

Broadcast and Multicast Communication Enablers for the Fifth-Generation of Wireless Systems



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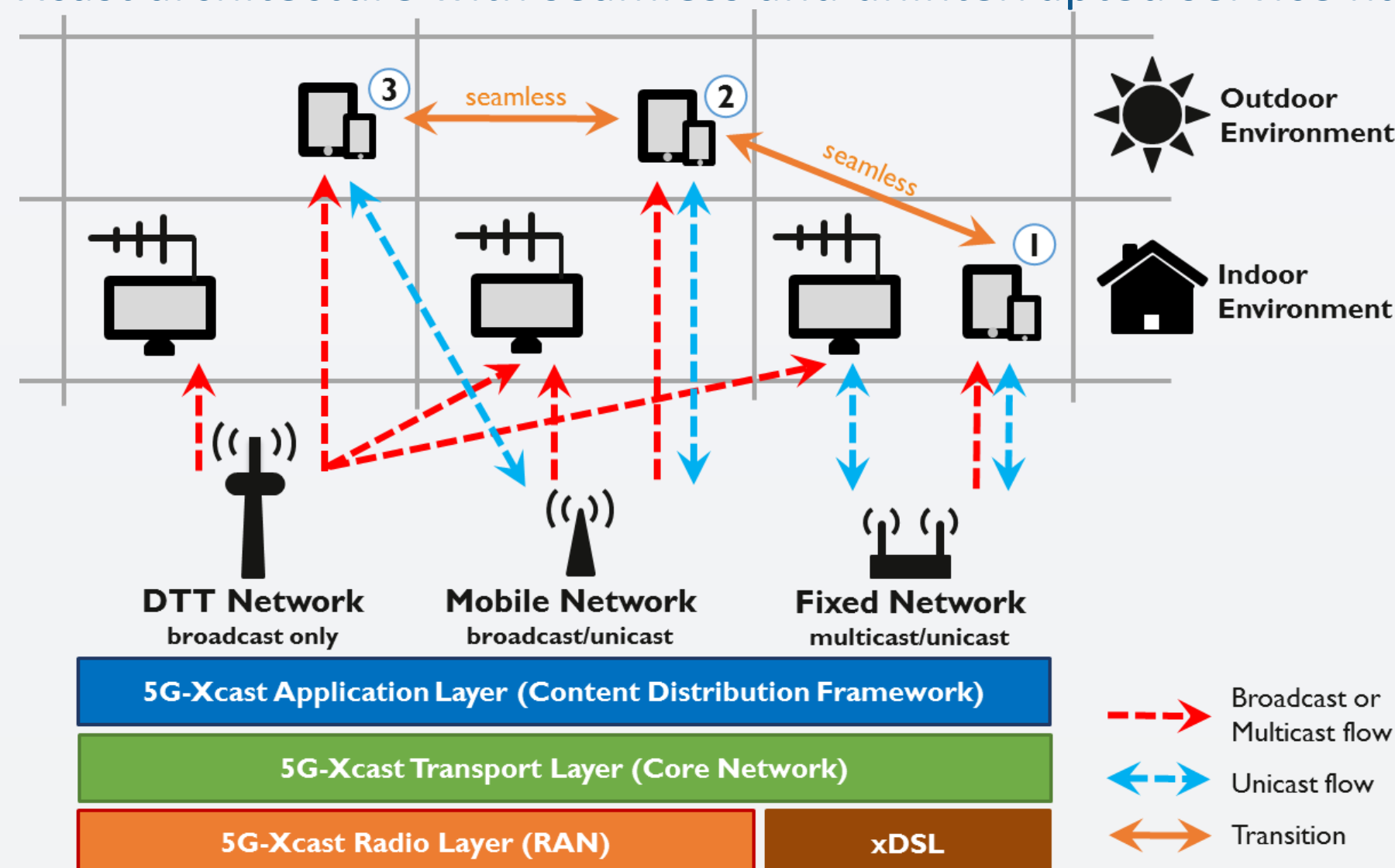
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OBJECTIVES

- To develop **5G broadcast and multicast point-to-multipoint capabilities** for:
 - Media and Entertainment (M&E)
 - Internet of Things (IoT)
 - Automotive
 - Public Warning Systems (PWS)
- To design a **dynamically adaptable 5G network architecture** enabling seamlessly switching between unicast, multicast and broadcast and exploiting built-in caching capabilities.
- To experimentally demonstrate 5G key innovations for **M&E and PWS verticals**.

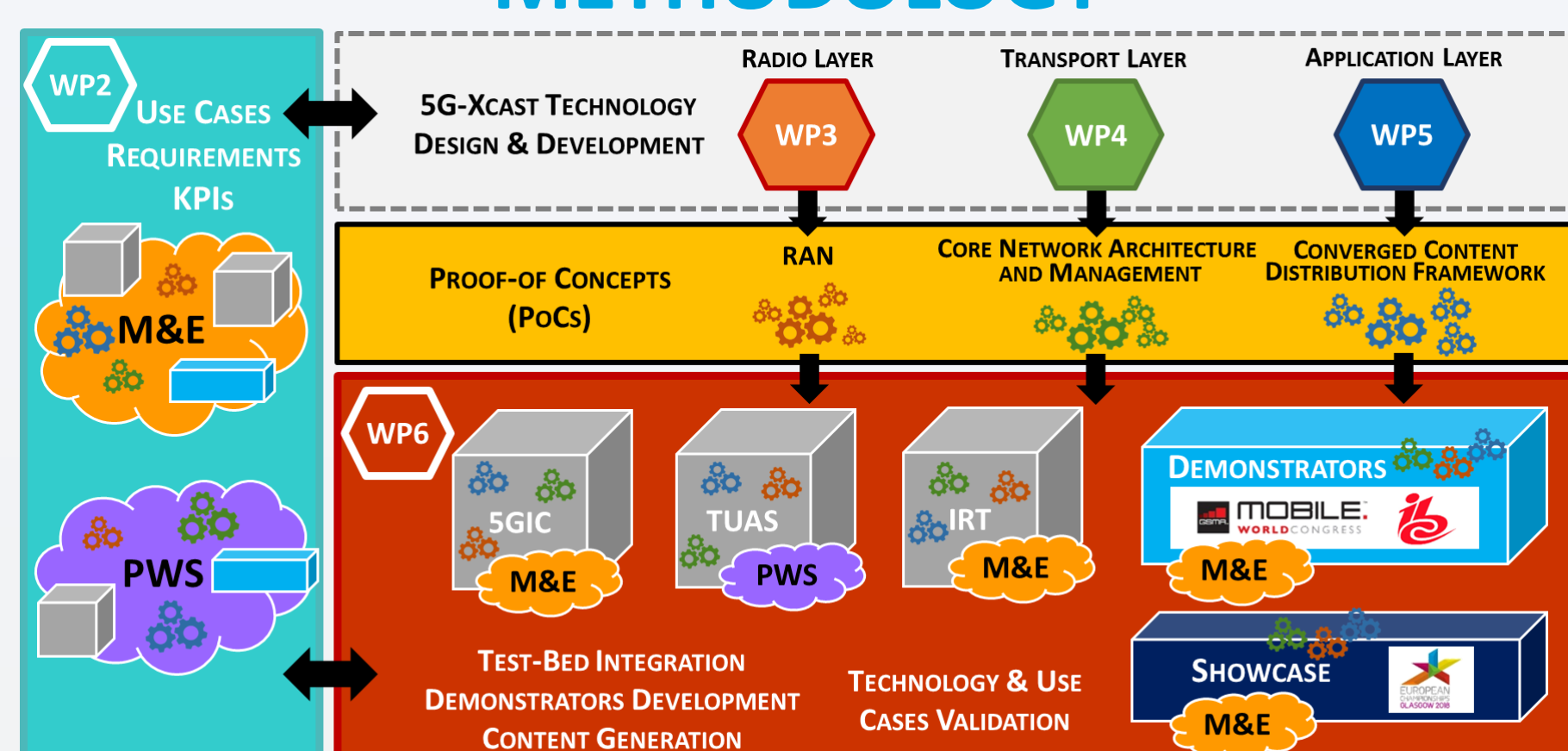
CONCEPT

- ❖ **Multicast/broadcast and caching** implemented in a **flexible and dynamic** way to enable cost-efficient and scalable delivery of media content and services.
- ❖ Flexible technology to distribute content over **fixed/mobile/broadcast networks**.
- ❖ 5G represents an **unprecedented opportunity for the convergence** of mobile broadband and broadcast networks.
 - ✓ Users moving between three different environments and networks.
 - ✓ 5G-Xcast architecture with seamless and uninterrupted service hand-over.



- ❖ Demonstrating Future 5G Use Cases within 5G-Xcast:
 - **Hybrid Broadcast Service:** combination of linear and non-linear programming plus social media.
 - **Object-based Broadcast Service:** programme stored as set of component parts (audio, video, subtitles, caption, metadata, ...)
 - **Public Warning Messages** with rich multimedia content delivery tailored to the user reception situation.

METHODOLOGY



- ❖ **3 test-beds:** 5GIC (Surrey, UK), IRT (Munich, Germany) and TUAS (Turku, Finland)
- ❖ **Demonstrations:** European Championships 2018, IBC 2018, MWC 2019
- ❖ **Proof-of-Concepts** for each 5G-Xcast layer: radio, transport and application.

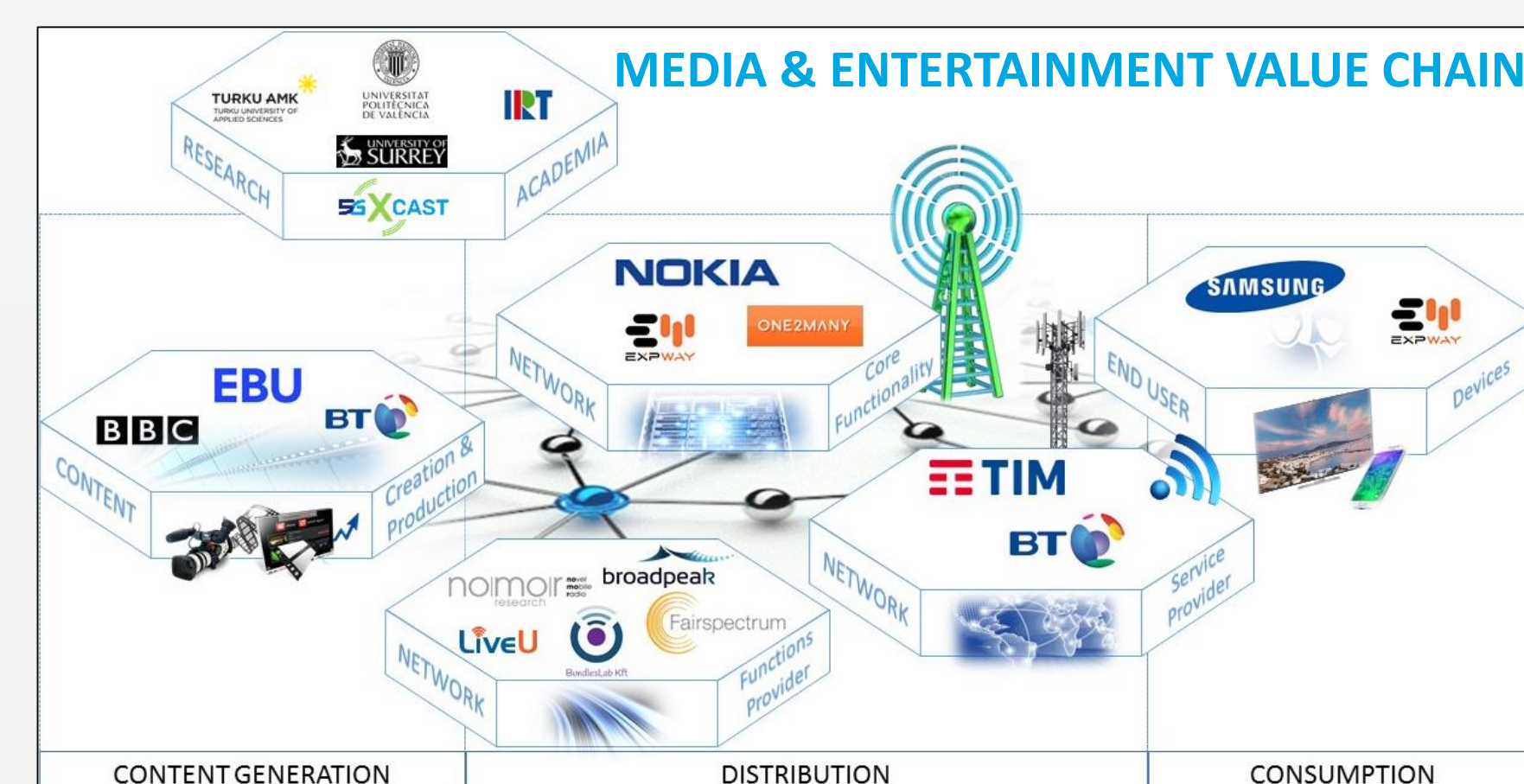
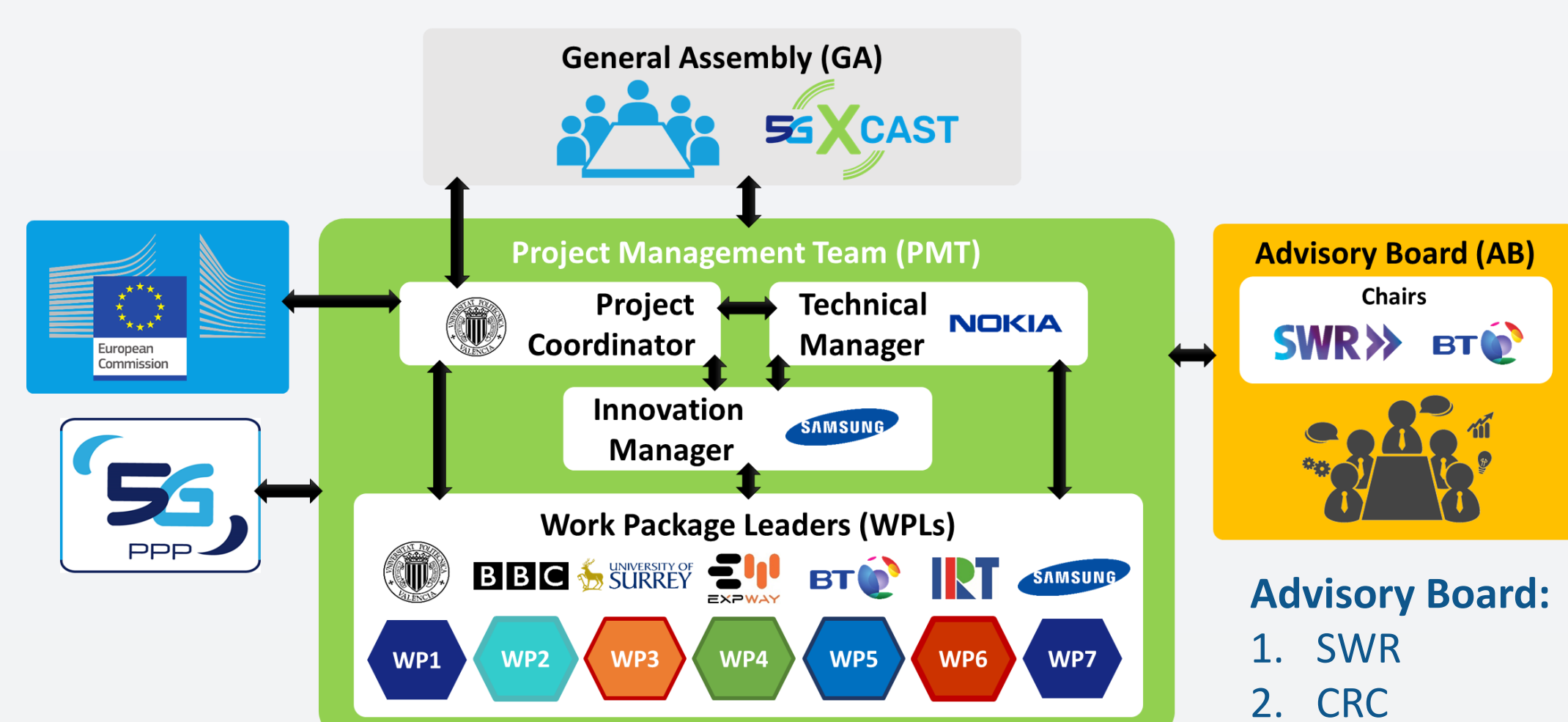
EXPECTED IMPACT

- **Efficient, scalable and sustainable solution for a large-scale distribution of media services**
 - ✓ Fully consistent with the core 5G specifications
 - ✓ Contributing to the definition of 5G and its standardisation in 3GPP.
- **Facilitate seamless integration of fixed/mobile/broadcast networks into a unified heterogeneous and flexible 5G infrastructure.**
- **New sustainable business models, applications and services, and a graceful migration of M&E services from the legacy networks to 5G.**
- 5G-Xcast will meet the **future requirements of the European content creation sector** and their audiences.
- **5G-Xcast will bring the M&E vertical into 5G-PPP**
 - ✓ Bringing together for the first time major and small and medium size players from mobile/fixed/broadcast industries.
 - ✓ Strong presence of SMEs, with **8 SMEs** (44.5% of the budget).

CONSORTIUM AND STRUCTURE

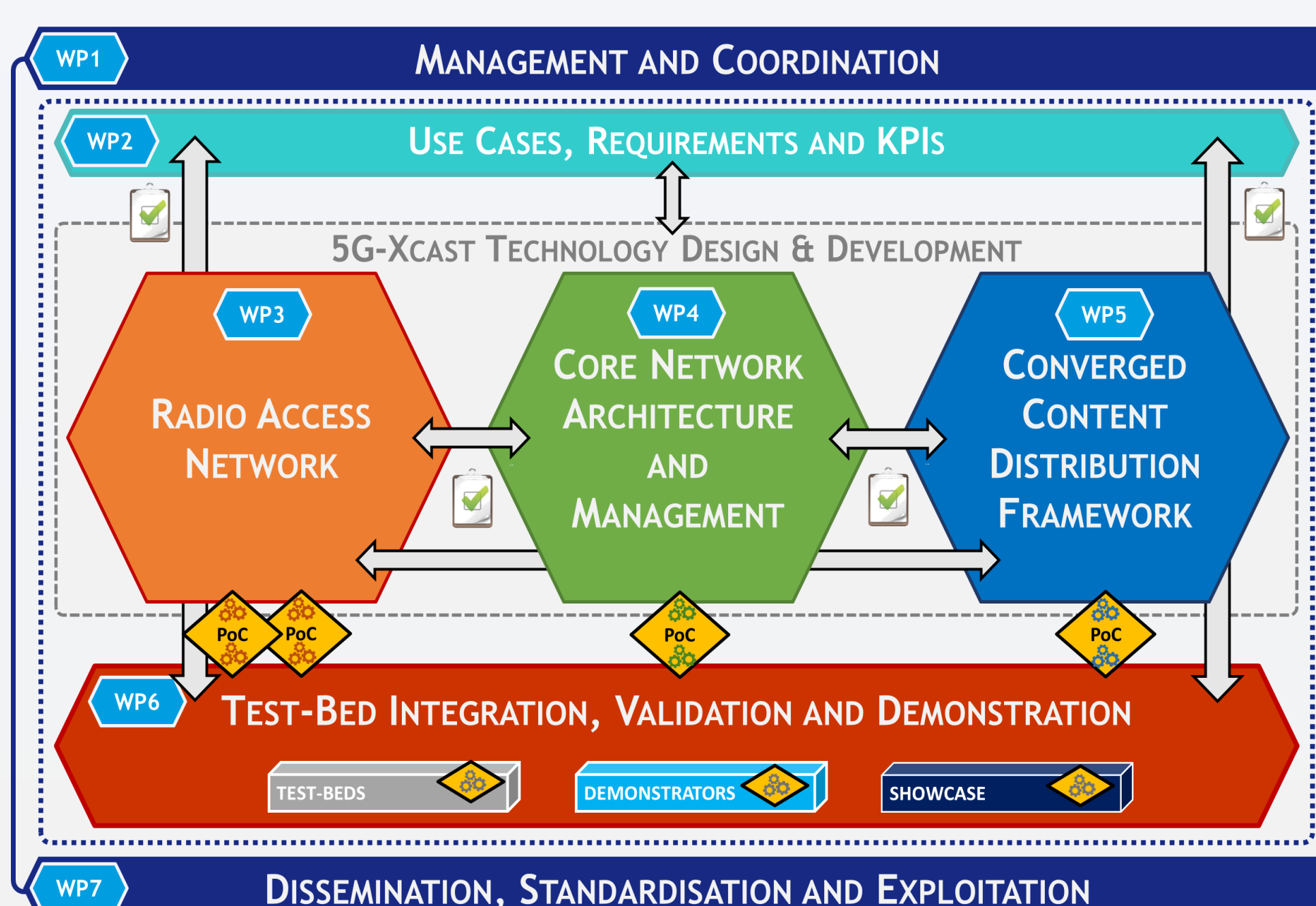


- Universitat Politècnica de València (UPV)
- Nokia Finland
- Nokia Germany
- British Broadcasting Corporation (BBC)
- British Telecommunications (BT)
- Broadpeak
- BundlesLab
- Expway
- Fairspectrum OY
- Institut für Rundfunktechnik (IRT)
- LiveU
- Nomor Research
- One2Many
- Samsung Electronics UK
- Telecom Italia (TIM)
- Turku University of Applied Sciences (TUAS)
- Union Européenne de Radio TV (EBU)
- University of Surrey 5GIC



- Advisory Board:**
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 - CRC
 - Dutch Ministry of Security and Justice
 - Ericsson
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 - FICORA
 - NERC-DTV
 - NHK
 - Qualcomm
 - TDF
 - Teracom
 - Thales Alenia Space
 - TUBS
 - WISSEA

IMPLEMENTATION



- WP Leaders:**
- WP1 - UPV
 - WP2 - BBC
 - WP3 - 5GIC
 - WP4 - Expway
 - WP5 - BT
 - WP6 - IRT
 - WP7 - Samsung

PROJECT INFORMATION

- **Duration:** 24 months
- **Planned starting date:** June 2017
- **Budget:** ~8 M€
- **Call:** H2020 ICT-07-2017: 5G-PPP Research and Validation critical technologies and systems
- **Website:** www.5gxcast.eu
- **Contact:** 5gxcast-contact@iteam.upv.es

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