ORPHEUS

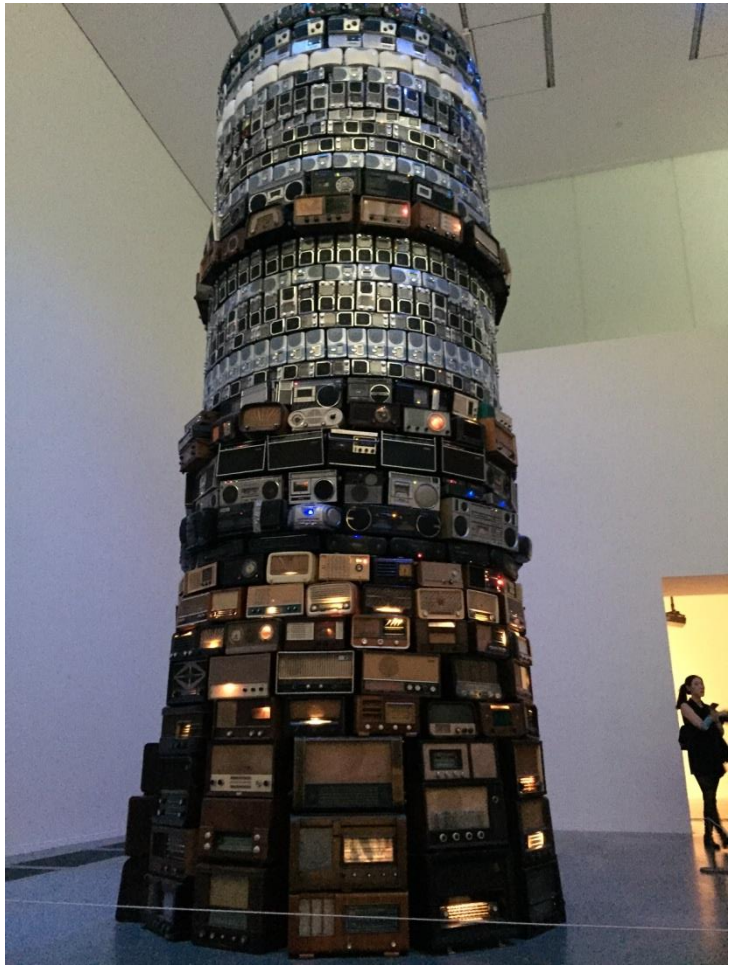
Object-Based Audio Experience

Object-Based B**r**oadcasting –
For Euro**p**ean Leaders**h**ip in Next G**e**neration A**u**dio Experience**s**

Overview

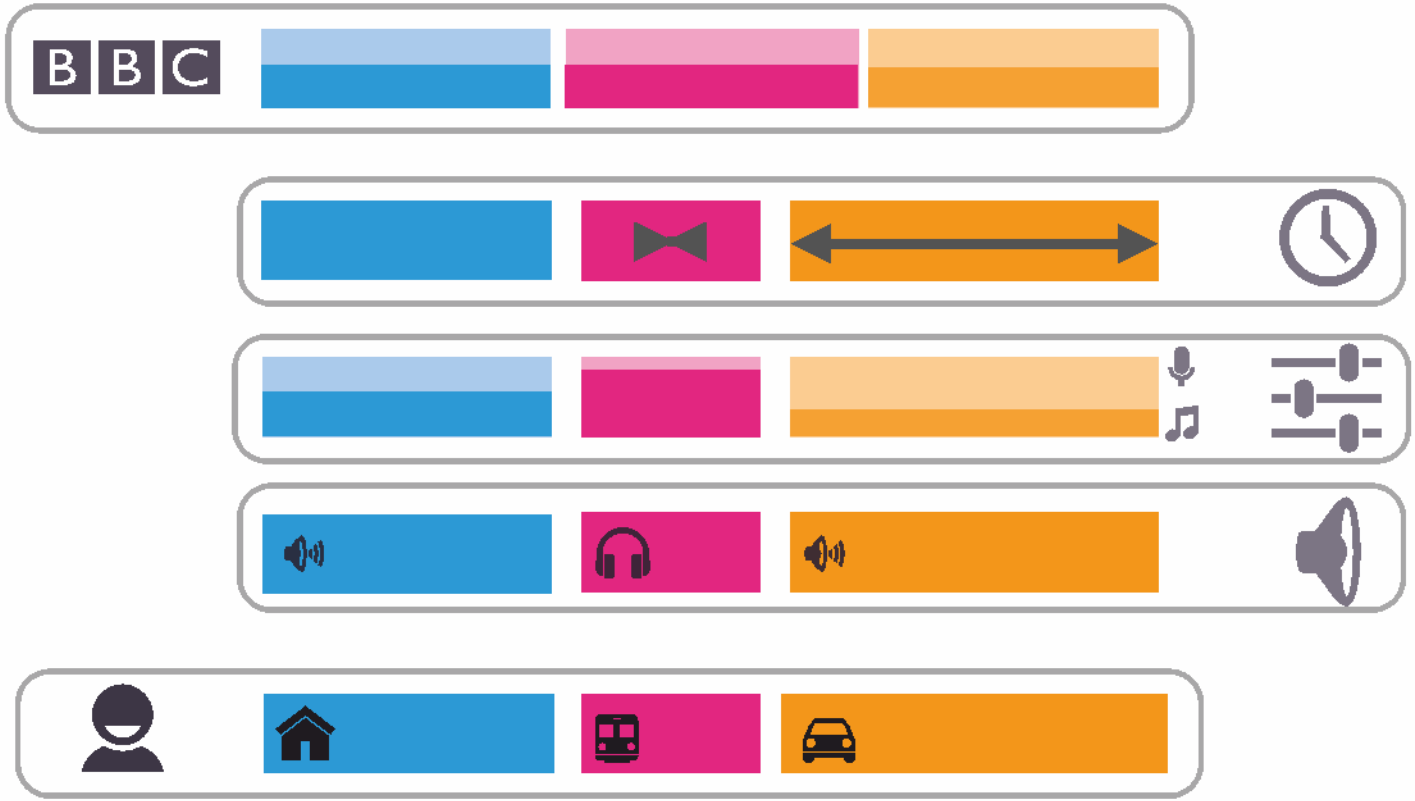
Andreas Silzle (FHG)
Technical Coordinator

Object-Based Audio Seminar - EBU, Geneva, 18th May 2017

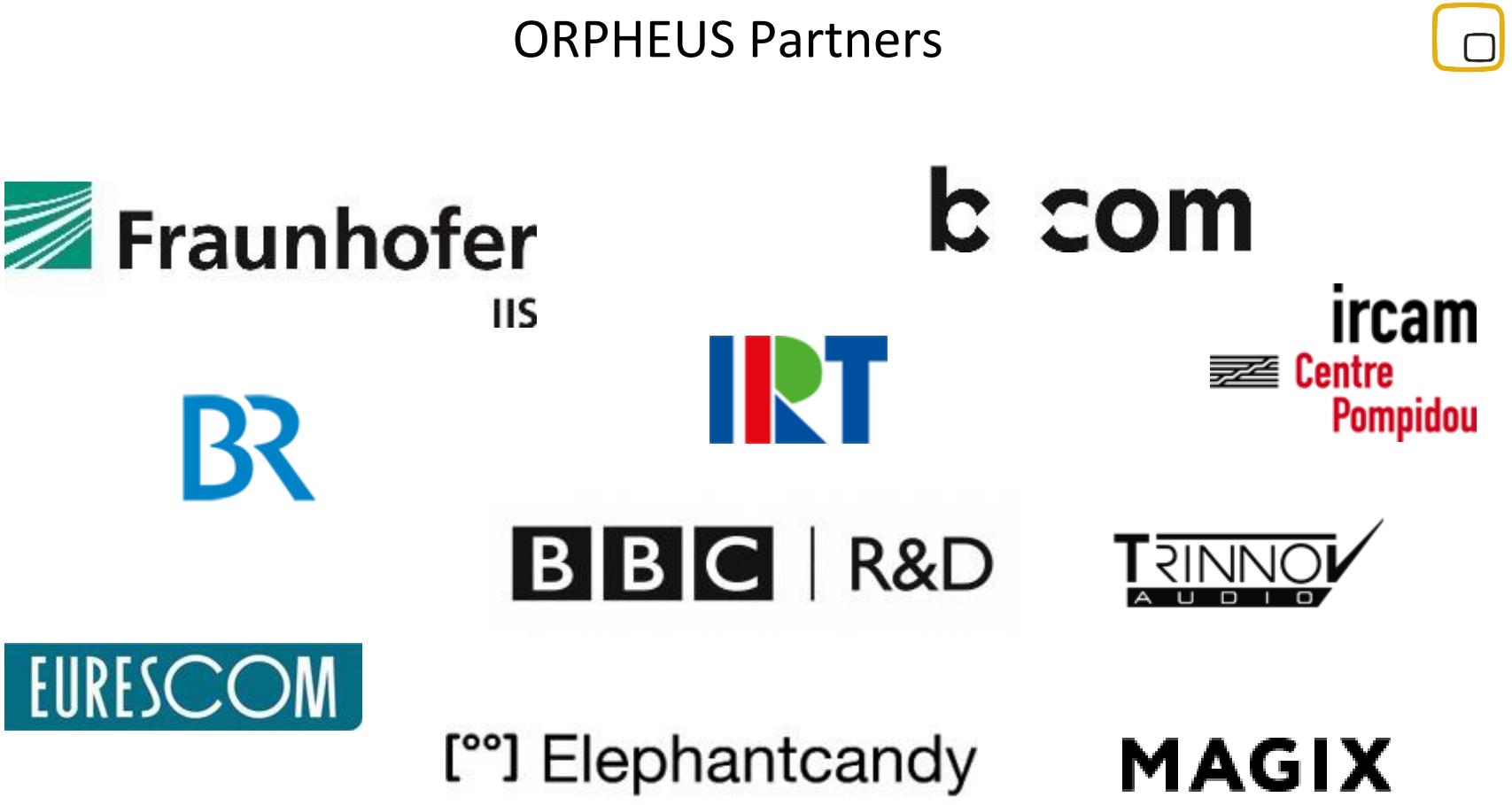


Babel 2001
„A tower of radios playing at once, addresses ideas of information overload and failed communication.“

Cildo Meireles
In Tate Modern, London


BBC

ORPHEUS Partners



Objectives of the Project

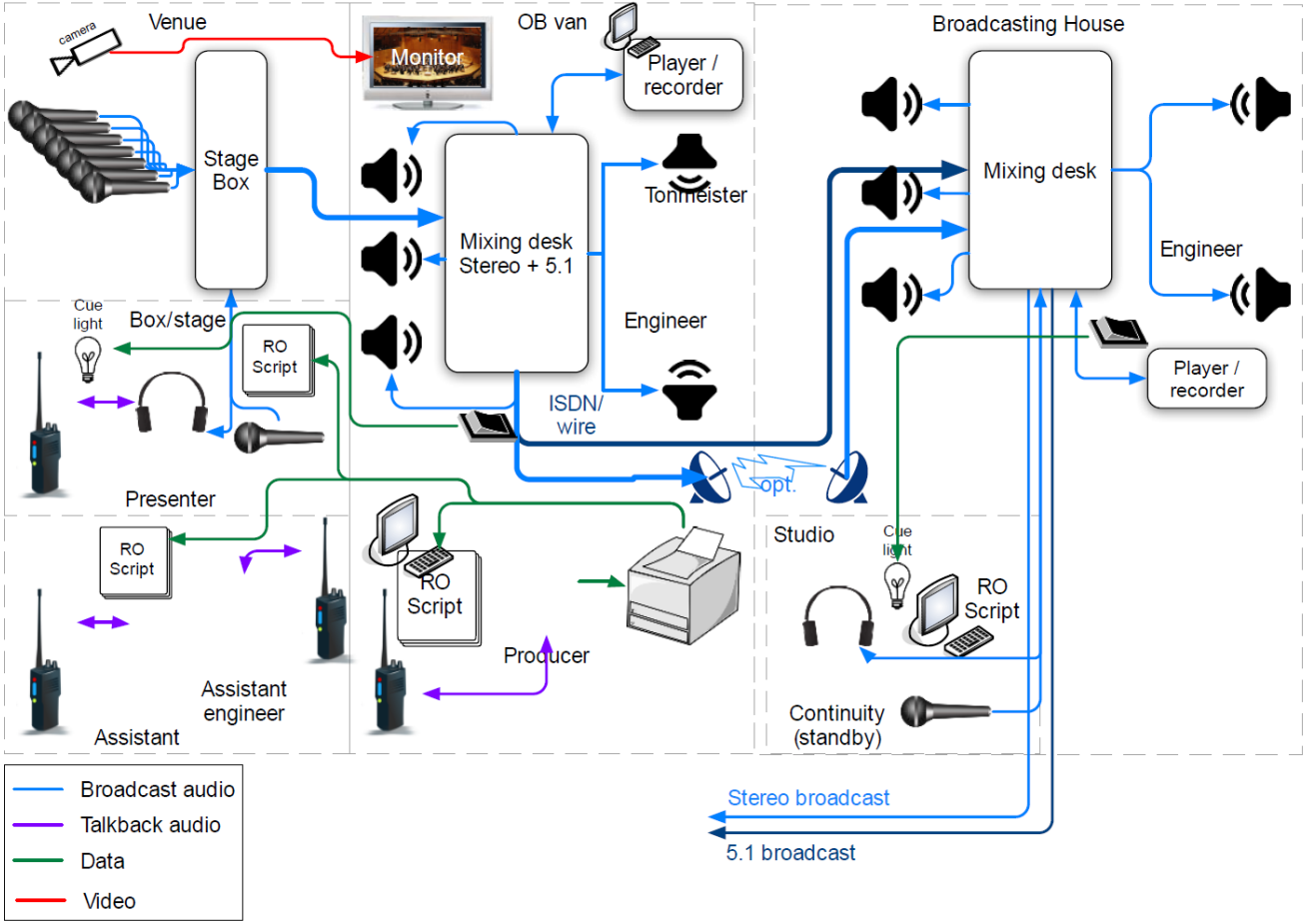
- Examine the adaptability of existing broadcast technology to object-based production
- Develop, implement and validate a complete end-to-end object-based broadcasting chain
- Demonstrate a new, prodigious user experience through the creation of a workflow application for the use of object-based audio
- Based on the findings of Objectives 1 to 3, create a reference architecture

Use Cases and Production User Requirements

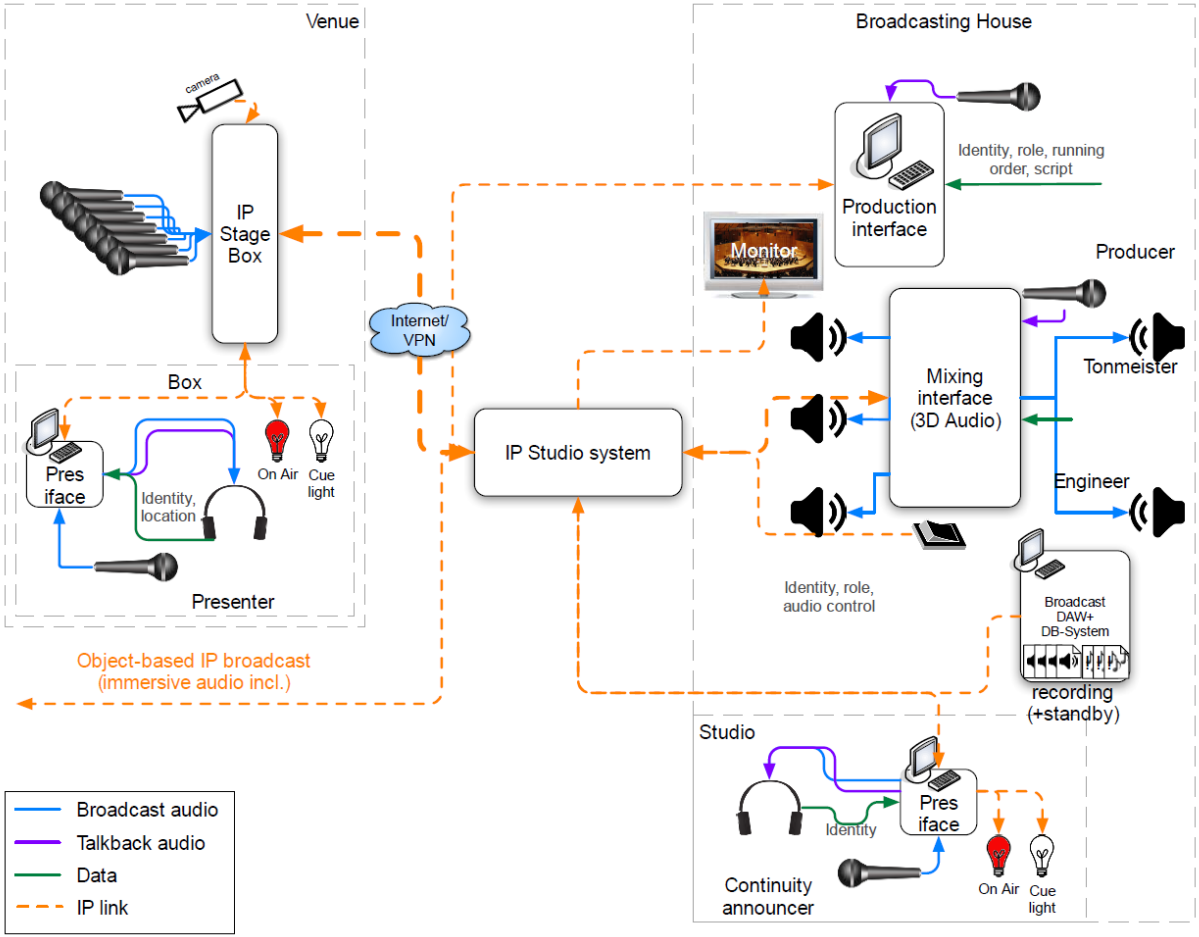
Different use cases were developed out of existing broadcast formats:

- Discussion programme
- Magazine programme
- DJ show
- Live music outside broadcast

with roles and activities, existing workflow and newly proposed object-based workflow.



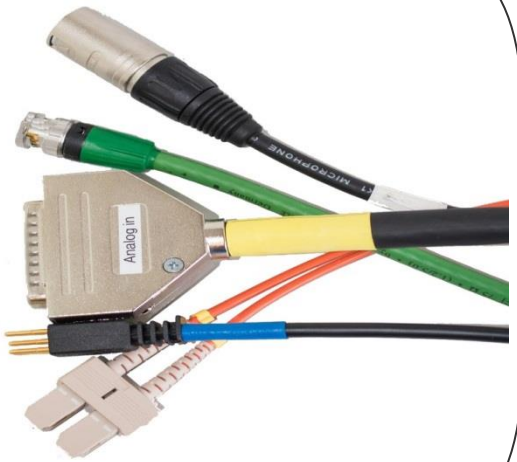
Existing Schematics for a Live Music Outside Broadcast



Schematics for an IP-based and Object-based Live Music Outside Broadcast

Deliverable 3.1

Connectors versus File/Streaming Formats



BW64 [ITU-R BS.2088-0]

ADM [ITU-R BS.2076-0]

AES67 [AES]

MPEG-H 3D Audio [ISO/IEC 23008-3]

MP4, ISOBFF [ISO/IEC 14496-12]

MPEG-DASH [ISO/IEC 23009-1]

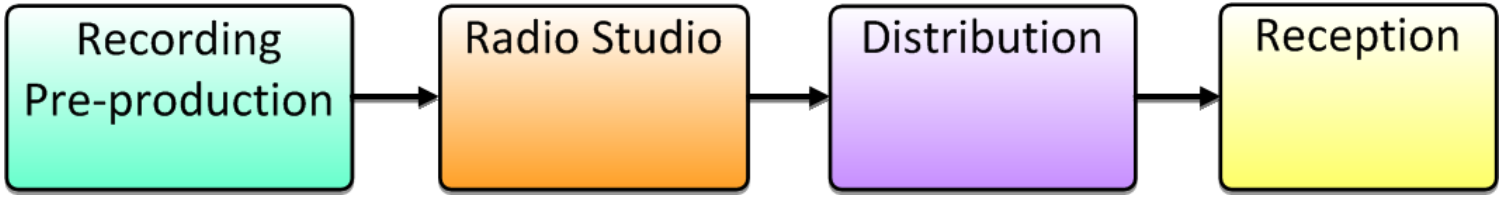
…

Deliverable 4.1, 4.2

Objectives of the Project

- Examine the adaptability of existing broadcast technology to object-based production
- Develop, implement and validate a complete end-to-end object-based broadcasting chain
- Demonstrate a new, prodigious user experience through the creation of a workflow application for the use of object-based audio
- Based on the findings of Objectives 1 to 3, create a reference architecture

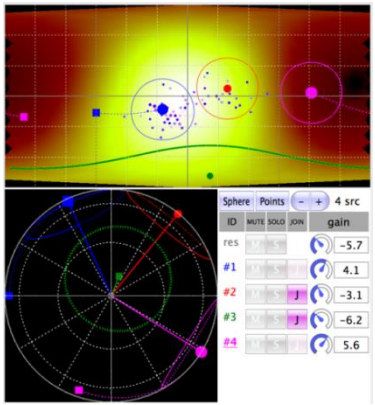
Complete End-to-end Object-based Broadcasting Chain



Macro blocks

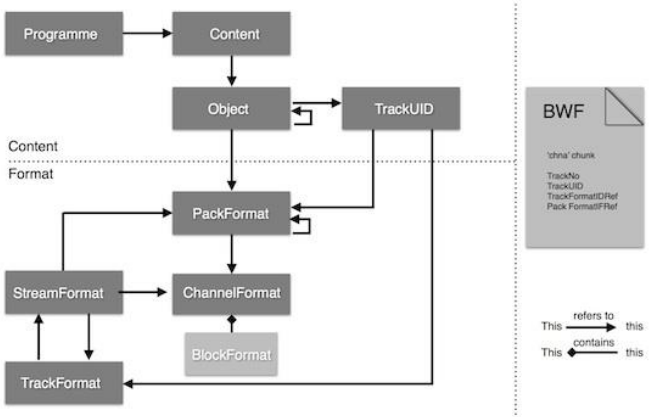
Recording
Pre-production

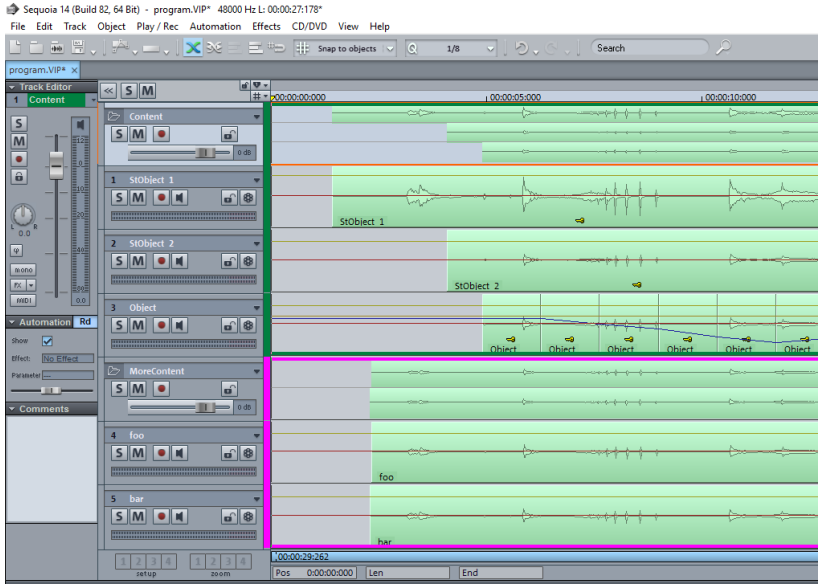
- Plugins for capturing multichannel microphone recordings and transforming them to different loudspeaker layouts.
- Further post-processing plugins are under development.



Recording
Pre-production

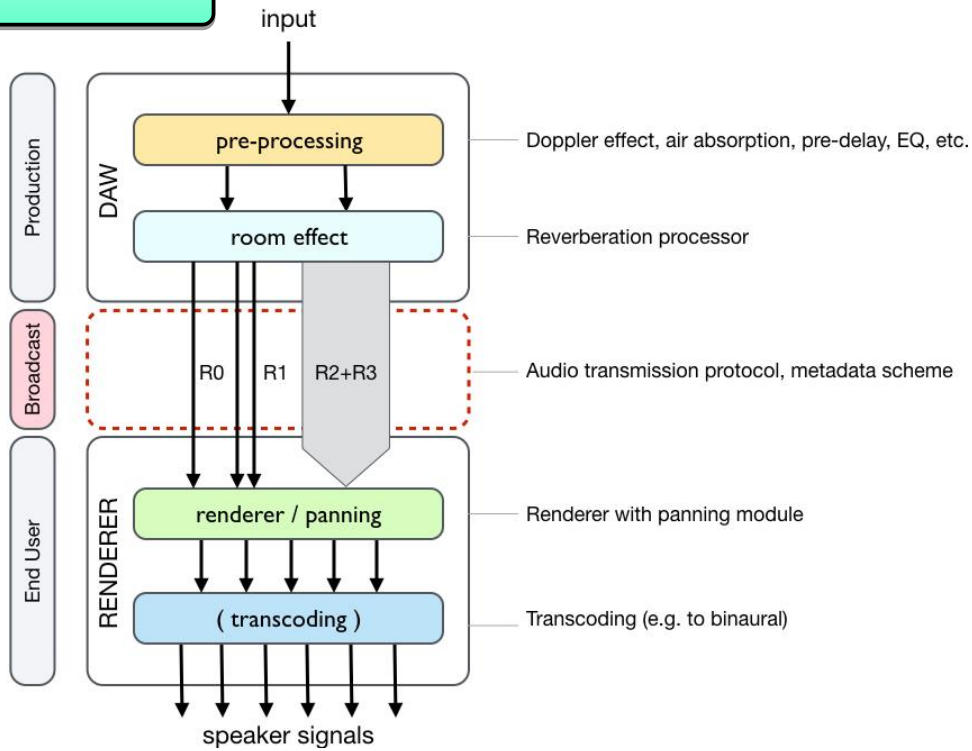
ADM (Audio Definition Model) meta-data im- and export implemented in digital audio workstation Sequoia





Recording
Pre-production

A software to create object-based reverberation

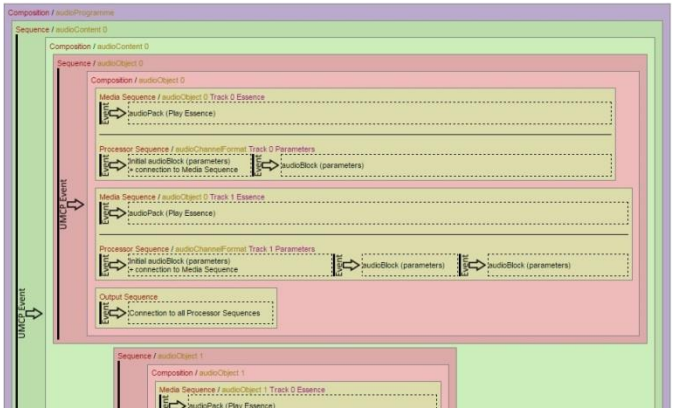


Deliverable 3.2

Radio Studio

IP Studio software is extended for ADM metadata im- and export. The MPEG-H library integration including the renderer has started.

Deliverable 3.4



Radio Studio

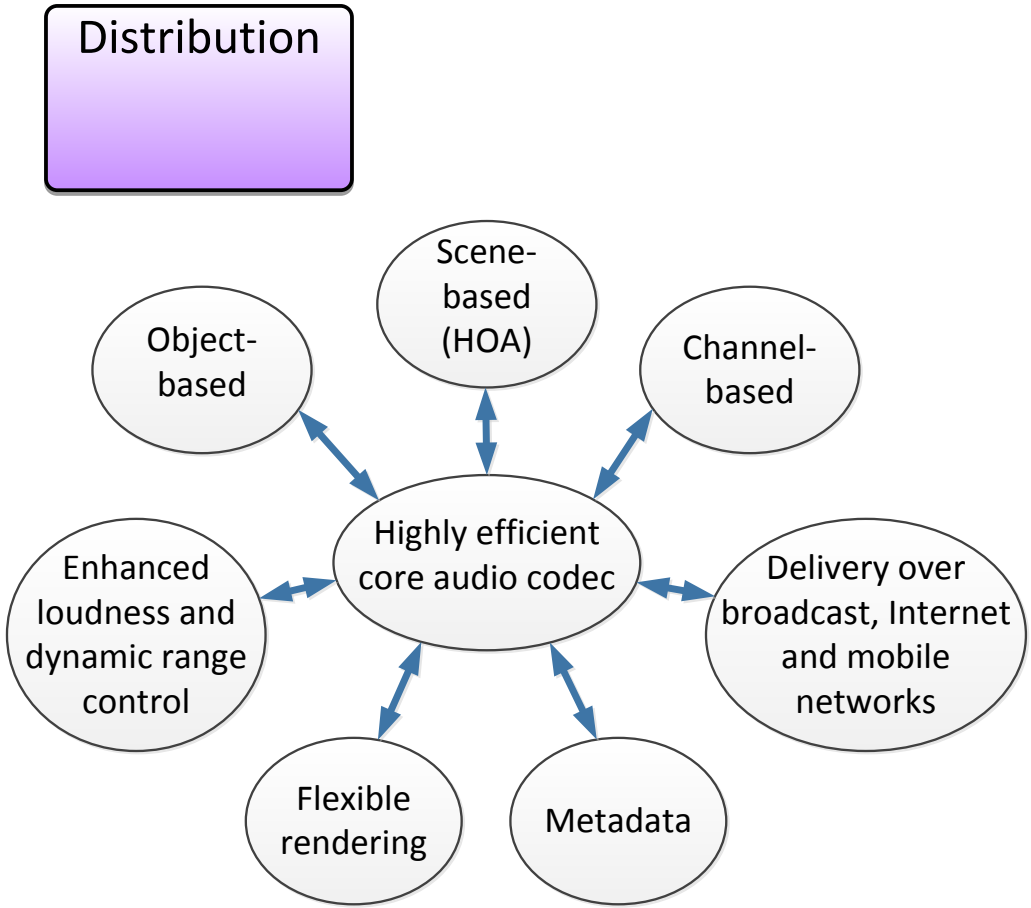
Physical studio setup

Distribution

- Selected and evaluated necessary formats:
  ADM, BW64, MPEG-H, AAC, DASH, AES67, MP4
- Ongoing standardization activities in ITU-R for ADM, object-based loudness and renderer, in ISO/IEC for MPEG-H and DASH

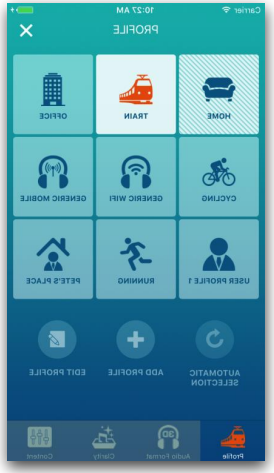
Deliverable 6.2

Delivery Format for Object-based Audio: MPEG-H



Reception

- Mock-up analysis, mobile application guidelines and recommendations for the development of GUI for iPhone
- iPhone app is working as prototype



Reception

- A Chromium browser with DASH streaming and MPEG-H decoding is implemented and working
- The AVR receiver with the MPEG-H decoder is under development

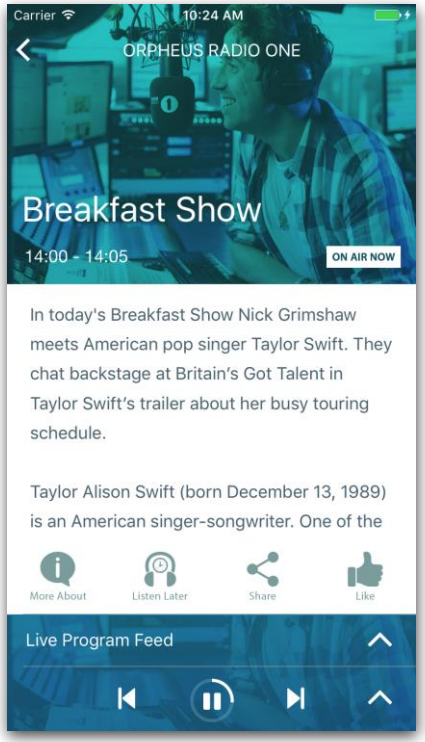
Objectives of the Project

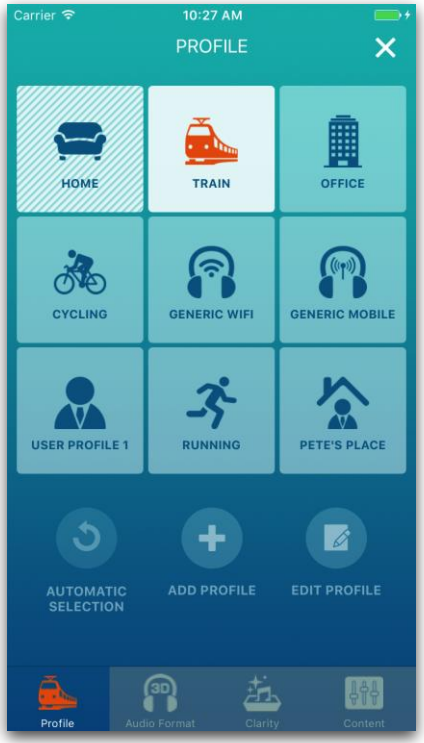
- Develop, implement and validate a complete end-to-end object-based broadcasting chain
- Examine the adaptability of existing broadcast technology to object-based production
- Demonstrate a new, prodigious user experience through the creation of a workflow application for the use of object-based audio
- Based on the findings of Objectives 1 to 3, create a reference architecture

New User Experience

The first iOS design concepts and app implementation promise new end-user experiences.

- D5.1 Document on user requirement
- D5.2 Implementation and documentation of the intermediate version of object-based renderer and user interface

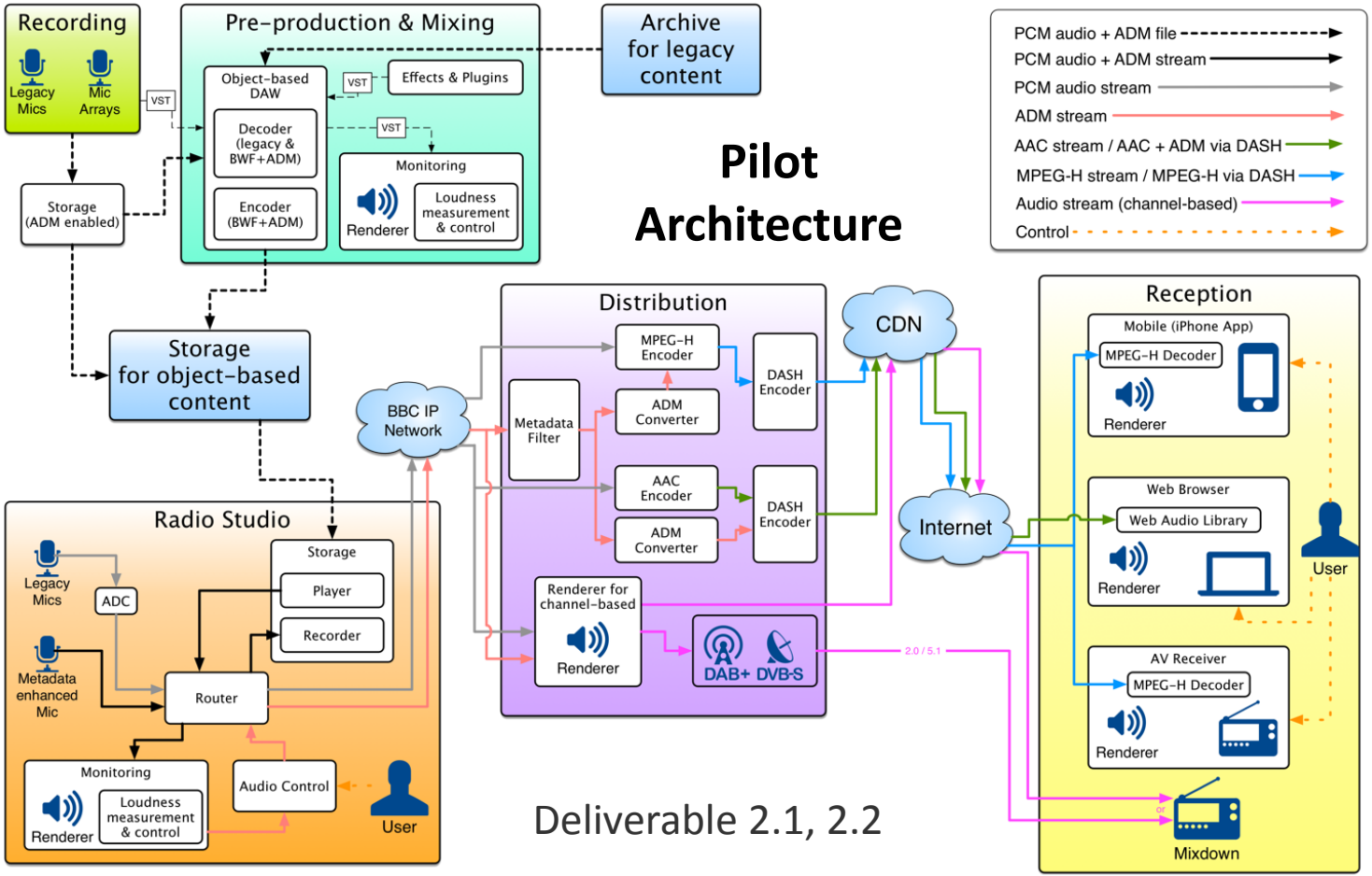




Objectives of the Project

- Develop, implement and validate a complete end-to-end object-based broadcasting chain
- Examine the adaptability of existing broadcast technology to object-based production
- Demonstrate a new, prodigious user experience through the creation of a workflow application for the use of object-based audio
- Based on the findings of Objectives 1 to 3, create a reference architecture

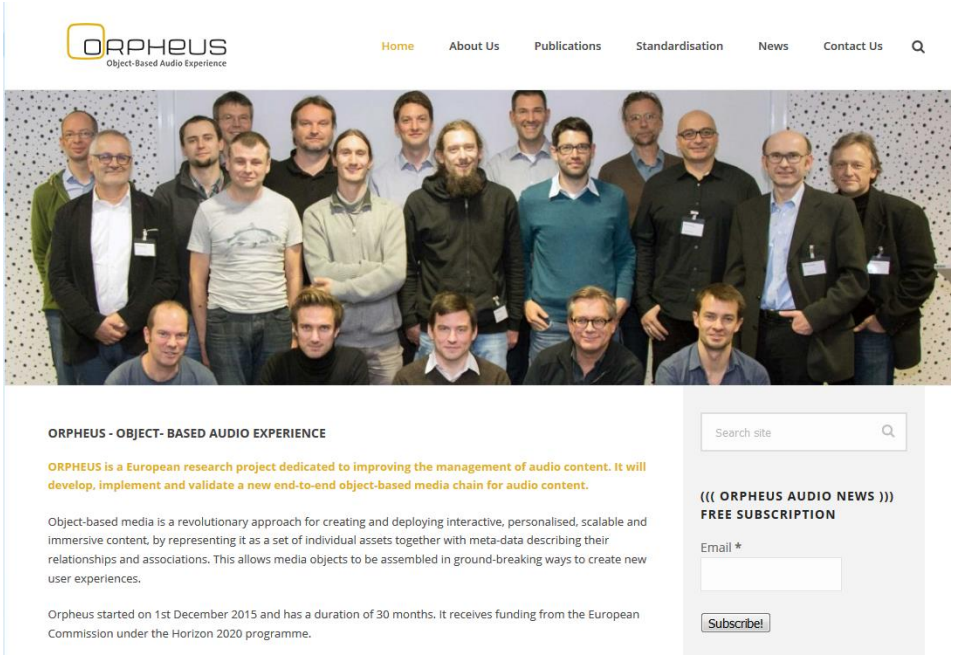
Pilot Architecture



Deliverable 2.1, 2.2

Find us at www.orpheus-audio.eu

Twitter: ORPHEUS_AUDIO



Acknowledgment:

The research conducted by ORPHEUS receives funding from the European Commission H2020 programme under Grant Agreement Nº 687645. The European Commission has no responsibility for the content of this presentation.