairs to designers now you'd get so much input from it. This is, it's you've reached a hit list of all the areas and someone says, "Oh, what about this, what about that?" And you really get into, you know, I can imagine some of the guys, "What about printer technologies? What about, um..?" "What about the verification of software platform?" And you're like, "Err..." So that's one thing, but it does make that, all the steps that you go through. Ok. I do want to come back to brands because basically this is, you know, this will feel your brand personality and your appearance. Do you have... I'm stalling a little bit because, you know, what we're talking about specifically here is building a brand image. But you don't have a brand marketing team, or maybe that's where – that's something your panel of experts thinks.

Rafael: Yeah, I didn't consider this. I am focusing more on the design process itself. But if it something that I had to be on board, because it's-

Interviewee 17: Because at this point we're talking about, you know, design process. But I think it can come in, it's quite flexible. The easiest way is to take the Apple model. You've got brand, engineering, marketing and design in virtual circle and actually they are the one that command. The designers say, "We're going to make it sing." The engineers have to think about how they're going to make this thing. Whereas in other companies they've got these components, you maybe look at think that marketing on board that at the beginning, and what's driving it and why people want, why they want that, why they want this, why they want that, but no one's even continued looking into that area to, to try and source or develop, develop the parts. So it always becomes easier when you make one product, and yeah, not picking, not picking on Apple and, and not picking on (name of the company that interviewee 17 works for approximately number of products offered). It's an observation about how a product is made and also how a company understands, so it would be very good to have brands in here and I think that – I don't want to complicate it, because it's-

Rafael: No, but is this, in here?

Interviewee 17: It's almost like you need it as input, because this – these are, sort of like, your four main areas and then this is the cooking pot. These are the ingredients in the cooking pot and these ingredients come in once the other pots are added in, but I almost had it as... well we're talking about the mobile industry in here, so trends so we are here to say, "Yes, add that in there and then just mirror it to here." Or you put brands in here as a group and actually have a sort of, direct line – well, you've got a direct line in there to your, into your experts. Maybe they might get a bit lost, because they don't understand the inner space as well you do. Not to want to complicate it, I think I would put brand in, into your 'Expert' for there, but have it maybe as an, an individual area that – I'm sorry because I'm just thinking aloud now. Or have brand as a separate area, brand and marketing, and then go straight into your 'Businesses of the Future'. Because without those guys understanding and inputting into what the business of the future is... That's not going to get the... So, sorry, yeah, thinking out loud I would maybe suggest putting it – have a, a brand and marketing pool separately. And they feed straight into your 'Businesses of the Future'. It goes then it goes

then to, sort of, the Apple model. Maybe have a little bit of a noodle around, but this is my way of thinking...

Rafael: Ok. Yeah, good. I see your point. I quite like that example that you mentioned that is how they look like ingredients and these are pots.

Interviewee 17: Yeah, that's a really good way of thinking about it.

Rafael: You just go out, try and pick it up and bring it in and then stir it like brainstorming or another creative process to put things all together...

Interviewee 17: And, of course, you know, it's a different project, it give you another level of complexity to it, but the different projects seem to be turned on and off a lot, it's just for certain things you're not going to need all of this information. You have to be selective, to be exactly. So, you could use it as a, sort of like, you know, the concept stage, or project kick-off, you know, we agree actually what are the important inputs for this project. For example, if I'm doing a retail concept then all the things are important. If I'm doing a piece of packaging for an accessory, then it's not. There are still all the elements, but I don't need this level of detail for every single design project. I think that's what I'm coming back to. I think from a brand's positioning point of view, this would be really, really interesting. I think that's why you have brands exceptionally pop. And of course, you could make it smaller. If the size actually indicates flourishing, or this more content...

Rafael: That's the point. I'm glad that you asked. This is not related to... not related at all to levels of importance, "This is more important than this." No, it's just a visual arrangement. So for me as a researcher these are equally important in terms of... they will add value to the whole process and then it depends on the project that the company is engaged in.

Interviewee 17: There is another reason for – that it might help you with your process mapping, because I think that is the, the key thing coming in here, really, it's how create that – the output if you like and Marty Neumeier Have you heard of him?

Rafael: Yeah, the brand guy?

Interviewee 17: The brand guy.

Rafael: Yeah, I read books on him. Actually, I met him a couple of years ago in Amsterdam in a DMI event.

Interviewee 17: Ah okay, yeah, alright. He's such a nice guy.

Rafael: He is very approachable, definitely. I think what is interesting about his book is that it's not a heavy book.

Interviewee 17: No, it's a designer book Yeah, he's written in a very, very easy, understandable way. But it's a great tool as well, you know, for, for marketing. I actually got a friend of mine and Marty's recommended it to me. That's how I found it. It's not just read this book explaining, "You should definitely read it, it's in your area, you need to read this book," and, and it was great, it was great, and then actually we got on really, really well, me and this guy. He's left the company now, but we get along really, really well because we had a shared understanding. We both had the same sort of ambition that we both wanted to live. Again, this is very important. Not just from a design point of view, but from a communications point of view about the process of design.

Rafael: Yeah, I remember in one of his book's page a huge diagram. I don't know how many bullets around the core and we had to bring in our company, marketing branding, communications and all sorts of things that you have to consider somehow.

Interviewee 17: Yes, definitely.

Rafael: I'm sorry this was something I should have asked you in the beginning. Can you just brief introduce a short biography and your roles here at (name of a the company that interviewee 17 works for)?

Interviewee 17: Yeah, sure, if you want I can-

Rafael: You can just say, the recording is on.

Interviewee 17: (The information cannot be disclosed too due sensitiveness). The key point can be summarised as follows:

- Interviewee 17 highlights his working experience in the company that he works for focusing on design related areas, sectors and projects.
- Also he explains current drivers and strategies employed in the company that he works for considering both internal and external issues to compete in a more sustainable way.
- Finally, interviewee 17 briefly introduces a summary of his career before joining the current company that he works for.

Rafael: Ok, ok. Thank you very much. I should have asked this is in the beginning but I think we started the conversation, it was so dynamic that...

Interviewee 17: I think, because, when I came down to Brunel in November, because you wanted a little profile so I put it, I put it as a document.

Rafael: I'm fine with this because I'm going to sit down and transcript the interview straightaway. Thank you.

1.2.9 Interviewee 18 – Interviewee transcription

Rafael: Yes, I see that it's on.

Interviewee 18: Okay.

Rafael: Okay, so, just basically, could you please describe a little bit of your background and your roles at Nokia?

Interviewee 18: Interviewee 18 introduces his background, professional experiences and current roles at the company that he works for. So, we work closely with the designers. I guess there's problem as in many large companies where there is a big divide between design and engineering... and we've been trying to become a design-led organisation, but we're still, still on the route. So, what you tend to find is that engineering has its agenda and basically focus on bringing a product to market at a given moment in time to meet certain specifications, because that's what our competitors are doing.

Rafael: Uhum.

Interviewee 18: But, design is thinking, to my mind, more holistically. You know, "Are we..." – yes, we can bring something which has all the right specs but it could still be a poor product and it doesn't sell well. So what do we actually need to do to make a product appeal to sell to people that would then want to buy it. So, it's, it's kind of a misalignment. So we seem to be able to go to our engineering group and say, "Hey, can you prototype this and feedback?" And we will do. So, my team will just, kind of, build the initial concepts of the ideas that designers are coming up with, because they don't have the will to do that. And then we use that (concepts) as a vehicle to promote the ideas to engineering and we manage to get 'what it should be'... and having an actual product in your hand is a lot more compelling than, than a load of 'powerpoints' and sketches. So that's kind of what we do.

Rafael: Okay, thank you

Interviewee 18: Does that answer your question? How did I get... what's my background and how did I get here? So yeah, so that's kind of how I got here, it's a roundabout route, that's it.

Rafael: Alright, thank you. Well I have a very short list of questions that, I'm going to start of course by the very first one. Based on your experience, your role at (name of the company where interviewee 18 works for), what you see here, do you believe that the kind of, a map or diagram... Do you believe that it's comprehensive and that it's complete?

Interviewee 18: Well, do you want to talk me through a bit of it, because there is quite a lot here..

Rafael: Yes, yeah, so basically, from my research I identified that there are five basic components to, future forecast or to deliver the next generation of products: design, trends, users, the wireless industry and the experts. And why design is in the centre? Because my research is design-led. So, I'm using design methods and also I understood that design can act in the strategic level, in the research level and also considering the use of multidisciplinary teams to create the visions of the future. In each of these circles, there is one specific area that design can contribute to this work. Over here we have a trend, so we have a stack of design and research methods that can be used to collect the data inside of the circle. In here, another set of tools that address user's need, demands, experience and try to plot all of these factors. And do the same process. In here, in terms of business approach and, also capturing the structure of the industry, players, potential opportunities and also threats. In here, approaches or research methods the designers can use to engage with experts. So, engage with them... talk with them, capturing their ideas or invite them to join the process. And everything... converges to the centre where a multidisciplinary team analyses all of this information and propose what I call 'visions of the future' that is represented by a concept or by an idea.

Interviewee 18: Yep.

Rafael: So, this is what I'm trying... This is what this method is about, so basically you have external factors around. And in the core it is what happens inside the company.

Interviewee 18: Yep, okay. So is there anything missing from that? Hum...

Rafael: Those labels in italics are the process and here you have a small... in here just to represent the opportunities, threats and strategies.

Interviewee 18: Okay. I mean, I suppose, yes we do, we do all of these things.. Well, we do most of the things. I'm not sure how much we actually employ the knowledge of experts and other things. I mean, I suppose we have a few, a few people who are, kind of, senior designers and we, sort of, rely on their intuition, I suppose in a sense you could call that an expert. That said, it always needs to be backed up by data. So, I suppose, I mean, the trends will tend to be things like... you know, analysts and all the kind of, analyst output on, you know, what are the screen resolutions for 2016 and all that kind of rubbish. Um, it gets used but I think it gets used less by design, because, it tends to be very technology focussed rather than anything user-centric. I think engineering will tend to use that more on the basis these things will be the 'hygiene factors' for that period. It might not be unique for an end-consumer, but you'd have to put it on the box, so people can buy this product. So unfortunately we have to stick into it.

Rafael: Yeah, it's like that... all these 'necessary evils....

Interviewee 18: Yeah. As long as they are ruled, by the two lines that (name of wireless company) put on the product placement tag; then, you've got to put the right things in those two lines. Probably most of our useful insight actually comes from the user research. I would say stuff that, in terms of stuff that directly impacts on how our designers think and how we validate our ideas... Then you've got the wireless industry.... It's not something in terms of design, but I suppose it's potentially more like, kind of a business approach through service design. So for example, like we do a music service, but they're much more interested in, you know, the all-time record labels. The albums are the kind of product that they can build into the supply, whereas for the, sort of, handset business, I think it tends to be less, less around that. I mean, I suppose the way that it gets used is that we will

contact a number of devices that are divided by technology, in terms of price and things like that and then there will be a, a culling where they will kind of go, “Okay, in the time of the launch that product is not going to work. It’s not going to get sold. So we’ll abandon that.” So, that’s where the ‘business mentality’ comes in. So, as I say, from a design point of view it tends to be very user, user focused. But because it’s not a totally design-led organisation, they’re like... So the engineers will look probably much more a trend in the wireless industry but they wouldn’t be at all focused on users, really. They wouldn’t conduct much of their own user research.

Rafael: So here most of the trends related to technology, protocols... this kind of stuff?

Interviewee 18: Yes. I mean, this is kind of, this is useful information for engineer, yes, and it tends to be, you know, an inspiration or trigger. They can go, “Right, we could use this into one of our products and that’s what happens.’ Whereas the designers there are more interested in, you know, “We went out. We did an interview with, you know, somebody in the outback in South Africa and this is how they use their phone and these are the problems they are having.”

Okay. So, do you, do believe that there is missing over there or it’s ok?

Interviewee 18: I mean, I suppose there is... I sort of alluded that. I don’t know whether it’s in here somewhere, but there is always external inputs coming in and then you have a few groups, who are going to actually decide what gets built, and they’ll tend to come at it from ... So, we’ll have a, we’ll have a design, a business view, and an engineering view and they’ll tend to get together and have a big argument... and the design view is about, “Are we making the right things? Is it useful? Is it usable? Is it compelling?” The business aspect will be, “Does it meet the hygiene standards - the cost, the price, the window size, is this correct?” Then the engineering view is, you know, “Is it usable? Do we have enough people to do it in the time available? How does it fit with other projects we are already doing? Can it actually be done in that time?” But those, those three groups will get together and fight it out, basically, that’s the important and relevant thing to do.

Rafael: So everything happens in here?

Interviewee 18: Yeah, I would say that the... yeah so everything, everything comes in. And gets more... focused on a particular proposition or design. But there is then ultimately you want these groups to get together and make a decision, you know, continue or not continue, you have to go back to the drawing back and come back in a month with a new idea and it will often be somebody else. So, I wouldn't say it was, sort of... well, I don't know. There was a suggestion that there is a convergence on a point here which produces the product without any delays. I think it's the convergence on a point... I'm not quite sure how it would be, but if you look at it after the fact you can see, "Okay, yes, it came there," but there are lots of casualties along the way.

Rafael: Okay. Do you believe that, that this is useful... in the sense that it promotes assistance for people working on a project or it clarifies some specific aspects or aspects that people might forget or take for granted?

Interviewee 18: I think it's a good mental model to see how things come in and, and arguably you could... I'm not quite sure about the very middle. I think that's, that's probably very specific to your company and in this industry how that final process, you know, what are the things that you are actually going to do to get it done. I think it's not necessarily logical or scientific. I mean, you know, sometimes, at some point we pay, sort of, our senior execs quite a lot of money because they have a gut feel of, "We could do this. We couldn't do that." You know, "Yes, I've seen all the evidence, but, I think we could do that." And that's, that's still a part of it. But every company is different. I mean, I'm sure Google is much more focussed on numbers and whether, I don't know, whether people come into it because of the gut feeling whether that comes into it or whether, I've no idea. Similarly I suppose, I've no direct experience, but from what I've seen about Apple, while Steve Jobs was at the helm it was very much one man in the middle deciding. All these ideas come in, "Yes, do that, yes do that, no, don't do that, get out of my sight," kind of thing.

Rafael: So basically you have a champion that manages, control, set directions and...

Interviewee 18: Yeah, but in, in their case they had one person that did it. I mean, I wouldn't say, I mean, (name of the company where interviewee 18 works for), then if they, there is a certain attitude and way of doing things that is very reasonable, I suppose, you tend to find it across (names of specific countries and regions) it's a, it's tends to look for agreement. Now we've got more Americans on the board now than we have had at any point in the past, I think, Americans and Canadians, but there is a bit more focussed and "You don't need to agree over this, you can decide what to do," but anyway... As a mental model for the pieces and how they play together I think it's fair. You need to map onto, you know, groups within the organisations doing this kind of stuff and if you can distil that so it would be useful. I think it tends to be a fairly organic process with people learning, exchanging and conducting research; we've gathered all the information about external trends and it's part of the, I think it's part of the designer's training to go and gather this stuff, we don't necessarily formalise how it's presented to the company, so... That would be useful (Pause).

Rafael: Yep. The next one is, "Do you think that this is practical in the sense that... you say: 'there is a guy downstairs that produced a model, we can put it in a wall and start doing what he proposes...'" Do you think it works in the real world?

Interviewee 18: The design process is conducted by (name of the company where interviewee 18 works for), brands works in the middle, sort of, up to a point, I suppose. And it, it doesn't cover that sort of decision point that we'd need it to go ahead. I mean, it goes as far as, "Here would be a concept that in theory should fit the bill." It ticks all the boxes. So I guess if, you know, you were going to present things to the head of department, directors or the executives, you would want to have made sure you've got all these things are place; so, that you know it's... you're doing the right thing and, it's, you know, you are doing the right thing in the market in that timeframe. I suppose there is kind of the practical aspect of, "Can it actually be done?" I mean, you did come up with a, with a fantastic concept but unfortunately it all relies on, me reading. Which could be tricky, so I guess that's where we would have a validated exercise with somebody to check it,

“Hang on, that can’t be done now.” I mean, probably wouldn’t want to introduce, we wouldn’t to consider it from a point of view of resources and people because people always say that these are still important, but from a, “Can it be done?” Well it’s something I’m mindful of in the work that we do. It’s very easy to build a prototype that shows you anything you’d like and then you can do it with smoke and mirrors and make people believe anything. But, I always have to bear in the back of my mind that whenever we have sold to somebody, somebody else will have to build, so it has to be at least vaguely practical or we can see some path through the technicalities to actually make it happen. Now I don’t know whether... I suppose this is... because I’m looking at the, the electronics industry, mobile phones... I’m not sure whether it’s valid – well, of course it must be valid for all aspects of design - “Can you make it?”

Rafael: The next one is, I’m thinking that maybe you already covered, but, is there anything missing or there is any other comments or critiques that that you believe that I should... what is missing or that are not in the right place or that I didn’t improve?

Interviewee 18: Well there is... I don’t know how best to phrase this. I’m not sure, it’s probably a minority thing, but you do sometimes get... maybe it’s more of a level of synthesis rather than concepts though, but you do things because they feel not meeting the hygiene factors and it’s going to be something that would a lot of market buzz around it... just like doing a ‘home run’. We don’t do this very often, I don’t think, but we don’t always build something as a pure design exercise because it’s going to be something that’s useful and, sort of, suits everyone needs and it’s simple. Sometimes things just happen because they will look very good on the billboard, or on the TV. I’m kind of ashamed to say it, maybe because of it me stating it.... Yeah, you know... so I suppose you have to, you have to balance, balance out. So I guess there is an element of marketing. Now whether that’s, whether that’s to be construed as, kind of, expert views or maybe something like that, or trends, we could maybe put it in there. No, maybe not trends, maybe more experts. Again, that tends to be more, sort of, a gut feel, “Hey this just looks fabulous, we could make a tremendous campaign based around this technology that actually no one will use in a practical way but it will look great.” As I say, it doesn’t happen a lot, but it does sometimes happen. I’d like to say it is a bit

controversial but... hence that we have strict plans; the results of design thinking not necessarily bring us straight to it. What's going to look good on the billboard, but it does happen.

Rafael: So, you mentioned this point that before about (name of the company where interviewee 18 works for) background as a Nordic company with very strong, engineering-led mind set... And very often you have talked about, that feeling of... CEOs or decision makers that more and more have been taken on board – do you think there is a shift in this kind of a... as you just mentioned that sometimes the decision makers they choose a, a specific feature that looks nice or the unique selling point of that product to show on the advertisements and sell that product. Do you believe that this change is motivated by the interest of a specific player such as a software based company or do you think it could be just a natural process?

Interviewee 18: My view is that we changed from being an engineering-led company to try to being more of a design-led company at the point where the iPhone came out. Because up until that point, we'd been following a path of incremental innovation, that's the technical term. So, phones are getting ever more bulked out with features and stuff which is getting clapped on the side and there is, there wasn't strong guidance from either of the two designers in senior management about what the products should be. It just had to be – the last one or two pieces. So, basically we ended up with unusable products that we were doing. So, were living the kind of, the classic proud when you get caught by... somebody comes up with a new product to innovate and you haven't been watching and it takes years to catch up and in the end develop something. So, I mean, we're still recovering from that, but it had the benefit, I think, of removing the mind-set that you could, you could get by, by just making the phones that we did last year that everybody was buying. That's been a, that's been a combination of making the company smaller. So, there is less people in the position of having to perform that requirements as well; having more say for design. So, I think there has been a recognition that it's important to be design-led. Because in today's marketplace, you won't really do just simple engineering, it's not, not efficient. Everyone is expecting that you will have a phone that makes phone calls and you will have a touch screen that works brilliantly and it can have a great camera and all the other

things, there is not enough to do something in that arena. It needs to be more. So, more of a design-led organisation, it actually – there was a big achievement of having the head of design seating on the board which had never happened before... and having a folder for suggestive review.

Rafael: Quite a big change.

Interviewee 18: Quite a big change, yes. I mean, at one point, you know, it was debatable whether (name of the company that interviewee 18 works for) would survive. Arguably it hasn't because we're now going to become integrated to (name of a specific company).

Rafael: (The interviewer probes interviewee 18 for further and more specific details about the topic previously mentioned)

Interviewee 18: (The information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Interviewee 18 discuss about current business approaches and future strategies.

Rafael: (The interviewer asks interviewee 18 for more details and his views about the issues previously addressed)

Interviewee 18: (The information cannot be disclosed too due sensitiveness). The key points can be summarised as follows:

- Interviewee 18 introduces the background of the company that he works for and future business approaches for a specific line of products manufactured.

Rafael: Yeah, I, interviewed lots of people from that work with mobile phone with a design background and the funny thing is that they mentioned apparently I don't see the word 'technology' there and I mean, you are a person that has a background mostly in technology (Laughs) and, surprisingly you didn't mention about the word in here. So my question where do you believe that this, this comes from? Or it should be more from trends, it should be more from users or experts in your industry or you can use something that has been developed by another company?

Interviewee 18: I mean, I guess we have, we have internal researchers, so they will tend to come up with things and propose them as potential solutions to problems. Usually they don't know what the problem is and we have a long and history of integrating technology into our products and we just have no idea what problem we're actually solving. So, I try and, I mean, I actually see if I can deliberately steer away from, "Somebody has got some great technology that somehow we have to use it, I don't know, find a way of using it, find a reason for putting this in." Because I don't personally believe that's a good idea. You should have a problem and then you look for technology that could solve the problem and then you can put that in, rather than the other way around. Because I've just seen it going so wrong so many times in the past. I mean, I was... So, prior to this job I was, I was in a product concepting group, so we were looking at coming up with ideas and delivering it.... and a lot of the time that was based on, "We've got a new technology, how can we use it?" And then we might find a few things we could do it for. Then inevitably it is expensive or difficult, so in order to amortize that cost we had to use it in as many places as possible and then you end up with a, just something horrible because you've tried to shoehorn the technology into everything you are doing, because you, you have to do that to prove it would work well integrated in the development was actually worthwhile.

Rafael: In all these other places as well, yeah.

Interviewee 18: I'm not, I'm really not an advocate of that because if you identify the problem and then find a technology and a solution to that and if it only addresses that one problem then so be it, and maybe you'll find more things along the way. I mean, I do think a company like Apple, for example, are much better at – I don't know if you've been introduced to anyone from Apple, but they will tend to things much more strategically, I think, and they'll put something in and they might have one or two useful cases which is fairly compelling in itself and then it will evolve and then rather attempting to sit and anticipate the mysteries they will, they will let the marketplace.... They have done this before when they just provided the framework, and then actually really be quite thrifty when they, when they see something happening. I mean, I suppose an example of that that I've seen is for example, like, stick a 3G '4' in their products and then they come out with their ads and, okay, it's still not clear whether it's going to be a big success or

not, but I can see that potentially a lot of retail environments where you want to be able to ping somebody as they walk past, that could be a big thing. That might be, you know, in five year's time then maybe you won't see billboards anymore, all the advertising will be coming up on our phones. And they've got the features in place so that they are in position to take advantage if that should happen. If it doesn't happen, okay, so they've spent an extra blah, blah, on the bits that go into the products. That's a shame, but it's not the end of the world, so they are, they are in a position where they can take advantage of that opportunity, if it comes up, very quickly. But they're not, they're not attempting to second guess what's going to happen and drive it. Then, I think, frankly, that's a good use of technology. It's not technology for technology's sake; it's technology to solve a problem and if you don't find enough intelligent problems to solve with technology then we'll all just stop doing anything. Yeah, I think that that did used to be a way of doing business, maybe, ten year's ago. You know, it wasn't about the design, it was about, you know, "Oh, let's hook up this great new network. Oh, let's actually do this thing with it because it has to be done." I don't think anybody really cares now, you know, people do WhatsApp, that's enough (Laughter).

Rafael: Yeah, simple thing that has a critical mass of users that makes it very successful....

Interviewee 18: So, I guess, yeah..

Rafael: Yeah, you mention about this kind of, reasonable use of technology in that.... and one of the greatest examples is LCD that was developed around thirty years ago and nobody really found a way to kind of, make it profitable on a large scale.

Interviewee 18: Then with iPhone, okay, they had something, they used this technology for something that was making a revolution and the industry had to catch up with it.

Rafael: Yeah and everything now is on LCD, I don't know why. I'm not, a techie guy, but as I can see, if it's not there, maybe LCD is going soon... you won't have a remote control anymore, it's going to be everything in touch screens and gestures, movements, kinetics...

Interviewee 18: Yeah, yeah... technology is pretty expensive to start off with so nobody uses it at the moment. Suddenly they get popular and people start building factories and the manufacturing becomes a lot cheaper and then suddenly properties that were not clear beforehand suddenly much become more doable.

Rafael: Uhum. Do you think that especially in terms of technology the most important thing is not the technology itself, but the, the right time and the acceptance of the market, if people are ready for, for this? Because the, the iPhone was like... I was quite sure that Apple had a very strong process to backup that kind of product and through all their stages they had, "Okay, go, green light, go, go, go," until they launch it... But, I don't think that they were expecting this huge success in the beginning. And certainly they, they changed the direction of the whole industry. In the industry they don't really have any kind of knowledge, expertise of whatever... And some people start buying, recommending and suddenly it was a huge boom.

Interviewee 18: Yeah.

Rafael: So, do you believe the, the timing is more important the technology itself?

Interviewee 18: Well... lots of it, it is timing, but it's, I think it's bringing the right things to market. And it's not making a big deal about the technology. I mean, I'm sure, you know if they're made a big deal about, you know, how fancy the touch-screen was and they had a crap device, nobody would have brought the iPhone, but the fact that it was useful and simple and it worked. I don't remember the exact details but I'm fairly sure that when the iPhone first came out, it didn't have an awful lot of things, but it didn't really matter to people. It wasn't about the technology; it was about the simplicity and its uses. So, and I suppose, they were kind of a little bit lucky, because they've always been premium products so they, they get a lot more scope for playing with expensive technologies. If you're not looking comfortably at buying Apple, get your money out of here because you are looking at the price point.... And Apple consumers traditionally are not price sensitive.

Rafael: Yeah.

Interviewee 18: And they make a big, a big mark-up on it, so that gives you a degree of latitude prediction. Because inevitably all new technology is expensive, so... but again, I don't think it's about the technology, it's just about what you're actually doing with it; what problem you're solving. That is far more important

Rafael: Ok.

Interviewee 18: Yeah, so that was my, I mean, that's a personal view, but it's my discovery since joining a design organisation. Because beforehand, you know, I'm fairly techie, I get excited about some, you know, some new set of hardware or something like that, but it's, since joining the design team, learning about design thinking. Does it have any impact on the bottom line? Does it help anybody? In most cases, not; it's much more important to be doing the right things and then have the technology to be able to do it rather than have the technology and attempting to find the right things to do with it.

Rafael: Personally, it's a quite nice surprise, having a different statement coming from a person with solid and experienced with technology. Because when you speak to a designer, or a design manager it's like many of them think that design is all about technology. What kind of a technology can you put in? They think that technology drives... Their mind set is, like, it is salvation. And now I have a different view from you, that I think that is really interesting, I don't know if I should see like this, as a win-win situation for both of you guys that work together, so you converge and you reach a consensus, or I see this as, maybe one person has his mindset and doesn't have this kind of, understanding. So, he starts appreciating things in the other way around.... You know, as a researcher it's an interesting thing to see.

Interviewee 18: I mean, I think, this is my view. I do think than that turning it down and becoming more of a design-led organisation is... Anybody that, that deals with strategists because it's, you know, some new technology, you've got to rush to get it to market. That's always going to be a race to the bottom because everybody else will do that, more or less. I mean, there is only a few people that are genuinely developing new technology, so they have control of all vertical, they are actually quite involved, researching and building something up. There are lots things that people don't care about that much. I mean, yes, it's, you know, if

you are able to do something a bit faster, that's great. They're kind of, they're nice to, but they, they don't feel like big problems to solve.

Rafael: It's much more like a, a convenience...

Interviewee 18: Yeah, anyway, so if you're engaged in the market where you're, sort of, opt for new technology or work out of somewhere with a new piece of technology. I mean, it's probably you will end up bringing these things to market and it's go to for 'okay, maybe there is a different way of doing things', but it's a high-risk game, because 95% of all things that come out will fail. Because you don't really know what it is that people want. You're just doing something and just kind of hoping that the technology will be at... I mean, not that we have a magic bullet, but, I think it's better to work out what people want and then attempt to deliver that first. I mean, it's interesting, I suppose you can see it, particularly... Well, I haven't seen anything on it recently, but a few years ago, while we were still doing well in the market, you know, we might have grand devices that we had, we'd spent years working on. It was tipped off. Two weeks later it was sent to the manufacturers in Thailand so they could copy the whole design. They were probably running a different operating system that hadn't the majority of features and much less reliable, all these other things, but it was a lot cheaper and then they managed to make it happen, like the original. You know, I think there were some very talented people there who can do that (Laughs). So, if you just skip the new technology and then say to them, "Copy the design in next time then you have very beautiful... You are relying on your brand name and in what it epitomises in the last few years and then come and tell them, "Da, da, da," would you like something that, you know, will be available from shops in three weeks later from that manufacturer and a lot of people... But, to me that, that epitomises just pure following of technology. It has very little intrinsic value. Yeah, even today, you know, you can go to a dodgy market and someone will say, "Hi," and get an iPhone copy, and it won't be a nice user experience, it will be disappointing. Because it doesn't do things that an iPhone does. You know, it might have all the same technologies, it might use the similar list of hardware requirements, you know, so it just won't be the same and there will be no point to buy it instead of an original iPhone. That's an intangible thing that is actually a much more worthwhile goal.

Rafael: So, basically, should I interpret this information as 1) We cannot rely only in one handset; 2) Invest a lot of money in operating system and 3) We need an ecosystem that cannot be copied. So basically the copyright is extended not only for the physical part of the product itself, but something intangible that, “This is where lays the core of the experience. I’m just using the iPhone as an example that people can copy the hardware but the experience is ... what is it!?”

Interviewee 18: Yes, yes, that’s true. I mean, I think that the whole ecosystem thing is already a high barrier essentially there, anyway. I mean, certainly even for the iPhone, you know, to make a dent on Android platform, you know, is very hard. I think, I don’t know what the figures are but, you know, they’re down (*inaudible word*) and we’re doing quite well in almost everything, you know, but it really reflect in a fraction of the market. So yeah, but it’s simple, you don’t need to get (*inaudible words*).

Rafael: Yeah, yeah.

Interviewee 18: A handset, they’re not concerned about who (*inaudible words*) or whether anybody ever comes back and buys a second one. So, I mean, it’s interesting because I thought more and more organisations were attempting to become design-led, rather than to be technology and engineering-led, but maybe not!

Rafael: Recently I listened to a statement of, I don’t know, the current Jaguar-Land Rover CEO something like that ‘if you believe that good design is expensive, you should think about the cost of bad design. So I think that it true, maybe in the corporative world many people didn’t realise that the competition is not from... it’s, shifting from for what you have that is able to feel, that it is intangible and this is where lays the experience itself. More and more, not only in this industry, in mobile phones, but in many others.

Interviewee 18: Yeah. Recently we had one of the people move from (name of the company where interviewee 18 works for), to Jaguar Land Rover.

Rafael: Really?

Interviewee 18: Yeah. They, what are their names... one of them were a really good designer. There must be design, there are clearly people designing, you know, beautiful shapes and stuff. But actually when I stop and think about it, it's like well like, "No, there is an awful lot more than that." There are a lot of things - the materials and then use all the controls so there is a lot of design practical terms that has to go into it. If you've been making something that was (*inaudible words*) in some comfort, a lot more to it than that.

Rafael: Yeah, it's an interesting point.

Interviewee 18: I definitely think it's true that, that in refer our costs, the company and the cost of bad design regarding a new piece of technology in the hope that they'd by chance come out with a good product, well that's probably not going to happen. What you will always have is a collective of... it is like a Swiss army knife, you have everything but it doesn't work very well. It's a necessary evil. I mean, it's quite interesting when we moved from (name of specific and proprietary mobile software) to (name of specific and mobile software), we went from a platform that was very 'bits and pieces' but complicated to one that was a lot simpler, but efficiently. And there was quite a lot of complaints about things that new platform didn't do that the old one did and, "Oh, my life finds this one harder because of all of these things." Ok, some of it was necessary tech stuff, but a lot of it people came to realise was just... you've just grown accustomed to working in a certain way when I was using my phone and then you have to learn a different, a completely different way of working. It's not necessarily better working.

Rafael: I think that from a design perspective this extra job that companies have to develop their own software, it is that you don't find consistency through the manufacturers.

Interviewee 18: Do they?

Rafael: For example, if I have an HTC phone that it is embed with (name of specific mobile software), a Nokia phone that run (name of specific mobile software), a LG phone also running (name of specific mobile software), number one, they will have their own overlay on the top of the operating system. Second,

the machinery, the infrastructure, they tend to not fit very well with the operating system. So you will have new problems here in, another kind of a circumstance over there. And you will never have the same experience level like this. While back in time you had (name of specific mobile software)... it doesn't matter which was... (name of specific mobile software) was kind of a worked perfectly. The level...

Interviewee 18: It's completely horrible with all of them, I mean, I know, I mean you've got used to a tiny window, let's say, you get very used to short-cuts, how it works.

Rafael: Yeah. My point is that you reached a level that it is very similar. It was not like an ECG that you go like this, you are going to hate one in here and love another one there.... But, is it worth it?

Interviewee 18: Yeah.

Rafael: It was really? I think.... Many people that had talked about it said that Symbian was simple. Ok, you have a lot in in terms of hierarchy, the menus and the navigation, but it was simple. Symbian was simple to set up. Then, market conditions changed, companies had to make choices and take on board different things. I don't have a (name of specific wireless product) but I have a friend of mine that he has and for him, a phone must be (name of a specific brand) he is very happy with that and as far as I can see it works very well.

Interviewee 18: I think a lot of companies in order to, so something that (name of a specific company) has learned with their experience. They might be a fantastic operating system, but if somebody has just got a crappy laptop, it'll be a crappy experience.

Rafael: Yeah, that's it.

Interviewee 18: And it reflects badly on (name of a specific company). So, surely a (name of a specific wireless product) have satisfied the minimum requirement for hardware in order to give, the people the experience, but that meant everyone was potentially producing the same phone. Okay, you might have different colours, you might have slightly different forms of it, but essentially it's the same

phone. So, you wouldn't want to differentiate only in aesthetics. How can I differentiate it? You can use different shapes, materials and colours so basically creating a different experience for the whole thing. I suppose when we started working with those phones, we tried to fit in with this pattern that everything would really like it followed the design rules, design around (name of a specific wireless product) visual pattern but there was no obligation to do that. The aesthetics factor decided by the manufacturer. Actually HTC and LG present a different aesthetic feeling.

Rafael: Yeah, I think that for, for a manufacturer, the only thing that they really can do in terms of hardware innovation.

Interviewee 18: Yeah but even that wasn't – it's hard in (name of specific and proprietary mobile software) device, as far as I can tell that the hardware might allow users to have some control of the experience. It's not... I can tell you on the proprietary mobile software), remove the hardware part of the device aside it is how they get on using it. It is a great part of the thing. But I'm not sure that that is so important. I think it is more about how we tackle users rather than developing new technology and integrating it in a new hardware.

Rafael: Yeah okay, I think that's all. I appreciate your time, thank you very much for sharing your, your expertise with me... and I know that design strategy is not the most familiar topic for you to talk about it, but I think it is very important to have your views and board. There are a lot of interesting information that I heard in here that doesn't come from the visual part, that has come from the background, from the explanations and everything else.

Interviewee 18: Yeah, well good luck. You're, I guess you're - this is the final year, you're writing up?

Rafael: yep, I have to submit in the next couple of months...

1.2.10 Interviewee 19 – Interviewee transcription

Rafael: So, basically all of these things that you can see in here emerged from my literature review and also for a set of interviews that I made in the data collection stage of my research. I identified that there are five key components to support future forecasting in the wireless industry. So, four of them, they are... they come from...they external, so they are 'Users', 'Trends', 'Experts' and the 'Wireless industry', and inside of the company, the use of 'Design'. So I realise that design can be split or divided in different ways, depending on the roles that design plays. For instance, at the first level we have the strategic level. Later on it's used as a research method. Then design again can help multidisciplinary teams to develop what I call the 'visions of the future'. That relates to 'personas', 'scenarios' and the 'concepts 'of the product themselves. So, when it comes to the research area, there is a pool of... or a collection of research methods that can address the specific issues that are highlighted in here. And, in here, I've tried to be more realistic as possible to bring the real market information to match them properly.

Interviewee 19: Just looking across it quickly, it looks a nice, it looks as if you've got all the main parameters there, so that's, so that's good. What is your aim overall? What are you, what are you seeking to? Let me put it another way. What's the problem? This is all happening, ok, good or bad, it's happening. Some very good. Some not so good.

Rafael: Yes that's true....

Interviewee 19: So which part of the landscape are you seeking to address? Either, either in terms of evolving the current practice, so it's... that's your objective? Or are you particularly taking a problem that you perceive or have heard about and you want to, kind of, tackle that problem and come up with some new approach?

Rafael: Yeah, the problem: The lack of literature to address this stuff.

David: Okay, it's a literature problem.

Rafael: Yes. But at the end of the day, it still comes also from the... a practical view because the design has been used for thoroughly by different handset manufactures and with the emergence of internet and the penetration of software

companies they started having a huge problem. Through this literature review that I had contact and also approaching design consultancy companies that work with other companies to improve their business, why not handset manufactures start using design to forecast what can be done? Because in my opinion, companies such as Nokia and Motorola, they lost momentum because they didn't realised... they didn't act timely to address the change. So it's the, the problem came from more the academic side, but I also believe that it can bring contributions for the practical part.

Interviewee 19: Yeah. I think one thought that has come to mind, that may be either another model or may be another subset in here, although I haven't had time to read this fully. But when you hit this outer-ring, the strategic ring on your design bubble, most of the issues here will address the strategic aspects of design. As opposed to the strategic aspects of, say, the wireless brand and I see that I think here, the strategic issues from the wireless brand I'm not sure if they are here.

Rafael: Yeah, in here. I tried to map the opportunities and treats and some strategies that handset manufacturers use. This is a challenge, what I mentioned, because I couldn't go looking at one specific company and... Try to plot its strategies, but I prefer to have a holistic view, to track the, the structure of the industry itself and see what those players are doing right now and map what it's possible to do or what they have to take on board.

Interviewee 19: Yeah, yeah, because I think what, what, what can happen is that the changes occur in what I would call the 'hand off' situation because all of these things are happening. And the quality of the, of the best is very good. So it's not that there isn't the availability. Often they are let down in the 'hand off' and what I mean by the 'hand off' is, um, maybe an analogy would be, like a relay race where somebody hands the baton to the next person.

Rafael: Uhum.

Interviewee 19: That's the 'hand off', ok? They pass the baton. So when these interfaces occur in these 'hand off' situations, there is often a steep learning curve or it may just fall between the handoffs, the baton just falls on the ground. And the

net effect of that is that good work can either be misdirected because the handoff has not been, you know, fully understood or the baton might get dropped and all the good work is, is diluted in some way or another. So there isn't this comprehensive, understanding of the broader aspects of this work. It tends to go in, into areas where the first request comes from. This may sound a bit strange, but if you've got a telecom manufacturer whose making a handset, a new handset design. So it asks its industrial design team to come up with concepts for the future, and if that relay race, is carried out effectively, there is no problem with that, you can get forecasting, trends, design, blah, blah - not a problem. But when those concepts then comes to the business team, there is a 'hand off' or an exchange with the business team, they may or may not get the story. They may or may not have briefed the, the strategic aspects for the brand or the strategic issues for the business going forwards. So, you will have a clash between foresight in terms of graphics on the handset design and materials and technology. You will have that part of the story, but that may not necessarily come together with other aspects of the story and, so the 'hand off' is the difference. Not so much that if you went to the strategic business foresight team they're doing great stuff. You go to the foresight team in the design world, they're doing great stuff, or the technology foresight team, they're doing great stuff. But bringing it all together... In these 'hand off' situations, that's where it's difficult. And that's difficult to achieve, and where it happens, often under a strategic umbrella of a brand, if there is a brand, then you get lift-off, and where it doesn't happen you can still get great individual work, but it's in silos. It's siloed off. So, it will inevitably be diluted and you get crazy examples of big companies seemingly blinded and missing... opportunities or, you know, mentioned a few of them. Motorola, for example, you know, a highly competent brand, they've got the technology, a great design team and yet they've kind of missed the boat. You know - why? Because of these 'hand offs'...

Rafael: Okay.

Interviewee 19: Not synchronising at the right time and yet you look at something like, you know, the old case story of Apple, you know, those synchronisations have, certainly in the last twenty years... Been more right than wrong. So, the synchronisation that they've managed to pull off under the brand's umbrella has

allowed the ‘hand offs’ to be not dropping the baton so often. But I think one area that might be worth looking at would be to look at the, the nature of the ‘hand off’ situation and what could be done. To facilitate better ‘hand offs’ and better relay situations both in the briefing and also in the exchange and the development of future product. So that would be one area that I think would be interesting to explore.

Rafael: Okay, I, could do this very straightforward list of questions, in fact there is four. I think that you have tonnes of experience, you can, you can give me your opinion about this. These are just more... this tries to be very comprehensive and complete, in the sense of what you can see here, it’s good the way it is or it’s missing something?

Interviewee 19: I think I need to read it a bit more. Because I’ve just – all I’ve seen is the graphics which I like, because, I’m a visual person. But, I need to read the content to really answer the comprehensiveness of points.

Rafael: What is ‘by the reading the content’?

Interviewee 19: I’ve only read a few words, but I’m seeing your headings, you know, your headings are, are good. So from that point of view, certainly the areas of influence are there.

Rafael: Uhum.

Interviewee 19: I think the point that I’ve just made about the ‘hand-off’ is interesting, because the, the way that these bubbles interact with one another is not clear, from your visual, from your graphics.

Rafael: Okay.

Interviewee 19: Because, do they in fact do this? Or is it – are they apart and there is some kind of dotted line between the these information or are they integrated in some more meaningful way? So I’m, I’m looking at it and saying, “Do you have dot, dot, dot between these two spheres, dot, dot, dot, dot communication or is it more like that?”

Rafael: Alright.

Interviewee 19: “And is the best practice more like that? In which case, what’s the difference?” Or, if you go about things in a particular way, in other words is there a process bubble about these interactions between these major ‘stakeholding’ spheres?

Rafael: In fact, that should be like this, the process itself, because this is only a 2D piece of paper but in the – I would say that this was already suggested and I am thinking how I’m going to apply this. I would put these four dimensions on the first level. Then I’d go for one level for the design.

Interviewee 19: Uhum.

Rafael: That should be in terms of strategy. In another level then I go for research and then for research linking this, because this – of course, they have... I didn’t, put but there are connections between these four. Of course, but, I am looking at the design research part because it’s there that the research should go, collect and bring the information.

Interviewee 19: Yes, yes.

Rafael: And I’ve tried to put in a different space to be comprehensive. Not to focusing on a very specific point. Then in another level, bringing this information collected through this to here. So there is multidisciplinary team. So, they collect and later on they work on the development. So, in terms of a, a, a graphic thing, so the letters in italics, they mean it’s a process; while the other labels are just the components themselves.

Interviewee 19: I’m with you, ok. So yeah, that’s, that’s good. I need to take that in. Is it useful? I, guess the question there is, for whom? Is it useful for whom? Do you have a particular audience in mind?

Rafael: Yeah, yeah, design managers and design team, yeah.

Interviewee 19: Ok, particularly for the design team as opposed to wireless executives or whatever.

Rafael: No, no. That’s the main beneficiary of my study.

Interviewee 19: Okay, um, have you spoken to, the in-house corporate design team? How would you summarise their perspective on this? Most of them... the good ones are, are doing it?

Rafael: Yeah. Well what they say is that overall it seems to be quite comprehensive. They think that it's quite similar to the things that they do and research. But from a practical view, what one of them told me is there is a kind of 'it doesn't impose me a challenge' in the paper is not telling me what to do, but telling me what I do.

Interviewee 19: Uhum.

Rafael: And from my personal view then there is a gap between the industry and the academia. As I am a researcher and you are a decision maker, I am not expected to go there and tell you what to do.

Interviewee 19: Yeah.

Rafael: I just want to understand "What are you doing?" So, this difference between 'understanding' and 'doing' was highlighted.

Interviewee 19: Yeah.

Rafael: I realised that those people that are working in design – not only design, in the technology, they already realised that that decision-making does not necessary come from numbers and statics; but it comes from gut feelings, from experiences in life, from daily observations sometimes... recently a person told me that... a CEO or a person that seats on the board of directors, and, "No, we're not going to take this on board because we are going to do this way, even though it is not what the numbers say..." So, some of them they say that, for instance, trends, they look at trends, but they prefer to test their own trends instead of just... pooling all the information inside of their products. So that is more or less what they have been telling me about this model.

Interviewee 19: Yeah, and all of those I think are, are really good points that are real, you know, and that's what happens in studios. There is a bit of a there is a bit of a culture clash at some point in these 'hand offs'. This is what I view as being the weakness on this subject matter, because if these relationships that you drafted

in here are working well, in other words, the quality is good, there is not much wrong, you know, it all works. People are turning out great stuff, in best way. But even the best 'hand offs' fall down, not in their area of expertise; but when they are handing off to the next level and vice versa. Because it's almost like a language change. People don't understand, or it might be a time shift and people don't understand, particularly if you're coming from a foresight point of view of the... in the future somewhere. Designers are often accused of living poised for the future anyway, but perhaps even being guided by this future. And then when they come together with, their technology or their business colleagues and try and make a decision, that's where, you know, that's one of the 'hand offs' and I think if you look at your second point, you know, a good example of that, I would say, you know, what is the nature of useful? Is it, is it the quality of the foresight or is the usefulness of the application?

Rafael: In the application, from the product side.

Interviewee 19: Right, and that is where I see weaknesses occurring, not that the design can't assimilate these different sides, creating wonderful stuff, allow them to cover the room with ideas and allow their minds to filter back naturally, emotionally, I don't know where it's coming from, but then it just pours out. That will work quite well in a good studio with a competent designers and a group of people, that's always how it works. Getting from there to decisions, but that can then be applied to visible products and to brands and to the business side of things, that's where the weakness lies. And therefore you can say, "Well, what's useful there?" Well, the usefulness, I would suggest would be for the processes need to tackle those 'hand offs'. And unless they tackle those handoffs, you will always be in the area whereby the 'hand offs' will get missed. And the hand will be waiting and the baton doesn't quite go into the hand effectively. But it can do and a lot of the process models don't deal with that particular definition of what is useful. You know, if you could say that an idea is only useful when applied and when it delivers value. Okay? But if the idea is a future concept, is that useful? It is for the designer, because that's, that's its currency. Is it useful for business? No.

Rafael: Uhum, I see.

Interviewee 19: It's not useful for the business and that is why if you are sitting on the other side of the fence as a technical engineer or a business manager or brand manager and the designer comes in armed with his future trends map, you know, it's fun, but is it useful? Not unless you can translate it for me in terms of the 'hand off' to questions that I have. Otherwise I'm unable to find a process whereby I can communicate that to you effectively. So, somewhere along the line, um, more of this needs to happen in the process model.

Rafael: Uhum, ok.

Interviewee 19: And exactly what that is, I think is a really interesting area to explore, because I think that's the problem. Not the visual techniques for forecasting, trend analysis. There is a bit of that, the visualises, I think, more clearly than has been done to date, the assimilation of information as it, sort of, waterfalls through into the design consciousness. Maybe that could be visualised better. At the moment it works, but if you were to, if you were to ask people how it works, they probably can't do tell you very... exactly how it's working and I'm not sure that ultimately it's necessary to define it overtly. It, it might be enough to show the skeleton a little bit. Just allow the magic to happen. Just accept that a magician never tells you too much about the technique. He just does the magic.

Rafael: Uhum..

Interviewee 19: You know, there is a little bit of the mystery from this part of the model that is necessary to keep the mysterious without too much of a process exhibited. If you talk to the design people as I'm sure you have and I hope then articulate what's going, they know how it's working in real terms. They may not be able to describe it in detail, but they know it's working. It's like, you know, when you, when a cook a meal, you know what the ingredients are. But one meal may not taste exactly the same as the last one, cooked separately, you know. That's part of the blend and, you know, that magic. it's not planned. No amount of definition is going to pin that ultimately into some kind of, you know, formula. Could it be a little bit more transparent, for the design CEOs? Probably. Just a little bit more so that they see the relationship and it sort of, how stuff filters through, particularly through those consultancies that are, kind of going from good to better or for young designers or middle designers that are trying to go

from middle designers to great designers. That's all probably a bit of a mystery. Talk to an expert designer and he knows how it works, but he may not be able to describe it very well for you.

Rafael: Uhum.

Interviewee 19: But everybody would benefit from this that you are telling me... maybe it just a graphic thing...

Rafael: But that exactly why I am researching this. Because, you know it's a complicated issue....

Interviewee 19: I can see from a design perspective and I think it would be good, it could be beneficial and it could be fun and personal view, if it ended up allowing the magic still to be mysterious, I think that would be a brilliant piece of graphical message in its own. Is that valid tool? Yes it is. Yes. Is it your biggest problem? No.

Rafael: Uhum.

Interviewee 19: Your biggest problem is not in the design field itself. It's in the 'hand offs' with everybody else and that means it's their problem as well, with the other people to get it right. And if one was to look at the reason to have a model that might

Rafael: I terms of (*inaudible words*)

Interviewee 19: If you were to look at that as well, you might find that your model, the model might take on a broader, significance beyond the design team and I think if you were to ask a senior designers, you know, the one thing they would love to improve on, my guess would be it's probably this. Rather than that, just because they, they kind of know that kind of works, even if they can't articulate it particularly well.

Rafael: Okay.

Interviewee 19: You mentioned earlier on about, you know, the business leaders. If you ask an entrepreneur why he made that decision, you know, despite the information, he made a different decision because it's emotional intuition,

entrepreneurial flare if you want to call it that. He didn't know where it came from. It was different to the factual information, outflow. If he knew the factual information, yeah, it would inform some of his thoughts to his decision, probably, but he could have made a different decision. That is the magic, is the sort of thing that ultimately drives, because the human mind is ultimately the best tool for that and that's outside the model at the moment and it's good that it's like that.

Rafael: Uhum.

Interviewee 19: But this zone, it is weak and I would say with a handful of exceptions, normally all the big corporations, industries... technologies are driven corporations they overlap with that area. That's a big, a big problem.

Rafael: Just to clarify when you say 'this area', you are saying the, the moment that they go out to understand this?

Interviewee 19: Yes, because it's going out and it's coming back in and then what do you do with it?

Rafael: Ok.

Interviewee 19: This is just the continuation of the process. You've done a good job in not going linear, but, um, I've yet to see a model that... I've tried to find it myself, but I haven't really found it either that graphically, demonstrates the gratuitous, continuous process that all of this embodies. Linear, there are bits of linear, but then it comes back on itself and it's difficult to find a graphic that really catches that.

Rafael: Mhh hmm.

Interviewee 19: But that is not, is not the end game. That's not the end-game – in time it then goes onto all the other stuff. And, it's the movement between and beyond and onto the next stage and then back onto itself that is the weak, that is the weak link. You know they say the, you know, the chain is always the weakest point in the chain is in the link. That's the big issue. You know, the link in the chain remains the weakest point. It will always be the weakest point, but could we usefully make some steps and improvements in that area? For sure.

Rafael: Uhum.

Interviewee 19: Of course the answers are part, part of the process that, they – the answers are really gonna come from human behaviour – education in which design is very, very good at. I would... maybe this is a slightly controversial point of view, but I would, I would say that there's probably a greater chance of solving the weak link in this point by these people doing something on the communication front than these people doing more, because I think they are less innately capable. Designers are superbly good at communication, given the chance, and given the awareness that that's what they're doing, because many of them are just really unaware that that's what they're doing, because it's just a natural thing for them. But when they are aware of what they are aware of what they are trying to do and have, have a focus on what the output is, they are supremely good. There is a, a natural gift and therefore, you know, if they are weak link, I suspect that they could be doing quite a bit more to evolve that.

Rafael: Uhum.

Interviewee 19: And therefore you could argue that the processes within this model, if you were coming in this direction... Then there are some zones that, yeah, that might be areas that you could look at... And see what, what that this actually meant.

Rafael: Mhh hmm.

Interviewee 19: In terms of... is it practical? Yes. The practicality, it, touched on the practicality point with the fact that it's future-led so depending on the level of future... the time.

Rafael: Ah, the timescale.

Interviewee 19: The timescale, so you know, there is, there is the far-future, the mid-future and the near-future. Some kind of trend analysis, perhaps it's the near-future. Foresight tends to suggest something beyond that, beyond the horizon. Yeah. So, sometimes that distinction is not really made, clearly enough. So, you know, in answer to number three, "Is it practical?" Sometimes people think that they are looking at an eighteen month trend, but actually what they are

being shown is a twenty-year ahead trend and the distances, if you like and there is a mismatch and people might say, “This is not practical.” You know that’s the, that’s the sort of typical comment that you hear time and time again when the designer comes up with, with something from trends... So I think the practicality bit probably again communication – it’s understanding the meanings of different words and the definitions yeah. It depends on the industry, as we said before, you know. If you are doing trend analysis in this sort of sector, you are probably not working more than a year ahead. You know, I’ve done quite a lot of work in the (name of specific industry and company) and everything is looking thirty to forty years ahead, all the scenarios have been developing forty years ahead and that is what they mean by trend analysis (Laughs). That’s a long way off...is there anything missing?

Rafael: Yeah, you’ve already covered this.

Interviewee 19: Yeah, we’ve probably covered that. But, you know, I think, if, if you like, I’m happy to read it and make any comments. And are you going to be based around here?

Rafael: Yes. I come to university every day. Even in the weekends because I have a deadline coming soon... anyway, thank you very much for your time and insights!

1.3 Model evaluation workshop: questionnaire and transcriptions

In order to complement the findings from the experts' interviews concerning model development, the researcher conducted a workshop to evaluate the designed future forecasting model for mobile communications with potential users of this framework (e.g. postgraduate design students from Brunel University)

The aim of the workshop was to explore and test some aspects of the framework (such as usability, relevance, practicality, information appropriateness's) from a practical perspective by simulating a real professional context considering certain aspects (e.g. team work and time limitation). To do so, participants were asked to work in two multidisciplinary teams to address a specific briefing (e.g. *'you are part of a design team of a traditional mobile phone manufacturer and by using the model as an inspirational platform among other resources, design a future wireless phone/solution considering a 5 years' time frame'*) and accomplish this creative assignment within one hour. After that, participants of each group were interviewed within their groups (one group after the other) with the purpose of exploring their experiences, perceptions, interaction and utilization of the model to accomplish the proposed exercise. The questionnaire used in the two group interviews was exactly the same, comprising simple and direct questions.

In the following pages, the profiles of the workshop participants (e.g. design students); the applied questionnaire and the transcriptions of these two groups' interviews will be introduced. The transcriptions do not exhibit the name of students that took part in the process, neither any other personal details due to non-disclosure agreements to keep their privacy and anonymity. As a result, participants were identified by a code, comprising their group and a number, for example 'A1' (reproductions of Table 7.4 and Table 7.4, Chapter 7 - Model development and evaluation)

Table 7.4 - Profiles of the participants - Group 'A'

Participants	Participants' proficiency	Remarks
Participant A1	• Master's student - Design	• Male; Americas
Participant A2	• PhD student/Researcher - Design	• Male; Europe
Participant A3	• Master's student - Design	• Female; Middle-East
Participant A4	• Master's student - Design	• Female; Asia
Participant A5	• Master's student – Design	• Female; Asia
Participant A6	• Master's student – Design	• Male; Asia

Table 7.5 - Profiles of the participants - Group 'B'

Participants	Participants' proficiency	Remarks
Participant B1	• PhD student/Researcher - Design	• Male; Europe
Participant B2	• Master's student – Design	• Male; Europe
Participant B3	• Master's student – Design	• Male; Americas
Participant B4	• Master's student – Design	• Female; Europe
Participant B5	• Master's student – Design	• Female; Asia
Participant B6	• PhD student/Researcher - Design	• Female; Asia

1.3.1 Standard questionnaire for model evaluation (group interviews)

1. In a general perspective, how did you find the use of the model to support the previous task?
2. Do you believe that the model provided relevant information/content that helped the group in the last task?
3. In your opinion, was the model useful (e.g. information and content display/architecture) to address and perform the previous task?
4. In a general perspective, do you believe that the model and its information promoted and supported interaction leading to rich discussions among team members to address the task?
5. Do you believe that the model was practical in the sense that it supported the team to make decisions to accomplish the pervious task?

1.3.2 Group 'A' interview transcriptions (model evaluation)

Rafael: All right. So, first of all, thank you, I have a set of five straightforward questions based on the task that you just performed. The first one is, in a general perspective, how did you find the use of the model to support the previous task? Was it good or bad, what are your feelings about it?

Participant A1: The model is useful, because it give us an approach... like, it's a very broad topic. So at first we really didn't know how, where, how to start with the model, like start to guide us, and made easier to approach to the topic. I think so.

Participant A4: Yeah, I don't think we got through the whole model. We basically focused on trends, because that's where we started, and then moved on to users and I don't think we...

Participant A2: We...I had a look through while we were talking, and it was useful to look at the small bits on trends and a bits on users, because it was the things, like, for instance, interaction and end-usage patterns, which is the core of the user thing, was basically end up being the core of what we did... While I didn't use too heavily the experts, because I don't think we're that - I did look at the wireless industry, just to have a quick check of where... where we... as handset manufactures, that's why, how are we doing. Because that didn't actually occur to me at the time, was how...how I was going to dealt with service-wise, and then, there was a couple of things I remember just looking in and thinking about scenarios or, sort of stuff like that. But the inside was a bit more - I don't feel I have the time to use that inner circle anywhere near as much. The outer circles were useful, but for the time constraint, you know...

Rafael: Do you believe that by training, this is more instinctive, and intuitive, you don't have to be guided in this process, that's it? In the middle part, the core, I mean.

Participant A2: I don't feel I have to be guided heavily in that process in the core. But, it does... what it does recommend is actually similar to what I'd have a look at, as a designer, if anyone else...

Participant A4: Yeah.

Participant A2: Because that, it makes sense to me as a designer.

Participant A3: I think in... this topic, in this field of research, mobile forecasting stuff, it depends on how 'unknown' the topic is to use such model. Because for example, we were talking about, handset, and all this, and we already had some information, we knew about what is out there about the future concepts, and everything. So, maybe that's why we didn't use the - the inner circle that much...

Rafael: All right.

Participant A3: But depending on how unknown and unfamiliar the thing is going to be the topic, to....

Rafael: All right. Thank you. Moving on to the content, and the information that the model provided, do you think that a... the information provided helped you in your task?

Participant A5: Yeah.

Participant A4: Yeah.

Participant A2: Right.

Rafael: Do you think that, say, in terms of the information and the architecture of the information, how it is presented, it help you to address the task?

Participant A2: It's intimidating. It, like, looking at that is, that's quite a lot to take in.

Participant A4: Yeah.

Participant A3: Yeah.

Rafael: Uhum.

Participant A5: It seems to be quite heavy. It seems that it's quite heavy, like we need to explore, so in some parts there is more than the others and we have to attack it, not attack, I mean like approach it as a whole.

Participant A4: Yeah.

Participant A5: And at the first, like at the beginning, I really didn't, I couldn't digest everything...

Participant A3: because it's overwhelming! But now that we worked with all at once - now I'm like, OK, now I get what it is - [I know it's that].

Participant A5: I think we kind of [wrote] it like a Lego. Like - piece by piece.

Participant A3: Uhum - yeah.

Participant A4: Yeah.

Participant A2: Yeah.

Participant A4: It's difficult to understand where to start from, like... and if he wouldn't have suggested starting with trends, I would have been like, maybe the experts.... I mean, I am not quite sure where to begin and where to end it.

Participant A2: It doesn't.... it's usual to start from one point, but I don't feel there's like a natural flow. I don't see or feel procedurally like I have to start at one point and procedurally move through... - to those, like, in the centre or the other way out.

Participant A4: Yeah

Participant A3: Yeah

Rafael: All right.

Participant A2: But... sort of, I think - that's probably better, because to be honest, my experience of the design process is, there's no procedural way. You don't... no designer will go, I will exactly work in this way.

Participant A4: Exactly.

Rafael: It's not linear, right?

Participant A2: Yeah, they don't linearly work, so there's no point in having...

Participant A5: Yeah.

Participant A4: Yeah, that's true yeah.

Participant A2: You will do one step after another, after another - it's much easier to just go, oh, there's one of these things I can use and then you pick which ones you like.

Participant A3: Exactly.

Rafael: So the next one is that, do you believe that the model and the information promoted in supported direction, among you guys, leading to rich discussions to achieve the proposed aim?

Participant A2: Yes.

Participant A5: Yes.

Participant A3: Yeah.

Rafael: Right. The last and final question is, do you feel that the model was practical in the sense that it supported you guys to make decisions to accomplish the task?

Participant A5: Not directly.

Rafael: Not directly...

Participant A5: Yeah. Any supporting argument...?

Participant A4: I don't think we used it finally to validate it decisions. That probably we could have, or should have done, but we didn't do it....

Participant A5: Yeah, but it certainly assisted as leading...

Participant A4: I mean, it helped us in formulating the final strategy, but not in verifying it. Maybe because of the time constraint, though, so...

Participant A2: I think that it's - yeah, that was the thing, where we started from what you told us and to be honest, a lot of our work ended up aligning with what it suggests. So the centre of users' interaction and usage patterns, and sort of experiences, all that kind of - everything we covered - and then we've obviously got the where we, you know, so while it didn't 'make' our decision, it certainly

led it, and then also was eventually correct - was almost like correct about what we picked, what we focused in on.

Participant A3: Yeah.

Rafael: OK. That's all. Thank you, thank you very much.

Participant A5: Thank you.

1.3.3 Group 'B' interview transcriptions (model evaluation)

Rafael: So the first question is, in a general perspective, how did you find the use of the model, to support the task that you were - given?

Participant B3: Can I... ?

Rafael: Yeah, sure, just go ahead.

Participant B3: I think it's...for you, that developed the model, I think it's maybe quite easy to understand how it works, but for us, was not that intuitive.

Participant B4: It's a bit complicated...

Participant B3: Yeah - I think... at the time that you were going to show on the screen, maybe you should go through steps, not show it as a whole as you did. Maybe going through the steps that you went through when you created it to kind of, explain your... mind-flow when you created it. Which one is the first step, and the second step, maybe to make it more simple to understand.

Rafael: So you're... saying telling me that there is no sense of beginning and end, something like this?

Participant B3: Because, since it's like a - circle - I don't know which is the starting point, I don't know...

Rafael: All right.

Participant B5: But, There... actually, you can start from wherever you want as I understand. But it's still it's a bit complicate now.

Participant B3: Maybe that's the idea. You should, I think, explain it not as a whole, because it scares a little bit, because it seems complicated. Maybe you should explain each part, and then show us the whole and explain how it works together, I don't know...

Participant B2: At least, for me, since we start using different tools on each different sectors of the model, it's like, for experts we use these tools, for users we use these tools, and... you showed, I think, like, the different tools... It was easier for us to use the tools that we already know, than to use a tool that is ...

completely new and has all of these different sectors. It seems very complex, but I believe if you have time to consider each of its elements, you can use it. What I have got it, it was, it's a process of trying to understand all the different dimensions of a problem, as a problem-solving tool. But I agree with B3 it should be more... user-friendly, let's say.

Participant B4: I think if you had more time, rather than just an hour, we would probably have been able to look more in-depth at each section.

Rafael: OK.

Participant B2: It's like - we - if you could, like, put it on the wall, and then start doing the experts, and the industry, and the users analyzing all of them, and then integrate them to the centre.

Participant B4: Yeah, so we could go, do like incremental steps on, or like go through it by steps, and then...

Participant B1: We try, I think to prioritize, you know, all the information in your model. So, we feel that the Design Research circle, with our experiences, with our background, and then we try to understand what kind of approach we had to follow... and then we came out with the idea, you know, to have the user-centred design, and the trend-analysis combined together. So we try to.... give a kind of order - that actually is really - is really interesting, you know, because you don't push, you know the end-user, to a specific order...

Participant B3: I think that, maybe that's the idea, you know...

Participant B1: But...

Participant B3: ...not starting from a specific point...

Participant B1: But still, when we try, to get information from each bubble was a bit complex, you know, to understand, for example, we should use 'scenarios', we should do the 'personas', or something else.

Rafael: OK.

Participant B1: So, the the initial freedom, I reckon it is really important. Not to say that you have a lot of different possibilities, and you can choose whatever you want - but then, the display of the information coming from this model can be a bit improved.

Rafael: Uhum, Ok

Participant B1: Just to let the model to be user-friendly...Or intuitive, maybe.

Rafael: So when you say user-friendly, it's for a person that it - doesn't have understanding of this topic [and] industry, right?

Participant B1: Yeah.

Participant B3: Uhum

Participant B4: Uhum

Participant B3: Yeah, like us - we are totally new on this framework...

Rafael: All right.

Participant B1: Yeah

Participant B3: And, we - we didn't know how to operate it, to start, to operate and use it.

Participant B4: I think, I mean, you just mentioned that about like, for me, when I look at trends, part of trends is to do with users - do you know what I mean, like it's like on a macro level. So for me, I feel like users is more like individual, if you know what I mean? So, but like - so for me, they should both be, like, merged somehow - not merged, but just - not merged, but I just mean -

Rafael: Integrated?

Participant B4: trends is like generally what's going on already, you know, with everyone, but then users is more specific to a specific type of person. Do you know what I mean?

Rafael: From a segment to individual, that's what you mean?

Participant B4: Yeah, that's what I'm trying to say.

Rafael: All right ... OK. So, moving on to the next one, do you believe that the model provided relevant content and information, that helped you addressing the task that you asked for?

Participant B4: Yeah.

Participant B3: Yeah, I think so.

Participant B2: Yes, because it explains all of the different dimensions of the problem, so we can see which are the things that we have to focus.

Participant B4: I think as well, if you weren't used to using any type of tools, it would help kind of direct your attention, you know? But I think, as we're used to doing, like brainstorming-type sessions that we automatically look at those areas. But maybe if you were new to that kind of thing, it would be more helpful.

Participant B3: I think it drives well...which, which kind of... how can I say? The elements that compose the future forecasting, like you have to go through these main areas... trends, and user, and I think it - for someone new, it drives well [the process].

Rafael: All right.

Participant B5: I think we've focused on the key words in the model. Instead of the way it works. We were more, like, inspired by the key words, I mean.

Participant B4: Uhum.

Participant B2: But if used additional tools for it, for each one...it's like, it's a framework that can guide you to finding all the knowledge that you need, all the information you need and how to solve it, but we can... The user [of the model] can use tools depending on the different sector. So...

Participant B4: You mean forecast, other forecasting tools?

Participant B2: Other forecasting tool, other information-gathering tools, like... For each of them, for each of them you have to use, like, literature review and try to understand the users, the experts and then interview the experts, and then do

service. So, in order to gather all the information - Within the different sectors of this tool, I believe that you have to use other tools.

Rafael: OK.

Participant B3: Yeah, but I think it's good, because there's no such thing as a universal framework.

Participant B2: True, true, true.

Rafael: Exactly, and the other thing that I realized from my research is that different companies, they basically use very similar or the same tools, but using completely different names, because it's kind of... this is my personal asset, so... You can say that you can do a contextual enquiry or ethnography, but they use it, say... human centered design or whatever thing, name that they give and at the end of the day you're just collecting data taking pictures, talking to people, interviewing them and visiting the houses. But anyway ...

Participant B1: Yeah, but this is, again, the aim of designing a framework or a model, just inspiring people, not creating limitations.

Participant B4: Yeah.

Participant B2: Uhum

Rafael: Yeah.

Participant B3: Uhum

Rafael: So, the next one is: was the model useful, in here, not only the information, but how the information, the content was displayed in the space of? Was it useful to address and to perform the task that you asked?

Participant B1: Hum... I think it was... I mean, I really appreciate the initial freedom we had, you know, to select potential source of information. So, working for example, on trends, users, or experts and wireless industry. So it was really important for me, you know, have the possibility to choose where to start. Hum... this kind of... scheme, you know, that doesn't have any specific priority, was really helpful in this way. So, for example, we ignored completely the wireless

industry and the experts, because we didn't have time, you know... to go through those kind of information. And we prefer to work on this side, without any, you know, limitation, or we didn't feel this kind of...

Participant B5: Yeah.

Participant B1: ...the push, you know, to work, to go through every single bubble. So, from that point it was quite...

Rafael: So, the point that you don't know where is the beginning and the end helped you more than creates a problem.

Participant B4: Hum...maybe. Maybe.

Participant B2: Yeah, since we have only one hour, we had only one hour, and we had limited resources, we have to choose the places to start. So if we had more time, I believe we could use the whole... structure of the tool

Participant B4: Yeah.

Rafael: Uhum

Participant B3: But I think it helped, and it was not a problem, because we have a certain background on how to work on this kind of a...

Participant B2: Guiding...

Participant B3:task. But maybe if we're completely new and maybe not designers at all, it would be quite difficult, maybe.

Participant B4: Yeah, I think it helped with brainstorming, but actually, you know, narrowing that down, maybe we're... Well, our team didn't really do that effectively, as the other team, you know, cos they came up with an actual product whereas we kind of just brainstormed all a load of ideas. So maybe, you know, depends on what you're looking for, if you want something more specific it kind of... We didn't do that, so....

Participant B2: No, we created guidelines based on our brainstorming process.

Rafael: Yeah, but it was somehow it was what was asked in terms of sketches and selling points, key points....

Participant B4: That's fine?

Rafael: Yeah. That was enough, yeah, yeah -

Participant B3: There is another thing that, I understand that it's an ongoing project, and it will be improved... but I think for your final, framework, it should be more - visual, and... I said, maybe try to explain each part separately and not show as a whole at the first time. Because it scares a little bit, because of the complexity. For sure, more visual, because, I think it's design-driven...

Participant B4: Yeah, more colors, maybe. Yeah.

Participant B2: Yeah. And maybe for me it would be like a... if you want to use this tool, you should make like a series of workshops, and focus on this, this, this - like the different sectors of it and then the final workshop, where you integrate all the information that you have, you know, to solve your problem, whatever it is. Or to do whatever it is on your brief. But, I believe time was the most thing necessary...

Rafael: Exactly. Yeah.

Participant B3: Because of the complexity, yeah.

Rafael: At the end of the day, we're trying to emulate what happen in the - market, you know, you don't have things just scattered, you just, kind of, you have to do this, and where is the information? The company has a set of information, because it researches, commissions something, but it does a lot by itself. But also, it always need something more, because in one month several thing change.

Participant B2: I believe that this tool, as a manager, could be very useful, because you would have like your different people, doing the different stuff - so I might, I'm going to be using this tool as a manager, and know what is my goal, and then tell, like, Alexei, I want you to do trend research and find me some stuff, and then, Claire... and then assign the different, sectors [of the model], to different people,

and then have like a big workshop with everybody, brainstorming again, in order to... to use that whole usage of tool in less time.

Rafael: All right. OK.

Participant B6: I wonder, does it can be used by the product designer or your UX designer, or product designers?

Rafael: The aim is to be used by a design team, leading by a design manager, so this is kind of, as he mentioned before, factors and process in order to design/ forecasting the future, so basically, when you are integrating different things together.

Participant B6: Oh. Thank you, I see.

Rafael: Yeah. That's it.

Participant B6: So, for me, I think, I want to know what is the relationship between different sections?

Rafael: Just, if you...

Participant B6: Don't block the microphone. Sorry.

Rafael: So, these areas over there are just to highlight the fact that they influence and they impact each other, that's the point. That's the whole point of this in here, the black arrows. Because they are happening at the same time in the market, so they are shaping.... Like trends, I can put, I don't know... if you say that people are using social media, OK, they can, they can reach each other, but more than ever they're using social media as a learning process. You put a video of something that's like TED and you are telling people, look - look at this. You know? It's a learning platform now, it's not about communication. So, if something happens in Brazil and in Greece, and people are upset about a demonstration, people in the other side of the world know 'that is what is happening in my country!'

Participant B2: It's like newsfeed.

Rafael: Exactly, exactly, so goes beyond the initial use. So the users also are innovative enough to come up with something or a new use that wasn't envisioned by the creator of that platform.

Participant B2: So it's, it's developing itself over time and...

Rafael: Exactly, and that's how, again, trends evolve. Because it start one thing and you say... social media, then you have Facebook, we have LinkedIn, we have Research Gate, probably you never heard... yeah, exactly, that face, you don't know what is Research Gate about. So, when you are doing PhD, or you become a Fellow, you start knowing why it exists... and how it use. So, from the same root, you have a kind of...spin-offs.

Participant B2: Yeah.

Rafael: But based on the same root, the same concept. So, people are getting to know, and to use, depending on their lifestyle, need, this kind of stuff, and they are shaping it because it's a dialogue, it's a communication, it's not only one-way. Did I answer the question?

Participant B6: Yeah, thank you.

Rafael: So, the fourth one, do you believe that the model and information conveyed in this model, promoted and supported the interaction among you guys leading to rich discussions?

Participant B2: Yeah, yeah -

Participant B3: Yeah.

Participant B1: Yeah.

Participant B4: I still, I still think, though, in this type of session, it's always important to have someone in your team kind of pushing you, you know? Because, you know, I always think you... it's hard to start talking initially, but then once you do, it's fine.

Participant B2: Yeah.

Participant B4: But I, I think...

Participant B3: Yeah, I mean, do you mean a moderator?

Participant B4: Yeah. You still need a facilitator or whatever, to encourage, to squeeze ideas out of you.

Participant B2: But, yeah, also we are almost from different backgrounds, and we have different experiences, it triggered us to move on with the conversation, so that I said something, and then he said something and she said something and this...

Participant B4: This a multi-disciplinary team

Participant B2: Yeah, it helps, so we had like, the initial info from the tool, but also we initiated new paths of discussion.

Participant B4: I think trends are, were really important for us, as well, and just the trend, general trends, like cultural trends, or whatever, not just like technology, or whatever. I always think it's important. It sparks ideas and insights.

Rafael: Uhum, all right. So the final one is, do you believe that the model was practical in the sense that it supported the team to make decisions to accomplish the task?

Participant B2: I believe it is, but we haven't used it that much in order to judge it.

Participant B4: Yeah.

Participant B2: So, the time was limited in order to use the full extent of it.

Participant B3: Yeah, I think because of the time - we didn't have much time to try to learn how to use it properly, so we used the tools we already know, we are familiar with.

Rafael: Uhum

Participant B5: And during the session, I always thought that it would be really better if you could send it to us a day before. Probably you didn't want to send it. Maybe if we had a half an hour time to analyze it everyone alone, individually, so we could understand it better...

Rafael: OK, OK. All right. That's all.

Participant B2: Thank you.

Participant B6: Thank you.

Rafael: I will you ask those guys to come back... just, thank you.

1.4 Case study interviews

In this section the two in-depth interviews conducted with experts to support and complement the case studies' findings will be introduced. These interviews were conducted via skype since the interviewees were not based in the UK. Thus, they were not recorded. The outcomes were not analysed using the Grounded Theory supported by NVIVO software. The applied questionnaires and the interviews' summaries are presented in the following pages.

1.4.1 Expert interview (Philips) - Questionnaire and interview

1. Could please introduce yourself, your background and roles at Philips?
2. In which areas does design current contributes to Philips business?
3. Experts say that the best way of forecasting the future is creating it. Do you agree with this premise?
4. If yes, in your opinion, what will be the future roles of design to Philips?
5. Philips as a global company employs professionals from a wide scope of backgrounds. What are the main benefits that a multicultural and a multidisciplinary team of designers offer to Philips design process?
6. As an art director and trend analyst, you probably have been using both qualitative and quantitative tools. What are the differences between them and what you can gain from them (or for what purpose they are used?)
7. Some experts believe that more important than following trends is creating them. Considering your experience (as a trend analyst), how important is forecasting trends and environmental events?
8. What design and research tools does Philips use to identify and investigate trends?
9. How these information is fed into the design process to create future products?
10. With respect to consumers, literature and also some experts believe that users should be at the centre of any design process; while other professionals prefer to

use their inputs and ideas only in the very beginning of the design process. In your point of view, which one is the best approach?

11. What design and related research techniques does Philips employ to engage and explore users' needs?

12. How these inputs inspire and are used in the design process for future products at Philips?

13. Philips is a company that operates across different industries worldwide. When designing future products, does Philips only relies on its human resources or it uses external consultants as well?

14. In the affirmative case, does Philips invite external consultants often to engage in its projects?

15. In your perspective, what are the major benefits of using an external expert in the design process?

• **Expert interview (Philips) – Interview summary**

According to the interviewer, the roles of design for Philips changed considerably over the past 30 years, shifting from an activity involved with aesthetical parts of product development to a key driver for corporative and business strategy. These changes allowed business to be more compact, integrating different departments and supporting innovation. For the future, design thinking will be responsible to engage even more with people, understanding their needs and placing them in the centre of the design process. More than never, design will be more in the front line, tackling market and innovation opportunities that lead to the development of relevant and meaningful products supporting business growth.

With respect to market competition, the interviewee informed that the position of a company (e.g. as leader in its sector) direct influence in the development of its future business approaches. Taking into account the mobile telecom industry, the market leader (e.g. Apple) is able to propose new trends; while competitors can

‘follow’ current landscape phenomena. Similar situation happens on the music sector with Bose (sound equipment) and Beats (headphones), as major players.

Regarding design research process, the interviewee stated that the use of both multicultural and multidisciplinary approaches brings several benefits for Philips. For example, by working closely with external partners (from a specific country), the firm is able to tap into new knowledge, establishing collaborations and co-creation with local agencies taking advantage of local market insights. Thus, the combination of external and in-house professionals offers new perspectives for the company to innovate and create global products considering local particularities.

On a different dimension, the use of qualitative and quantitative research methods is, more than never, imperative to rationalize and maximize the use of design throughout the company. While in the past qualitative techniques were employed majorly to create an aesthetically pleasant product; quantitative methods are now used to identify potential opportunities to invest. The combination of these approaches helps Philips to create innovative solutions.

In terms of trends research, the interviewee explained that investigating and exploring environmental phenomena is crucial to assist the firm planning for the future. Trends work as triggers and inspiration, driving a brand in the market by understanding how they influence consumers, their behaviours and attitudes that, in a broad perspective, deliver impacts on a given industrial sector. According to the interviewee, Philips uses different techniques to research trends such as trend mapping; consumers’ culture & lifestyle trends; and, users’ experience flow to support the creation of personas. The data collected is fed into the design process in a ‘three step way’ comprising: translation of information into insights (value proposition); creation of design directions that leads to solutions (helping people to live better) and development of consumers’ touch points with the brand.

In order to investigate users, Philips employs a tool called ‘experience flow’. By using this particular technique, the firm can map and visualize different aspects of customer journey and related experiences. As a starting point, it supports business strategies and help designers to devise meaningful innovations that shape design briefs of future solutions. In addition, Philips has been using ‘Big data’ to harvest data taking advantage of the fact that users’ experiences are becoming more

immaterial. 'Netflix' and 'Amazon' are good examples of companies that use this method. Both services track users' preferences based on their selections to recommend similar offers of movies and products, respectively. The combination of 'analogical' and 'digital' approaches helps Philips Design to gain key information. By critically analysing data and framing the problem, the company is able to identify patterns, determine priorities and translate data into actionable insights (designing and prototyping solutions). Thus, Philips can deliver value and meaning for consumers.

Last but not the least; Philips employs external resources into its design process through a number of agencies particularly to understand and explore new local markets. Experts from different industries are also considered an important asset depending on the nature of a project undertaken. Their knowledge and expertise offers outstanding contributions to discover untapped potential opportunities and co-create new solutions with Philips.

1.4.2 Expert interview (Samsung) - Questionnaire and interview

1. Could please introduce yourself, your background and roles at Samsung?
2. Overall, in your opinion how does design current contribute to Samsung mobile phone business?
3. What are the major contributions of design to create a mobile phone users' interface?
4. Does Samsung works closely with users of key users to create/update a phone's users' interface?
5. What are the major design research methods used to understand users' needs and difficulties regarding mobile phone interface?
6. Concerning the evaluation of a new designed handset user interface, how does it is tested with users?
7. Does Samsung conduct trends research to inform and assist the development of mobile phones users' interface?
8. If yes, what are the major research methods employed to investigate trends?
9. How trends are effectively used during the process designing a handset users' interface?
10. Does the process of creating an interface for each of these mobile platforms is different?
11. What are the major differences?
12. In your opinion, what are the positive and negative points of the process of creating a users' interface on top of a third party mobile OS (such as Android)?
13. In your opinion, what are the key factors that differentiate, for example, TouchWiz to other Android UI developed by other companies such as LG, Sony and HTC?
14. In your opinion, what should be the roles of design to create future mobile phones?

15. What should be the contributions of design in future' users' interface development?

• **Expert interview (Samsung) – Interview summary**

The interviewee explained that design plays significant roles for Samsung's mobile phone division, concerning the development of future hardware and software parts of the product. In the first case, the creation and combination of new materials (e.g. lightweight and durable metals) and innovative glass screen properties (e.g. edges and curves) leads to innovative form factor making products more attractive to the audience. In terms of software, the user's interface (UI) becomes a central part of handset interaction. Its visual ergonomics and usability are instrumental for delivering seamless and comfortable daily usage (since users follow the navigation 'flow' created by UI designers to manipulate their handsets).

Overall, Samsung conducts extensive research about users concerning the creation of a new mobile phone. The use of established methods such as daily ethnography, personas and scenario building are employed regularly; however details about the research process are restricted to different internal research teams. With respect to development or update of a proprietary user interface (UI) for a specific mobile operating system (for example, Android), key users are selected to engage in this process. Nevertheless, tests regarding the development of new user interfaces (UI) are restricted to Samsung personnel (e.g. employees and co-workers) following the strict research policies of the company.

According to the interviewee, trend's research is also an important part of overall mobile phone development, including UI. Despite of being carried by different teams, the process is kept confidential. The collected information is analysed and passed to both UX (user experience) and UI (user interface) design teams. Based on the information conveyed in these documents and briefings, these professionals work together alongside with other designers to create the next generation of visual language/interface that will be displayed in future devices' across the product portfolio range (e.g. mobile phones and tablets).

The process of developing a user interface varies depending on the nature of the mobile operating system and its owner. The interviewee stated that since Samsung relies heavily of Android (whose owner is Google), sometimes negotiations and communications becomes a bit complicated when designing a new handset to accommodate a specific user interface (particularly in the case of flagship devices that will unveil a software version). With respect to Tizen (Samsung's proprietary mobile platform), changing and upgrading the user interface (UI) of this operating system is an easy task. Despite of being developed long ago, it does not present the same critical mass of users as others market platforms such as Android and iOS. Finally, the interviewee explained that programmers find easy to create 'apps' for Android (Google) in comparison to iOS (Apple). The main reason behind their difficulty lies in the fact that Apple presents a very strict quality control over third party developed content.

The use of a proprietary user interface is also important for product differentiation. In the case of Samsung, its Touchwiz UI (for Android OS) works as a 'brand identity' to compete with other manufacturers such as LG and Sony, for example.

Finally, future roles of design for creating the next generation of mobile phones are related to deliver more convenience and 'sensorial appeal' to consumers. From a hardware point of view, the interviewee argued that the use and development of new materials concerning both the phone body/case and glass will drive the development of future handsets. On the other hand, from a software perspective, exploring the experiences and interaction flow that users have with their phones will be, more than never, paramount to deliver convenient, simple and intuitive interfaces enhancing and facilitating mobile phone utilization.

1.5 Analysis process

Overall, the analysis of the content gathered across the several interviews during the course of this research was conducted in the light of the Grounded Theory principals supported by qualitative analysis software, NVIVO. All data collected through the different processes (e.g. data collection and model evaluation experts' interviews and; students' workshop group interviews) were analysed following the same approach. In the case of this study, the researcher employed a four-step approach originally described in the paper by Au, Taylor and Newton (2003). (Further information can be found in section 4.4.3, Chapter 4 - Methodology).

In the next section, a more practical perspective of the analysis will be presented highlighting key steps taken during the whole course of NVIVO usage.

1.5.1 Analysis steps

• Step 1

To begin with, the interviews' recording audio were submitted to a professional transcription service. After receiving the transcript files (e.g. Microsoft word documents), they were 'imported' one by one into the NVIVO software, receiving an identification label (e.g. name of the interviewee, number and company).

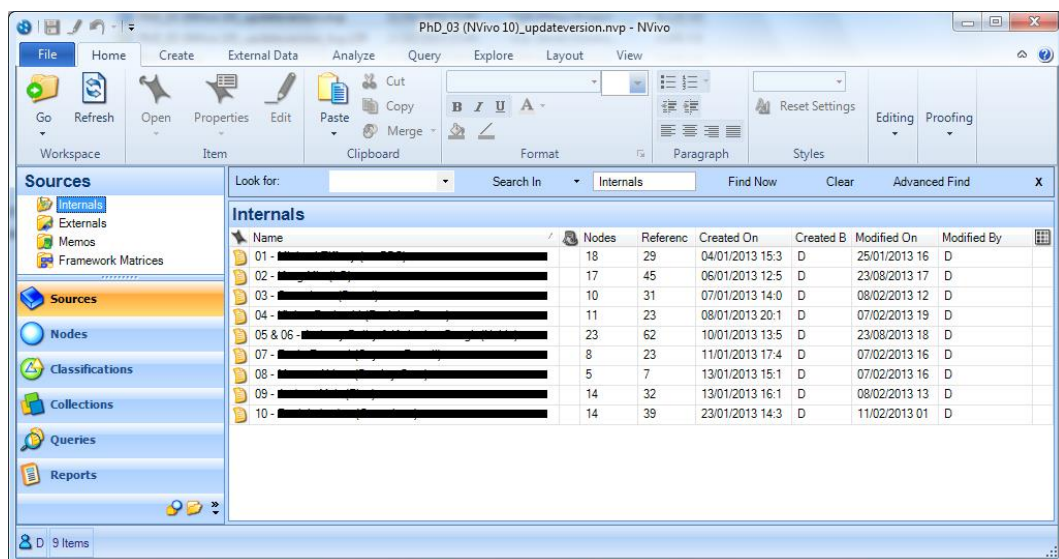


Fig. 1.1 - NVIVO interface displaying interviews transcriptions labels (names of interviewees and firms were hidden due to commercial sensitiveness's).

• Step 2

Next, the researcher examined to each file, reading its content and highlighting the most relevant passages. The NVIVO software allows the researcher to mark these incidents (in the case of this study, the researcher used **bold highlights** to sort out the important parts of the transcript texts).

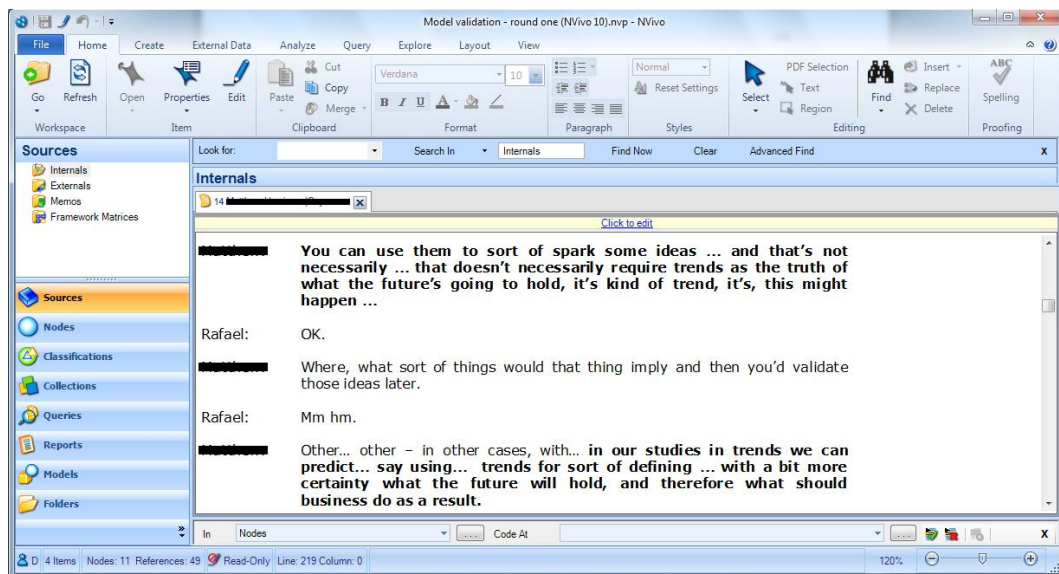


Fig. 1.2 - NVIVO interface showing highlighted abstractions from an interview conducted in the first round of model evaluation (name of the interviewee cannot be disclosed)

• Step 3

At the same time that the key passages in texts can be underlined in the NVIVO, this software also enables the researcher to label them, immediately. Taking into account the context of the narratives, these incidents were coded using words and expressions related to the meaning that each of them convey creating a simple identification tag. In the NVIVO software, coding an abstraction is equivalent as creating a folder and 'copying' this passage into to it, immediately identifying it.

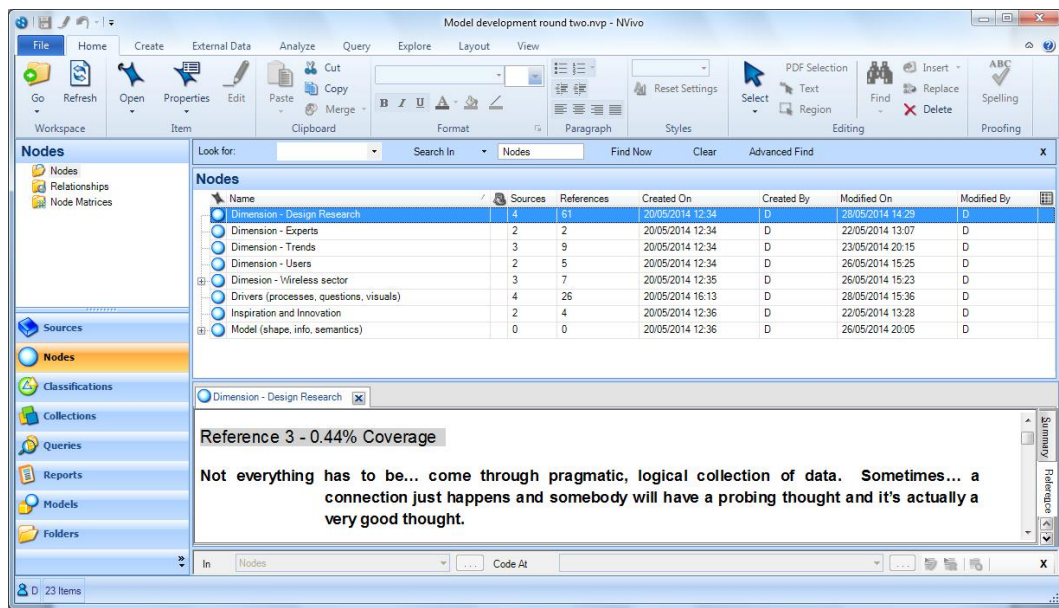


Fig. 1.3 - NVIVO interface showing an abstraction coded under the 'Design Research' label. This fragment derives from an interview conducted during the second round of model evaluation.

• Step 4

As the most relevant passages of the transcriptions were selected and marked, the researcher proceeded to a careful assessment in order to either create a new code (what happened regularly in the beginning of the analysis process) or place the fresh highlighted incident in an already existing code (what mostly happened from the middle up to the the end of the analysis process). This constant comparative analysis lasted until all the abstractions were finally coded (regarding the NVIVO dynamics, it means placing them in a specific labelled folder).

• Step 5

After conducting this first round of analysis supported by NVIVO software to break down the data; compare incidents and; code them, the researcher had a set of 'raw data' ready. The next step included printing all material (e.g. incidents, codes and clusters) and proceeding to an analogic/manual review of the selected abstracts and their relationship with related codes and clusters. In some cases, some abstracts and codes had to be rearranged and combined to make more sense of the data conveyed (considering their context and/or ideas).

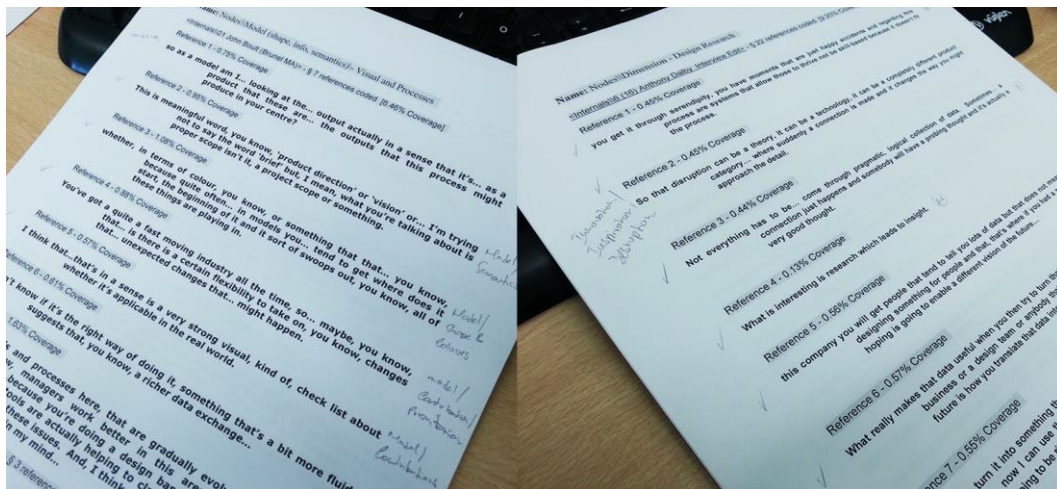


Fig. 1.4 - Examples of notes taken by the researcher ('analogic' review) after the analysis process conducted using NVIVO software. Printouts displaying the abstracts coded from first and second round of model evaluation (left and right, respectively)

• Step 6

Finally, in the end of this thorough qualitative analysis process, the researcher had all data arranged and separate in independent theoretical groups. Each theoretical group displays a number of codes and sub-codes were abstracts are allocated.

As it was mentioned in the beginning of this section, the same approach was used to analyse the information derived from data collection experts' interviews; model evaluation experts' interviews (two rounds) and the students' workshop group interviews. Therefore, the previous introduced analysis process was repeated, at least, four times, generating different sets of theoretical clusters.

1.5.2 Final clusters

In this section, the outcomes of the qualitative data analysis conducted throughout this research will be introduced as follows:

Firstly, the seven major theoretical clusters named 'Design', 'Research', 'Wireless Industry (business)', 'Users', 'Trends' (in wireless industry), 'Technology' and 'Innovation' resulted from data collection experts' interviews'. Next, two groups of three major clusters each derived from the two rounds of model evaluation experts' interviews named 'Questions', 'Content' and 'Visual elements'. At last,

the single theoretical cluster (e.g. ‘Model’) related to the students’ workshop group interviews’ analysis.

• **Seven major theoretical clusters (from data collection experts’ interviews)**

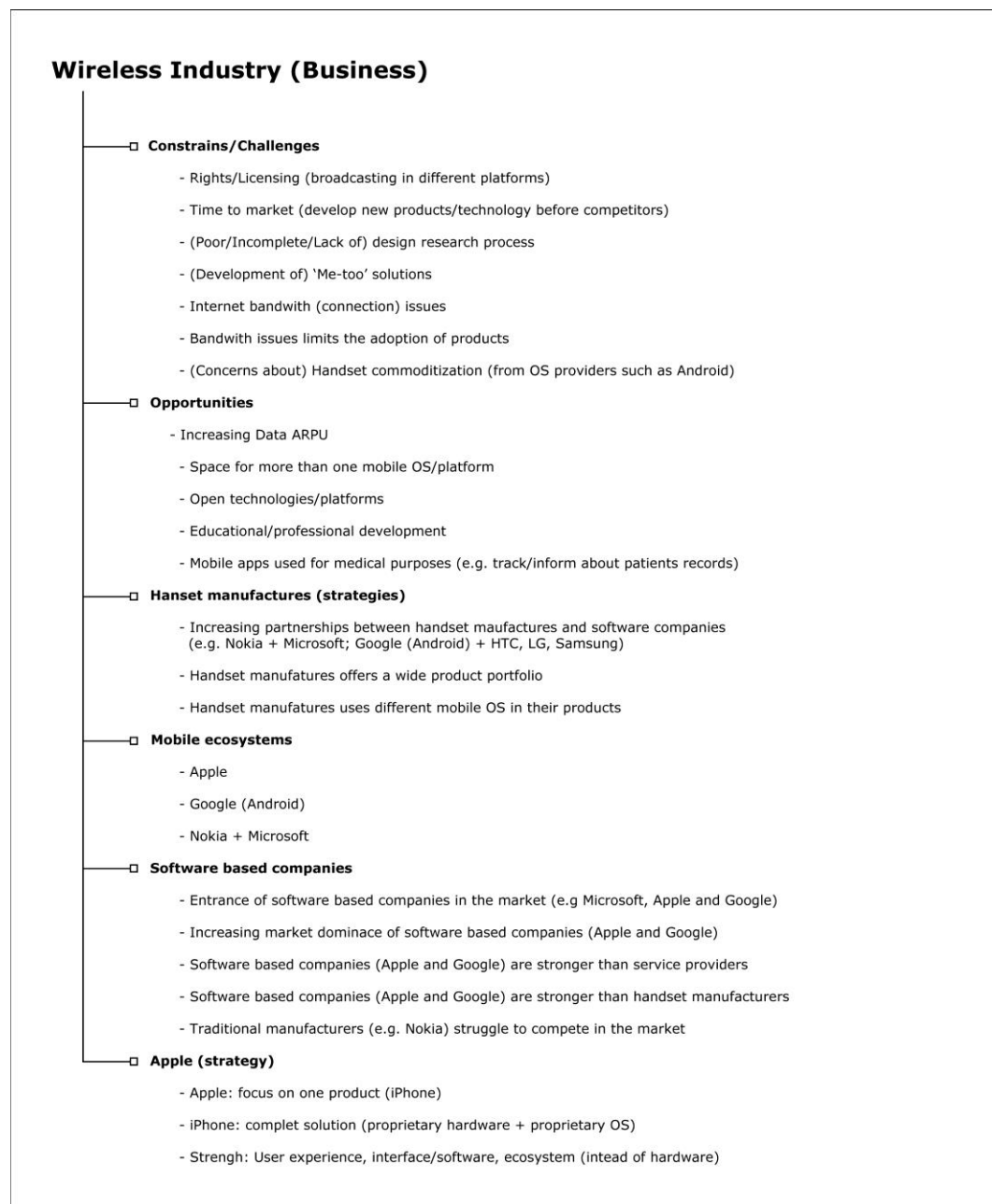


Fig. 5.1 – Major theoretical cluster – Wireless industry (Business)

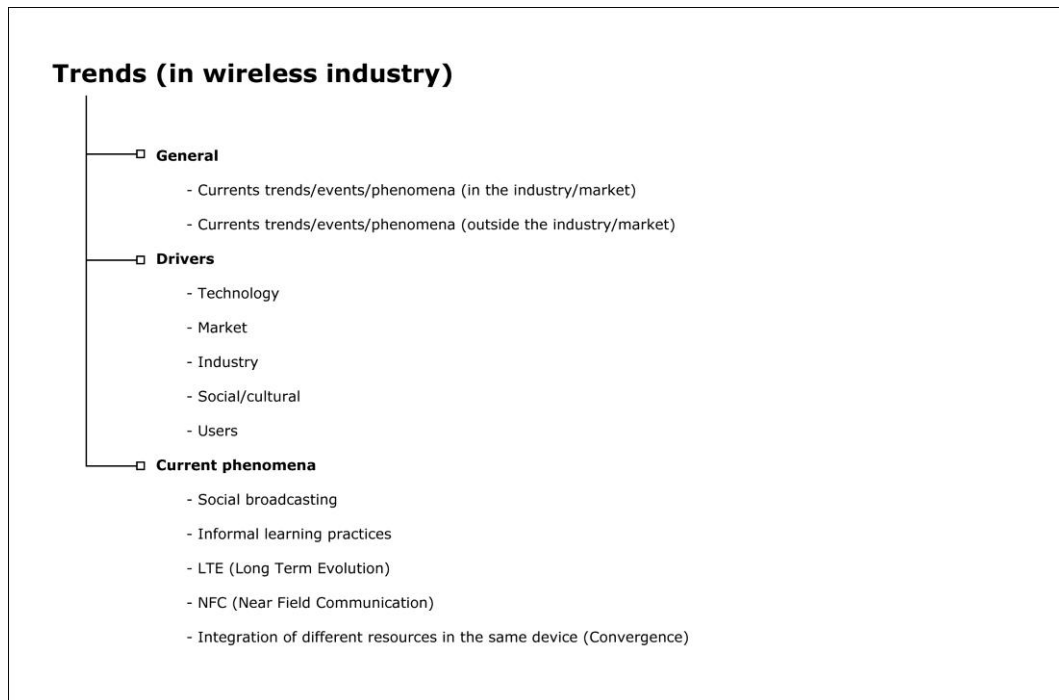


Fig. 5.2 – Major theoretical cluster – Trends (in wireless industry)

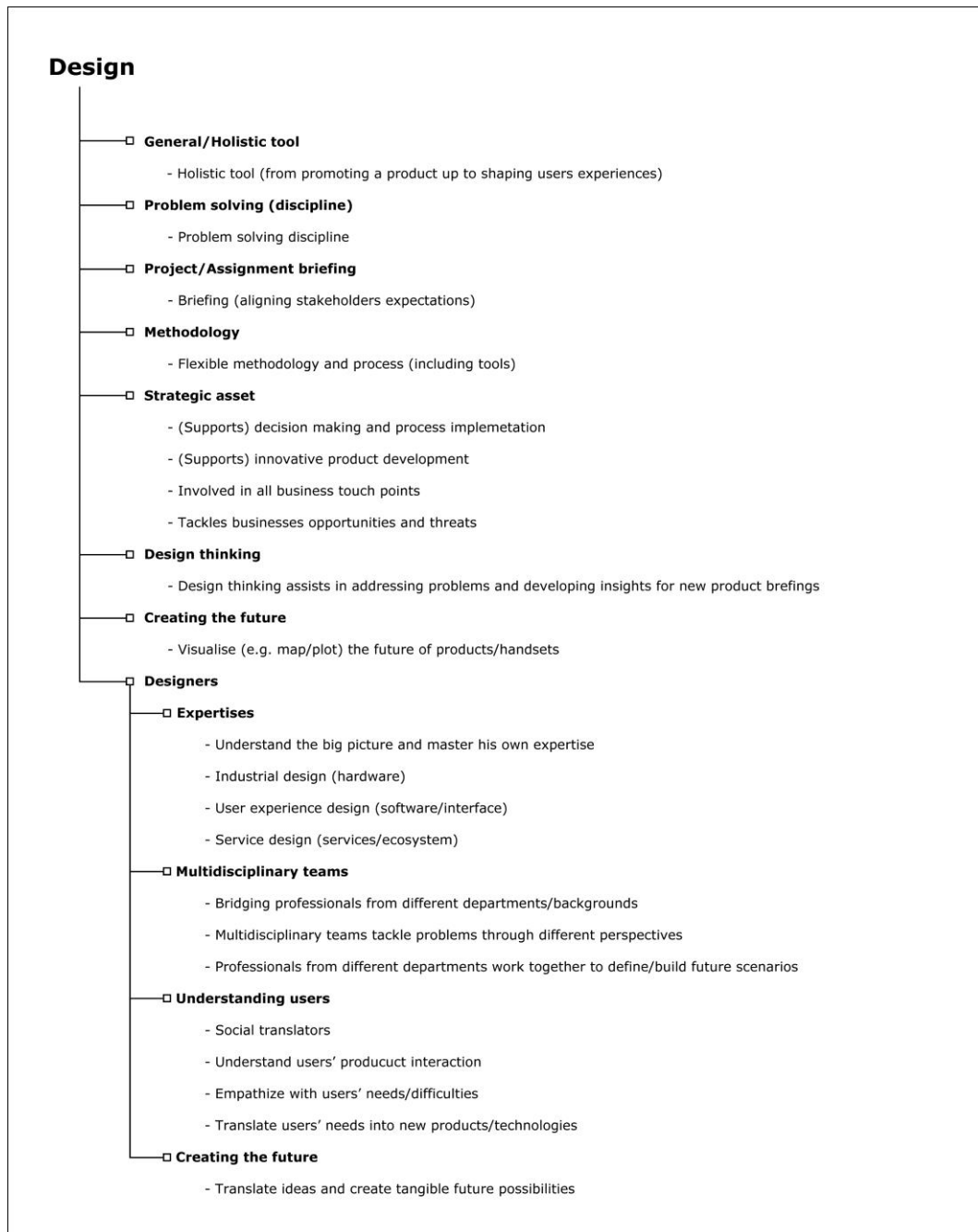


Fig. 5.3 - Major theoretical cluster - Design

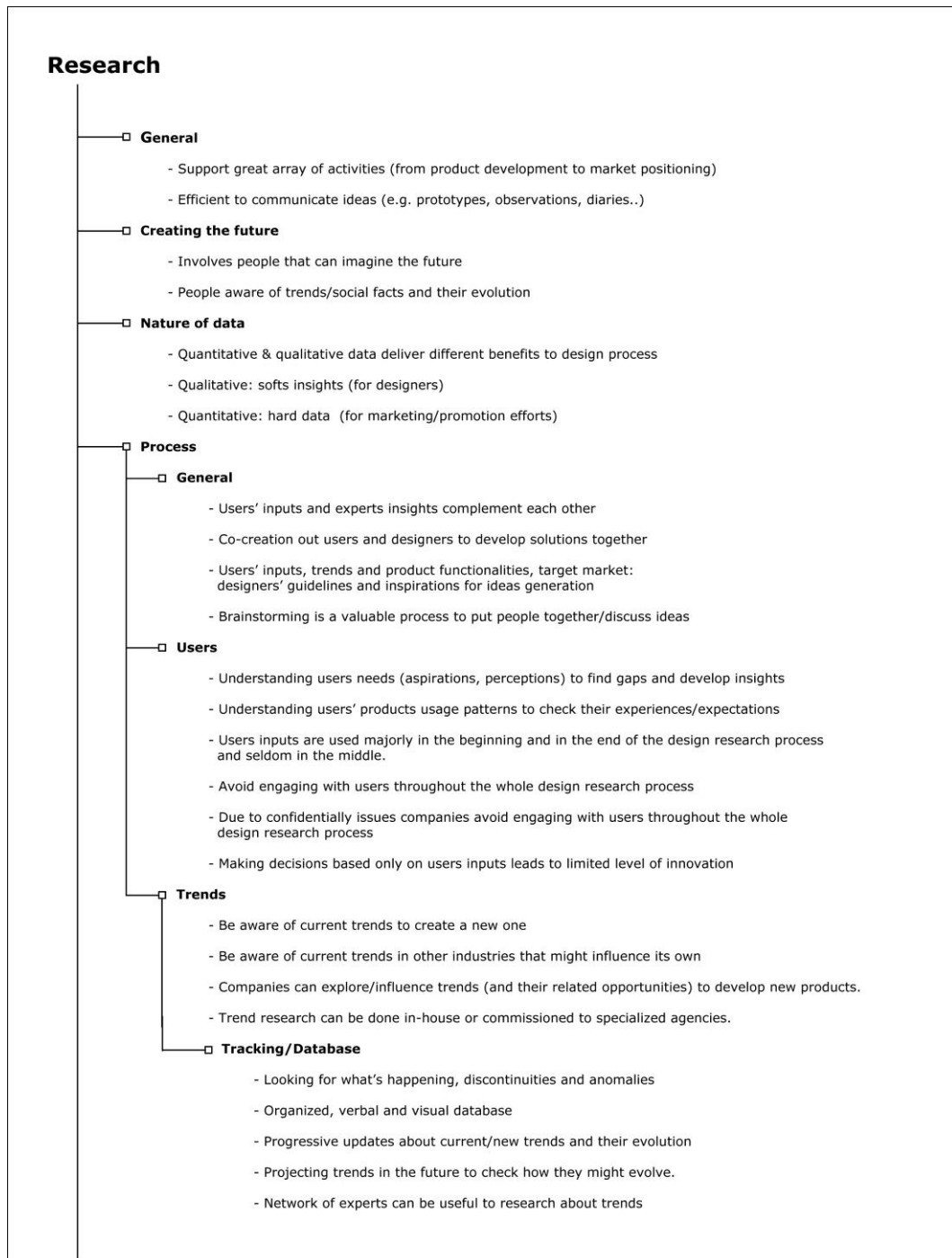


Fig. 5.4 (top) – Major theoretical cluster - Research (Top - Part 1)

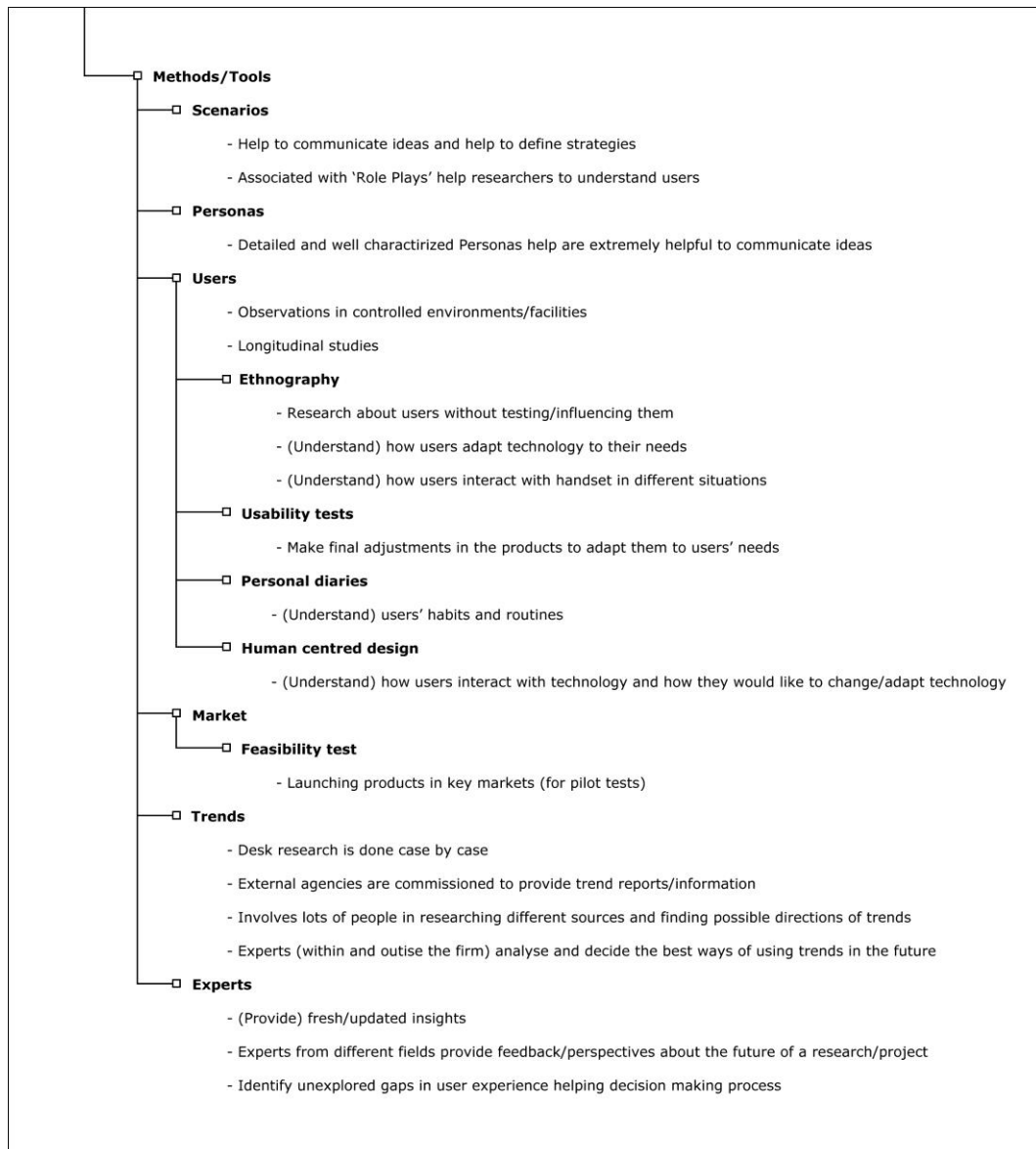


Fig. 5.5 (bottom) – Major theoretical cluster - Research (Bottom - Part 2)

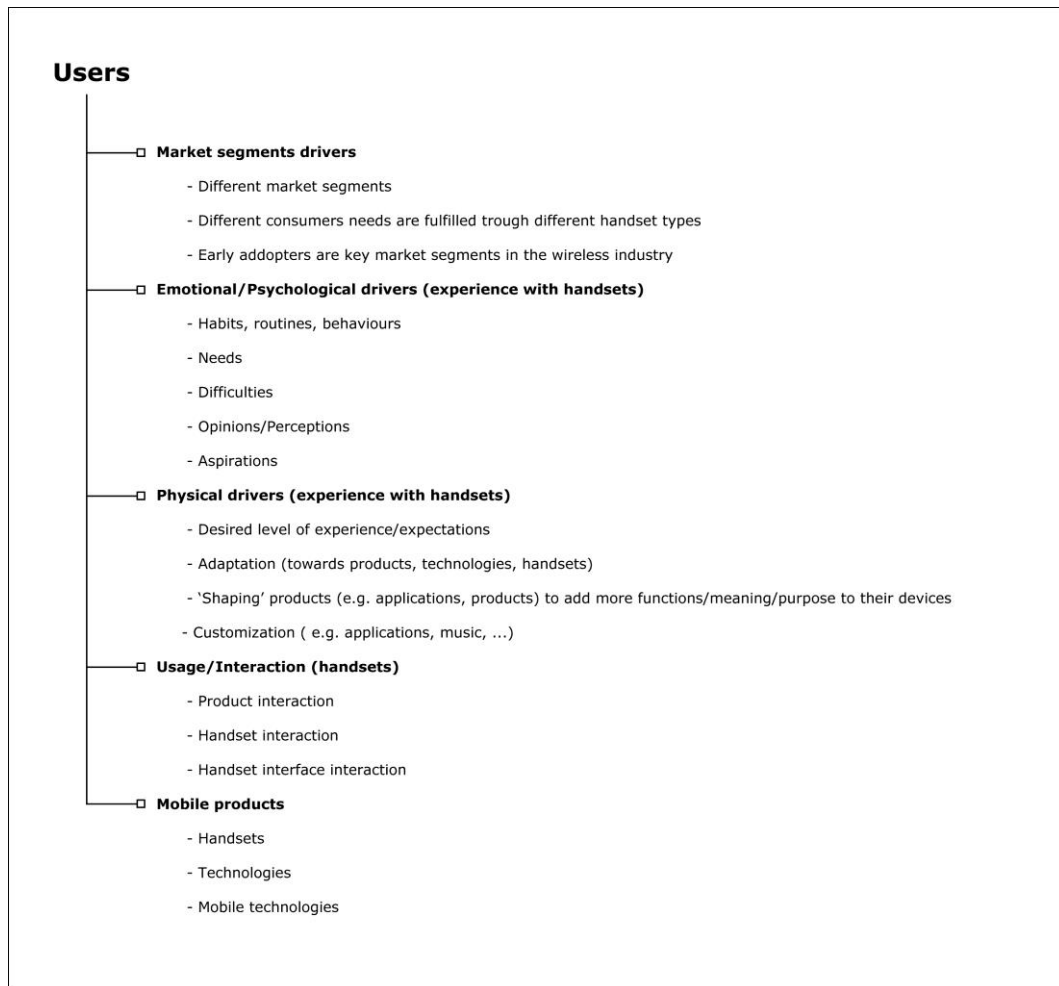


Fig. 5.6 - Major theoretical cluster – Users

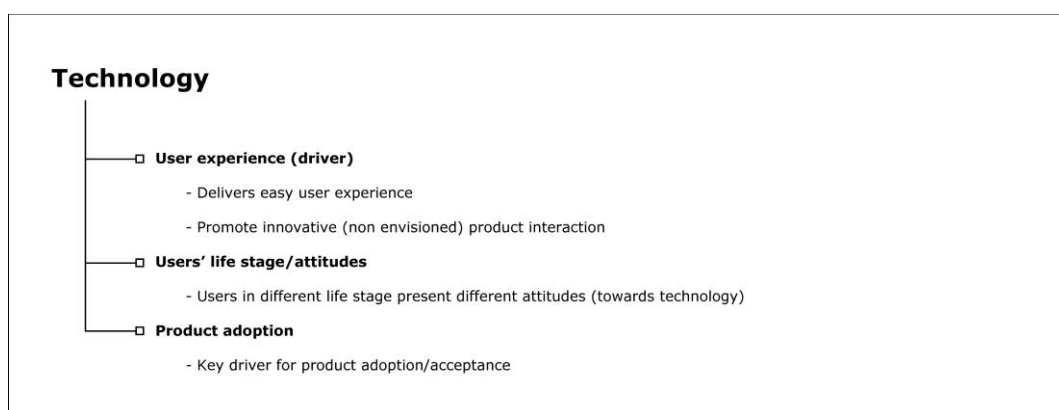


Fig. 5.7 – Major theoretical cluster – Technology

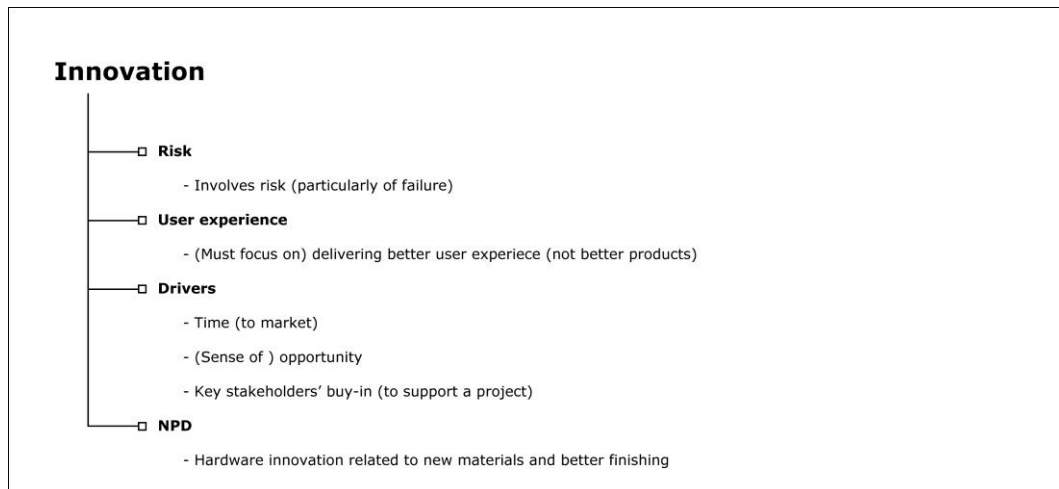


Fig. 5.8 - Major theoretical cluster – Innovation

• **Three major theoretical clusters (from model evaluation experts' interviews – first round)**

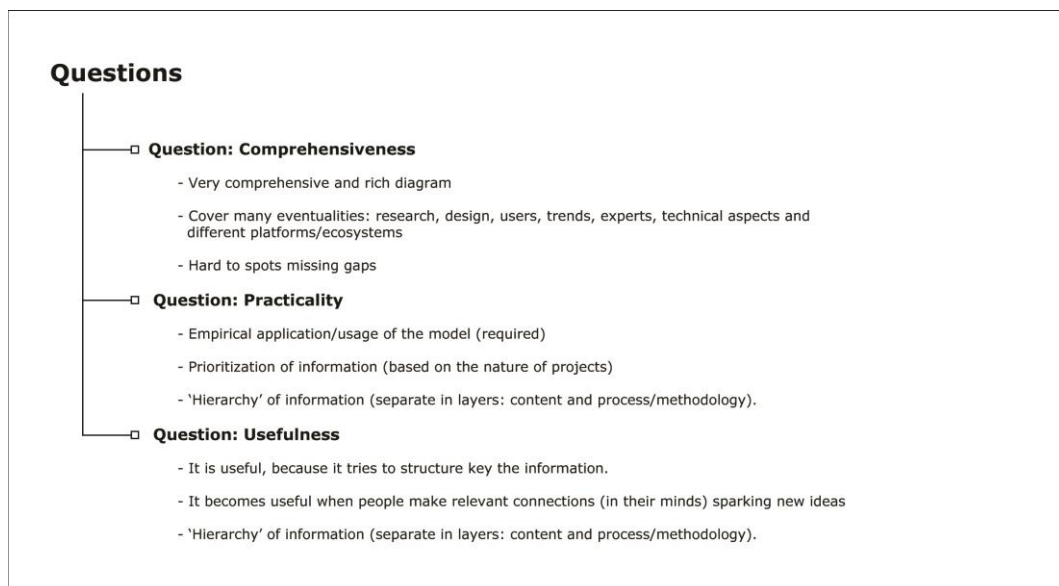


Fig. 1.5 - Major theoretical cluster – Questions

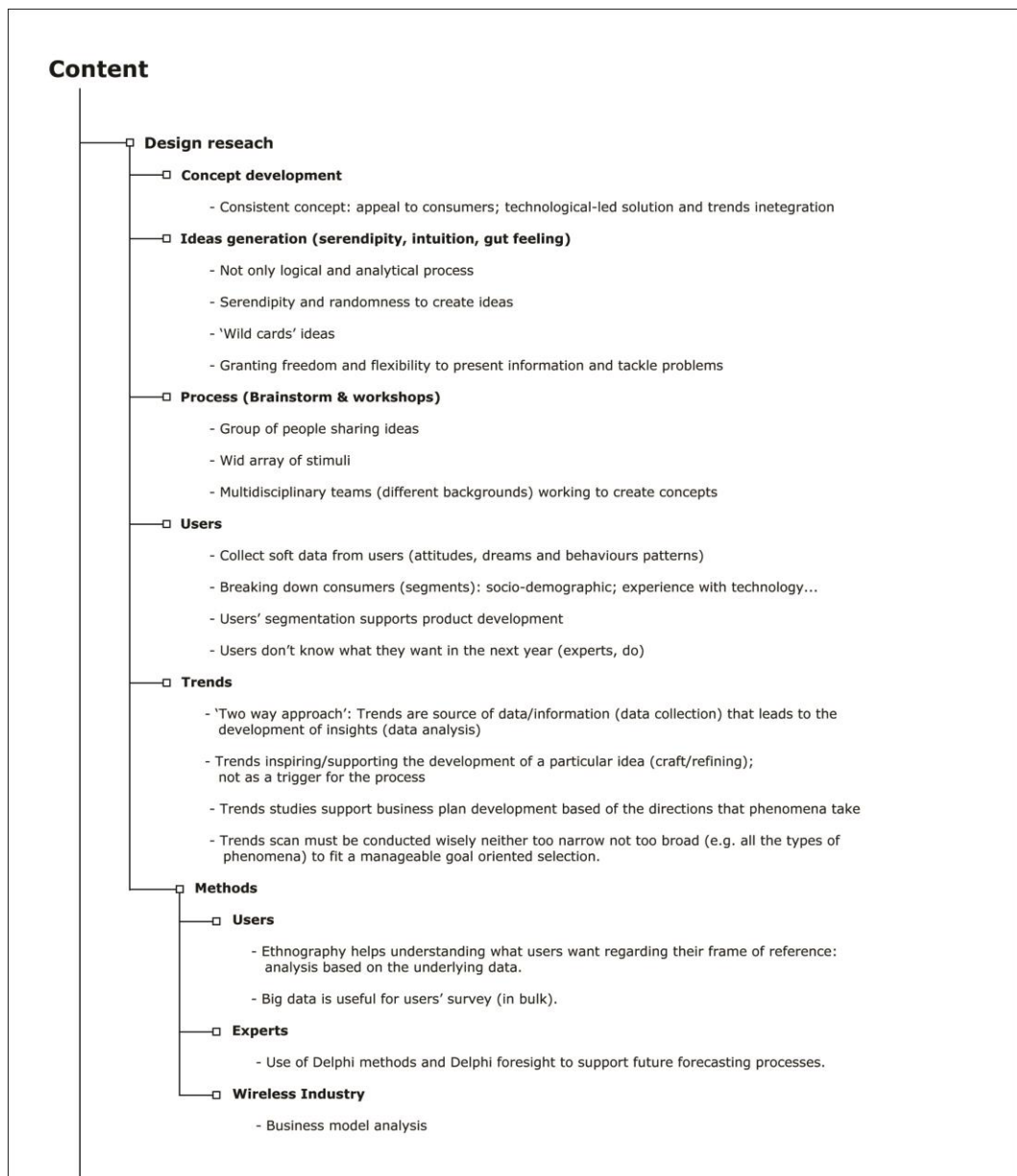


Fig. 1.6 (top) – Major theoretical cluster - Content (Top - Part 1)

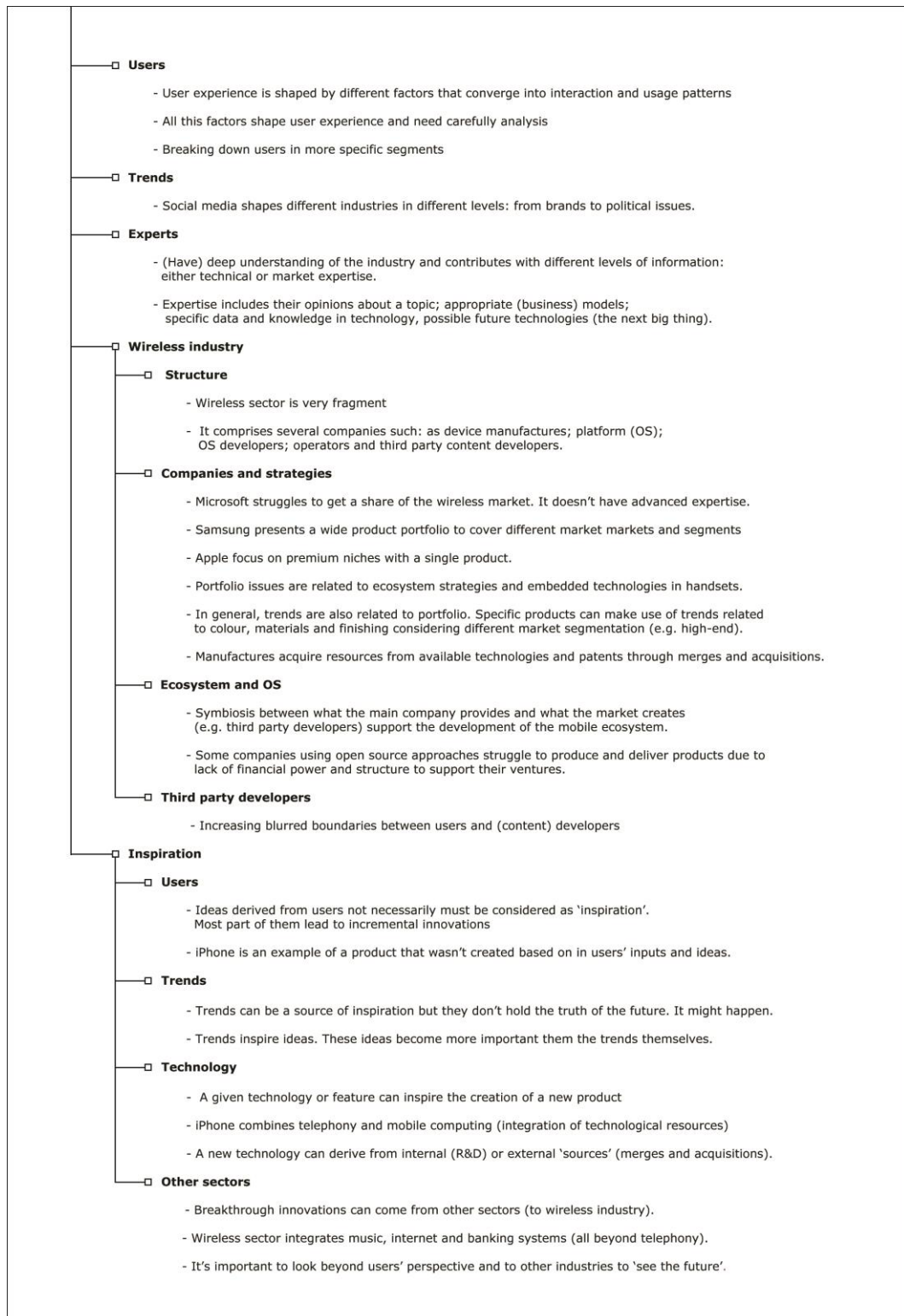


Fig. 1.7 (bottom) – Major theoretical cluster - Content (Bottom - Part 2)

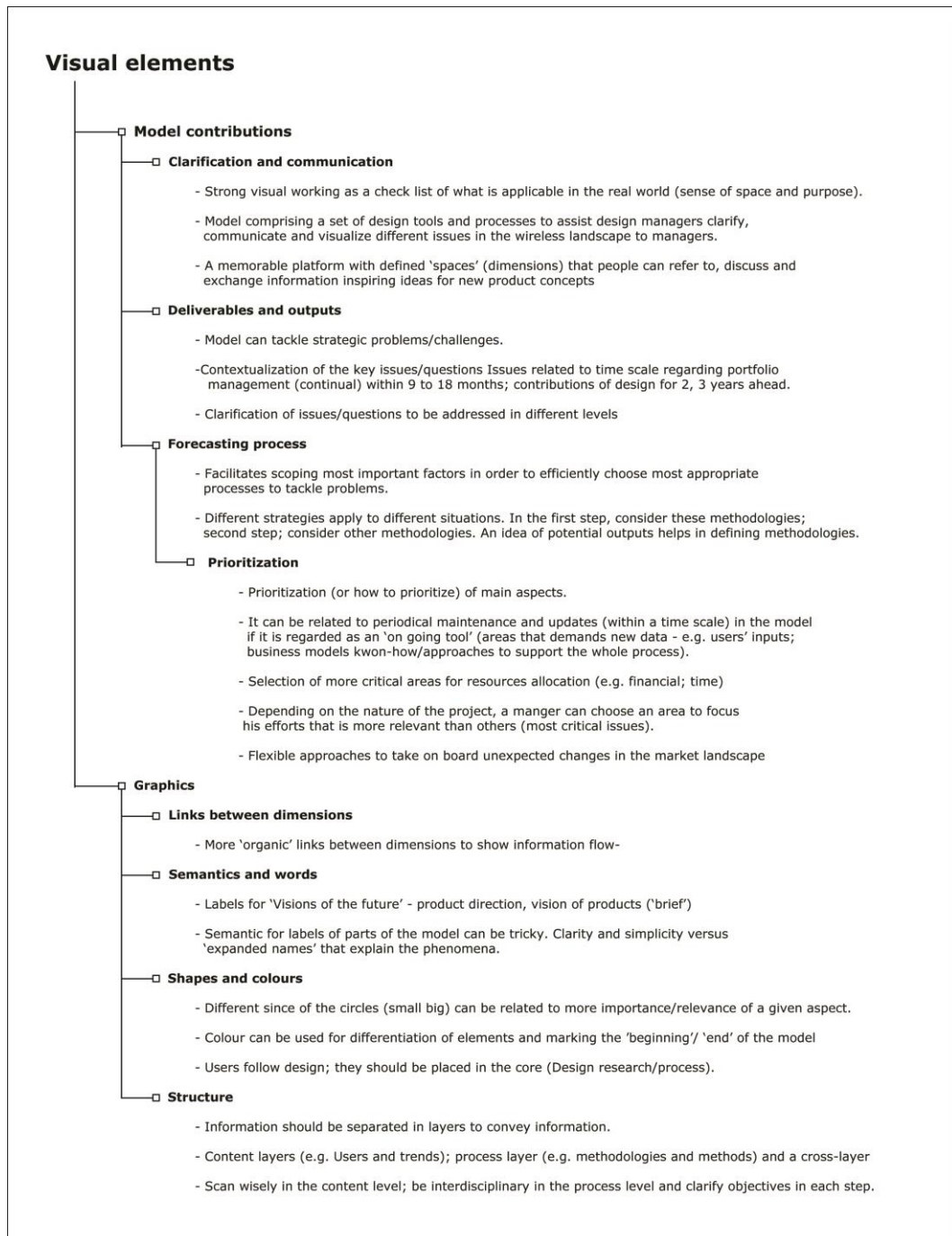


Fig. 1.8 – Major theoretical cluster – Visual elements

• **Three major theoretical clusters (from model evaluation experts' interviews – second round)**

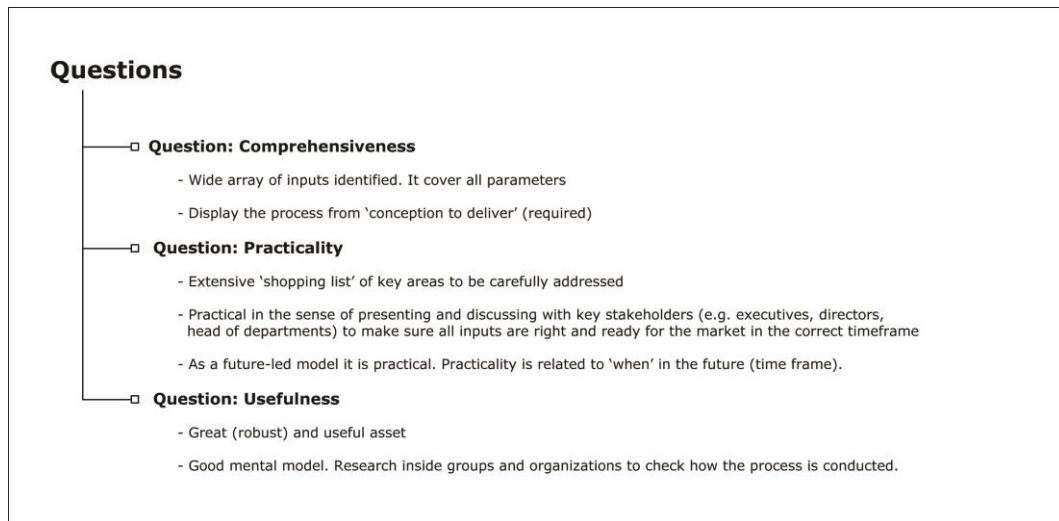


Fig. 1.9 - Major theoretical cluster – Questions

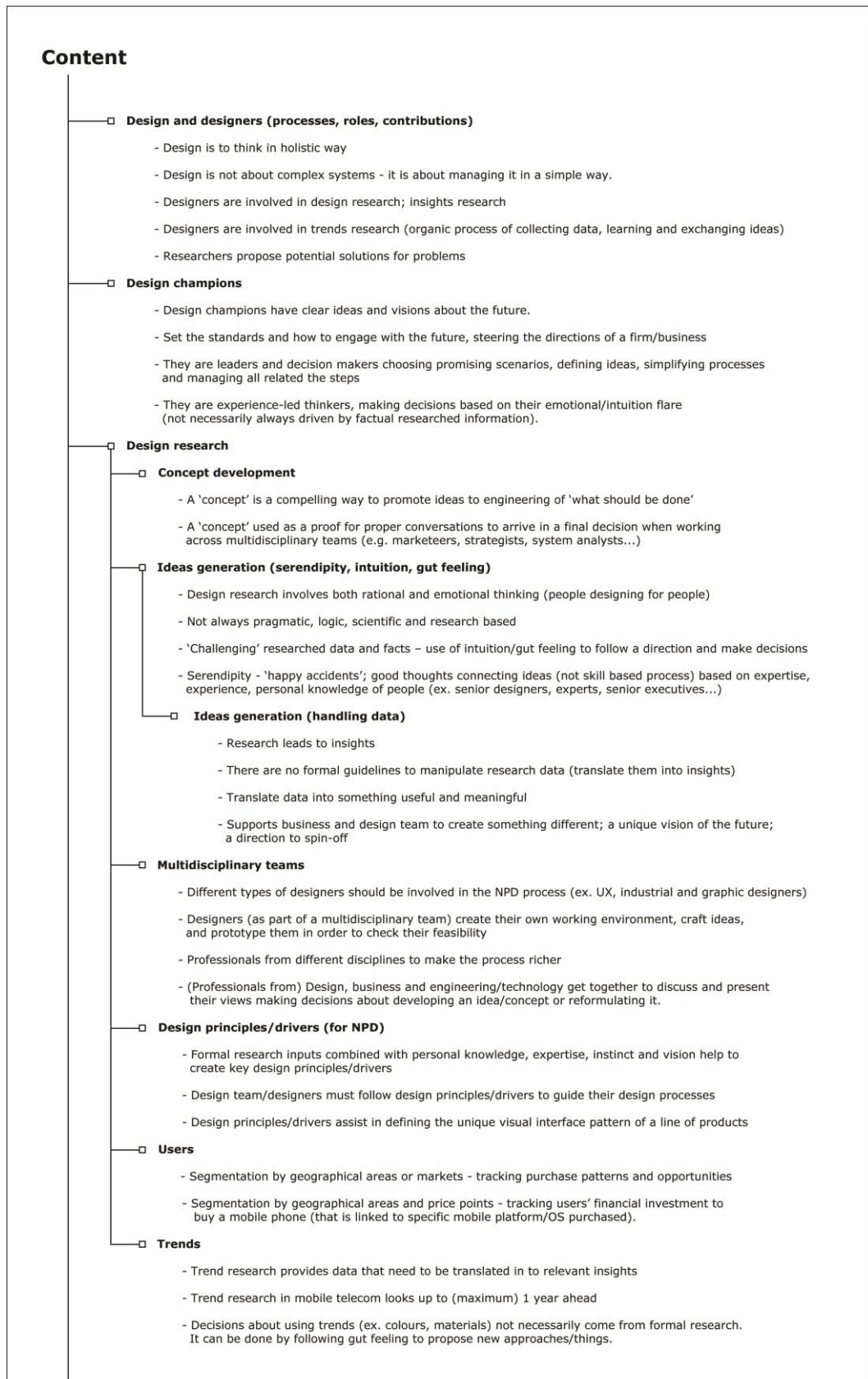


Fig. 1.10 (top) – Major theoretical cluster - Content (Top - Part 1)

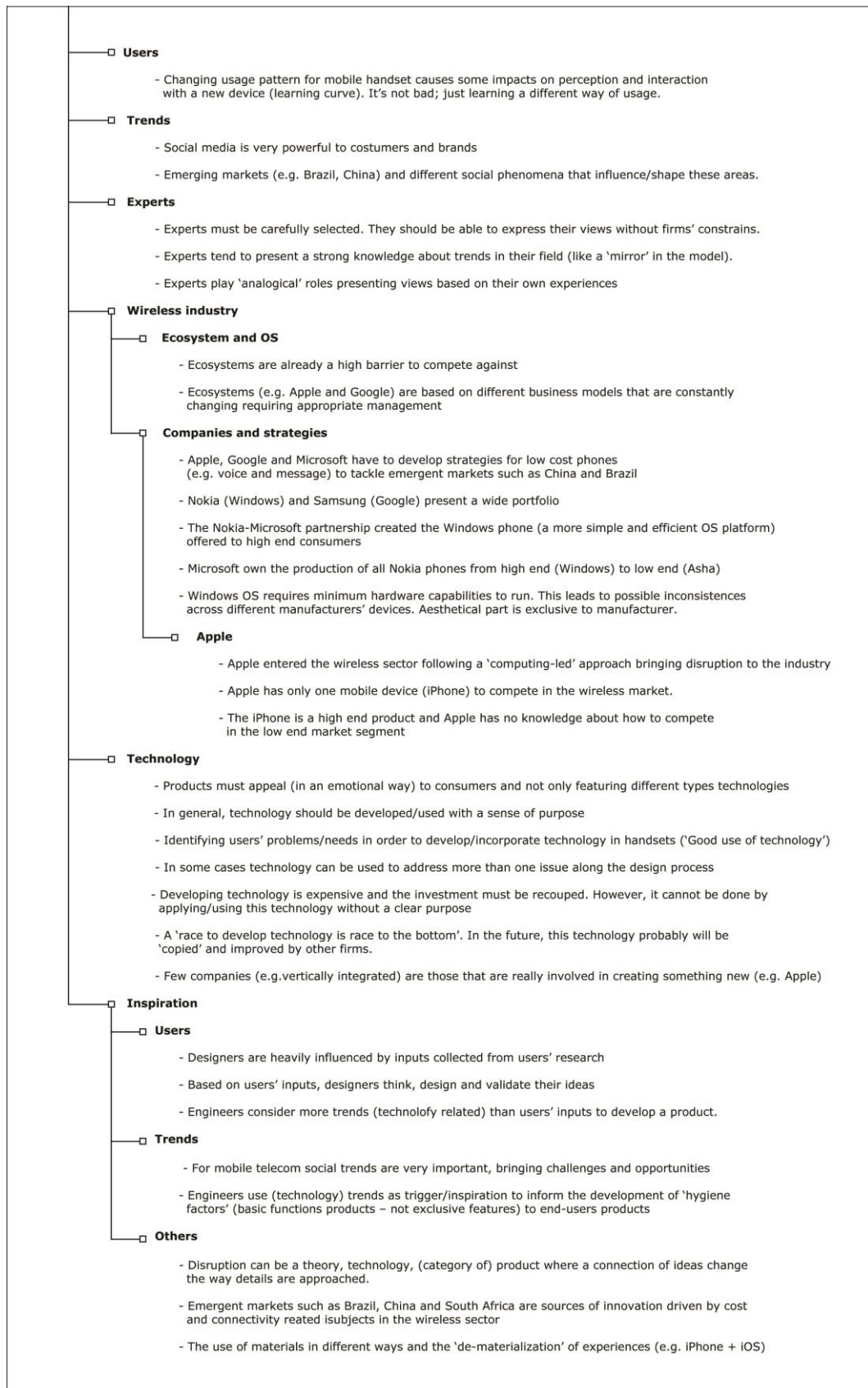


Fig. 1.11 (bottom) – Major theoretical cluster - Content (Bottom - Part 2)

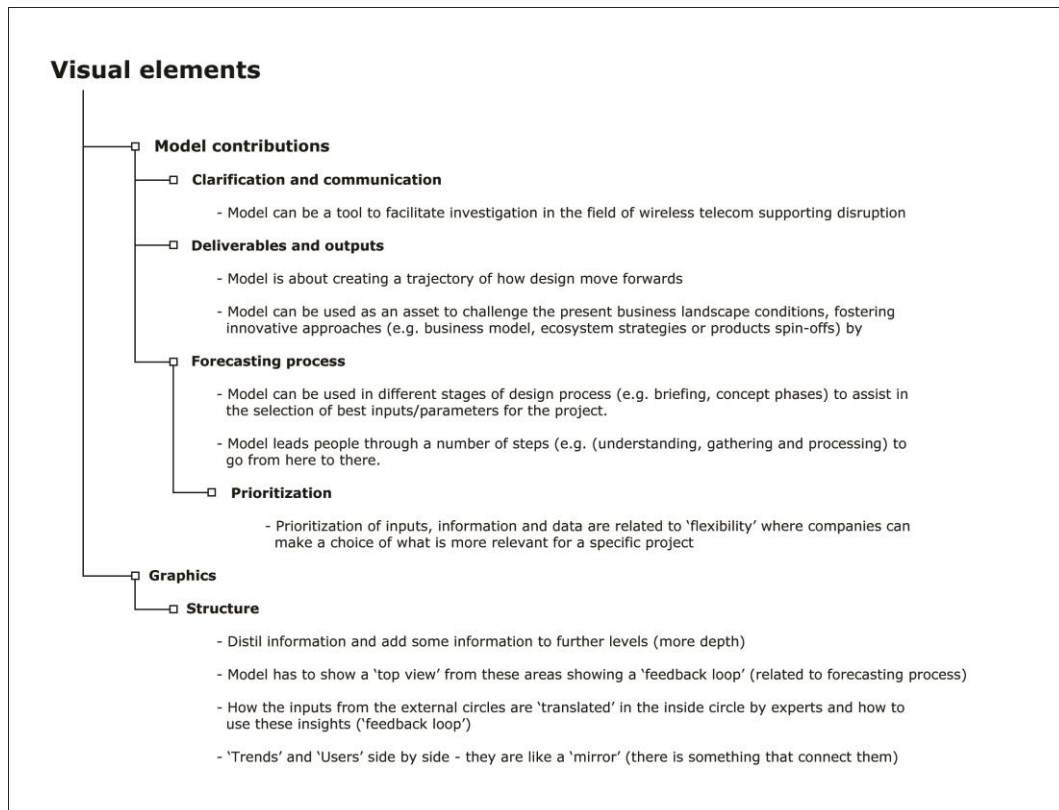


Fig. 1.12 – Major theoretical cluster – Visual elements

• **Single theoretical cluster (from students' workshop group interviews).**

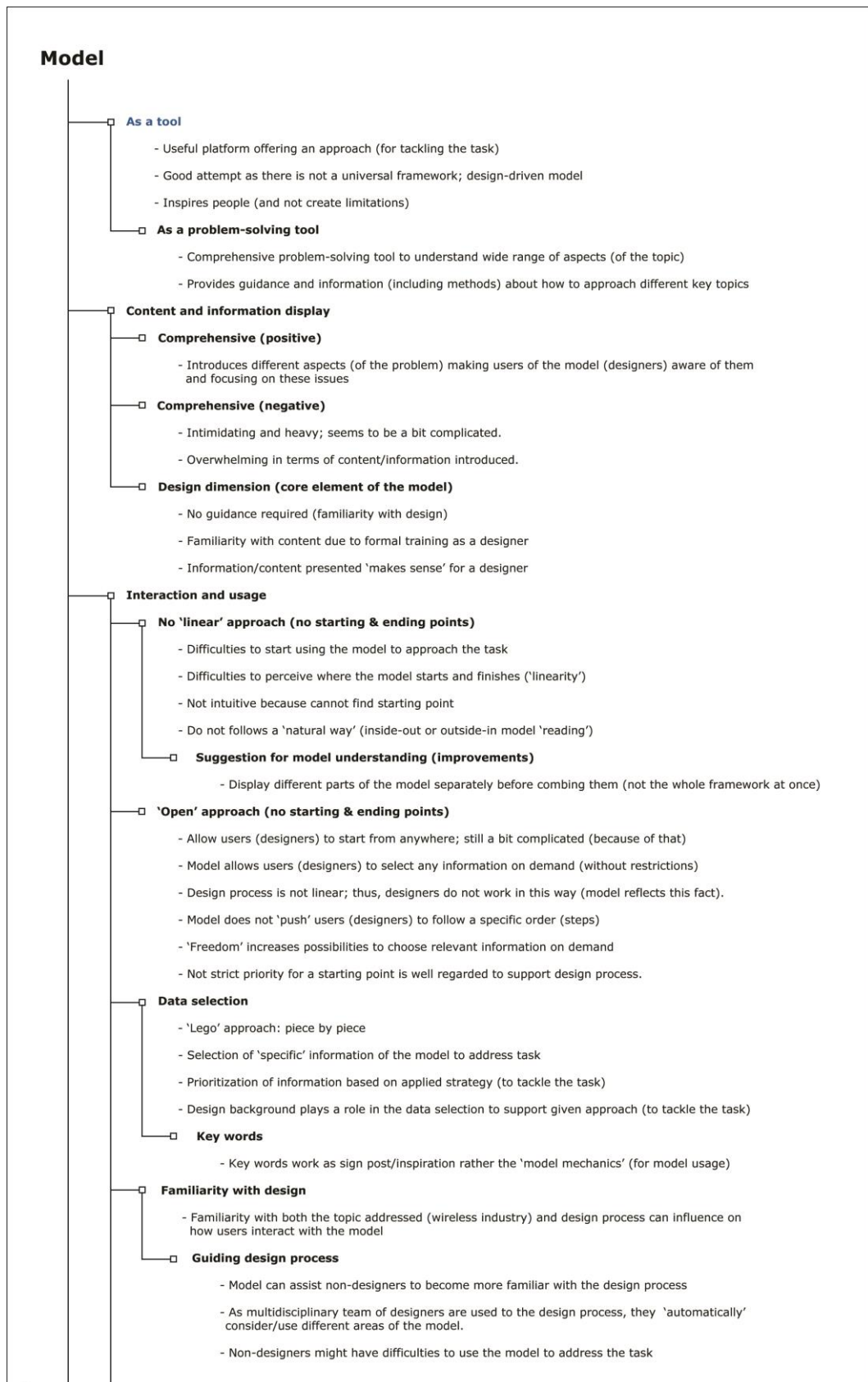


Fig. 1.13 (top) – Major theoretical cluster - Model (Top - Part 1)

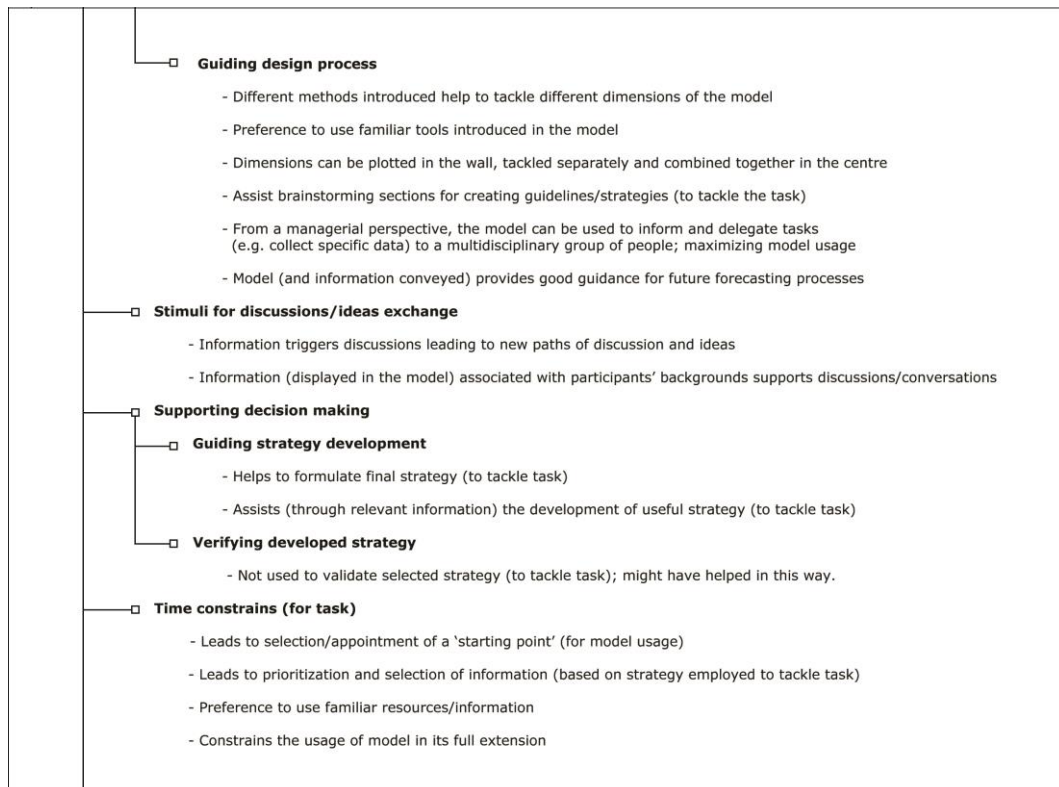


Fig. 1.14 (bottom) – Major theoretical cluster - Model (Bottom - Part 2)