COGNITUS

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

website: cognitus-h2020.eu
twitter: @H2020Cognitus
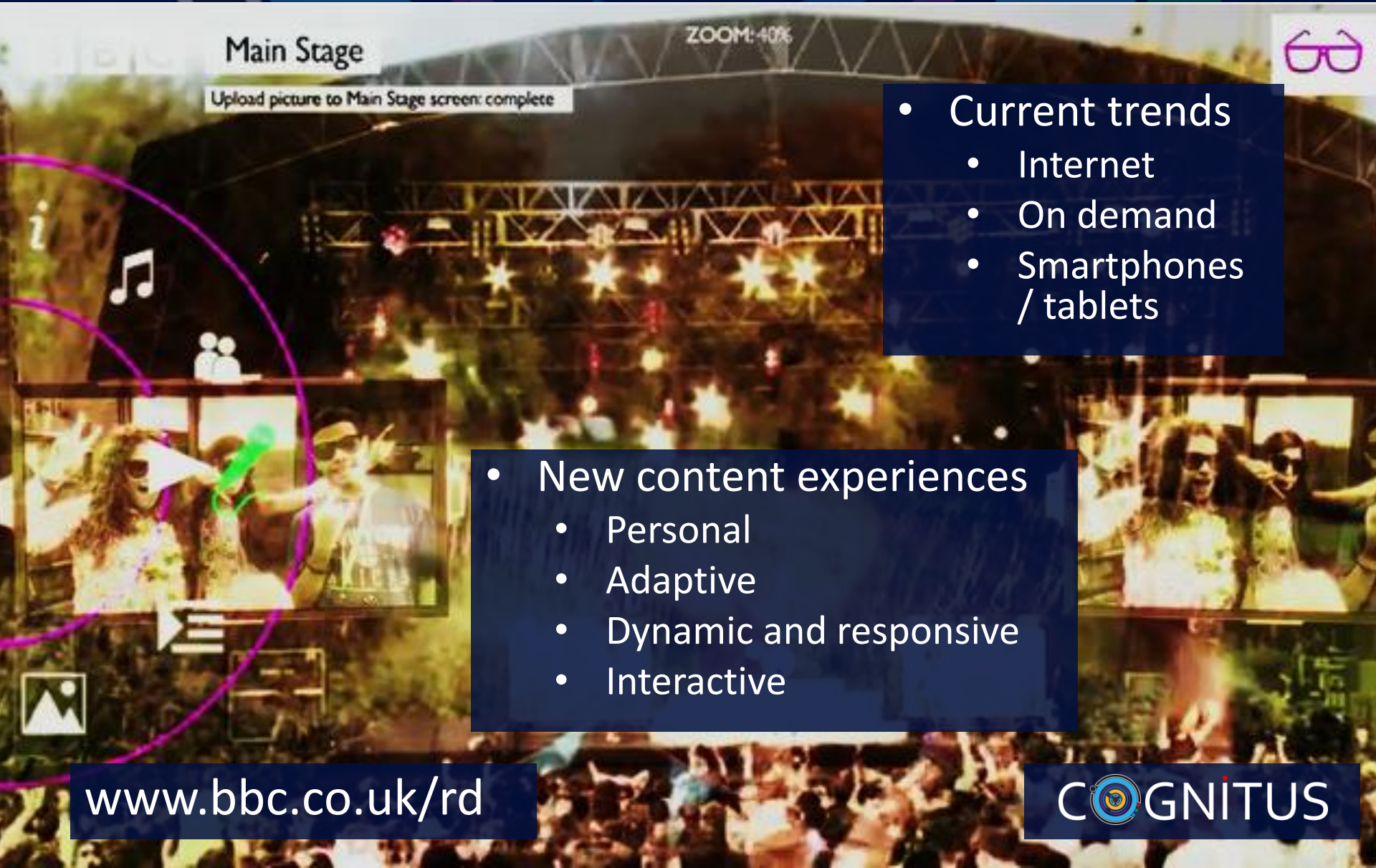email: cognitus-h2020@rd.bbc.co.uk

C⦿GNÏTUS - an Innovation Action

- 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

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A Vision of the Future

- Current trends
  - Internet
  - On demand
  - Smartphones / tablets

- New content experiences
  - Personal
  - Adaptive
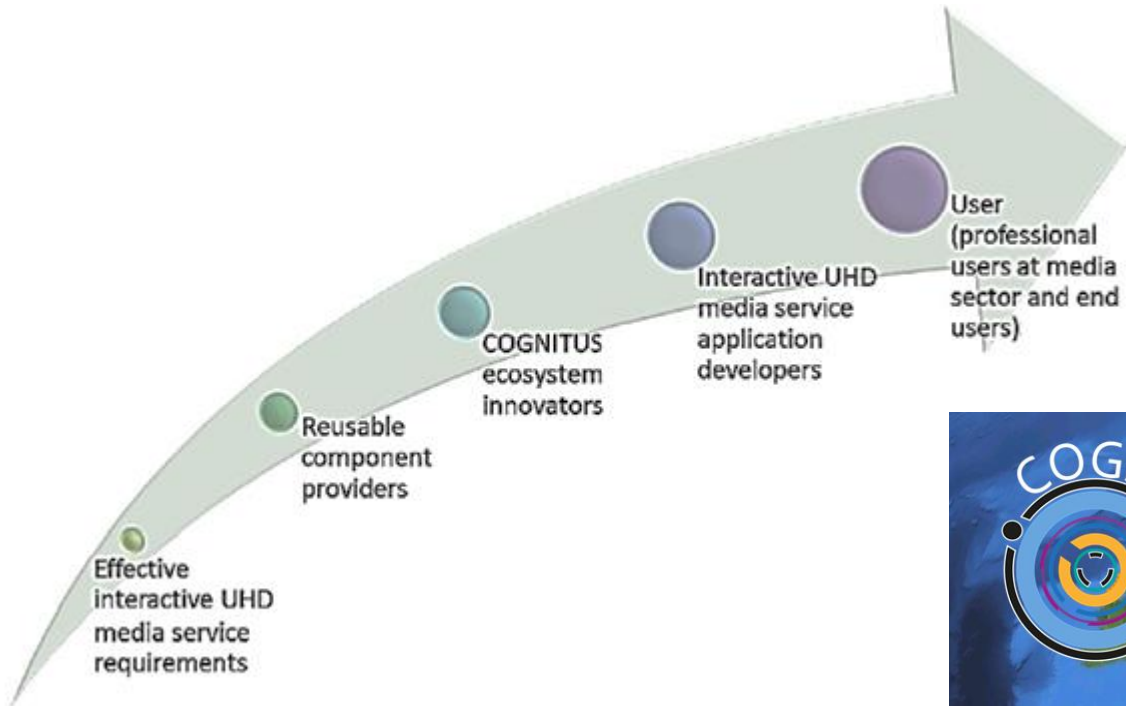 - Dynamic and responsive
  - Interactive

www.bbc.co.uk/rd

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User experience challenges

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

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COGNITUS consortium

Effective interactive UHD media service requirements → Reusable component providers → COGNITUS ecosystem innovators → Interactive UHD media service application developers → User (professional users at media sector and end users)

BBC · VITEC VIDEO INNOVATIONS · Queen Mary University of London · ARRIS · FCT FACULDADE DE CIÊNCIAS E TECNOLOGIA UNIVERSIDADE NOVA DE LISBOA · FORTH Institute of Computer Science · forthnet
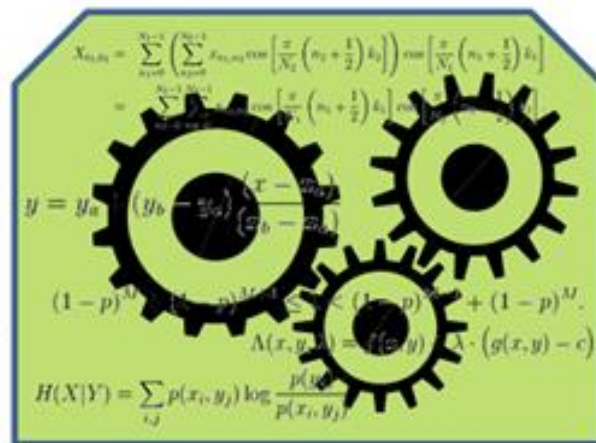
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Enabling approaches and technologies

- 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
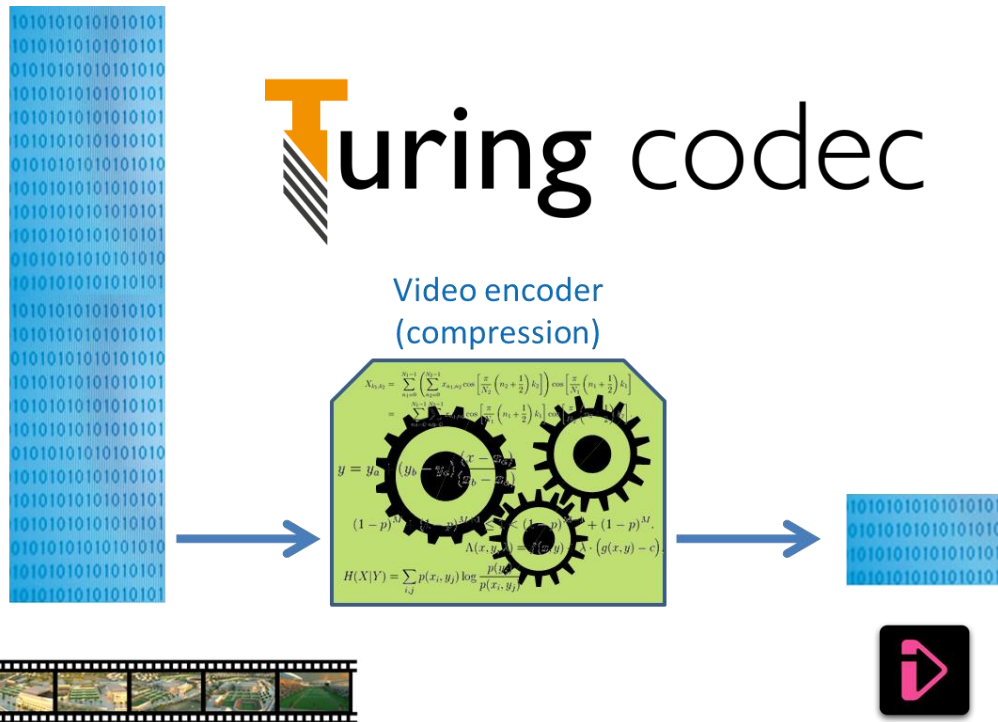- …

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Example of enabling technologies

- Ultra High Definition TV (UHDTV) format will enhance users' quality of experience
  - Spatial resolutions 3840×2160 (4k) and 7680x4320 (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

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Example of enabling technologies

- Tailoring content production to new content types
- Compression for production and mass scale distribution

- Reducing digital content size without compromising visual quality

- Standard codecs

- H.265/HEVC

Video encoder (compression)

http://turingcodec.org/

New forms of content

- 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
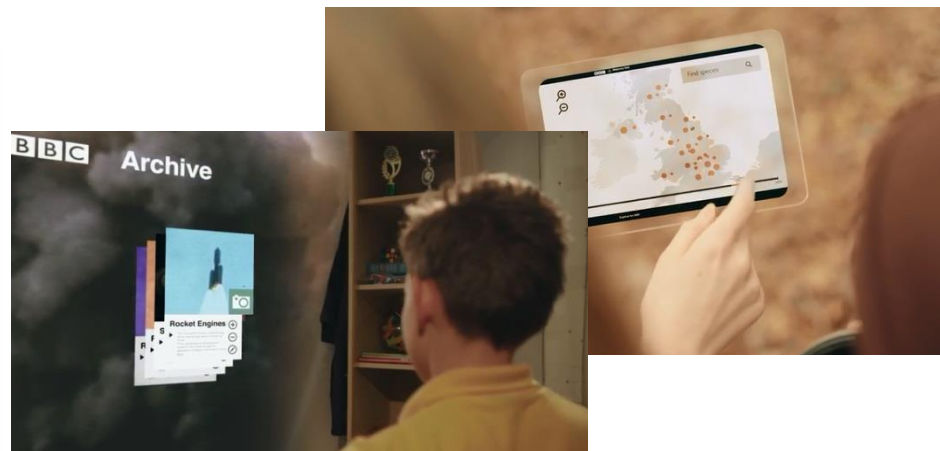
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COGNITUS use cases

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

- Merging content
  - UGC
  - Professional
  - Archives / historical

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COGNITUS pilots and beyond

UGC and historical content

Enabling new experiences

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COGNITUS results

- H.265/HEVC codec release
  - From a prototype to deployment
    - New features include HDR support
  - Open source
  - http://turincodec.org/

- IBC 2016 presence
  - Conference paper by BBC
  - COGNITUS Repository System demo by VITEC
  - Turing codec introduction at EBU event

- Targeted outcomes
  - Pilots planned for 2018
  - Individual components to be available for wider exploitation

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Started on 1 January 2016, stay tuned!

Thank you for your attention!