

COGNITUS

Converging Broadcast and User Generated Content for Interactive Ultra-High Definition Services

Exploring the future of content production and distribution

NEM General Assembly

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BBC | R&D

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Outline

- What is COGNITUS?
- Why are we here today?
- A vision for future
- COGNITUS project
- New user experience challenges
- Enabling approaches and technologies
- Example COGNITUS use cases
- COGNITUS innovations and impact
- Collaboration opportunities

What is COGNITUS?

“Convergence of **broadcast** and **User Generated Content (UGC)** for interactive **Ultra-High Definition (UHD)** services”



Why are we here today?

- Increase awareness of the technology opportunities
- Share our experiences and points of view
- Provide input from technology providers to policy makers
- Showcase innovation in the media sector and work towards maximising its impact

A vision for future

Main Stage

ZOOM: 40%

Upload picture to Main Stage screen: complete

 Zoe is logged in

- Immersive
 - Story telling
 - New media
 - Interactive

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- Distribution
 - Internet
 - On demand
 - Smartphones / tablets
 - Efficient coding / compression

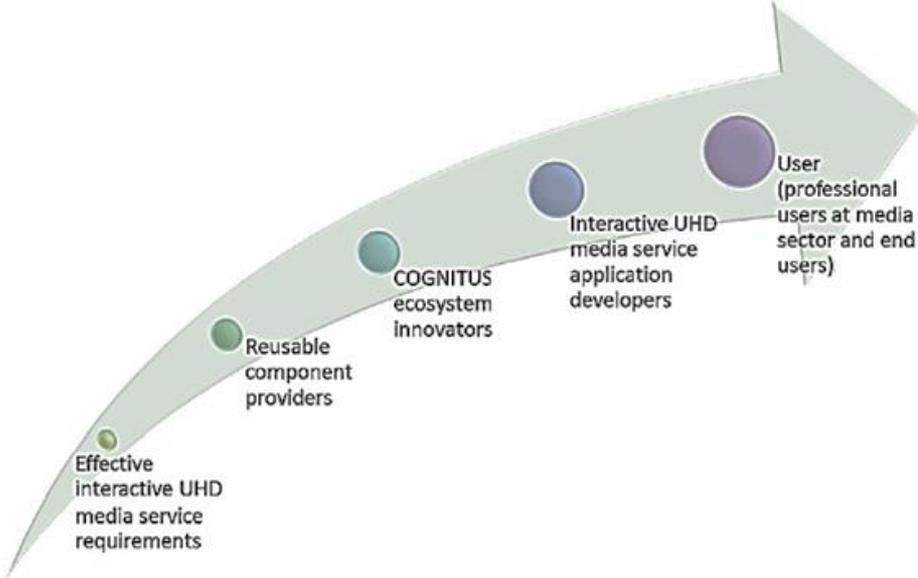
- Personalised
 - Audience engagement
 - Adaptive
 - Dynamic and responsive
 - Object based

COGNITUS project



- COGNITUS as an “Innovation Action”
 - Demonstration of the viability of new technologies
 - Validation of innovative solutions through large scale demonstrations, pilots or testing of use cases so as to guarantee sustainable deployment
 - New forms of experiencing environments
 - Project duration: Jan 2016 – Dec 2018

COGNITUS consortium



User experience challenges

- New role of audiences: content creators
- Engaging with audiences
- Setting rewards schemes, gamification
- Content rights management
- Measuring quality of new experiences



Enabling approaches and technologies



- User experience
- Expert assessment
- Storytelling
- Content enrichment

- Social media
 - Text, video, audio
 - Identifying relevance of UGS
- Immersive audio
 - UGC, professional and live event audio
 - Collaborative audio enhancement
 - Enhancing visualisation of other multimedia
- Multimedia content management
 - Repositories
 - Accessing, indexing and search
- New forms of content
- Efficient distribution
 - Video compression
 - Adaptive coding

New forms of content

- Ultra High Definition TV (UHDTV) format will enhance users' quality of experience
 - Spatial resolutions 3840×2160 (4k) and 7680×4320 (8k)
 - Frame rate up to 120 fps, extended colour gamut and bit depth up to 12 bits per pixel
 - High Dynamic Range (HDR) is another dimension envisaged for UHD content to deliver “better” pixels to audiences



New content: new challenges

- Tailor available compression standards for compression to
 - New forms of content (HDR, UHD, HFR, UGC, 360°, object, etc.)
 - Different content features (prone to contouring, noisy, taking into account different pre-processing methods applied, etc.)
- Setting requirements and tools for next generation video coding standards



“Engaging the Audience as Camera Crew”

“More Like Being There”

COGNITUS use cases



- Large scale events
- Covering geographically - spread events
 - City festival
 - Sport events

- Merging content
 - UGC
 - Professional
 - Archives / historical



Examples of COGNITUS innovations

Distribution

COGNITUS codec for efficient compression

Content adaptation module

Immersivity

Utilisation of social media platforms to enrich metadata of UGC

Immersive sound based on UGC

Closer-to-the-action capturing using UGC

Hyper-personalisation

COGNITUS user reward scheme

COGNITUS impact

- Expected impacts of the topic ICT-19b–2015:
 - “Development of new services as a consequence of the convergence of broadband, broadcast and social media”
 - “Further development of user experience in immersive environments and social media, especially in any device and mobile environments”
- Additional support from EC available, for example i3 project (<http://www.i3project.eu/>)



Collaboration opportunities

- Research events
 - COGNITUS organises workshops and special sessions at research conferences:

- ACM TVX 2017



- IEEE MMSP 2017, in collaboration with InVID and CrowdMic projects

- CBMI 2017

- Industry events:

- Demonstrated at IBC 2016, planning for future events

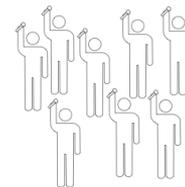
- Open source software

- COGNITUS promotes collaboration over open source software projects (e.g. <http://turingcodec.org/>)

- Open Access Data and publications

- Input to position papers

- Opportunities for collaboration for contributions to NEM position papers



Questions?

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