

# MediaVerse

## An introduction

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# MediaVerse

A universe of media assets  
and co-creation opportunities





# Project Identity

- Innovation Action selected for call H2020-ICT-44-2020 Next Generation Media
- Started on October 1<sup>st</sup> 2020 (now on M20)
- Planned for 3 years (until Sep 30<sup>th</sup> 2023)
- 11 partners



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artshare



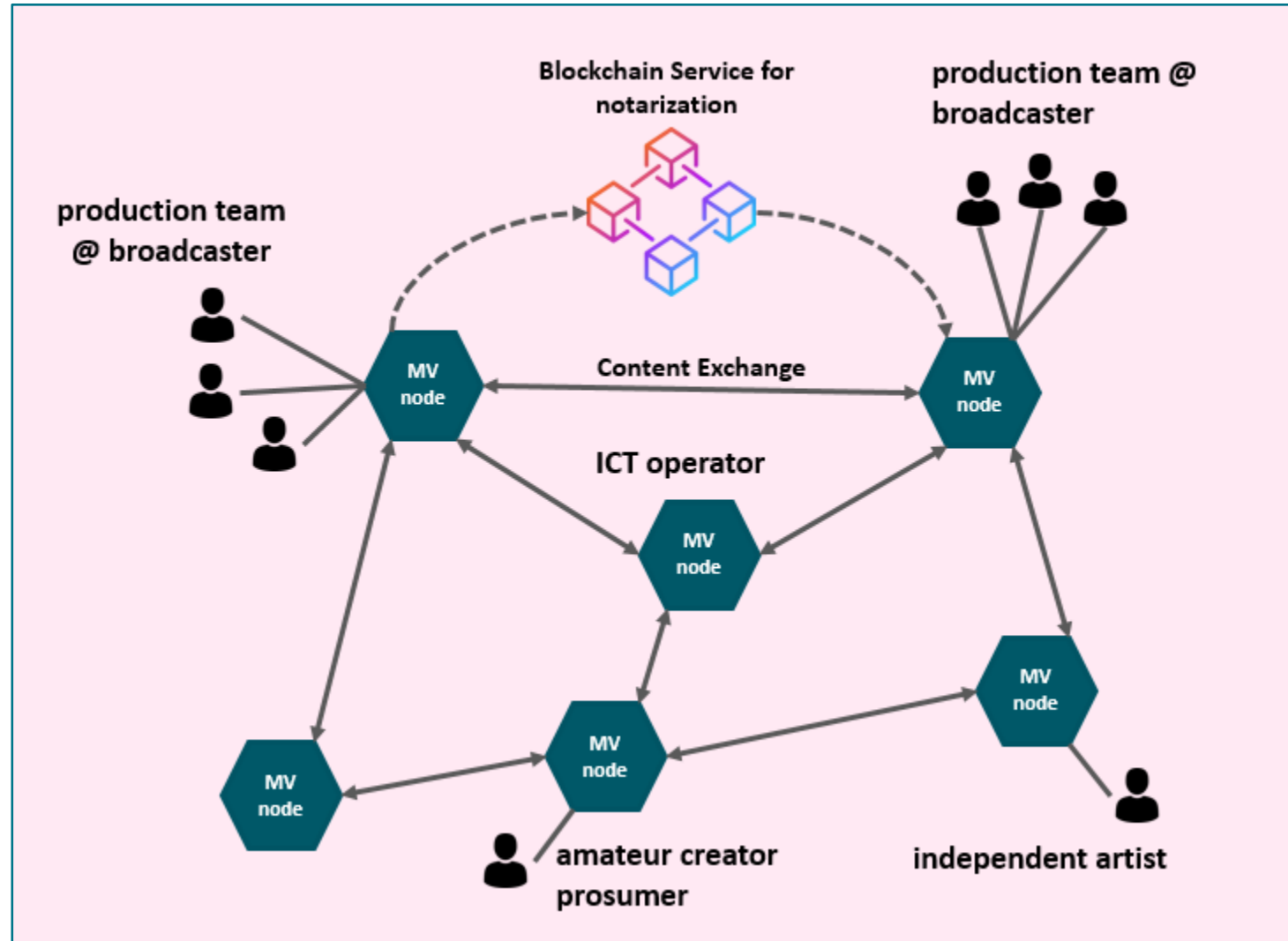


# The MediaVerse Vision

- Set up a **decentralized network of intelligent and accessible tools for digital asset management**, allowing barrier-free usage and integration in target media and platforms.
- Allow professionals and laymen alike to express themselves by publishing multimedia content that may be easily shared and licensed
- Empower European stakeholders to enjoy and produce inclusive, diverse, respectful and credible media experiences.

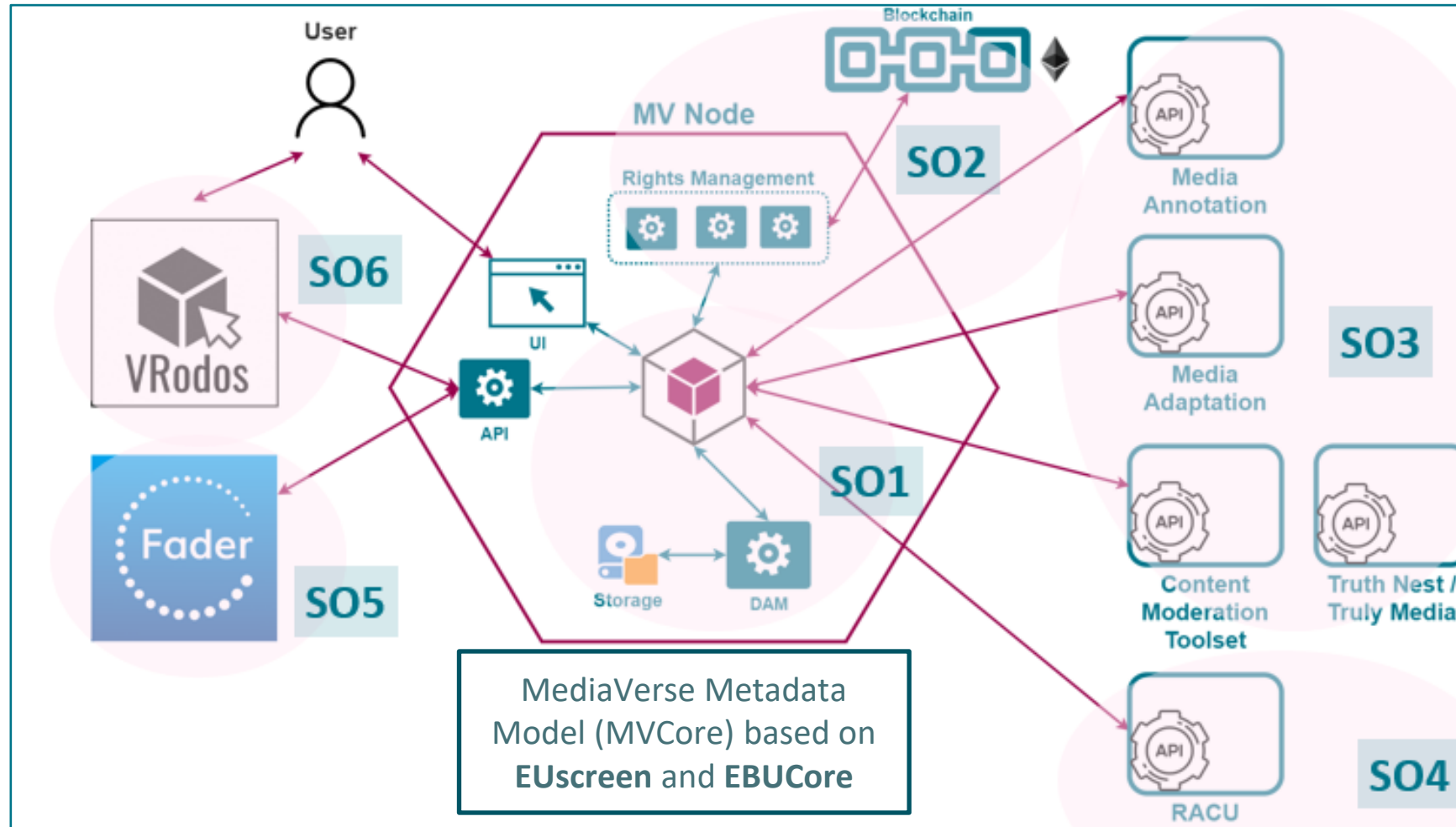


# The MediaVerse Vision





# MediaVerse Specific Objectives



D2.2 Conceptual Design of the MediaVerse Framework ([link](#))





## Login

Email

Password

Log in

[Create account](#)







## Search

Local Search

External Search





# MediaVerse Ambition Areas



- **Intelligent media management**

- AI-based media annotation, retrieval and recommendation
  - Configurable content moderation
  - Optimized media adaptation and delivery
- D3.1 Next Generation Content Model and Algorithms for New Media Types ([link](#))*

- **Seamless and transparent media rights management**

- Representation of complex ownership relations and licensing possibilities
  - Smart legal contracts and smart contracts
  - AI-based content identification
- D4.1 Copyright and Procedures for IPR Definition ([link](#))*

- **Advanced authoring of immersive content**

- 360 video storytelling
  - Immersive co-creation capabilities
  - Accessibility features
- D5.2 Immersive Storytelling Authoring Tools v1 ([link](#))*



# Intelligent Media Management

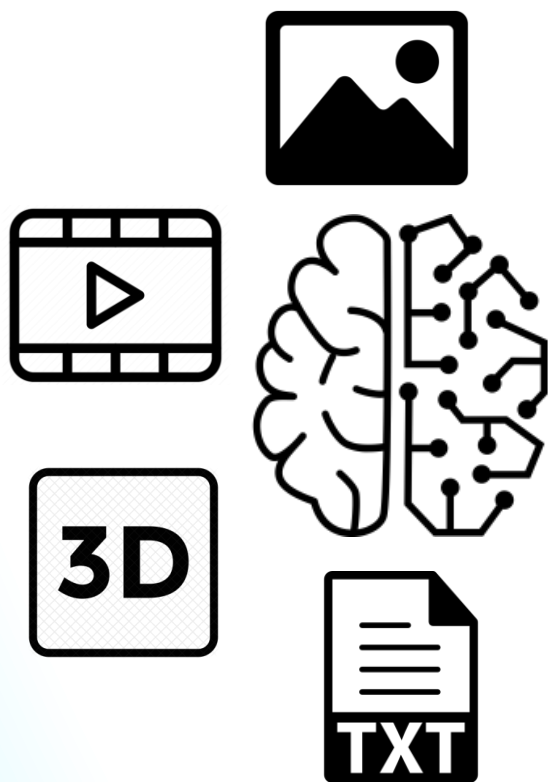






# AI-based Media Annotation

## Annotation service



### image:

object detection (*Faster R-CNN*)  
captioning (*Show, Attend and Tell*)  
meme detection (*MemeTector*, ~97% acc., under review)  
celebrity detection (*MTCNN+VGGFace2*)  
action recognition (*ResNet152*)  
disturbing content detection (*ResNet18*, ~93% acc.)  
cross modal embedding (*CLIP*)

### video:

action recognition (*SlowFast*)  
celebrity detection (*MTCNN+VGGFace2*)  
object detection (*Faster R-CNN*)  
disturbing content detection (*ResNet18*)

### 3D:

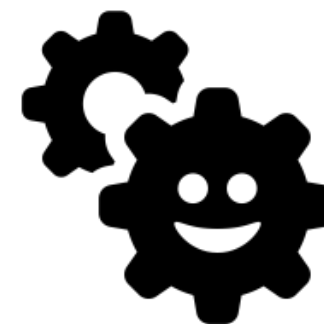
multi-view object detection (*Multi-view+Faster R-CNN*)

### Text:

Named Entity Recognition (Italian, English, Dutch) (*Transner*)

## User-friendly model-building service

- lets non-AI experts (e.g. media professionals) build annotation models that fit their needs
- facilitates dataset collection, labeling and creation



- few-shot face recognition: *even with **one** input image we achieve **88%** accuracy*
- few-shot image classification: *5-10 input images suffice for 75%-**98%** accuracy depending on the input data and task difficulty*





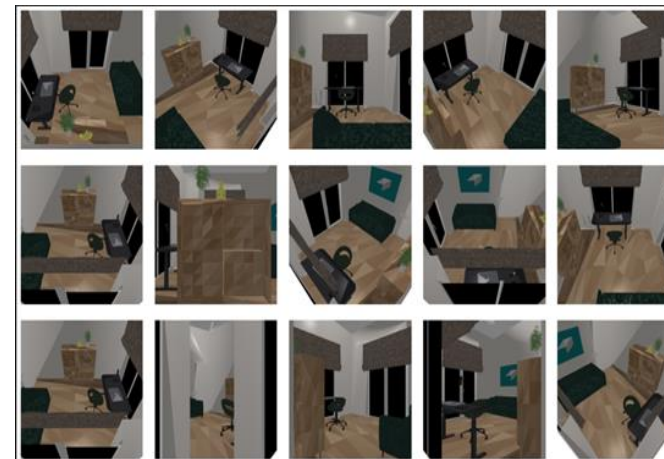
# Annotation Examples



**action:** "playing\_tennis"  
**caption:** "man in white shirt playing tennis"  
**features:** [-0.57,0.06,...,-0.10}],  
**disturbing:** false  
**personName:** "Roger\_Federer"  
**isMeme:** false  
**detections:** ["person","tennis racket","sports ball"]



**disturbing scenes:**  
[{"scene": [45.7, 66.3], "disturbing\_prob": 0.98},  
{"scene": [71.7, 86.7], "disturbing\_prob": 0.99},  
{"scene": [96.7, 103.9], "disturbing\_prob": 0.79},  
{"scene": [106.0, 111.0], "disturbing\_prob": 0.72},  
{"scene": [162.5, 167.5], "disturbing\_prob": 0.64}]

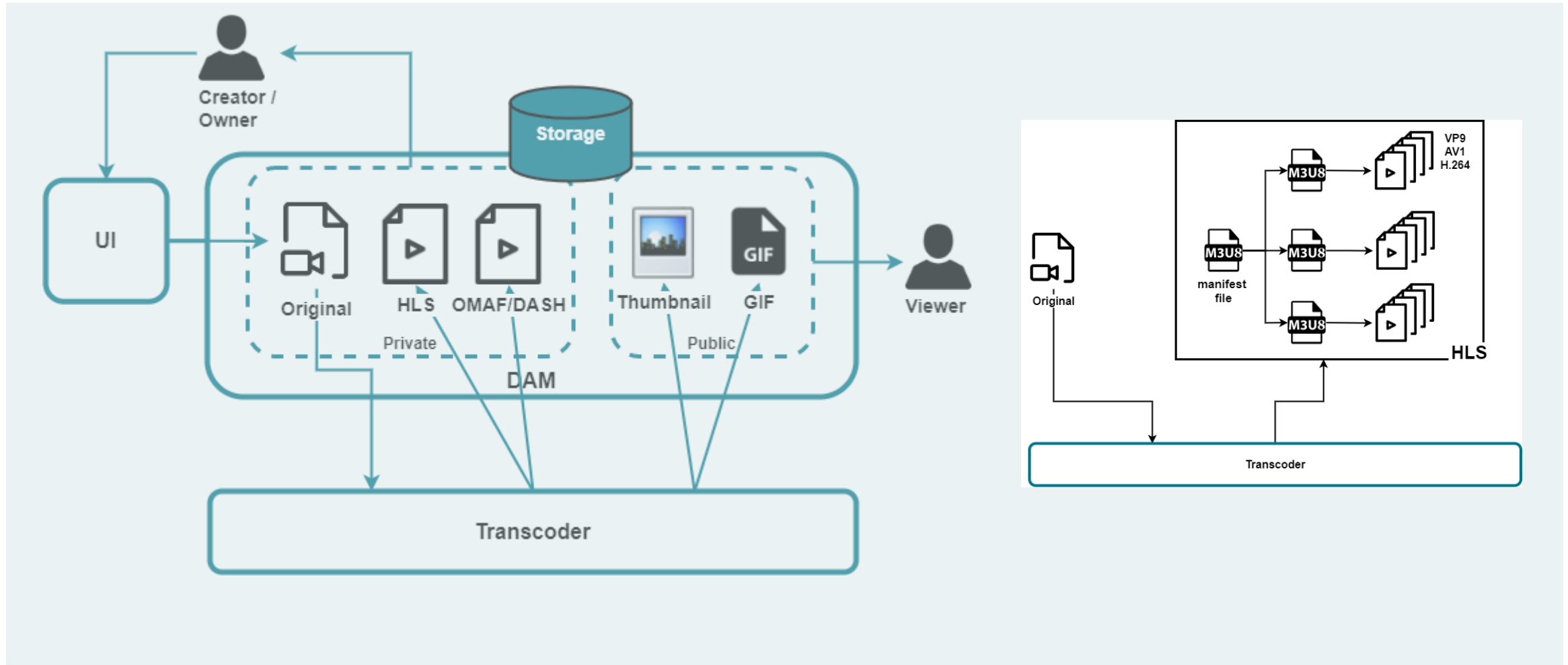


**3D object detection:** ("potted plant", "couch", "chair", "bed")

Elon Musk **PERSON** apparently wasn't aware that his company SpaceX had a Facebook **ORG** page. The SpaceX and Tesla **PRODUCT** CEO has responded to a comment on Twitter **GPE** calling for him to take down the SpaceX, Tesla and Elon Musk **ORG** official pages in support of the #deletefacebook movement by first **ORDINAL** acknowledging he didn't know one existed, and then following up with promises that he would indeed take them down.



# Content Adaptation Service





# Seamless and Transparent Media Rights Management







# Media Rights Management (MRM)

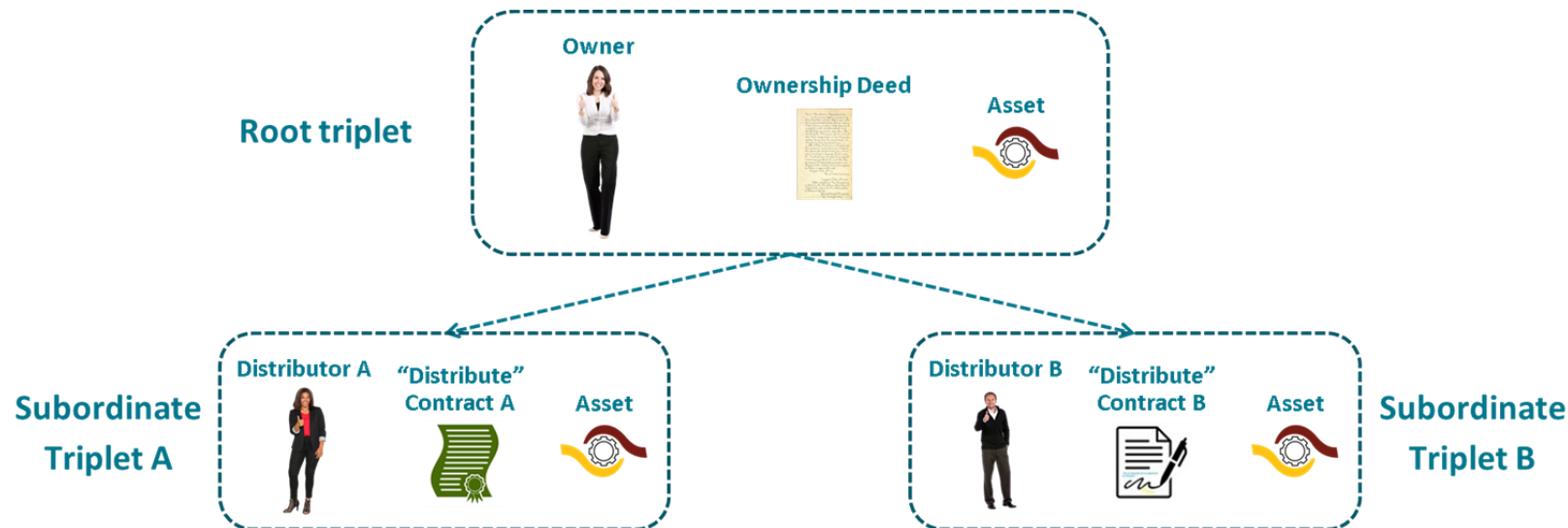
- MediaVerse envisions a **common digital rights management** model able to cover both technical and legal requirements of digital asset IPR by providing a **machine-augmented legal framework**.
- Auditability, traceability and immutability of IPRs through a **Blockchain-based approach**
- Possibility of advanced form of content sharing and revenues management, preserving the IPRs for **copyrightable derivative works** and **copyrightable collective works**.





# MRM: MediaVerse Triplets Hierarchy

- Each **MediaVerse Triplet** formalizes a **Right** owned by a **Subject** on an **Asset**, combining:
  - **SLC (Smart Legal Contract)**: to properly cover the legal aspects
  - **SCs (Smart Contracts)**: to represent/manage the ownership of share and of revenues on the Blockchain, with auditability and traceability







# MRM: Components

- **IPR Service**

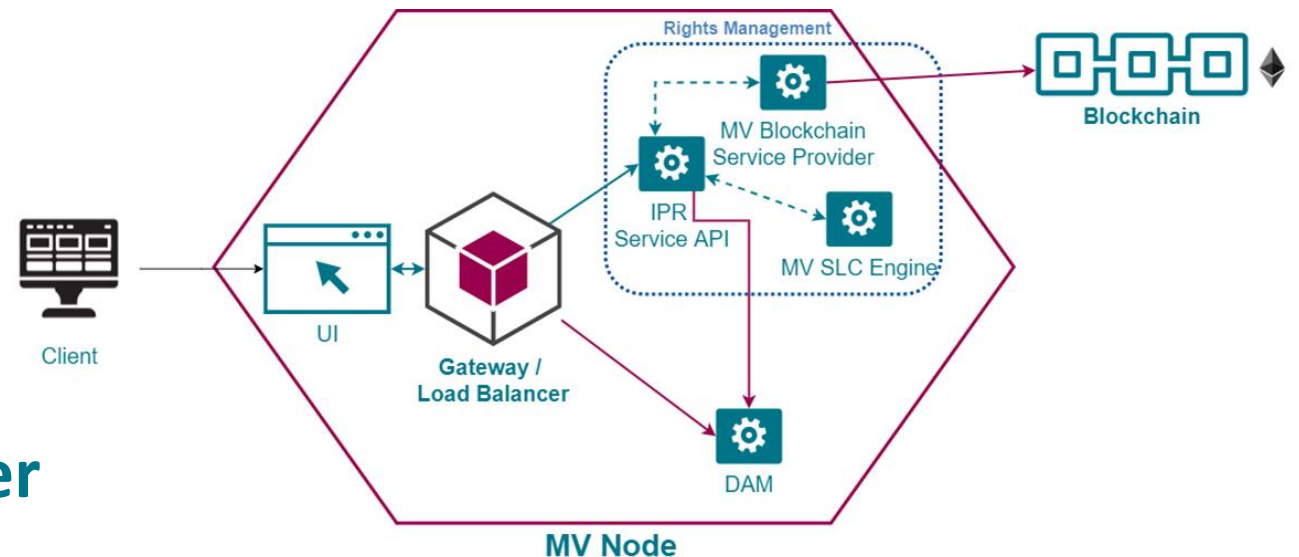
APIs layer to interact with the MRM and keep the SLCs and SCs management transparent to the User

- **MV SLC Engine**

SLCs creator and manager, powered by Accord Project CICERO Engine

- **MV Blockchain Service Provider**

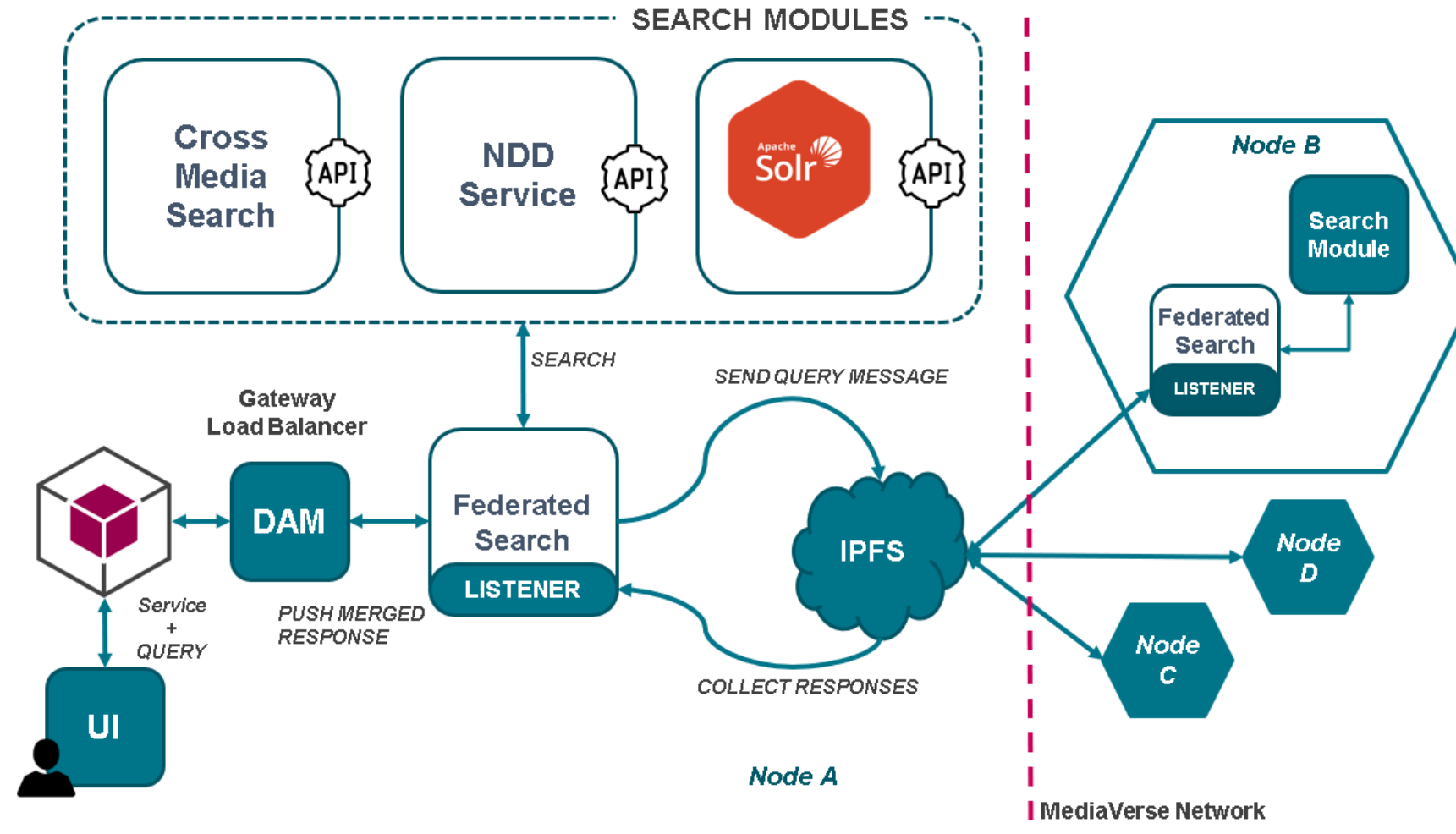
Ethereum Blockchain SCs manager, deployer and event handler







# Federated Multimodal Search





## Results



**Luis Fonsi - Despacito ft. Daddy Yankee**  
 LuisFonsiVEVO  
 7589.4M views  
 Music  
 5 years ago

## Similar Videos

### Search Video



**Luis Fonsi - Despacito ft. Daddy Yankee Official (Rea...**  
 TBrian  
 3.1K views  
 Gaming  
 4 years ago

Similarity 88%

1 out of 14

### Search Video



**Despacito - Daddy Yankee,Luis Fonsi (Russian Reacti...**  
 RussianReaction&Reviews  
 16.3K views  
 Entertainment  
 7 months ago

Similarity 85%

2 out of 14

### Search Video



**Koreans React to Luis Fonsi "Despacito" [ASHanguk]**  
 ASHanguk 애쉬한국  
 305.2K views  
 Entertainment  
 4 years ago

Similarity 81%

3 out of 14

### Search Video



**Luis Fonsi - Despacito ft. Daddy Yankee - REACTION!!!**  
 The B and S Show  
 33K views  
 Entertainment  
 2 years ago

## Example Videos

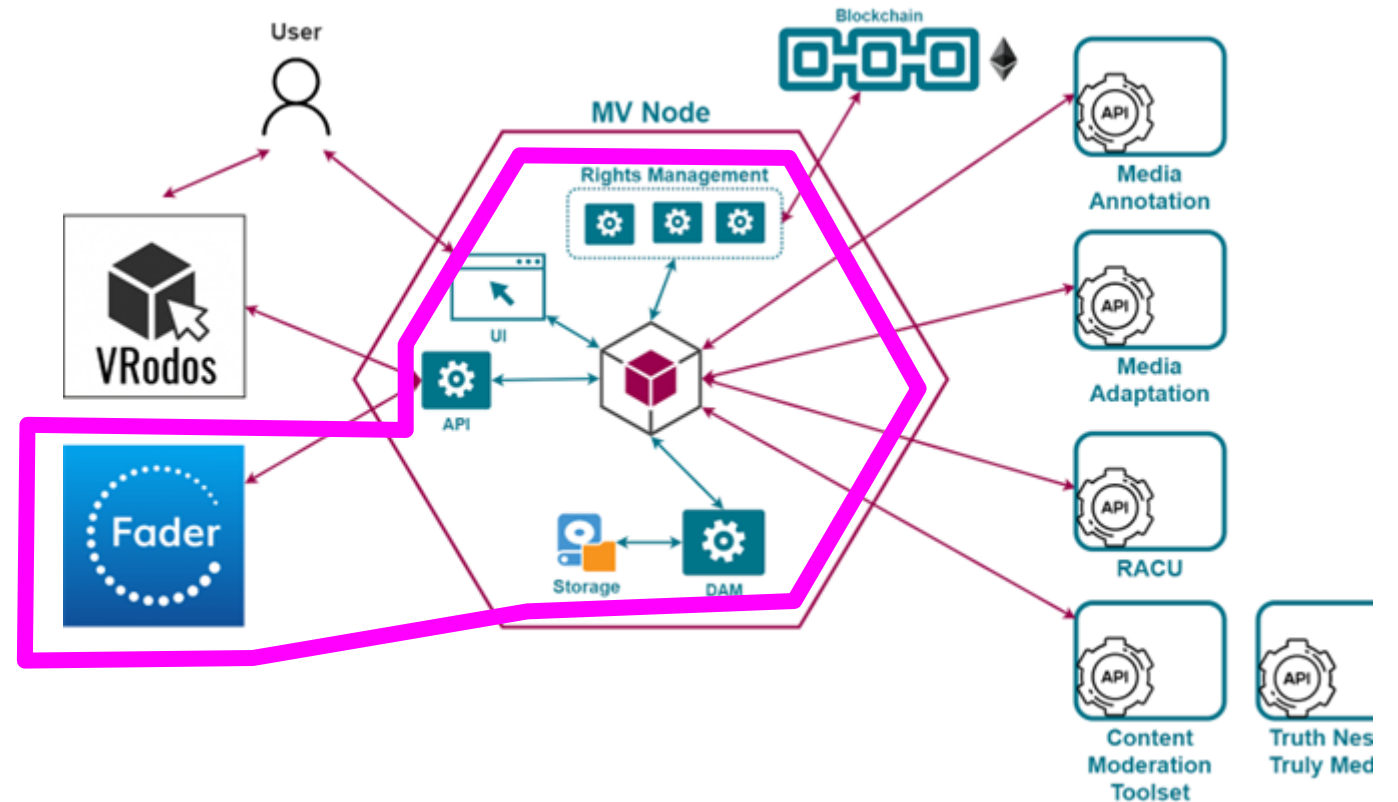
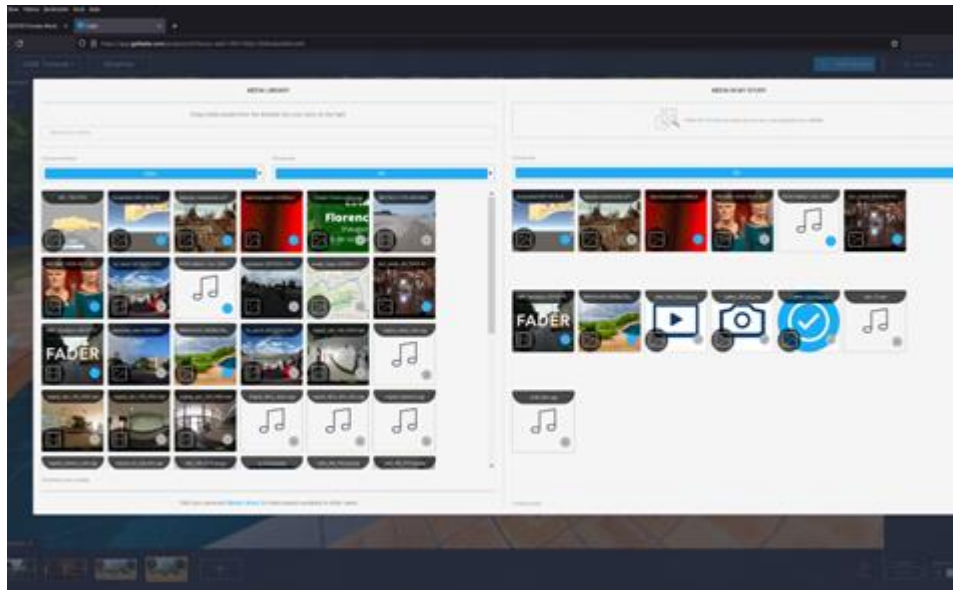


# Advanced Authoring of Immersive Content





# Fader: 360 authoring

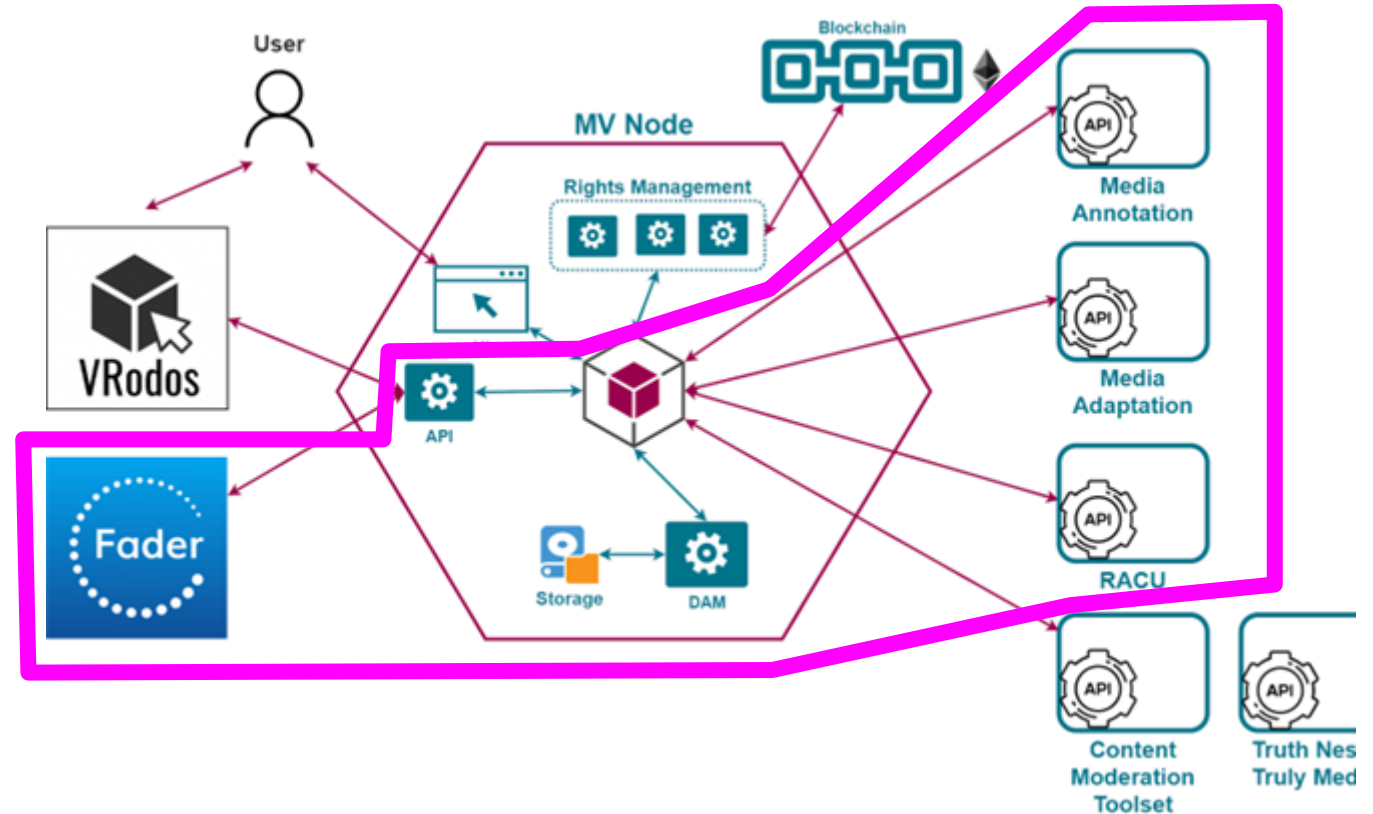
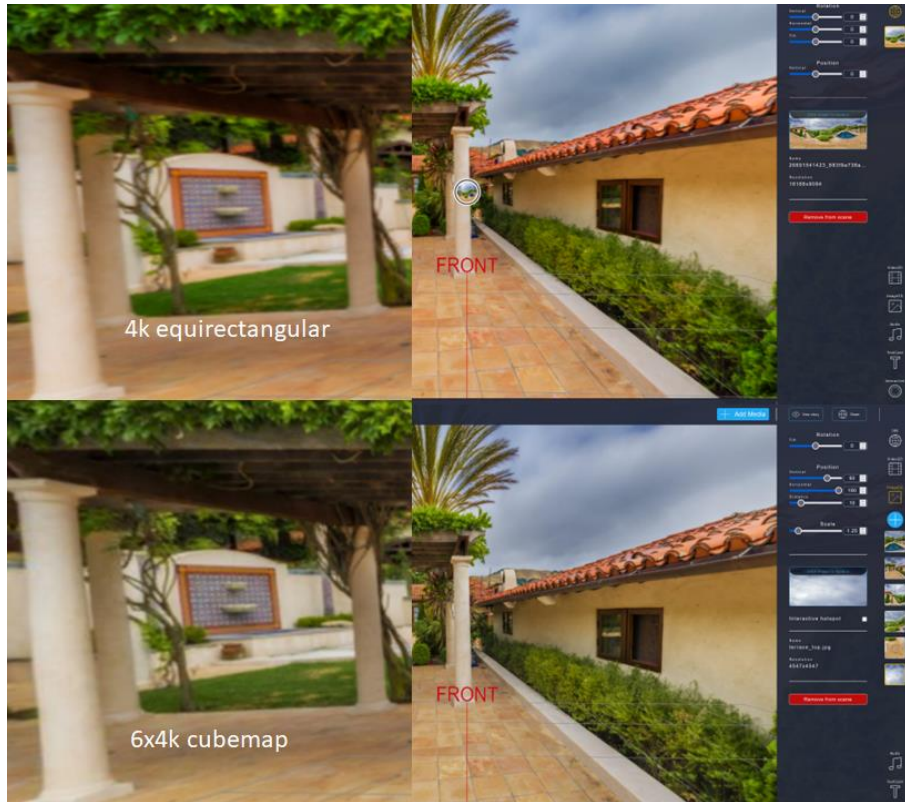


Using MV Digital Asset Management





# Fader: 360 authoring



Benefit from MV service components





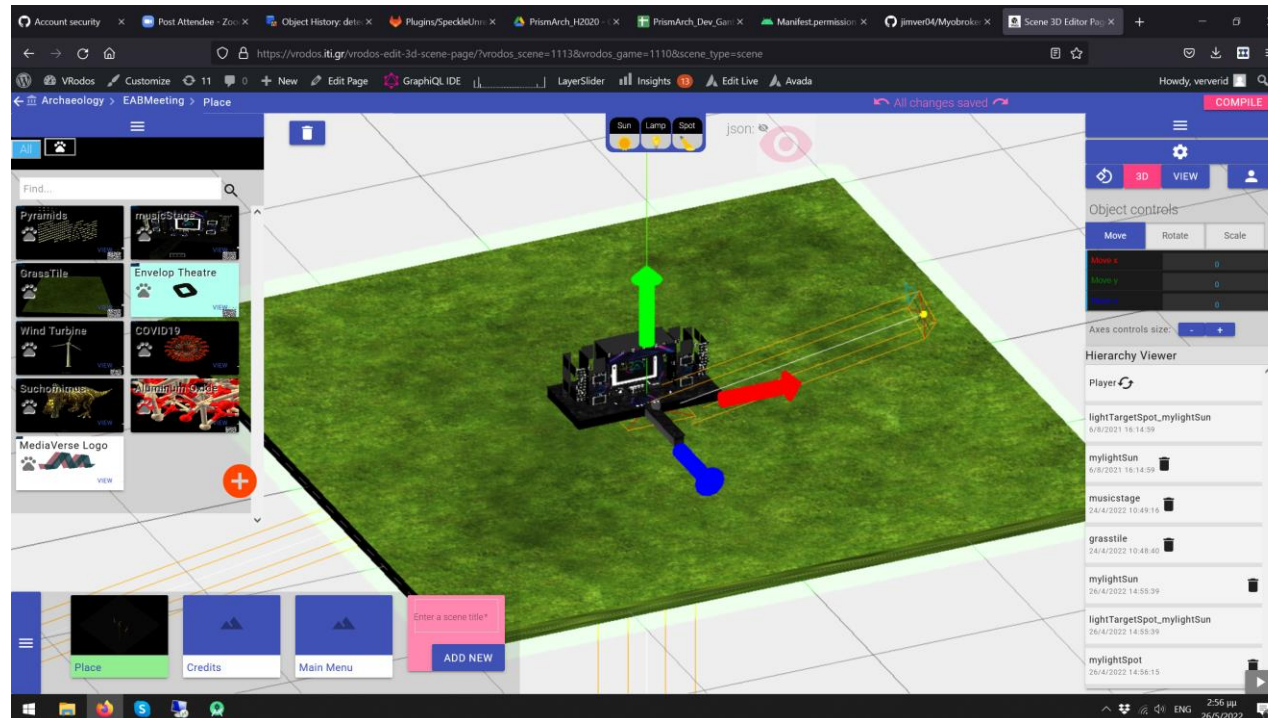


# VRodos: authoring 3D Multi-user Experiences



**Target:** Virtual production for actors who are physically apart

- Web-based authoring tool based on three.js
  - Set up a scene and drag and Drop 3D assets to previewer
  - Translate from Three.js into Aframe (for compact multi-playing experiences)

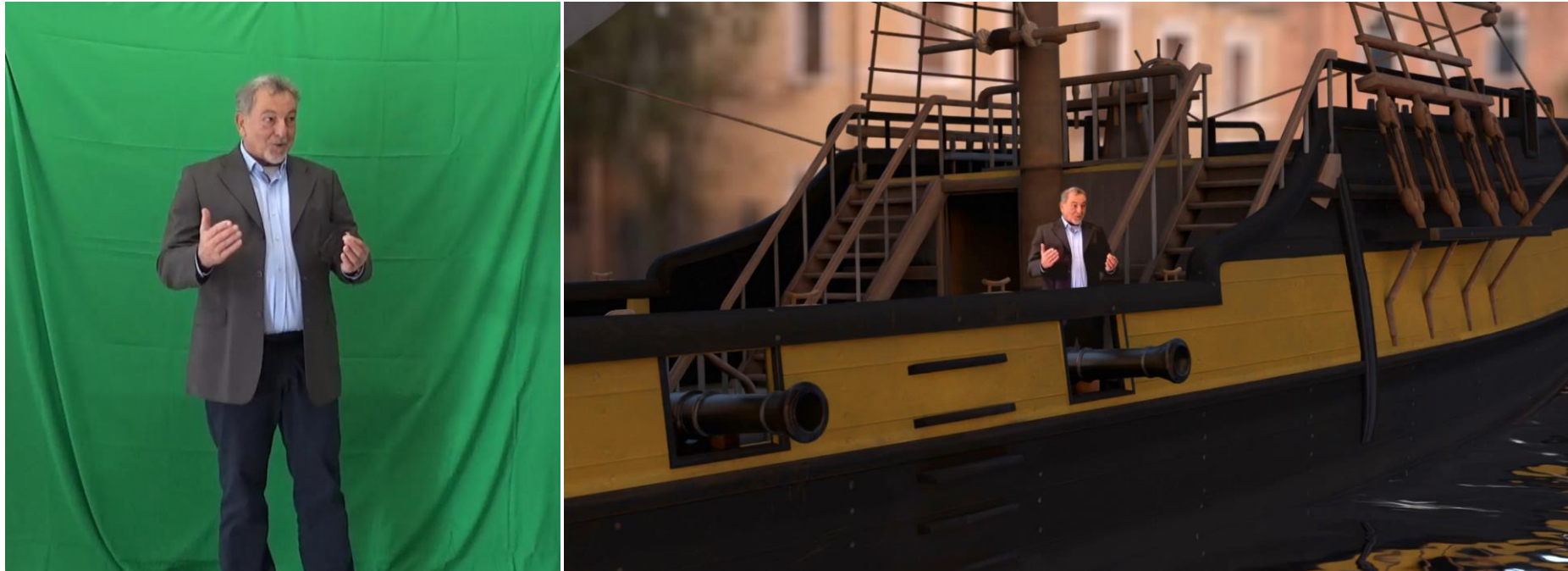




# Virtual Production Examples



- Target features: a) Multi-playing, b) Web based, c) Render at one client (desktop) and stream to others (smartphones). d) Shaders for green screen removal on the fly





# MediaVerse Use Cases





# MediaVerse Use Cases & Pilots

- **UC#1: Citizen Journalism (STXT & DW)**
  - Connect across silos and platforms, create content hub, attract community
- **UC#2: New formats of co-creating media (UAB)**
  - Co-creation and authoring capabilities, accessibility and diversity
- **UC#3: Hybrid intelligence experimental artworks series (AS)**
  - Integrate ICT & Art, engage STARTS community, critical/holistic/humanistic approach to user driven social media

*D2.1 Use Cases and User Requirements ([link](#))*

- These UCs define the scope and guide the MediaVerse pilot activities

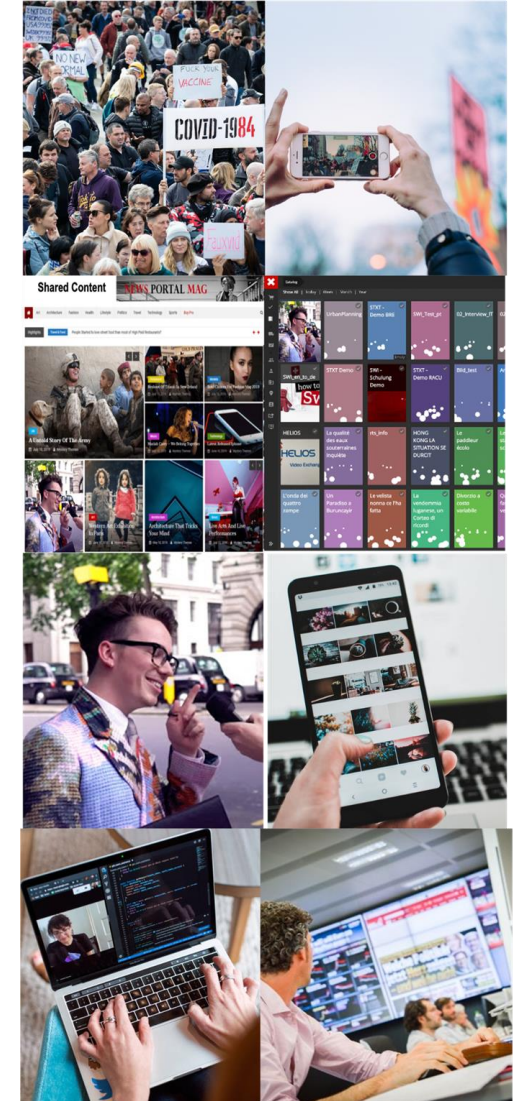
*D7.1 Pilot Description and Planning ([link](#))*



# Citizen Journalism



- Pilot UC#1: Citizen Journalism
- CJ participate in a Broadcasters end-to-end workflow
  - Blockchain based anonymization
  - secure upload to broadcaster service
  - Content contribution
  - Curation in a DApp and upload to MediaVerse node (Content Hub)
- Focus on journalists with no or little experience
  - Picture / Video App
  - Automatic multilingual subtitling

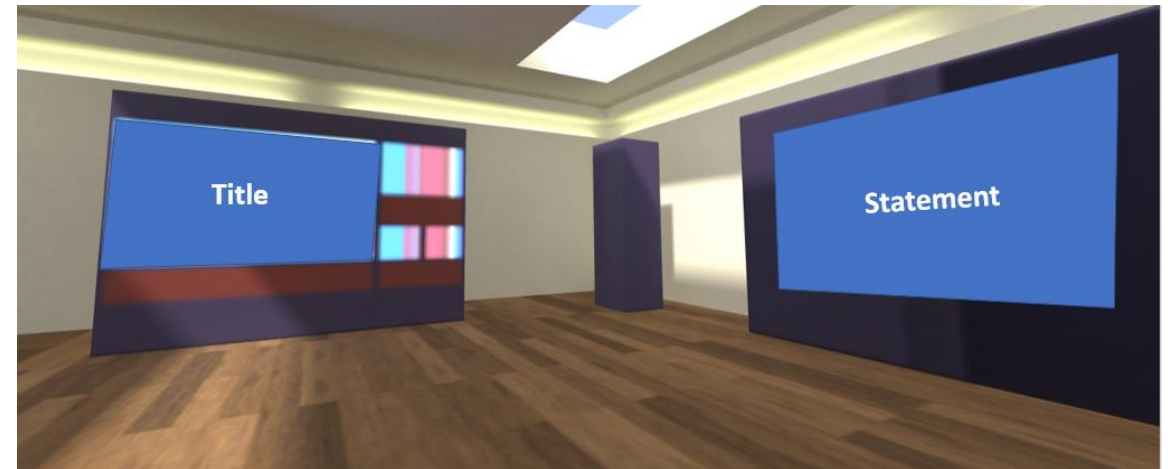




# Immersive Journalism (IJ)



- Sub-pilot of UC#1: Citizen Journalism
- Immersive Experiences to be created by Citizen Journalists
  - Authoring Tool Fader
  - Reduce complexity of creating Immersive Experiences
- Focus on journalists with no or little experience in IJ
  - Template-based guidance
  - Copyright management and content sharing through MediaVerse





# Content Co-creation



- Co-creation of 360° videos for social inclusion in different pilots:
  - With facilitators from Som Fundació (assoc. of persons with cognitive disabilities)
  - With students:
    - primary school students through CROMA programme.
    - university students (Infirmary/Occupational Therapy)
  - With young migrants





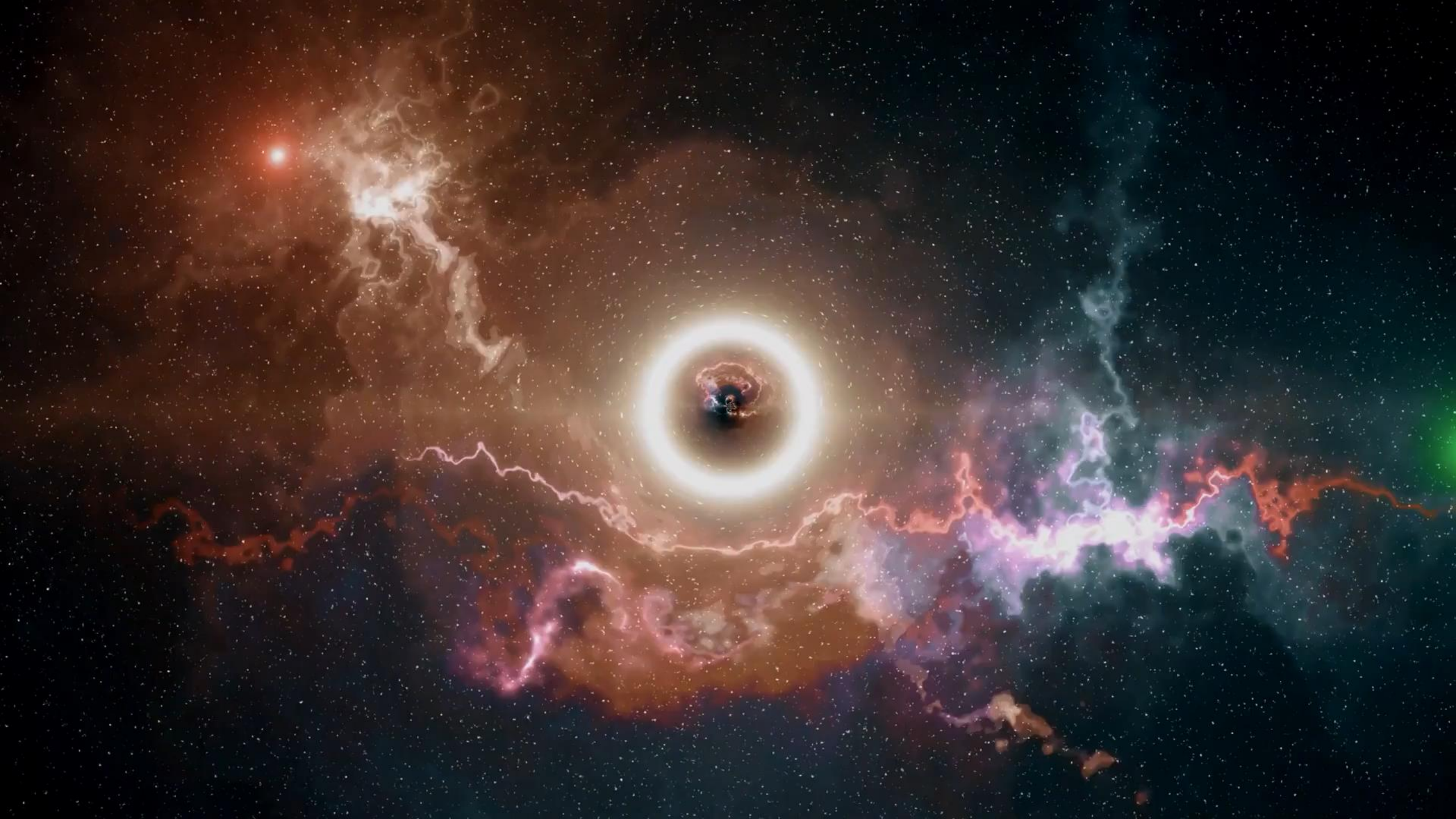


# MediaVerse Network of Interest

- We would be happy to have your interest recorded in our MVNI: <https://mediaverse-project.eu/community/network-of-interest/>
- More details on the project results and tools: <https://mediaverse-project.eu/results/tools/>
- Set up and manage your own MediaVerse node! <https://github.com/MediaVerse-Project/mediaverse-node>









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### Consortium Partners



**T I M E L E X**



<https://mediaverse-project.eu/>

**MediaVerse:** A universe of media assets and co-creation opportunities at your fingertips

Co-financed by the EC  
under Grant agreement  
ID: 957252

