

# Internet of Radio Light in Buildings

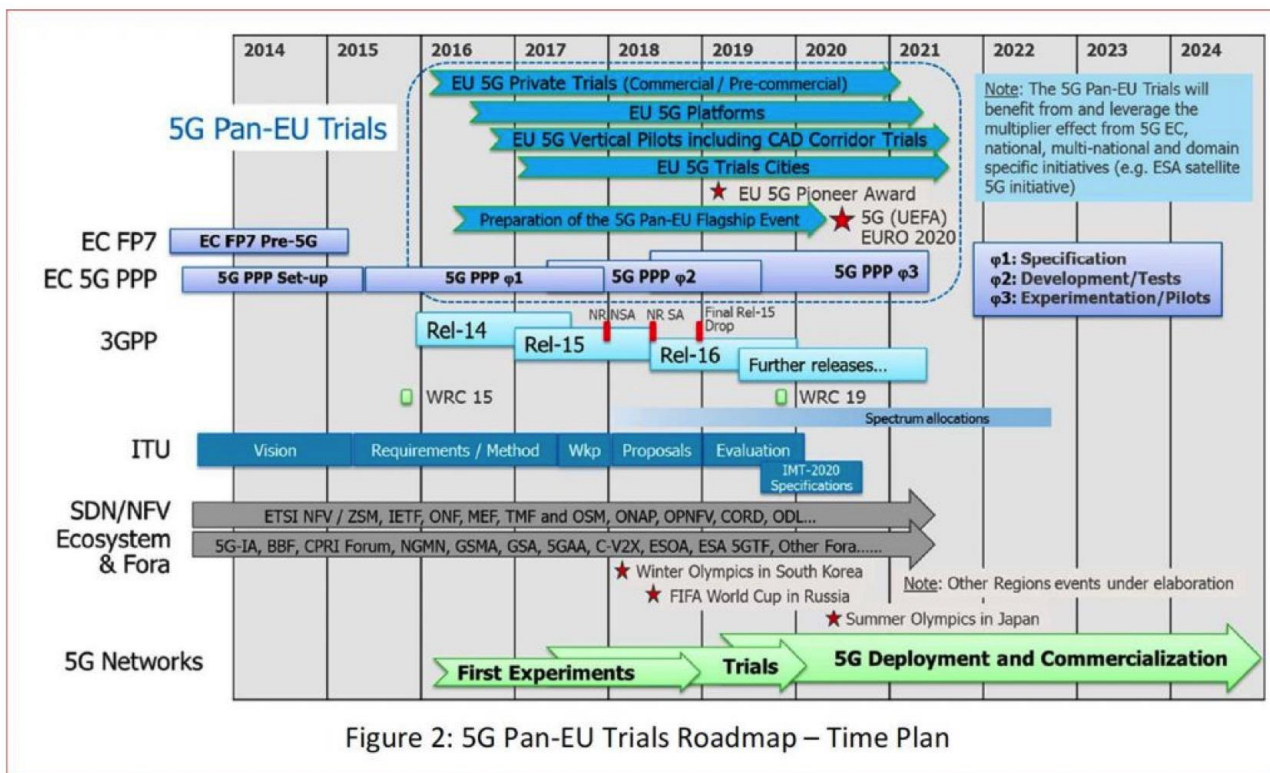
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- **Background and motivation**
- **Overview of IoRL architecture**
- **Applications**

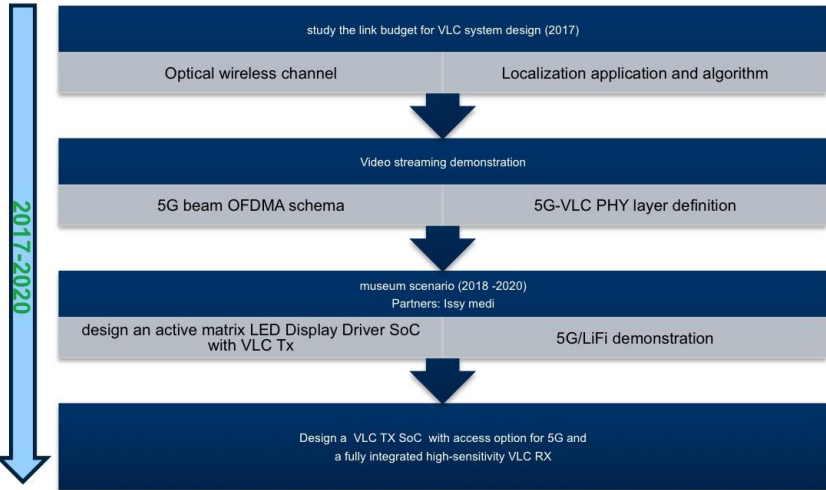
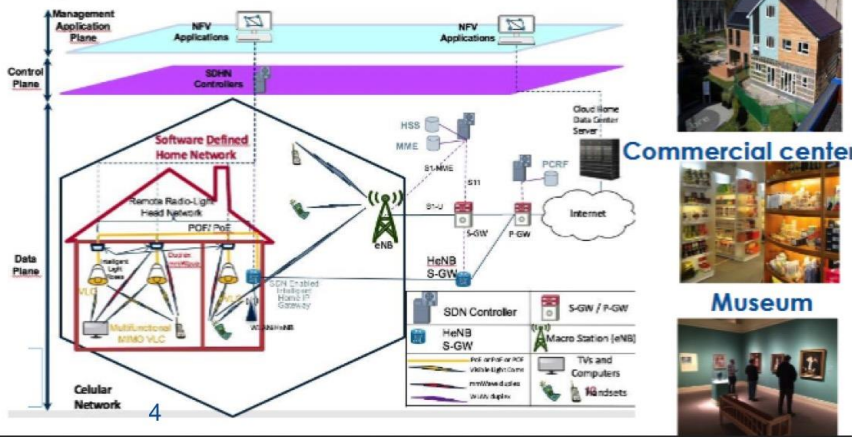
# European Horizon 2020 5G 2-Phase projet



@ 5G Trials Roadmap version 3.0: <https://5g-ppp.eu/newsflash-may-2018/>

# European H2020 project: IoRL Internet of Radio-Light in Buildings

- A joint project: with 9 Countries in the world
- Future network based on visible light and micrometer waves
- Widely use in public and private spaces
- High data rate:  $\geq 10$  Gbits/second



Call: H2020-ICT-2016-2

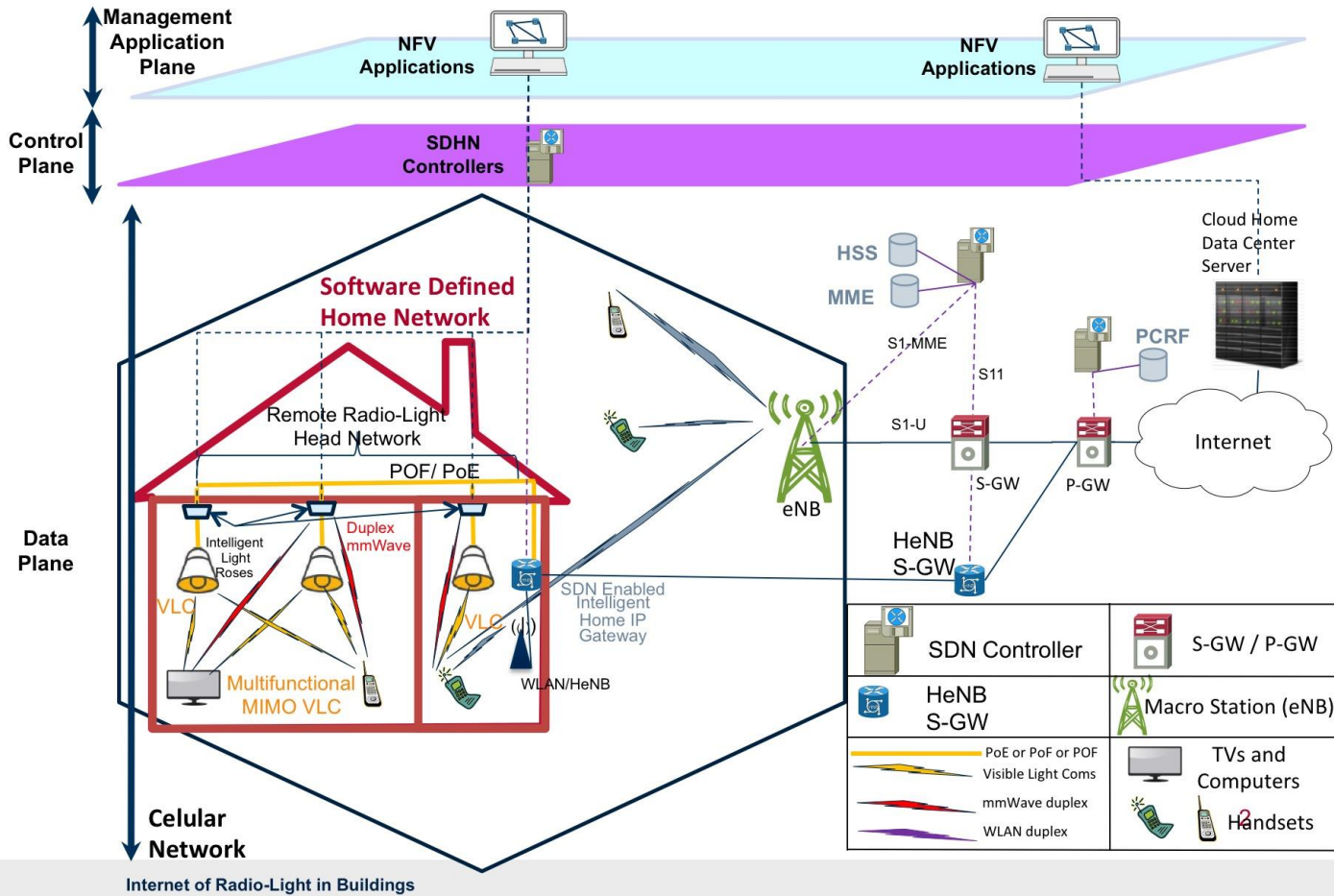
Type of Action: RIA

Topic: ICT-07-2017: 5G PPP Research and Validation of critical technologies and systems

# Partners

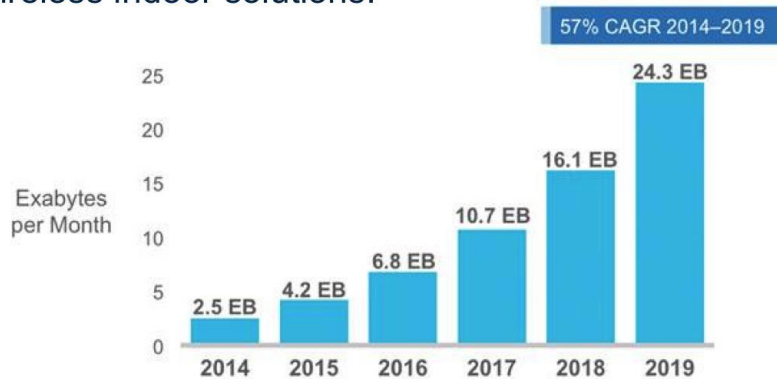


# Software Defined Home Network Architecture

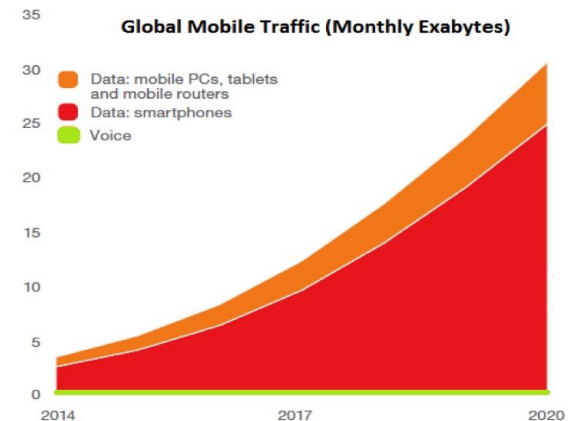


# Growth in In-door Mobile Data Traffic

- CISCO forecasts a compound annual growth rate (CAGR) of 57% for mobile data traffic with forecasts of 24.3 Exabytes mobile data traffic by 2019;
- 80% of this growth is generated indoors, which is growing 20% faster each year than outdoor wireless traffic;
- Increasing capacity demand for data traffic from Smartphones, mobile PCs and Tablets with voice traffic occupying only a fraction of the total capacity;
- Fewer than 2% of commercial and public buildings are currently covered by dedicated wireless indoor solutions.



Source: Cisco VNI Mobile, 2015



# Applications

Homes (UK)



Public Spaces Shopping Malls (CHINA)



Public Spaces Museums (FR)



Public Spaces – Transport Hub (ES)





# Home and Museum Verticals



## Building Research Establishment Home

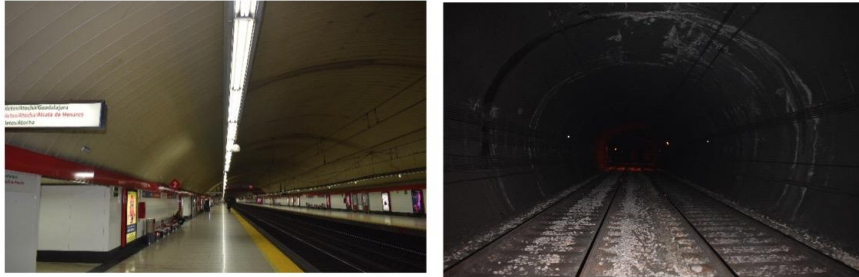
- Internet of Radio-Light Office
- AV Streaming to UHDTV
- 360° AV Streaming to VR Headsets
- < 10cm Location accuracy of UE
- Intra Building and Inter gNB Handover
- Home Video Security Monitoring
- DoS and Rogue Tx Network Security



## Musée de la Carte à Jouer

- < 10cm Location accuracy of UE
- Location Based Data Access Applications
- Monitoring of UE Locations Applications
- Guiding of UE Applications
- Interaction with Internal/External Database Applications
- 360° AV Streaming to VR Headsets
- Museum Video Security Monitoring
- DoS and Rogue Tx Network Security Monitoring

# Train Station and Supermarket Verticals



## Nuevos Ministerios Station Platform & Tunnel

- Monitoring of UE Locations Applications
- Location Based Data Access Applications
- AV Streaming to UHDTV
- Video Conferencing
- DoS and Rogue Tx Network Security Monitoring
- Eavesdropping Network Security Monitoring



## Chinese Supermarket

- Interaction with Internal/External Database Apps
- Location Based Data Access Applications
- Monitoring of UE Locations Applications
- Guiding of UE Applications
- AV Streaming to UHDTV
- Video Security Monitoring
- Video Conferencing
- DoS and Rogue Tx Network Security Monitoring
- Eavesdropping Network Security Monitoring

# Thank you for your attention

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