

# Together, Embracing the 'Age of Light'

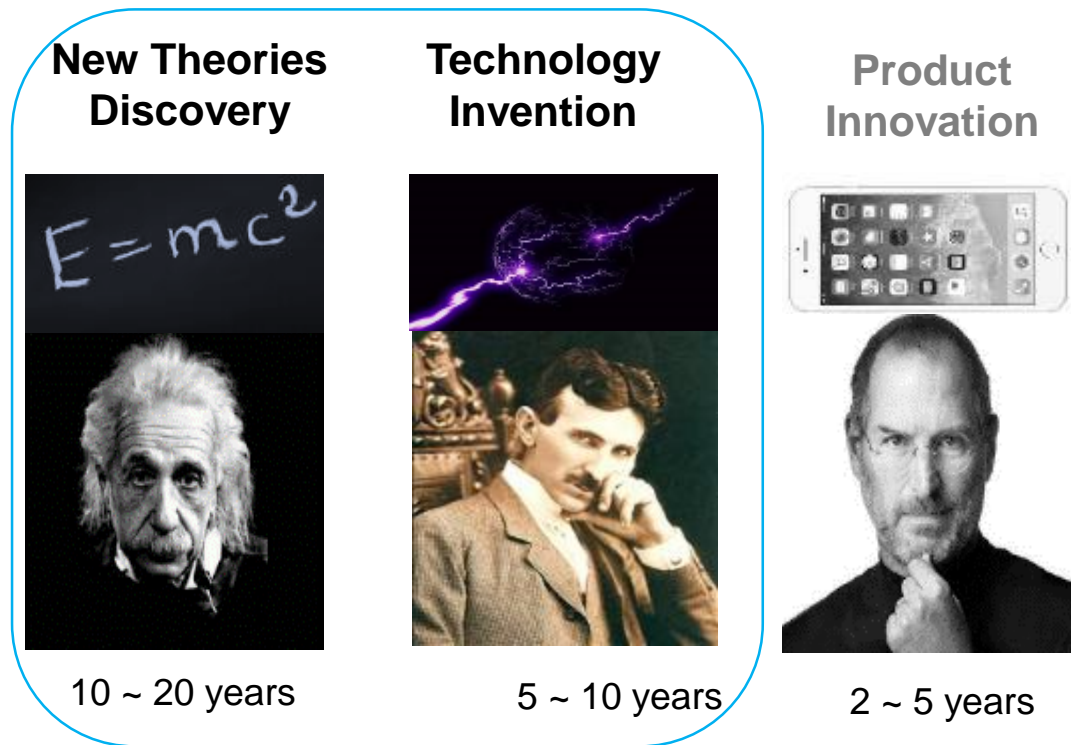
Dr. Marcus Brunner (Huawei), [marcus.brunner@huawei.com](mailto:marcus.brunner@huawei.com)

EPIC Quantum Technology Meeting on New Opportunities Now for the Quantum Photonics Supply Chain

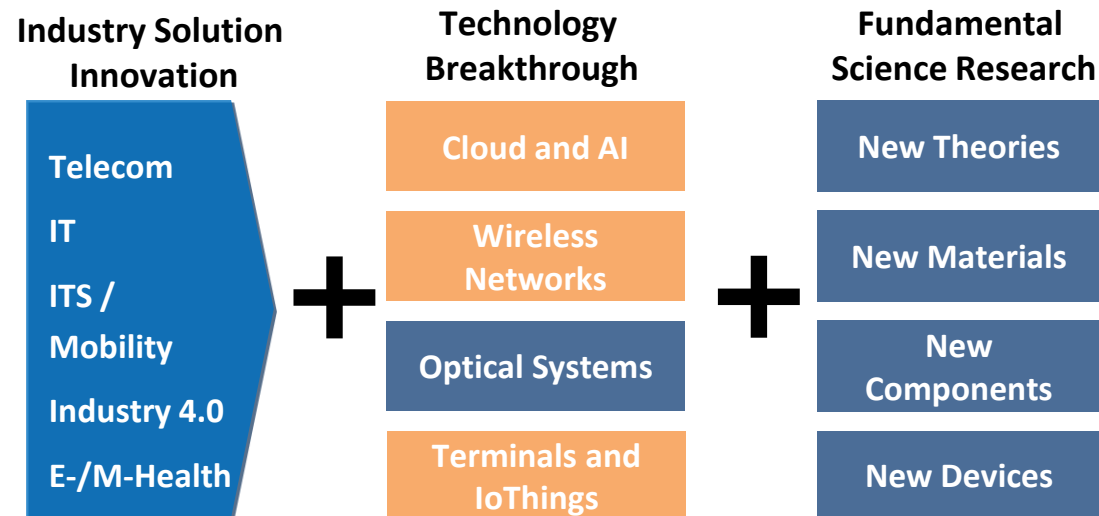
23/04/2021, online

# Huawei Research: Advancing The Limits

## Cradle of breakthroughs that impact everyone



### Focus Huawei Research



# Age of Light is Now!

- Instant diagnosis of major diseases
- Quality food from farm to fork
- Accident and congestion-free road transport
- A truly circular economy
- A million new jobs
- 10% higher productivity
- Zero downtime in a terabit economy
- Photonics as a flagship science for innovation

Figure 23: Emerging scenarios drive the global fixed network optical communications market size

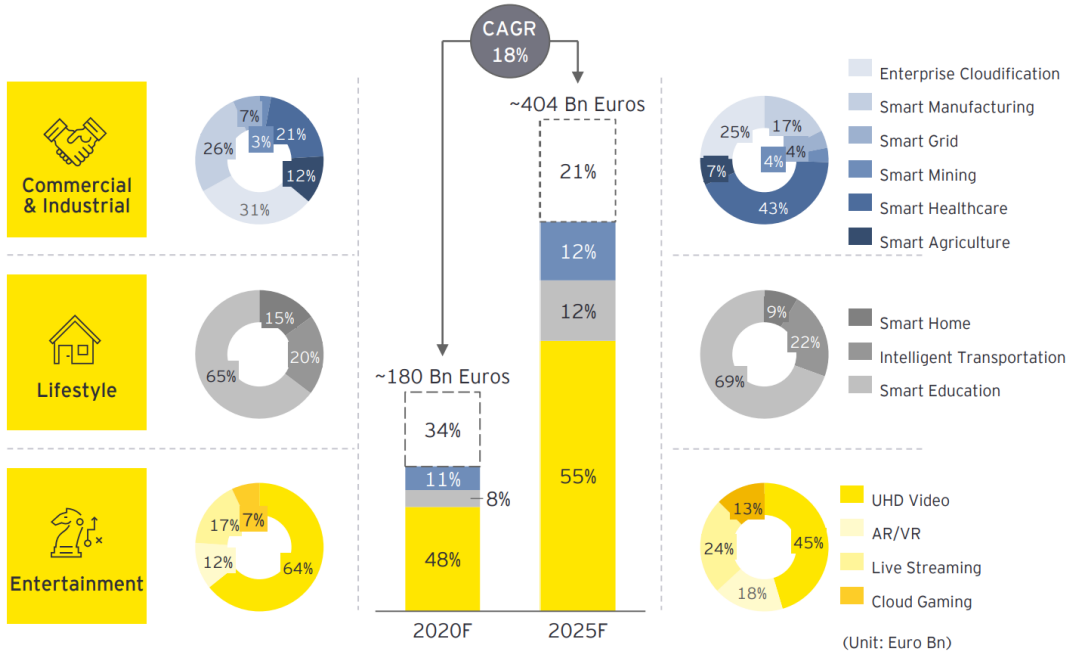
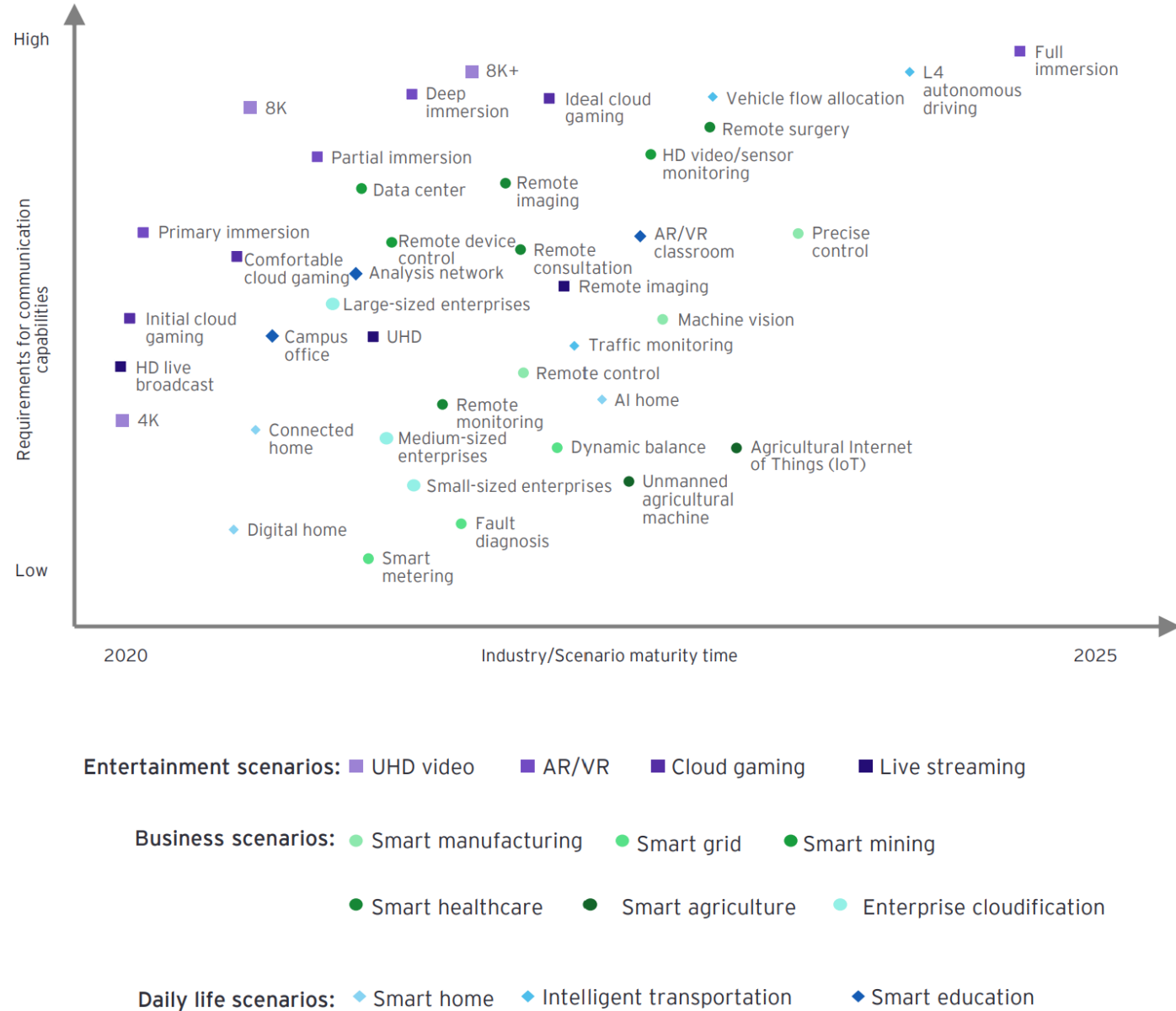


Figure 5: Recognition results of critical optical communications application scenarios

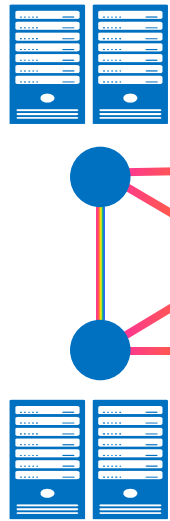


Source: EY Analysis

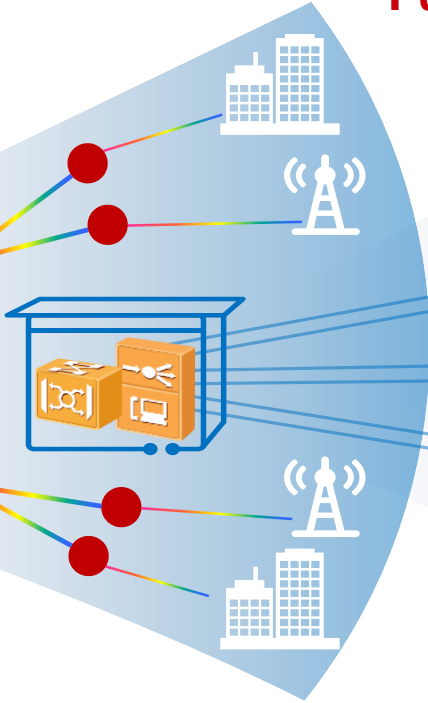
Source: EY Analysis

# F5G Vision of Optical Communication: Build Ubiquitous Full Fibre Connectivity

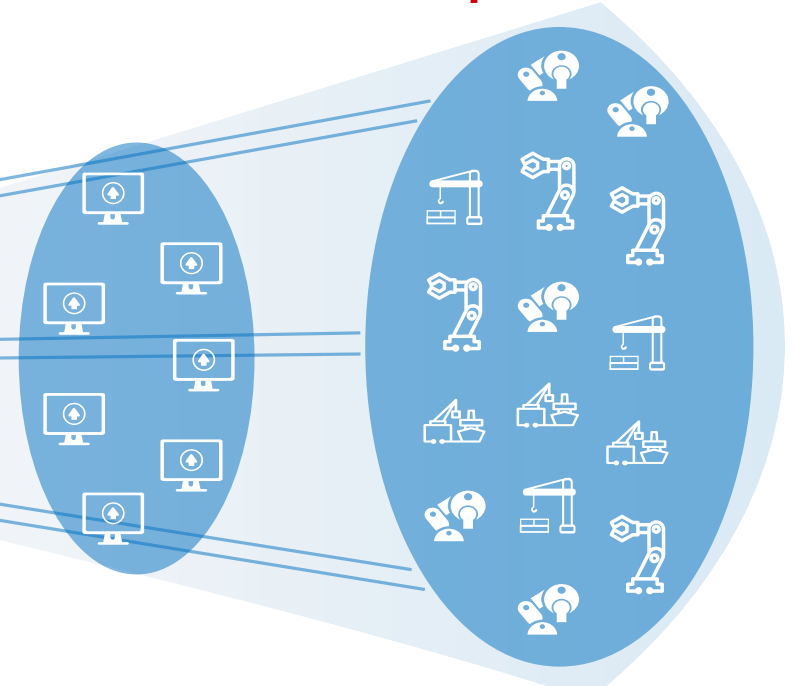
## Full-fibre DC



## Full-fibre Home



## Full-fibre Campus



OTN to CO  
→ to Site

Fibre to Home  
→ to FTTRoom

Fibre to Enterprise  
→ to FTTDesk

Fibre to Factory  
→ to FTTFMachine

1000km





10km

1km

100m

10m

# Optical Network Evolution Driven by Applications and QoE

	<b>F4G</b>	<b>F5G</b>		<b>B-F5G</b>
<b>Vision&amp; Customers</b>	Fiber to Home	Fiber to the Everything Everywhere (Room/Bussiness/Cell site/ Machine...)		Optic to everything
<b>Key Characters</b>	FBB	eFBB, GRE, FFC		+ Full Optical + sensing + Quantum Communication
<b>Typical Applications</b>	4K Video Online gaming VOBB	Cloud VR Video / Gaming POL Wireless X-Haul	3D Shopping Industry/Mobility/Transport	Holograph Brain-computer I/F Remote Surgery
				
<b>Peak Rate</b>	1Gbps	10Gbps	N*10Gbps	N*50Gbps~1Tbps
<b>Experienced Rate</b>	100Mbps	1Gbps	N*1Gbps	N*10Gbps
<b>Latency/jitter</b>	5ms/5ms	1ms/100us	100us/10us	<10us/1us
<b>Reliability</b>	99.9%	99.99%	99.999%	99.9999%
<b>Connection density</b>	1X	10X	100X	1000X
	<b>2010~</b>	<b>2020~</b>		<b>Beyond 2025~</b>

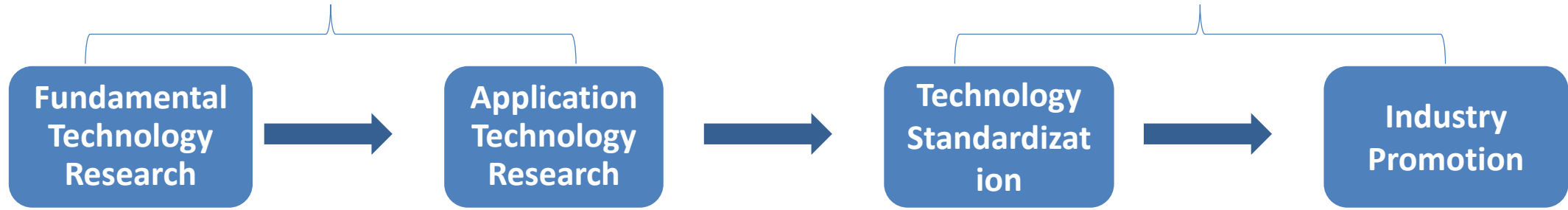
- eFBB(enhancedFBB)
- GRE(Guaranted Reliable Experience)
- FFC(Fully Fiber Connected)



# Move-forward: Cooperation Around the Ecosystem for Industry

## Next Gen Technology Research

## F5G Standardization and Commercialization



**Academies**

**Research Institutes**

**EU Frame Program**

Photonics Europe  
PPP

SNS JU

NETworld 2020 5G IA

**Optical SDOs**

broadband forum

**Industry Platforms**

Look for Deep cooperation based on areas of interest (optical and quantum communication)

ETSI ISG F5G to streamline the standard and specification for industry

Thank you!

**Together,** we make it happen.

