



# Vision on future Interactive Technologies

Anne BAJART

Deputy Head of Unit

European Commission

DG CONNECT.G2

Interactive Technologies, Digital for Culture  
and Education

***NEM SUMMIT 2019***

# Interactive Technologies

*3D technologies*

*Augmented Reality*

*Artificial Intelligence*

*Digitisation*

*Virtual Reality*

*Natural Language Processing*

*Human-Machine Interface*

*Vision*

*Haptics*

*Perception*

*Speech*

*Wearables*

# APPLICATIONS

*Healthcare*

*Games*

*Entertainment*

*Media*

*Manufacturing*

*Construction*

*Culture*

*Broadcasting*

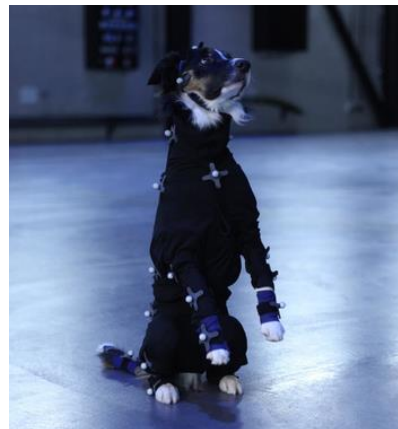
*Fashion*

*Smart cities*

*Retail*

# New Applications and Use Cases

- *Engaging and immersive experience for users*
- *Highly inter-disciplinary field*
- *Variety of applications:*
  - **education, health, culture, manufacturing, engineering, entertainment, live events, retail, construction**



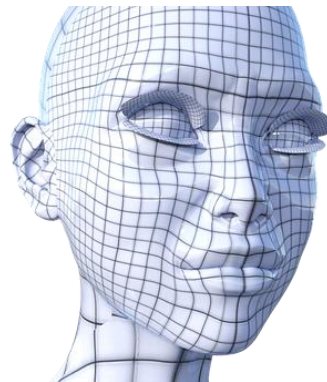
# Virtual Reality and Augmented Reality

- *Headsets becoming affordable and more powerful*
- *Emergence of powerful computation devices and smartphones*
- *Growing market*
- *Europe: SMEs and start-ups*



# 3D Technologies

- *Fast developing technology*
- *Wide range of applications: computer graphics, video games, cinema, art, cultural heritage*
- *Unique opportunities to digitise, preserve, restore, advance scientific research, create rich and engaging experiences*



# Human-Machine Interaction



- *Interacting with a virtual environment  
=> well-designed interface*
- *Multi-modality (vision, audio, speech, gesture, touch, smell, ...)*
- *Variety of platforms (mobile, web, desktop, console)*
- *Sense of embodiment / digital representation / cognitive and emotive processes*

# User-centric approach

- *Usefulness of applications*
- *End-user involvement*
- *Natural interaction*
- *Personalisation*
- *Real-world testing and validation*
- *Safe, ethical, private*





# Ethical issues



- *Raising-attention issues*
- *Lack of solid studies on advantages, effects, risks*
- *More attention to be given to ethical aspects (design, use, potential misuse)*
- *Fast development => need for regular updates*
- *Sensitive domains such as healthcare, education (but not limited)*
- *Need for guidelines and good practices*
- *Legal aspects*

# EU activities

***Policy***

***Support to research and innovation***

***Structuring the community / increase cross-disciplinary collaboration***

***Support take-up, deployment and roll-out***

# Declaration of Cooperation on advancing digitisation of cultural heritage



*Signed by 24 Member States on the 9<sup>th</sup> of April 2019*

***I. A pan-European initiative for 3D digitisation of cultural heritage artefacts, monuments and sites***

***II. Re-use of digitised cultural resources to foster citizen engagement, innovative use and spill-overs in other sectors***

***III. Enhancing cross-sector, cross-border cooperation and capacity building in the sector of digitised cultural heritage***

# EU FUNDING: 2014-2020

- *Horizon 2020 – LEIT*
  - Interactive Technologies / Support to creative industries
  - EUR 98,4 million
  - Ex: fashion industry, architecture, media, games.
- *Horizon 2020 - Societal Challenges 6*
  - inclusive, innovative and reflective societies
  - EUR 40 million
  - Ex: advanced 3D modelling, access to and reuse of digital cultural heritage, virtual museums and social platforms on European digital heritage.
- *CEF – Europeana*
  - European Commission's digital platform for cultural heritage.
  - access to European culture for the widest possible variety of purpose, by citizens and the Cultural and Creative Industries (CCIs)

# EU fUNDING: from 2021

- *Horizon Europe*
- *provisional agreement by EU Institutions  
20/03/2019*
- *Endorsed by the European Parliament 17/04/2019*
- *Increased emphasis on human-machine interaction  
under the Next Generation Internet initiative*
- [https://ec.europa.eu/info/designing-next-research-and-innovation-framework-programme/what-shapes-next-framework-programme\\_en](https://ec.europa.eu/info/designing-next-research-and-innovation-framework-programme/what-shapes-next-framework-programme_en)

# Next Generation Internet

**Artificial Intelligence**

**Interactive Technologies**

**Internet of Things**

**Multilingual**

**Global Social Sphere**

**Inclusive**

**NGI - Open Internet Initiative**

5G

Cloud

HPC

Big  
Data

Cyber  
Security



# Next Generation Internet (NGI) Human Centric

*The vision for the future Internet*

- ✓ *backbone of a hyper-connected society*
- ✓ *more human-centric*
- ✓ *internet for the people, that contributes to a more **sustainable and inclusive** society*
- ✓ *transform the ways in which people **communicate, interact and share** information online and beyond.*

# Supporting the take up of interactive technologies

*Such as:*

- *virtual and augmented reality*
- *conversational systems*
- *wearable technologies*
- *haptic technologies*
- *Human Machine Interaction*
- *etc.*

*to allow users to access, process and deliver information in more natural, efficient and less intrusive ways, providing enhanced and personalized experiences.*



# H2020 - ICT-25-2018-2020

## Interactive Technologies

- a) support a pan-European coordination effort to strengthen the collaboration among the constituency (**CSA**)
  
- b) increase the European innovation capacity by exploiting multi-users interactions and offering higher quality experiences (**RIA**)



# XR4ALL

## Coordination and Support Action



- 1** Establish a pan-European XR community and XR Forum to coordinate all actors, foster collaboration and knowledge exchange
- 2** Build a platform to gather and share knowledge, algorithms and tools
- 3** Open call with financial support (€ 50k) for innovative SMEs and research teams to develop new XR tools as well as to integrate them in the platform
- 4** Elaborate a common research agenda
- 5** Increase technology transfer and investments to support XR technologies to reach markets.
- 6** Define and execute an adequate strategy for dissemination of the XR4ALL

# **Session A3 – 23/05 – 14:20-16:00**

## ***Interactive technologies current state and challenges for the future***

- *Discuss the current state and the future challenges of interactive technologies.*
- *Experts from the scientific community, XR industry, XR technology developers, applicants and end users*
- *Keynotes*
- *Roundtable*

***YOU ARE WELCOME !***

# ICT-25-2018-2020

## Interactive Technologies (RIAs)

- *6 projects to be funded – Grants under preparation*
- *Fields:*
  - augmented **learning** content
  - digital twins solution for **industry 4.0 and construction 4.0**
  - **virtual** digital **characters**
  - intelligent **verification and validation** technology for Extended Reality
  - **tactile** information into the novel interaction systems
  - **collaborative** VR **rehabilitation** environment

# ICT-55-2020 – Objectives

(opens 09/07 – closes 14/11/2019 )

- *develop authoring tools for automated interactive content creation that can be used also by non-expert users on various platforms and environments*

*The authoring tools are expected to:*

- *rely on less manual input enabling quicker content creation*
  - *manage large quantities of data*
  - *allow higher fidelity*
  - *allow improved immersion, engaging all senses*
- *or develop solutions in key sectors such as in manufacturing, automotive, healthcare or cultural and creative industries or in sectors where the use of such technology is not mainstream.*

# Importance of virtual and augmented reality

*Growing market from 4b\$ in 2015 to 150b\$ by 2020*

*The large potential of VR & AR*

*Developing extremely fast*

*Attracting  
interest and  
attention in all  
domains*

*Challenges due to personalisation & deep immersiveness*



---

## Contact information:

Anne BAJART  
Interactive Technologies, Digital for  
Culture and Education  
DG CNECT  
European Commission

✉ [anne.bajart@ec.europa.eu](mailto:anne.bajart@ec.europa.eu)  
