Service Concepts, Business Models, Delivery Modes

Deliverable D4.1.1b

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1	2011-08-12	Document created, first version with approach
2	2011-11-17	Second version, results of SWOT
3	2011-11-30	Ready for internal review
4	2012-01-31	Final version

Table of Contents

1 Executive Summary

This document is the second iteration of deliverable D4.1.1 within WP4, Task 4.1; Business models for network-based services. This task is concerned with identifying viable business models and associated services. Our aim is to support the partners of the FascinatE consortium to make business informed choices in their technology development. The final goal of T4.1 is to make explicit the most viable business model for FascinatE to the market. In this document, we report on the selection of the most promising product-market combinations. Furthermore, we use and reflect on our approach for business modelling in the fuzzy front-end.

The fuzzy front-end of new product development, which includes finding new ideas and innovations, comes with inherent trade-offs in product/service innovation, where the flexibility in specification and development of technology is reduced during the R&D process, as the articulation of user and business demands increases due to better understanding of the potential of the technology. In our approach, described in chapter 3, we revisit the initial ideas of business modelling in the fuzzy front-end, visualize the relation between all T4.1 deliverables within the approach and describe the steps involved in refining the service concepts. Then, in chapter 4 the service concept refinement is performed based on both a technical and business assessment of product-market combinations. This includes a Strength, Weakness, Opportunity and Threat (SWOT) analysis and scoring of these combinations. For these product-market combinations, first iterations of business models are derived in chapter 5 and shown in a business model canvas. More detailed business models and value webs will be derived in the next iterations of the T4.1 deliverables.

When we reflect on our approach, we find that it can be improved by involving domain experts and potential users in the service concept development and the selection process. We will test if the approach developed so far is suitable for the process and how it can be adjusted to work properly or with limited or no involvement, of domain experts. The foreseen changes in our approach have limited or no consequences for the high level approach within Task 4.1. In the next iteration of deliverable 4.1.2 the main aim is to gather more information about markets. Additionally, we will check the views of service providers and these insights combined will result in a final version of this deliverable with a specific elaboration of the most promising product-market combinations.

2 Introduction

2.1 Purpose of this Document

This document is the first deliverable of WP4, Task 4.1; Business models for network-based services. According to the FascinatE "Description of Work" [1] this task is concerned with identifying viable business models and associated services. It aims to identify business models that enable all players in the media value chain to deliver rich repurposing services appealing to the end user. By generating these insights, we aim to support the partners of the FascinatE consortium to make business informed choices in their technology development, in setting up the FascinatE system, in identifying the assumed roles for different players, determine the type of user interaction and project revenue models. The final goal of T4.1 is to make explicit the offer of FascinatE to the market:

- How can the provided technology/functionality act as a differentiator for services in business-to-consumer markets;
- How can the provided technology/functionality differentiate the offer of the consortium partners in the primary value chain;
- How can the provided technology/functionality differentiate ourselves from similar R&D efforts;

In the first iteration of the document the focus was on broad service concepts, in which the provided technology could deliver one or more service values to the end-users. The second iteration of this document follows a structured approach to select the high potential service concepts from the initial set. Hence, the purpose of this document is twofold: on the one hand, to arrive at service concepts and their associated business models; on the other hand, to study the applicability of the approach in the fuzzy front-end of business modelling.

2.2 Scope of this Document

This document is the second iteration of D4.1.1. The first document expounded the methodology of Business Modelling in the fuzzy Front-End and derived a first set of broad service concepts. In the first iteration of D4.1.2, we analysed potential market of these service concepts. Compared to these first iterations of D4.1.1 and D4.1.2, the scope of this document is limited in the following aspects:

- WP4 considers the role of the network, technology -and business-wise; hence, we will concentrate on technical attributes which can be offered by the network; these include distributed processing, scripting and rendering.
- During the first annual project review, the reviewers commented t*hat the Omnisecurity camera market segment should not be further reconsidered*; hence, we will only consider product-market combinations in relation to live event markets, such as sports and entertainment.

2.3 Status of this Document

This is the final version of the second iteration of D4.1.1.

2.4 Related Documents

Before reading this document we recommend the reader to become familiar with the following documents:

- FascinatE project proposal, Annex I - "Description of Work" [1]
- D1.1.1: End User, Production and Hardware and Networking Requirements [2];
- D4.1.1a: Service Concepts, Business Models, Delivery Modes [3].
- D4.1.2a: Business and Market Overview [4].

The relation and coherence between the various documents under Task 4.1 is shown in Figure 2-1. In general, the various iterations of deliverable D4.1.1 aim at supporting the consortium partners in selecting and refining the direction of their respective technological innovations. Deliverable D4.1.2 aims to identify the market opportunities by giving a market overview.
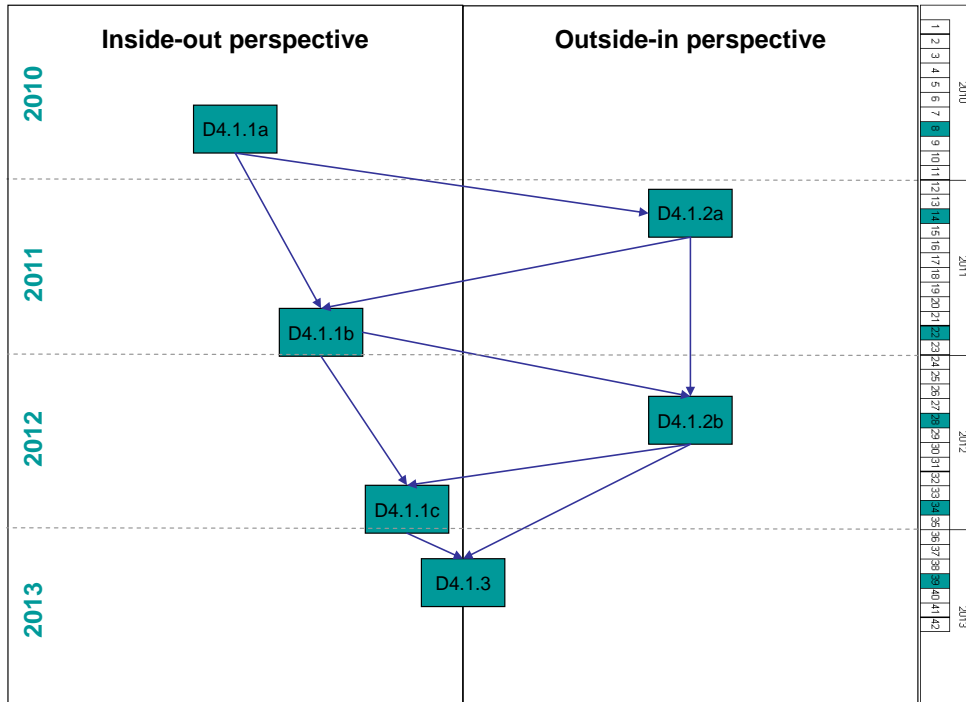
Figure 2-1: The coherence between the deliverables in Task 4.1.

3 Approach

In this chapter we outline the three step approach of Business Modelling in the Fuzzy Front-End. The steps are carried out in Chapter 4 and 5.

3.1 Business Modelling in the fuzzy Front-End

As in this first iteration of D4.1.1, we use the Business Model Canvas (BMC) as proposed by Alexander Osterwalder [11]. The BMC includes the main elements incorporated in every business model design. These are; the offer or value proposition, the distribution channels, the customer relationship, the customer or market segment, the key activities and resources, and the partner network. See [3] for further background information on business modelling and the BMC.

As we noted before, the application of the BMC is not straightforward, given the phase of the innovation process in which FascinatE resides. In new product development literature, this phase is called the fuzzy front end and it comes with inherent trade-offs in product/service innovation, as shown in Figure 3-1; as the flexibility in specification and development of technology is reduced during the R&D process, the articulation of user and business demands increases due to better understanding of the potential of the technology.
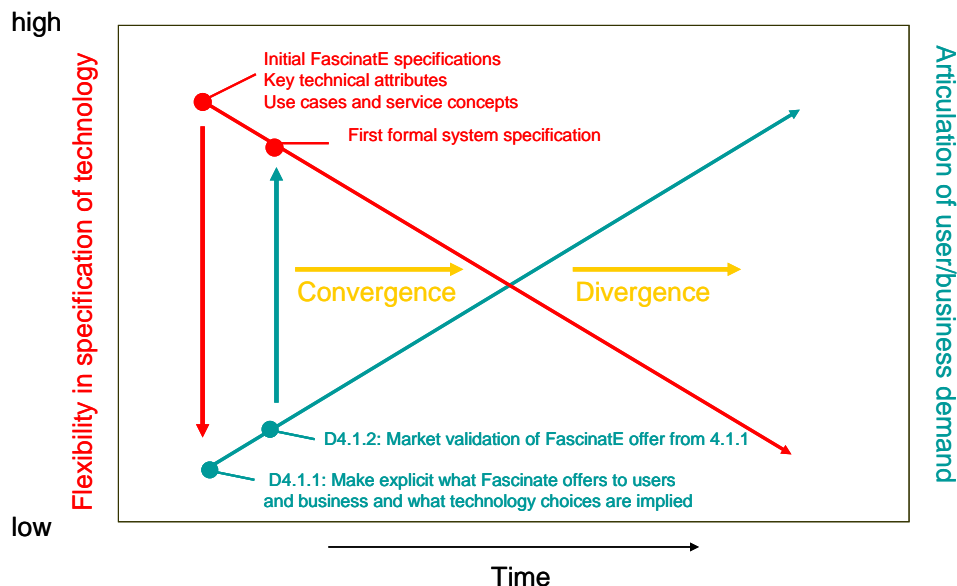
Figure 3-1: Flexibility in development vs. articulation of demands.

Our working hypothesis is that by taking into account elements from the BMC in this early stage, faster and more efficient adoption of new products and service may be reached. This requires constant feedback and convergence between technology development and business considerations in the early stage of the R&D process, and divergence in a later phase.

In [3] we have introduced the notion of service concepts, technical attributes and delivery modes. We clarify these notions here, to avoid confusion further down the road.

- A service concept is a description of a service offering, as the combination of a specific service or product and the market in which the service or product is offered. In this document, we will use the term product-market combination (PMC) from now on; the choice for using the PMC instead of a service concept has to do with the level of detail. As the service concepts are used to explore the possibilities of the products, they do not present clear choices. The product market combinations are detailed elaborations of the service concepts and do make these choices.
- A technical attribute is a specific technological capability with which, if implemented in a service or product, one or more service value can be offered;
- A service value is an appealing aspect of a service or product with which to attract customers;

- A delivery mode is a value chain configuration for a product market combination from the viewpoint of the dominant partner. The dominant partner in the value chain typically follows from the choice for the technical attribute. In [3] three key delivery modes are defined: terminal-centric, production-centric and network-centric.

- A target group is defined as the group of consumers of the FascinatE technology in a particular product market combination. As such, a target group can refer to both professional users as well as end-users.

Figure 3-2 below provides a schematic illustration of these concepts.

Figure 3-2: Relation between the abstract terms used in the fuzzy front end of Business Modelling.

3.2   Funnel Approach

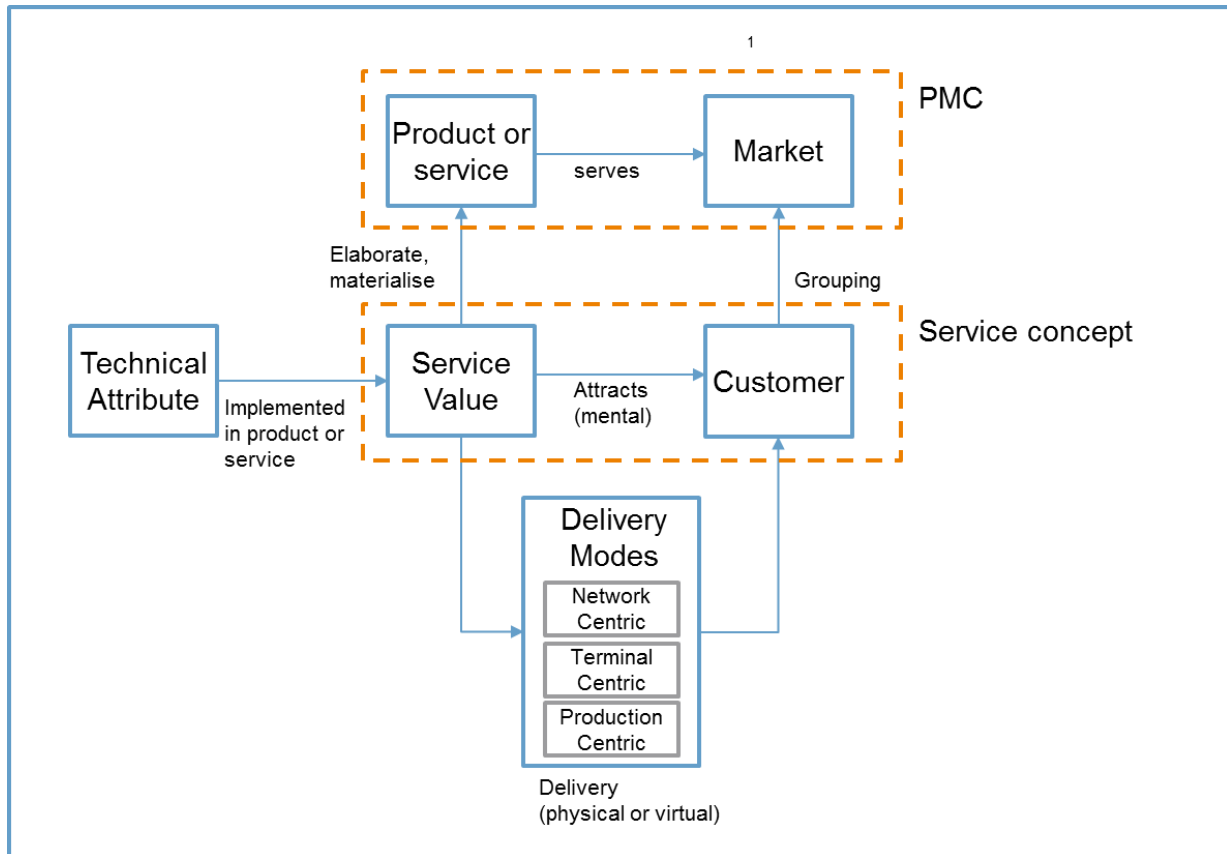For the identification and selection process of high potential PMCs, our approach can be visualized in a funnel with two perspectives, four phases and six main steps, as shown Figure 3-3. Note that each step is correlated with one of the six T4.1 deliverables.
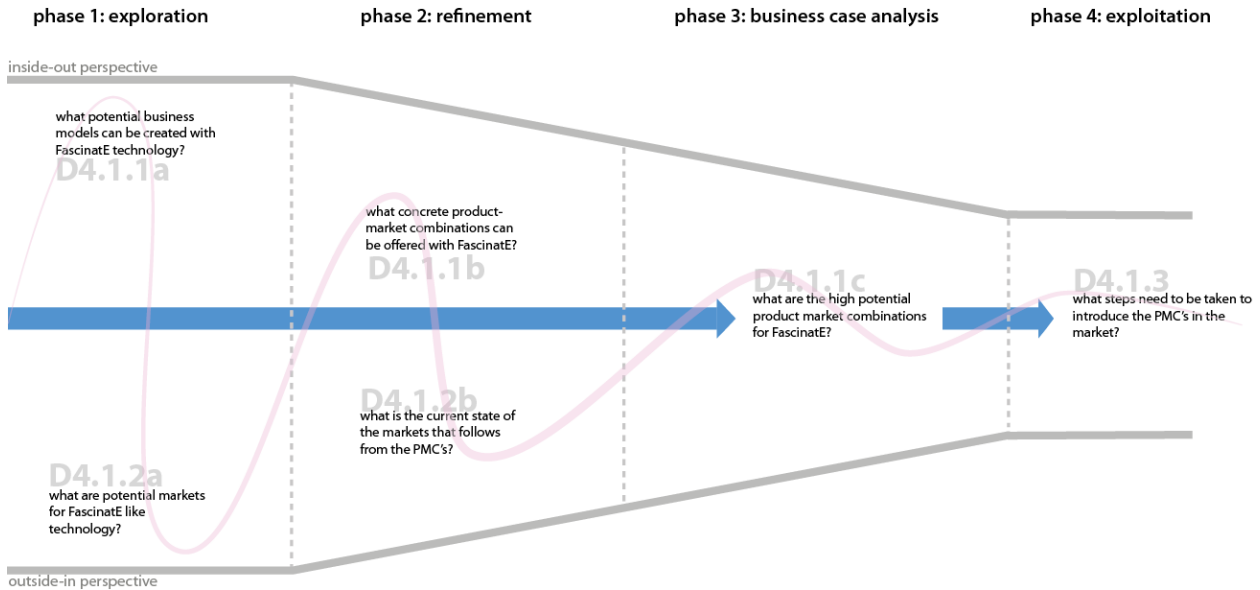
Figure 3-3: Four-phased funnel approach.

The approach considers two perspectives:

- **Inside-out perspective**; in this perspective the technology development with FascinatE is the starting point. New products are developed within the boundaries of what technology can be developed.

- **Outside-in perspective;** in this perspective PMCs in the outside world are the starting point. Existing markets, trends and developments form the boundaries of what new products could look like.

The approach consists of four phases with a total of six steps:

Phase 1 – Exploration

In the exploration phase the main focus is to explore all the business capabilities of the FascinatE technologies for companies that will implement this technology. The phase includes two steps. The first step is the exploration of service concepts that can be delivered by FascinatE technology, where the main question that should be answered is what potential business models can be created with FascinatE technology. This step fits in the inside-out perspective, because little attention is given to the limitations of the outside world. The results of this first step, as presented in deliverable D4.1.1a, are an overview of business models and service concepts that FascinatE can offer. In the second step different markets are explored to find out where FascinatE technology may be used and to answer the question what the potential markets are for FascinatE technology. This was done by scanning diverse markets for FascinatE-like *technical attributes* and *service values*. The result, presented in deliverable D4.1.2, is an overview of markets, with for each market a basic overview, with general information and a list of competitive technology and products.

Phase 2 – Refinement

In the second phase the results of the first stage will be refined. This means that a selection of all PMCs will be discussed in more detail. For the selection procedure criteria are used to determine which PMCs and markets are worth looking further into. The selection criteria are based on the insights and experiences of the first phase. By combining the market insights and the service concepts, specific PMCs are developed. In this process both the technical and the market insights are essential. The main aim is to select the most promising PMCs. The results are captured in a business model canvas. In the second step of this phase the focus lies on the market. For each of the PMCs a comprehensive market scan will be conducted. In this detailed market scan the business environment of the PMCs are analysed. It is important to notice that the PMC's are developed from the perspective from the company that will use the technology to offer products to the end-consumers.

Phase 3 – Business Case Analysis

In the third phase the financial component plays a vital role. For each product-market combination we will analyse the business case. Financial selection criteria are used to identify and select the high potential product-market combination(s).Main question that will be answered is in this phase is: what is (or are) the high potential product-market combinations that can be offered with FascinatE technology.

Phase 4 – Exploitation

After identifying the high potential product-market combinations, we define what the next steps will be to deploy the FascinatE technology. In this section the hurdles from innovative technology to market introduction are described. The question that will be answered in this deliverable is: what steps need to be taken to facilitate the introduction of the PMC's on the market? In this step we will use the insights that we have gathered about the companies that will use the technology in their product offering. The perspective that is used in this deliverable is from the perspective of the partners of FascinatE.

3.3   Assessment of PMCs

As described above, in the first step of the service concept refinement phase, a selection of all PMCs will be discussed in more detail, with the main aim to select the most promising PMCs. The results are captured in a business model canvas. The final outcome of this step is a first business model canvas for the most promising product-market combinations, where the financial aspects, i.e. revenue and costs, are not included.
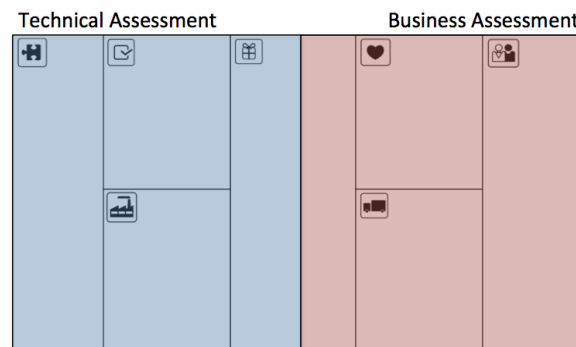
Figure 3-4: Assessment of product market combinations

To determine how promising the PMC's are, we have separated our analysis in two parts, as shown in Figure 3-4. That is, we perform both a technical and a business assessment of the PMCs. Ideally, for both assessments different experts should be consulted. Both the technical and the business assessment have a similar approach that consists of three steps. The goal of the first step is to generate the complete list of PMC's. The goal of the second step is to score these PMC's in a structured manner. The goal of the last step is to integrate the insights of the assessment in a filled business model canvas for the promising PMC. The steps of the assessment are illustrated in Figure 3-5.
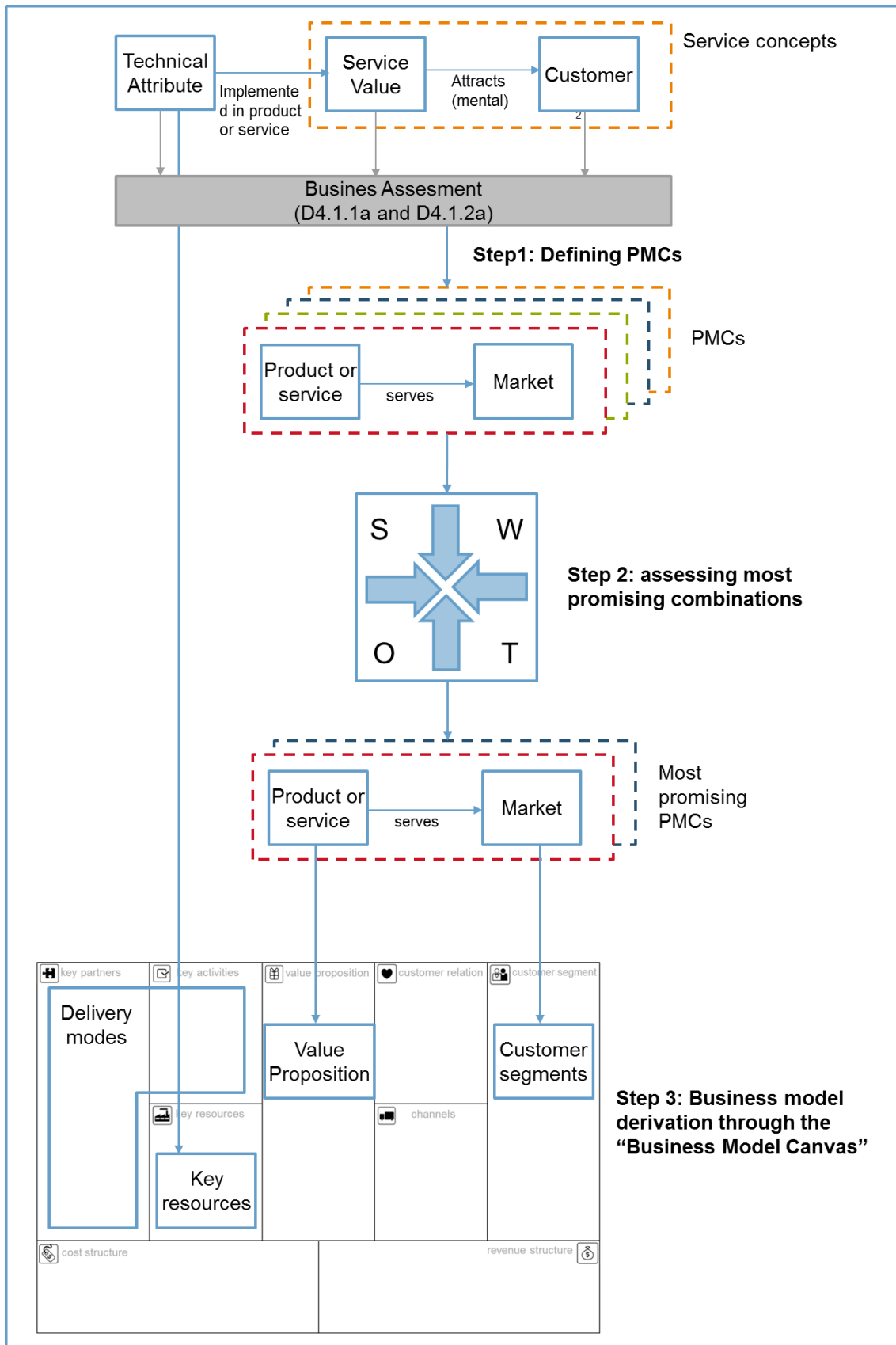
Figure 3-5 – Illustration of the steps in the process for refining the service concepts to business models.

A short description of each step is given below:

Step 1: Defining PMCs

Defining PMC's is performed by combining the information that is already available as result from the earlier phases in the funnel. For the business assessment the information about the value proposition of the service concepts and the identified market segments are available in deliverables D4.1.1a and D4.1.2a. The technical information about the technical attributes and the delivery modes are available in deliverable D4.1.1a. Combing this information results in concrete PMC's. These concrete PMC's are described in more detail. The description of the PMC's are shared with the domain expert. In collaboration with the domain experts feasible PMC's are listed, non-feasible PMC's are removed from the list. The result of this step is a list of concrete product-market combinations.

Step 2: Selecting the most promising PMCs

In the second step we select the most promising PMCs from the list of the first step by performing a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis of each PMC. During a session with domain experts, a list of SWOT statements is used to assess the PMC's, as shown in Figure 3-6. After scoring a specific PMC, the outcomes of each scoring card is discussed. All the scores of each statement are added up. This results in a final score for each PMC, including the arguments for the total score. The results of all these scores are then used to compare the PMC's.
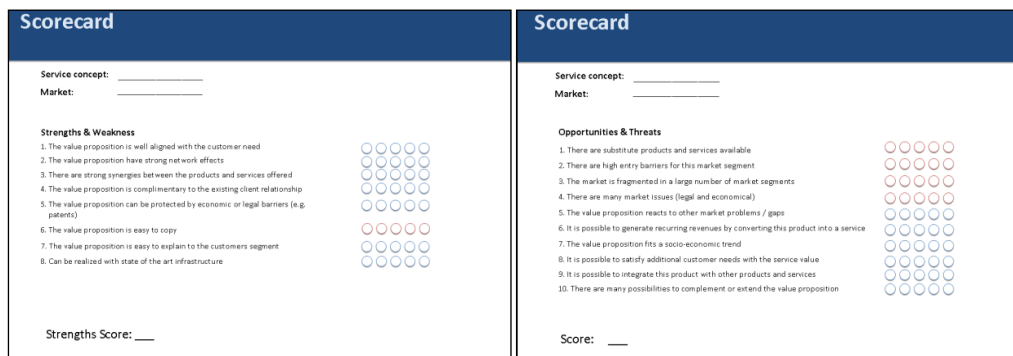
Figure 3-6: Example of the Scorecards

Step 3: PMC business model derivation

In the third step the most promising PMCs are bundled and presented in a complete business model canvas, divide over three specific areas, indicated in Figure 3-7 with particular colours. The first area is the technical attribute (red) that describes what technology is used to deliver the product or service. The second area is the delivery mode (yellow), that describes by whom and with what activities the product or service is delivered. The third area contains the product and market segments. This combined presentation in the business model canvas can be seen as a first iteration of a PMC business model, from the viewpoint of a company that implements and uses the particular FascinatE technology.
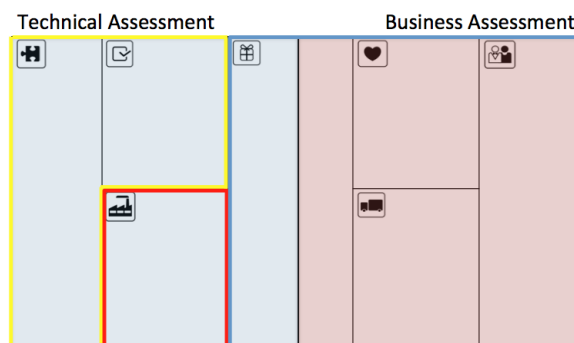
Figure 3-7: BMC areas for the assessment.

4 Outcome of Assessment

In this chapter, step 2 of the approach described in the previous chapter is carried out: assessing the most promising PMCs by means of a SWOT analysis. In order to do so, we will first revisit and analyse the service concepts.

4.1 Scope and Limitations

This document focuses on the technology developed in work package four, the technology that will be used in future PMCs is distributed processing. By incorporating the business modelling work in the work package, implicitly the main focus lies in the technology that is developed in this work package. For both the technical attribute and the delivery mode, the selection is clear. The technical attribute in work package four is: distributed network processing. The only delivery mode that is consistent with this choice is the network based delivery.

The background of the methodology used and the experts that took part in the assessment can be found in the annex.

4.2 From Services Concepts to PMC's

We followed a couple of steps in the translation of the service concepts to PMC's. First we have used the information about what service values are offered by the service concepts from deliverable D4.1.1a. This is shown in table 5-1.

	Interaction	Immersion	Cost-Efficient Production	Personalization
iDirector	x	x		x
Cost Efficient Reporting			x	
Mobile Magnifier	x	x		x
Immersive Experience		x		
Omni security Cam	x	x		
Window to the World		x		

Figure 4-1: Service Values per Service Concept

This information was combined with the market insights of deliverable D4.1.2a. This provides the information of how the service value is offered today and in the future. For most markets the available PMC's are selected. For the other markets the experts created PMC's by combining the information of service concepts and the market information in a logical way.

Based on the feedback of the consortium partners we choose to only translate the service concepts that can be applied in the media & entertainment market. The Omni security cam, focused on the security market, and the window to the world, which has a strong connection with the domotica market, have a weak connection with the media and entertainment market and are therefore out of scope.
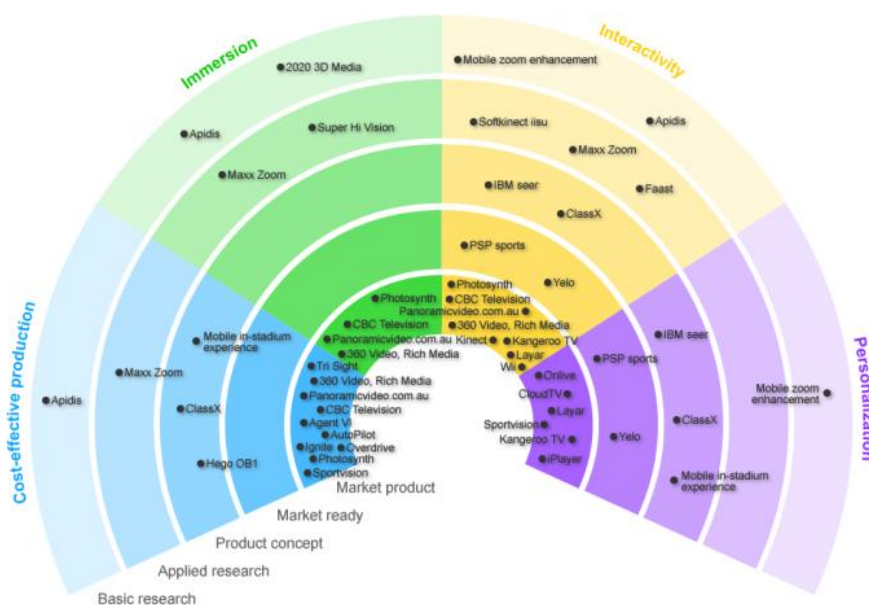
Figure 4-1: Service Value Radar

Not all products and services are suitable for each market. After a discussion with the experts (see Annex) only four product-market combinations were defined. The result is shown in Figure 4-3. For each of these product market combinations the SWOT analysis is performed. The key criteria are discussed for each product-market combination.

	Live viewing events at home	Live viewing of events at event	Live registration & directing
iDirector	X		
Cost Efficient reporting			X
Mobile Magnifier		X	
Immersive Experience	X		

Figure 4-3: Product Market Combination Selection.

iDirector for the home-entertainment market

This PMC is a service that provides the home viewer with director-like functionality during live events. The user can orchestrate the different views that are available from the layered scene capture. Interfacing with this service concept is implemented by using gestures or a secondary interface like a tablet. Objects- and areas of interest can be defined by the user and presented in Picture in Picture (PiP) mode on the TV. Examples of the iDirector functionality are selecting a favourite football player as showing him as a picture-in-picture on the TV set, or following a favourite musician on a stage. Additional functionality, which could enrich this service concept, could be information of the tracked object as overlay or banner information. Main values offered to the user are personalisation and interaction.

Cost efficient reporting for the live registration & directing market

This services concept enables a time and cost efficient manner to direct the registration of an event by using a simple interface and selecting areas of interest. These regions and objects of interest are generated based on a set-up of an Omni cam - and possibly semi-automated cams - at specific locations. When the director select a specific area of interest, the scripting module calculates which cams have to take shots and from what angle. That image will be broadcasted to the consumers. The user experience of the cost efficient event reporting is similar to the iDirector. Examples include the automated production of low-profile sports events or highly standardized and/or slowly varying reality shows. Main value offered to the user is: cost efficiency.

Mobile magnifier for the live event market

This service concept provides users the option to, while watching a live event, select a specific view. The view can be played out on a mobile device or shared with other participants on the event or at home. The user has an application on the phone, which give him the opportunity to take a snapshot of a specific area of the event. This picture will be compared to the video stream of the Omni cam. With an algorithm a stream will be generated that broadcast exactly that area (to the mobile user, or in case it is shared to a home entertainment location). Examples include the use of a smartphone at live music events to see the artists even at great distances. Main value offered to the user is: personalisation and immersion.

Immersive experience for the home-entertainment market

This service concept provides an immersive experience of live events to viewers, by showing the audio-visual information on a panoramic screen and 3D-audio setup, such that the viewer experiences the feeling of being present at the event, even a feeling of co-presence with people physically present at the event. Examples include the provisioning of an overview of an athletics event, or the cockpit cam of a formula-1 race. Main value offered to the user is: immersion and interaction

4.3   Outcomes of Preliminary Assessments

In this chapter we will present the results of the technical and business assessment.

4.3.1   Preliminary Technical Assessment

The primary task is to analyse the fit between the technical attributes and the products and services. In deliverable D4.1.1a we already identified which technical attributes are core or enabling in the process of delivering product or services. This overview is shown in Figure 4-2.

	Scripting	Layered Scene Capture	Rendering	Distributed Processing	Gesture Based Interaction
iDirector	X		X	X	
Cost Efficient reporting	X	X			
Mobile Magnifier		X	X	X	X
Immersive Experience		X	X		

Figure 4-2: Overview Technology-Product Combinations

As discussed in section 2.2 the scope of our exploration of business models focusses on those that can be delivered with only distributed processing, scripting and rendering, a selection of two service concepts is the end result of this assessment. These service concepts are: iDirector and Mobile Magnifier.

4.3.2   Preliminary Business Assessment

The preliminary business assessment was conducted in two phases. In the first phase the product market combinations are scored at high level. This means that no specific niche markets were taken into account. The scoring took place with experts that are familiar with the markets and the developments in these markets.

After scoring the high level selection, for the two best product market combinations a detailed selection is performed. The SWOT scorecard of the high level assessment was used as a basis and based on the specific market conditions the scorecard was adjusted for the niche market.

iDirector – Live viewing at home

The iDirector concept is perceived as high viable product for viewing live content at home. Although the product is fancy and speaks for itself, it also has some weaknesses. The first weakness is the competition of normal live TV. The quality of live TV registrations is pretty high. The directors of live television are professional, there are already many camera's available covering different angles and end-users are used to these viewpoints when watching live content. Further, watching TV is a social event; iDirector transfers the directing function from the director to the consumer. In a setting where multiple consumers watch the same program in the living room this may introduce annoyance for the other viewers if the directing consumer is unskilled. . The experts concluded that the iDirector functionality is probably best used by people as a second screen service. On the large screen the normal broadcast or one specific selection is shown. The second device is used by the users to watch specific viewpoints, track players or zoom, pan or tilt. When a very interesting viewpoint is selected, this selection may be shared to the main screen.

During the expert session many threats are identified. A major threat is the availability of substitute products. Because it is a new way of watching television it has to compete and exceed the old fashioned way of television. Red-button applications, although available, are not widely adopted. The main solution to overcome this is by using the second device. Besides that issue, it is hard for new entrants to introduce this product. In order to offer iDirector, the service provider needs to acquire a content license from the rights holder.

The opportunities that are identified during the session were the following. While iDirector primarily offers personalisation to an end-user, it can have the additional benefit that you can share your personal view to social networks. Sharing screen captures, favourite camera viewpoint and so on can be integrated with the use of social media. By letting other people know what you are watching and let them experience it the same as you do, makes it a special event.

Closely related but slightly different is the fan experience that can be extended by using this product. When a consumer is a fan of a specific sports player or musician, it should be able to give the user the option to have the experience of being together with that person. It is possible for example to let the user select a player of his favourite team. That player is followed from the entrance into the stadium, the warm-up training on the field to the interview after the game in which the player gives a short evaluation of the game.

All strengths, weaknesses, opportunities and threats are scored by using the SWOT scorecard. The completed scorecard can be found in the appendix. The total score of the product-market combination was thirty out of forty points.

Cost Efficient Reporting – Live production and registration

The experts perceived the cost-efficient reporting for the live production and registration market as an interesting product-market combination. The product is just one step ahead of the state of the art. This means that automated production can be an interesting product for this segment.

This product is mainly interesting for the registration of small-scale events that normally would not be registered. This can be a local music, public or sports event. Organisations or local television stations often don't have the opportunity to make a registration of the events because both budget and scale are too small. The companies for which this technology is of interest to exploit are new entrants in the live production and registration market, which aim to differentiate from competitors by offering cost-efficient products. Another opportunity is that this product opens up new niche markets. Because of the low costs, the product can be used to enter new market segments others than media and entertainment. Examples of markets that could be of interest are: live registration for security, live registration of business events and so on.

All strengths, opportunities, weaknesses and threats are scored by using the SWOT scorecard. The completed scorecard can be found in the appendix. The total score of the product-market combination was twenty-eight points.

Mobile Magnifier

The mobile magnifier was perceived as valuable for people visiting a crowded event, with multiple areas. However typically there are substitution products available since in almost every stadium, concert hall or even on mobile podia, large screens are available for the crowd. Although these screens don't show the exact picture that the visitor would like to see, the director shows the most important events. So in essence, the product is interesting for events that lack large screens or where it is too crowded to actually see the screens.

Another opportunity for the mobile magnifier is on events with multiple areas. The more areas that are available the less overview a customer has. Getting a live stream of the other stages where artists playing music will give the customer the opportunity to make a decision what stage she/he would like to visit. The browsing functionality of the mobile magnifier offers the consumer the possibility to navigate through the stages and taste the atmosphere and see the crowd enjoying themselves. Based on this information the decision can be made to select an area.

The service concept for this market can be easily extended with other product or service features. The connection with social media is easy to make. When the user is on an event enjoying her/him, she/he can share where she/he is and what she/he experiences. Some legal restrictions are there, because the user doesn't own the content rights, what makes it difficult to practically use the sharing with other people that are not on the event itself. This can also be an opportunity for event organisers to develop a revenue model for watching and sharing the content outside the event.

A mobile magnifier requires mobile broadband on the event, normally there is limited coverage of 3G/4G and Wifi on events. This means that there is a threshold for event organisers to enrol this technology on each event for all people. This is contrary to the useful potential network effect; the more people are using the Mobile Magnifier application, the higher the adoption will be. All strengths, opportunities, weaknesses and threats are scored by using the SWOT scorecard. The completed scorecard can be found in the appendix. The total score of the product-market combination was twenty-four points.

Immersive Experience

The immersive experience for live viewing at home has the similar challenges as the iDirector. The substitute is watching the live event as a normal television program. The static viewpoint of the camera offers value for only a selected group of people. The concept is relevant for people that are interested in being at a specific place when watching an event, like e.g. a soccer match (with all the club fans / hooligans) or on the front seat while watching a theatre play. Although it is likely that they are willing to pay a premium fee, the segments are scattered and small. It is unlikely to have strong revenue model for the home viewing.

The weakness of the product is that the installed base at home should be top line. To have the immersive experience people should have a large screen on which they can experience being at the event. This not limited to the visual aspects, but the audio aspects are also important. The customer wants to have the full audio spectrum and hear the smallest sounds and noises when using the service. The regular customer doesn't have the equipment to purchase equipment to enjoy this service concept.

All strengths, opportunities, weaknesses and threats are scored by using the SWOT scorecard. The completed scorecard can be found in the appendix. The total score of the product-market combination was twenty-three points.

Final result

The results of all SWOT scores of the product-market combinations are presented in Figure 4-3. The iDirector, cost efficient reporting and the mobile magnifier have the highest scores.

We focus in this document on the iDirector and mobile magnifier, as these have a clear relation with work package 4. We have identified the cost efficient reporting as an interesting PMC, but to explore the opportunities, collaboration with the partners in work packages 2 and 3 is required. Their interest will be investigated during upcoming plenary project meetings.

It is interesting to mention that the strengths and the weaknesses of all the products were almost similar. The decisive factors were the opportunities and threats.

	Live viewing events at home	Live viewing of events at event	Live registration & directing
iDirector	30		
Cost Efficient reporting			28
Mobile Magnifier		24	
Immersive Experience	23		

Figure 4-3: Outcomes of high level assessment

In figure 4-4 and 4-5 the SWOT scores are presented. In the assessments we used both positive and negative statements. This result in a positive score and a negative score, to calculate the definitive score, the negative score need to be subtracted from the positive score. The detailed SWOT scorecards can be found in Annex 9.3.

Legend:
- Can be realized with state of the art infrastructure
- The value proposition is easy to explain to the customers segment
- The value proposition is easy to copy
- The value proposition can be protected by economic or legal barriers
- The value proposition is complimentary to the existing client relationship
- There are strong synergies between the products and services offered
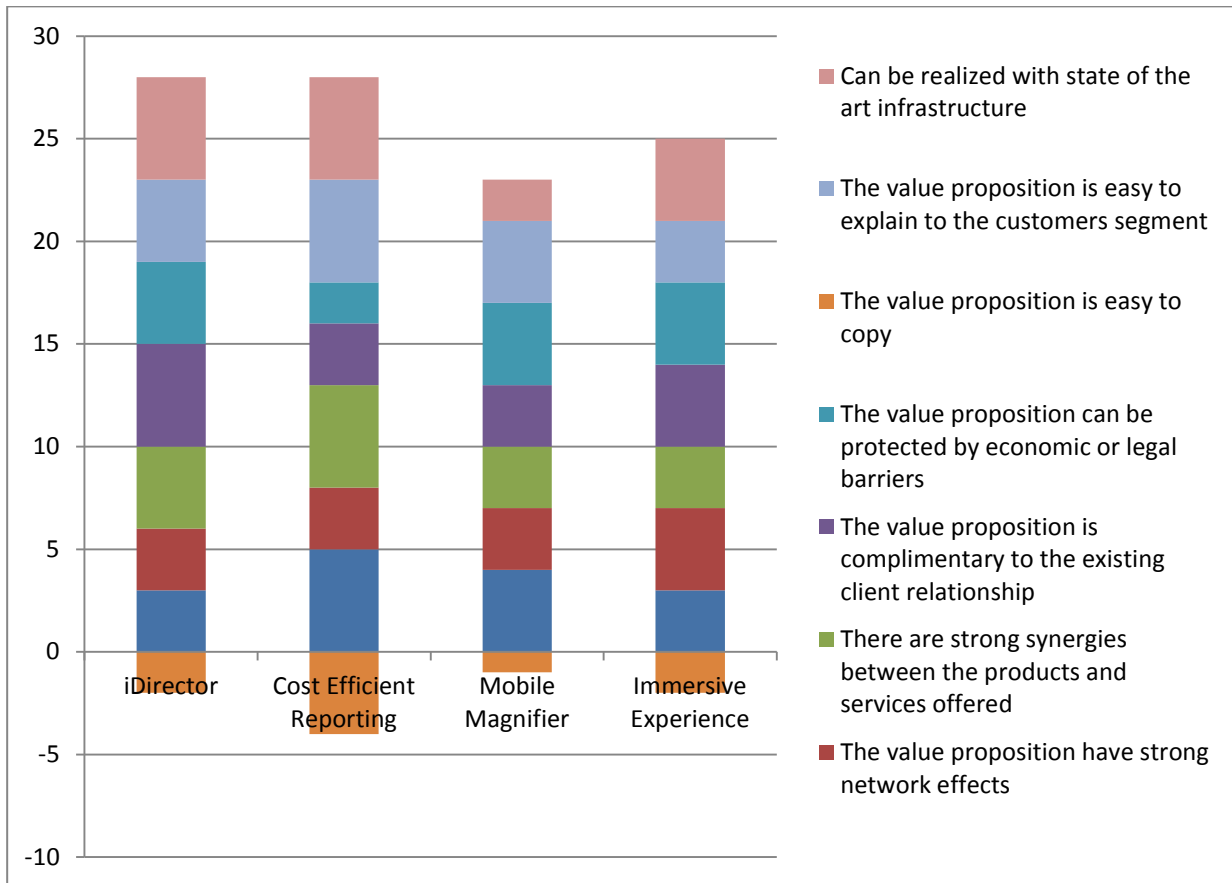- The value proposition have strong network effects

Figure 4-4: Strengths & Weaknesses

The figures show for each statement the score, the strengths and opportunities have a positive value, while the weaknesses and threats have a negative value. The total score of each PMC is the positive- minus the negative score.
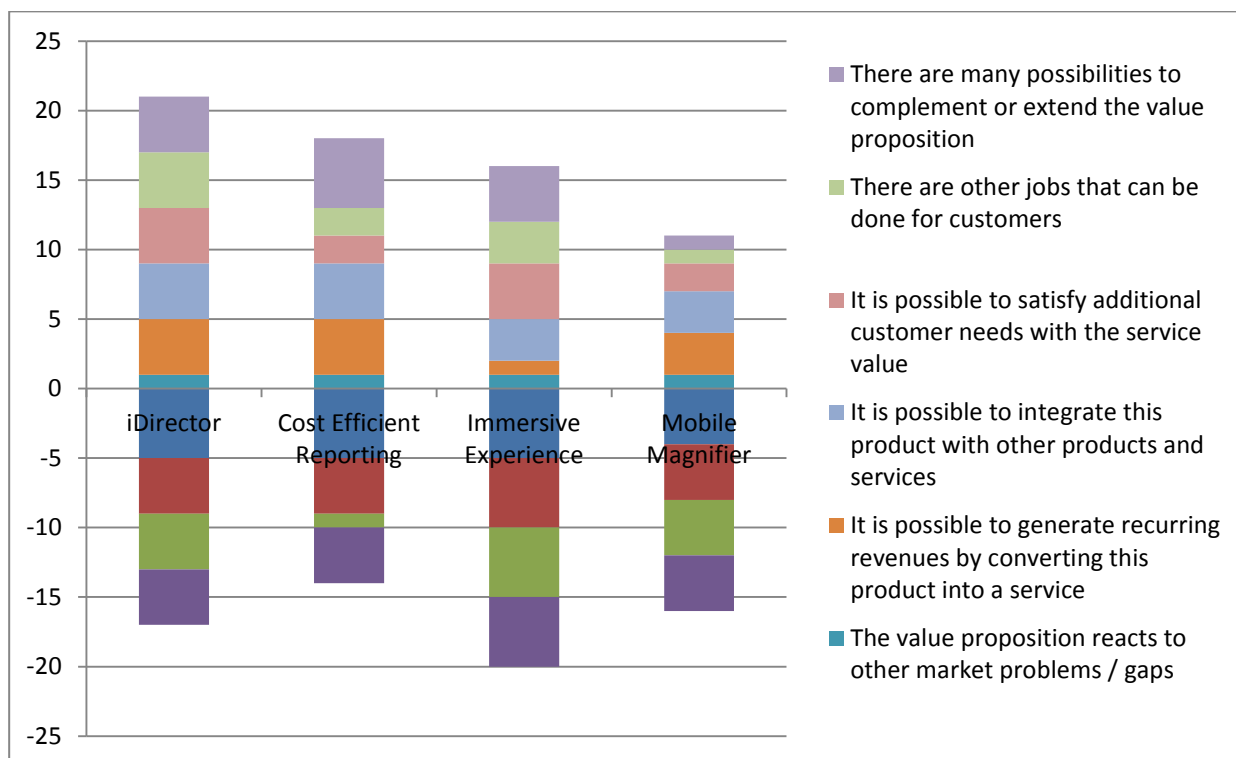
Figure 4-5: Opportunities & Threats

One example of the expert discussion was that the immersive experience doesn't fit the home entertainment market, but offers a strong value proposition for the viewing of live content at cinemas at public screens e.g. sport pubs.

Detailed selection

After identifying the most viable product market combination on high level, we decided to take it one level deeper. In deliverable D4.1.2a we divided the total market by viewing live at home into five market segments. This segmentation was based on the content type and resulted in: sports, news, culture & music, public events and live shows. The likelihood that the chosen product is successful in one of these segments differs per segment. Therefore, for iDirector and Mobile Magnifier, we have adjusted each of the standard product-market SWOT scorecards, so that it is representative for that specific segment.

In Figure 4-4 the scores for the individual market segments are presented. The service values that the concepts offer seems to be the most relevant for the sports, culture & music events and the public events. These markets have in common that there is an obvious user group that want to use the products and that there are more opportunities than in the other identified market segments.

	iDirector At home	Mobile Magnifier At live event
Live Sports	31	23
Live News	4	1
Live Culture & Music Events	27	23
Public Events	19	21
Live Shows	14	2

Figure 4-4: Outcomes of detailed selection

Some remarks of the results are now given. For example, the viewing of live news doesn't lend itself for an iDirector service. News very often consists of small factual topics that are presented to the consumer. It doesn't add much value for consumers to pan, tilt or zoom. This is only beneficial when the events that are happening over a longer period and are known upfront. Such events can be nature catastrophes, speeches and so on. Similar reasons are responsible for the low score of the mobile magnifier. The capturing of news events often happens with small teams that are in a hurry to get on location, or get the

right interviews. So the characteristics of the content won't fit the experience of people that are on the event itself with their mobile.

The live shows also have an average score. This is mainly because the characteristics of the live show are slightly less interesting for both the iDirector and the mobile magnifier. The opportunities for sports, culture and musical events are larger: for example by additional products and services, but also due to the larger segments of the user groups.

Final Selection

The final selection is based on both the preliminary technical and business assessment. We used the limitation of the preliminary technical assessment to our benefit by only selecting the service concepts in this business assessment that have distributed processing as core or enabling technology. In D4.1.1a the core and enabling technical attributes to deliver the product or service are described. For the technical assessment it was clear that the network processing technical attribute is selected. The outcome of the business assessment was not obvious. Based on the market assessment three high level concepts formed the top three: iDirector, cost efficient reporting and mobile magnifier. Because the outcome of the technical attribute was available the final choice for the two concepts was straightforward to make: the concept that has a great fit with the technical attributes scripting, rendering and distributed processing. This assessment was already performed in the first iteration of this deliverable. The next step focuses on the market segments on which the products can be offered. Therefore the detailed assessment for the two winning products was performed. The outcome of this detailed assessment were three winning product-market combinations: iDirector at home for live sport, live culture and music content as well as the Mobile Magnifier for watching live sport, live culture and music content.

5 PMC Business Model Derivation

In this chapter, step 3 of the approach described in chapter 3 is carried out: business model derivation of the most viable PMC's.

5.1 iDirector for Live Sports

In this section the PMCs will be described in more detail. Because there is only a slight difference between the iDirector for viewing of live sports and cultural and music events, these concepts will be described in a combined fashion. The specific facts that are different for each of the concepts are mentioned when necessary.

5.1.1 Delivery mode

In deliverable D4.1.1a three delivery modes were identified. In the figures shown thereafter these delivery modes are marked with a yellow line. Because of the choice for network processing as technical attribute the delivery network that fits best is the *Network-centric* delivery mode. This delivery mode is distinguished by considering the network rather than a bit pipe for transporting large amount of data. The business model operator will be a telecom operator or a cable company, because these companies have both the technical infrastructural assets and existing relationship with the consumer.

The delivery mode consists of two sections of the business model canvas. These sections are the key partnerships and the key activities. The key partnerships are focused on the acquisition of particular resources and activities. Content is one of the key resources for iDirector since the party that offers the iDirector to customers is not the party that create, buy, produce or aggregates the content. Specialised companies carry out these functions. It is important for the operator of this business model to maintain a good relationship with the content owners, as the model has much impact on the way the value chain is organized now. At the production side this means recording the content in high definition and sending the content both in raw format and after post-production to the network operator.
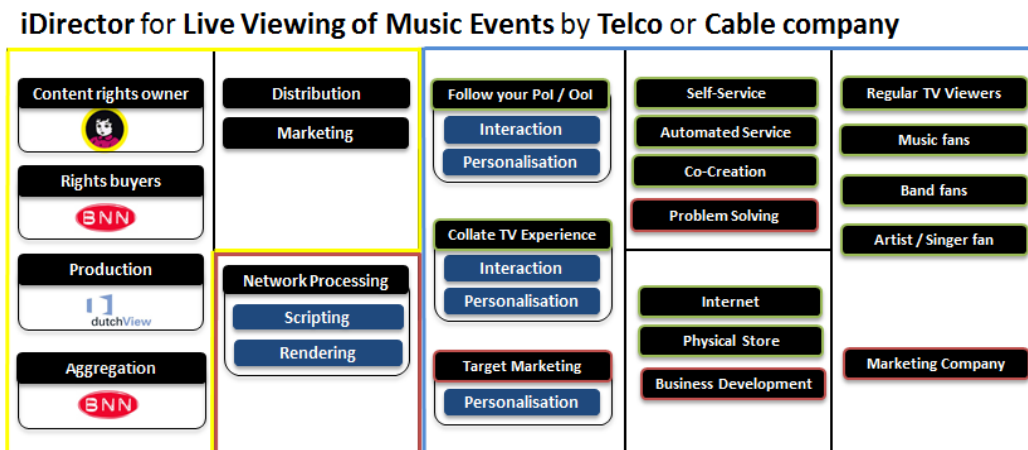
Figure 5-1: Full PMC iDirector

For both markets different partners can be identified as owner of the content. In Figure 5-1 and Figure 5-2 are examples of the Dutch soccer league and a Dutch music festival called Pinkpop. These partners varies depending on the type of content, it will involve other partners when we are talking about other events like opera, formula 1 or ballet. The key activities that are performed by the cable company or telecom operator are focused on distribution of the content and on the marketing of the product. The first activity will deal with production; namely creating and delivering the product in superior quality. Because the product is an experience product, that fails or is successful based on the flawless experience of the consumer, is one of the core tasks of the company. For this activity the technical attribute is indispensable, but also acquiring the hardware, the network and the right personnel is inevitable.

The second key activity has nothing to do with the primary process of the telecom operator or the cable company; by primary process we mean the production of the service. Instead it focuses on the acquiring

of new consumers, both business-to-business and business-to-consumer. Both types of companies have in many cases already a large customer base that can be approached with the iDirector value proposition. Because of the business intelligence that should be available at these companies, it should be possible to identify customers that are potentially interested in this product because the real sports fans already have a subscription to specific paid services The business-to-business offering is more difficult. Main reason is that commercials are normally provided by the aggregator. This has two implications. First it is labor intensive to find advertisers and explain how they benefit from your offering. There is no track record that shows the success of the service, so the odds are that advertiser makes conservative choice for traditional advertisement. Second implication is that you compete with the aggregator, who is the same aggregator who buys the content rights and of whom you are dependent to get the content. These are examples of the total of this new market.

Figure 5-2: Full PMC of iDirector

5.1.2 Technical Attribute

The service is delivered with a combination of technical attributes; that is, scripting and rendering functionality is distributed over network nodes and end-user terminals.. For iDirector, we assume that rendering is mostly performed in high profile end-user terminals in the home, with sufficient access bandwidth available The blue panes in Figure 5-2describe which activities will take place in the network. To provide the service as described both scripting and rendering has to be performed. Rendering focuses on presenting the desired view from the generic scene representation. To choose this selection the renderer makes use of the transmitted script metadata or data that is generated by the user (e.g. coordinates in the form of a selection of the screen). Scripting focuses on the usage of semantic technologies and integration of different types of metadata and knowledge that allows the user to derive a set of default or, for that specific moment, interesting shots. The scripts that are pre-written are interpreted on the fly by using network processing.

5.1.3 Product-market combination

The product-market combination consists of four sections of the business model canvas and is marked with a blue line, as shown in Figure 5-2. The offerings are both busines-to-business (black panes with a red line) and business-to-consumer (black panes with a green line) offerings. The first section is the value proposition. The iDirector offers three value propositions that all focus on design; by which it stand out because of superior experience and quality. The first offering is following your personal interests, so the consumer can make selections of the video content. The second offering is the collating of the TV experience. By selecting and predefining the choice of camera views and shots, one can create its own live registration.

The first value proposition, follow your person of interest (PoI), can be seen as a self-service. In this case the company provides all the necessary means for customers to help themselves, and create their own experience. In the case of the second value proposition, the service is automated and therefore more sophisticated. Upfront people can select camera viewpoints, favourite persons and so on what result in a personalized experience. In both cases the consumer use the interface that is available and no personal interaction with customer services, helpdesks or any other form of direct communication is necessary. For the second value proposition, the users also have the possibility to share the personalized view with

friends via social media. They can also copy registrations and collocations of others; this way of customer relationship is facilitating the co-creation.

There are four different customer segments in both, the market for sports and the market for live music and cultural events. The first group is the regular viewer. It is likely that this regular viewer enjoys most of the registration by watching the normal registration. The iDirector service will be used incidentally, only when the viewer sees something spectacular or when a message of a friend via a social network is received with a recommendation to watch a specific view. The sports fan is most likely the person that shares the views with the regulars. This customer segment does have the need to notice all the important events during the live event. Even a small interaction between a soccer player and the referee is for this customer segment of interest.. The third segment is referring to the club fans. These club fans, or in the case of music band fans, make use of the collocated TV experience. This type of users want to know everything of the club, from the dug-out where the trainer has interactions with the players on the bench to four different angels when a goal is made. The last customer segment is similar to that of the club, only focuses on a specific player or musician.

The third value proposition is a business-to-business proposition. The relationship that is offered is solving problems for the marketing professional by offering them the chance to perform targeted marketing. Normally the options of marketing professionals to reach the targeted customer segments with marketing communications are limited. With this value proposition the marketing professionals don't have to pick a (by the aggregator selected) timeslot to communicate with the audience. Instead, the marketing professional can select a targeted group and reach the audience when possible and necessary in a way that is aligned with the customer experience. We choose not to divide this market into different customer segments for now, but keep it as a mass market. It can be considered as the same market that is now already deploying television commercials.

5.2   Mobile Magnifier of Live Music and Cultural Events

In this section the product market combination will be described in more detail. The market for live music and cultural events is the most likely market. But in the future large events that offer multiple areas are also of interest for this concept.

5.2.1   Delivery mode

Because of the choice for network processing, combined with scripting and rendering, as technical attribute the delivery network that fits best is the *Network-centric* delivery mode. This delivery mode is distinguished from iDierctor by considering the network as a more active component, including cloud-based processing components. Most important reasons for this choice are the technical infrastructural assets and existing relationship with the consumer to deliver such a service. Of course they will not offer this service by themselves but in collaboration with other key partners. The key partnerships are focused on the acquisition of particular resources and activities. Content is essential for this product. Therefore the content rights owners and the content rights buyers are important partners.

The content rights owner is often the organiser of the event. This is a very important partner, as this is also in many cases the point of sale of the service. It is very likely that the product is offered in a combined fashion with the sale of the ticket. Moreover, it might be bought as a service for a determined period of time.
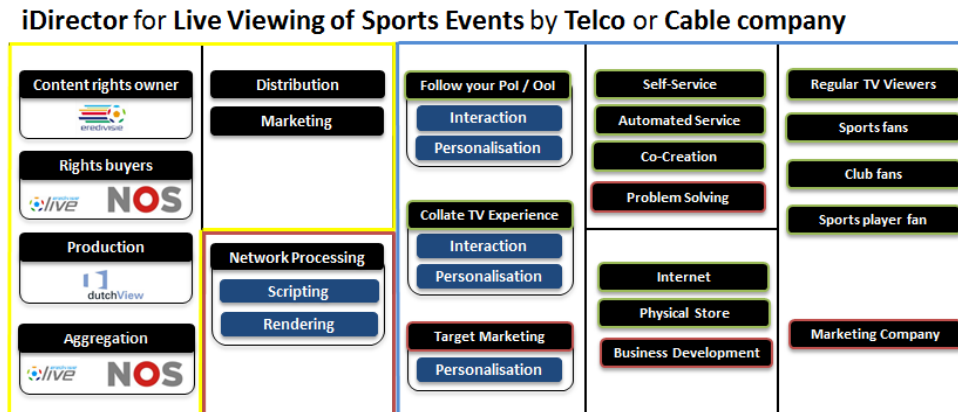
5.2.2   Technical Attribute

The service is delivered with a combination of technical attributes; that is, scripting and rendering functionality is distributed over network nodes and end-user terminals. For Mobile Maginfier, we assume active content processing in the network, including scripting and rendering. The blue panes in Figure 5-3 describe which activities will take place in the network. Rendering focuses on construction of the desired view in the network, from the generic layered scene representation. To choose this selection the renderer makes use of the transmitted script metadata or data that is generated both by the user (e.g. coordinates in the form of a selection of the screen), as well as by a content analysis operation performed on the image captured by th end-user and the captured content from the camera cluster. The scripts that are pre-written are interpreted on the fly by using network processing, whereas ad-hoc scirpts focus on the region of interest as selected by the end-user device.
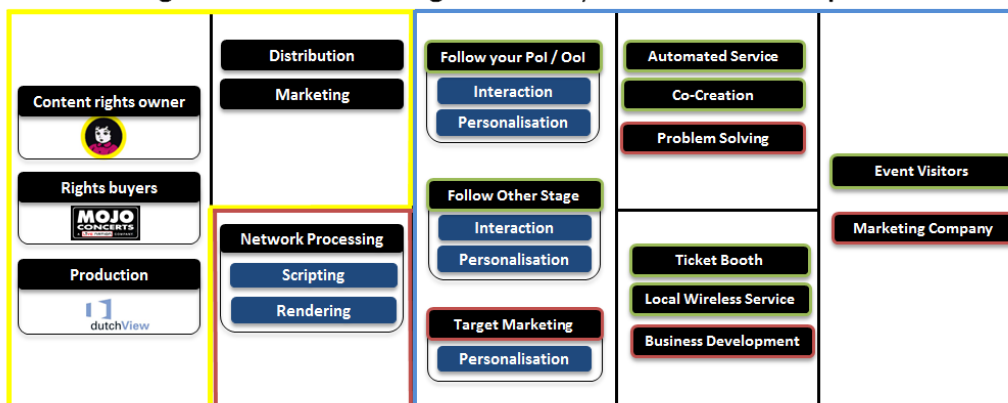
Figure 5-3: Full PMC of Mobile Magnifier.

5.2.3   Product-market combination

The product-market combination consists of four sections of the business model canvas and is marked with a blue line. The offerings are both business-to-business (black panes with a red line) and business-to-consumer (black panes with a green line) offerings.

The first value proposition aims to select a point a typical self-service. In this case the company provides all the necessary means for customers to help themselves, and create their own experience while watching a performance of an artist or band. The service can benefit from a social component, by sharing the personalized experience with friends and others. This way the product for the recipient of the video streams enjoys the co-creation of others to enjoy the events.

The second value proposition aim to give the consumer the possibility to select another stage and see how is the atmosphere in that area. By using pan, tilt and zoom, the user can get a good overview of what is happening in that area. Based on that information the consumer can decide if it is worth to go to that section, or to stay where he is. By sharing this information with others and receiving information that others have selected, this could be a beneficial service for groups of people that are enjoying a live event.

For both value propositions, the service itself could be financed by integrating the costs of this service in the ticket price, or by having the users pay a small fee on top of the ticket price.

The third value proposition is a business-to-business proposition: focusing on targeted marketing. The relationship that is offered is solving problems for the marketing professional by offering them the chance to perform targeted marketing. Normally the options of marketing professionals to reach the targeted customer segments with marketing communications are limited. Large screens on the event, flyers or test products can be offered. Instead of using these old fashioned methods, the marketing professional can select a targeted group and reach the audience when possible and necessary in a way that is aligned with the customer experience. Examples are: when people are focussing on the guitar player of a band, some commercials related to this guitar, the music or the clothes he wears might pop up, based on the preferences of the user. We choose to not divide this market into different customer segments for now, but keep it as a mass market. It can be considered as the same market that is now already deploying television commercials.

6 Impact, Reflections and Remarks

The main aim of this deliverable was to select the most promising PMCs that can be delivered with the technology developed in FascinatE. In D4.1.1a [3] we used the technical resources as starting point to develop value propositions. For these value propositions, in D4.1.2a [4] we identified what markets could be of interest, leading to an initial set of PMCs. To find the most promising PMCs we used the SWOT approach to find the strengths, weakness, threats and opportunities for each PMC. For this SWOT analysis we used existing criteria as formulated by Osterwalder and completed them with some additional ones. The scoring of the PMCs resulted in a top three of the most promising PMCs. Business models and value webs for these three PMCs will be further detailed in the upcoming deliverables.

The method we used to select the most promising PMCs can be improved in several ways. First, scoring PMCs requires extensive domain knowledge and experience. Knowledge of the specific customer segments is of high importance, because there is a strong connection between the product characteristics and the needs and preferences of the intended customers. Also, the external environment in which the provider of the product operates is of importance. For example, the challenges and hurdles that the providers face will greatly impact the choice to deploy a PMC. In this deliverable we have defined the selection criteria and performed the assessment based on the insights and information that was available within the consortium. Hence, the outcomes may be different when the assessment is performed by experts at the provider side.

Given the limitations of the method as described above, in the next iterations of deliverables D4.1.1 and D4.1.2 we will focus on adjusting the method to make business informed technology decisions. By involving domain experts in the service concept development and the PMC selection process we will test if the method developed so far is suitable for the process and how it can be adjusted to work properly or with limited or no involvement, of domain experts. To do so we aim to deduct what criteria and rules of thumb are used by these domain experts to develop new service concepts and to determine what product market combinations are promising. Our aim will be to identify that knowledge and translate that in a checklist, model or approach. In the future that method can be used to create promising product market combinations in the early phases of collaborative innovation endeavours.

The foreseen changes in our method have limited or no consequences for the high level approach within Task 4.1. In the next iteration of deliverable D4.1.2 the main aim is to gather more information about markets. We will check the views of service providers. These insights combined will result in a final version of the document that will result in a specific elaboration of the most promising PMC.

7 References

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8 Glossary

Terms used within the FascinatE project, sorted alphabetically.

BMC	Business Model Canvas
PMC	Product Market Combination
SWOT	Strength – Weaknesses – Opportunities - Threats

Partner Acronyms

ALU	Alcatel-Lucent Bell NV, BE
ARI	Arnold & Richter Cine Technik GMBH & Co Betriebs KG, DE
BBC	British Broadcasting Corporation
DTO	Deutsche Thomson OHG (Technicolor), DE
HHI	Heinrich Hertz Institut, Fraunhofer Gesellschaft zur Förderung der Angewandten Forschung e.V., DE
JRS	JOANNEUM RESEARCH Forschungsgesellschaft mbH, AT
SES	Softeco Sismat S.P.A., IT
TII	The Interactive Institute, SE
TNO	Nederlandse Organisatie voor Toegapast Natuurwetenschappelijk Onderzoek – TNO, NL
UOS	The University of Salford, UK
UPC	Universitat Politecnica de Catalunya, ES

9   Appendix

This appendix contains relevant background information on the following topics; in section 9.1 we provide additional information on business modelling theory. Section 9.2 contains a description of the service concepts, copied from [3]. Finally, in section 9.3 we include the individual expert SWOT scoring cards.

9.1   Business Modelling Background

9.1.1   Background of the approach

The background of the choice and method for conducting a preliminary technical/business assessment is based on literature in the field of new product development. Using the technology as point of reference in defining the products that can be created with the FascinatE technology, resulted in a wide range of new products that can be developed and markets were the products can be offered. Although these new products can open up new opportunities, there is a substantial risk associated with new products that should not be neglected. From empirical research is shown that there are high failure rates of new products, especially in consumer markets [11]. Empirical research also points out that there are factors that influence success in new product development. These factors that help driving success, such as project, product specific and management factors [5] can be classified in two types of success factors. The first category is controllable factors, over which the project team have control and can affect in the short term. Such factors include: proficiency of predevelopment, market-related and technological activities. The second category are situational factors, those factors are more or less fixed, and describe the setting for the project. They include e.g. market potential and market competitiveness [7].

In the new product design research, a strong relationship is found between successful new product development and performing marketing and business initiatives in an early stage [6]. One of the activities that have been identified as a success factor is the execution of a preliminary business/technical assessment [5]. Research showed that many projects that move from the idea stage right into development with little or no assessment end up in failure, while solid work drives up new product success rates significantly and is strongly correlated with financial performance. In successful projects these two types of assessments were much more prevalent than in projects that failed. The preliminary technical assessment is an initial, preliminary appraisal of the technical merits and difficulties of the product. The preliminary business assessment is non-scientific and provides a first and quick look at the market. [6]

The addition we intend to make is using the business model canvas as a framework for performing both preliminary assessments. Instead of limit the focus on identifying the merits and difficulties of the technology or have a quick first look at several markets, we will also take the other business model canvas building blocks into account. The outcomes of these independent assessments will be presented in a combined fashion in the last step: business model derivation. In the business model canvas theory the SWOT method is introduced to test a business model. The SWOT (Strengths, Weaknesses, Opportunities, and Threats) analytical method is commonly used in strategy formulation [8]. The SWOT analysis aims to identify the strengths and weaknesses of an organisation and the opportunities and threats in the environment [9]. Osterwalder shows that strengths, weaknesses, threats and opportunities relate to a specific part of the business model canvas. The value proposition is the most important element in this approach as we are still configuring the business model canvas for specific value propositions. The configuration process consists of selecting the best technical and business part; in the deliverable 4.1.1a we identified several configurations for each value proposition. By performing the SWOT analysis we would like to identify what configuration has the best fit, to deliver the value proposition. This is a different way of using the SWOT analysis as proposed by Osterwalder.

The method we will use for this identification and subsequent selection is the preliminary assessment of both the technology and the business. In the case of technical assessment the key question is: how beneficial is it to use a specific technology to deliver a product? The focus lies on the fit between a technology and the value proposition. In the case of the business assessment we focus on the fit between the value proposition and the market. Main questions are: which product-market combinations do have the best opportunities.

SWOT analyses normally focus four basic questions to audit the organization and its environment. The first two are: what are the strengths and the weaknesses of the organization? Strengths and weakness are internal factors of an organization that influence the success of exploiting product in a specific market

segment. The second two assess the position of the organization in the environment. These questions are: what opportunities does the organization have and what potential threats does it face? Opportunities and threats are external factors that influence the success of exploiting product in a specific market segment by an organization. These SWOT questions can be applied to each building blocks of the business model canvas. In our approach we focused on three building blocks of the business model canvas: the key resources, the value proposition and the customer segments.

The SWOT principle is not only applicable to analyse organisations but also to assess technologies and product market combinations. In the technological assessment the SWOT analysis aims to identify how well a technology contribute in offering the product while in the business assessment it aims to identify how strong the connection is between the product and the market. Having identified these factors, we understand what strengths each combination offers, what weaknesses needs to be eliminated or overcome, what opportunities can be exploited and what threats need to countered.

Normally the insights that the SWOT generates are used for identifying areas for improvement. The use of the SWOT in this approach is different: instead of using these insights to develop a strategy to deal with the identified challenges, we only generate insights about these issues to identify which combinations have the best opportunities and least challenges.

The consultation of domain experts is used to identify the strengths and weaknesses of each combination. In the case of the technical assessment, technical experts are necessary that have understanding of these technologies. In the case of the business assessment, experts with knowledge of marketing, product management and general market knowledge are required.

The identification of the opportunities and threats are also supported by consulting domain experts. For the identification of technical opportunities and threats, knowledge of the current state of technology at potential customers is necessary and also implementation experience.

For each assessment a standardised list of statements is created to identify the strengths, weakness, opportunities and threats. This list of statements helps to gather a structured and comprehensive evaluation of each combination.

To gather the input of the domain experts for each of the PMC's we used workshops. The process at the workshops is the same for both the technical and the business assessment. First all the PMC's are shared with the domain experts. Specific questions about the PMC's are discussed and shared with all the experts, so that there is a common understanding.

Next an expert session is organised. During this session the experts use the list of statements to assess the PMC's, as shown in Figure 9-1. After scoring a specific PMC, the outcomes of each scoring card is discussed. After the discussion each specific statement is scored by the group of experts. All the arguments that have resulted in the score are noted, so that in a later stage the rationale can be consulted. Because the scoring is performed in one continuous session and by discussion with all experts, the scores for each item are on the same scale.
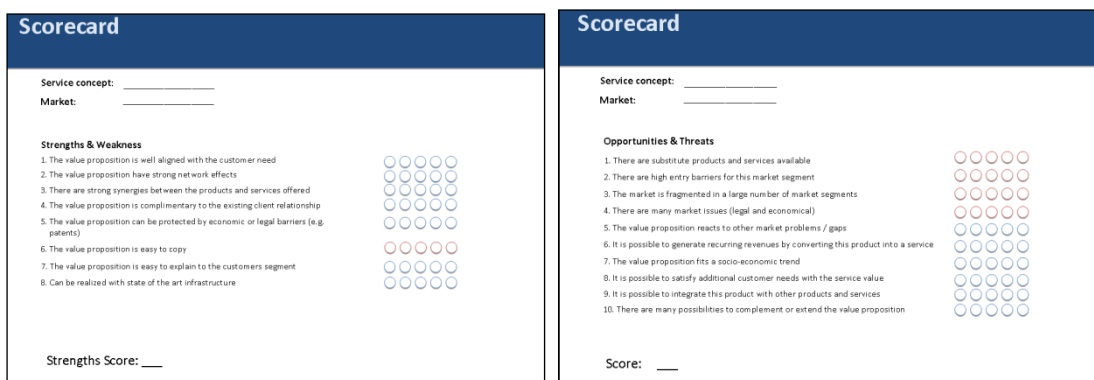

Figure 9-1: Example of the Scorecards

All the scores of each statement are added up. This result in a final score complemented with the background for each PMC and the arguments for the total score. The results of all these scores are used to compare the PMC's.

9.1.2   Limitations of the approach

As mentioned in the introduction of this chapter the FascinatE approach differs slightly from the approach that is normally followed to perform product selection. The limitations are discussed per assessment type.

Scope of the Technical Assessment

Because this deliverable is part of work package four, performing the scan is superfluous. The technical assessment will not be performed by incorporating the business modelling work in the work package, implicitly the main focus lies on the distributed network technology that is developed in this work package.

This means that we can assess all the products-technology combinations, but because of this predefined choice, the final choice is distributed processing as technical attribute. Instead we used this limitation to our benefit by only selecting the service concepts that have distributed processing as core or enabling technology. In D4.1.1a [3] the core and enabling technical attributes to deliver the product or service are described.

Scope of the Business Assessment

In a normal situation the business assessment should be performed on all the service concepts that are developed in the first deliverable. But as we received feedback from the consortium partners that not all the service concepts are of interest. The conclusion of the consortium was that all service concepts that do not have direct connection with media & entertainment are out of scope.

Because the products and services are innovations in a very early phase of the user adoption there is no "hard evidence" available to build a realistic scenario. Instead we are working with assumptions of how future markets will evolve and develop. By involving experts with many years of experience in both the technical, media & entertainment market and business modelling field we aimed to fill the gap.

The last limitation has to do with the limitation of information that is available. In the second deliverable of this work package we have collected market-data.

9.1.3   Background on SWOT questions

Strengths & Weaknesses

The strengths and weaknesses in the business assessment focus on determining the degree in which characteristics of the PMC provide an advantage over alternative PMCs. These advantages and disadvantages can be categorized in four categories: market alignment, network effects, synergy potential and realisation & replication.

Market alignment

The first criteria category consists of items that measure the alignment of the product with the needs in the market segment. Alignment can be measured by examining the needs of the customer and confirm that the needs are met by the product. When the product is aligned with the market need, it is more likely that the product will be bought by the consumers in the market segment.

The level of alignment also has a connection with the marketing of the product. When there is more aligned it is easier to explain what the benefits for the consumer are. It's also more likely that when the product offers a solution for a market need, the consumer is interested.

To determine the market alignment, we defined the following statement that need to be scored:

- The value proposition is well aligned with the customer need.
- The value proposition is easy to explain to the customer segment.

Social Network effects

The second category focuses on measuring the degree in which network effects are realised with the product or service. Network effect refers to the process that one user of a good or service pass on the value of that product to other people. The classic example is the telephone. The more people own telephones, the more valuable the telephone is to each owner. This creates a positive externality because a user may purchase a telephone without intending to create value for other users, but does so in any case. Online social networks work in the same way, with sites like Twitter and Facebook being more useful the more users join.

To determine the network effects, the following statement that needs to be scored is:

- The value proposition has strong network effects.

Synergy potential

The third criteria category aims to measure the synergy of the product market combination and the other products and services in the product portfolio of the provider. If there is a strong synergy between the products in the portfolio, the company can offer a consistent and complete set of products to the consumer. Synergy can also be realized on another level. The second level of synergy is that of the product and the client relationship. The provider aims to build a specific type of relationship with the consumer. The product that is offered affects the client relationship. Synergy is based on the level of consistency between the product and the intended relationship. A high level of synergy has a positive influence on the chance that a consumer decides to buy the product at the provider.

To determine the synergy potential, we defined the following statement that need to be scored:

- The value proposition is complimentary to the existing client relationship
- There are strong synergies between the products and services offered

Realisation & Duplication

The last category of criteria is used to identify if it is easy to replicate the value proposition. If the value proposition is hard to replicate, than the supply of the product will have no product positioning problems. The value proposition can be easily distinguished from the competition. In some cases it is easy to copy the product for the competition. A solution to encounter replication is by creating barriers. A legal barrier for example can be created by implementing intellectual property in the product or the processes to create the product.

To determine the degree of replication, we defined the following statement that need to be scored:

- The value proposition can be protected by economic or legal barriers (e.g. patents).
- The value proposition is easy to copy.
- Can be realized with state of the art infrastructure.

Opportunities & Threats

The opportunities and threats in the business assessment focuses on determining the degree in which the environment offers the product-market combination chances or raise barriers to become successful. These opportunities and threats can be categorized in three categories: product revenue optimization, market challenges and competition & substitution.

Product revenue optimization

The first category of criteria focuses on the possibilities, how the revenue can be optimized that is generated by selling the product. When a product is sold once, there is only one moment of revenue generation. In some cases it is possible to convert the product into a service. The advantage of this conversion is that revenues recur each time the service is provided.

The second option is to identify other market problems and gaps. In some cases with small additions or enhancements, the product can be used as a solution for problems. When this is the case then this can have a positive influence on the revenue optimization. The third option is in line with this way of thinking; the possibility to satisfy additional customer needs with the service concept. Also the flexibility of the product to extend or complement the value proposition with other concepts and ideas can help versioning the product and target new customer segments.

Another option to optimize the revenue generation is when there is a strong alignment of the product with a socio-economic trend. If for example the adoption of mobile devices perish a high growth, and the product is offered by using mobile devices, then the potential market is growing.

Also packaging the product with other products can be an opportunity to generate more revenue than by selling the product independently. The more options are available to offer the product in combination with other products, the more options there are to generate more revenue.

In total we used six statements to determine the degree the potential of revenue optimization. These statements are:

- The value proposition reacts to other market problems / gaps.
- It is possible to generate recurring revenues by converting this product.
- The value proposition fits a socio-economic trend.
- It is possible to satisfy additional customer needs with the service value.
- It is possible to integrate this product with other products and services.

- There are many possibilities to complement or extend the value proposition.

Market Challenges

The second category of criteria aims to gather more insights about challenges in the market. The first type of challenges is issues on the market and how these market issues are managed by e.g. regulation. The second type of market challenges has to do with how easy it is to enter the market. There are different ways how the market can be barricaded. Well known barriers are the need for high investment, a mature market with large players that enjoys economies of scale and the need for specific licences. The last type of challenge has to do with market characteristics: the level of fragmentation of the market segments. The more segments the market can be divided in, the more difficult and costly expensive it is to gain presence in that market.

To determine the level of market challenges, we defined the following statements that need to be scored:

- There are many market issues (legal and economical).
- There are high entry barriers for this market segment.
- The market is fragmented in a large number of market segments.

Competition & substitution

The last category of criteria focuses on threats for the product market combination. Threats can be defined as external elements in the environment that could cause trouble for the success of the product. Only two criteria are defined which focus both on the competition in the market.

The first criterion refers to what extent a substitute product and services are available. This can be very broad and it is important to notice that this is not limited to exact technical copies, but focus on the value that is offered in the market. The first way of offering this value is by an application that can provide interactivity with audio-visual content. Another way of offering this value is by offering a different technique, e.g. multiple standard camera views of which the user can choose. Both deliver the same value in a different way.

The second criterion focuses on the costs of the substitutes. In the example above it is possible (and likely) that the first solution is more cost expensive than the second, e.g. selection that consists of a three camera setup. This suggests (but is not necessarily true) that this solution is also more expensive. This makes it less attractive to consumers. The second criterion therefore is how the price of the product relates to the competition.

To determine the degree of replication, we defined the following statement that need to be scored:

- There are substitute products and services available.
- The market is fragmented in a large number of market segments.

9.2   Service Concepts

This service concept lets the user experience the director practices during live events. The user can orchestrate the different views that are available. Interfacing with this service concept is implemented by using gestures or a secondary interface like a tablet. Objects- and areas of interest can be defined by the user and presented in Picture in Picture (PiP) mode on the TV. The main value offered to the user is: personalisation.

9.2.1   iDirector

This service concept lets the user experience the director practices during live events. The user can orchestrate the different views that are available. Interfacing with this service concept is implemented by using gestures or a secondary interface like a tablet. Objects- and areas of interest can be defined by the user and presented in Picture in Picture (PiP) mode on the TV. The main value offered to the user is: personalisation.

9.2.2   Immersive Experience

This service concept provides an immersive experience of live events to users. Both the Omni cam and the microphone array have a specific position at the location of the live event. E.g. the Omni cam and microphone array are positioned in the middle of the crowd, in such a way that the end result approaches the experience of being there. The main value offered to the user is: depth of immersion

9.2.3 Mobile Magnifier

This service concept provides users the option to, while watching a live event, select a specific view. The view can be played out on a mobile device or shared with other participants on the event or at home. The user has an application on a mobile device (e.g. a smart phone), which gives him the opportunity to take a snapshot of a specific area of the event. This picture will be compared to the video stream of the Omni cam. With an algorithm a stream will be generated that broadcast exactly that area (to the mobile user, or in case it is shared to a home entertainment location). Main value offered to the user is: personalisation and/or immersion.

9.2.4 Cost Efficient Event Reporting

This service concept enables a time and cost efficient manner to direct the registration of an event by using a simple interface and selecting areas of interest. These regions and objects of interest are generated based on a set-up of an Omni cam and robocams at specific locations. When the director selects a specific area of interest, the scripting module calculates which robocams have to take shots and from what angle. That image will be broadcasted to the consumers. The user experience of the cost efficient event reporting is similar to the iDirector, but their technical architecture and implementation are different. Main value offered to the user is: cost efficiency.

9.2.5 Window to the world

This service concept provides user the opportunity to experience to be in a room in random areas by mimicking windows. One or more Omni cams are placed in random locations. These views will be streamed to TV screens that are installed in the same way as windows would normally be installed in a room. The user can select the view of the screens. Main surplus value is: immersion, namely the feeling of co-presence.

9.2.6 Omni Security cam

This service concept is available for emergency services and security companies. Several Omni cams are placed at specific positions in such a way that the whole area that needs to be secured is visible. All these views will be streamed to the control room or ROIs or OOIs will be defined to automatically generate the content that requires immediate action, thereby minimizing the human monitoring task. The main value is: cost efficiency, namely in the monitoring of geographical locations.

9.3 SWOT Score Cards

The SWOT analysis was performed by a small group of TNO internal experts; Menno Bangma, senior consultant Media Networking with a background in mobile TV, delivery networks and on-demand video services; James Schlechter and Thomas Bachet, business consultants in the area of media services, both with a background in business modeling and value webs.. All three consultants have experience in the media and entertainment industry in the Netherlands and Europe. This experience is gathered through research studies performed for clients in the commercial and public sector.

The following examples are an elaboration of the SWOT scorecards of all product market combinations.
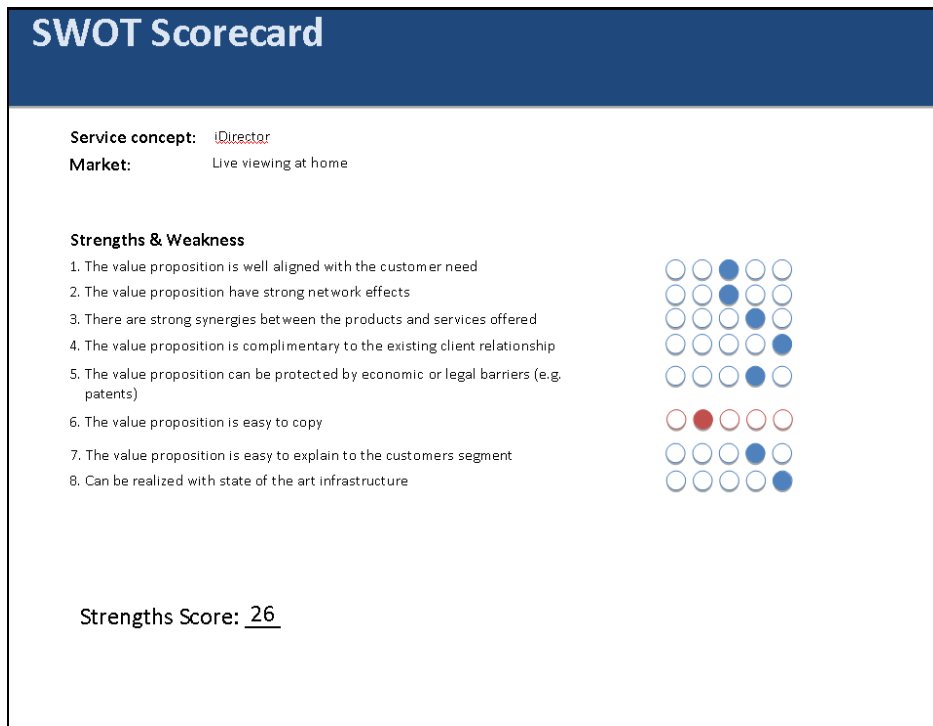

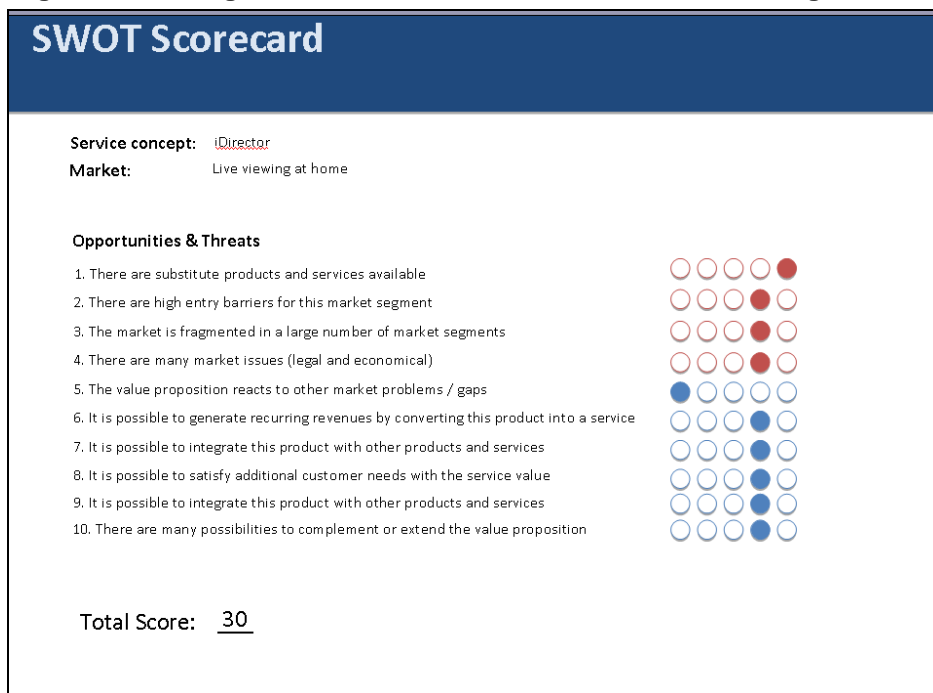**Figure 9.2: Strengths and weaknesses for iDirector, live viewing at home.**

Figure 9.3: Opportunities and threats for iDirector, live viewing at home.
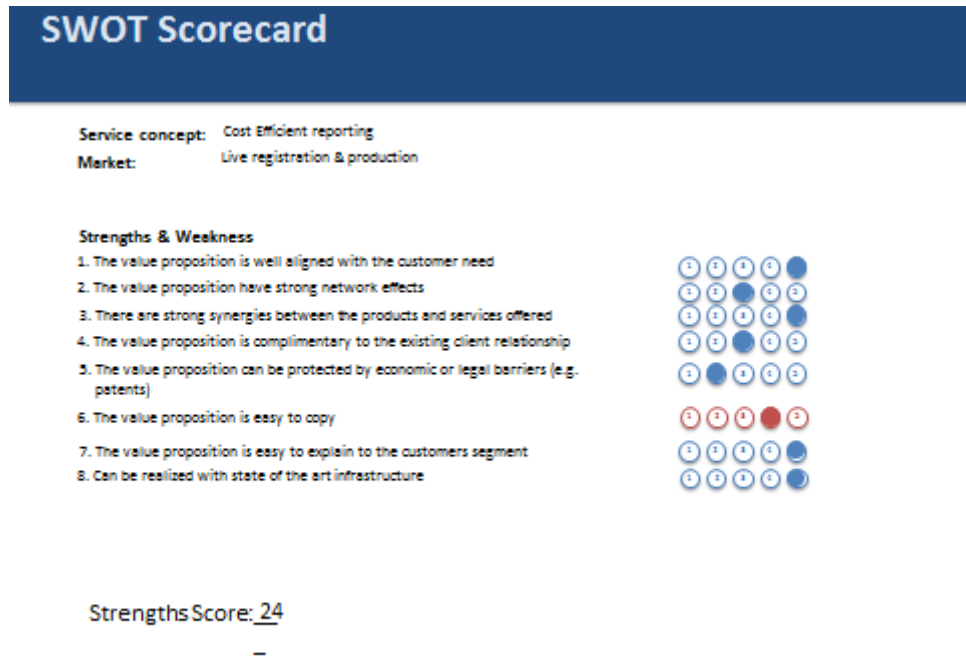
Figure 9.4: Strengths and weaknesses for cost efficient reporting, live registration.
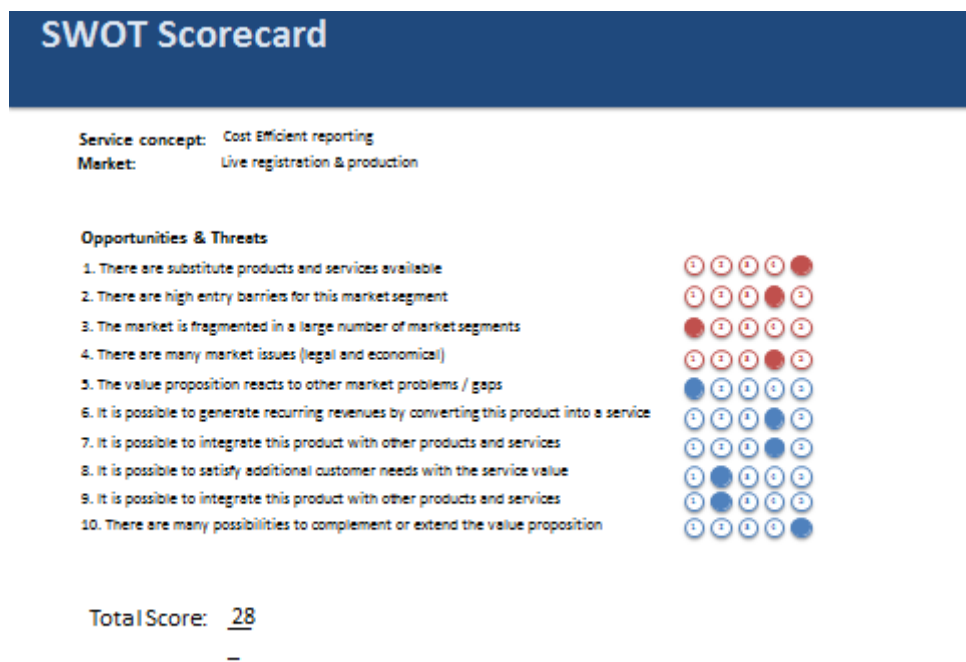
Figure 9.5: Opportunities and threats for cost efficient reporting, live registration.

SWOT Scorecard

Service concept: Mobile Magnifier
Market: Live viewing at event

Strengths & Weakness

1. The value proposition is well aligned with the customer need
2. The value proposition have strong network effects
3. There are strong synergies between the products and services offered
4. The value proposition is complimentary to the existing client relationship
5. The value proposition can be protected by economic or legal barriers (e.g. patents)
6. The value proposition is easy to copy
7. The value proposition is easy to explain to the customers segment
8. Can be realized with state of the art infrastructure

Strengths Score: 22
–

Figure 9.6: Strengths and weaknesses for mobile magnifier, live viewing at event.

SWOT Scorecard

Service concept: Mobile Magnifier
Market: Live viewing at event

Opportunities & Threats

1. There are substitute products and services available
2. There are high entry barriers for this market segment
3. The market is fragmented in a large number of market segments
4. There are many market issues (legal and economical)
5. The value proposition reacts to other market problems / gaps
6. It is possible to generate recurring revenues by converting this product into a service
7. It is possible to integrate this product with other products and services
8. It is possible to satisfy additional customer needs with the service value
9. It is possible to integrate this product with other products and services
10. There are many possibilities to complement or extend the value proposition

Total Score: 23
–

Figure 9.7: Opportunities and threats for mobile magnifier, live viewing at event.

SWOT Scorecard

Service concept: Immersive Experience
Market: Live viewing at home

Strengths & Weakness

1. The value proposition is well aligned with the customer need
2. The value proposition have strong network effects
3. There are strong synergies between the products and services offered
4. The value proposition is complimentary to the existing client relationship
5. The value proposition can be protected by economic or legal barriers (e.g. patents)
6. The value proposition is easy to copy
7. The value proposition is easy to explain to the customers segment
8. Can be realized with state of the art infrastructure

Strengths Score: 23

Figure 9.8: Strengths and weaknesses for immersive experience, live viewing at home.

SWOT Scorecard

Service concept: Immersive experience
Market: Live viewing at home

Opportunities & Threats

1. There are substitute products and services available
2. There are high entry barriers for this market segment
3. The market is fragmented in a large number of market segments
4. There are many market issues (legal and economical)
5. The value proposition reacts to other market problems / gaps
6. It is possible to generate recurring revenues by converting this product into a service
7. It is possible to integrate this product with other products and services
8. It is possible to satisfy additional customer needs with the service value
9. It is possible to integrate this product with other products and services
10. There are many possibilities to complement or extend the value proposition
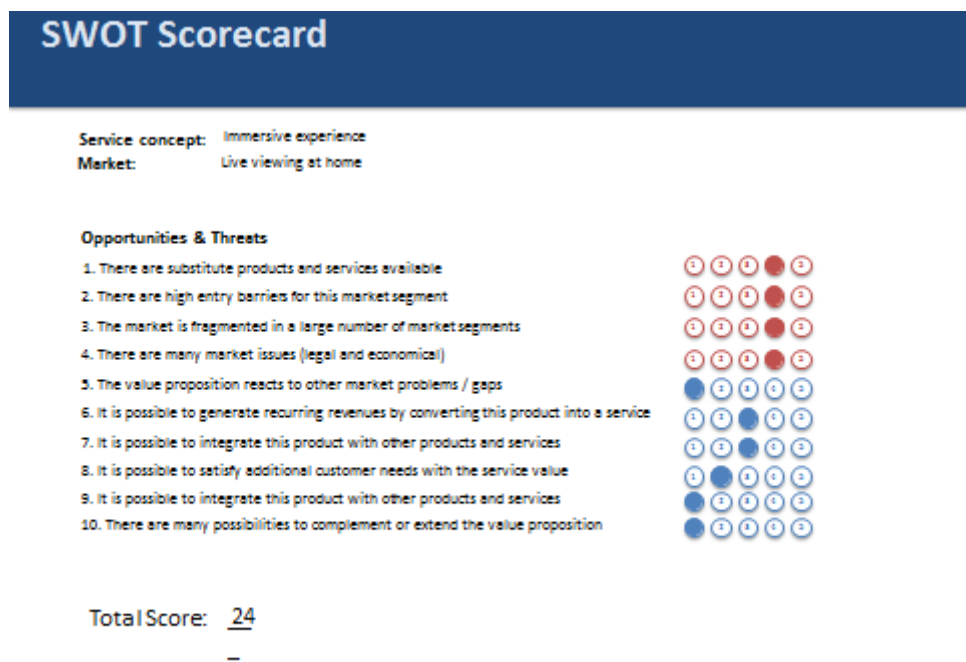
Total Score: 24

Figure 9.9: Opportunities and threats for immersive experience, live viewing at home.