

Deliverable

Project Acronym:	ImmersiaTV
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Project Title:	<i>Immersive Experiences around TV, an integrated toolset for the production and distribution of immersive and interactive content across devices.</i>

D5.3 - Documentation and technical fact sheets

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Authors:

i2CAT

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Dissemination Level		
P	Public	x
C	Confidential, only for members of the consortium and the Commission Services	

Abstract: This deliverable is a compilation of all printable documentation, mostly used for dissemination and communication purposes. There is all content created during the last ten months: two posters and two flyers. Both materials were used in the different commercial and scientific events as TVX 2017; TNC2017; Smart City Expo World Congress 2016; IBC Show 2017; NEM 2017 or Mobile World Congress 2017.

REVISION HISTORY

Revision	Date	Author	Organisation	Description
0.1	23/03/2016	P.Pamplona	i2CAT	First release
0.2	16/06/2016	S.Fernández	i2CAT	Review and comments
0.3	20/06/2016	P.Pamplona	i2CAT	Improved version
0.4	18/11/2016	P.Pamplona	i2CAT	Updated version (second iteration)
0.5	30/11/2016	S. Delaere	iMinds	Review
0.6	24/01/2018	S. Otero	i2CAT	Updated version

Disclaimer

The information, documentation and figures available in this deliverable, is written by the **ImmersiaTV** (*Immersive Experiences around TV, an integrated toolset for the production and distribution of immersive and interactive content across devices*) – project consortium under EC grant agreement H2020 - ICT15 688619 and does not necessarily reflect the views of the European Commission. The European Commission is not liable for any use that may be made of the information contained herein.

Statement of originality:

This document contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

EXECUTIVE SUMMARY

This document is a compilation of dissemination material (including technical information). In this third release, the original provided documentation (2 Project abstracts, a poster and a presentation and leaflets) is supplemented by two posters and flyers.

This documentation has been used in the global events (TVX 2017; TNC2017; Smart City Expo World Congress 2016; IBC Show 2017; NEM 2017 or Mobile World Congress 2017) where ImmersiaTV has been demoed this period.

Two posters have been created targeting both approaches: technical and one more commercial and marketing-oriented.

The former gives an overview of the project: objectives, goals and added-value of ImmersiaTV tool and has served as support document in order to present the project in the cluster session organized by the NECT I4 RESEARCH. The workshop "Collaboration Towards the Future of Media" was a multi-project showroom with posters and quick presentations.

The latter poster, printed in huger dimensions, has been used in order to grasp visitors attention and stop them at the project booth and then have the possibility to give them a more comprehensive explanation of the project.

Additionally, and within the Smart City Expo World Congress, the ImmersiaTV abstract was included in a selection of demos that were printed over a demonstration shell in a central part of the pavilion. There, a living room was recreated and in a central structure a brief explanation of the project was showed.

Finally, a leaflet was prepared and printed to use it as dissemination support in order to better explain the project objectives, milestones and technical features.

The material is accessible and downloadable through the project website: www.immersiatv.eu/dissemination-materials/

CONTRIBUTORS

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CONTENTS

Revision History.....	1
Executive Summary	2
Contributors	3
1. Introduction	5
2. Project documentation	6
2.1. List of material.....	6
3. ImmersiaTV_abstract (v3)	9
4. General. Extended Abstract (v2)	10
5. Cluster meeting presentation	11
6. Cluster meeting Poster.....	12
7. General project leaflet	13
8. Production tools leaflet.....	14
9. Distribution technologies leaflet.....	15
10. Display technologies leaflet	16
11. POSTER ImmersiaTV Cluster session	17
12. Poster ImmersiaTV IBCShow2017 EVENT	18
13. Demos table information SCEWC2016.....	19
14. Leaflet ImmersiaTV IBCShow	20

1. INTRODUCTION

This document is a compilation of dissemination material (including technical information). The document is mainly structured in two parts. A first part lists all the documents produced during the second year of project. The list provides also a brief description of the document.

The second part of the doc provides the documents, from to posters to other “printable” project material.

This is the third release of the document.

2. PROJECT DOCUMENTATION

2.1. List of material

Name	Description	Release date	Author
ImmersiaTV_abstract (v3)	Short document introducing the project and its objectives.	25/02/2016	i2CAT
General. Extended Abstract (v2)	This version of the abstract follows the same approach as the previous release, but much more detailed and with additional content.	20/12/2015	i2CAT
Cluster_meeting (bxl, 16 March 2016)_Final	This presentation was used to introduce ImmersiaTV during the Cluster meeting (organised by the EU) in Brussels, and the NEM Summit.	15/03/2016	i2CAT
ImmersiaTVPoster_01_260216LR	Poster introducing the project objectives and how to achieve them. This poster was also used during the Cluster meeting and NEM Summit in March 2016.	29/02/2016	VRT (support i2CAT)
ImmersiaTv_Leaflet_General_LQ	Leaflet providing a general overview of the project.	22/09/2016	VRT supported by all partners
ImmersiaTv_Leaflet_production_LQ	Leaflet providing deeper insights on	22/09/2016	VRT supported

	current production tools.		by all partners
ImmersiaTv_Leaflet_distribution_LQ	Leaflet providing deeper insights on current distribution methods and technologies used for pilot 1.	22/09/2016	VRT supported by all partners
ImmersiaTv_Leaflet_display_LQ	Leaflet providing deeper insights on display developments for pilot 1.	22/09/2016	VRT supported by all partners
Poster_ImmersiaTV_Cluster_session	This poster was used in order to present the project ImmersiaTV during the workshop "Collaboration Towards the Future of Media" (organised by the EU) in Brussels on October 10 th , 2017. It shows the project objectives and milestones.	04/10/2016	i2CAT
Poster_ImmersiaTV_IBCShow2017_Event	This poster was used in order to attract visitors to ImmersiaTV booth at Future Zone during the IBCShow2017.	05/09/2017	I2CAT
Demos_table_information_SCEWC2016	A project abstract was printed on a vinyl placed on the demos table. The whole demo setup is shown in the photographs included in section		

	Demos table in SCEWC2016.		
Leaflet_ImmersiaTV_IBCShow	Leaflet providing a general overview of the project together with an explanation of the pilot demo shown at the event and the project architecture.	22/08/2017	VRT

3. IMMERSIATV_ABSTRACT (V3)

ImmersiaTV

Grant Number 688619
Period 1/2016-6/2018
Budget 3.8M€
Funding organism: H2020 (EC)

Abstract

ImmersiaTV will create a novel form of broadcast omnidirectional video content production and delivery that offers end-users a coherent audiovisual experience across head mounted displays, second screens and the traditional TV set, instead of having their attention divided across them. This novel kind of content will seamlessly integrate with and further augment traditional TV and second display consumer habits. ImmersiaTV will assemble an end-to-end toolset covering the entire audiovisual value chain: immersive production tools, support for omnidirectional cameras, including ultra-high definition and high dynamic range images, and adaptive content coding and delivery, and demonstrate it through 3 pilot demonstrations addressing both on-demand and live content delivery

Why ImmersiaTV?

The majority of European TV consumers now watch TV programs in a multi-display environment. Second screens -mostly smartphones, tablets or laptops- are generally used to check information not directly related to the events in the TV content being watched. As a

result, the attention of the audience is generally divided between these different streams of information. Broadcasters have tried to orchestrate all these different rendering platforms to complement each other consistently. However, their success is limited, and this limited success is due, at least in part, to the very different formats in which information is delivered (web-based texts, mobile apps, traditional broadcast television...)



Figure 1: on top, Detail of the HMD view with an illustration of the portal approach. Bottom, . Illustration of the home set environment, with synchronized access across devices

In this context, the arrival of immersive head-mounted displays to the consumer market introduces new possibilities, but also poses new challenges. Immersive displays impose radically different audience requirements compared to traditional broadcast TV and social media. They require a constant, frequently refreshed, omnidirectional audiovisual stream that integrates sensorimotor information. This means that, at minimum, the visual perspective rendered changes consistently with changes in head position and rotation. In addition, immersive displays challenge the conventions of traditional audiovisual language. For example, cuts between shots, which constitute the very basic fabric of traditional cinematic language, do not work well in immersive displays. From a user perspective, omnidirectional TV offers a new user experience and a different way of engaging with the audiovisual content.

This project will create new forms of digital storytelling and broadcast production that, by putting omnidirectional video at the center of the creation, production and distribution of broadcast content, delivers an all-encompassing experience that integrates the specificities of immersive displays, and the feeling of “being there”, within the contemporary living room. We propose a new form of broadcast omnidirectional video that offers end-users a coherent audiovisual experience across head mounted displays, second screens and the traditional TV set, instead of having their attention divided across them. This new experience will seamlessly integrate with and further augment traditional TV and second screen consumer habits. In other terms: the audience will still be able to watch TV sitting on their couch, or tweet comments about it. However, by putting omnidirectional content at the center of the creation, production and distribution processes, the audience will also be able to use immersive displays to feel like being inside the audiovisual stream.

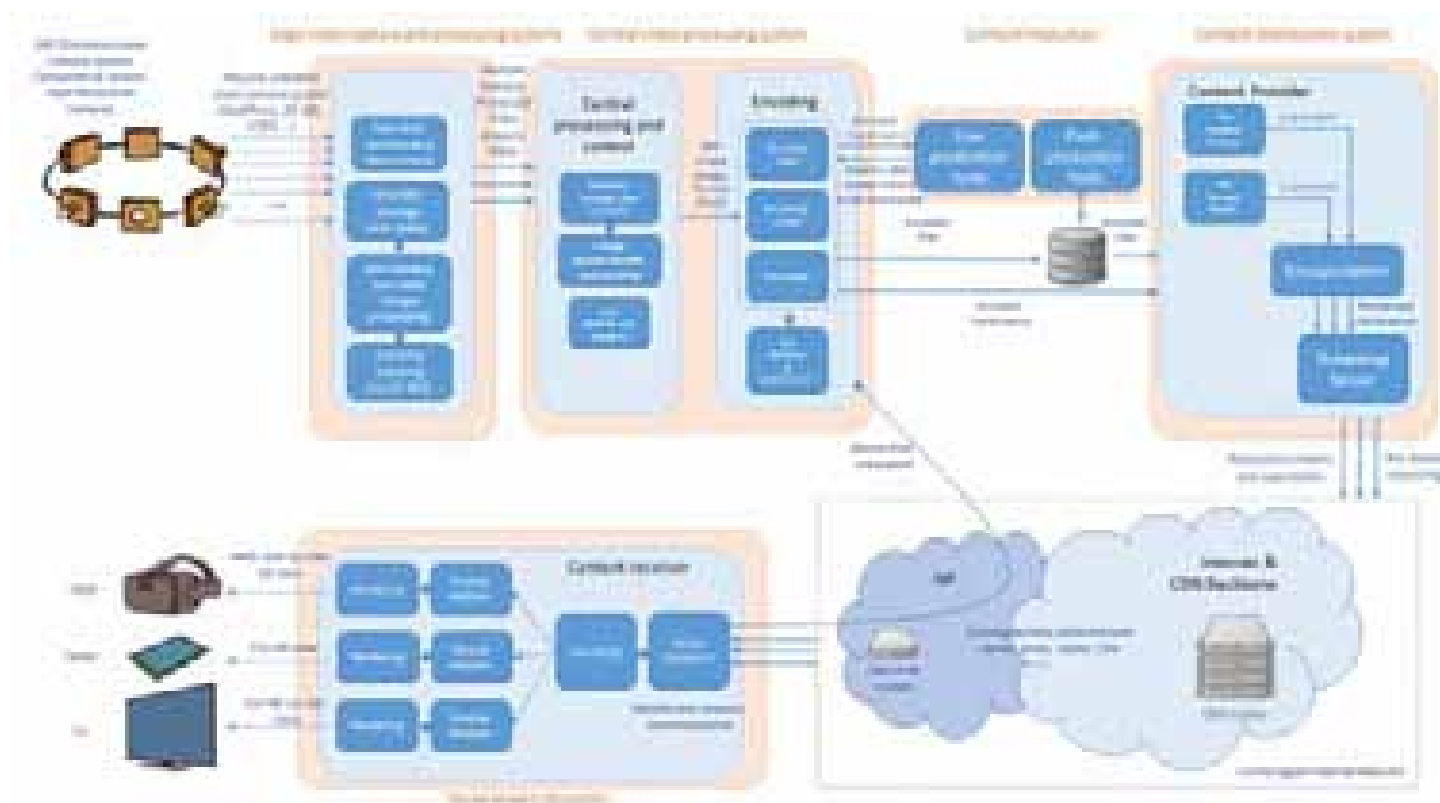


Figure 2. The ImmersiaTV Immersive Broadcast Platform.

Team

Project Coordinator

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Tooling Companies

IP-Based production pipeline
Omnidirectional production tools



Research Institutes

Stitching
Innovative Codecs
User Evaluation



Production Companies

Omnidirectional video production
Broadcasting



Demonstration pilots to test an end-to-end system

ImmersiaTV will pilot an innovative **end-to-end system** covering the entire audiovisual value chain to enable a novel form of creative audiovisual storytelling based on omnidirectional video. The project will encompass immersive production tools, support for omnidirectional cameras, adaptive content coding and distribution mechanisms, and immersive (HMD) & second screen visualisation. ImmersiaTV will demonstrate the use of its end-to-end system in real production and distribution scenarios via 3 pilots addressing the production of documentaries and live sports event.

Specific Objectives

To demonstrate the feasibility of this novel approach for the creation, production, broadcast and display of omnidirectional video, ImmersiaTV has the following objectives:

- **OBJ1. Create a new cinematographic language** where the specificities of immersive displays are taken into account, and which conciliates immersive paradigms with traditional storytelling techniques.
- **OBJ2. Extend the production pipeline** to create omnidirectional content for a multi-platform environment.
- **OBJ3. Re-design the distribution chain** to address the specific technical challenges that omnidirectional content imposes in terms of capture, compression, distribution, reception, and rendering.
- **OBJ4. Maximize the quality of the end-user experience**, across devices, and within the technical limitations of existing production structures, distribution facilities and reception devices to create an optimal immersive experience.
- **OBJ5. Maximize the impact of the ImmersiaTV solutions** within the ecosystem of content creators, broadcasters, and consumers.

4. GENERAL. EXTENDED ABSTRACT (V2)

ImmersiaTV

Grant Number 688619
Period 1/2016-6/2018
Budget 3.8M€
Funding organism: H2020 (EC)

Abstract

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result, the attention of the audience is generally divided between these different streams of information. Broadcasters have tried to orchestrate all these different rendering platforms to complement each other consistently. However, their success is limited, and this limited success is due, at least in part, to the very different formats in which information is delivered (web-based texts, mobile apps, traditional broadcast television...)



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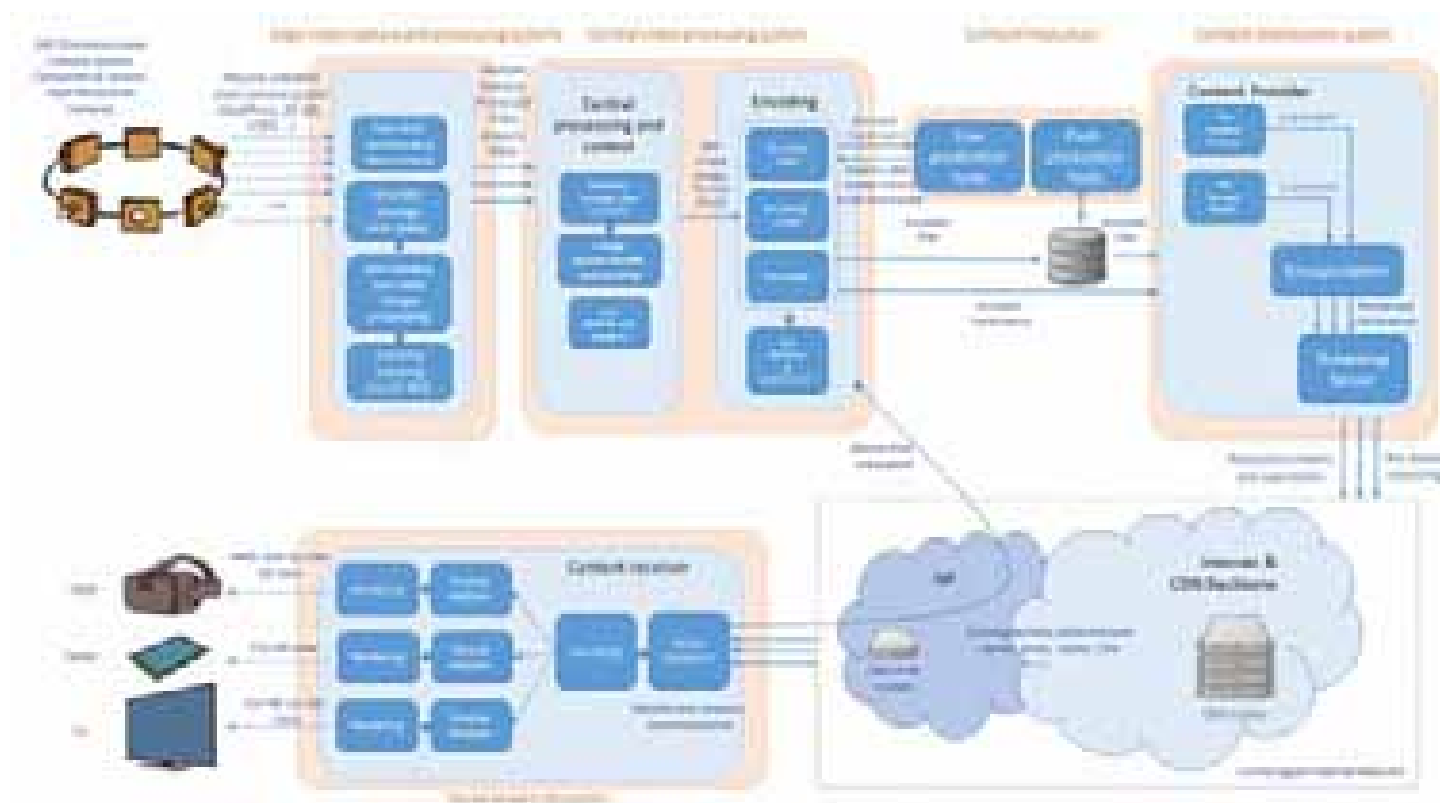


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IP-Based production pipeline
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Broadcasting



Demonstration pilots to test an end-to-end system

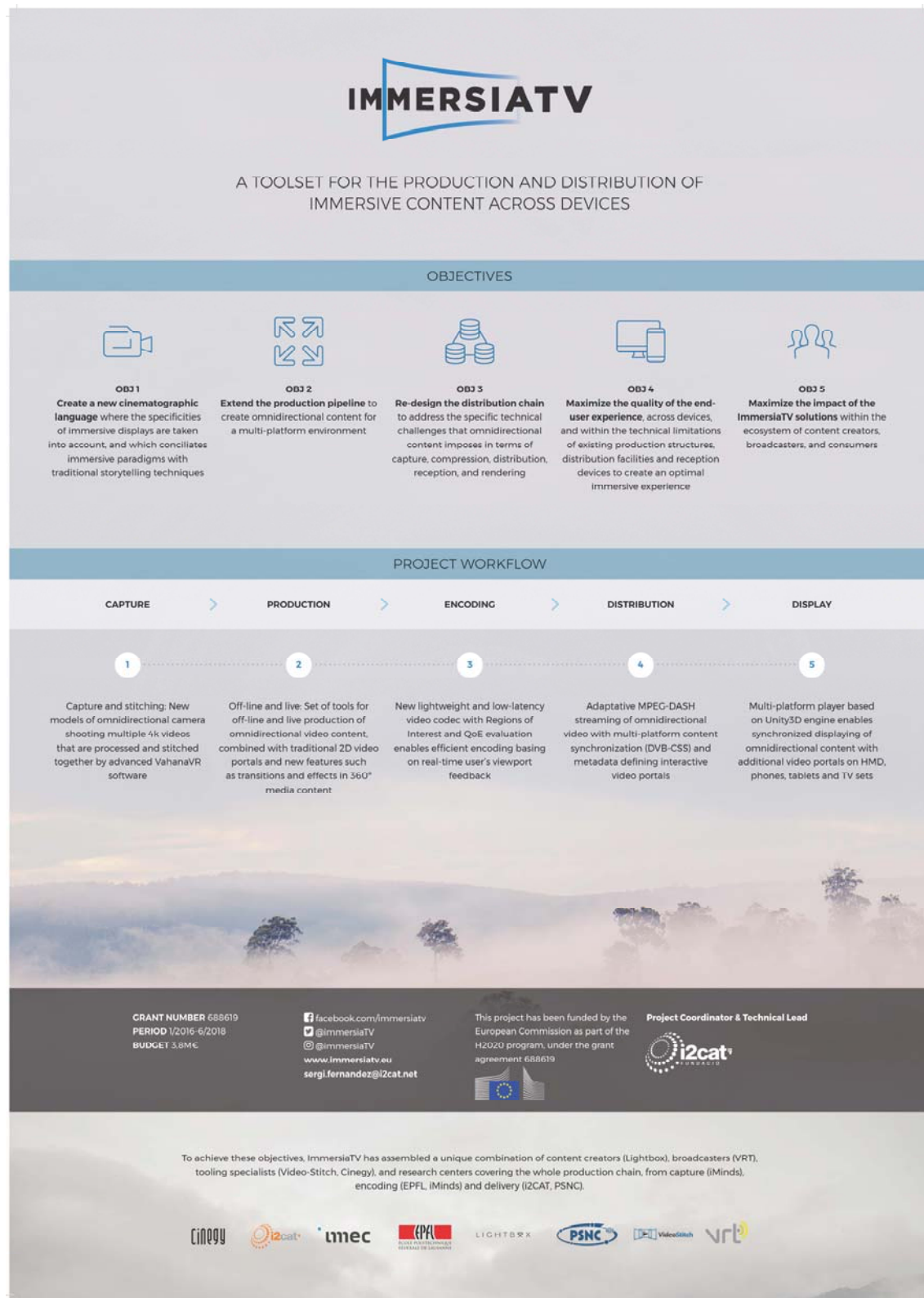
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- **OBJ4. Maximize the quality of the end-user experience**, across devices, and within the technical limitations of existing production structures, distribution facilities and reception devices to create an optimal immersive experience.
- **OBJ5. Maximize the impact of the ImmersiaTV solutions** within the ecosystem of content creators, broadcasters, and consumers.

11. POSTER IMMERSIATV CLUSTER SESSION



12. POSTER IMMERSIATV IBCSHOW2017 EVENT

LIVE DEMOS
NEW 360 MULTI-SCREEN
EXPERIENCES

IMMERSIATV



A toolset for the production and distribution
of immersive content across devices



cinégy

i2cat

imec

EPFL

LIGHTSXX

PSNC

VideoStitch

vrl

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This project has been funded by the European Commission as part of the H2020 program under the grant agreement No 101017719

13. DEMOS TABLE INFORMATION SCEWC2016



14. LEAFLET IMMERSIATV IBCSHOW



IMMERSIATV

A TOOLSET FOR THE PRODUCTION AND DISTRIBUTION OF IMMERSIVE CONTENT ACROSS DEVICES



OBJ1.

Create a new cinematographic language where the specificities of immersive displays are taken into account, and which conciliates immersive paradigms with traditional storytelling techniques.



OBJ2.

Extend the production pipeline to create omnidirectional content for a multi-platform environment.



OBJ3.

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OBJ4.

Maximize the quality of the end-user experience, across devices, and within the technical limitations of existing production structures, distribution facilities and reception devices to create an optimal immersive experience.



OBJ5.

Maximize the impact of the ImmersiaTV solutions within the ecosystem of content creators, broadcasters, and consumers.

PROJECT WORKFLOW

CAPTURE → PRODUCTION → ENCODING → DISTRIBUTION → DISPLAY

1

Capture and stitching:
New models of omnidirectional camera shooting multiple 4K videos that are processed and stitched together by advanced VahanaVR software.

2

Off-line and live: Set of tools for off-line and live production of omnidirectional video content, combined with traditional 2D video portals and new features such as transitions and effects in 360° media content.

3

New lightweight and low-latency video codec with Regions of Interest and QoE evaluation enables efficient encoding basing on real-time user's viewport feedback

4

Adaptive MPEG-DASH streaming of omnidirectional video with multi-platform content synchronization (DVB-CSS) and metadata defining interactive video portals.

5

Multi-platform player based on Unity3D engine enables synchronized displaying of omnidirectional content with additional video portals on HMD, phones, tablets and TV sets.









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GRANT NUMBER 688619
PERIOD 1/2016-6/2018
BUDGET 3.8M€
FUNDING ORGANISM H2020 (EC)

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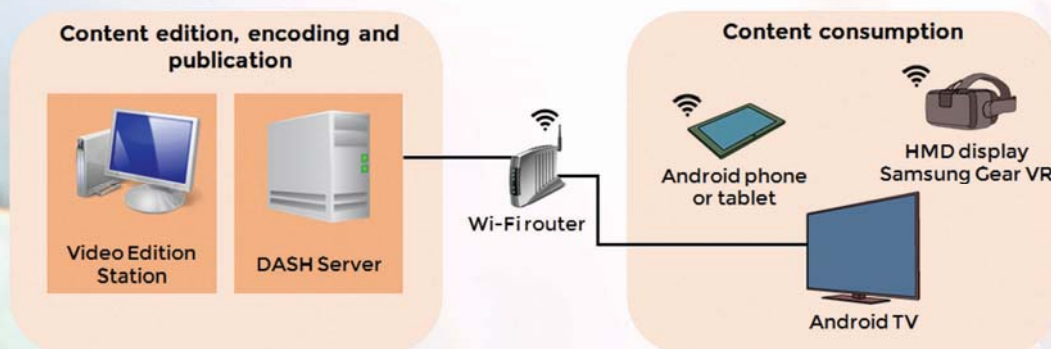
THE PROJECT

ImmersiaTV is creating a novel form of omnidirectional video content production and delivery that offers viewers a coherent, simultaneous broadcast experience across head mounted displays, second screens and the traditional TV set.

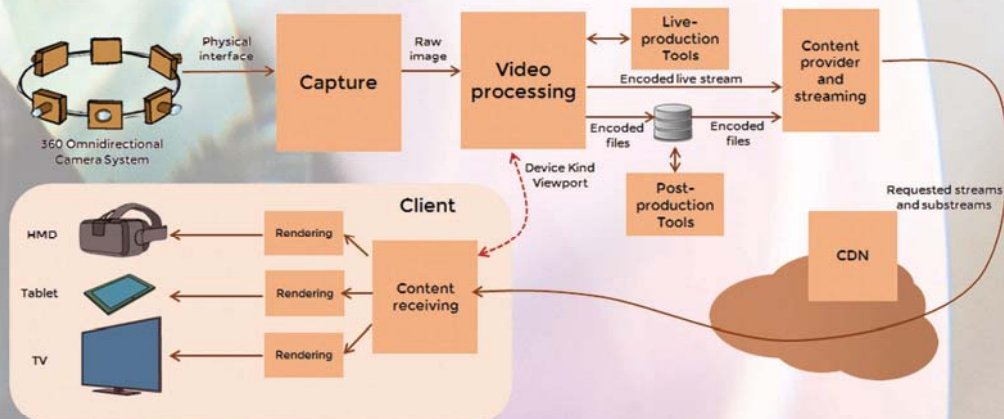
In order to do this, we create an end-to-end toolset covering the entire audiovisual value chain: immersive production tools, support for omnidirectional cameras, adaptive content coding and delivery. We take advantage of the large field of view available in head mounted displays to create experiences where the user can navigate through and interact with video inserts. Besides this, we also explore the possibilities of synchronized content delivery to use second screens for the display of complementary aspects of the broadcast, in an attempt to reconcile second screen consumer habits with a more integrated and coherent multi-platform experience around the TV.

Our tools will be extensively piloted through two new formats: one pre-recorded documentary and one live event, both conceived and implemented by our media partners.

OFFLINE PILOT DEMO



THE PROJECT ARCHITECTURE



WWW.IMMERSIATV.EU