1. Executive Summary

This deliverable reports all dissemination activities carried out in the project in the second period, plus 2 months (13 and 14) that were part of the previous period[1]. In this document, it can be seen how evolved the dissemination program of the project, as it was expected, from a more informative scope, switching to a more commercial orientation and industrial audience.

In the following sections there are descriptions about the online actions, describing the new project website and how this will be used, once the project is closed, as support platform to disseminate the project results. This includes a description of all dissemination material created, both digital and printed, and also a shot introduction to the demos of the project. A second part of the document is referred to offline actions, in which a report of what was done, where and why is given. Events such as IFA, IBC, MWC hosted the project and its demos. Moreover, there is also a report of the workshops that I-REVING (co-)organised in relevant events such the NEM Summit or recently, the HbbTV Symposium which was a successful final event.

It is also relevant the impact of I-REVING on a research level, that is supported by the several publications that have been accepted and presented at international level.

At quantitative level, I-REVING had also a great success. Only in this period, more than 300 people have been directly involved in one of the 7 project workshops, 25 papers or articles have been published (a few of them are still pending of acceptance) and 43 press releases have been published about I-REVING. If we sum to these figures, all the people that have been involved in the open pilots, that took part in the public demos, or visited I-REVING's partners booth in trade events, we can consider all the dissemination objectives successfully accomplished.

[1] Due to an amendment, periodicity of the project changed and some reports have been extended to not lose any information.

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3. Introduction

This document is mainly structured in two sections: one for online activities, and one another of off-line (or on-site) activities.

Online activities foresee the workload in social media (including the project website) and the creation of printed and digital contents for dissemination purposes.

Offline activities are mainly focusing on those in-person actions oriented to present results and showcase the project services.

It is important to highlight a transversal section, regarding the Open ConnectedTV Stakeholders forum, in which there is a short overview of how this activity (detailed in T2.1 and reported in D2.1 and D2.1.1) has contributed to inform about the project.

The document closes with its general conclusions on dissemination activities and what are the next steps to ensure a proper communication of knowledge after the project is closed.

4. General overview of the dissemination activities in the Second Period

TV-RING, as it was already described in the previous versions of this deliverable, has evolved with its dissemination activities. From a more high-level introduction scope, the message changed to a more practical approach, getting closer to the broadcasting industry, to general stakeholders, showcasing the project outcomes and demonstrating the potential of HbbTV.

Relevant events such as the IBC, IFA, TVX hosted demos, booth and other activities with the TV-RING partners. Attending to these high-profile events is important not only to communicate, but also to gather professional feedback regarding the services implemented.

In summary, TV-RING has seen how its presence in EU events has increased, not only in number, but also in presence. For instance, TV-RING was invited to present its services at the EBU booth at IBC, make evident that TV-RING has done relevant innovations in the sector.

5. Specific objectives for the second period

The second period, comprises all activities performed from M13 (September 2014) the end of the project M30 (February 2016). During these months, there have been the following objectives:

- To create a set of demos with communication and commercial purposes;
- To create dissemination materials for online and offline presentations;
- To identify and be present at the most relevant events in EU countries related with broadcasting industry;
- To make sure that the project knowledge and results are accessible once the project is ended.

5.1. Status of execution of the dissemination plan

The projectstarted its second year with phase 2 still in progress and evolved (once projects had reliable results) to phase 3.

Phase 2: Increase project awareness

Phase 3: Dissemination of the project results

	M1-M5	M6-M11	M12-M17	M18-M23	M24-M30
Phase 1					
Phase 2					
Phase 3					
TV-RING project highlights	Stakeholders forum // Workshops		Pilots execution // Stakeholders forum // Workshops		

Table1: Phases execution timeline

6. Report of actions

6.1. Online actions report

6.1.1. Project Website

6.1.1.1. Current status

The project website evolved in parallel with the project objectives. There have been two major stages:

First, the TV-RING's project website was modified in order to:

a) Improve its graphic design
b) Solve navigation issues (e.g.: faster navigation to jump between spaces easily)
c) Access to a more user-friendly back-end to update contents

For these reasons, it was decided to use WORDPRESS as the website platform. Hosting was kept at i2CAT.

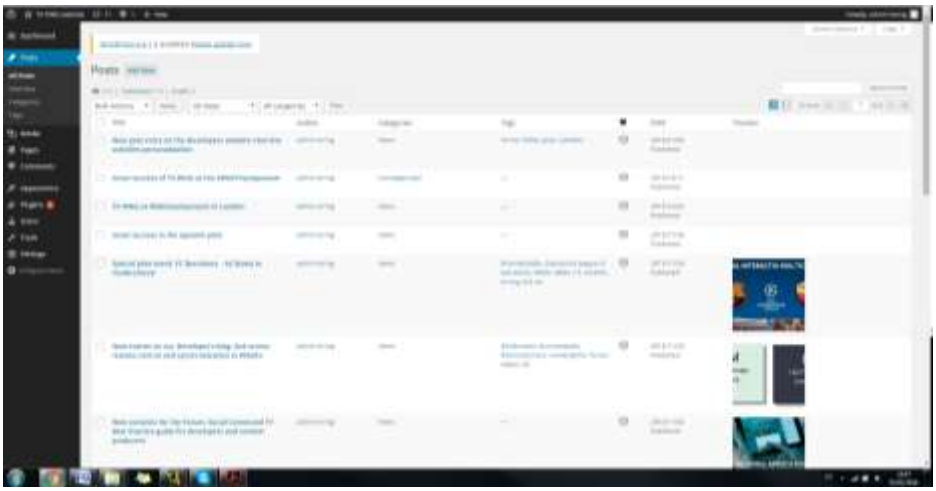


Image1: New back-end of the TV-RING website

Closer to the project ending, it was decided to modify the project structure in order to make easy to access to the project results. Main modifications were:

- Deliverables were now briefly described in order to easily understand what was provided on each one of them;
- New section were added (e.g.: Open Connected TV Stakeholders Forum) increasing the number of actions descriptions;
- Adding all new dissemination contents and creating new ones with clear and easy definitions of the pilots and services developed;
- Adding summaries of the main actions conducted in the pilots.

Image2: New front-end of the project website

In this way, it is expected that the project website will become the main source of information regarding the project "legacy".

6.1.1.2. Usage Analysis

The project website had a total of 178.221 unique visitors in the last 12 months. Below, there is a graphic showing how website visitors has a growing trend.

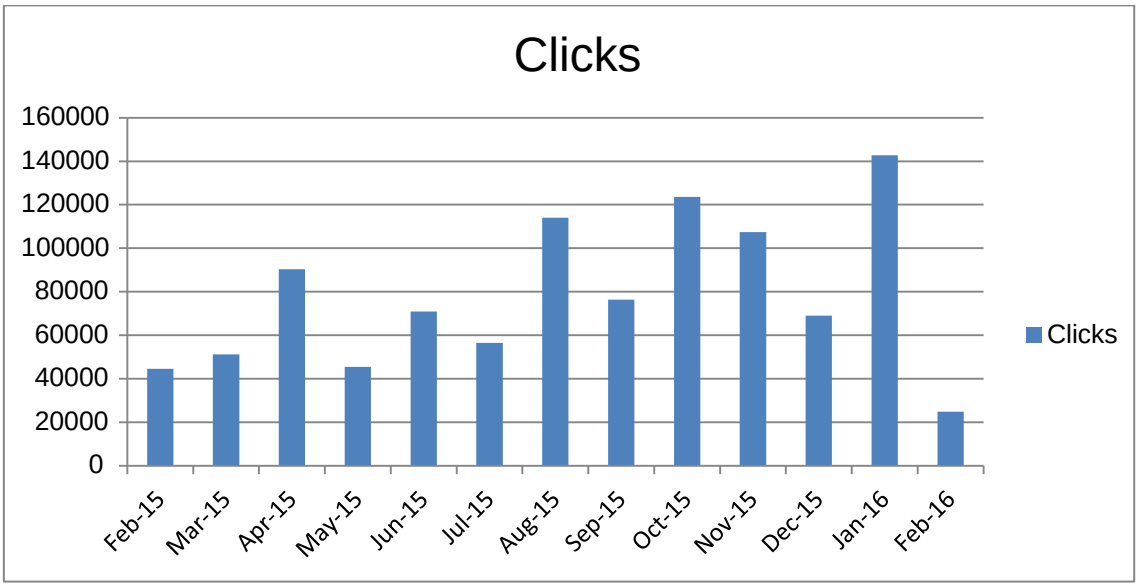


Image3: Monthly clicks in www.tvring.eu

6.1.1.3. Publications

The project website has been regularly updated with new posts about events and activities performed in the project, new service developments or new publications. Since the beginning of project there have been a total of 73 publications, 45 of them only in the last 18 months.

Type of publication	Number	Link
Posts	45	http://www.tvring.eu/category/news_posts/
Documents/deliverables	22	http://84.88.40.187/?page_id=121

Presentations	23 (public)	http://www.tvring.eu/documentation/
Videos	7	http://www.tvring.eu/project/[2]

6.1.1.4. Next steps

It is expected to keep working on the project website, after the project is finished. Main tasks will be oriented to keep updating with project content, deliverables and news related with the project and the sector.

A new structure to the website will be given:

- Project
  - Dutch pilot
    - The services
      - DRM
      - Recommender
      - 2nd Screen: See2Gather
    - The pilot
    - Experience gathered
  - German pilot
    - The service: Verknallt and abgedreht
    - The pilot
    - Experience gathered
  - Spanish pilot
    - The service: The multicamera service
    - The pilot
    - Experience gathered

As it can be seen, all pilots follow the same approach in order to facilitate visitors navigation. Each section will provide the following information:

- The pilot: Here visitors can understand how pilots have been organised and executed, including the calendar of actions and a summary of actions and its objectives.
- The services: This section will include descriptions of the services deployed in the pilots, jointly with demos, videos and presentations to give a quick overview of the main features. Also there will be other elements described that have been part of the pilot, like details on the infrastructure used, technical highlights, among others.
- Experience gathered: Summary of conclusions and results obtained during the pilot, complemented with other observations and documents of reference.

Moreover, the website will dedicate also a full section to the Open Connected TV Stakeholders Forum, explaining its objectives, what has been achieved and how to get involved in the forum.

[2] Videos are also in the different subspaces.

6.1.2. Social Media (Twitter)

Activity in this last period of project has mainly focused on Twitter. Individual posts by project members were stimulated in order to attract new followers and audience to the project twitter and website.

Main statistics are:

	Period 1	Period 2
Followers	70	250[3]
Tweets	80	258
Likes	-	59
Av.KLOUT score	34	37

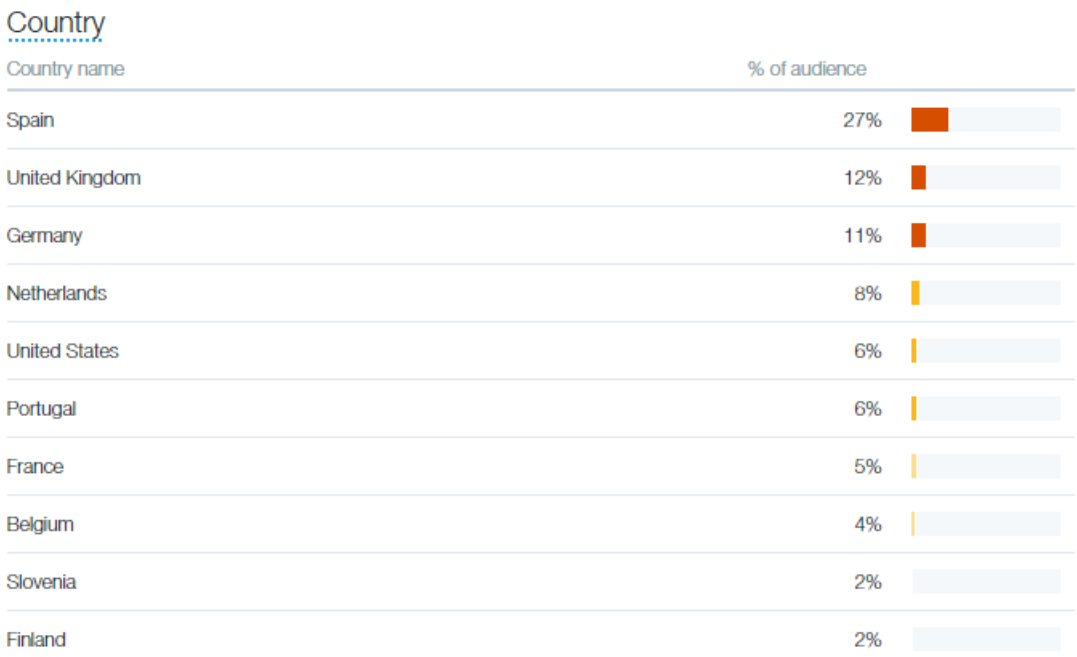


Image4: Followers per country

[3] 250 followers (82% male, 18% female)

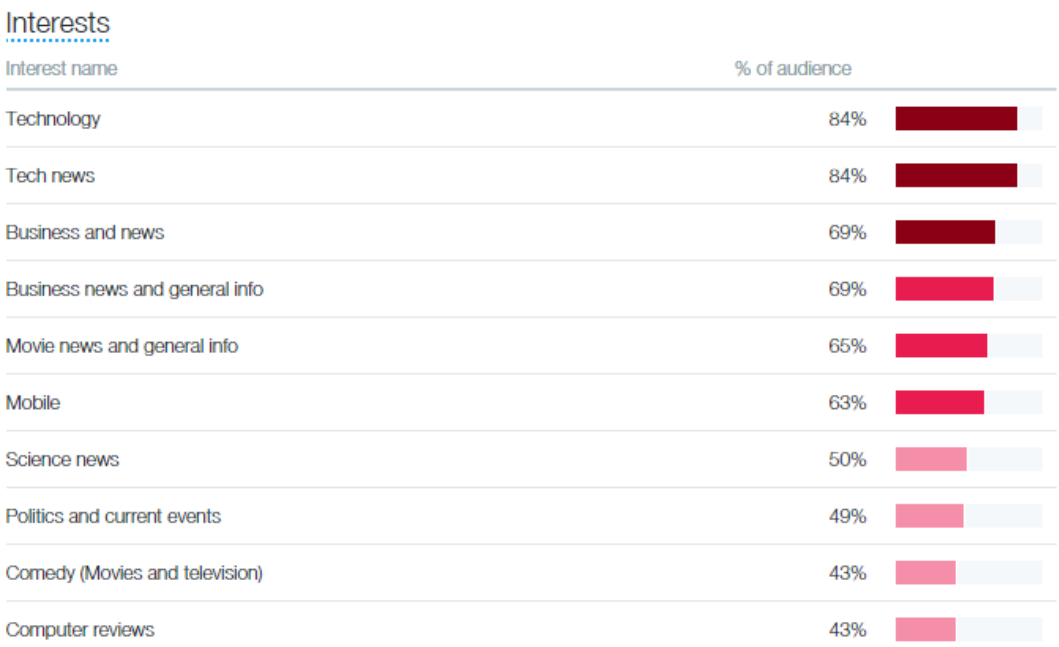


Image5: Focus of interest (of the followers)

6.1.3. Partners' website publications report

List of each partner's website where to find the link to the project TV-RING.

- I2CAT: http://www.i2cat.net/ca/projectes/tv-ring; +12 posts http://www.i2cat.net/es/search/content/tv-ring
- RBB: http://www.rbb-online.de/unternehmen/der_rbb/profil/zukunft/tv-ring.html
- IRT: https://www.irt.de/de/forschung/digitalesfernsehen.html
- NPO: http://help.npo.nl/faqs/wat-doet-de-publieke-omroep-met-hbbtv
- KU Leuven/iMinds: http://www.socialspacescuo.be/projects/current-projects/TV-RING
- RTV/ Cellnex Telecom: https://www.cellnextelecom.com/en/projects/tv-ring/
- TVC: http://www.ccma.cat/corporatiu/ca/com-funciona/collaboracio-entitats/
- PPG: https://www.peoplesplayground.nl/blog/future-connected-tv/

6.2. Actions on Printing and Digital Press report

6.2.1. Press notes / press releases

In this period, more than 40 publications on digital magazines and newspapers have been dedicated to TV-RING. The project has received digital media coverage during the project progress, including the start of the pilots, events attended and results obtained. A summary table with all publications is annexed (see Annex II – Press impact summaries).

6.2.2. TV/Radio mentions

6.2.2.1. Leaflets and other printed material

IRT created a leaflet in the form of a postcard to promote the HbbTV Developer Page. On the front of the postcard the URL of the website is the dominant part. The rest is supposed to represent the website somewhat abstracted. The red Wiki area is filled with the category cloud and should enable a quick and informative overview about the contents. In the back of the postcard the URL is also written on the top as well as in form of a QR. Interested people find here some more information to the website and to project TV-RING.

Image6: HbbTV developers website leaflet

NPO and Peoples Playground also created a leaflet especially for the second screen applica See2gather. This has also been used as promo material at demo's and exhibitions. These 2 new leaflets, sum to those previously created, that have been updated and improved.

NPO and Peoples Playground improved the Pilot Leaflet with more detailed information about the different pilots in the three participating countries. It has been used the leaflet to distribute in several demo's, workshops and exhibitions.

Image7: Examples of the leaflets created for the pilots of See2Gather

RTV also improved the project leaflet, a three pages folding document of about 18 x 18 centimetres was designed containing a summary of the main project relevant points. Specially remarking the objectives, all the project members and the corresponding reference to the ICT EU funding program, a project brief description and the details of each pilot like the places where they are held and the main points to be evaluated.

There were built about 500 of these leaflets, which has been used in every external dissemination activity: Symposiums, workshops, fair venues, exhibitions, presentations, etc.

6.2.2.2. Roll up

It is a poster sized of 200 cm x 80 cm which is auto folding (roller) and thus makes it very useful for travelling everywhere as it is very easy to carry. It has been used in external project presentations, workshops and dissemination activities.

Image8: TV-RING roll up

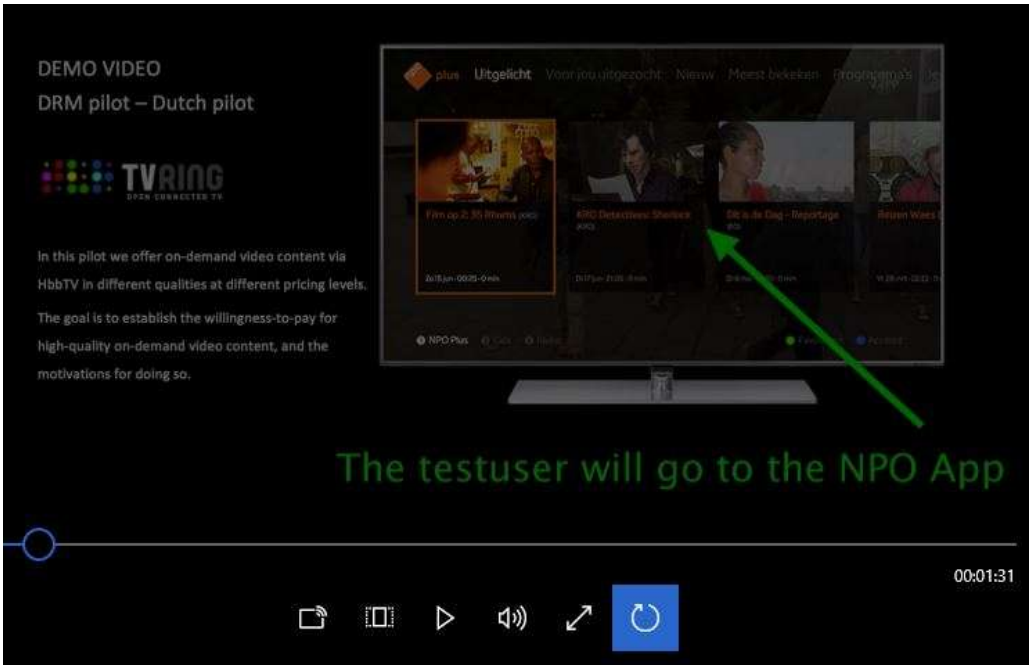
6.2.3. Video & demos

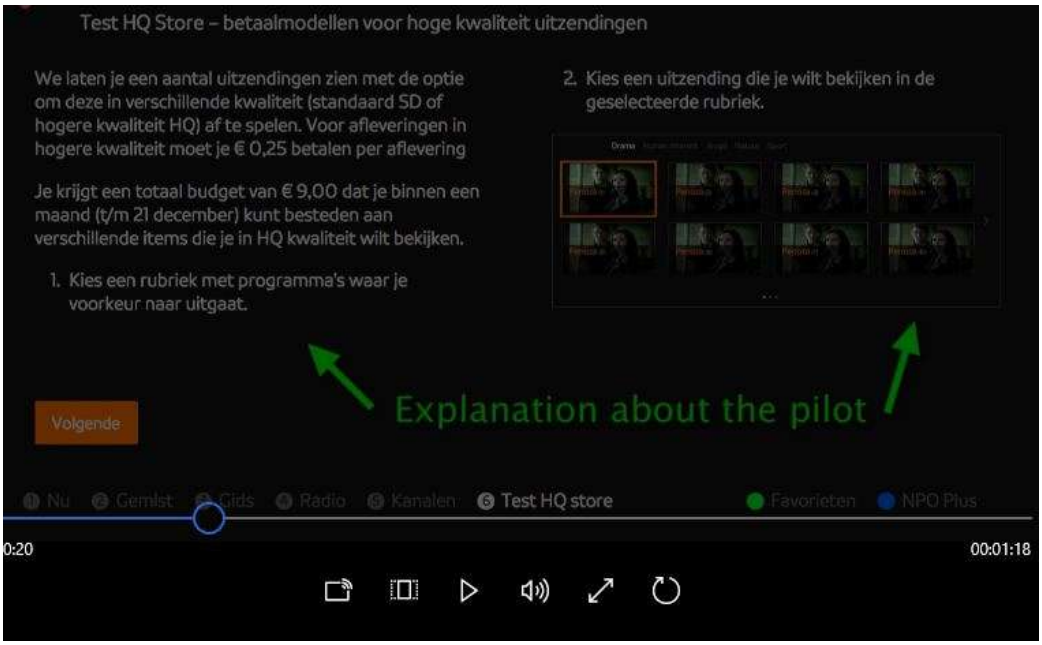
6.2.3.1. Videos

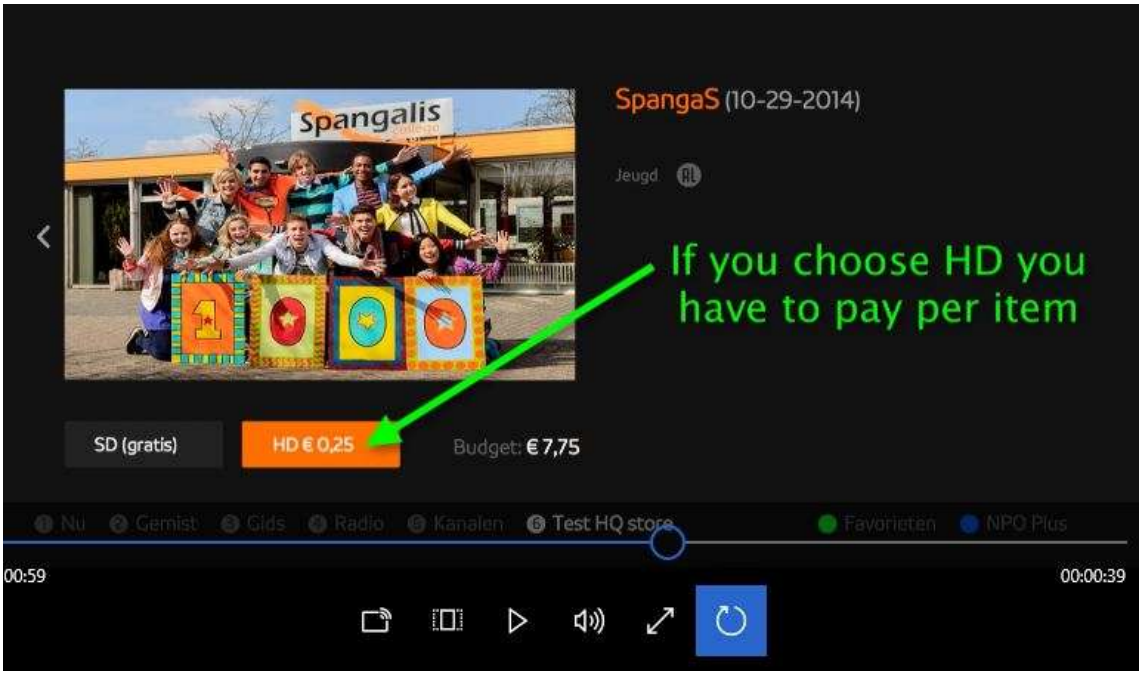
Dutch videos

For the Dutch pilots NPO and PPG created four different demo videos. One regarding the DRM pilot, one for the Recommender pilot and two different video's explaining See2gather.

In the DRM video they show the process the test users went through when executing this test.

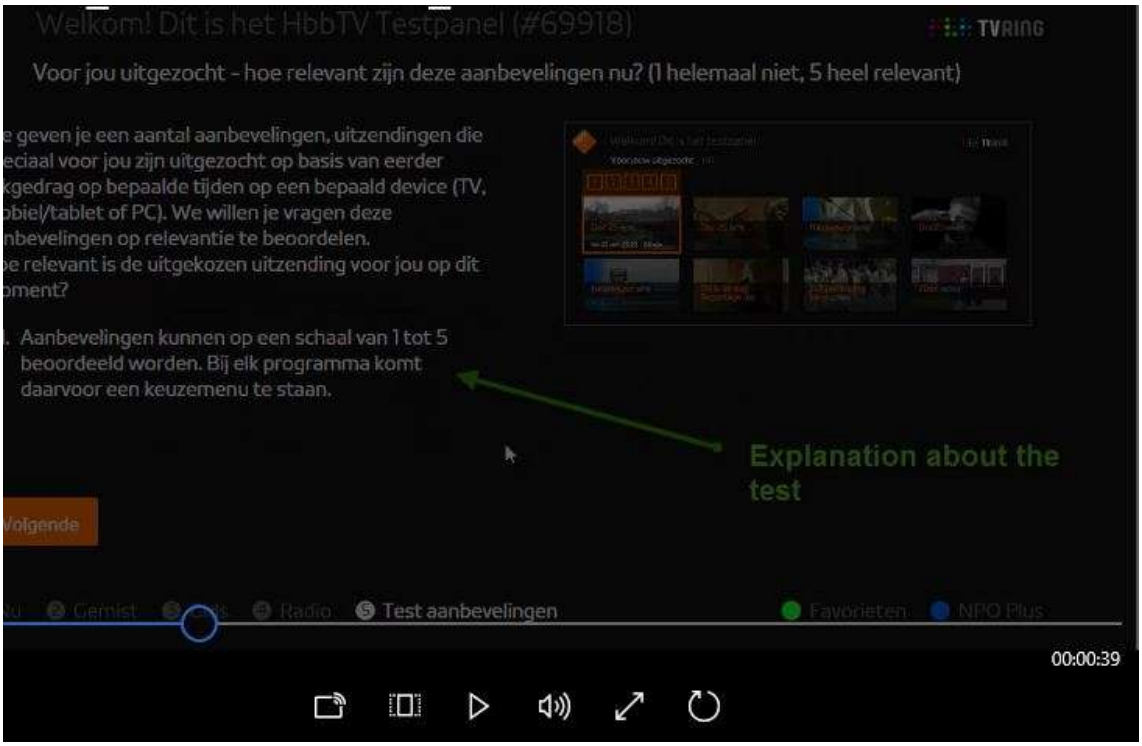


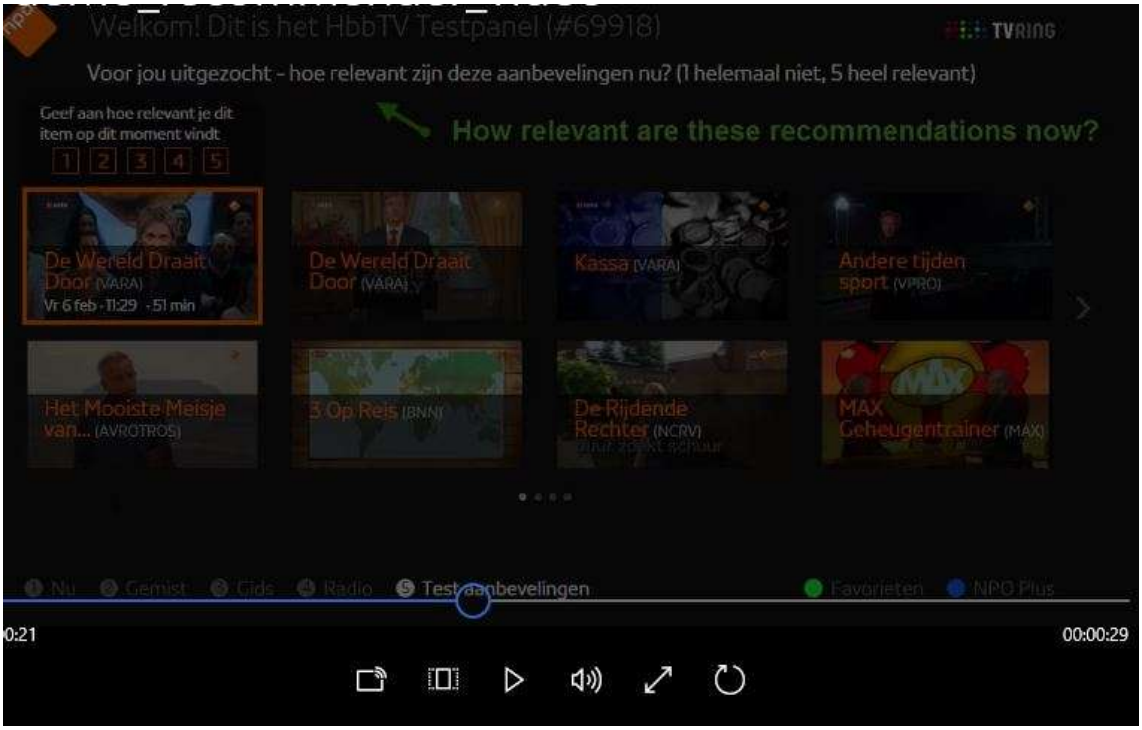




You can find the full version on http://www.tvring.eu/project/dutch-pilot/

For the Recommender pilot they created a similar video, showing the process the users went through.

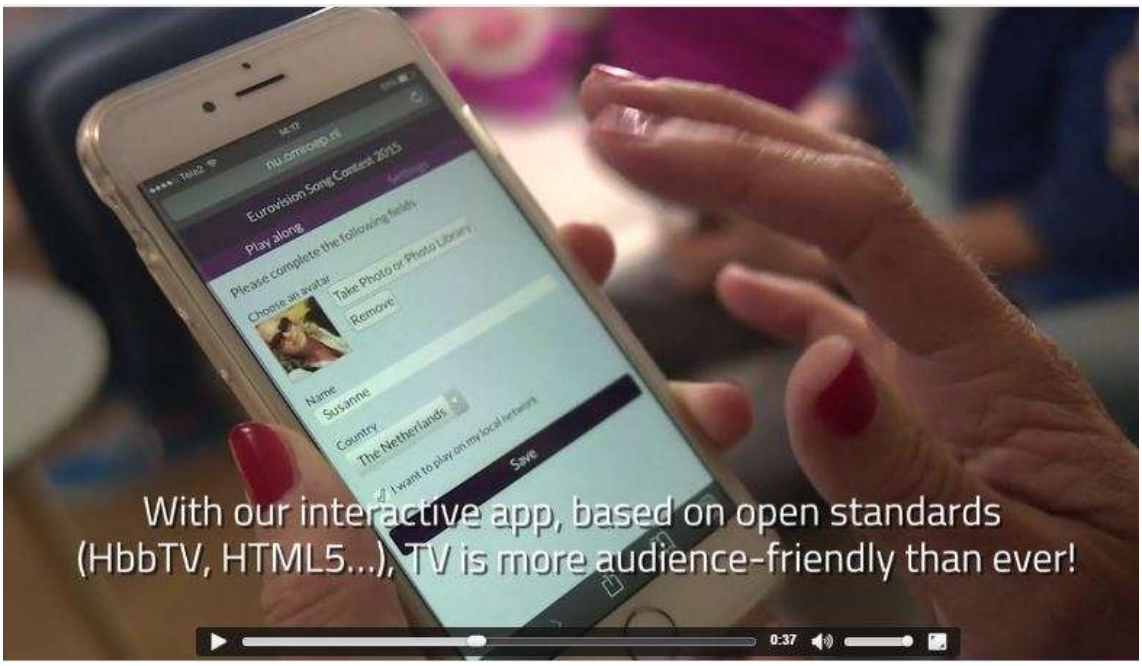


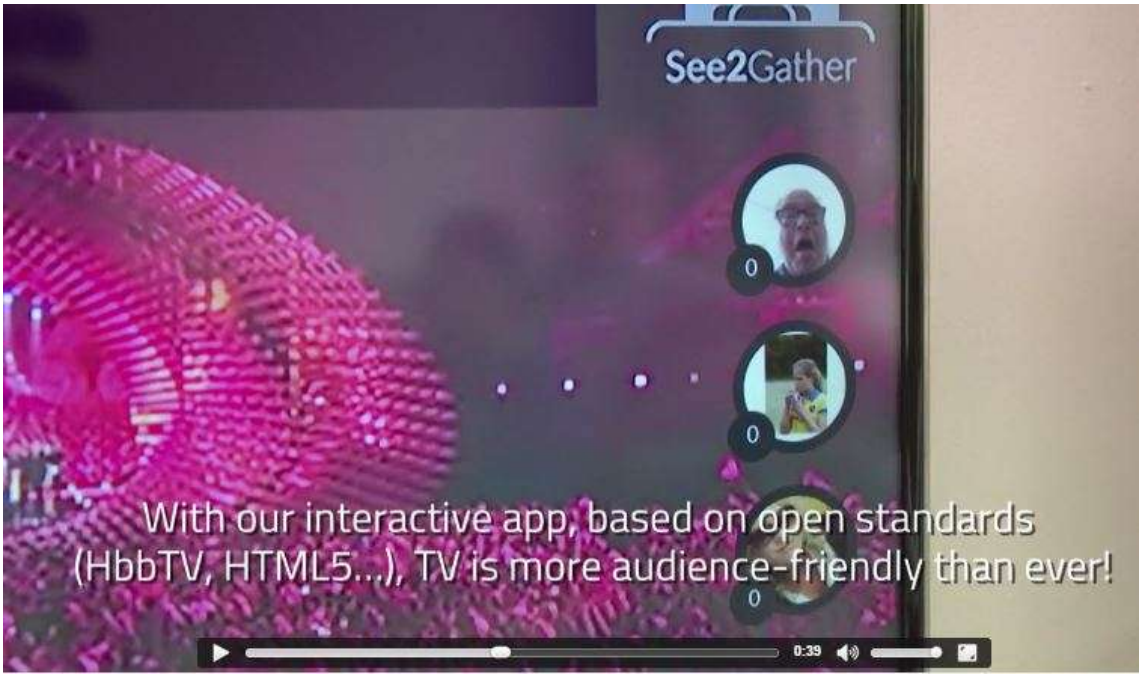


The full video can be found on http://www.tvring.eu/project/dutch-pilot/

For the second screen HbbTV application they created two demo videos. In the first one they applied the application within the 1-tegen-100 quiz show with an English translation of the show. You can see how users play along with it and scores displayed on TV.

For See2gather we created a short promo video for which we wrote a short script and NPO hired an external company to do a professional shoot and edit the movie afterwards. It was created a family situation whereby everybody played along on their second screen device. In the video you can see this is a really lively situation and it makes fun to compete against each other in the living room. The video is used in symposia and exhibitions and is shown on the website ofwww.see2gather.com





German videos

RBB has created one demo video, showing how the HBBTV service works, all its features and underlying mechanisms which are the core for RBB's work in TV RING project. The video begins with a TV broadcast where a virtual user starts the German pilot application. Then he navigates through all the available content areas and trying all the key features, which are marked and labeled with the help of a semi-transparent overlay.

Image9: Video screenshots

Spanish videos

TVC has created two videos, the first one as a general introduction to the Spanish Pilot and the second one as a demo video about the application with second screen.

The introduction video develops a high level schema related to Spanish pilot with the explanations of representatives from all partners involved in this pilot.

Image10: Introductory Spanish pilot video screenshots

The demo video explains how the VoD HbbTV service works, the main characteristics and the second screen as a remote control feature.

Image11: Spanish pilot service video screenshots

6.2.3.2. Demos

Dutch demos

For the Recommender and the DRM it was used the videos as shown in para graph 6.2.4.1.

There is also an URL available where it can be demoed the pilots as they were used within the pilot group. You can enter the test application via http://tvring-npo.prod-ctv.peoplesplayground.nl/

1. Enter the DRM section
2. Select an item you want to watch
3. Select a quality (SD or HD)
4. If you select HD, pay the virtual budget
5. Watch the item

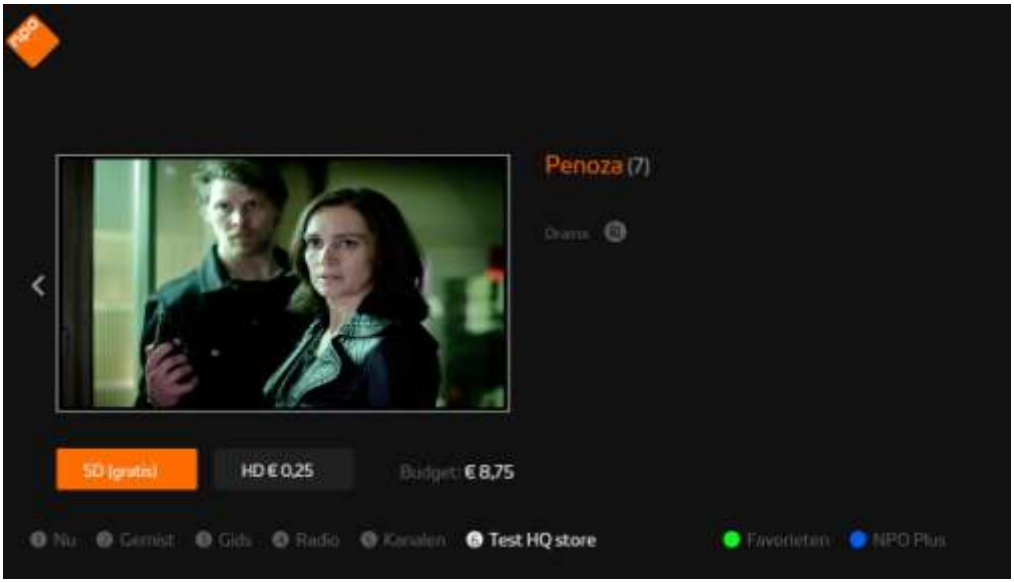


Image12: Screenshot from DRM pilot "Choice for a HD (paid) or SD (free) item"

To enter this test application for the Recommender go to http://tvring-npo.prod-ctv.peoplesplayground.nl

1. Select the 'Recommender' entry
2. Choose an item you want to watch
3. Rate the item on relevance (1 low and 5 very relevant) with your remote control (TV) or arrows on your keyboard (PC)

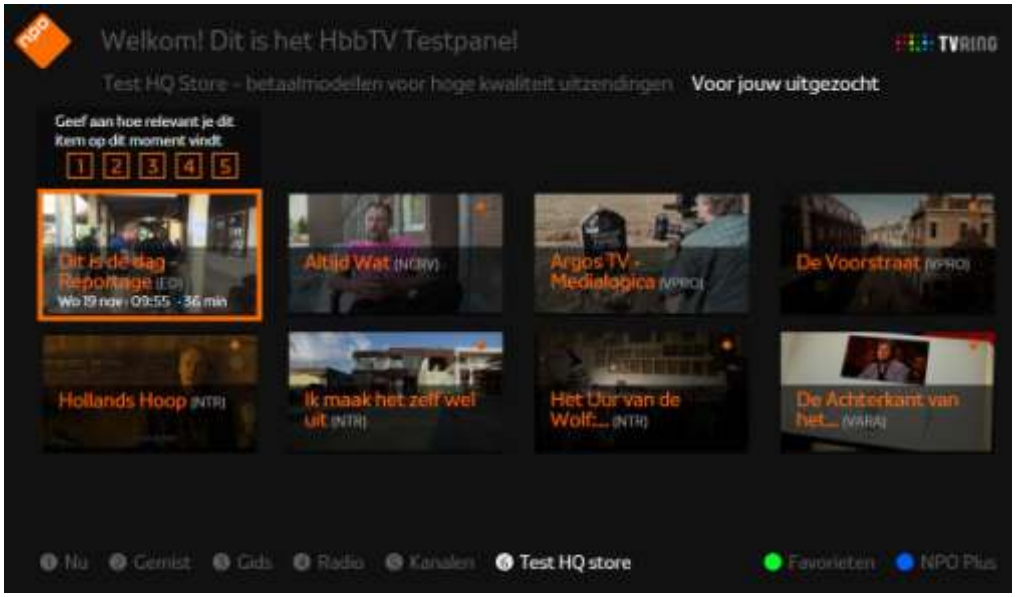


Image13: Screenshot from"Rating of recommendations on relevance"

For See2gather they have a live demo available. What is needed for a demo like that is a normal TV with a closed Wifi network or wired internet connection with a single external IP address.

Besides that a laptop is needed with HDMI cable and a connection between the laptop and a TV (not particular a smart TV). Visitors at a booth are invited to play along with their own device (mobile phone or tablet, iOS) The demo is available in Dutch and in an English version (subtitles). The demo shows a part of the Eurovison Songcontest or a part of the 'Een-tegen-100' show.

Visitors have to switch with their device to the local wifi network, create an avatar on the url demo.see2gather.com and they can play along a few questions (4 or 5) of the show that runs. Their avatars are displayed on the TV with their results per question (red or green for a right or wrong answer) and they can see how it works.

Image14: Example of visitors playing along the Eurovison songcontest in a live demo

German demos

The German demo consists mainly of a local-play of a prerecorded transport stream and a connected SmartTV capable of running HbbTV applications. Within the DVB transport stream the RBB HbbTV launcher bar is signaled, which offers the entry point for the RBB pilot application, as it was broadcasted and deployed in all TV RING pilot phases. All features and functionalities, incl. UHD and MPEG DASH videos as well as social interaction, are present and can be demonstrated as if this was in the actual pilot phase.

Spanish demos

The demonstration of the Spanish pilot is an HbbTV application that allows firstly to simulate a live program that is repeated in carrousel and secondly the application provides access to VoD content. In all cases these programs are multicamera, from two cameras up to eight cameras, which can be remoted from the second screen. These contents correspond to a selection of different events, mostly live, which were covered with multicamera throughout the period of the pilot. The entry point for the application is obtained from a DVB transport stream that signals the application.

Image15: Main page of the Spanish pilot demo

6.2.3.3. Service presentations

Dutch services presentations

For the Dutch services there are different Powerpoint presentations about the TVRING project and the Dutch pilots (goals, execution and results) and there is a special presentation about See2gather , where they focus on in the project. The second screen research and requirements are used as learnings in the presentation and the Eurovision pilot as example how to play along within families, between groups and even between countries. The title of this presentation is 'HbbTV, First and Second Screen integration Enriching and Engaging Linear Television: findings and Learnings'.

The Dutch pilot has three core service presentations with 4 sheets each, with the partners of the pilot, the goal of the pilot, some screenshots with highlights and technical specifications.

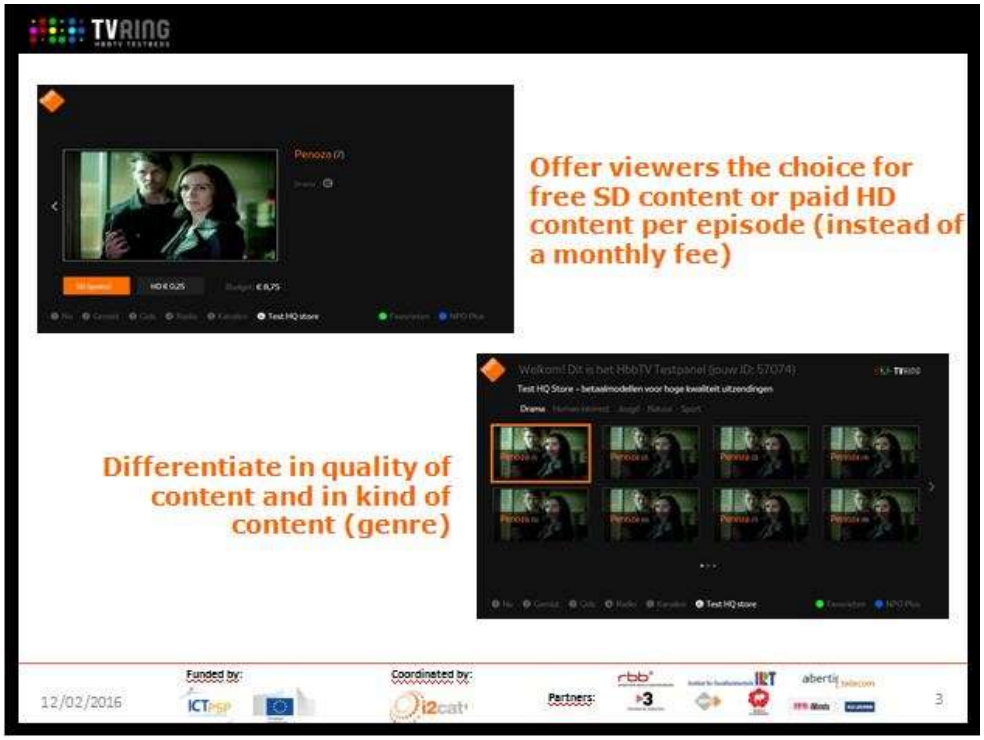


Image16: Screenshots met highlights of the DRM pilot

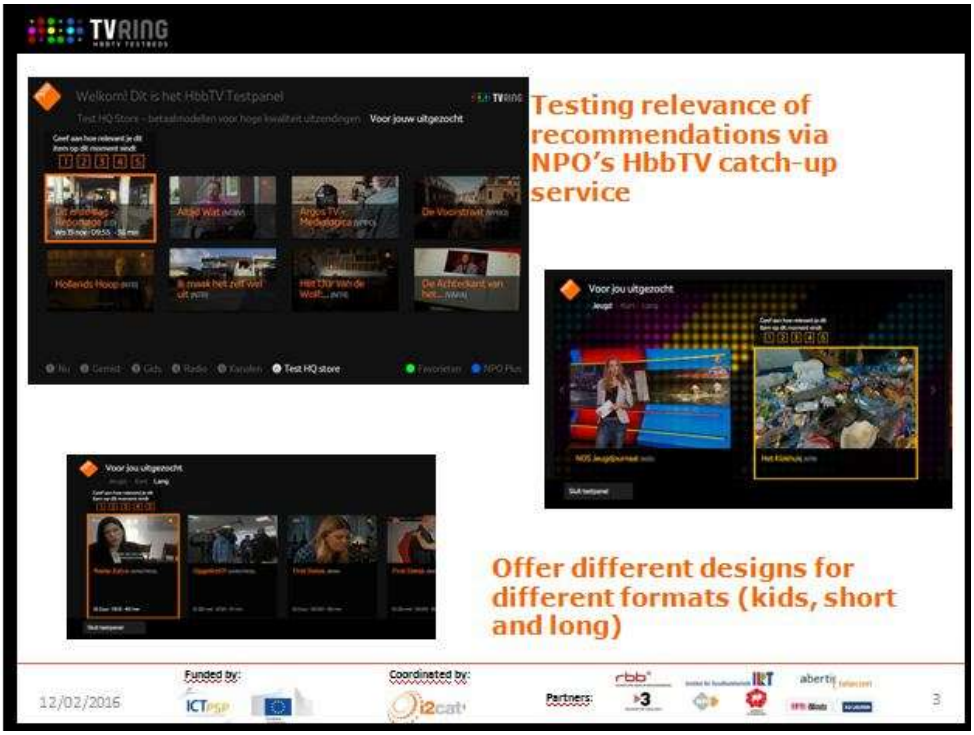


Image17: Screenshots met highlights of the Recommender pilot

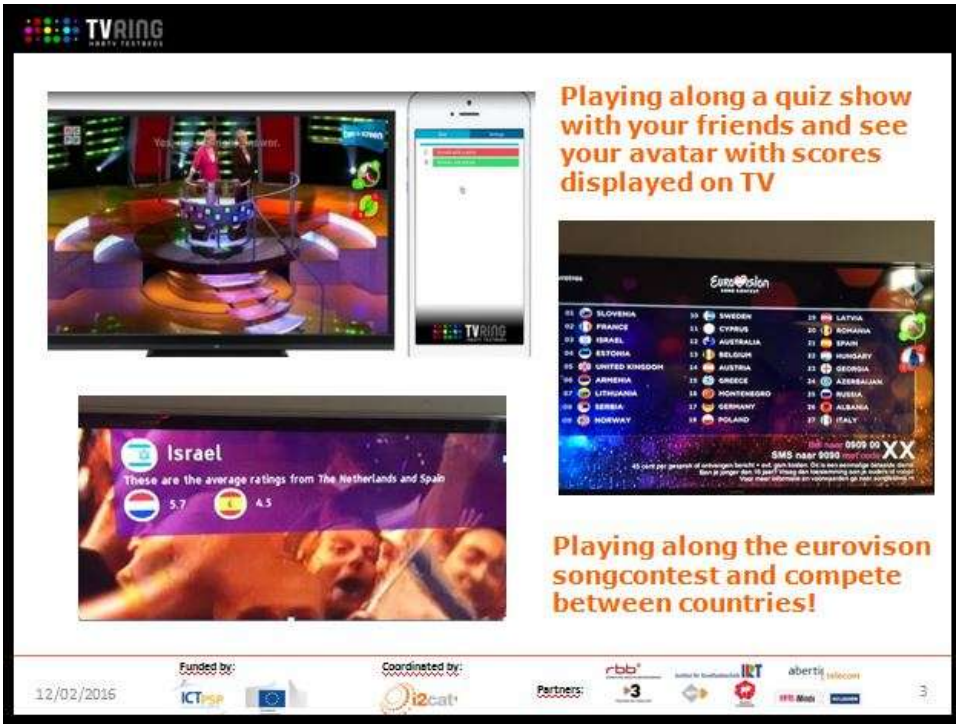


Image18: Screenshots met highlights of the Second screen pilot

German services presentations

Presentations of the German pilot are tailor-made for every given event, connecting the objectives of the TVRING project, the German pilot and the anticipated audience. Beyond that such a presentation then shows how the service can be accessed and started. All features and

functionalities, including HD and MPEG DASH videos as well as social interaction, are described with words and with the help of screen shots. Usually RBB ends such a presentation with a "lessons learned" section and an outlook.

Spanish services presentations

I2CAT prepared a dedicated presentation for communication purposes available on the project website. The objective is to easily showcase the application of the pilot and its main features.

Image19: Some slides of the presentation

Moreover, Spanish pilot presentations are defined and made specifically for every event where has to be used. In any case, the presentation always emphasizes the multicamera service made in live video and VOD and in the complementary second screen service that significantly improves the user experience.

Given that this pilot has been taking an increasing repercussion as it progressed and the last event in it improved notoriously the consumption of the HbbTV TVC application, the presentations insist on the final results after the various stages of pilot testing for the emerging potential discovered.

6.3.On-Site Actions report

6.3.1. Event Related activities

6.3.1.1. IFA 2014

RBB did not do any advanced TV RING dissemination, as demos or prototypes of a service were not ready at this time. Though TV RING flyers were handed out and the overall project idea was promoted also verbally, including RBB's concept for the coming HBBTV-based companion service.

6.3.1.2. SmartCity Expo World Congress

Smart City Expo was held in Barcelona on November 2014. This congress is about the innovation and efficiency in the worldwide city development and there the most important people in this industry will gather together to share knowledge, present innovative solutions and opportunities for the cities to be more efficient, sustainable and livable. The venue has about 14.288 attendees, 485 exhibitors from 568 different cities and about 400 speakers.

The project TV-Ring was introduced to the attendees within the Cellnex Telecom (Retevision) booth jointly with all the other related company R&D projects.

6.3.1.3. National Dutch Workshop HbbTV

NPO and PPG organised a Dutch National Workshop about HbbTV on the 27th of November 2014 in Hilversum. There were around 40 attendees from broadcast organizations, app development companies, production companies and TV suppliers (Samsung). In the morning there were presentations from Peoples Playground (Ammar Tijani), Frank Visser (Head of the HbbTV Forum in the Netherlands) and Rob Koenen (TNO) about HbbTV in the Netherlands and Europe. The NPO gave a presentation about the TV-RING project and the Dutch pilots and showed the DRM and Recommender pilot.

Image20: Presentation about TV-RING by Joost Negenman (NPO)

In the afternoon there were some more practical showcases with the NOS news app, WK app and some examples from the app company Small Town Heroes. KU Leuven also gave a presentation about the user requirements. Finally there was an interactive session with 4 groups who all made their own concept for HbbTV. These concepts were presented to each other.

6.3.1.4. IRT Kolloquium

On the 16th of March 2015 the TV-RING project was presented at the IRT Colloquium. Around 40 experts attended to the presentation with subsequent discussion.

First, the TV-RING project, the partners and the objectives were presented. After that there was a deeper insight into the German pilot “Verknallt & Abgedreht”. The HbbTV application in combination with the TV series was explained to the audience. Particularly the new features, “Live Blog”, “high quality video” and “MPEG-DASH Streaming” were addressed here. The slides about the DASH video generation, the different used video formats and the delivery of the video streams received broad attention by the audience. Finally the HbbTV Developer Page with its 3 areas, the wiki, the blog and the forum was presented.

Image21: Slides about the Live Blog and the Stream Delivery

The colloquium was presented in German. The slides are published here: https://www.irt.de/fileadmin/media/downloads/veranstaltungen/2015/Einladung_IRT_Kolloquium_Vogl_Baumann_20150316_WEB.pdf

The presentation was done by Sebastian Siepe, Franz Baumann and Aylin Vogl. A record of the presentation is available on Youtube: https://www.youtube.com/watch?v=acbZYMw63S4&feature=youtu.be

Image22: IRT Colloquium

6.3.1.5. MWC 2015 (RTV)

MWC is the most important fair in the world about anything related to mobile/handheld devices. It is not only dedicated to mobile but to apps development. So, many of the software projects are also exhibited here.

In the 2015 edition there were more than 94.000 attendees, 2.199 exhibitors, more than 140 speaking sessions and more the 3.800 press and industry analysts.

www.mobileworldcongress.com

Cellnex Telecom (RTV) introduced its main R&D projects and RTVG was shown within the booth in a digital presentation jointly with the other projects and also some leaflets were made available to the attendees who were interested on it.

Image23: Attendees could find leaflets and complement the information with f2f meetings during the MWC.

6.3.1.6. BroadThinking 2015

Broadthinkig 2015 took place in Geneva on the March the 18th. Visitors are mainly from the R&D and policy departments of public broadcasters in Europe.

With an emphasis of User Interaction and showcasing our experiences RBB presented the German and Spanish pilots in a talk at the auditorium on 18 March 2015 in Geneva. NPO demonstrated the Dutch pilot in the Living Room Labs, while RBB presented the Dutch DRM pilot on March 19. RBB and PPG also had demo displays in the foyer. The event was attended by roughly 100 people from the technology and innovation community.

Image24: German presentation

Image25: Demo corner

6.3.1.7. HBB4ALL Workshop 2015

The Hbb4ALL Workshop 2015 was a regional workshop organized by the Universitat Autònoma de Barcelona in collaboration with the International Telecomumunication Union and The European Commission. This event gathered approximately a hundred people from academic and industrial world around the accessibility on Connected TV-RITVG Spanish pilot demo and leaflets were offered to the attendees.

Image26: HBB4ALL Workshop 2015

6.3.1.8. TVX 2015 ACM International conference on Interactive experiences for television and online video

This international conference on interactive television was very important for RITVG, especially KUL and NPO. KUL organized this conference in Brussels, and both KUL and NPO presented a significant amount of RITVG related work. Around 130 people from academia and industry attended this conference.

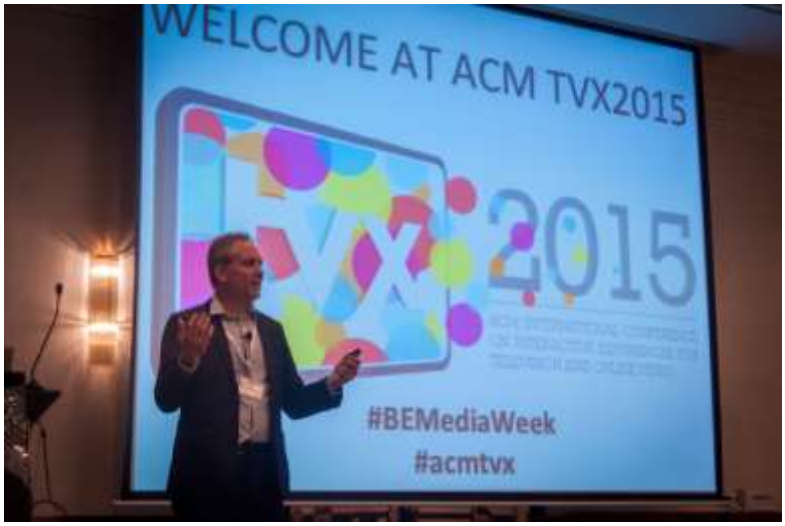


Image27: David Geerts (KU Leuven) Opening the conference as the general chair

First of all, KUL and NPO organized a workshop about the future television landscape together with user experience researchers of YouTube, the Centre for HCI in Salzburg, CWI in Amsterdam, and IRT. In this workshop, titled "People, Context, and Devices: Defining the New Landscape of TV Experiences", aspects of the TV-RING applications were part of the discussions and brainstorms with about 25 participants from academia and industry.

Image28: Joost Negenman (NPO) presenting the discussions of his group

Image29: Ongoing discussions

Furthermore, NPO and AngryBites presented their applications in the demo room (Eén tegen 100).

Image30: Presenting the HbbTV applications for 'Een tegen 100' in the demo room

6.3.1.9. Connected TV World Summit 2015

The Connected TV world Summit took place the 23rd and 24th of June in London. Topics among other things were Pay TV and OTT services. The conference's aim is to reach the TV Industry and digital Innovators.

NPO and PPG rented a booth and they presented TV Ring (Eurosong festival demo) and STER Extra, this is an HbbTV project with Dutch commercials

6.3.1.10. Working Group Smart TV of the German TV -Platform

The Working Group Smart TV of the German TV-Platform kindly invited RBB Innovation Project's Team Leader, Bettina Heidkamp, to present HBB TV's intermediate results at their meeting in Frankfurt (Main). On 16 June 2015 a group of some 30 experts welcomed a presentation of the German Pilot results and the launch of the connected TV Stakeholder Forum online at hbbtvdeveloper.com as a platform for communication and exchange between all players in the market.

6.3.1.11. Mediapark Jaarcongres 2015

Media Jaarpark Congres is a Dutch annual congress for the Media broadcast Industry in the Netherlands. It's one full-day with speakers, and TPVring had a 1h session about HbbTV. NPO presented the HbbTV development and showed live the second screen demo with the Eurovision Song contest.

Image31: Joost Negenman during his presentation.

Audience about 40 people, including broadcasters (SBS, RTL), Media Industry (Ericsson, TP Vision) HbbTV developers and members of the HbbTV Forum etc. The event took place the 18th of June in Hilversum.

6.3.1.12. IFA Berlin 2015

From 4– 9 September 2015 IFA ("Internationale Funkaustellung") took place in Berlin, one of the world's largest Consumer Electronics exhibitions. TV-RING partner RBB was part of the large ARD Digital booth and therefore able to present its latest developments to consumers and visitors from the industry.

RBB had an UHD SmartTV screen capable of demonstrating the German TV-RING pilot in form of the "verknallt & abgedreht" service, complete with all features, incl. all 21 UHD videos and social interaction cases, which were core of the concluded pilot phases in 2014 and 2015. Visitors were enabled to get an impression how a high-bandwidth HbbTV service can look like, what media it can play and what can be offered.

RBB also showed the “Sandmännchen” HbbTV application, which was originally created with the same tools and partly the same infrastructure as “verknallt”.

The German pilot was also presented at the neighbouring stand of FIRST partner IRT. Here especially school classes were the target audience. Promotional work was done for the HbbTV Developer Forum. Its flyer Postcards were distributed at the IRT booth.

6.3.1.13. IBC Amsterdam 2015

The IBC event took place from 11 to 15 September 2015 in Amsterdam. IBC is the premier annual event for professionals engaged in the creation, management and delivery of entertainment and news content worldwide.

In 2015, the event attracted more than 55.000 attendees from 170 countries around the world, exhibiting more than 1.600 of the world's key technology suppliers and showcasing a debate-leading conference.

IRT had a booth: When visitors with an special interest in UHD, came to the IRT booth, the V&A application was shown to them among other UHD demos by Michael Probst (IRT).Promotional work was done for the HbbTV Developer Forum. Flyer Postcards were distributed at the IRT booth.

Image32: IRT’s booth at IBC

Image33: EBU's booth

NPO & PPG had a booth at the EBU stand and NPO and PPG were present to give demo's and explain about the second screen application / see2gather.

The "Verknallt & Abgedreht" application was shown to visitors with a special interest in UHD among other UHD demos by Michael Probst (IRT). Promotional work was done for the HbbTV Developer Page. Flyer Postcards were distributed at the IRT booth.

6.3.1.14. Medientage München

"Digital Disruption – Make media future success" was the motto of the Medientage München 2015. From October 21 to 23 industry experts had the chance to exchange their selves about the future of media in about 90 panels. It happens a massive upheaval in the media sector through the progressive digitization. The event includes over 6,000 participants from Germany and abroad, hundreds of accredited journalists and more than 500 speakers. Top managers and media experts from television, radio, print and mobile, specialists from the digital business as well as advertising professionals, media politicians and filmmakers making course for the media world of tomorrow. The accompanying congress-exhibition with around 60 exhibitors is also part of the three-day media event.

The German pilot demo "Verknallt & Abgedreht" was presented among other demos at the IRT booth at the Medientage München. Promotional work was done for the HbbTV Developer Page. Flyer Postcards were distributed at the IRT booth.

Image34: Demoing the German application at Medientage München

6.3.1.15. Immovator Crossmedia cafe 'Games and Media'

This is a Dutch media event and took place the 27th of October in Hilversum. The audience existed of Dutch broadcasting organizations (public and commercial), game agency and digital media agency.

Joost Negenman (NPO) and Marc Veuger (Angry Bytes) gave a presentation about interactive quizzes, second screen applications and the see2gather application. They also had a demo where visitors could play along with see2gather.

Image35: Marc Veuger and Joost Negenman preparing the demo of See2Gather

6.3.2. TV-RING specific events

6.3.2.1. NEM Summit

The NEM summit is one of the key events that NEM Initiative organises. As they define themselves in their website[4] "The NEM Initiative (Networked and Electronic Media Initiative) was established as one of the European Technology Platform under the Seventh Framework Programme, aiming at fostering the convergence between consumer electronics, broadcasting and telecoms in order to develop the emerging business sector of networked and electronic media. In order to respond to new need and requirements of the Horizon 2020 programme, the NEM initiative enlarged its focus towards creative industries and changed its name to New European Media.

NEM Summit is a reference annual event organised by top industry and academic players of the Media sector. Since 2008, NEM summit has been active to become the key event for all those actors of the sector who wants to discover technology and latest trends, to meet and find stakeholders, among several other opportunities.

In 2014, TV-RING was present at NEM Summit, organising a dedicated workshop session. The event was organised at Flagey center (Brussels, Belgium). This part of the event under the title "Connected TV services and Apps" put emphasis on the latest and future Connected TV and HbbTV developments. A major aim was to show how these services would contribute to the definition of the next steps for the sector. This not-to-miss event brought together key Connected TV stakeholders. Through selected presentations, demos and prototype showcases, all attendees had the chance to get informed as well as to share and discuss with their

[4] http://nem-initiative.org/what-is-nem/

perspectives. This was also a great opportunity to network with relevant European broadcasters, research centres, software developers, service providers and many others, as well as new related projects in order to find synergies and future collaborations.

The agenda for the event was the following:

- 14.00h TV-RING consortium: TV-RING short presentation and pilots introduction
- 14.20h Miroslaw Z. Bober (Uni. of Surrey): BRIDGET project
- 14.35h Joachim Koehler (Fraunhofer IAIS): LinkedTV project – Television linked to the Web
- 14.50h Juan V. Vidagany (TIE Kinetix): SAM Project – Specialising Around Media
- 15.05h Frank Visser (Immovator): HbbTV in Europe status & barriers for the signal transmission
- 15.20h Rob Koenen (TNO): Delivering HbbTV services when the grid does not reach the terminal
- 15.35h Annette Wilson (RBB): Smart TV Applications and Strategy at RBB
- 15.50h Coffee Break
- 16.15h Floris Daelemans (VRT): Radio on a TV is not TV
- 16.30h Oliver Friedrich (DTelekom): HbbTV in IPTV operator environments
- 16.45hThomas Kuepper (EC-DG Connect): Research and Innovation Opportunities in Converging Media and Content
- 17.00h Ralf Neudel (IRT): HbbTV update
- 17.15h Sergi Fernández (i2CAT): Closure

With more than 50 registrations and around 30 attendees per session, the workshop was one of the most successful activities of the event. This activity was a good first approach to industry stakeholders to start introducing the project and its objectives.

It was stated that as the project progress and more results from the pilots are available, it will be easier to get the attention from industry stakeholders with live demos and videos of the services implemented.

6.3.2.2. Developer's week

IRT with the help from RBB offered a workshop at the "Developers Week" in Nuremburg at the 18th of June 2015. Under the umbrella of TV-RING, IRT offered a 1 day workshop called "HbbTV basic training for Web Developers". The workshop was intended to show the participants how to implement interactive TV applications in HbbTV. Focus of the workshop was an introduction to the HbbTV programming. The significant differences between HbbTV application development and web development were outlined. After a short theoretical introduction it was possible to start with code snippets and design first own HbbTV applications.

The workshop was part of 3 day conference of .NET, Web & Mobile developers. In addition to 200 presentations, 11 parallel workshops were offered. 150 experts and more than 1400 software developers attended the event.

Image36: German workshop "HbbTV basic training for Web Developers"

6.3.2.3. VI Jornadas Televisión Connectada

On the 15th and 16th of October the VI international congress on interactive TV (TVDI) was held in Palma de Mallorca, Spain. The venue is organised annually by the University of Illes Balears (UiB). At dissemination level, i2CAT jointly with UiB organised a demo corner, where all entities wishing could showcase their services. RTV and NPO set-up TV-RING demos (DRM, Recommender, See2Gather, Verknallt & Abgedreht and Multicamera). The average audience

Image37: TV-RING's demo corner

was around 65 people each day.

Additionally, TV-RING made 2 presentations that were a starting point for later informal discussions and feedback gathering. Presentations were about HbbTV and the future of TV, followed by an overview of what was learned during the Dutch pilot and the usage of second screen applications. As a result of this event, two papers have been submitted for publication.

6.3.2.4. HbbTV Symposium

December 8th and 9th the HbbTV association and the DTG held the third HbbTV Symposium in London. With a strong agenda of keynotes, lectures and debates focusing on the latest topics in broadcast and broadband TV, like HbbTV 2.0, and adopting HbbTV on new continents, the

HbbTV Symposium was most important gathering of decision makers in the Connected TV industry. More than 160 attendees developed broad Hybrid TV insights through their engagement with expert presentations and panels focusing on topics of interest to the broadcast and broadband TV ecosystem.

TV-RING demonstrated their 3 large-scaled pilots to show the audience what is possible today and in the next few years. The 3 pilots demonstrated the commercial and technical benefits of using HbbTV and Next Generation Access infrastructures in addressed Connected TV scenarios, promoting the multi-camera service controlled with a second screen device (Spanish pilot), second screen interaction with live TV shows (Dutch pilot) and the UHD player embedded in an HbbTV application as well as social media interaction on the TV screen (German pilot).

In interactive presentations and stage-discussions as well as hands-on demonstrations and face-to-face discussions at the dedicated TV-RING booth the partners managed to convince the symposium participants from all over Europe, South America, New Zealand and Asia that HbbTV can be much more than video on demand and visually upgraded teletext.

Image38: TV-RING booth at HbbTV Symposium London

6.3.3. Research Publications Report

KUL submitted many research publications, sometimes with NPO as author and contributor. These publications were mainly presented at the TVX 2015 ACM International conference on Interactive experiences for television and online video, mentioned earlier. There was also a journal article, and a course for two editions of the CHI conference.

The main publication for TV-RING during the TVX 2015 Conference was the full paper "Broadcast, Video-on-Demand, and Other Ways to Watch Television Content: a Household Perspective".

Image39: Jeroen Vanattenhoven (KU Leuven) presenting a full paper from the TVRING project.

In addition to the full paper, we also presented two work-in-progress papers, illustrated in ¡Error! No se encuentra el origen de la referencia. and ¡Error! No se encuentra el origen de la referencia. ("Learning Lessons for Second Screen from Board Games" and "Designing TV Recommender Interfaces for Specific Viewing Experiences"), the workshop proposal mentioned in 6.3.2 ("People, Context, and Devices: Defining the New Landscape of TV Experiences"). Another workshop proposal by KU Leuven and NPO was submitted and accepted for the ICEC 2015 Conference, titled "Playful Experiences and Game Concepts for Multi-Screen Environments." Unfortunately, due to a very limited number of participants, we were forced to cancel the actual workshop. The workshop remains published though. Then, David Geerts' publication (KU Leuven) was accepted and entailed the course - that partially relied on the insights gained during the TVRING - "Interaction Design for Online Video and Television" for the CHI2015 in Seoul and and for the CHI2016 conference in San José.

Image40: Poster about the use of boardgames during ideation sessions with participants for generating ideas about novel second screen interaction concepts and TV formats at the poster session of TVX 2015

Image41: Poster about the new way of looking at recommendations based on the context in the household at t poster session of TVX 2015

Finally, we provide an overview of the above publications in academic reference (APA) style.

1. Vanattenhoven, J., & Geerts, D. (2015). Broadcast, Video-on-Demand, and Other Ways to Watch Television Content: a Household Perspective. In TVX '15 Proceedings of the ACM International Conference on Interactive Experiences for TV and Online Video (TVX'15). Brussels, Belgium, 3-5 June 2015 (pp. 73-82). New York: ACM.
2. Vanattenhoven, J., & Geerts, D. (2015). Contextual aspects of typical viewing situations: a new perspective for recommending television and video content. In Personal and Ubiquitous Computing, 19 (5), 761-779.
3. Vanattenhoven, J., & Geerts, D. (2015). Playful Experiences and Game Concepts for Multi-Screen Environments. In Chorianopoulos, K. (Ed.), Divitini, M. (Ed.), Baalsrud Hauge, J. (Ed.), Jaccheri, L. (Ed.), Malaka, R. (Ed.), Entertainment Computing - ICEC 2015: Vol. 9353. International Conference on Entertainment Computing. Trondheim, Norway, 29 September - 2 October 2015 (pp. 571-574). Springer.
4. Dandavate, I., Milam, J., Allen, J., Moser, C., Kargl, T., Tscheligi, M., Vanattenhoven, J., Perez Romero, L., Schiller, F., Negenman, J. (2015). People, Context, and Devices: Defining the New Landscape of TV Experiences. In TVX '15 Proceedings of the ACM International Conference on Interactive Experiences for TV and Online Video (TVX'15). Brussels, Belgium, 3-5 June 2015 (pp. 209-213). New York: ACM.
5. Leenheer, R., Geerts, D., Vanattenhoven, J. (2015). Learning Lessons for Second Screen from Board Games. In TVX '15 Proceedings of the ACM International Conference on Interactive Experiences for TV and Online Video (TVX'15). Brussels, Belgium, 3-5 June 2015 (pp. 143-148). New York: ACM.
6. Vanattenhoven, J., & Geerts, D. (2015). Designing TV Recommender Interfaces for Specific Viewing Experiences. In TVX '15 Proceedings of the ACM International Conference on Interactive Experiences for TV and Online Video (TVX'15). Brussels, Belgium, 3-5 June 2015 (pp. 185-190). New York: ACM.
7. Geerts, D., Cesar, P. (2015). Interaction Design for Online Video and Television. In CHI EA '15 Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems (CHI'15). Seoul, S. Korea, 18-23 April 2015 (pp. 2463-2464). New York: ACM.
8. Geerts, D., Cesar, P., and bron, M. (2016). Interaction Design for Online Video and Television. (accepted for) CHI EA '16 Proceedings of the 34rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems (CHI'16). San Jose, USA, 7-12 May, 2016. New York: ACM.

There are still a number of publications that have been submitted by KU Leuven near the end of the project, but are awaiting peer review.

1. The first one is a journal article titled “Social experiences within the home using second screen TV applications” for the Special Issue on “Interactive Media: Technology and Experience” for “Multimedia Tools and Applications” (Springer).
2. Then, there is a short paper - written by NPO and KU Leuven, for “Enriching and Engaging Linear Television: Findings and Learnings from HbbTV Second Screen Applications” for a CCIS (Communications in Computer and Information Science) Springer Book with a selection of the best papers presented at the VI IPTV Congress | jAUTI 2015 in Palma de Mallorca, Spain, 14-16th October 2015.

And there is also a book chapter for “Mediasync: Handbook on Multimedia Synchronization” (Springer) in preparation for which KU Leuven has submitted an abstract called “Synchronization for Social Television and Secondary screens”.

i2CAT submitted also 2 papers pending to be accepted: TV-RING and ImmersiaTV: Present and Future of Television (Paper for a CCIS - Communications in Computer and Information Science,

Springer book, a selection of the best papers presented at VI IPTV Congress jAUTI2015 (Palma de Mallorca, Spain; 14-16th October 2015) and Analysis of User Behaviour with a Multicamera HbbTV App in a Live Sports Event (Paper submitted at the Call for paper for ACM TVX 2016, International Conference on Interactive Experiences for Television and Online Video).

7. Calendar of Connected TV events

The International events that were susceptible of dissemination actions:

Event	Representative	Date	Link	Potential objectives*
IFA2014	RBB	Sep 2014, Berlin		
NEM Summit	i2CAT, IRT	29 Sept-1 Oct 2014, Brussels	http://nem-initiative.org/	TV-RING Workshop
SmartCity Expo World Congress	RTV	18-20 Nov 2014, Barcelona	http://www.smartcityexpo.com	TV-Ring project will be presented among other R&D projects. We will help nosey attendants giving info about the project and explain their objective and work done. Leaflets are placed in the booth for any interested visitor too.
National Dutch Workshop HbbTV	NPO, PPG	25th of Nov 2014	http://www.tvring.eu/sites/default/files/documents/Programma_Workshop_HbbTV.pdf	We had around 40 attendees from broadcast organizations, a development companies, production companies and TV supplier (Samsung). In the morning we had presentations from Ammar, Frank Viss (HbbTV Forum) and Rob Koenen (TNO) about HbbTV in th Netherlands and Europe. Together with Joost I gave a presentation about the TV-Ring project and our Dutch pilots. We showed the DRM and Recommender pilot.

				In the afternoon there were some more practical showcases w the NOS news app, WK app and some examples from Small T Heroes. David also gave a presentation about the user requirements Finally there was an interactive session with 4 groups who all made an own concept for HbbTV.
2015				
HbbTV Summit	RBB? RTV'	15 January 2015	http://www.broadbandtvnews.com/event/hbbtv-summit-poland-conference/	
IRT Kolloquium	IRT	16.03.2015	https://www.irt.de/fileadmin/media/downloads/veranstaltungen/2015/Einladung_IRT_Kolloquium_Vogl_Baumann_250316_WEB.pdf (German only)	The EU project TV-RING (www.tvring.eu) will explore new insigh within the operation of Connected TV applications based on HbbTV. The pilot projects spread across Europe offer the possibility of different applications such as second screen, high resolution video streaming up to UHD or the distribution of multiple parallel video streams. TV-RING was presented by Franz Baumann, Sebastian Siepe and Aylin Vogl
MWC 2015	RTV	02-05 March 2015	http://www.mobileworldcongress.com/	Introducing TV-Ring project with on-screen presentation. TV-Ring leaflets given to people who attend the booth and was interested for the project

BroadThinking 2015	RBB, NPO, PPG	18-19 March 2015	https://tech.ebu.ch/events/broadthinking2015 https://tech.ebu.ch/docs/events/broadthinking15/bt15_programme_v9.pdf	RBB presented the German and Spanish pilots at the talk on March 18, NPO demonstrated the Dutch pilot in the Living Room La PPG presented the Dutch DRM pilot on March 19, RBB and I also had demo displays in the foyer. (Images attached in rig column)
HBB4ALL Workshop 2015	TVC	18th March 2015	http://www.hbb4all.eu/publications/hbb4all-workshop-2015/	Presented TVRING Spanish pilot demo and leaflets to worksh attendees
TVX 2015 ACM International conference on Interactive experiences for television and online video	KUL, NPO	3-5 June 2015, Brussels	http://tvx2015.com	KULeuven organizes this conference, has 2 work in progres papers/posters, is organising a workshop with NPO and YouT among others, has a full paper presentation at the conferenc NPO will participate in the workshops day one and we will organise a demo the second and third day about our third pilot: second screen application in combination with HbbTV.
ITU Symposium	No apply	17 June, Geneva	http://www.itu.int/en/ITU-R/GE06-Symposium-2015/Pages/default.aspx	Demo of the pilots ata the "demo sessions". (Still pending to b confirmed) 17June2015_Draft_Talks-and-Demos_Status-as-of_09May2015.docx

Developer Week	R: IRT RBB provides information for the workshop.	18 June 2015	http://www.developer-week.de/Programm/Veranstaltung/%28event%29/18999	Objective is to promote HbbTV and support potentially interest developers by coaching them how to deal with the difficulties they will have to face. IRT will present the specific situation of HbbTV Delopers and coach how to deal with it, plus, of course, work on Hello World examples for HbbTV coding practice. RBB (Nico) will support strategic and economic strands of this workshop. The workshop is already part of the official programme and promoted online, but still depends on a minimum of 5 users. Should be doable
Connected TV World Summit 2015	R: NPO, PPG	23-24 June, London	http://connectedtvsummit.com/	Rented a booth with Amar, and they will be presenting TV-Ring (Eurosong festival demo) and STER Extra = HbbTV project w Dutch commercials
Working Group Smart TV of the German TV-Platform	RBB	16.07.2015	http://www.tv-plattform.de/en/working-groups/smart-tv.html	The Working Group Smart TV of the German TV-Platform kindly invited RBB Innovation Project's Team Leader, Bettina Heidka to present TV-Ring's results at their meeting in Frankfurt (Main). group of some 30 experts welcomed a presentation of the German Pilot results and the launch of the Online Connected Stakeholder Forum at hbbtvdeveloper.com as a platform for communication and exchange between all players in the mark One full-day with speakers, and TV-Ring will have 1h session about HbbTV. NPO presented the HbbTV development and showed live the second screen demo with the Eurovision So contest. Audience about 40 people, including broadcasters (SBS, RT Media Industry (Ericsson, TV-Vision) HbbTV developers and

				menbers of the HbbTV Forum etc
IFA Berlin	RBB/IRT	4-9 Sept 2015, Berlin		RBB innovation had a booth at IFA and presented the project the APPs ("verknallt & abgedreht" & Sandmännchen). The "V&A" application was also presented at the IFA by Janina Renz (IRT). Here especially school classes were the target audience. Promotional work was done for the HbbTV Develop Forum. Flyer Postcards were distributed at the IRT booth.
IBC Amsterdam	NPO, RBB	10-15 Sept 2015. Amsterdam	http://www.ibc.org	IRT: When visitors with an special interest in UHD, came to the booth, the V&A application was shown to them among other UHD demos by Michael Probst (IRT). Promotional work was done for the HbbTV Developer Forum. Flyer Postcards were distributed the IRT booth. NPO & PPG: We had a booth at the EBU stand and NPO and were present to give demo's and explain about the second scr application / see2gather.
VI Jornadas Televisión Connectada (Mallorca)	i2CAT, TVC, RTV and NPO	14-16 Oct 2015		Try to organise the national workshop (part II). Also give som speeches, and demos. There is a review and tweets and th project website. Audience expected around 50-70 people.
Medientage München	R: IRT	21-23 Oct 2015	http://www.medientage.de/startseite/	IRT booth at the Medientage Munich. Presenting German pil demo among others and promote the HbbTV Developer Foru
Immovator Crossmedia cafe 'Games	NPO & Angry	27th of Oct 2015	http://www.immovator.nl/agenda/cross-media-cafe-games-media	Joost and Marc will give a presentation about interactive quizzes, second screen applications and the see2gather application

and Media'	bites		
HbbTV Symposium	NPO, RBB, TVC, IRT	8-9 Dec 2015, London	TV-RING final event

Table2: Screening of potential events where to attend for dissemination purposes (time horizon 2014-2015

8. Open Connected TV Stakeholders Forum

All actions related to the Open Connected TV Stakeholders Forum are detailed in D2.1 part II for this project period. The next sections will give a short overview about what have been done.

8.1. Objectives status

The Open Connected TV Stakeholder Forum (OCTSF) is structured into an online and offline part. The offline forum consists of workshops which were organized and/or attended by the project.

Two international workshops were organized, the first in September 2014 in Brussels. This workshop was co-located with the NEM Summit. Around 30 participants attended to the workshop and listened to the presentations from external and internal HbbTV experts. The intention of the workshop was to obtain input from stakeholders and communicate the status of the project pilots.

The last workshop was organized in December 2015 in London. HBBTV participated significantly to the HbbTV Symposium 2015. During the event the HbbTV demos of the project were shown at the TV-RING exhibition booth. Additionally every pilot was presented in a slot at the main stage of the event. 160 HbbTV experts visited the Symposium.

Additionally some national workshops as well a summary of several meetings between project partners and stakeholders have been successfully carried out.

For the online part, the status of the www.hbbtvdeveloper.com website is described by statistics and diagrams from the web analysing service FlashCounter.

Image42: Status mid of February 2016

The current status in Image 4 shows numbers since the start of the website in January 2015. In this one year we had around 11000 visitors of the website and 37000 page views. This means that the website was visited around 37000 times. On average, the website was called 3,4 times of each visitor.

The visitors are mainly from European countries. Image 5 shows the origin cities of visitors. Japan, India, Tunisia and USA are the only countries outside of Europe which have been tracked by the website statistic tool.

City	region	country
Madrid	Madrid	Spain
Munich	Bavaria	Germany
Paris	Ile-de-France	France
Lisbon	Lisbon	Portugal
		Unknown
Berlin	Berlin	Germany
		Unknown
Prague	Capital City of Prague	Czech Republic
New Delhi	Delhi	India
Bierun	Katowice	Poland

Image43: Origin cities of visitors (list is not complete)

To share our project results and experiences with the community and to raise the attractiveness of the website the project partners wrote a bunch of articles and reports. A total of 20 Blog Posts and 12 Wiki articles were written and published. The detailed list and some examples of this articles could be found in D2.1 part II annex I or at the website hbbtv-developer.com.

Currently there are 8 discussions in the Forum of the website. All together there are 26 posts which means questions and answers. There are around 20 members and 6 active users.

Image44: Overview Forum Discussion

8.2.Next Steps

This section will be further developed in D2.1.1, but at dissemination level concerning the Open ConnectedTV Stakeholders Forum it is expected to:

1. Update the distribution list and keep informing stakeholders on new publications and stimulating its contributions.
2. Future projects working on HbbTV will be also contacted to contribute and to take the website as a reference site for their developers.
3. A dedicated section in the website will be also added, explaining what is the forum, what activities have been done, and how to get involved.

At sustainability level, TRIANGLE is committed to maintain the site till the end of 2017, and is now working to find potential partners or entities interested to take an active role and to boost its usage worldwide.

9. Conclusions and next steps

TV-RING in this second period has reached a good impact among its audience, finding a good balance between online and offline actions. On the online side, the main outcomes have been the improvement of the TV-RING website, adding many extra sections in order to ensure that the knowledge gathered during the project is shared and can be easily reachab.

Following this line of actions, TV-RING has successfully published the website for HbbTV developers, published different articles and stimulated the addition of new sections. This has been complemented with the creation of a mailing list of stakeholders that have been used in order to boost the addition of new members to the community and informed about the activities carried in the context of the Forum. In general, feedback received from stakeholders has been positive, highlighting that the website covered a need. It has been also stressed the need to get further support to keep it active and gain visibility in the sector while supporting developers to keep adopting HbbTV as reference standard for developing.

On the offline side, TV-RING has followed its strategy to switch the typology of events where to attend to present results, moving from a more RDI perspective to focus more on industrial and trade events. Additionally, partners have been able to showcase the services deployed in the three pilots. This has been really useful to demonstrate that HbbTV is a good technology to develop appealing services and applications for Connected TVs. On key moment in the project has been during the HbbTV symposium 2015 (London), chosen as final event for the project, where to present and exhibit the three pilots and the different applications in front of an expert audience. With no doubts, the TV-RING booth had an excellent acceptance and many stakeholders interacted with the project representatives, asking for further information and providing their feedback on the design and implementation of the services.

Last but not least, mention that TV-RING has submitted 25 publications (most of them accepted and with a few still pending).

10. Annex I – Research publications overview

Title	Author	Publication space	Entity	Date	
Setting up a development environment	Sebastian Siepe	HbbTV Developer Page	IRT	October 2014	If you want to start developing HbbTV applications, there are useful tools that can provide you with helpful information. The following tools will make the development process easier and c be seen as an addition for developers to test and debug their apps FireHbbTV: A browser plugin that allows you to display your ap directly in Firefox Opera TV Emulator: Emulates a SmartTV on your computer, us virtual machine
Setting up a HbbTV environment	Sebastian Siepe	HbbTV Developer Page	IRT	October 2014	In order to run and test HbbTV applications under real conditions a proper HbbTV environment is needed. Such an environm consists of a chain of different parts. All those parts have operate together, in order to build a proper test environment.
Hello World	Aylin Vogl	HbbTV Developer Page	IRT	October 2014	For your first HbbTV application you need to create a HTM JavaScript and a CSS file. Copy the following lines into a file n HelloWorld.html and save it somewhere in your file system.
HbbTV DASH	David Cassany	HbbTV developer website	i2CAT	24/11/2014	
Interaction Design for Online Video and Television	David Geerts, Pablo Cesar	Course for the CHI2015 Conference in South Korea. Published in CHI EA '15 Proceedings of the 33rd Annual ACM	KUL	April 2015	This course will teach attendees how to design and evalu interaction with online video and television. It provides attende a pragmatic toolset, including techniques and guidelines, wh can be directly applied in practice. The different tools will contextualized based on current developments, giving particip

		Conference Extended Abstracts on Human Factors in Computing Systems pages:2463-2464			a complete overview of the state of the art and industry.
People, Context, and Devices: Defining the New Landscape of TV Experiences	Jeroen Vanattenhoven, Joost Negenman, et al	Will be a workshop hosted at TVX2015 (www.tvx2015.com)	KUL, NPO	03/06/2015	Modern technologies (e.g., tablet, smartphone, large public displays) remove many of the constraints that define the scope what television is or can be, but we often define it based upon prior TV experiences with broadcast and cable television. This day workshop at TVX 2015 will address design challenges and opportunities (e.g., of video streams, social TV apps, second screens) in order to consolidate existing knowledge to describe changing landscape of TV experiences. It's time to redefine what we think of when we say "television," and this workshop will engage participants in that process.
Broadcast, Video-on-Demand, and Other Ways to Watch Television Content: a Household Perspective	Jeroen Vanattenhoven, David Geerts	full paper for TVX2015	KUL	04-05/06/2015	This paper presents an investigation into the ways households currently use traditional broadcast television and video-on-demand services at the same time. The results were obtained in-home interviews with seven households in The Netherlands. Both ways of watching television and video content still have their uses. Sometimes broadcast television is turned on out of neces at other times it provides a more valuable function than video-on-demand services. In this paper we go deeper into this matter a explain how each way of viewing TV content relates to different viewing situations in the home. These insights help us to formu implications for the design of television products and services i general, and for better, contextual recommender systems.
Contextual aspects of typical viewing	Jeroen Vanattenhoven,	journal paper final acceptance for the following Journal:	KUL	2015	In this paper, the overarching research goal is to better ta available video and television content to the daily view experiences in different household contexts. Therefore, we re

situations: a new perspective for recommending television and video content	David Geerts	Personal and Ubiquitous Computing - Special Issue on Interactive Experiences for Television and Online Video			on two studies: an ethnographic study with 12 households to better understand everyday viewing practices, and a multi-method study with 7 households to elaborate on four contextual factors that constitute different viewing situations or experiences in the home. Based on the results of these studies, we describe typical viewing situations and how these are related to different manifestations of the following high-level contextual elements: time, mood, content, and viewers. The insights from these studies allow us to suggest opportunities for recommender systems and formulate several implications for the interaction design of video and television applications. Moreover, we argue that it is essential to simultaneously investigate the systems in the background as well as how these systems manifest themselves to the user.
2 Screen Now: A first and Second Screen Game app	Negenman,J., Heijstraten, S., Veuger, M.	Demo submission for TVX 2015	NPO	04-05/06/2015	We will demonstrate a second screen platform, two screen n that makes it possible to play along with a second scree application that interacts and aggregates scores on the Hb content layer on a central TV screen. Creating an engaged soc house experience.
Designing TV Interfaces for Specific Viewing Experiences	Jeroen Vanattenhoven, David Geerts	Work-in-progress paper for TVX 2015	KUL	04-05/06/2015	In this paper we report upon our prototyping and design efforts aimed at supporting specific viewing experiences or situations. our previous studies we gathered insights into which types of viewing situations occur in the home based on the group of viewers, the mood, the type of content, and time-related factors. Based on these situated experiences we now aim to support th experiences via specific user interface designs. The focus is m on presenting the right content in the right way for the specific viewers in each situation. The explored interfaces vary by look feel, content selection, and interaction possibilities. By going through different prototype evaluation sessions we aim to

					increase our understanding of each situation's user requirements. Ultimately, viewers should save considerable time when choos content.
Learning Lessons for Second Screen from Board Games	Rinze Leenheer, David Geerts, Jeroen Vanatten hoven	Work-in-progress paper for TVX 2015	KUL	04-05/06/2015	This paper identifies important requirements for second scr (game) companion apps. Participants were invited to create t own (board) game to play alongside a TV show. Afterwards were interviewed about their experience. Analyses of the gam and interviews lead to some valuable insights in what contribu to an engaging 'TV game'. Lessons learned include: using events on the TV show to influence the game, and striking the right bala between luck and skill elements.
Aligning Recommender Systems with Viewing Practices	Jeroen Vanatten hoven	Workshop paper for TVX 2015- following workshop:People, Context, and Devices: Defining the New Landscape of TV Experiences	KUL	03/06/2015	In this workshop paper we provide an overview of our research activities and results in the TRIPLING project. Specifically, we present our on-going efforts regarding the alignments of recommender systems with viewing practices. Recommender systems research has long focused on the technical aspects; in recent years the focus has evolved and now includes user experience aspects. Our aim is to gain a better understanding of how people typically watch TV, and how they experience typical viewing situations. From these insights we are now trying to design different interfaces that are meant to support the right viewing experience in each situation. With interfaces we mainly consider the offering of the content before watching TV.
Playful Experiences and Game Concepts for Multi-Screen Environments	Jeroen Vanatten hoven, David Geerts	Workshop proposal (accepted for ICEC 2015)- International Conference on Entertainment Computing in	KUL	29/09/2015	In this workshop we will focus on how to design for playful experiences in multi-screen environments (smartphone, tablet, PC and TV), how existing gaming concepts can or cannot be transferred to the design of novel multi-screen formats, and how current insights in sociability, genres and attention can inspire new game concepts. These insights should ultimately lead to novel concepts for multi-screen formats utilising the opportunities

		Trondheim Norway			offered by the recently increased functionality and interactivity. We will invite experts from industry and academia to discuss th latest research efforts and applications, analyse the current "gamified" media landscape, and formulate essential directions for future research.
HbbTV application discovery over broadband	Joost Negenman Rob Koenen	EBU tech-i magazine	NPO TNO	June 2015	HbbTV offers great potential for broadcasters. But even when the terminal is connected to both broadcast and broadband signals the HbbTV Application Information Table (AIT) may not reach t terminal. The television may understand HbbTV, but perhaps it might be connected by HDMI to a set top box (STB) that does not Or the network operator that carries the broadcaster's DVB signal leaves the AIT out. This is the case in some channel/ network combinations in for example, The Netherlands. It would seem li its "game over" for HbbTV in such situations … but perhaps there is still something we can do? In this article NPO (The Netherlands Broadcast Organisation) and TNO(The Netherlands Organisation for Applied Scientific Research) explore alternative options.
Status von HbbTV TV-RING: Hochauflösendes Videostreaming und Entwicklerforum für HbbTV	Aylin Vogl	FKT	IRT	May 2015	
HbbTV Application: **"Verknallt & Abgedreht"**	Aylin Vogl, Sebastian Siepe	HbbTV Developer Page	IRT	April 2015	The German HbbTV application (http://hbbtv.verknalltundabgedreht.de/index.php) is based on a teenager documentation format with 20 episodes. T documentation is focused on the topic "love" from a teenagers' point of view. Therefore the accompanying HbbTV application i

					developed for the target group of young people between 12 a 16 years.
Reference clips and sequence player for HbbTV	Aylin Vogl	HbbTV Developer Page	IRT	April 2015	The reference sequence used here consists of eight s concatenated clips as well as a test card image. The sequ begins with this test card containing video and audio data tailo for measurement purposes. This clip is repeated every 30 sec All original clips are uncompressed AVI files in RGB colour s Each of the clips is ten seconds long and originally had a resolu of 1280 x 720 pixel at 50 fps. The different video clips all have particular properties.
TV-RING: Hochauflösendes Videostreaming und Entwicklerforum für HbbTV	Aylin Vogl	IRT annual report	IRT	July 2015	
Social experiences within the home using second screen TV applications	Jeroen Vanattenhoven & David Geerts	Journal article submitted for a Special Issue on "Interactive Media: Technology and Experience" for "Multimedia Tools and Applications"	KUL	January 2016	Today, using second screen devices while watching TV is quite common. In this article, we focus on social interaction by collocated viewers using second screen applications that were designed for a specific TV program. We report on the social interaction that occurs when groups of viewers use such applications in the home and on the factors that have an influen on this social experience. Based on these findings we formulate number of guidelines for the design of social second screen applications. This article includes the results of six studies that were carried out in three different phases of a user-centred design cycle (analysis, design and evaluation). We found that most participants valued such applications because of the increased interactivity and the social experience. Furthermore, application

					that incorporate some form of competition are especially compelling. However, care needs to be taken when introducing competitive elements into an application and when choosing a suitable TV genre.
Enriching and Engaging Linear Television: Findings and Learnings with HbbTV Second Screen Applications	Joost Negenman, Susanne Heijstraten, Jeroen Vanattenhoven, David Geerts	Short paper submitted for CCIS (Communications in Computer and Information Science) Springer Book with a selection of the best papers presented at VIIPTV Congress jAUTI2015 - Palma de Mallorca, Spain, 14-16th October 2015.	NPO, KUL	January 2016	In this article we present findings from a research project on no TV applications using second screens. We introduce new ways enriching and engaging linear television by using HbbTV servic combination with second screen applications. HbbTV stands fo Hybrid Broadcast Broadband TV, and focuses on bringing toge the TV and the online world. Our goal was to make the social viewing experience more compelling by incorporating second screen functionality into TV formats. Our findings, obtained via substantial iterative user involvement, are the outcome of participation in the European TVRING project, with the aim to develop and stimulate HbbTV within Europe.
Interaction Design for Online Video and Television	David Geerts, Pablo Cesar, Marianna Obrist	Course for the CHI2016 Conference in San Jose Will be published in CHI EA '16 Proceedings of the 34rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems pages (accepted)	KUL	April 2016	This course will teach attendees how to design and evalu interaction with online video and television. It provides attendees a pragmatic toolset, including techniques and guidelines, wi can be directly applied in practice. The different tools will contextualized based on current developments, giving participa a complete overview of the state of the art and industry.
Synchronization for Social Television and	David Geerts, Jeroen	Abstract accepted for a book chapter: Call for Chapters:	KUL	January 2016	Traditionally, timing is a crucial issue in the world of television broadcasting. Most programming is scheduled at a specific tim and broadcasters expect viewers to sit in front of their television

Secondary screens	Vanatten hoven	"Mediasync: Handbook on Multimedia Synchronization" (Springer) https://sites.google.com/site/mediasynchronization/book			screens at that time. However, the advent of new technologies such as digital recorders or tablets being used as a 'second screen', has created a more complex relationship between television an timing. Digital recorders have made it easier than ever to 'time-shift' and watch a program at another time – sometimes even before it is scheduled – and the introduction of tablets as second screens adds another layer of complexity. The issue of timing h in these cases become a matter of synchronisation, as multiple media sources are being used simultaneously. Some second s applications add a social component allowing viewers to remot chat with other viewers, while synchronizing the content they are watching. Another popular application of second screens, companion apps that provide additional information about a TV show, synchronise the content of the app with the content on th TV screen.
TV-RING and ImmersiaTV: Present and Future of Television	Marc Aguilar, Pau Pamplona, Sergi Fernández	Paper for a CCIS (Communications in Computer and Information Science) Springer book, a selection of the best papers presented at VI IPTV Congress jAUTI2015 (Palma de Mallorca, Spain; 14-16th October 2015)	I2CAT	January 2016	In this paper we present our results from a research project on multicamera HbbTV applications, the TV-RING project, and situate these results as part of a broader push towards the developme of innovative media experiences for TV audiences. The main lessons learned in the framework of this project are outlined, w special attention paid to principles of usability, insights on the u experience, and recommendations for the selection of multicamera content. These results were generated as output of a user centered design and experimentation process, involvi requirements elicitation, iterative prototyping and large-scale live pilots. Finally, we sketch how immersive media can address current issues as regards the user experience raised by TV-RING, and introduce related ongoing work in the ImmersiaTV project broadcast omnidirectional video.
Analysis of User Behavior with a	Marc	Paper submitted (acceptance pending) at	I2CAT	January 2016	This paper describes the results of a large-scale live pilot test of an HbbTV multicamera applicati. In this pilot test, carried out

Multicamera HbbTV App in a Live Sports Event	Aguilar, David Cassany, Sergi Fernández	the Call for paper for ACM TVX 2016, International Conference on Interactive Experiences for Television and Online Video	during an association football match, the interactions of 6203 u devices with the application were logged. An exploratory statist analysis was performed on the dataset, to better understand th behavior of the users on the application. The analysis yielded conclusions that can be useful to those seeking to build a successful multicamera service, with insights on issues of suitability of program genres, multicamera content selection, audience segmentation, and the structure of data stream traffic.

11. Annex II – Press impact summaries

Media reports on the project TV-RING	Publisher	Link	Date	Country
TV3, i2CAT i Abertis Telecom inicien proves de televisió connectada a Gurb	Aldia.cat, eldia.es, etc..	http://www.aldia.cat/gent/noticia-tv3-i2cat-abertis-telecom-inicien-gurb-proves-televisio-connectada-20141205155636.html http://www.eldia.es/agencias/7841532-TV3-i2CAT-Abertis-Telecom-inician-sabado-pruebas-television-conectada http://comunicacio21.cat/noticies-comunicacio21/108636-tv3-i2cat-i-abertis-inicien-proves-pilot-de-tv-connectada-a-gurb http://www.naciodigital.cat/osona/noticia/44302 http://www.programapublicidad.com/tv3-i2cat-y-abertis-telecom-iniciaron-este-sabado-pruebas-de-television-conectada/#.VIbezGG_Lk	05/12/2014	Spain

		http://satcesc.com/web/2014/12/06/tv3i2cat-y-abertis-telecom-inician-pruebasde-tv-conectadaen-barcelona/ http://www.mundoplus.tv/noticias/?seccion=tv_digital&id=1108 http://www.liderdigital.com/noticias/detalle_noticia.php?id_noticia=119816 http://canaltdt.es/2014/12/06/tv3-i2cat-y-abertis-telecom-inician-pruebasde-television-conectadaen-barcelona/ http://imediagala.com/2014/12/05/tv3i2cat-y-abertis-telecom-inician-pruebasde-television-conectadaen-gurb/	
Wazzup 2015: HbbTV and second screen applications	Adformatie	http://www.adformatie.nl/nieuws/video-wazzup2015-marc-veugel-angry-bytestwo-screen?sharehash=0vLcFqVpWaPsmz1hgS9dFy_q5u0mt15llO7_2Nbc	TheNetherlands
La televisión conectada y la televisión híbrida centran una jornada sobre el futuro de este medio		http://www.expansion.com/2015/01/15/aragon/1421318547.html http://www.eleconomista.es/aragon/noticias/6395310/01/15/TV-Conectada-la-television-del-futuro-a-debate-en-ITAINNOVA.html#.Kku8ReG1YfYomtE	Spain

http://ecodiario.eleconomista.es/espana/noticias/6399149/01/15/La-television-conectada-y-la-television-hibrida-centran-una-jornada-sobre-el-futuro-de-este-medio.html#.Kku8m3YQE9I5m0L

http://www.lavanguardia.com/local/20150117/54423457674/la-television-conectada-y-la-television-hibrida-centran-una-jornada-sobre-el-futuro-de-este-medio.html

http://www.europapress.es/aragon/noticia-television-conectada-television-hibrida-centran-jornada-futuro-medio-20150117095956.html

http://www.20minutos.es/noticia/2349884/0/television-conectada-television-hibrida-centran-jornada-sobre-futuro-este-medio/

http://noticias.lainformacion.com/economia-negocios-y-finanzas/software/la-television-conectada-y-la-television-hibrida-centran-una-jornada-sobre-el-futuro-de-este-medio_hHg8eyqG5FGhtwAbc8d5k/

http://www.teinteresa.es/aragon/zaragoza/television-conectada-hibrida-centran-jornada_0_1286871428.html

http://www.gentedigital.es/zaragoza/notici

		a/1570593/la-television-conectada-y-la-television-hibrida-centran-una-jornada-sobre-el-futuro-de-este-medio/ http://www.periodico.com/la_television_conectada_television_hibrida_centran_jornada_futuro_medio_rsse2685293.html http://www.aragonradio.com/la-television-conectada-y-la-television-hibrida-centran-una-jornada-sobre-el-futuro-de-este-medio/ http://www.aragonhoy.net/index.php/mod.noticias/mem.detalle/area.1343/relmenu.5/id.159371 http://www.aragoninvestiga.org/tv-conectada-la-television-del-futuro-las-ultimas-tendencias-del-sector-se-analizaran-en-itainnova/		
Jornada TV connectada	El Heraldo de Aragon	TERCER MILENIO TV CONECTADA.pdf		
EU-Projekt TV-Ring forscht an neuen TV-Diensten, wie hochauflösendes Videostreaming (bis UHDTV) über HbbTV	InfoDigital	http://www.infosat.de/technik/eu-projekt-tv-ring-forscht-neuen-tv-diensten-wie-hochaufloesendes-videostreaming-bis-uhdtv	02.03.2015	Germany
Hochauflösendes Videostreaming und Entwicklerforum für HbbTV	FKT	http://fkt.schiele-schoen.de/articles/article/hochaufloesendes-videostreaming-und-entwicklerforum-fuer-hbbtv.html?tx_ttnews%5BpageId%5D=27&cHash=6711e8152f85811fec619e02c400494#.VF4hvkTP0g	02.03.2015	Germany
TV-Ring – Künftige Anwendungen und Infrastrukturen für Connected TV	Reginalgruppe München – FKTG	https://www.fktg.org/regionalgruppe-muenchen-46	02.03.2015	Germany
TV-Ring – Künftige	Mediennetzwerk Bayern	http://www.mediennetzwerk-	02.03.2015	Germany

Anwendungen und Infrastrukturen für Connected TV		bayern.de/event/irt-kolloquium-tv-ring-kuenftige-anwendungen-und-infrastrukturen-fuer-connected-tv/		
IRT Kolloquium zu hochauflösendem Videostreaming und Entwicklerforum für HbbTV	Professional Production	http://www.professional-production.de/veranstaltungen/einzelansicht/datum/2015/03/09/irt-kolloquium-zu-hochaufloesendem-videostreaming-und-entwicklerforum-fuer-hbbtv/	10.03.2015	Germany
TV-Ring Entwicklerforum für HbbTV	Event Elevator	http://www.eventelevator.de/neuigkeiten/broadcast/tv-ring-entwicklerforum-fuer-hbbtv	06.03.2015	Germany
Segunda prueba piloto de TV conectada, dentro del proyecto europeo TV-RING.	Panorama Audiovisual	http://www.panoramaaudiovisual.com/2015/05/21/segunda-prueba-piloto-de-television-conectada-dentro-del-proyecto-europeo-tv-ring/		Spain
I2cat, tv3 i cellnex telecom oferiran el servei multicàmera per al partit de champions league entre el barça i la roma	Web CCMA	http://www.ccma.cat/324/tv3-i2cat-i-cellnex-telecom-oferiran-acces-multicamera-a-la-transmissio-del-partit-de-champions-entre-el-fc-barcelona-i-la-roma/noticia/2698523/		Spain
I2cat, tv3 i cellnex telecom oferiran el servei multicàmera per al partit de champions league entre el barça i la roma	Web CCMA	http://www.ccma.cat/esport3/el-fc-barcelona-roma-a-tv3/noticia/2698505/		Spain
TV3, i2CAT y Cellnex Telecom ofrecieron acceso multicámara durante el partido de Champions FC Barcelona-Bayer Leverkusen	Panorama Audiovisual	http://www.panoramaaudiovisual.com/2015/09/30/tv3-i2cat-y-cellnex-telecom-ofrecieron-acceso-multicamara-durante-el-partido-de-champions-fc-barcelona-bayer-leverkusen/	01/10/2015	Spain
TV3 ofereix accés multicàmera per al partit Barça-Roma	Comunicació21	http://comunicacio21.cat/noticies-comunicacio21/113837-tv3-ofereix-acces-multicamera-del-partit-barca-roma-als-espectadors-amb-aparells-hbbtv	23/11/2015	Spain
Los espectadores de TV3 podrán seguir el partido entre el Barça y la Roma con acceso	Panorama Audiovisual	http://www.panoramaaudiovisual.com/2015/11/24/los-espectadores-de-tv3-podran-seguir-el-partido-entre-el-barca-y-la-roma-con-	24/11/2015	Spain

multicámara		accesomulticamara/		
Més de 6.000 usuaris participen en la prova pilot multicàmera durant la transmissió per TV3 del partit de Champions entre el FC Barcelona i la Roma	El economista	http://www.eleconomista.es/CanalPDA/2015/60643/mesde-6-000-usuarisparticipen-en-la-prova-pilot-multicameradurant-la-transmissio-per-tv3-del-partit-de-champions entre-el-fc-barcelonai-la-roma/	27/11/2015	Spain
TV3, i2CAT y Cellnex Telecom completan con éxito las pruebas piloto de televisión híbrida	Nació Digital	http://www.naciodigital.cat/osona/noticia/48897/prova/pilot/televisi/brida/gurb/es/tanca/amb/xit		Spain
TV3, i2CAT y Cellnex Telecom completan con éxito las pruebas piloto de televisión híbrida	Comunicació 21	http://comunicacio21.cat/noticies comunicacio21/114231-tv3-i2cat-i-cellnex-finalitzen-les-proves-pilot-de-tv-hibrida-a-gurb	16/12/2015	Spain
La CCMA presenta el seu servei multicàmera a Londres, dins del Simposi HbbTV 2015	CCMA	http://www.ccma.cat/premsa/laccma-presenta-el-seu-servei-multicamera-a-londres-dins-del-simposi-hbbtv-2015/nota-de-premsa/2702095/	11/12/2015	Spain
TV3, i2CAT y Cellnex Telecom completan con éxito las pruebas piloto de televisión híbrida	Panorama Audiovisual	http://www.panoramaaudiovisual.com/2015/12/18/tv3-i2cat-y-cellnex-telecom-completan-con-exito-las-pruebas-piloto-de-television-hibrida/	18/12/2015	Spain