

ConnecTV Business Plan

Business aspects of a social TV applications

B@Home deliverable D4.4

B@Home – Public version



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Company :	TNO ICT
Authors :	Nathalie van Schie, Martijn Staal, Cees Hannema
Reviewers :	Jan Burgmeijer, Berry Vetjens, Mark Peeters, Mark van Staalduinen

Synopsis:

This business plan describes how ConnecTV can be commercially exploited and shows the feasibility of the introduction of ConnecTV in The Netherlands.

Abstract

ConnecTV is a new way of watching TV: the service brings together social interaction and watching TV. With ConnecTV users are able to see what their friends are watching and can send and receive recommendations about interesting TV programs and video content. Furthermore, people can remotely watch together and communicate while watching TV.

The service ConnecTV is in the Proof of Concept phase. In 2007, the development of ConnecTV continued in a valorisation project with two main parts: a user pilot and a business plan.

During the pilot the influence of using ConnecTV on viewing behaviour and viewing experience was investigated. This investigation resulted in a separate deliverable.

This report contains the results of the business plan activity and is based on results from the user pilot and interviews with ConnecTV stakeholders. The objective of this ConnecTV business plan is to gain insight in the business perspective of ConnecTV and the commercial feasibility of ConnecTV and to define the steps to be taken for a commercial introduction and exploitation of ConnecTV subsequently.

The factors that determine the success of ConnecTV can be divided into service, technical, organizational and financial aspects.

On the service side, it can be concluded that ConnecTV can provide added value on top of other solutions for finding content and improve the TV viewing experience. ConnecTV was actively used by the pilot members. However, the commercial version should guarantee quality of service and support more forms of content such as recorded content and internet video. Nevertheless, the commercial introduction of ConnecTV can be made complex because a lot of competition from similar services on the internet exists.

On the technical side the ConnecTV Service Provider will need a technical link with the TV platform of their customer's TV Service Provider. ConnecTV customers need to have an interactive settop box (STB) and two-way channel for e.g. sending recommendations and communicate.

On the organizational side we can conclude that ConnecTV is most likely to be offered by TV Service Providers. TV Service Providers can most easily make the needed link between ConnecTV and their TV platform and they can provide ConnecTV to their users for increasing the average revenue per user.

On the financial side most revenues can be generated by consumers that upgrade their data or TV subscription and by revenues from advertisers. A very limited set of ConnecTV users is willing to pay for (part of) the ConnecTV service. In order to realize ConnecTV a total sum of € 1.3 million is needed, that can be recovered within approximately 3,5 years. A large extra source of revenue could be generated by

letting minor broadcasters pay for the extra viewers that ConnecTV directs to their content (and advertisements).

For making ConnecTV successful it is important that ConnecTV is used by a large audience right from the start. This can be stimulated by cooperating with other Dutch TV Service Providers (e.g. all cable operators) and also providing the ConnecTV service via the internet to strengthen ConnecTV's position.

Preface

The B@HOME project is part of the Freeband Communication programme, which aims at the generation of public knowledge in advanced telecommunication (technology and applications). Freeband is based on the vision of 4G networks and services. It specifically aims at establishing, maintaining and reinforcing the Dutch knowledge position at the international forefront of scientific and technological developments, addressing the most urgent needs for research and novel applications in the present unfolding of new technology. Freeband comprises more than 25 organisations, including all-important technology providers and many representative end-user organisations. The Dutch Ministry of Economic Affairs is co-funding this programme as part of the BSIK plan

The vision for Freeband for 2010 is to consider communication and information transfer from the perspective of the user, not the provider. The communication infrastructure will become transparent and abundant in all its layers. Freeband addresses the knowledge chain in communication in the direction of the new ubiquitous communication paradigm. Based on this vision key research questions take place in three main themes:

- **Society, Users and Applications:** what are the new possibilities in different sectors for ubiquitous communication and ambient intelligence, what do they presuppose as knowledge and how can they be realised?
- **Networking, Service Provisioning and Generic User Interaction:** the telecommunication infrastructure viewed from the user's perspective.
- **Enabling Technologies:** no new services emerge without adequate technology; conversely, it is the technology that drives the new paradigms!

B@Home's scope is future broadband services for the residential user, with a focus on the entertainment domain. The objectives of the project are to develop new business models as well as architectures capable of plug-and-play service delivery to the end-user.

The knowledge and experience gained in the project will be used to implement a demonstrator to show some of the future advanced services. In B@Home, Lucent Technologies, Philips Research, LogicaCMG, the Technical University of Eindhoven, Erasmus University of Rotterdam and TNO work together to achieve these results. The project started on July 1st, 2004 and has a duration of four years.

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Terminology & abbreviations

Below is a description of the terminology and abbreviations that are used in this document.

Buddy list	A list containing the friends of a person using a community program such as Hyves, MSN or ConneCTV.
CP	Community Service Provider (for example Hyves, MSN)
DSL	Digital Subscriber Line: A technology that allows existing copper telephone lines to carry voice, data and video images at very high speeds.
DVB-T	Digital Video Broadcasting – Terrestrial; is an open standard for transmitting digital video and television via radio masts.
EBIT	Earnings Before Interest and Tax is a financial indicator to gain insight in the operational results.
EBITDA	Earnings Before Interest, Tax, Depreciation and Amortization is a financial indicator to gain insight in the profitability.
EPG	Electronic Program Guide; It is a system displaying channels and program data on-screen.
Fibre connection	Broadband connection using fibre-optics.
IPR	Intellectual Property Rights: This usually refers to four major categories of intellectual property: patents, copyrights, trademarks, and trade secrets.
IPTV	Internet Protocol Television is a system where a digital television service is delivered using the Internet Protocol over a network infrastructure, which may include delivery by a broadband connection
NPV	Net Present Value is a financial indicator to gain insight in the profitability of an investment.

PVR	A personal video recorder (PVR) is an interactive TV recording device, in essence a sophisticated settop box with recording capability (although it is not necessarily kept on top of the television set).
STB	STB; A box that connects to your TV and allows you to receive digital television either through cable, satellite, an aerial or through the phone line.
TV platform	Technical infrastructure used for television broadcasting such as servers and hosting facilities.
TV SP	Television Service Provider (for example UPC, @Home, KPN)
WACC	Weighted Average Cost of Capital is a financial indicator that shows the cost of capital a company has to pay.

1 Introduction

ConnecTV is a new way of watching TV: the service brings together social interaction and watching TV. With ConnecTV users are able to see what their friends are watching and can send and receive recommendations about interesting TV programs and video content. Furthermore, people can remotely watch together and communicate while watching TV.

1.1 Purpose of the business plan

The service ConnecTV is in the Proof of Concept phase. In 2007, the development of ConnecTV continued in a valorisation project with two main parts: a user pilot and a business plan. This report contains the results of the business plan activity. The objective of this ConnecTV business plan is to gain insight in the business perspective of ConnecTV and to define the possible steps to be taken for a commercial introduction and exploitation of ConnecTV. This business plan describes if ConnecTV can be commercially exploited and shows if the introduction of ConnecTV in the Netherlands is feasible or not.

The user pilot is an important source of input for defining the business plan. It gives the business plan a well-founded basis for e.g. determining the most interesting functionality of ConnecTV and revenue potential.

1.2 Method

The following activities have been carried out in order to come to an assessment of the business potential of ConnecTV:

- Desk research: based on expertise within TNO and available literature on comparable services and deliverables for B@Home, a first view on the commercialization of ConnecTV is formed.
- Interviews¹: for gaining more insight into the business potential and market entry strategies of ConnecTV, multiple interviews have been done. Across the value web, organizations with different roles have been interviewed.
- IPR research: an investigation has been carried out into how other organizations patented ConnecTV related ideas and functionality.

¹ A list of organisations and persons who have been interviewed is provided in Appendix A.

- Together with external organizations and TNO experts the 'package' of activities has been described that is needed to offer ConnectTV.
- The data from the ConnectTV pilot together with the findings from the interviews with the organizations have been input for a quantitative business case that describes the revenues and costs and investments that can be expected for providing the ConnectTV service.

1.3 Service scope: TV-domain

The scope of the ConnectTV business plan is the TV-domain; we consider ConnectTV that will be watched in the living room.

1.4 Reading guide

This business plan report consists of two main parts:

1. Description of the business aspects of ConnectTV
2. A market entry plan for ConnectTV

Description of the business aspects of ConnectTV

Chapter 2 – 6 describe the business aspects of ConnectTV for a few possible organizational forms for the introduction and provisioning of the service. For these business aspects the structure of the Freeband Business Blueprint framework is followed (Figure 1).

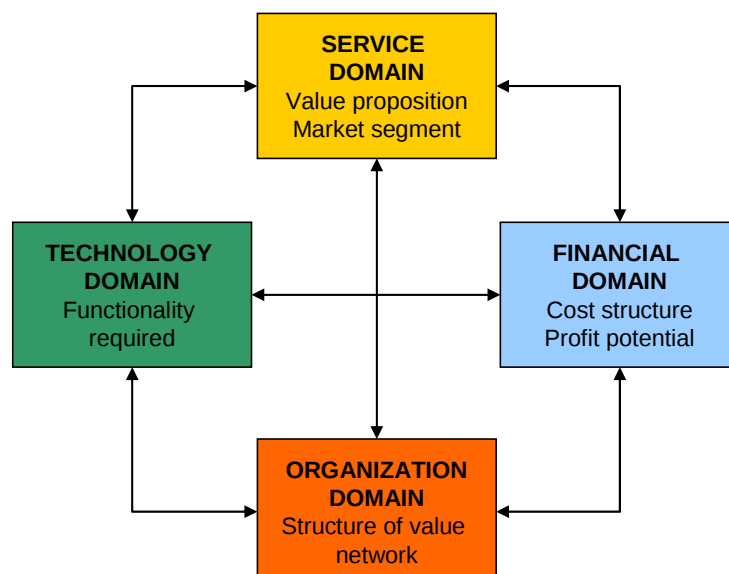


Figure 1: Freeband Business Blue Print framework

- The Service Domain (Chapter 2): a description of the ConneCTV service in the pilot and in an operational situation, a look at the consumer perspective and an overview of the competitive field.
- The Technology Domain (Chapter 3): focus on the intellectual property issues. Technical descriptions and issues are not in this business plan because it is part of the pilot work package.
- The Organizational Domain (Chapter 3): a few possible structures of the value network and the organizations within are described. The organizational forms will be evaluated and a specific form will be chosen.
- The Financial Domain (Chapter 6): insight into the financial aspects of ConneCTV, this paragraph also gives an overview of the risks and an action plan for reducing the impact of the risks.

A market entry plan for ConneCTV

In Chapter 7 a market entry plan for the commercial introduction and exploitation of ConneCTV is described. This market entry plan is based on conclusions from the business perspective analysis.

In Chapter 8 conclusions & recommendations for the commercial exploitation of ConneCTV will be given.

2 Service Domain

2.1 Service description

In this Chapter the ConnecTV functionality is described. During the user pilot, the functionality was analyzed by logging the use of the functionality and asking users what they liked best. Together with the interviews with organizations and the business case an insight in the most interesting functionality has been made.

We distinguish functionality that was available during the pilot and the functionality that could be incorporated in the commercial version of ConnecTV.

Pilot functionality	Additional functionality in a commercial version
Presence information Who is watching what Send recommendations and watching broadcast TV together Lead or follow friends Sponsored buddies Most popular button	Watch recorded and delayed content together Order paid content together Instant messaging & audio New services based on viewing information Voting for content

Figure 2: Overview of ConnecTV functionality

2.1.1 Pilot functionality

- Presence information:** While watching TV, ConnecTV users can choose to view their buddy list which is the list with friends, neighbours and other persons with whom the user has social contact. The buddy list displays buddy presence information, such as the TV program a buddy is watching. Users can directly zap to the channel that a certain buddy is watching. Also, users can see whether a buddy is online or offline.
 The buddy list is similar to the MSN Messenger buddy list.
 If the user does not want his friends to see what he is watching, ConnecTV can be set 'offline'. While in the offline mode, the user cannot see its buddy list and the buddies of the user cannot see what the user is watching.
- Presence information:** While watching TV, ConnecTV users can choose to view their buddy list. The buddy list is similar to the MSN Messenger buddy list. The buddy list displays buddy presence

information, so whether a buddy is online or offline. If the user does not want his friends to see what he is watching, ConnectTV can be set 'offline'.

- Who is watching what: users can see which TV program a buddy is watching. Users can directly zap to this channel.
- Send recommendations and watching broadcast TV together: While watching TV, ConnectTV users can send recommendations about interesting programs to friends in their buddy list. If a user accepts an incoming recommendation, he/she automatically switches to the recommended channel. In such a way, buddies can watch a TV channel together.
- Lead or follow friends: ConnectTV users can indicate that they want to follow the viewing behaviour of one of the buddies. In this case a certain buddy automatically copies the buddies' zapping behaviour. Users that lead one or more buddies automatically determine the channel that these buddies are watching.
- Sponsored buddies: ConnectTV provides functionality for sponsored buddy bots. Users can use them similar to "follow friends" functionality. In this way they can watch what e.g. a comedy buddy bot watches. With buddy bots content providers or advertisers can guide ConnectTV users to specific programs. Some interviewed organizations explained that these buddies that are theme- or genre-specific, like living or sports, would be interesting. In The Netherlands sponsored buddies are already used for MSN Messenger. "*Nieuwskraker*" for example is a MSN buddy that is provided by Dutch newspaper "de Volkskrant" that gives recommendations for interesting news articles.² When added, the buddy can be asked for news. Furthermore, Talpa provided a Soccer Bot that automatically gives an alert to watch Talpa when a new World Channel match begins or somebody scores.³
- Most popular button: When ConnectTV users have been logged in, they have a button to guide them to the "most popular" channel, i.e. the channel that most of their buddies are watching.

When the ConnectTV application is used the viewing behaviour is collected, such as programs users are watching and the channel switches. As ConnectTV users will log on before using ConnectTV, this viewing behaviour can also be combined with information about age, gender etc. such that personalized viewing information is generated. During the pilot this information is used in order to gain insight in the influence of ConnectTV on viewing behaviour and viewing experience.

² <http://www.nieuwskraker.nl>

³ <http://www.mensmerk.nl/chatbots.html>

2.1.2 Additional functionality in a commercial version

In the commercial version the ConnectTV service provider could choose to expand the ConnectTV services with more functionality. Below some examples of extra ConnectTV functionality are given:

- Watch recorded and delayed content together: While watching TV, friends are able to invite their buddies to watch content together. This could be any type of content, like holiday movies that have been stored on the local disc or recorded programs on the personal video recorder.
- Order paid content together: Besides free content ConnectTV users could invite their buddies to watch paid content together, like paid channels and video-on-demand content together. When inviting a buddy to a pay channel, the buddy can watch the first ten minutes for free, and after that decide to order the channel, for example. When a paid video-on-demand video is ordered, ConnectTV users can e.g. get a discount on the price of the video; instead of paying five euros, they both pay four euros, because the content is watched together.
- Instant messaging & audio: While watching TV, users can comment on programs and talk to each other by typing text or setting up an audio connection, comparable to MSN Messenger.⁴ In specific audio is very important for the emotional experience of watching TV.⁵ E.g. ConnectTV users can yell at each other when the Dutch soccer team scores. Besides, it can stimulate that viewers stay watching the TV channel.
- New services based on viewing information (Blind dating, etc.): Viewing behaviour information can be used for providing new services such as blind dating. As extensive information about ConnectTV users will be available, a lot of their interests and preferences will be known. Therefore, users could e.g. join blind dating services where users with the same interests are matched and pay to use the service. Also, advertisers could provide a “brand dating” service for recommendation to add other users that prefer similar brands.
- Voting for content: During Idols people can vote together by using their remote controls instead of 0900/SMS.⁶ For this functionality ConnectTV or the TV platform needs to have a micro payment facility.

During the user evaluation of ConnectTV users also noticed that functionality such as MSN related communication (text chat, winks & avatars) should also be available in ConnectTV. Also automatic

⁴ Alcatel-Lucent faced difficulties in making contact via audio scalable for 100k+ users, source: interview with Alcatel-Lucent

⁵ Interview with Eyeworks

⁶ Statement of Microsoft, February 2007

suggestions based on previous viewing behaviour (“last week you watched a documentary on Discovery that’s now on TV, do you want to watch it?”) are suggested.

Furthermore it is recommended to integrate ConnecTV functionality with the EPG, so that the users can see what programs their buddies are watching in the EPG too. Also, Users confirmed that ConnecTV should support recorded and delayed content.

During the user evaluation some ConnecTV users showed interest in making their own buddy bots too. This means that users can make their own theme buddy and add programs. Other users can add the buddy to their buddy list and follow the scheduled programs.

2.1.3 Content scope

The ConnecTV application concerns the following types of content:

- Live TV channels: the traditional broadcast channels
- Delay TV: centrally recorded content such as programs missed (“uitzendinggemist”) that is available on the TV service provider platform
- Recorded content: located on video recorder hard disk or media centre, this content is recorded by the user
- Video-on-demand: free and paid on demand content that is available within the TV service provider platform
- Pay channels: paid subscription TV channels such as film1 and sport1

This means that ConnecTV users can make recommendations on these types of content. Content that is available via internet or content that is stored on mobile and portable devices can be available in the commercial version of ConnecTV but is not considered in this business plan.

2.1.4 ConnecTV can provide added value in finding interesting content and watching TV together

ConnecTV anticipates on a number of trends and developments in consumer behaviour. The ConnecTV added value in relation to these trends and developments is described in this paragraph.

ConnecTV can help in finding interesting content

Where the traditional, analogue, broadcasting services carried a limited number of channels, by digitalization of television and the emergence of online video services far more content becomes available. This is called “the Long Tail”, introduced by Chris Anderson in 2003 (see Figure 3). Where traditionally consumers watched a limited number of channels and content, viewers will be spread out over a great amount of content. Besides the popular channels, users will view content down the long tail such as regional content and User Generated Content.

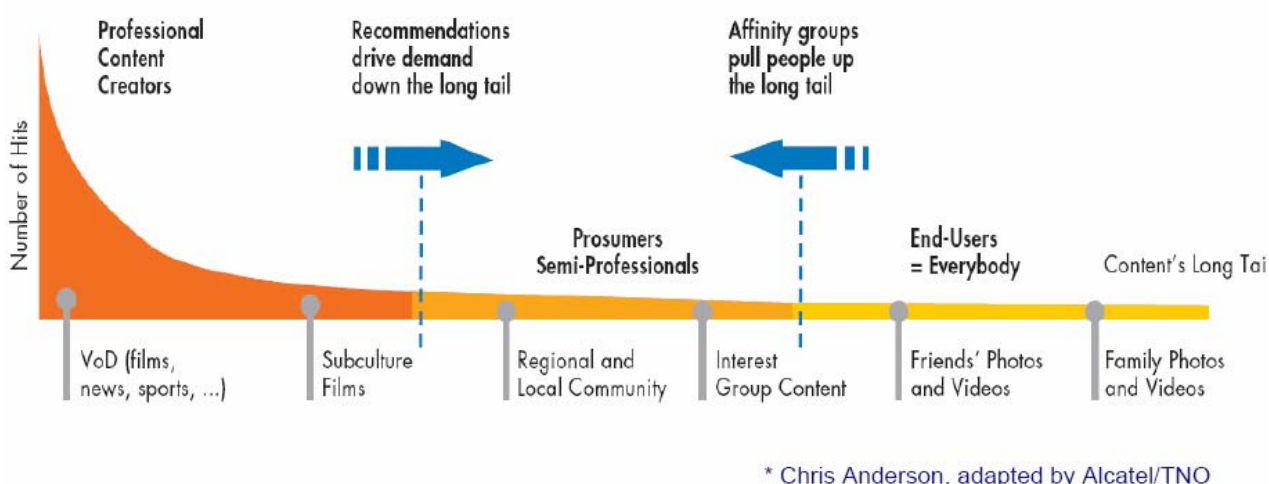


Figure 3: The long tail for audiovisual content

Because of this growing amount of content, it becomes more complex to find the programs of your interest. Traditional TV guides can not keep up all the available content. Therefore users need new ways for finding the TV programs they like. While search engines and personal Electronic Program Guides can play a role in finding specific content, it remains hard to find new and undiscovered programs that match your interests. ConnecTV might be a “tool” to lead more consumers to niche content. When your buddy recommends you to watch a program that you won’t have seen when you were just zapping through your favourite channels. So ConnecTV might open up the way to the long tail, attract more users that will lead to higher income for niche content providers. There is a lack of filters and search mechanisms, especially for recommendation services (see Figure 4⁷).

⁷ source: Limonard, 2007

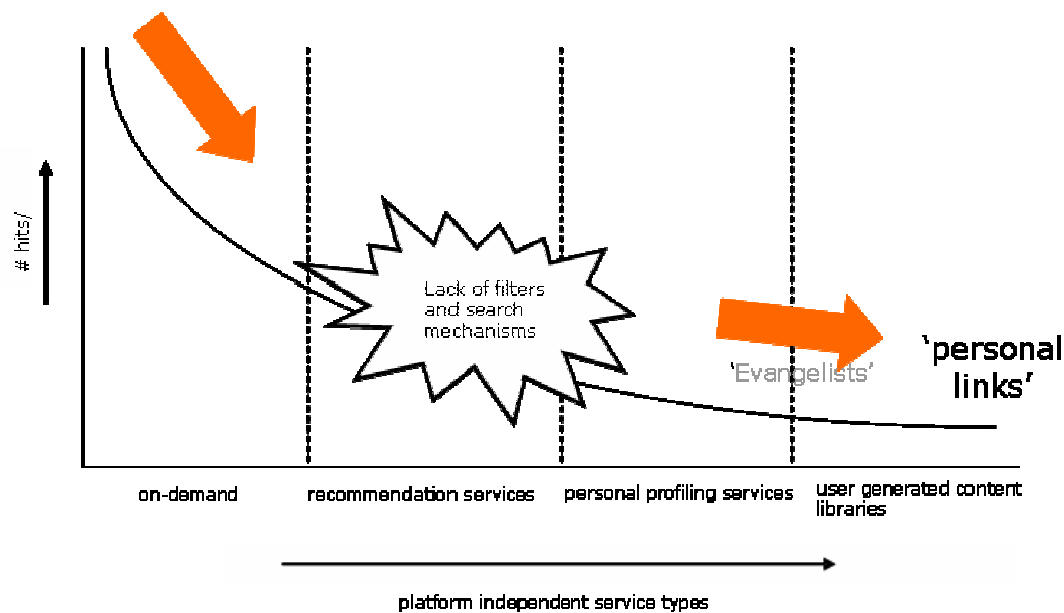


Figure 4: Lack of filter & search mechanisms in the long tail

Recommendations from trusted sources like friends will become important. They know your preferences and interests and can recommend while watching relevant programs. When a ConnecTV user receives a recommendation from his buddy, he is probably more likely to accept the invitation and join watching the content. This is confirmed by the pilot evaluation with ConnecTV users; most users found it useful that their friends can suggest interesting programs. They also indicated that recommendations from unknown people are less interesting.

With ConnecTV it is again possible to watch TV together, social TV watching

Besides sending recommendations, ConnecTV brings back the “watching TV together” experience by communication features where users can talk and comment on programs. Nowadays watching TV becomes more individualized because households have TVs in sleeping rooms, study rooms, etc. While it is nice to talk about TV programs on school or work, this becomes more difficult if everybody watches another program. Recommendations from buddies and talking about programs will enhance the experience of watching TV; other users can instantly be invited to share nice fragments of programs.⁸

⁸ Statement by Eyeworks about the influence of ConnecTV on viewing behaviour

During the user evaluation ConnectTV users found it interesting to see who of their friends were watching TV and what programs are watched. ConnectTV helps them to talk about TV programs.⁹

Migration of internet functionality to TV

ConnectTV also brings internet functionality that already has proven to be successful. On the internet participating in communities such as web logs and social networks (Hyves, MySpace) is already widely used. Furthermore, internet services such as Twitter.com show that a lot of people also give recommendations on TV programs to their friends, which suggests the need for ConnectTV.

2.2 Consumer perspective on ConnectTV

In this paragraph the consumer market for ConnectTV will be described. By segmenting the market for ConnectTV, more insight into the kind of users will be collected, and an indication for the size and attractiveness of the market will be formulated (**Error! Reference source not found.**). An important prerequisite for potential usage of ConnectTV is a digital TV subscription and a suitable set-top box. Paragraph **Error! Reference source not found.** gives insight into the digital television uptake in the Netherlands and the adoption speed of ICT services in general.

2.2.1 Youth & males between 20-35 years are the most promising target group

From the target group description (see Appendix C) it could be concluded that elderly could be a good selection as a ConnectTV target group, because of the TV watching behaviour and the increasing numbers of ICT service users. However the use of ICT services is limited compared to other target groups.

Singles are an interesting target group for ConnectTV because of their living situation. This means that they will have a greater need to communicate with friends and family in a non-physical setting.

Youth is the most important group for ConnectTV. The familiarity with communities and digital contacts will lead to a quicker insight into the benefits of ConnectTV. This in turn will lead to a quicker adoption.

During the interviews, it was confirmed that youth would be the most promising target group for ConnectTV. This assumption is partly confirmed by the usage data from the pilot. In the process of recruiting volunteers for the ConnectTV pilot, young adults seemed to be most interested in joining the pilot compared to other target groups. They are open to try new services, and appear to appreciate the ConnectTV functionality to

⁹ Pilot results

communicate with their friends. Also, compared to females, males appear to be more interested in the ConneCTV service.¹⁰

These users were positive on the use of ConneCTV functionality. Most of the users thought it was nice to use the buddy list, follow friends, send and receive recommendations and watch TV together. Using theme buddy and the button for zapping to the most popular channel are useful.

Surprisingly, the response to join the pilot was significantly lower for youth between 15-20 years old. This could be the outcome of the communication channels that have been chosen (newspapers, Hyves) while the use of media by youth is different (e.g. Sugababes.nl/Sugadudes.nl, MSN Messenger). Also, this group often uses their phone and PC with MSN and email parallel with their television, so that the added value of ConneCTV may be lower. Furthermore, people from this target group mostly live with their parents who may not agree with using ConneCTV.

For an extensive description of target groups see appendix C.

2.2.2 The potential user base for ConneCTV rapidly increases by the growth of digital TV households

From the target groups that have been described above, users need to have a digital TV connection and an interactive set-top box. At this moment, only 29 percent of Dutch households do have digital TV (see figure 7).¹¹ From those digital TV households, approximately 600.000 households do have an interactive set-top box that is suitable for the ConneCTV application. However the number of interactive STBs is likely to increase rapidly in the coming years.

¹⁰ 94 percent of the pilot members were male

¹¹ TNO facts based on data from Dutch TV service providers

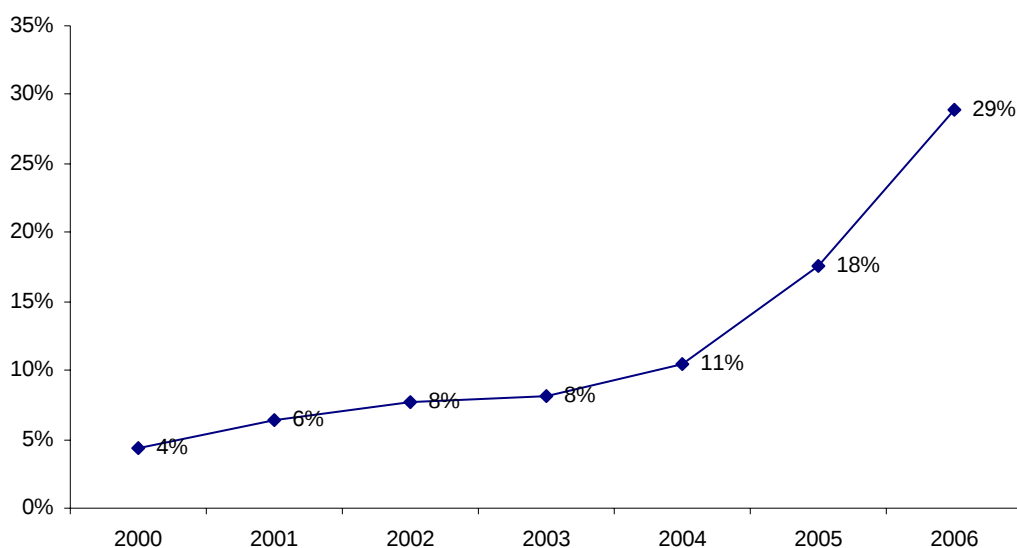


Figure 5: Penetration of digital television in the Netherlands (% of households), source TNO

2.2.3 For the adoption of ConneCTV Critical mass is crucial

Most of new Telecom and ICT services have a slow adoption rate.¹² Before widespread use of ConneCTV can be reached, there need to be a critical mass for the service so that many friends can be added to each one's buddy list. However early adopters can be keen on using ConneCTV even when it is not fully developed, the majority of ConneCTV users want to use the service only when it functions well.¹³

2.3 Competitive environment

The success of ConneCTV will depend on the competitive environment. A direct competitor or substitute can have a negative impact on ConneCTV when the same users are targeted but it can also take advantage from competition when the competition enlarges the total market. This often happens within markets for new products or services; a market with a few competitors often has a quicker uptake than markets with only one player.¹⁴ There is much more marketing power to influence consumers when there are some competitors.

¹² The adoption of broadband internet, mobile telephony and email took more than six years before over 20% of Dutch population were using the service. SMS is one of the few services that follows a different pattern (Source: TNO)

¹³ The pilot evaluation with the users indicated that ConneCTV users find it annoying when ConneCTV is facing technical troubles. In order to create more added value, the quality of video content needs to be high, it must be possible to add more buddies and more buddies need to use the service.

¹⁴ CPB (2002). Concurrentie en innovatie: Implicaties voor marktwerkingbeleid

The competitive environment is described by Porter's five-forces model (see Figure 6). Describing this model for ConnectTV gives a better insight into the challenges and complexity of commercial exploitation.

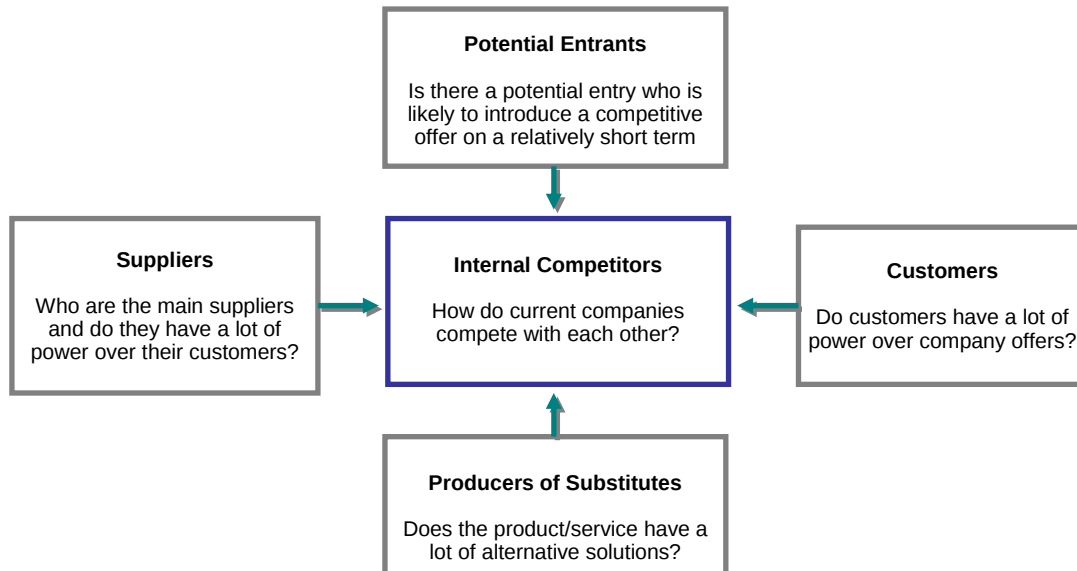


Figure 6: Porter's five forces model

For an extensive description of the competitive forces, see Appendix D.

2.3.1 The commercial exploitation of ConnectTV has a lot of dependencies

It can be concluded that there are many competitive forces on the TV market that can complicate the commercial exploitation of ConnectTV (Figure 7).

There are few other organizations that have commercial products that are comparable to ConnectTV. From the internal competition, Alcatel-Lucent and Microsoft will probably create the biggest threat to a successful exploitation of ConnectTV. However, these services are not commercially operational yet.

Many services can be found on the internet that can substitute functionality of ConnectTV. However these services mostly cover parts of the ConnectTV functionality, a lot of services exist to communicate and send recommendations to other friends. According to the pilot evaluation the most important perceived value of ConnectTV is the buddy list and information about whom is watching what, follow friends, send & receive recommendations and watch TV together. On the combination of these services substitutes are limited.

The ConneCTV service depends on a lot of suppliers. The cooperation of (professional) content providers is needed for content that can be used with ConneCTV. Also, infrastructure providers need to arrange enough bandwidth and a platform needs to be provided for ConneCTV. The many suppliers that are needed make realizing ConneCTV more difficult.

Also, customers must have a digital TV subscription and the right STB. To build relationships with all involved parties the ConneCTV service provider should investment time and money. The STB availability requires a lot of investments from the TV service provider but this will vary per TV service provider. Supplier collaboration can be done but only when sufficient advantages can be made clear to the involved parties.

There are multiple potential entrants. Most threat will be formed by TV service providers who can develop ConneCTV by themselves and internet-video services such as Joost.com that partner with STB and TV sets providers.

The position of consumers and advertisers is positive when ConneCTV will be offered via multiple providers. Then they can choose their ConneCTV provider. In case ConneCTV will offered by a limited set of providers, a lock-in will be created.

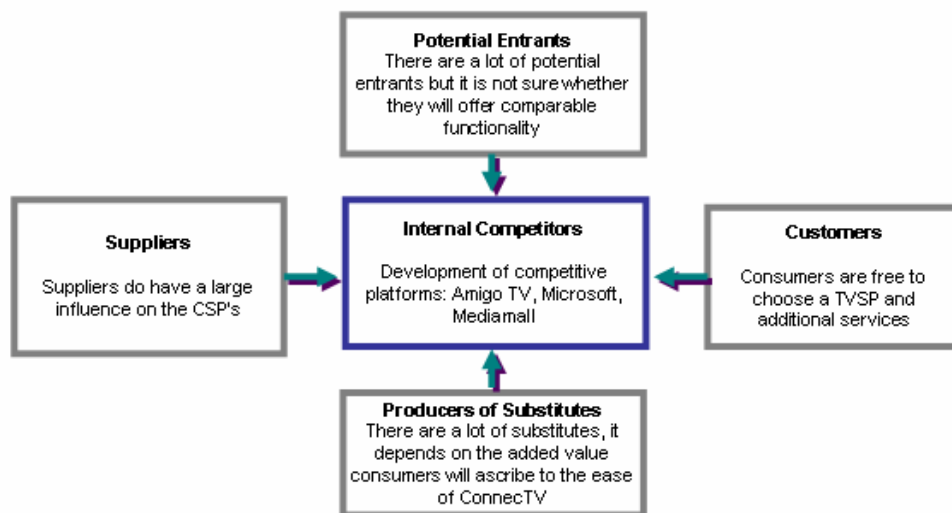


Figure 7: Competitive environment of ConneCTV

3 Technology Domain: Intellectual Property Issues

3.1 Introduction

This paragraph on the technology domain focuses on intellectual property issues. Before ConnectTV could be commercialized, it should be investigated to what extent other organizations have picked up and commercialized comparable ideas and have patents on these ideas.

As we have found earlier, other companies such as Microsoft and Alcatel-Lucent provide similar services. When other companies have patents on the technical functionality of ConnectTV, companies do have the rights to exclude other companies from making, using, selling or importing a patented invention for usually twenty years from the filling date. Though, the property right can be sold, licensed, mortgaged, assigned or transferred, given away, or abandoned.¹⁵ In this case, the patent holder may ask a monetary compensation for using the patent. This will impact the ConnectTV business case.

In case of patents on the ConnectTV functionality that are owned by other companies, the community service provider (CP) should agree on licensing the patents so that the patent owner agrees not to sue the CP for infringement of the patent rights. If there are dozens of license agreements associated with ConnectTV, this may have influence on the feasibility of providing ConnectTV.

Therefore it is important to do research on the patents that have been issued by other companies. If, for example, Microsoft has a lot of patents on the technologies that are used by ConnectTV, this directly influences the business plan.

This raises questions about what organizations are active on ConnectTV related ideas, what the specific organizations are that have ConnectTV related patents and what the most promising areas are for further research.

Method of research

Based on the ConnectTV functionality and keywords that were given, and known brand names (organizations) that are working on ConnectTV related ideas, a search for patents has been executed.¹⁶

¹⁵ <http://en.wikipedia.org/wiki/Patent>

¹⁶ Skalen, F. (2007). ConnectTV IP-mapping, IP research by Frederik Skalen from TNO Patents & Licensing, 22nd of June 2007

These search results are the basis for further research: the results have been analyzed with software that groups patents with similar phraseology (i.e. similar technologies) together. The outcome is a map that visualizes the different kinds of patents that are found.

The keywords visible in the technology map give an indication of the patented technologies in that area ('mountains' indicate a high concentration of patents while valleys and lakes indicate a low concentration).

Several searches are made in the map to identify areas of particular interest. Detailed quantitative analysis is made of the patents in the selected areas. In some cases, sets of patents which are not necessarily related to specific geographical areas of the map are analyzed. This can be applicable for very detailed technologies which are closely related to other technologies, patents from particular companies, inventors etc.

3.2 Most interesting patent areas for ConnectTV

From the analysis of the areas it can be concluded that the patent areas for interactive TV and buddy list and messaging related technologies (A3) and interactive TV related patents (A4) consist of a small number of big companies that have much influence on the market. (For a more extensive description of these patents, see Appendix E).

Microsoft is an over-all leading company, and has a high number of technologies. Also, Philips is an important player. Chances are high that these companies have patents that are used by ConnectTV.

For the rest, a great number of companies have a small number of patents. Other companies that could be useful taking a look at are United Video Properties Inc., Digeo Inc., OpenTV Inc., NDS Ltd., Starsight Telecast Inc. and Yahoo Inc.

3.3 Claim analysis for ConnectTV functionality

To further investigate possible infringement and thus potential licensing costs, a selection of 10 relevant patents is used from the four areas. This selection, given in Table 1, is obtained by scanning the patent titles from the most-cited patents lists for each of the areas.

Patent (application)	Owner	Title
WO2006074305A2	Yahoo Supreme Patent Services	framework for delivering content
US20050108767		device and method for instant messaging between tv viewer

WO2005078998A1	Ericsson	presence and multicast/broadcast service
WO2003047257A1	NDS	online television messenger
WO2001013206A1	AtHome Corp	interactive television system and method
WO2002051151A2	Ericsson	interactive television
US5014125A	Cableshare	television system for the interactive distribution of selectable video presentations
WO2003017650A1	Digeo	method and system for providing improved user input capability for interactive television
WO1999066727A1	OpenT	system and method for promoting viewer interaction in a television system
WO2003058965A1	Digeo	conferencing with synchronous presentation of media programs

Table 1: Selection of relevant patents

A preliminary claim analysis can be made by comparing the ConnectTV service functionality (see section 2.1) with the claims of each of the selected patents. The ConnectTV service functionality leads to a set of 12 features, given in Table 2.

Number	Feature
F1	Combination TV and presence
F2	Recommendations, watching together
F3	Lead or follow friends
F4	Sponsored buddies
F5	Most popular
F6	Watch recorded and delayed content together
F7	Order paid content together
F8	Instant messaging and audio
F9	New services based on viewing information
F10	User-made buddy bots
F11	Combination presence info and EPG
F12	Visual information

Table 2: ConnectTV features

Comparing the ConnectTV features with the patent claims in each of the patents results in a feature score matrix, given in Table 3. From this table, it can be readily observed that most of the essential features of the ConnectTV service are potentially covered by one or more patents. Thus, the ConnectTV service provider needs to consider licensing costs when delivering the service to customers. Note that the Yahoo patent, which contains many claims relevant to ConnectTV, is still pending.

Several patents (or patent applications) have little or nothing in common with the ConnecTV service. It appears that title scanning is not sufficient and it is therefore recommended to continue the analysis by scanning the scope and abstracts of other patents in the four areas. However, this analysis is not performed within this project.

Patent (application)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12
WO2006074305A2	X	X	X			X		X				X
US20050108767	X	X				X	X				X	X
WO2005078998A1	X											
WO2003047257A1		X				X	X	X				X
WO2001013206A1												
WO2002051151A2												
US5014125A												
WO2003017650A1	X								X			X
WO1999066727A1												
WO2003058965A1			X									

Table 3: Claim analysis

As outlined in the beginning of section 3.1, the focus of the patent investigation was directed towards possible infringement. Nevertheless, it is worthwhile to note that ConnecTV features such as *theme buddies* and *popular channel* do not appear to be covered by claims within the selected patents¹⁷.

3.4 Conclusions from patents research

3.4.1 The ConnecTV provider is likely to pay licensing fees for using patented functionality

From the initial patent investigation it can be concluded that for the field of interactive television a large patent pool exists. Within this pool, companies have been found that have patents that are potentially infringed upon by the ConnecTV service. Thus, the ConnecTV service provider may need to consider licensing costs when developing and delivering the service. This should be taken into account with in the business case. Before ConnecTV will be commercially launched, a more extensive research is used to be sure which organizations have patents that are blocking for ConnecTV.

¹⁷ Since only the claims have been studied, patentability of these features has not been properly investigated.

3.4.2 Possibly new patents on ConnectTV functionality can be applied for

Before the commercial exploitation the potential patents for ConnectTV features such as (sponsored) theme buddies and popular channels should be investigated. These patents could be used to purchase the right for using blocking patents.

4 Organizational Domain

In order to offer ConnectTV, different value networks are possible. Paragraph 4.1 will first give a description of the needed roles and the basic value network and an evaluation of the possible value networks. In 4.2 and 4.3 two of the most likely value webs are described. This paragraph ends with an evaluation of these two most likely value webs (5.1) and the selection of the model that is most likely for offering ConnectTV (Error! Reference source not found.).

4.1 Roles, overall value web and most likely value webs

The roles that have to be fulfilled to offer ConnectTV-functionality to consumers can be displayed in the ConnectTV value web (see Figure 8). The roles in the value web will be described below. This value web was developed in previous conducted desk- and field-research by TNO into the roles of organisations in the TV value web in The Netherlands. The difference with respect to previous research is the inclusion of the ConnectTV provider.

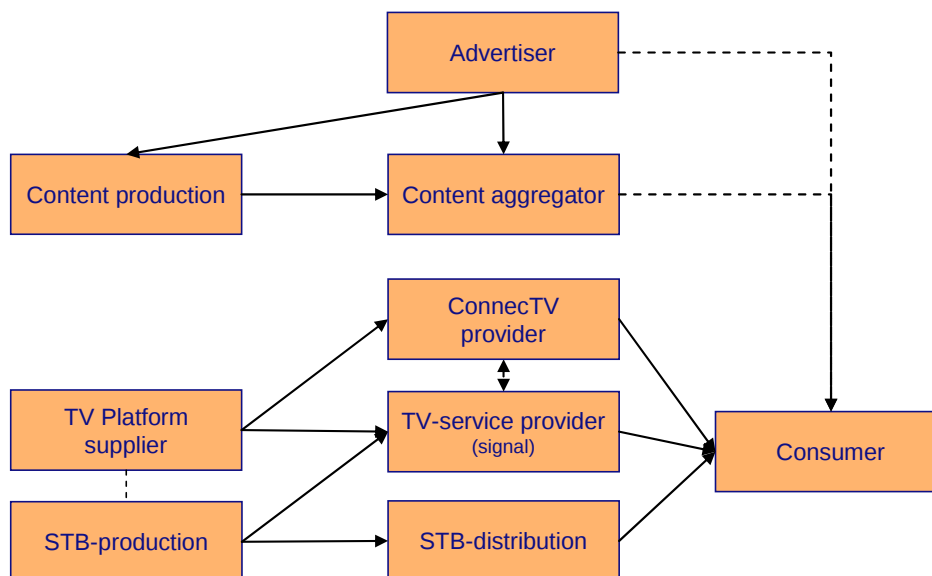


Figure 8: Overall ConnectTV value web

- ConnectTV service provisioning: the provisioning of the ConnectTV functionality (end-user functionality).
- Digital TV service provisioning (signal): the physical delivery of the managed digital TV signal to the set top-box of the consumer.

- Content aggregation: aggregate content into a complete content package to the consumer, this role can be fulfilled by broadcasters (producing channels), TV service providers (collecting channel packages and on-demand offerings) or consumers themselves (in case of recorded content or user-generated content). Content aggregators will have to provide programming information is needed in order to send each other recommendations and see what buddies are watching.
- Content production: the production of the video content, inclusive of the creative process of developing a program format, finding sponsors and preparation and production of the video content. Also, the content producer will have to add metatags in order to program the theme buddy.
- TV platform supplier: development and building of the technical TV platform (video server, middleware, etc.).
- STB-production: producing STBs (based on own specifications of the producer or aligned with specifications of the TV service provider).
- STB-distribution: distribution of STB to end-users.
- Advertising: advertisers try to reach and interact with consumers with their commercial message.

There must be a direct link between the ConnecTV provider and the TV platform because ConnecTV makes use of information from the TV platform (see which channels your buddies are watching) and the TV platform is needed to accept recommendations and follow your buddies.¹⁸ There are five possible models for offering ConnecTV to the consumer:

1. The TV service provider offers ConnecTV to their customers and packages the ConnecTV service as an integral part of it's digital TV offer.
2. The STB-producer integrates the ConnecTV software on the STB and offers ConnecTV as a separate service (the Tivo-model).
3. The traditional content aggregators (broadcasters) offer ConnecTV as a value added service on their content offer.

¹⁸ Interviews with KPN, CanalDigitaal, @Home

4. An independent¹⁹ ConnectTV provider, a start-up company without presence in the TV or internet domain, provides ConnectTV to the consumer (without having a TV or settop box (STB) offer).
5. A successful CP uses his extensive user base on the internet to offer ConnectTV, in TV domain, as an independent ConnectTV provider.

During the interviews and an internal workshop the five options have been evaluated and the following conclusions can be drawn from this:

1. ConnectTV as part of the digital package of the TV SP is an interesting option because of the necessary connection to the TV platform. Also, ConnectTV can be used to cross-promote other services such as paid video on demand content and delay TV.
2. The STB-provider as independent ConnectTV provider is not a viable option because TV service providers (UPC, KPN) are more and more integrating the STB in their TV offer and determine how the STB should be configured. Also, the consumer is not free to choose an STB and thus choose for ConnectTV. This means that ConnectTV will be available for a very small audience. (In the UK, Tivo is cooperating with BSkyB because their independent business model is not viable anymore. Tivo is facing difficulties in providing a paid service apart from the TV SP; users are not willing to pay.)
3. Content aggregators might want to introduce ConnectTV apart from the TV offers from TV Service Providers by introducing the service on the internet. In this case the service will only cover the content of that specific content aggregator which is not that interesting for consumers. Furthermore, it will be hard for content aggregators to gain access to the TV service provider's platform.
4. It is probably very difficult for a start-up company to build a successful ConnectTV service from scratch. When you don't have a user base in the TV-domain and don't have a TV platform it will be quite impossible. On the internet it is easy to start from scratch because the costs of service introduction are low and you can start independently of other parties. In the TV-domain the costs will be higher and you need to cooperate with TV service provider to access the managed TV domain, they are not willing to cooperate if you don't have anything to offer to them.
5. Independent ConnectTV providers who have a large presence on the internet are more likely to make a successful switch to the TV-domain. For ConnectTV the user base will be important to attract new ConnectTV users. Providers like MSN or Hyves have a large internet usage base which makes them

¹⁹ In this case independency means independent of other players in the (traditional) TV-value web

interesting for TV service providers to cooperate. They can have a quick start if they stimulate community-members to use ConnecTV and introduce complementary services in the internet-domain.

During the interviews most important factors for the success of ConnecTV turned out to be reach of the audience so that ConnecTV can be used by a lot of consumers and link with the TV platform. Since Community Service Providers have a large audience, independent of TV service providers and TV service providers can most easily make a link with the TV platform, the evaluation of the five possible business models resulted in two remaining models which are worked out in depth in the next paragraphs:

1. TV service provider offers ConnecTV as part of the digital TV service provider offering
2. A successful internet CP becomes an independent ConnecTV provider

4.2 ConnecTV can be offered by TV service provider(s)

A TV service provider (TV SP) is a logical party to offer ConnecTV to its customer base, because they have a direct billing relation with the consumer and they manage the TV platform. In this business model the TV SP plays a dominant role. The TV SP offers the TV signal (regular broadcast channels), an electronic program guide (EPG) but also additional, interactive services. This is an advantage for TV Service Providers compared to other organizations in the value web. Some examples of additional services of the TV SP are:

- “Uitzendinggemist”: the possibility to watch the content of broadcasters at another time
- Video-on-demand: a library of additional video content that the viewer can start whenever he likes
- Interactive TV: red button applications in TV programs (e.g. playing along, voting) or commercials (interactive advertising)
- Personal Video Recorder (PVR): in the network or hard disk of the STB
- Personalised EPG: recommendations based on profile information and history of watched TV programs

Description of the value web

In this value web, the TV SP is the single point of contact for the consumer (see Figure 9). The TV SP provides an integrated TV offer. The consumer pays all TV services to its TV SP.

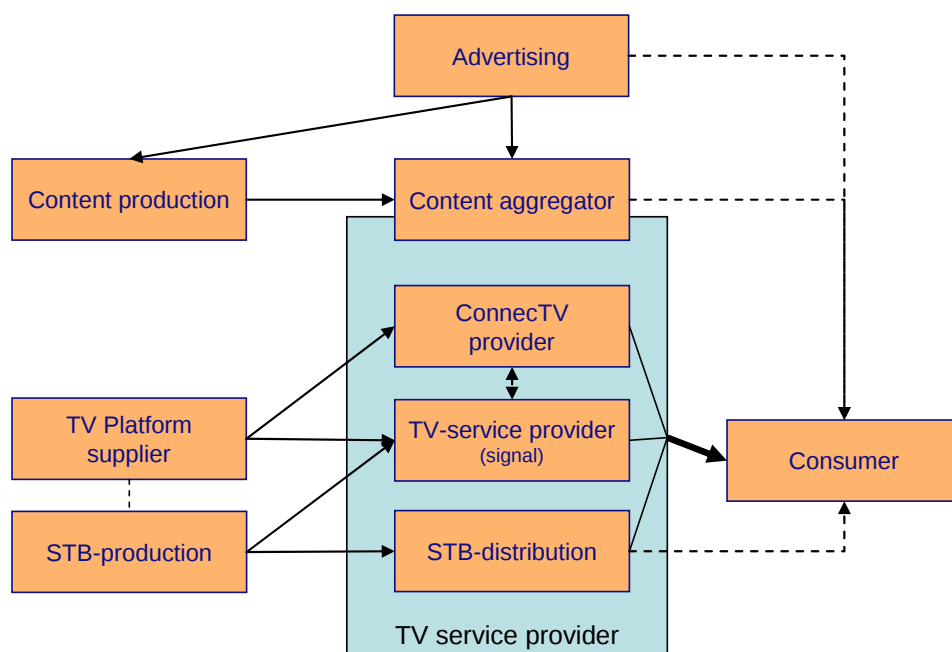


Figure 9: ConnetTV offered by a TV service provider

The traditional content aggregators (e.g. RTL, Vara, SBS) can only have an indirect relation with consumers, because they do not have a direct billing relationship with their viewers. Consumers will still watch channels from the broadcasters. Consumers zap to channels or select programs from the EPG. The EPG is offered by the TV SP. The relationship between consumers and the traditional content aggregators will not change.

The TV SP can offer delayed content or on-demand content via the on-demand portal. While some of the viewing time shifts from broadcasted content to on-demand content the TV SP will fulfil some aspects of the aggregation role. The TV SP will offer on-demand content via the EPG.

Content producers develop TV formats and produce TV programmes. During the preparation of a TV programme the content producer already makes agreements with content aggregators on the distribution and agreements with advertisers on in-program sponsoring. The content producer also integrates interactive TV formats (like SMS voting) in the TV format. With the TV SP as additional content aggregator besides broadcasters the content producer has more options to distribute its content and it also creates a distribution channel for archived content. While offering ConnetTV, content producers will also need to make agreements on the metadata that they will provide and agree on displaying the ConnetTV screen on top of their content.

Advertisers will also have an indirect role with the consumer. Advertisers try to reach their target groups with (interactive) commercials, branded content or portal branding. Content aggregators or content production companies offer advertising propositions to advertisers; advertisers pay for advertising space and/or sponsoring. Viewing figures are the main revenue driver of content aggregators and content producers. Advertising propositions of content aggregators will contain some interactivity in the (near) future. With ConnecTV, advertisers have opportunities to drive more viewers to the channels or programs where they advertise by e.g. using theme buddies. Also, the very detailed viewing information will be interesting for advertisers to gain insight into the effectiveness of their advertising campaigns.

The STB will be selected and delivered by the TV SP to control the service offering to the consumer. The STB has to be tuned correctly to receive good quality. For ConnecTV it is necessary that the STB is integrated in the TV platform; to retrieve channel and program information.

Revenue sources

ConnecTV offered by the TV SP is an extra interactive service for the TV SP. It is additional to other interactive services. When the TV SP wants to offer its interactive TV offer at a premium subscription fee, the TV SP will need to have premium services with additional value to consumers.

To be able to get business out of ConnecTV there are two different ways of earning money, direct and indirect revenues. Direct revenues are gained through the direct usage of ConnecTV whereas indirect revenues are gained from activities which are influenced by the usage of ConnecTV. Whereas the sorts of direct revenues are limited, the TV SP can profit from indirect revenues by promoting his other paid access and content services in particular. These direct and indirect revenues will be further elaborated upon in Chapter 6 about the financial domain.

TV Service Providers

The TV service providers in the Netherlands can be categorized in four groups (see Figure 10 for market shares)²⁰:

- Cable operators: the cable operators can reach about all Dutch households with their analogue and digital TV offer. UPC, Zesko (@Home, Multikabel and Casema) and CaiW are the largest cable companies, they account for about ninety percent of all cable customers. Cable operators have a market share of 85 percent of the Dutch TV market (sum of analogue and digital) and almost fifty percent of the digital TV market.

²⁰ Market shares are end of year 2006, source: TNO ICT

- Satellite providers: offer digital TV services by satellite. Their market share is about 10 percent of the Dutch households. Canal Digital offers satellite television in the Netherlands. The digital market share of satellite is about 35 percent.
- DVB-T service providers: offer TV services via the digital terrestrial network. DVB-T services are offered by KPN/Digitenne, Scarlet and Tele2. DVB-t has a market share of 13 percent in the digital TV market.
- IPTV service providers: offer TV services to Dutch households via a DSL- or fiber-connection. A bandwidth of at least 4 mbps is needed to receive the TV signal and houses must be within a certain range from the nearest exchange. Tele2 and KPN offer IPTV services. IPTV is only five percent of the digital TV subscribers.

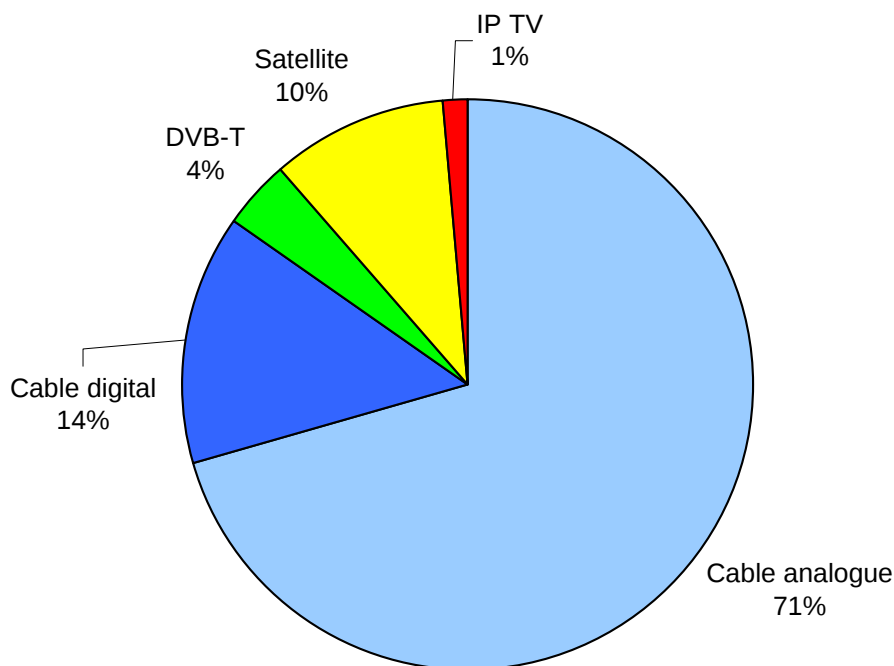


Figure 10: Market shares of TV technologies in the Dutch TV market

It is not likely that satellite or DVB-T providers will offer ConneCTV. A return channel is necessary to make use of ConneCTV and satellite and DVB-T are network technologies without a return channel. It is possible to use a separate internet channel for the return information but this will make it more complex to offer a smooth service.

It is more likely for cable operators and IPTV service providers to offer ConnectTV. The technology includes a return channel and the providers can integrate the service with the TV platform. With a ConnectTV service that is integrated in the TV platform it is possible to offer a smooth service.

In the part on the revenues there was a start on the discussion whether ConnectTV should be a monopoly service of one TV SP or a service offered by more TV SPs. From a consumer perspective a multi-provider model is better because there is no customer lock-in. In this way, customers can choose their TV SP and can be sure to have ConnectTV too.

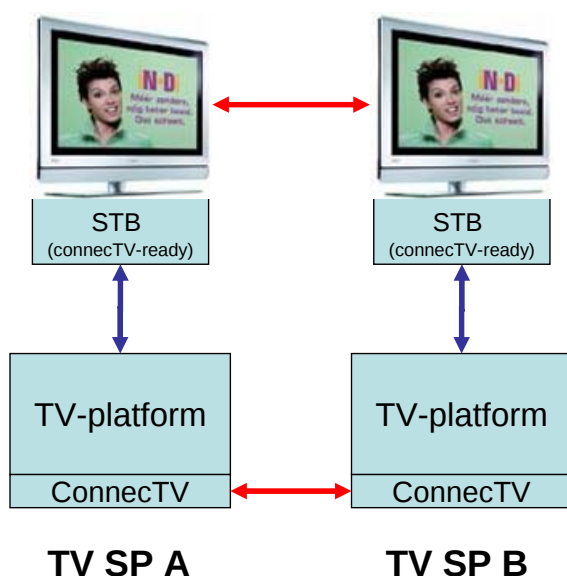


Figure 11: Using ConnectTV with TV different TV SPs

A multi-provider model offers other challenges: the different TV service platforms from different TV service providers have to be connected (see Figure 11). If you want to see to which channel your buddy is watching or if you want to follow your buddy there have to be some links between the TV platforms of the TV service providers. Because TV service providers have chosen different technologies and solutions for their platforms, making ConnectTV work on these platforms together may be a significant challenge. This becomes even more complex when the content offers of the different TV service providers differ, which will be the case.

The largest cable TV SPs will use the same platform technology in the near future. UPC already implemented OpenTV in its platform. Recently (July 2007) OpenTV announced that Casema choose

OpenTV for its HD TV and interactive services²¹. It is likely that @Home and Multikabel will follow Casema in choosing OpenTV because of the Casema, @Home and Multikabel merger.²² When all cable TV service providers use the same technology it will be more easy to use the ConnectTV service between TV service providers. In the competition between IPTV and cable this might be a selling point of cable TV service providers. IPTV service providers might also be an option but this is less attractive because of the low market share of IPTV and Tele2 and KPN have different platform technology, although it might be possible because they both use IP technology.

It can be concluded that providing ConnectTV on multiple TV platforms may need standardization. TV Service Providers should agree on the technology they use and make it compatible with the ConnectTV technology.

4.3 ConnectTV can be offered by an internet community provider

ConnectTV can be offered by an independent ConnectTV Service Provider (CP). An independent provider has the advantage of being independent of TV service providers and content aggregators so consumers can use ConnectTV also with friends with a digital TV subscription from another provider. The CP can't be totally independent of the TV service provider because there has to be a link from the ConnectTV platform to the TV platform (the STB has to switch to another channel if you want to follow your buddy).

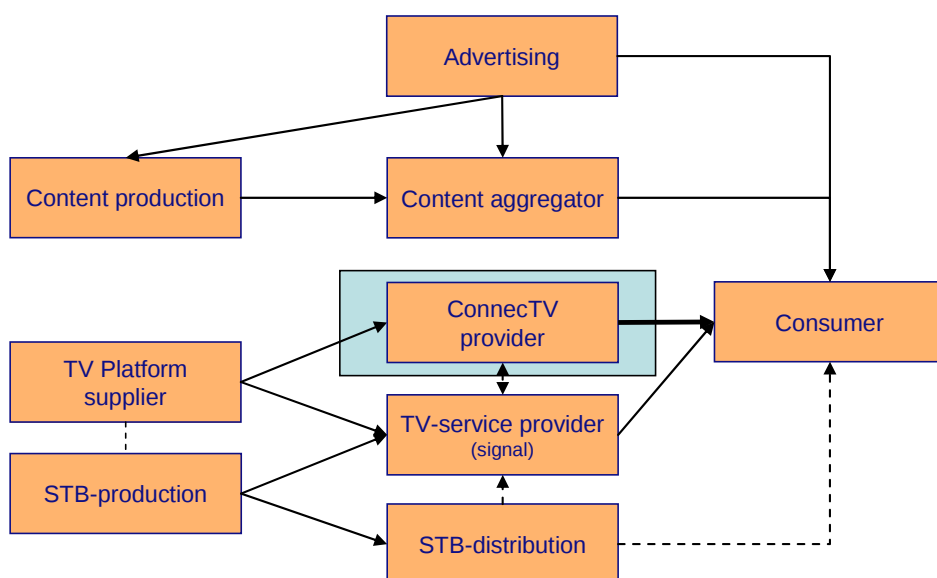


Figure 12: Connect TV offered by an independent provider

²¹ <http://www.opentv.com/about/releases/OpenTV%20Casema.pdf>

In the model of the independent CP there is direct relationship between the CP to the consumer. The CP offers the ConnectTV service to consumers on top of the digital TV offer of the TV service provider. The CP expands its relationship with the consumer from the internet to the TV-domain. It will become a more individual service compared to the household service of the TV service provider.

The CP is a separate organisation, independent from the content aggregator and content producer. However the CP can also expand its service offering with additional content. This content can be additional content from consumers so you can share your user-generated content but it can also be professional content.

ConnectTV Service Providers

Service providers with a large community of active users can make the step to the TV-domain. Two examples are worked out below: Hyves and MSN.



Hyves is a network of friends where you can do profiling, communicate with your buddies and build your buddy network. You can share photos, videos, agendas, etc. You can create separate groups e.g. for your volleyball team. Hyves has 2.5 million Dutch members, more than 1.5 million active members. Hyves is the most popular website in the Netherlands with 30 million page views a month.

After building a large user base with free services Hyves started to expand its service offering with additional paid for services, e.g. a gold member ship with extra options. Hyves organises sponsored concerts and parties for its members.

Hyves started to move to the mobile phone January 2007. Members can receive a SMS-message if you have a new Hyves-message. The SMS-message is for free because the operators try to stimulate mobile internet usage. If consumers have a mobile internet connection they can directly view the message via their mobile. Because of the size of the Hyves community they are a very attractive partner for other companies. This mobile example shows the power of a large community in dealing with potential partners.



²² Interview with @Home

MSN is (according to the Microsoft website) still the largest social website of the Netherlands with six million people visiting the website every month. The website offers a combination of content (portal), e-mail (Hotmail or Windows Live mail) and messaging (MSN).

Microsoft is also IPTV software supplier, but does not yet supply TV service providers in the Netherlands. Microsoft is the supplier of the TV platform of BT in the UK and Deutsch Telekom in Germany. Via ConnecTV (or comparable service developed by Microsoft) Microsoft might access the Dutch TV market. Microsoft may use the ConnecTV application on top of their IPTV platform and stimulate the use of ConnecTV by making links with MSN Messenger and MSN Video. It is not sure whether the dominant position of Microsoft will influence the willingness of TV service providers to cooperate.

Revenue sources

The main revenue driver of current business of Hyves and MSN is advertising and exploiting the community by offering paid services (premium membership, market research etc). Indirect revenues as seen with TV service providers are very few for Community Providers.

Advertising and exploiting the community by offering paid services will also be the main sources of income from ConnecTV.

Some examples of advertising opportunities for a ConnecTV service provider:

- Bannering in the overlay with the information on your buddies. At the start of the service this should really be kept to a minimum so users don't get irritated.
- Sponsored buddies: Sponsored buddies can give users tips about programs that fit user preferences.
- When users 'follow the buddy' to another program a short pre-roll can be shown. The user will pay high attention to this pre-roll because the user chose to follow his buddy and is now curious about the program the buddy is watching. This pre-roll should be very short otherwise it will irritate users.
- The CP can expand the ConnecTV service offering with an internet and mobile version. When you are not watching television you can still follow what your buddies are watching and you can receive alerts by visiting the CP community. This can also be combined with online or mobile programming of the PVR of watching online or mobile television. Online and mobile versions offer extra advertising opportunities.

Some examples of exploiting the community for a ConnectTV service provider:

- When users become regular ConnectTV users they might become interested in premium services. Regular users can subscribe to premium membership. Premium membership means extra service features like more buddies, receiving mobile alerts, “pimp your profile”. Users have to pay a monthly subscription fee of a few euros for these extra features.
- When a community provider has a lot of profile information on its user base²³, the community will be interesting for marketing research. The community provider can send questionnaires or product samples to a selected part (on profile characteristics) of the community. The users have to fill out questionnaires or try products and give feedback. The users will be rewarded by free samples or discounted products.
- The community provider can also offer content to its community. This can be professional content or user-generated content. The CP can generate extra revenues for on-demand content, when it is user-generated content the user should receive a kick-back fee. This kick-back fee can be money or extra privileges.

²³ The community provider should take privacy rules into account. The community provider should ask community members if they want to participate in marketing research activities and which profile information they are allowed to use.

5 Evaluation of organizational domains

5.1 Evaluation of the TV service provider and independent CP model

The two most likely models are described in the above paragraphs; this paragraph will end the chapter with a first evaluation of the two models on three aspects:

- User perspective [Service Domain]: what is the preferred model from a user perspective, which model will attract the most users?
- Technical constraints [Technical Domain]: what are the technical challenges that result from the model?
- Business model [Financial Domain]: what are the main revenue sources for the end-user service provider in each model?

This evaluation leads to pros and cons for both models. These arguments will be presented and further elaborated based on the three different aspects.

User perspective

The independent Community Provider can provide ConnecTV to a larger audience

The TV SP will offer ConnecTV to its own user base so the consumer is dependent on his TV service provider whether he is able to use ConnecTV. It is also not sure whether he can use ConnecTV with his buddies that have a subscription from another TV service provider, because that TV service provider may not offer ConnecTV. This will probably be an important issue for a successful ConnecTV introduction.²⁴

Also, compared to the user base of the TV service providers, the CP users are already interconnected. In this way the adoption of ConnecTV can be quicker when the CP is involved to offer the service.

A CP can offer ConnecTV as an independent community service. The user is dependent on the contract of the CP with its TV service provider and the user's type of subscription and STB.

²⁴ Interview with KPN

TV Service Providers have a better position to deliver ConnectTV to existing customers

CPs do not have a financial billing relationship with their customers. This will make it more difficult to offer paid services.²⁵ Also the demographics of their customer base is a drawback; the user group may not be as diverse as with TV service providers. CPs customers normally are young people and they do not represent the total TV viewing audience.

TV service providers do not have these issues. They have a long established relationship and their customers are a better representation of the target audience. TV providers are able to set up the ConnectTV service on their clients' STBs remotely, and instruct their customers that they can use the service instantly.

Technical constraints

TV Service Providers can make a link with the TV platform

As mentioned in the previous chapters, a link with the TV platform is needed in order to provide the ConnectTV service. TV service providers are in a better position to link ConnectTV to their platform. Because the largest cable TV service providers will use the same platform in the future it might be a good option when the cable TV service providers offer ConnectTV.

However, there needs to be some standardization. If every TV SP integrates the ConnectTV application in its own TV platform (which will be the case) it will be difficult to deliver a smooth service to ConnectTV users from different TV service providers.

For CPs their platform has to be connected to each TV platform to offer ConnectTV. The community provider as CP depends on the willingness of TV service providers to cooperate with a large community provider. This is quite complex because the TV service provider might not want to lose control. According to the interviews with TV service providers (KPN, @Home), TV service providers are not keen on opening the platform for 3rd party ConnectTV providers, as this may carry risks for the reliability of the TV platform. In that case TV SPs have to put a lot of extra effort in testing the effect of ConnectTV on existing systems for guaranteeing the quality of the television service. Therefore, when a TV service provider does not deliver ConnectTV itself, it will probably not be willing to give a third party access to their platform. Also there is little standardization for interactive TV. This makes it difficult to offer ConnectTV across different TV service providers.

For Community Providers distinct STBs will be needed that are not widely available yet

²⁵ Source: interview with KPN

For CPs, in order to provide ConnectTV on top of the existing TV services, the STBs need an internet connection to communicate with the TV platform and to connect with other ConnectTV members.

At this moment these aren't any hybrid STBs available which CPs will have to use to offer ConnectTV. TV service providers do not have this problem, because they can use their existing STBs.

Business model

TV service providers can use more sources of (indirect) revenues

For TV service providers, the basic ConnectTV functionality can be offered for free. The TV service provider can use ConnectTV to attract more subscribers to its interactive premium-priced digital TV-offer (the TV service provider needs extra services like ConnectTV to sell the premium).

The direct revenues from ConnectTV will be sales of extra on-demand content and also advertising revenues (e.g. sponsored buddies). Furthermore, TV service providers can take advantage from exploiting detailed viewing information. TV service providers gain more indirect advantages by cross promoting other services that they provide. ConnectTV can be a good way to increase the revenues per user.

Community providers have fewer opportunities to gain extra revenues via ConnectTV. For the Community Provider, the basic ConnectTV functionality will be offered for free also. Revenue for the CP comes from charging consumers for some of extra functionality (e.g. more than x buddies, on-demand content). Another source of income can be advertising revenues.

When ConnectTV is a successful service, the CP will be able to charge the TV service provider for connection to the CP-platform. (This will be more likely when the CP is a large party like Hyves or MSN.) This will depend largely on the success of ConnectTV, but will not be possible in the beginning years as ConnectTV needs to have a large user base first.

Community Providers are less dependent on existing relationships

TV service providers have existing relationships with other parties in the value web. This means that they can jeopardize these relationships when the offer ConnectTV. For example relationships with content providers can become strained when a TV service provider places a ConnectTV bar with the consumer's contacts over the TV content that is provided by content providers.

Currently, CPs do not yet have relationships and agreements with broadcasters and content producers about how their content is displayed. This leaves more space to deliver extra services on top of the content.

For Community Providers the risk factor is lower

When ConnectTV fails to perform to expected standards, then the TV service provider's image will suffer. This is not the case for the CPs because their products are free and people are used that services are in beta and provide best-effort quality instead of guaranteed quality.

TV Service Providers may have more marketing power to 'educate' the consumer

Consumers will have to be trained how to use ConnectTV. While watching TV has been a passive activity for a long time, consumers will need time to get used to interactive services on their TV. This will require a large amount of money for marketing and communication.

For small companies with little marketing budgets (like Hyves) it may take long time to inform their users about ConnectTV and subsequently educate them.

TV Service Providers are better prepared with TV and business processes

Most TV service providers have other activities such as internet and telephone services. Therefore they have business processes in place to deal with customer's complaints, billing, maintenance etc. Also TV service providers have arranged their basic TV packages with TV channels and interactive services. CPs have to set up these processes and basic TV offer. Therefore they are at a disadvantage.

5.2 Evaluation: The TV service provider is the most likely to offer ConnectTV

In Table 4, each factor is evaluated for the TV service provider and the Community Provider.

	Success factors	TV SP	CP
User	Potential user base	-	+
	Existing customers	+	-
perspective	Link with TV platform	+	-
	Interactivity / STBs	+	-
Technical	Revenue sources	+	-
	Relationship dependency	-	+
	Risk factor	-	+
	Marketing power	+	-

	Business processes	+	-
Total		+	-

Table 4: Evaluation of the models on three aspects

As can be seen from Table 4 the TV service provider as the provider for ConnectTV scores on more success factors than the CP. Therefore, the TV service provider will be the most likely to provide ConnectTV. This is confirmed by Hyves that prefers the situation in which Hyves open their platform for third parties so that other organizations such as TV service providers can use the community to offer their own services.²⁶

5.3 Evaluation: The cable operators are the most likely to offer ConnectTV

For the success of ConnectTV it is important that a large potential user base is available. Therefore it can be concluded that cable operators are preferred partners to offer ConnectTV. Currently in The Netherlands cable operators have the largest group of TV customers that can make use of interactive services on their STB. Also some cable operators (e.g. UPC, Zesko) offer multiple content services that can be used in combination with ConnectTV and have a lot of marketing power and probably their financial resources are sufficient for providing ConnectTV.

The time to market for ConnectTV may be longer compared to telecom operators such as Tele2. This can be reduced by starting early to build a position by providing ConnectTV services via the internet (see recommendations in Chapter 8.3).

In chapter 7 the steps that a TV service provider has to take to effectively offer ConnectTV are presented.

²⁶ Statement from Yme Bosma (director of business development en partnerships Hyves) during "Den Haag Telecom", 31 October 2007, <http://www.denhaagtelecom.nl/>

6 Financial Domain: Revenue model, business case and risks

This paragraph describes the revenue model and business case for ConnectTV. Besides an overview of the risks and an action plan for reducing the impact of the risks is introduced.

6.1 Revenue model

6.1.1 ConnectTV could generate little direct revenues from users

Direct revenues are revenues directly paid by ConnectTV-users: consumers. Most consumers are not willing to pay for the basic ConnectTV service.

Consumers are not used to pay for television programs and services; consumers only pay for the connection. A small part of the subscribers pay some extra for payTV channels. Basic messenger services on the internet are also for free. Within MSN Messenger consumers only have to pay for sending a SMS or to download some emoticons and winks²⁷. The ConnectTV service provider can enrich the user interface with avatars, winks and emoticons just like MSN and Eccky does. Also consumers might want to pay for premium ConnectTV-services.

6.1.2 ConnectTV could generate advertising revenues

Different advertising concepts can be added to ConnectTV, some of them are described below:

- Advertisers can sponsor a “sponsored buddy”, consumers can add a sponsored buddy to its buddy list. The CP will receive an amount for this. Advertisers can compose a buddy based on their branded value (e.g. Volkskrant-news-buddy) or a theme (e.g. Rabobank – home-buddy). With a sponsored buddy advertisers are also able to stimulate consumers to watch the TV programs they sponsor. In 2006 companies spent almost € 800 million on TV-advertising in the Netherlands²⁸. Each time a consumer follows a sponsored buddy, the advertiser pays a fee.
- An advertising “pre-roll” can be added to a recommendation. When a user ‘zaps’ as a result of a buddy recommendation the user has to watch a short commercial first. The advertiser pays an amount per

²⁷ <http://imagine-msn.com/messenger/launch80/default.aspx?locale=nl-nl>

²⁸ Bron: SPOT, jan 2007

viewed advertising pre-roll. To reduce annoyance from advertising at the user, the commercial expressions should be limited.

- Sponsored ConnectTV-environment: banners and commercial expressions in the ConnectTV-user interface. Advertisers pay per thousand times that their expression has been viewed. (See appendix B for more information)
- Program alerts that let know when a program begins. On TVgids.nl this service is paid for by users. It can also be very valuable for advertisers and broadcasters that can stimulate users to watch their programs.²⁹
- ConnectTV can stimulate consumers to watch other television programs because of the interesting recommendations.³⁰ Besides programs it is also possible to recommend commercials to your buddies. Interesting, funny TV-commercials are also popular on the internet. Extra viewing figures for commercials will lead to increased advertising revenues for content providers and content aggregators.³¹ E.g. for programs on Saturday night, it is very important that children as well as parents are watching TV. However, it may be difficult for the ConnectTV provider to ask money for this. It will be hard to prove that ConnectTV drives higher viewing figures. Advertisers and broadcasters may be convinced that their own promotions and programs are the reason for the higher viewing figures.
- For using ConnectTV users have to identify themselves. With this identification and the registration of viewing behaviour service providers are able to report richer viewing figures. This richer information can be used for targeted advertising which will lead to increased advertising revenue. "Stichting Kijkonderzoek"³² already does surveys with a limited set of households. Broadcasters and advertisers pay a minimum fee of € 17.000 per year for receiving aggregated viewing behaviour data. Because ConnectTV can collect more and richer information, some advertisers and broadcasters can be interested to buy ConnectTV viewing behaviour also.³³
- The viewing information can be used to target advertisements. E.g. Hyves offers targeted advertising for a 50% supplement on top of the advertising costs.³⁴

²⁹ Interview with Eyeworks

³⁰ During the pilot channels such as Discovery were watched more often because of the recommendations

³¹ Confirmed during interviews with Talpa and Eyeworks

³² Kijkonderzoek.nl

³³ @Home interview. @Home already logs extensive usage data by their IPTV pilot in Boxmeer

³⁴ Hyves advertising tariffs, <http://www.hyves.nl/index.php?l1=ut&l2=co&l3=mediakit>

6.1.3 ConnectTV can lead to revenues from paid services

Besides advertising there will be paid services around the free basic ConnectTV service. Some forms of paid services are described below:

- A value added service is to offer singles blind-ConnectTV-dates. Based on viewing profiles the CP can arrange blind dates for interested singles. On the internet consumers are also willing to pay for dating services³⁵. On the internet, users of dating services pay an average of €10 per month.³⁶
- ConnectTV can stimulate consumers to watch (and pay for) paid content. Consumers will be stimulated by previews and discounts for buddy-groups. When a ConnectTV user convinces a buddy to watch and pay a video-on-demand movie together they can e.g. get a 25% discount on the total price. Also, ConnectTV can stimulate sales of paid channels. When a ConnectTV user recommends a program from a paid channel that the other user does not have, he can watch a preview. A part of these users can be interested to buy a package of paid channels.
- It is also possible to subscribe to extra network-PVR-space. Another value added service is to subscribe to a network-PVR environment with your buddy-group. Maybe TV service providers in The Netherlands will offer network PVR functionality in the near future.

6.1.4 ConnectTV can increase the revenue per user (upselling)

There are some indirect revenue sources. This list describes the possible revenue models for ConnectTV.

- When users want to share their own content (user-generated content or local recorded content) regularly they increasingly use their data connection. This may lead to a consumer need to upgrade the data connection. In this way the TV SP that offers ConnectTV generates extra internet subscription revenues. Also, revenues from subscriptions for storage for photos and holiday movies can be generated.
- Consumers that increasingly want to share recorded content could choose to upgrade their data connection.

³⁵ Fleuren, M., Steen, M. & Staal, M. (2006). How business can add value to – and profit from – User Generated Content, whitepaper, September 20, 2006

³⁶ <http://www.planet.nl/planet/show/id=118880/contentid=870572/sc=0f6893>

- Households need a digital TV subscription to use ConneTV. Households will be stimulated by friends using ConneTV to switch to digital TV so they are also able to use ConneTV. This can stimulate digital TV uptake and revenues of the TV service provider because the subscription fee of digital TV is higher than the subscription fee of analogue TV.
- When users are used to ConneTV they do not want to lose the functionality. ConneTV can become a reason to stay with the current TV service provider (customer lock-in). If customers decide to stay this will lead to churn reduction for the TV service provider.

6.1.5 ConneTV revenues from different sources

The potential revenue streams will not only come from the consumers but also from advertisers. This is new for TV service provider, until now only users are paying for their services. ConneTV gives them access to a new revenue source. The table gives an overview of the potential revenue streams and the organization that pays the revenue. In the business case that is described in the next paragraph a selection of these revenue streams are used.

Advertiser pays	- Sponsored buddies - Advertising pre-roll - Sponsored ConneTV-environment - Higher viewing figures (advertising) - Targeted advertising
Consumer pays	- Premium ConneTV-service - Sell avatars, winks, emoticons - ConneTV-blind-dates subscription or usage fees - Extra sales of paid VoD pay TV content - Subscription fees for (buddy-)network-PVR-space - Digital TV subscription fees (churn reduction, upgrade) - Upgrade data connection - Subscription for photos and movies storage
Content provider	- Richer viewing information - Higher viewing figures (advertising)

Table 5: Overview of revenue sources per role in the value web

6.2 ConnecTV will lead to a positive business case in the long run

6.2.1 Business case introduction

To gain insight in the financial feasibility a business case is developed. In this paragraph the results of the business case are presented, additional information can be found in appendix H. The business case is founded on a few basic assumptions:

- TV service provider UPC offers ConnecTV on top of its existing interactive digital TV offer. ConnecTV is not available for analogue customers.
- Other TV service providers like Zesko will introduce ConnecTV one or two years after UPC (UPC is first mover). ConnecTV introduction by other TV service providers will stimulate ConnecTV usage of UPC customers. Interoperability between UPC, Zesko and other cable TV service providers is a prerequisite for this.
- Because customers uptake is an important driver in the business case there are two market scenarios: ConnecTV is a moderate success (scenario A) and ConnecTV is a big success (scenario B)
- The usage figures of the ConnecTV pilot are used in this business case. The pilot figures are corrected for first usage and for the high-educated pilot user base.

6.2.2 Business case structure

The business case structure is visualised in Figure 13. This paragraph describes the main revenue and cost components. Detailed information can be found in appendix H.

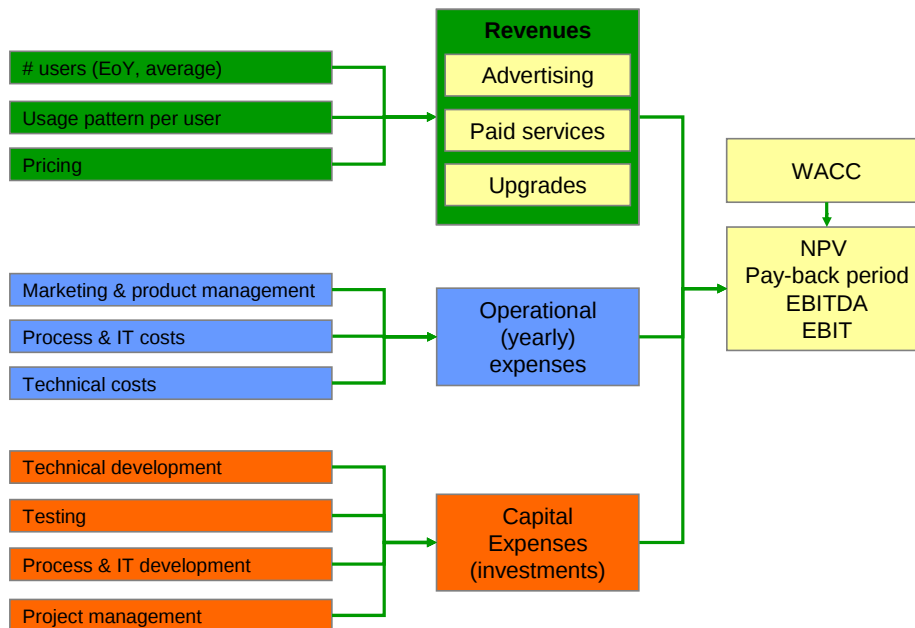


Figure 13: Business case structure

Revenue is mainly driven by the number of users and the usage per user. The business case consists of three revenue streams:

- Advertising: advertisers will be attracted by banner³⁷ in the buddy list; advertisers can add sponsor buddies to the buddy list or recommend certain programs to a specific target group. Advertisers can be broadcasters, content production companies or 'normal advertisers'.
- Paid services: value added services where consumers are willing to pay for: dating services, watching paid video content together, premium ConnectTV, sales of winks and avatars, network PVR services.
- Upgrades: ConnectTV will lead to some churn reduction because users don't want to lose the functionality, consumers will switch to digital TV when ConnectTV users recommend it to friends and some ConnectTV users will upgrade their data connection because of higher data usage.

The main cost categories for the exploitation of ConnectTV:

- Marketing & product management: FTE costs for product management, advertising sales, marketing promotion, etc. to stimulate uptake, usage and advertising revenues.

³⁷ Banners will be adjusted to certain target groups based on viewing behaviour and profile characteristics.

- Technical costs: operational and functional management of the technical infrastructure, yearly costs for housing and hosting, but also licensing fees for usage of the patents of others.
- Process & handling costs: costs for provisioning, billing and customer care to offer users a smooth service perception.

Before a TV service provider is able to introduce ConneCTV, he has to make some investments. There are four categories of investments:

- Technical development: development of the ConneCTV application, integration with the TV platform and the costs for hardware.
- Testing: before the commercial introduction of ConneCTV the TV service provider should test the functionalities because it is very important that the service works properly. If this is not the case customers won't use the service anymore and will call the helpdesk.
- Process & IT development: adjust the current processes and IT-systems to integrate ConneCTV: provisioning, billing, customer care.
- Project management: a project manager will coordinate the testing and preparation of the technical realisation and commercial introduction.

6.2.3 Business case results

The ConneCTV business case will lead to a positive result in the long run. ConneCTV is a 'network service'; these services need quite a long time before they generate enough revenues to cover the costs.³⁸ To receive revenues in the long run it is important to invest in a well performing service from the start. If this is not the case there will not be enough users to reach a large enough user base. This is visible in the two business case scenarios. Scenario A (moderate success) and scenario B (big success) do not show a very large difference in the results over three years but they do in the results over 5 years.

	NPV ³⁹ three years	NPV five years	Pay-back period
Scenario A	- 1.293 kEuro	454 kEuro	4 years & 4 months
Scenario B	- 881 kEuro	3.095 kEuro	3 years & 5 months

Table 6: business case scenarios

³⁸ Law of Metcalfe: the value of a network is the square of the number of users.

³⁹ The NPV (Net Present Value) is calculated with a WACC (Weighted Average Cost of Capital) of 10 percent.

The scenario 'moderate success' does have a positive NPV after five years but the pay-back period is more than four years. So the number of users and usage figures in this scenario are the minimal numbers a TV service provider has to reach to have an acceptable business case. The figures in the 'big success' scenario are better; quite a long pay-back period (almost three and a half year) but a large positive NPV over five years.

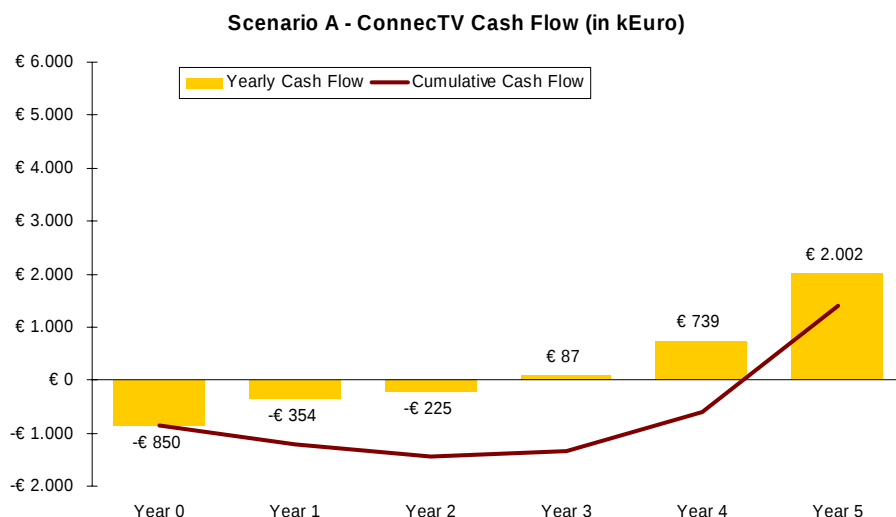


Figure 14: scenario A - ConnectTV Cash Flow (in kEuro)

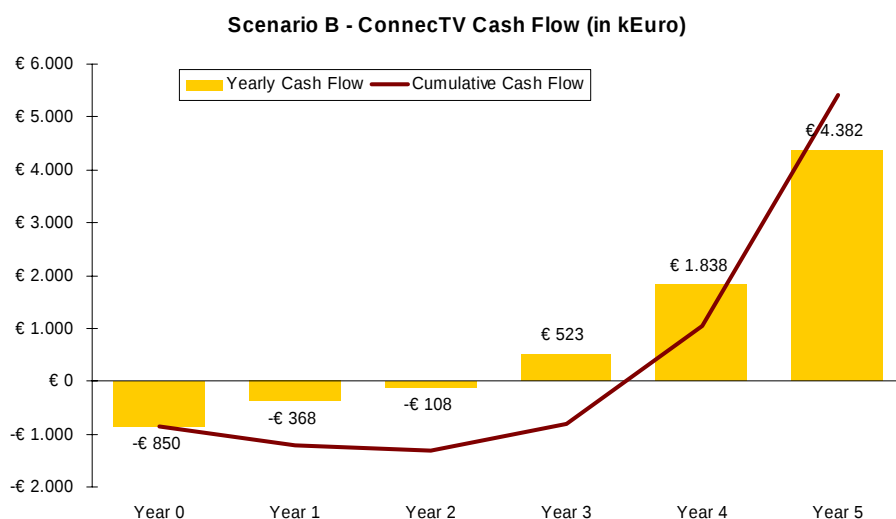


Figure 15: scenario B - ConnectTV Cash Flow (in kEuro)

A complicating aspect in this business case is the dependence on a lot of different revenue sources. Bannering and churn reduction are the largest revenue sources in the business case. It is a complicating factor but offers also the opportunity to TV service providers to try out different revenue sources and experience which work best. This is a new challenge to TV service providers because they are used to receive subscription fees from households.

Scenario B - Revenues ConnectTV (in kEuro)

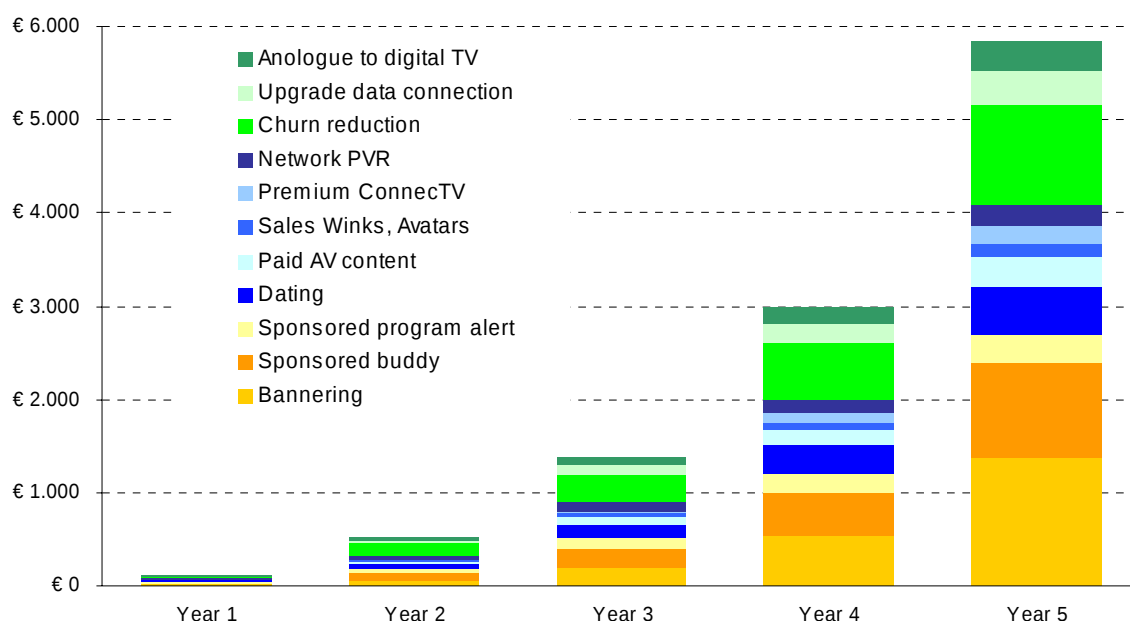


Figure 16: Revenues ConnectTV (scenario B)

The potential revenue source that is not included in the business case is potential revenues from content providers. If ConnectTV leads to a shift of viewing figures to other channels or programs or if ConnectTV leads to higher viewing figures, the TV service provider will be able to generate revenues from content providers. While shift in viewing figures or higher viewing figures can not be concluded by the pilot, this is not incorporated in the business case.

The main costs of this business case are the customer care costs and licensing fees. If the service doesn't work properly customers will call the TV service provider's helpdesk. This can lead to high costs with a large and growing user base. The TV service provider can try to limit these costs by offering a service that is working perfect and by implementing customer self care. On the internet people are used to beta-

versions but this is not the case for TV services. Because of the results of the patent research (see chapter three) a licensing fee of € 0,80⁴⁰ per user per year is estimated in the business case. These costs can be lower when the TV service provider negotiates another licensing fee structure (e.g. a fixed fee per year or a licensing fee for every new user). It is also possible that the TV service provider has one or more compensating patents so the patent owners can exchange the usage of each others patents.

Scenario B: Operational Costs & Depreciation ConnectTV (in kEuro)

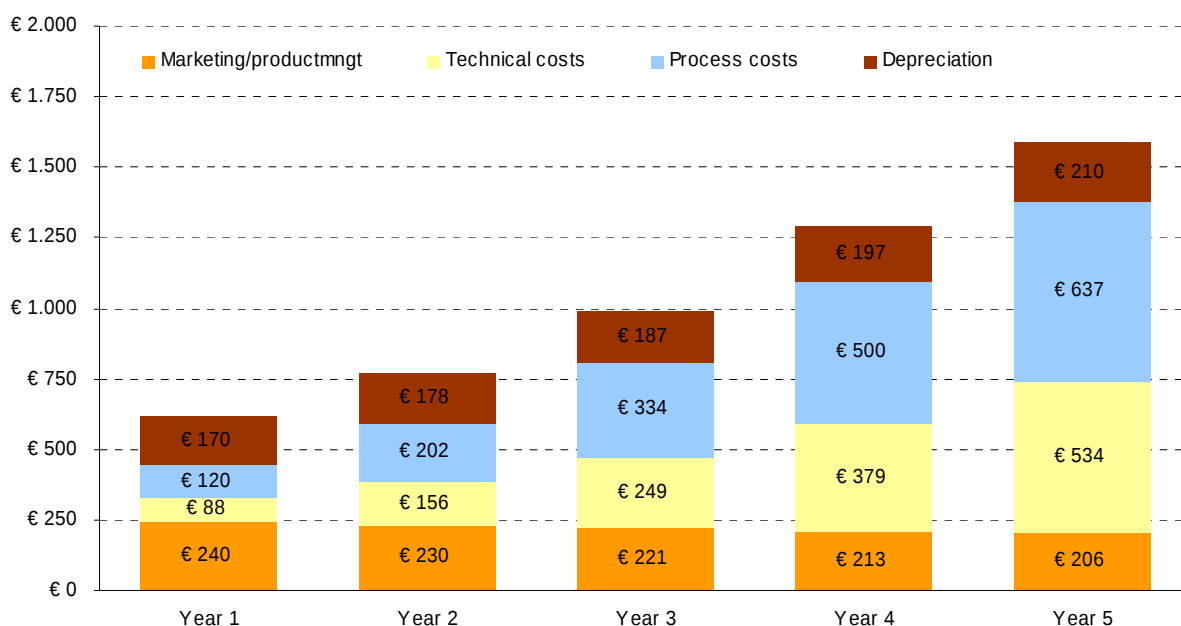


Figure 17: Operational costs & depreciation ConnectTV (Scenario B)

The business case has quite a long pay-back period but after two years the revenue per user (ARPU) already exceeds the costs per user per year (see the figure below).

⁴⁰ € 0,80 is a common fee for licensing.

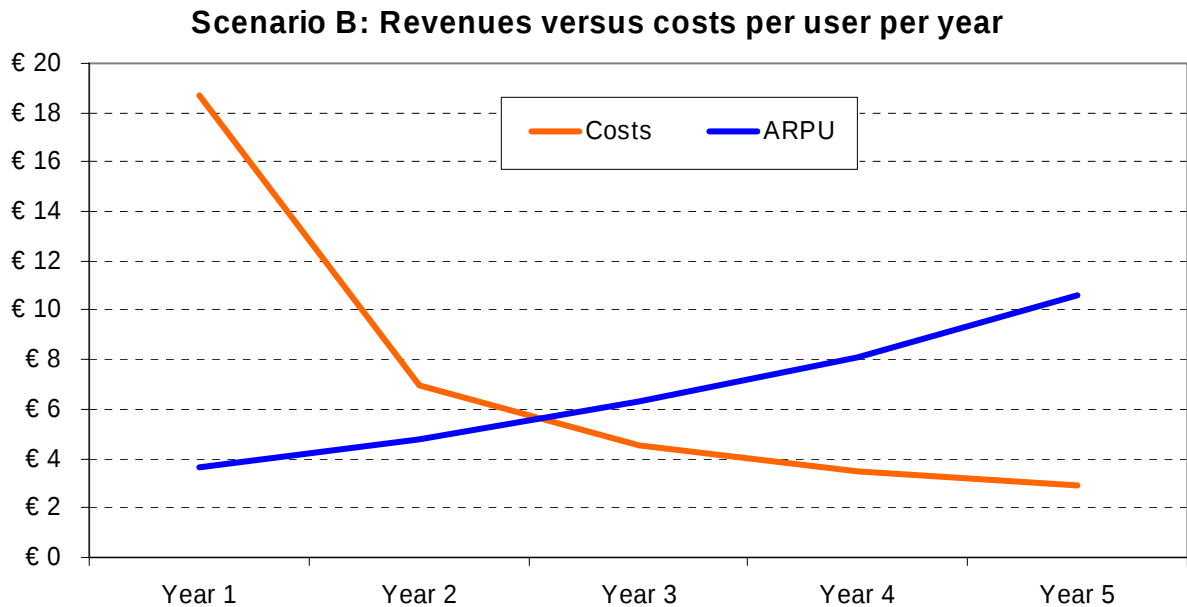


Figure 18: Revenues vs costs per user per year (scenario B)

6.3 Risk analysis

This paragraph gives an overview of risks associated with introduction of ConnecTV services. The paragraph ends with the most important risks based on an analysis of the probability of occurrence and impact.

1. When not all TV service providers provide ConnecTV-services or the independent CP does not have connections with all TV-platforms, users are not able to connect all their friends. This can give users the experience of an incomplete service.
2. The CP needs quite a large user base to be really interesting for users. Network services can only realize real growth figures with a certain user base; you need critical mass to reach network effects.
3. Connection to the TV-platform is crucial for a smooth service perception, this is crucial for the success of ConnecTV.
4. ConnecTV may only be useful for watching TV individually.

5. A lot of households have digital television already but not a STB with the right functionality and a return channel for interaction. A lot of digital cable TV subscribers do not match these criteria.
6. Is the consumer need for ConnectTV sufficient? ConnectTV can be too complex to understand by the consumer so that the adoption rate of ConnectTV remains low.⁴¹
7. Although the results of the pilot show otherwise, the television set in the living room might stay a lay-back and relax experience; interactivity will take place on the computer. A possible scenario is that the second/third television set in households will disappear and that they will be replaced by the computer. Some teenagers already view television via Windows Media Center on their PC. With the STB needed for every television set and increased computer and internet usage this scenario will become more viable, especially for teen-agers. The sleeping room television set is pre-eminently suitable for using ConnectTV because it is more used for watching television alone.
8. Time to market. TV service providers see ConnectTV as an important concept for interactive TV. However it is not part of the roadmap yet because implementation is complex.⁴² When TV service providers wait much longer, ConnectTV will be passed by competition of other recommendation mechanisms that will be introduced and web based recommendation systems can have a position that is too strong for the introduction of ConnectTV.
9. For offering ConnectTV a CP does need an agreement with content providers. The content providers can frustrate the service if they are not happy with the new way of content searching and the impact of some ConnectTV options.
10. The user pilot shows that ConnectTV is used actively. However, other users should also actively use the service. When a lot of users appear offline it will not stimulate others to use it.

The importance of risks depends on the probability of occurrence and the impact of the risks when it does occur. All risks are measured against these two criteria to gain insight in the most important risks.

⁴¹ Interview with KPN. According to KPN, this is also an important reason for the slow adoption of digital television

⁴² Interview with KPN

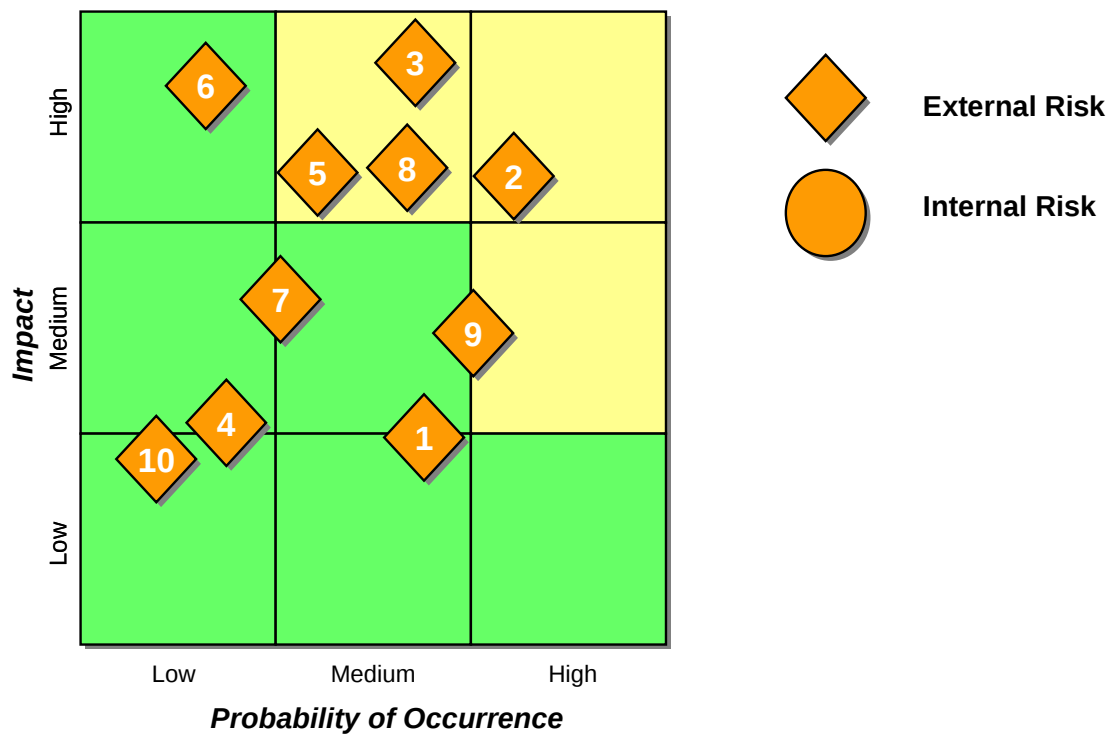


Figure 19: Overview of risks

The most important risks are:

(3) Connection to the TV-platform is crucial for a smooth service perception, this is crucial for the success of ConnecTV. When the TV service provider will offer ConnecTV, he can make this connection with the platform.

(2) The CP needs quite a large user base to be really interesting for users. Network services can only realize real growth figures with a certain user base, you need critical mass to reach network effects. This risk can be reduced by partnering with a company like Hyves or MSN so users can use their existing buddy-list for ConnecTV. TV Service Providers such as Cable TV Service Providers should cooperate as much as possible to offer ConnecTV to their whole customer base and increase the ConnecTV added value.

(8) Because of the competition it is important for TV SPs to introduce the ConnecTV service soon. Time to market can be shortened by starting with offering ConnecTV via a web based version. Introduction via the

web is less complex, and requires less time compared to ConnectTV on STBs. In this way ConnectTV can be offered for consumers that watch TV on their PC in combination with a TV tuner card.⁴³ However, this can only be a premature situation: since the PC is more open compared to STBs, and TV tuners and PCs are configured very differently, it can be hard to guarantee a smooth service. In case of a temporary beta version of ConnectTV, this will probably be accepted by the users.

Other risks that have less but significant impact on the introduction of ConnectTV for the TV service provider are described below.

(1) In the beginning of the service it will be inevitable that not all of the households can make use of ConnectTV. But when one particular TV service provider offers ConnectTV, the risk that not everyone can use ConnectTV is lower. It is probable that all cable operators will use the same technology, so that the connection of ConnectTV between cable TV platforms becomes easier and more consumers can use ConnectTV. Also, by starting with a web based version ConnectTV can be available for a larger audience.

(4) During the pilot ConnectTV was used individually as well as together with other family members.⁴⁴ This means that ConnectTV can be used on the TV set in the living room as well on the TVs in the kitchen and sleeping rooms

(5) For TV service providers it is important that all of their users have an interactive set top box. In this way, they can use interactive services and revenues per user can be increased. It can be assumed that in the following years the greatest part of the subscribers will have an interactive STB.

(6) Communication about ConnectTV and explaining the added value remains very important. This can be facilitated by letting users test ConnectTV without obligations. In this way they can experience ConnectTV and a 'viral effect' can be generated because users can make their friends enthusiastic.

(7) If ConnectTV is in particular used on computers and media centres, this means that the TV service provider that is offering ConnectTV should also focus on PCs. This corresponds with (8) to make ConnectTV suitable for internet and PC.

(9) Content providers should be persuaded about the added value ConnectTV has for their business. This can be done by showing the pilot results and running tests in cooperation with content providers.

⁴³ This configuration was also used for the user pilot in Enschede.

⁴⁴ Pilot results

(10) Active use of ConnectTV can be stimulated by making the added value to be an active user as great as possible. This can be done by making overviews of most active users and by rewarding users who bring in other friends. Also, reputation and status can be given to the most active users.⁴⁵

The risks that have been described in this Chapter should be taken into account with for the commercial exploitation of ConnectTV. For the success of ConnectTV it is in particular important that the ConnectTV Service Provider has a good Quality of Service, that ConnectTV can be used by a large audience and that time to market should be shortened where possible. This can be enforced by extensively beta testing ConnectTV, by offering ConnectTV to users from other TV Service Providers and by partnering with existing communities with a large audience.

⁴⁵ This is a common method on forums on the internet to stimulate active use of the forum. The more messages the user posts, the more stars and points he gets

7 Guide for exploitation

7.1 Introduction

The road to ConnectTV exploitation requires a number of activities that should be performed. These activities are drawn from the new product development process and summed up in figure 23. This list describes the activities that a TV Service Provider needs to perform prior to providing ConnectTV. The activities for organizations that are not yet offering the basic TV package are not described here, as we believe that offering ConnectTV will only be viable for already-existing TV Service Providers.



Figure 20: ConnectTV exploitation stages (green marks already executed activities, yellow partly done and red, activities that still have to be performed)

During the interviews, the TV Service Providers stated that for most TV Service Providers it is not possible to use an end-to-end solution from an independent ConnectTV Service Provider. Because of the complexity of current systems and closeness of the TV platforms, a lot of the activities have to be executed by the TV Service Provider itself. Therefore, most TV Service Providers (KPN, @Home) want to develop and implement ConnectTV by themselves.

The activities for the introduction of ConnectTV are listed below. Some of these activities have already been done in this research (marked green). Others are still to be done by the TV Service Provider (red), and some activities have been partly covered by this research (yellow). The activities that still have to be undertaken are described in paragraph 7.2 an outline of a possible timeline is in 7.3.

7.2 Activities

The activities for the introduction of ConnectTV are described in this paragraph.

1. **Idea generation** – During an earlier Freeband project (about two years ago) several ideas were created such as interactive TV and ConnectTV. More information on this subject can be found on the Freeband website.⁴⁶
2. **Idea screening** – Careful evaluation of the ideas generated in stage 1, lead to the selection of ConnectTV for developing a demo to show the concept to customers and contacts. After a while it has been decided to start the ConnectTV pilot.
3. **Concept development and testing** – this stage implies the testing of the ConnectTV concept with a small portion of the target audience. This was done in the pilot performed in Enschede during the second half of 2007. This pilot also delivered information about which features will be most valuable to the customer. The pilot results have been incorporated in this business plan and will be made public in the beginning of 2008.
4. **Business analysis** – An in-depth analysis of the business aspects of ConnectTV and an estimation of the breakeven point, sales price and costs has been done in this research. However, to gain a go-ahead from TV Service Provider's management, three activities have to be undertaken by the TV service provider's business development department.
 - a. Extend the patent research to know whether there are blocking patents: for commercializing ConnectTV, the provider needs to know whether ConnectTV functionality has already been patented by another organization. If so, the specific functionality needs to be adapted so that the patent will not be infringed or schedule an agreement with the patent owner to make use of the patented functionality.
 - b. Convince the management to introduce ConnectTV by showing the ConnectTV business case: in order to convince the management team in order to invest in ConnectTV, a clear insight in the needed investment, the revenue potential and the risks must be presented.
 - i. Persuade the management of ConnectTV's fit with their corporate strategy and positioning in the market and also of ConnectTV's technical feasibility.
 - ii. Prove the commercial relevance of ConnectTV by showing the fit with consumer needs, a positive impact on the digital TV business case and the fit with the management's ambition.

⁴⁶ <http://www.freeband.nl>

- iii. Finalize the risk analysis. The risk analysis includes an estimation of the probability of occurrence and impact of the identified risks. There is also an action plan to minimize the probability of occurrence and the impact of potential risks.
 - c. Develop an implementation plan that fits the TV service provider's internal service development process. Necessary elements in this implementation plan:
 - i. Make a ConneCTV roadmap: the desired basic and additional functionality of ConneCTV (audio channel, advertising, etc.) needs to be defined. Link this ConneCTV Roadmap with the interactive Digital TV roadmap.
 - ii. Make an analysis of the impact of ConneCTV on the current technical architecture (TV platform and STBs). Describe what is technically needed to offer ConneCTV on top of the current architecture. Describe the potential suppliers for adjustments to the current architecture or to deliver new parts of the technical infrastructure.
 - iii. Check whether ConneCTV has to deal with legislation in the law for Telecommunications services and the law on protection of personal data. Also determine what extra measures need to be taken.⁴⁷
 - iv. Make an analysis of the impact of ConneCTV on the current IT architecture and all relevant processes (ordering, provisioning, billing, customer care, etc.). Describe the total process, from ordering ConneCTV until first use of ConneCTV (including technical support). Describe the potential suppliers for adjustments to the current architecture or to deliver new parts of the infrastructure.
 - v. Make a project planning for the implementation. Describe the planning, deliverables and needed resources and reserve time of members of the implementation team.
- 5. **Beta testing and Market testing** – The TV service provider will test the ConneCTV service both in technical and in market terms. A Beta version of ConneCTV is tested with a selection of the TV service provider's current customer base. This testing involves a number of activities:
 - a. Technical development: develop a Beta version of ConneCTV based on the description in the implementation plan. The Enschede pilot version of ConneCTV⁴⁸ can be adjusted to

the TV service provider's needs or a new version can be developed. The Beta version should also be integrated with the TV platform of the TV service provider.

- b. The application will be tested on technical functionality to solve possible errors in the technical platform and STBs that will be used by the customers. The Beta testing continues until there are no technical errors anymore.
- c. The application will be evaluated by involving customers to test and evaluate ConnectTV. To determine customer acceptance a group of current customers will use the service during a specified time.
- d. The results of the technical and market testing will be incorporated in the implementation plan.

6. **Technical implementation** – After successful testing the TV service provider will start with the technical implementation. The technical implementation consists of two parts: implementation of ConnectTV in the technical architecture and implementation of ConnectTV in the processes and IT architecture.

- a. ConnectTV will be implemented in the technical architecture based on the description in the implementation plan.
 - i. The Beta version that is tested will be adjusted to a scalable version. This scalable version will already be prepared for added functionality in the future.
 - ii. Make an invitation for tenders from technical suppliers.
 - iii. Create a logging facility, in order to record viewing behaviour. This can be helpful for further development of the service and advertising income.
 - iv. Adjust the STBs to provide interactive channels and the ConnectTV application.
- b. ConnectTV will be implemented in the processes and IT architecture based on the description in the implementation plan.

⁴⁷ According to KPN the communication functionality of ConnectTV is enforced to the Law for Telecommunications. This means that communication data needs to be 'tapped'.

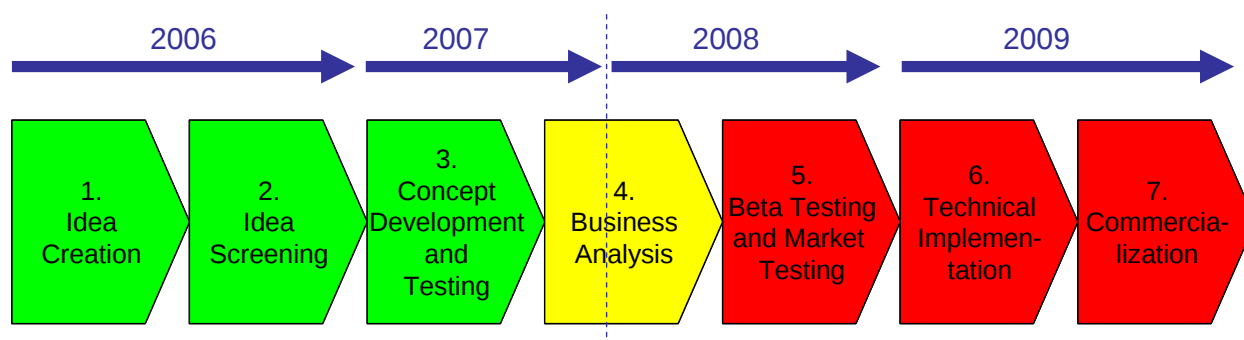
⁴⁸ The Enschede ConnectTV application works on analogue television; in order to implement ConnectTV on digital TV this application needs to be modified.

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- i. Order fulfilment: after ConnectTV has been ordered by a customer, the process of delivering ConnectTV and making it work on the customer's TV has to be organized.
 - ii. Billing: there needs to be a payment system in order to send bills to ConnectTV users.
 - iii. Customer care: setup and educate customer care agents in order to provide service to ConnectTV users. Also, there need to be an agreement with the TV service provider about the distinction between customer care that is performed by the TV service provider and by the ConnectTV service provider.
 - 7. **Commercialization** –The final stage in the new product development process is the commercialization of ConnectTV. This involves several activities from the preparation of the launch to after sales service.
 - a. Develop a market plan: for the introduction of ConnectTV, a market plan needs to be made that contains the following issues:
 - i. Determining the positioning in the current portfolio of the TV service provider's products
 - ii. Further specify the ConnectTV target group(s).
 - iii. Describe how customers will be attracted to use ConnectTV and how they can apply to start using ConnectTV.
 - iv. Define the roadmap of product features.
 - v. Determine the pricing strategy.
 - vi. Arrange the distribution of ConnectTV.
 - vii. Develop the promotion and communication plan.
 - b. Build strong relationships with involved parties:

- i. Make agreements with content providers and broadcasters to use ConnectTV on top of their content. Also extend the current content offer by making deals with other content suppliers, and by providing network PVR services (uitzendinggemist, RTL gemist, etc.).
 - ii. Make agreements with organizations that possess rights on 'blocking patents' to deliver ConnectTV.
 - iii. Develop relationships with advertisers and media sourcing agencies so that they will advertise on the ConnectTV application.
 - iv. Make an agreement with a CP (Hyves or MSN), so that the community can be plugged into the TV platform and customers can use their Hyves or MSN buddy lists.
- c. Market introduction according to the market introduction strategy developed in the market plan. This also entails the communication campaign about ConnectTV.
 - d. Monitor the usage of ConnectTV and adjust the service offering based upon user experience.
 - e. Maintenance of ConnectTV service and roll-out additional features.

7.3 Timeline

The figure below shows an indicative timeline for the commercial introduction of ConnectTV by a TV Service Provider.



The green activities have already been performed in 2006 and 2007. In 2006 a B@home project team finalized the idea creation and idea screening; they selected ConnectTV as one of the most promising services. In 2007 the concept of ConnectTV is developed into a pilot service. The pilot took place in

Enschede in the second half of 2007. In 2007 this business plan is developed with insights in the commercial viability of ConnectTV.

In the first half of 2008 the TV Service Provider should finalize the business analysis as described in paragraph 7.2. After a go-decision of the TV Service Provider's management team the second half of 2008 can be used for beta and market testing. After successful beta and market testing the technical implementation and commercial introduction can be in 2009.

The indicative timeline will be a challenge for a TV Service Provider. If the TV Service Provider does not start with the business analysis early 2008 or if the testing is not successful, the commercial introduction of ConnectTV will be delayed.

8 Conclusions and recommendations

This business plan describes the feasibility of the introduction of ConnectTV in The Netherlands and how ConnectTV can be commercially exploited.

It can be concluded that TV Service Providers are most likely to offer ConnectTV. However, the commercial introduction can be complex.

8.1 In The Netherlands, TV Service Providers are most likely to offer ConnectTV

Technically, a link with the TV platform is needed

It is hardly possible for independent ConnectTV providers to make a link with the television platforms. TV platforms are often closed and setting up interactive services requires significant changes in current systems for e.g. fulfilment, billing, customer service and integration with current TV systems. The majority of these activities need to be executed by the TV Service Provider himself. Therefore, it is most likely that ConnectTV will be developed and offered by the TV SP itself.

On the service side, TV SPs can use ConnectTV to enhance their TV offer

TV SPs can add ConnectTV to their interactive service offering. It will be an extra functionality to attract consumers to subscribe to its premium interactive package. ConnectTV can lead to more revenue per user if users recommend on-demand and premium content to each other.

Also, compared to other organizations in the TV value web, TV SPs already have a more intensive relationship with their customers, which makes it easier to provide ConnectTV and extra (paid) services.

Financially, on the long term a positive business case is possible

Compared to other organizations in the TV value web, the TV SP can also have multiple indirect sources of revenue that make ConnectTV more interesting. It will probably be infeasible to cover the investments and costs of providing ConnectTV by only generating direct revenues; consumers will not be willing to pay for using ConnectTV, and ConnectTV needs a very big audience in order to break-even with advertising alone.

On the long term, the direct and indirect revenues can surpass the investments and costs that are needed to provide ConnectTV.

On the organization side, TV SPs have a good position to offer ConnectTV

For organizations such as Community Providers it can be difficult to offer ConnectTV, because they need to enter into relations with content providers, STB providers and TV Service Providers to make agreements on using ConnectTV in combination with their offerings.

Since TV SPs already have these relations it is easier for them to setup the ConnectTV service. Also, TV SPs can partner with community providers such as Hyves to accelerate the use of ConnectTV. For other organizations the other way round will probably be more difficult.

Cable companies are most likely to offer ConnectTV

Cable operators have a strong position in the Dutch TV market because they serve a great part of the Dutch TV households. Because cable operators offer multiple content and interactive services, ConnectTV can also stimulate the use of other these services. Cable companies can profit from the indirect revenues that can be generated. Also, by remotely setting up ConnectTV on the STBs, cable companies can relatively rapidly roll out ConnectTV to their customers. In a later phase other TV Service Providers can also offer ConnectTV so that the potential user group can be increased.

8.2 The commercial introduction for ConnectTV will be complex

On the service side, ConnectTV faces a lot of competition and substantial growth of digital TV households is needed

On the internet, a lot of substitute services are available that can fulfil part of the same need as ConnectTV does. Hardly any of such services can be found on TV, but because of the substitutes on the internet, the ConnectTV added value can be hard to explain.

At this moment, the use of digital and analogue TV is dispersed. For making ConnectTV work and create a network effect, a large audience needs to use digital TV. In this way the added value to use ConnectTV increases since more friends can be added to the buddy list.

On the technical side, STBs need to be interactive and there need to be no blocking patents

For using ConnectTV users need to have an interactive STB that can receive a TV signal and has a return channel for interactivity. While some TV SPs has a fair base of interactive STBs, interactive STBs need to be used by a larger number of households.

Also, ConnectTV functionality may infringe a number of blocking patents that can frustrate the development of ConnectTV. In order to use the functionality in case of a blocking patent, an agreement needs to be

made with the patent holder and a payment may be needed. When no agreement can be made, the functionality can not be used in ConnectTV.

On the organization side, a lot of parties have to be involved to realize ConnectTV

For providing ConnectTV, the TV Service Provider has to make a lot of deals with content providers for using overlays over their content. Also deals with STB providers need to be made so that ConnectTV works on their STBs and advertisers need to be attracted to advertise in ConnectTV.

The TV Service Provider needs to agree with the STB provider that ConnectTV works with the STBs that are used by their customers. Agreements with content providers are needed to use the ConnectTV overlays over their content. Also, in order to generate revenues, advertisers deals need to be made. All the relations that are needed make it complex to offer ConnectTV.

On the financial side, more revenue sources should be attracted

When a TV Service Provider wants to decide whether or not to implement ConnectTV, the ConnectTV business case should be more positive compared to the business case of other interactive services. Although ConnectTV can generate multiple small sources of revenue, it can be complex to realize a steady and large stream of revenue that significantly exceeds the investments for introducing ConnectTV.

Also, it is hard to make revenue deals on the greatest asset of ConnectTV: the influence it has on viewing behaviour. In theory, when ConnectTV users watch 10% more television, 10% more advertising revenues can be generated. In practice it is hardly possible for a TV Service Provider to prove that ConnectTV has been the driver for the change in viewing behaviour and consequently claim a part of the extra advertising revenues.

8.3 Recommendations

For maximizing the success for the commercial exploitation of ConnectTV, a number of activities is recommended.

Join other existing TV & internet initiatives to maximize reach and strengthen the situation

When ConnectTV is available for a large audience right from the start, more consumers are able to join ConnectTV so that adoption of ConnectTV can be accelerated. Since this is dependent on the growth of digital TV and interactive STBs it can be wise to begin with offering ConnectTV on the internet. By joining existing initiatives (e.g. Zie.nl or TVgids.nl TV guide) or setting up an own website the consumers that do

not yet have digital and interactive television can already use ConnectTV. This can increase the success of adoption of ConnectTV.

Communities such as Hyves and Innovative broadcasters such as VRPO may be interesting organizations to cooperate with. E.g. VRPO already provides a personal Program Guide and 3VOOR12 portal on the internet. ConnectTV can help VRPO to strengthen their innovative image. The TV Service Provider can differentiate from other internet initiatives and build up a user base for the ConnectTV version for TV.

Minimize barriers to use ConnectTV

Among ConnectTV users it is important that time and effort for using ConnectTV is as less as possible. The TV SP can increase the adoption of ConnectTV by taking care of the installation and setup of ConnectTV. By e.g. making ConnectTV a standard on new STBs, consumers do not have to configure ConnectTV themselves and can instantly make use of ConnectTV.

Make ConnectTV useable for TV as well as other content

It is important that ConnectTV supports broadcasted, on-demand and recorded TV content, as well as content distributed via the internet. For the users, it is of no importance whether the video content that he watches is distributed via his TV network, internet, PVR or other content distribution channel.

Search for extra revenue models that make the business case stronger

Currently the business case contains multiple small sources of revenue. With a bigger source of revenue it will be more interesting to provide ConnectTV and the business case will be positive earlier. One way to do this is to ask money for the influence of ConnectTV on viewing behaviour.

It will be hard to persuade broadcasters and advertisers to quantify the value of ConnectTV and the impact that it has on viewing behaviour. Therefore, it may be wise to show them the effects of ConnectTV step-by-step by providing insight into using e.g. the theme buddy to influence viewing behaviour and to show the registered data to convince that ConnectTV can drive viewers and advertising revenues.

When broadcasters and advertisers agree on the impact that ConnectTV has on viewing behaviour, this asset can generate substantial revenue.

Cooperate with other cable operators to enlarge the reach for ConnectTV and maximize the network effect

A prerequisite for a successful ConnecTV introduction is that users from different TV Service Providers can use ConnecTV.

Cable TV Service Providers will use the same technology supplier in the future and cable TV Service Providers have a high market share in the digital television market and a large footprint in the analogue television market. Therefore it is recommended that cable TV Service Providers cooperate so that ConnecTV can be used with all cable TV Service Providers. This can be interesting for cable TV Service Providers because they can strengthen their position against telecom operators.

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Appendix A: interviewed and involved organisations

Interviews

- @Home (Cable TV distributor)
- Breedband Twente (Institution for realizing broadband services)
- CanalDigitaal (Satellite TV distributor)
- Casanet (provider of fibre optics network in Enschede)
- Chello Media Interactive (application provider for interactive services)
- Eyeworks (content production company)
- KPN TV & KPN WSO (TV distributor)
- Lucent-Alcatel (Consumer Electronics Provider and application provider)
- M&I Partners (consultancy for ICT & broadband services)
- Muze (development and consultancy agency in Enschede)
- NDIX (digital market place for broadband services)
- Speak Up (provider of VoIP and IP telephony)
- Talpa (broadcaster, content provider)
- Telenet (operator in Belgium)
- VPRO (broadcaster / content provider)

Indirectly involved during events

- Hyves (Community provider), MTV Networks (broadcaster), AKN & TV gids.nl (provider of online & offline TV guides), Doucet Development (Consultancy about new media and e-commerce), Kennisnet (internet organization for Dutch education), SBS (Broadcaster), Microsoft (provider of IPTV platform instant messaging services, etc.)

Appendix B: Advertising

ConnectTV can be valuable for advertisers

By the growing number of TV channels and video content services (e.g. video-on-demand, delay-TV), advertisers face more and more difficulties in reaching their target group. Where there used to be a limited number of channels, the greater part of the audience could be reached by advertising on a limited number of channels. The emergence of digital TV and internet creates a lot of new video content, so viewers are less concentrated to specific TV channels. Furthermore, zapping and digital recorders caused that a lot of consumers are skipping commercials.

That's why ConnectTV becomes a valuable proposition for advertisers. Firstly ConnectTV can generate an intensive amount of data on viewing behaviour. While most broadcasters and advertisers use data and surveys from research from Stichting Kijkonderzoek⁴⁹, with a limited group of households to determine the effectivity of their advertisements, ConnectTV can provide extra detailed information about the programs and commercials that are watched. Also ConnectTV is interesting since advertisers can gain insight in which family member is actually watching TV.⁵⁰ This information can be used to gain insight into their target groups and to target advertising.

Secondly, in the ConnectTV screen banners or video advertisements can be displayed. This is already used by Microsoft in the MSN Messenger screen. Videos can be supplemented with advertisements at the bottom of the screen; advertisements can be displayed when a user accepts a recommendation or the displayed content will be preceded by a so-called "pre-roll advertisement". This already occurs when playing games on miniclip.com or playing videos on YouTube.

⁴⁹ <http://www.kijkonderzoek.nl/>

⁵⁰ Statement from Charles Dawes, Chello Media Interactive

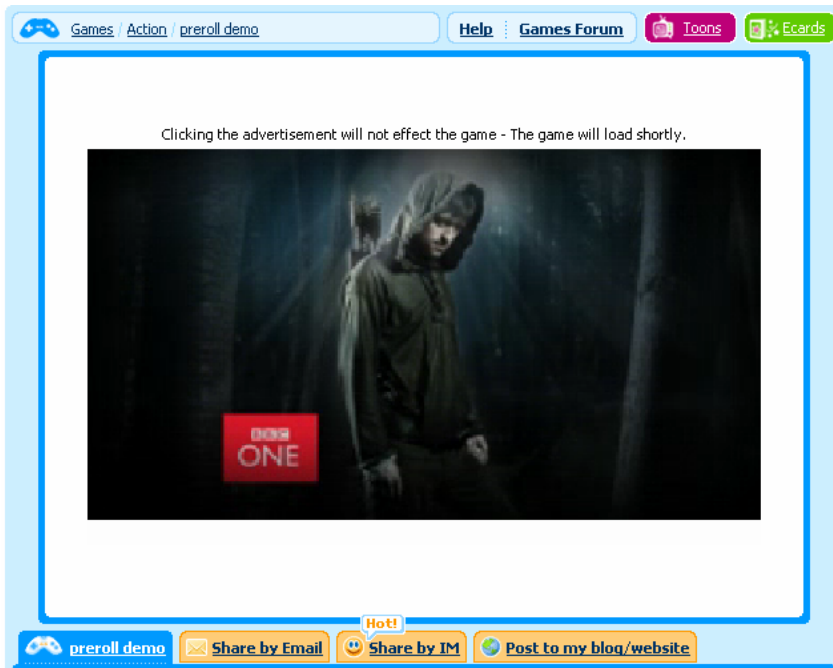


Figure 21: Pre-roll advertisement before a game on miniclip.com

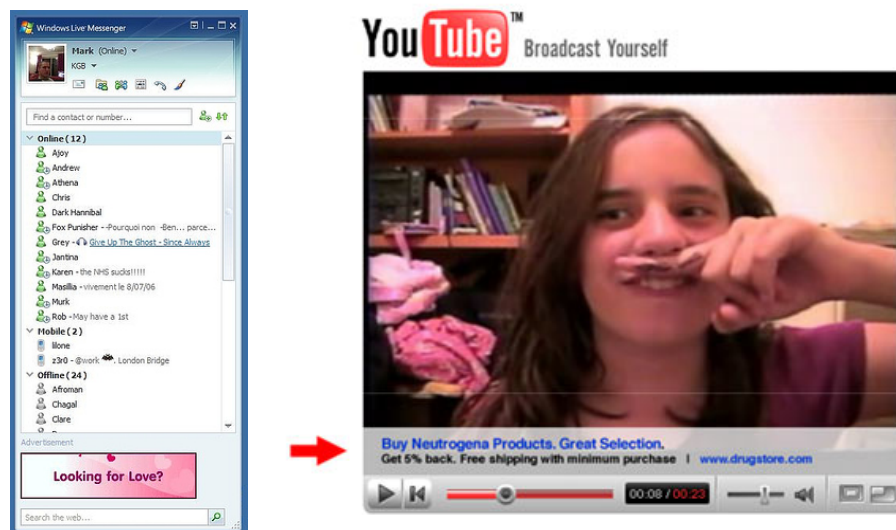


Figure 22: Advertisement in MSN Messenger and advertisement on the bottom of a Youtube video

Appendix C: Target groups

Watching TV is an activity that people like to do together. According to SKO⁵¹ figures about two third of the time people watch TV, they watch it together with other people⁵². This means that one-third of the time consumers are watching TV on their own. Also, because the number of TV's per households increases, watching TV gets more and more individually. The time consumers watch alone they might be interested in watching TV 'virtually' together. Another option is that people who already watch TV together want to add one or more extra buddies to their TV experience.

To establish which groups of consumers are the most likely users of ConnecTV, target groups are defined. This segmentation is done by using demographic variables. These variables have been chosen because of the ease of applicability, and the availability of these variables.

The following target groups for ConnecTV can be distinguished:

Youth (10-24 years)

The youth is an important target group because they are active messenger and community users. In the Netherlands there are almost 5.8 million active users of MSN Messenger. 23 percent of the users is between 15 and 24 years old. Within Dutch youth (younger then 20 years old), 90 percent uses MSN.⁵³ Also, this youth is online a lot and does have a need for interaction, communicating and entertainment.⁵⁴ A large part of this youth does have an online profile⁵⁵ and use social networking sites for staying in touch with friends and make new friends or flirt.⁵⁶ On average, Dutch youth between 15 and 24 years old do have 113 contacts in their MSN Messenger list. When people get older, the use of MSN messenger decreases to 50 percent for 20-35 years old to 40% for 35-49 years old.

The people described here are used to having intensive, digital contact. Therefore, it is likely that during watching TV they gain added value from these other types of contact.

Four million people who are younger than twenty years old live in the Netherlands.⁵⁷ Assuming that half of the people are younger than ten years, this target group consists of two million people.

⁵¹ Stichting Kijk Onderzoek, the Dutch organisation that measures viewing figures.

⁵² "Rendement TV spots hoger als er over gepraat wordt", Marketing Tribune, april 2007

⁵³ Webwereld (2006). '90 Procent van de tieners gebruikt MSN Messenger', 8 april 2006, <http://www.webwereld.nl/articles/40600/-90-procent-van-de-tieners-gebruikt-msn-messenger-.html>

⁵⁴ <http://www.frankwatching.com/archive/2005/10/26/eccky-komt-er-wel/>

⁵⁵ <http://www.planet.nl/planet/show/id=62967/contentid=794676/sc=8fb430>

⁵⁶ http://www.pewinternet.org/pdfs/PIP_SNS_Data_Memo_Jan_2007.pdf

⁵⁷ CBS, 2007

Singles

Single people can be willing to use ConnectTV to stay in touch with their friends and make new friends. Instead of watching TV alone, singles can watch content together with their friends and communicate while watching TV. Also, ConnectTV gives you the opportunity to make new friends. Based on viewing behaviour data, singles with similar interests and preferences can be matched and can be introduced to each other.

Compared to other countries in Western Europe, the number of sole households in The Netherlands is high (2,5 million households⁵⁸) and growing;⁵⁹ Also more sole parents do exist.

65+ (active elders)

A lot of active elders live on their own and they have a lot of spare time. Compared to other age groups, active elders do spend a lot of time watching TV. Also, more and more elders use ICT services, such as internet and email. In 2003 64% of 55-64 yrs and 31% of 65-74 years elders used internet. This trend can also apply to using ConnectTV: elderly are getting used to digital media so they might be willing to use ConnectTV. On the other hand elderly are normally not early adopters of digital media. Nevertheless, elders will make use of the interactive services in a different way youth does.

There are over 3 million people that are older than 60. Approximately 2.5 million are older than 65 years old.⁶⁰

Members of housing corporations

For delivering more service to their customers, a growing number of housing corporations is placing broadband connections and extra services on the broadband network. Within OnsNet Nuenen for example the local housing corporation exploits a fibre network and develops healthcare and video services. In this way the attractiveness of homes will increase, and the loyalty of home owners to their housing corporation will strengthen.⁶¹ Therefore, members of housing corporations are a target group too.

One third of the homes in The Netherlands (about 2.5 million) are owned by housing corporations.⁶²

⁵⁸ CBS, November 2006

⁵⁹ http://www.singlessite.nl/europa_singles.html

⁶⁰ CBS, January 2007

⁶¹ Interview with M&I Partners

⁶² CBS 2003. <http://www.cbs.nl/nl-NL/menu/themas/bouwen-wonen/publicaties/artikelen/archief/2003/2003-1126-wm.htm>

Appendix D: Porter's competitive forces for ConneCTV

Internal competition

There is no internal competition yet because there is no ConneCTV-like service operational at the moment (only in the internet domain and in R&D environments). Alcatel-Lucent developed the comparable AmigoTV. The three main features of AmigoTV are presence, voice communications and rich multimedia messaging on TV. Alcatel-Lucent is trying to sell its technology to TV service providers⁶³, there are no deals with TV service providers yet. They consider to offer AmigoTV as a service independent of TV service providers.

ConneCTV differs from Amigo TV with respect to the functionality: it is more interactive, and friends can use chatting via text and voice. Also users can display emoticons and slogans on the screens of their buddies. This is comparable to the winks and emoticons in MSN Messenger.



Figure 23: Alcatel-Lucent's AmigoTV

Microsoft provides instant messaging (MSN) and delivers software for IPTV (Mediaroom) to operators in Europe (e.g. British Telecom, Deutsch Telekom) and North America. It is a logical step for Microsoft to add messaging-like services to their IPTV-platform and try to sell it to their customers.

Mediamall offers an interactive TV platform to households in Roermond, Sittard-Geleen and Enschede. Users can watch theme channels, make their own TV channels, send recommendations to other

⁶³ AmigoTV has been piloted in Austria

Mediamall users (family and friends), and bank. Currently, Mediamall operates in three pilot-regions in the Netherlands. The business model is not clear yet because it is still a pilot situation. Mediamall is a joint venture of Stream Group and KPN.

Potential entrants

There are several potential entrants who might enter the market as a ConnectTV service provider:

- TV service providers: UPC, Casema/Essent/Multikabel, Tele2, KPN

TV SPs are able to develop ConnectTV-related services themselves and provide ConnectTV on their platform. In this way they will compete directly with ConnectTV.

- Current internet community providers like Hyves

Internet community providers already have a large user base of users that are interrelated. It may be possible that community providers combine the functionality of the internet community with TV. Nevertheless community providers will probably not be able to deliver the basic TV package.

- Housing corporations/glass initiatives

Housing corporations like OnsNet Nuenen are setting up local glass fibre initiatives. It is possible that they will also develop ConnectTV related services. Nevertheless, because of the locality of these initiatives the threat to ConnectTV will be very small.

- Suppliers of internet-video-services like Joost and Babelgum

These suppliers already support ConnectTV-related services, but are not yet available on TV. If Joost will be integrated on TV sets and STBs, this will generate a serious threat to ConnectTV.⁶⁴

- Content providers: the producers of video content (e.g. Endemol, Eyeworks) or content aggregators who also have their own content production facilities (e.g. RTL Group, SBS Broadcasting)

It is not likely that these providers will develop their own platform with ConnectTV-like functionality; they will probably buy the application from a technology provider. Only more innovative parties like Joost and Hyves are able to develop their own applications on their platform.

⁶⁴ <http://www.techcrunch.com/2007/06/15/embedded-joost-will-change-the-market/>

Substitutes

There are several substitutes in different categories, because ConnecTV combines different functionality in one service offering.

1. Communicate about TV-programs with 'standard' possibilities to communicate independent of the TV-signal
 - Calling: mobile, fixed or internet calling (e.g. Skype): call your friends or family to recommend a TV program that is broadcasted right now or in the near future. Or call friends or family to talk about the football match when you are watching TV alone.
 - Sending SMS messages to family or friends about a (coming) TV programme or something interesting that happens in a programme
 - MSN on the internet: watching the TV programme 'together' with the programme on the internet or on the computer (connect the coax-cable to your computer and watch TV channels via Windows Media Center) and using MSN messaging on the computer or your mobile phone.
 - MSN-bot combined with watching programmes via the internet, e.g. the Talpa-Lotte bot to communicate about the Lotte TV programme. The TV programme is broadcasted via the regular TV channel and the MSN-bot is part of the interactive TV programme website.



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2. Find content that you like to watch
 - Zapping: the easiest form of interactivity, searching for the TV programmes you like by going up and down through the channels
 - TV-guides help people to determine which TV programmes to watch. TV-guides are published in different ways and forms: newspaper, separate paper TV-guides, teletext, internet TV-guides. The digital TV-guides offer search functionality and sometimes give recommendations.

- Electronic Programming Guide (EPG) on the TV (digital TV): the EPG gives users the possibility to give accurate information on TV programmes, they also add some programme information when users zap from one channel to another.
 - Automatic suggestions: websites such as YouTube give suggestions for watching other video content. These suggestions can be compared to the "people who bought this book, also ordered .." suggestions that Amazon gives for promoting other books.
 - In the (near) future there will be some additional ways to find the content that you like: search on the TV and a personalised EPG (e.g. iFanz⁶⁵).
3. Receive automated recommendations. There are some means to receive recommendations, these are all examples of receiving recommendations from 'others', not from acquaintances.
- Top-lists (e.g. Uitzending gemist)
 - Reviews
 - Alerts via SMS (Tv-gids.nl)
 - Recommendations from internet-TV-services (Joost, peer-to-peer e.d.)
 - Intelligent PVR's (e.g. Tivo)

It can be concluded that there are very few services that provide a combination of functionality 1-3. There are opportunities for ConnectTV to be one of the first services that combines these functionality into one service that is available on TV.

Customers

The customers of ConnectTV can be divided in two groups: (1) consumers and (2) advertisers.

Consumers

⁶⁵ iFanz is an interactive personalized Electronic Program Guide created by Stoneroos, <http://sync.nl/persoonlijke-tv-gids-helpt-bij-het-tv-kijken/>

Consumers are able to choose whether they want to use ConnectTV-services. When ConnectTV is offered as an independent service apart from a specific TV service provider (i.e. no obligatory subscription of a particular TV service provider is needed) there is no lock-in to the current TV service provider. When the ConnectTV-service is connected to the TV service provider the choice for a TV service provider determines the option to use ConnectTV. There will also be a lock-in because consumers who like to use ConnectTV will not switch to another TV service provider without ConnectTV-like services.

Advertisers

Advertisers are looking for new ways to reach consumers because the effectiveness of current advertising options is decreasing. ConnectTV will offer extra opportunities for advertisers:

- A new ways to advertise: an example are the sponsored buddies mentioned in the service description, consumers are able to opt-in for new advertising formats
- If consumers consent with the collection of user data, advertising will become more effective because it is possible to target customers based on their profile information
- The improved way of collecting TV watching figures will also offer richer information to advertisers.

Suppliers

ConnectTV has quite a lot of suppliers, the main suppliers of ConnectTV:

- Content: the basic functionality of ConnectTV is the recommendation of content to buddies, so enough available content is a prerequisite for ConnectTV-services. The providers of content can be professionals but also user-generated content.
- Infrastructure: consumers need a digital TV subscription to use the service. The exact needed bandwidth depends on the services consumers use, when consumers want to share content that is not on the TV-platform, the content will be send from the 'sender' to the 'receiver'. This requires enough bandwidth of the sender and receiver.
- Video server: the ConnectTV-platform has to be connected to the TV-platform with the video server because of the content recommendations. The TV-service provider is the supplier of the TV-platform and the video server.
- Interactive STBs: consumers need an interactive STB to use ConnectTV-services so that the STB can send user information about the programs that are being watched back to the central

server of the TV SP. It depends on the type of STB whether specific software on the STB is needed. If it is a STB with an internet browser than no extra software is needed. If it is a cable STB with a specific platform than additional software has to implemented on the STB.

- Metadata: Metadata is information that describes, explains, locates, and otherwise makes it easier to retrieve and use content. Metadata is necessary to link programs to users' profiles and to fill theme buddies with the right content. It is quite complex to collect sufficient metadata; most content providers do not yet supply metadata and there is not yet a standard way to add metadata. Therefore, the CP will offer the basis services without metadata. Metadata is a condition for extra services such as theme buddies.
- Platform ConnecTV: the CP needs to build the ConnecTV platform that consists of the ConnecTV application on STBs, servers and middleware that interprets the ConnecTV data.

Appendix E: IPR research

A first observation based on the patent search is that many companies are active in fields covered by ConnecTV.⁶⁶ Based on research on specific companies and keywords a total of 8.664 patents have been found. The patent areas that are most interesting are (see Figure 24):

- (A1) buddy lists and related technologies
- (A2) instant messaging and interactive TV related technologies
- (A3) interactive TV and buddy list and messaging related technologies
- (A4) interactive TV related patents

These patents respectively have 295, 740, 455 and 806 patents on the search terms.

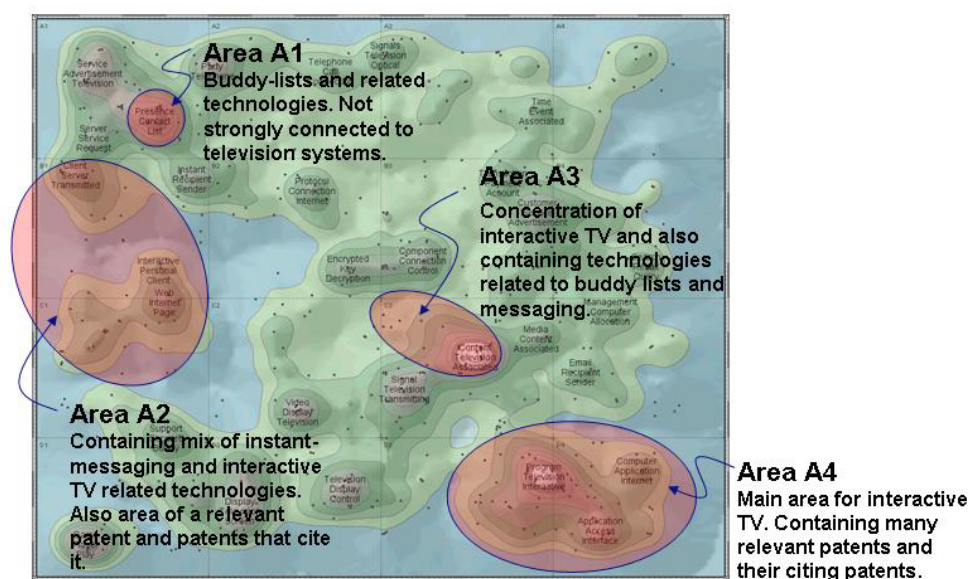


Figure 24: Most relevant patent areas

⁶⁶ When for example searching on buddy related concepts, 2293 inventions are found, while on more specific searches such as the combination of television, recommendations and buddies 10 inventions are found.

In these areas, it is notable that some bigger companies are important players in owning patents. Microsoft for example owns 5-16% of the patents in these patent areas. Other active companies are: IBM, Philips, Alcatel-Lucent, Nokia, AT&T and Yahoo.

Most interesting patent areas

Patent areas that focus on interactive TV (A4) and patent areas related to interactive TV and buddy lists and messaging (A3) are most promising. Patent areas A1 and A2 focus more on software/computer oriented technologies, while areas A3 and A4 focus more on interactive TV and buddy lists and messaging. As ConnectTV focuses on interactive TV, A3 and A4 are further investigated.

- A3: interactive TV and buddy lists & messaging

The 455 patents that have been found in A3 are owned by a lot of different smaller companies. Besides the bigger parties Microsoft, Philips, Alcatel-Lucent, Sony and Digeo Inc that together own 20% of the patents, the other patents are owned by companies that own less than 2% of the patents in A3. Other better known companies that have patents with increasing interest are Nokia, AT&T, Thomson and Cisco.

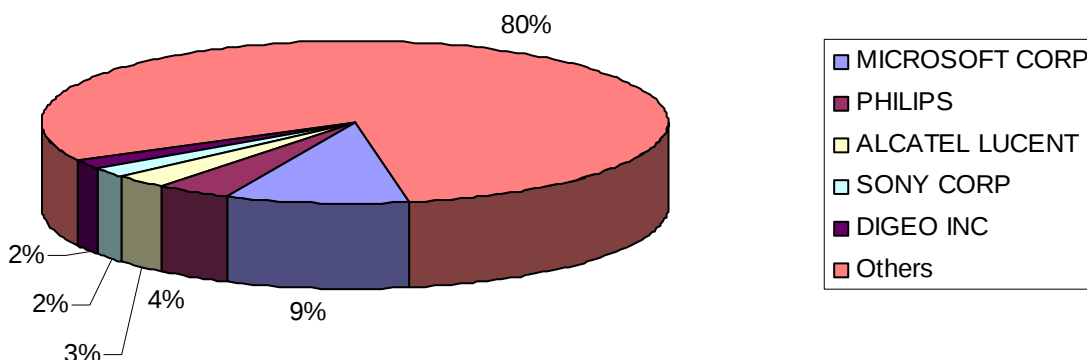


Figure 25: Technology share in A3

As can be seen in figure Figure 26, the number of granted patents recently has got a significant upswing. This shows that the interest for this area grows. This means that it is probable that more patents on this area will be introduced in the near future. For the commercial exploitation of ConnectTV this means that agreement on more patents is needed. On the other side, in this area more and more companies show interest in using patents. Therefore, it may be wise to request patents on parts of ConnectTV functionality that is not yet covered by other patents.

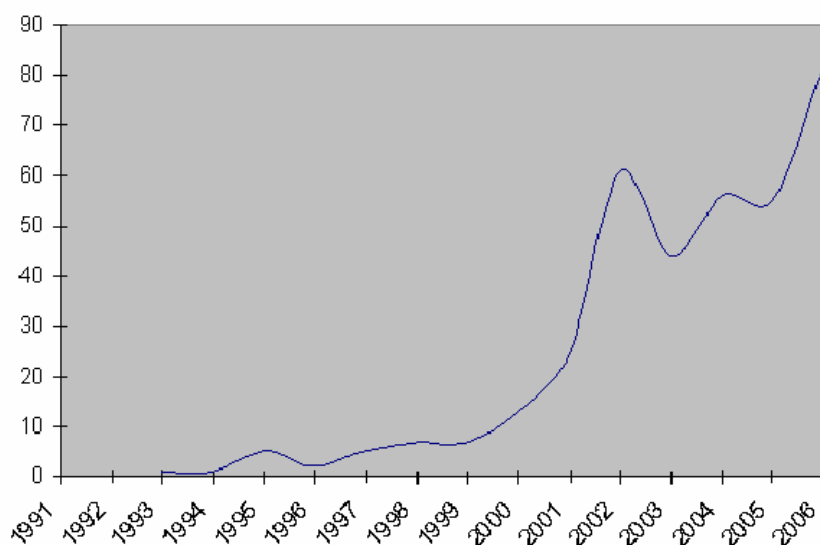


Figure 26: Patent grants per year in A3

- A4: interactive TV

From the 806 patents found in A4, Microsoft is owner of 15% of these. Furthermore, Philips is also active in this field, together with United Video Properties, IBM and Nokia. The other patents are again owned by companies with less than 2% in A4.

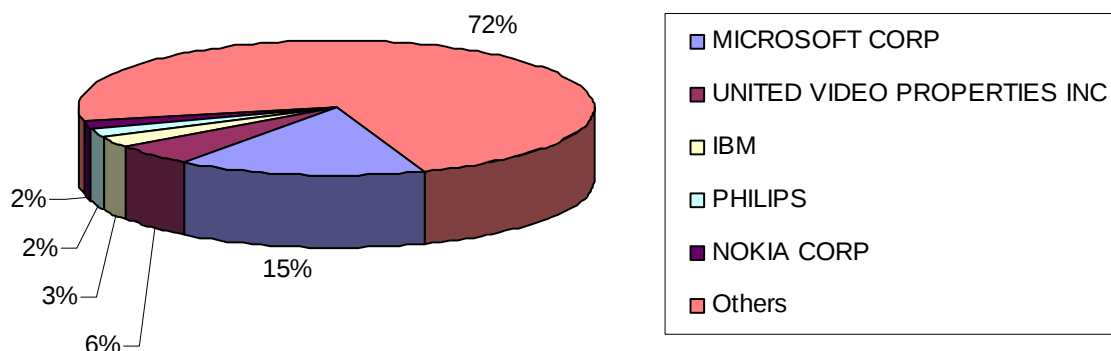


Figure 27: Technology share in A4

As can be seen in **Error! Reference source not found.**, until 2005 there was a significant upswing. Though this seems to be less interesting compared to A3 and the decrease in 2005 could continue. But

compared to A3, the technology is older and looks more mature. Although the recent decrease A4 has a more stable development than A3.

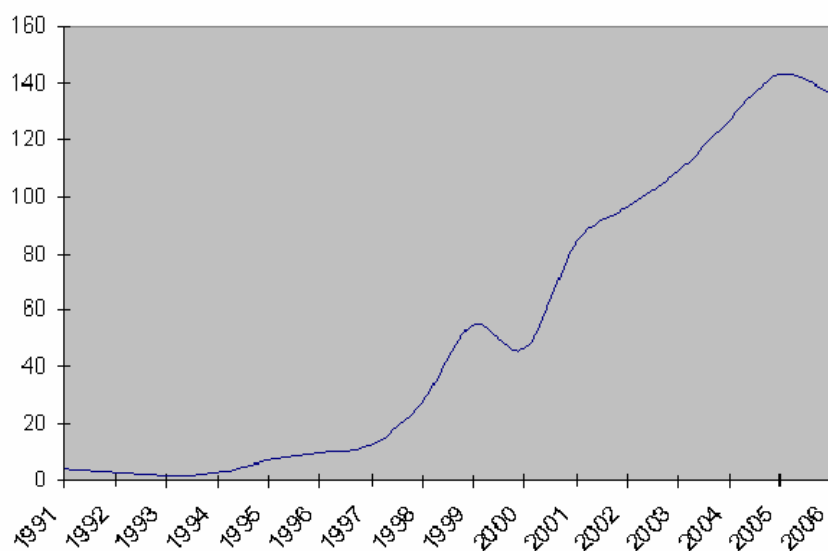


Figure 28: Patent grants per year in A4

Appendix F: TiVo-case

TiVo is a (successful) service in America. TiVo-functionality is not equal to ConnecTV-functionality but there are some comparisons. Both services make use of the STB, there is a connection to the TV-platform of the TV service provider and they make use of metadata. TiVo is/was very successful in the US, in the UK TiVo has to cope with a lot of competition from cable TV operators that offer DVR-services for free or at low additional costs.



What is TiVo?

- Popular brand of DVR in the US, available to the United States, United Kingdom, Canada, and Taiwan
- Consumer video device (hard disk recorder) which allows users to capture television programming to internal hard disk storage for later viewing
- Contains software to record programs—not only those the user specifically requests, but also other material the user is likely to be interested in
 - Record by time, by program title, and by specifying combinations of genre, actors, directors, etc.
 - Programs may be stored until internal storage is filled, at which time the unit will dispose of older programs
 - The program information is supplied by [Tribune Media Services](#) (also in NL) and the TiVo has data for approximately two weeks into the future.
- Time shifting – watch another program while recording or watch the start of the program that is recorded (commercials skipping)

TiVo-functionality and options:

- Season Pass: instructs the TiVo to record a show through the entire season (and beyond) on a particular channel, with the option of recording First Run Only, First Run & Repeats, or All Episodes.

- Wishlist: stored searches – Actor, Director, Keyword, Title, and Category. Auto-Record WishList (ARWL) possible
- TiVo suggestions: recording of additional programs based on the viewing habits of the household.
 - Rate programs (3 thumps up – 3 thumps down)
 - Used in collaborative filtering, used for recommendation for unrated shows from other users
- TiVo unit automatically records the currently-tuned channel into a "live buffer", to pause or rewind

The main revenue model is that users pay a fixed monthly subscription fee and additional fees for additional services. TiVo decreased prices and introduced pay-per-use revenue models when the increase in the number of users was slowing down. Additionally you need a TiVo-certified STB.

- TV schedules are available through a monthly subscription (was \$ 9,95, is \$ 19,95)
- Other option is one time fee for the TiVo lifetime (\$199 to \$299)
- The \$99/year option has been discontinued
- Since march 2006 another business model has been started: bundle of hardware and subscription fee, Six options: 3 monthly, 3 pre-paid and additional units for \$ 6,95/month each.
- DirecTV offers TiVo for \$ 4,99/month

Monthly plans Details	Price	
with 1 .year plan	\$19.95 per month	Get this plan >
with 2 .year plan	\$14.95 per month	Get this plan >
with 3 .year plan	\$12.95 per month	Get this plan >
Prepaid plans Details	Price	
Prepay 1 year	\$199.00 = \$16.58 per month	Get this plan >
Prepay 2 years	\$299.00 = \$12.46 per month	Get this plan >
Prepay 3 years	\$349.00 \$299.00 1 year FREE!	Get this plan >

Figure 29 TiVo pricing scheme

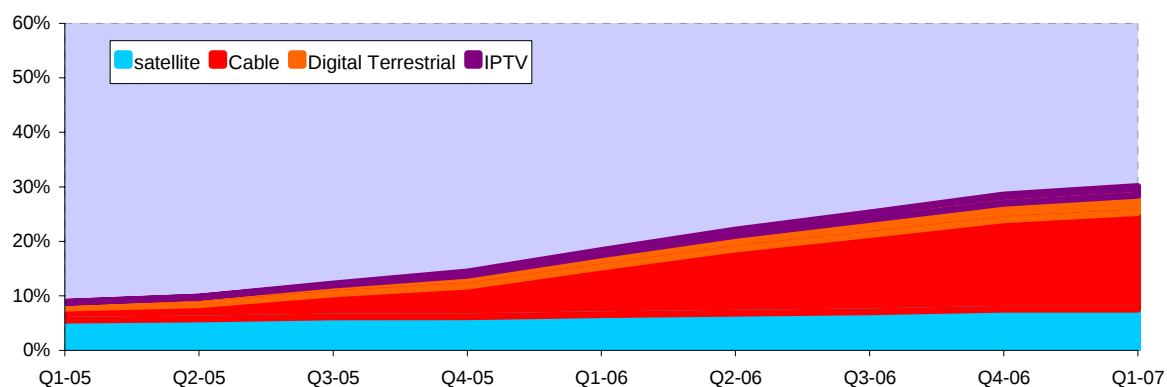
Learning points from the TiVo-case:

- It is difficult to market a service that is so interrelated with the TV-platform independent of the TV service provider. In USA it was a success but in the UK with competition of TV service providers TiVo faces difficulties.
- Only the early adopters are willing to pay a substantial monthly fee.

Appendix G: Digital Television growth in The Netherlands

Market share digital TV in The Netherlands

source: Telecompaper until Q1-07



Appendix H: Additional information business case

Investments and operational costs

Before introduction of ConnectTV the TV service provider will have to invest in the development of ConnectTV (see also the ConnectTV roadmap). A first estimation of the necessary investments:

Application development	150 kEuro
Integration with TV platform	150 kEuro
Beta testing	300 kEuro
IT, process & training	140 kEuro
Hardware	10 kEuro
Project management	100 kEuro
Total investments	850 kEuro

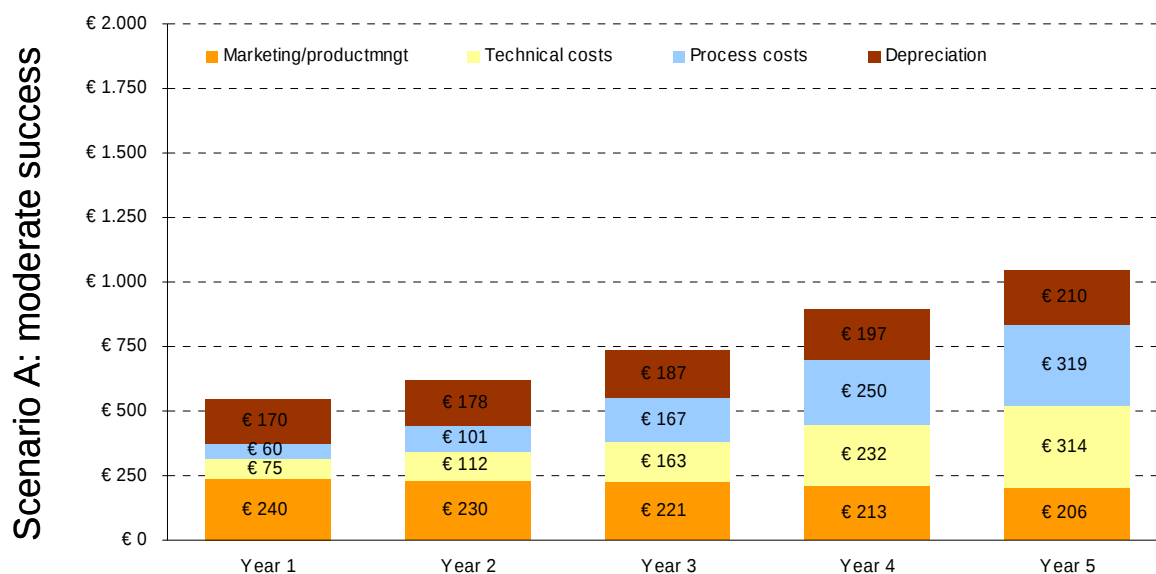
The investments are the same for both market scenarios. In year one till five additional investments have to be made in hardware (extra servers when usage grows) and application development to add new functionalities every year. The investments will be written down in five years (the business case term).

The operational costs are divided in three categories:

- Marketing/product management: a marketing communication budget to stimulate the uptake of ConnectTV and FTE-costs for product management, advertising sales, marketing communication, etc.
- Technical costs: costs for functional and operational management of the technical system, costs for hosting and housing of ConnectTV service and a reservation for licensing fees that the TV service provider might have to pay for usage of somebody else's patent.
- Process & handling costs: the costs for billing when users subscribe to paid services (additional costs) and the billing to advertisers and customer care costs for users who have questions on (mal)functioning of ConnectTV

The operational costs will grow from 375 kEuro in year one to 839 kEuro in year five (scenario A). Because some of the costs are driven by the number of users the operational costs will be higher in scenario B (448 kEuro in year one and 1377 kEuro in year five). See the figures below for an overview of the operational and depreciation costs in scenario A and scenario B.

Operational Costs & Depreciation ConnectTV (in kEuro)



Operational Costs & Depreciation ConnectTV (in kEuro)

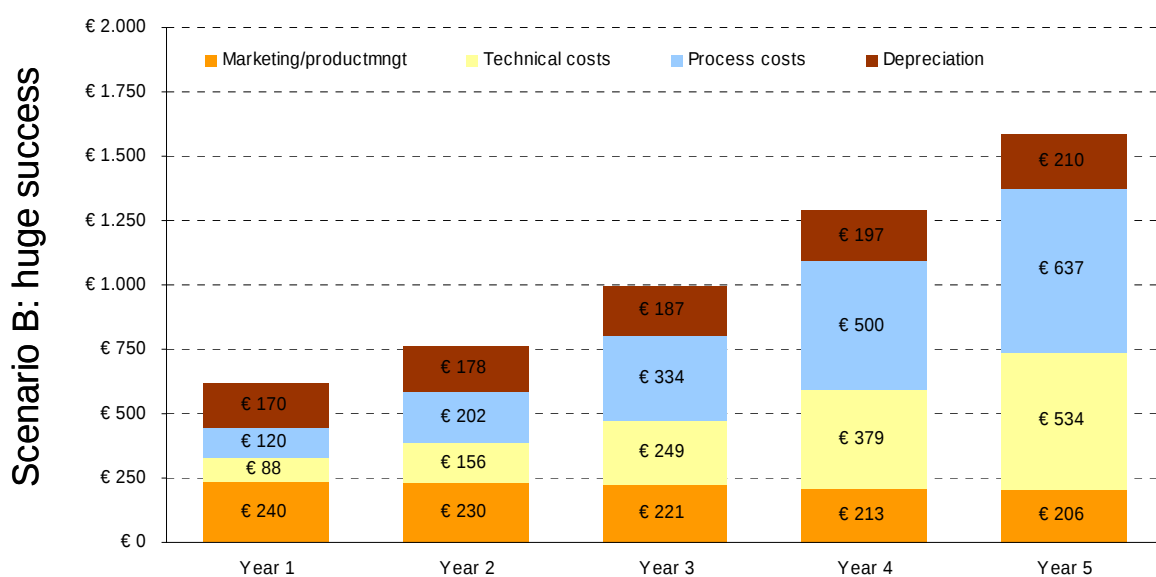


Figure 30: operational costs & depreciation ConnectTV

Revenues

The ConnectTV business case has three categories of revenue streams:

1. Advertising revenues
2. Paid services

3. Upgrades

Ad 1 Advertising revenues

Advertising will be an important revenue stream for ConnectTV. The revenue driver for advertising is usage, so the height of advertising revenues is directly related to the number of users and their usage pattern.

Three advertising formats are quantified in this ConnectTV business case:

- **Sponsored buddies:** ConnectTV users can choose from a list of sponsored buddies, e.g. living buddy, soccer buddy, cookery buddy, etc. Sponsored buddies are free for ConnectTV users. Sponsors pay for each time a ConnectTV user follows the sponsored buddy. Sponsors can be broadcasters or advertisers. The main assumptions for the sponsored buddy:

	Year 1	Year 5
% of ConnectTV users using sponsored buddies	25%	25%
Number of actions ⁶⁷ per sponsored buddy user per month	0,3	1,5
Costs per action	€ 0,50	€ 0,41

- **Sponsored program alerts:** Advertisers are offered the opportunity to promote video content to ConnectTV users. Advertisers can be broadcasters, video content owners or sponsors of video content. The program alerts will only be sent to specific target groups. Users will be selected on their viewing behaviour and the history of accepted sponsored program alerts. The main assumptions for the sponsored program alerts:

	Year 1	Year 5
Number of program alert actions per month	2	20
% of ConnectTV users that receives alerts (alerts are only sent to a certain target group)	25%	15%
% of ConnectTV users that accepts received alerts	5%	3%
Costs per accepted alert	€ 0,50	€ 0,50

- **Bannering:** the ConnectTV buddy list will contain an advertising field for one banner. This field can be filled with an advertiser's banner but it can also be used for promotion of the TV SP's own services and sponsored buddies. The chosen revenue model in this business case is per view.

⁶⁷ An action is a ConnectTV user following a tip of a sponsored buddy.

The revenue model can also be per click, these revenues will be additional to the business case. The main assumptions for bannering:

	Year 1	Year 5
Number of retrieved buddy lists per user per month	17	76
% of Buddy lists with banner	10%	10%
CPM (cost per thousand views) ⁶⁸	€ 7,50	€ 11,00

Ad 2 Paid services

Paid services are another import revenue source for ConnecTV. The paid services are premium services on top of the basic, free ConnecTV service. The consumer will pay for these services. There are five paid services quantified in this business case:

- Dating services: ConnecTV users can subscribe to dating services: watch television “together” with a match based on your dating profile. Dating is a popular service on the internet and people are willing to pay for these services. The dating market is still growing: about 240.000 Dutch people will be using paid internet dating services in 2011 (utalk marketing.com). People pay an average of almost € 10 per month for internet dating. The main assumptions for dating services:

	Year 1	Year 5
% of ConnecTV users subscribe to dating services	1%	2%
Costs per user per month (incl. BTW)	€ 5,00	€ 5,00

- Paid video content: ConnecTV will stimulate the usage of paid video content. Users are able to watch paid video content together and will receive a discount for this. In the business case only films are quantified, no series or other video content. The revenues in this business case are only the additional revenues due to watching together. The main assumptions for paid video content:

	Year 1	Year 5
% of ConnecTV users watching paid video content together	3%	8%
# videos watched together per user per month ⁶⁹	0,4	0,6
Costs per video (incl. BTW)	€ 3,50	€ 3,50

⁶⁸ The CPM is quite low because it is a new advertising format (a lower price will attract more advertisers) and the size of the banner is relatively low.

⁶⁹ These estimations are related to the number of DVD's people rent in the videoshop.

Discount for watching together	25%	25%
% of extra watched videos due to ConnectTV	25%	25%

- Network PVR: ConnectTV will stimulate the uptake of Network PVRs because it is easier to share content. The costs for Network PVR are not in this business case; only the additional revenue is quantified. The main assumptions for network PVR:

	Year 1	Year 5
% of ConnectTV users subscribe to network PVR	1%	1%
Costs per user per month (incl. BTW)	€ 4,00	€ 4,00

- Premium ConnectTV service: In the second year of ConnectTV operations users are offered a premium ConnectTV service. Premium subscribers can expand their buddy list, are able to personalise their buddy list and are offered other additional functionalities. The main assumptions for premium ConnectTV services⁷⁰:

	Year 1	Year 5
% of ConnectTV users subscribe to premium services	0%	2%
Costs per user per month (incl. BTW)	€ 2,00	€ 2,00

- Sales of winks, avatars, etc: Besides the basic set of winks and avatars, users are offered additional, paid for winks, avatars, etc. People are willing to buy items to personalise ConnectTV, people are also willing to pay for these personalisation items for their mobile. The main assumptions for sales of winks, avatars, etc:

	Year 1	Year 5
% of ConnectTV users buying regular winks/avatars	1%	2%
# items bought per month	0,5	1
Costs per item (incl. BTW)	€ 1,30	€ 1,20

Ad 3 Upgrades

ConnectTV can lead to churn reduction when ConnectTV is a reason to stay with your current digital TV service provider. When you lose the functionality or buddies when you switch this will stimulate

⁷⁰ These estimations are comparable to the usage and price of premium services on Hyves.

subscribers to stay customer with their current TV SP. An additional benefit for TV service providers is that ConneTV will stimulate digital TV uptake and some customers will upgrade their internet connection.

- Churn reduction digital TV: When users are used to ConneTV they will not switch to another TV service provider quickly. If users switch to digital television via DSL or satellite they will lose the ConneTV functionality⁷¹. The main assumptions for churn reduction:

	Year 1	Year 5
% of ConneTV users that will stay TV customer	0,5%	1,0%
Additional revenues per user per month (incl. BTW)	€ 19,04	€ 20,61

- Digital TV uptake: ConneTV is only available on digital TV so some households will switch from analogue to digital TV because of ConneTV. There are also other reasons to switch to digital TV but ConneTV will be one of them. The main assumptions for additional digital TV uptake:

	Year 1	Year 5
% of ConneTV users that switch to digital TV	1%	2%
Additional revenues per user per month (incl. BTW)	€ 2,99	€ 2,99

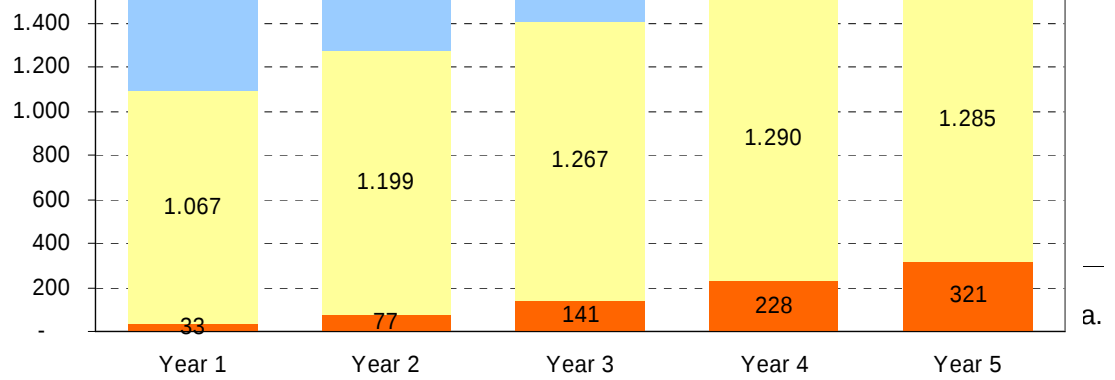
- Upgrade internet connection: ConneTV stimulates users to share video content: their own video content or recorded content. For distribution of this content people use their internet connection. Due to increased usage some households will need a quicker internet connection. The main assumptions for upgrade of internet connections:

	Year 1	Year 5
% of ConneTV users that will upgrade internet	0,2%	0,7%
Additional revenues per user per month (incl. BTW)	€ 10,00	€ 10,00

The above described revenue streams and main assumptions lead to an assessment of the ConneTV revenues. The revenues are very dependent on the number of ConneTV users. Therefore there are two market scenarios. In scenario A the number of households using ConneTV grows to twenty percent of the digital TV customer base in year five. In scenario B the number of households using ConneTV grows to forty percent of the digital TV customer base in year five. Forty percent is derived from the internet: forty

⁷¹ Digital TV service providers via DSL are able to offer ConneTV functionality. We assume that they will offer their own value added services but that they will not be interconnected with ConneTV functionality of cable operators so users will lose ConneTV if they switch to another TV service provider..

percent of the
Hyves also
population.



Scenario B - Distribution user base UPC (x 1.000)

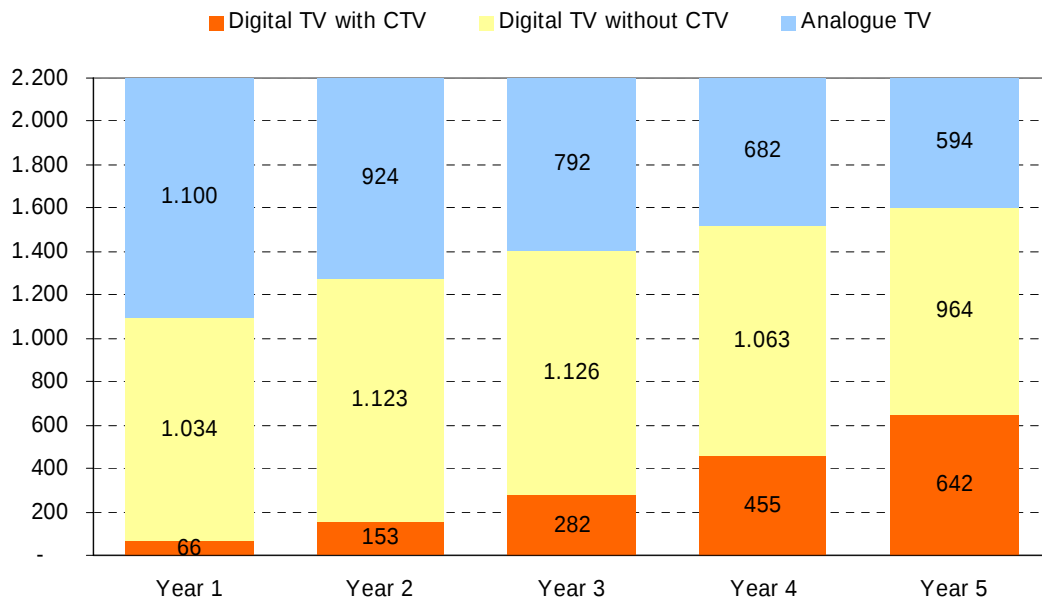


Figure 31: distribution of user base

Scenario A - Revenues ConnectTV (in kEuro)

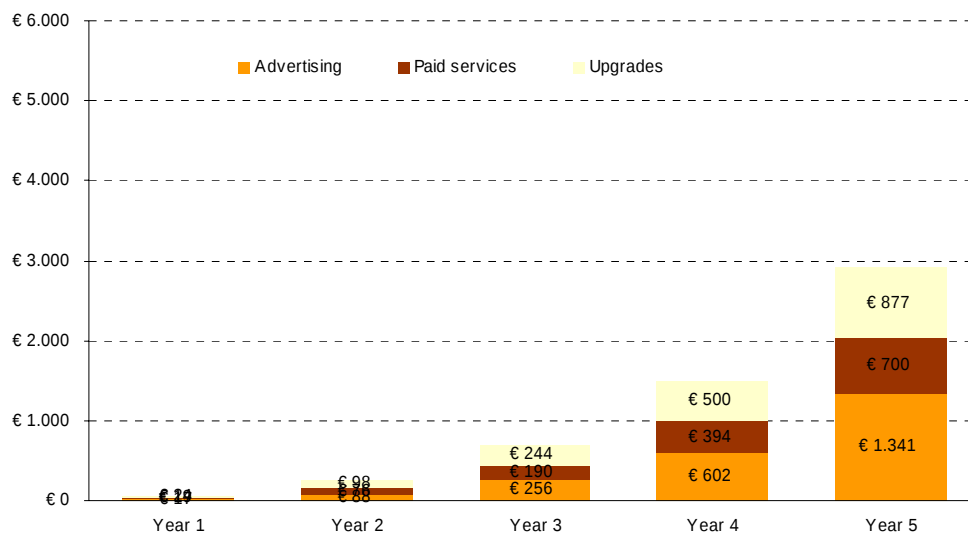


Figure 32: revenues ConnectTV (scenario A)

Scenario B - Revenues ConnectTV (in kEuro)

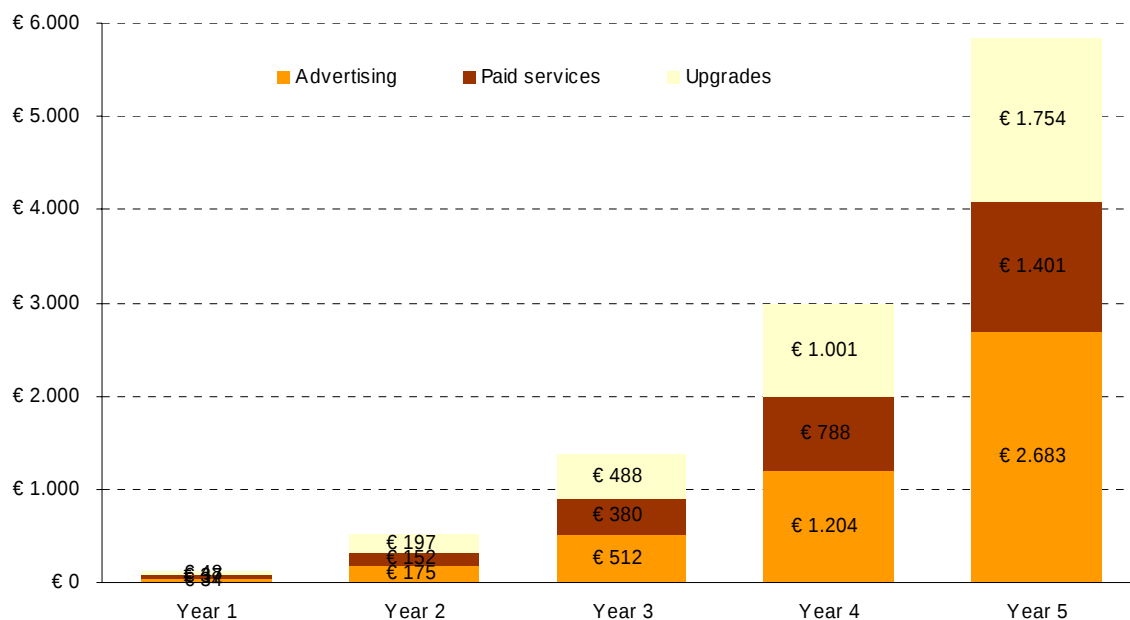


Figure 33: revenues ConnectTV (scenario B)