

IMMERSIATV

21st NEM GA

Sergi Fernández, Project Coordinator

Brussels, 15th of March 2016

_Partners:



_A project funded by:



European
Commission

Horizon 2020
European Union funding
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IMMERSIATV

Immersive Experiences around TV, an integrated toolset for the production and distribution of immersive and interactive content across devices.

Call: H2020-ICT-19-2015-IA

Start January 2016
30 Months
Budget 3.8M€



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Consortium

Research institutions

Broadcaster

Tooling SMEs



Production SME



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VideoStitch



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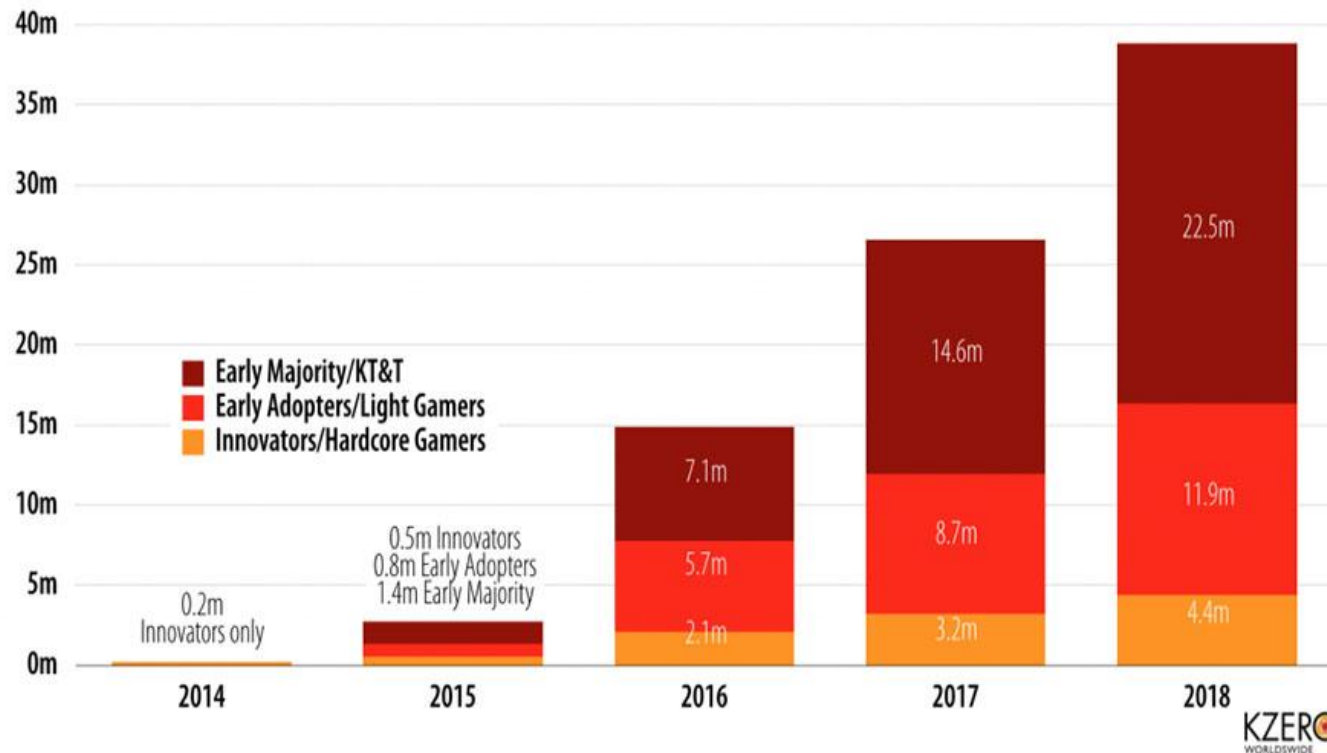


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Market

HMD Unit Sales



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VideoStitch



LIGHTBOX
FILM & ADVERTISING

cinergy



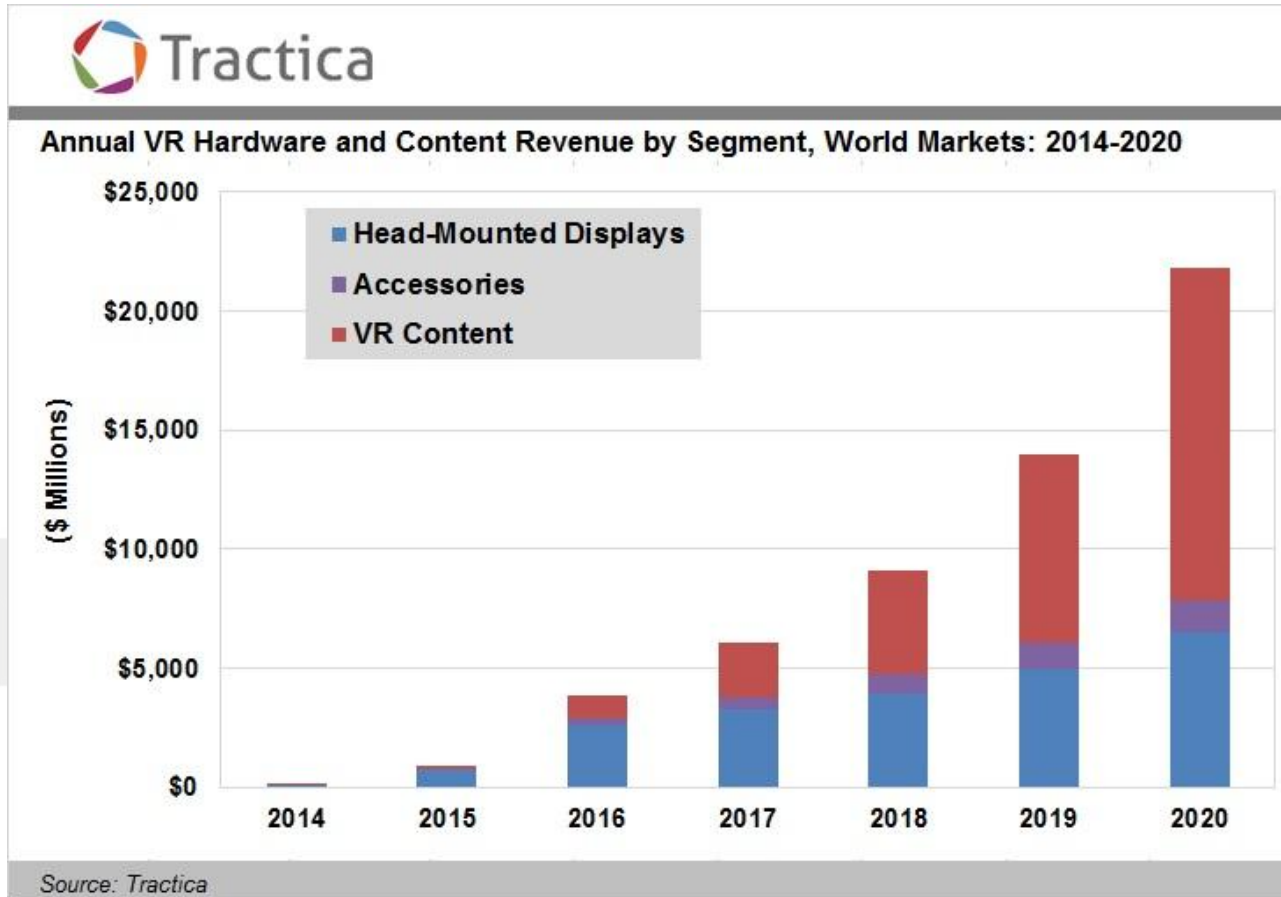
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Market



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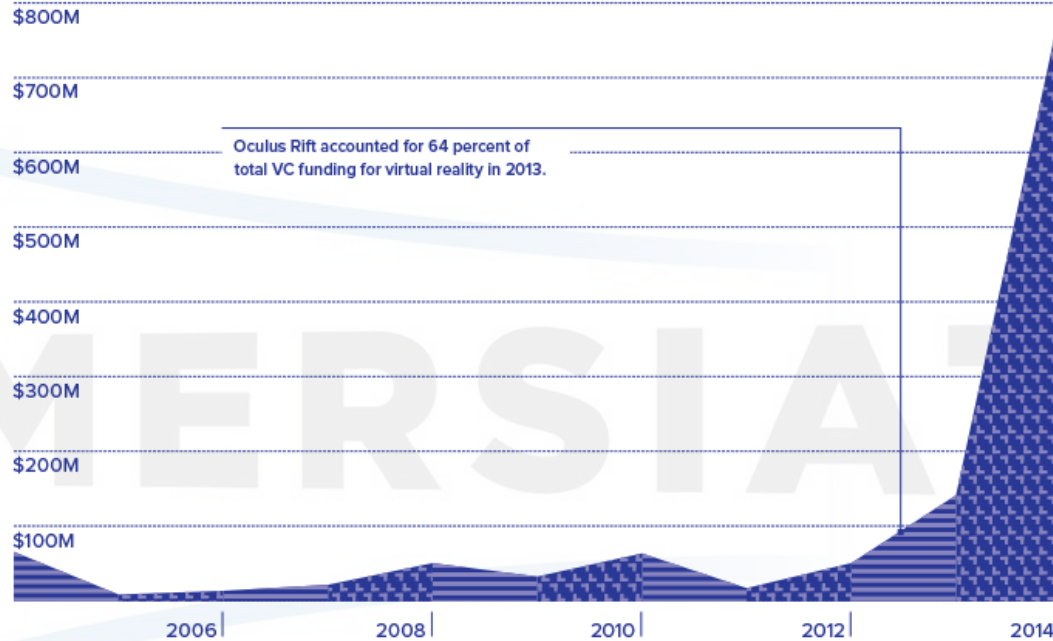
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Market

■ Virtual Reality, Real Money

Venture firms have bet more than \$1 billion that the next big computing platform will emerge from virtual- and augmented-reality projects. —J.K.

VC MONEY INVESTED
IN VR PROJECTS



SOURCE: NATIONAL VENTURE CAPITAL ASSOCIATION AND NEWS REPORTS

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ImmersiaTV: challenges



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.



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ImmersiaTV: challenges



OBJ2.

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



Broadcast quality rigs

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ImmersiaTV: challenges



OBJ2.

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



Sticking Edition tool

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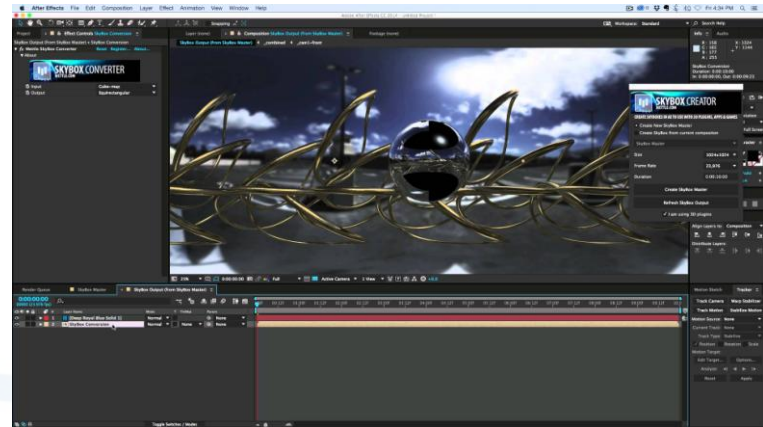
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ImmersiaTV: challenges



OBJ2.

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



Multiplatform Edition Tool

_Partners:



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ImmersiaTV: challenges



OBJ2.

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



Multiplatform live production tool

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ImmersiaTV: challenges



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.



Codification. Extending JPEG XS scope to Omnidirectional video

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ImmersiaTV: challenges



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.



Adaptive streaming. Reducing latencies, ensuring highest video quality, enabling video interaction.

_Partners:



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ImmersiaTV: challenges



OBJ3.

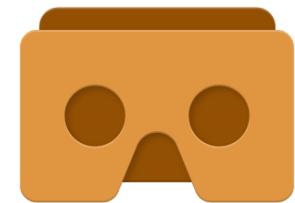
Re-design the distribution chain to address the specific technical challenges that omnidirectional content imposes in terms of capture, compression, distribution, reception, and rendering.

HbbTV

 androidtv


ANDROID


iOS



 oculus

Samsung  VR

Multiplatform synchronization and other interoperability problems

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FILM & ADVERTISING



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ImmersiaTV: challenges



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.



Professional users & Content creation

_Partners:



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ImmersiaTV: challenges



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.



Professional users & Content creation

_Partners:



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ImmersiaTV: challenges



OBJ5.

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

Content Creators.
Tooling companies.
Broadcasters.
Content agregators.
TV/STB Manufacturers.

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Edge video capture and processing systems

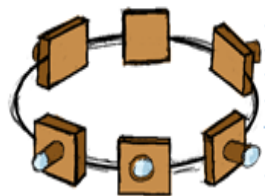
Central video processing system

Content Production

Content distribution system

360 Omnidirectional Camera System
Composed of several High-Resolution cameras

Physical interface from camera system (CoaxPress, 3G SDI, USB3, ...)



low level camera and lens control

recorder storage and replay

per-camera low level image processing

warping masking (multi-ROI)

Multiple Partially Processed Video Streams (Gbe)

Central processing and control

blending / multiple view synthesis

image enhancement and grading

view steering and dispatch

Encoding

Encoding RAW

Encoding2 (JPEG)

Encoding3

ROI selection & QoE Control

Encoded live streams

Streams after modifications to be re-encoded

Live production Tools

Post-production Tools

Encoded files



Encoded files

Encoded live streams

Content Provider

Live Content Receiver

Live stream

File Content Reader

Live stream

Encapsulation

Packetized live streams

Streaming Server

Requested streams and substreams

Pull based streaming

HMD



HMD Side-by-side 3D view

Tablet



Full HD view

TV



Full HD (or 3D) view

Content receiver

Rendering

Display Adapter

Rendering

Display Adapter

Rendering

Display Adapter

Decoding

Home Receptor

Devices and streams synchronization

Device Kind Viewpoint

....

ISP

Internet & CDN Backbone



Last mile nodes

Existing delivery infrastructure: server, proxy, cache, CDN



CDN nodes

Unmanaged Internet Network

Home stream reception

WORK PACKAGES	YEAR 1												YEAR 2												YEAR 3					
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
WP1 Management																														
T1.1 Administrative, financial and contractual management																														
T1.2 Reporting and controlling																														
T1.3 Quality management																														
D Deliverables																														
WP2 Requirements, format and creation of Immersive experiences																														
T2.1 End User Requirements																														
T2.2 Professional User Requirements																														
T2.3 Content Ideation, Production scenarios, requirement analysis																														
T2.4 Content creation																														
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T3.4 Encoding & Decoding																														
T3.5 Delivery & Reception																														
T3.6 Interaction & Display																														
T3.7 Quality of Experience																														
T3.8 Workflow integration & End-to-end tests																														
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T4.1 Execution & Evaluation Plan																														
T4.2 Pilots																														
T4.5 User and Technical Evaluation																														
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T5.1 Market Analysis & Strategies for successful exploitation																														
T5.2 Business clinics																														
T5.3 Communication																														
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T5.5 Standarization																														
D Deliverables																														

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Pilots

WORK PACKAGES	YEAR 1												YEAR 2												YEAR 3					
	J 1	F 2	M 3	A 4	M 5	J 6	J 7	A 8	S 9	O 10	N 11	D 12	J 13	F 14	M 15	A 16	M 17	J 18	J 19	A 20	S 21	O 22	N 23	D 24	J 25	F 26	M 27	A 28	M 29	J 30
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