

Virtual Reality Game Streaming

Description
Telecoms 5G offers a new generation of computer games with 180-degree viewing angles, ultra-low latency and high frame rates. 5G offers a new generation of computer games with 180-degree viewing angles, ultra-low latency and high frame rates. 5G offers a new generation of computer games with 180-degree viewing angles, ultra-low latency and high frame rates.

Target Industry
Gaming

Use Case Maturity
Use case in prototype and proof of concept stage

Expected Minimum Connectivity Requirement at Start
100Mbps

Technical 5G Readiness Criteria
100Mbps

Commercial Readiness Criteria
100Mbps

Reason for Value Chain Positioning
5G offers a new generation of computer games with 180-degree viewing angles, ultra-low latency and high frame rates. 5G offers a new generation of computer games with 180-degree viewing angles, ultra-low latency and high frame rates.

Remote Boxing

Description
Remote boxing is a new sport that allows users to box from anywhere in the world. It uses 5G to provide low latency and high bandwidth for real-time video and audio. Remote boxing is a new sport that allows users to box from anywhere in the world. It uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Sports

Use Case Maturity
Use case in prototype and proof of concept stage

Expected Minimum Connectivity Requirement at Start
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Technical 5G Readiness Criteria
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Reason for Value Chain Positioning
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Real-time Hazard Prevention // Crowd Management

Description
Real-time hazard prevention and crowd management uses 5G to provide low latency and high bandwidth for real-time video and audio. Real-time hazard prevention and crowd management uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Security

Use Case Maturity
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Expected Minimum Connectivity Requirement at Start
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Augmented Reality for In-Car Advertisement

Description
Augmented reality for in-car advertisement uses 5G to provide low latency and high bandwidth for real-time video and audio. Augmented reality for in-car advertisement uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Automotive

Use Case Maturity
Use case in prototype and proof of concept stage

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EMBB Enhanced Mobile Broadband

Augmented Reality Training for Hazardous Applications

Description
Augmented reality training for hazardous applications uses 5G to provide low latency and high bandwidth for real-time video and audio. Augmented reality training for hazardous applications uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Military

Use Case Maturity
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Aircraft Ground Time Diagnostics

Description
Aircraft ground time diagnostics uses 5G to provide low latency and high bandwidth for real-time video and audio. Aircraft ground time diagnostics uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Aviation

Use Case Maturity
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Connected Ambulance

Description
Connected ambulance uses 5G to provide low latency and high bandwidth for real-time video and audio. Connected ambulance uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Healthcare

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Holographic Key Notes

Description
Holographic key notes uses 5G to provide low latency and high bandwidth for real-time video and audio. Holographic key notes uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Education

Use Case Maturity
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Real Event Streaming

Description
Real event streaming uses 5G to provide low latency and high bandwidth for real-time video and audio. Real event streaming uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Media

Use Case Maturity
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URLLC Ultra Reliable Low Latency Communication

Smart Helmets

Description
Smart helmets use 5G to provide low latency and high bandwidth for real-time video and audio. Smart helmets use 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Defense

Use Case Maturity
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Platooning

Description
Platooning uses 5G to provide low latency and high bandwidth for real-time video and audio. Platooning uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Transportation

Use Case Maturity
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Remote Surgery within Rural Areas

Description
Remote surgery within rural areas uses 5G to provide low latency and high bandwidth for real-time video and audio. Remote surgery within rural areas uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Healthcare

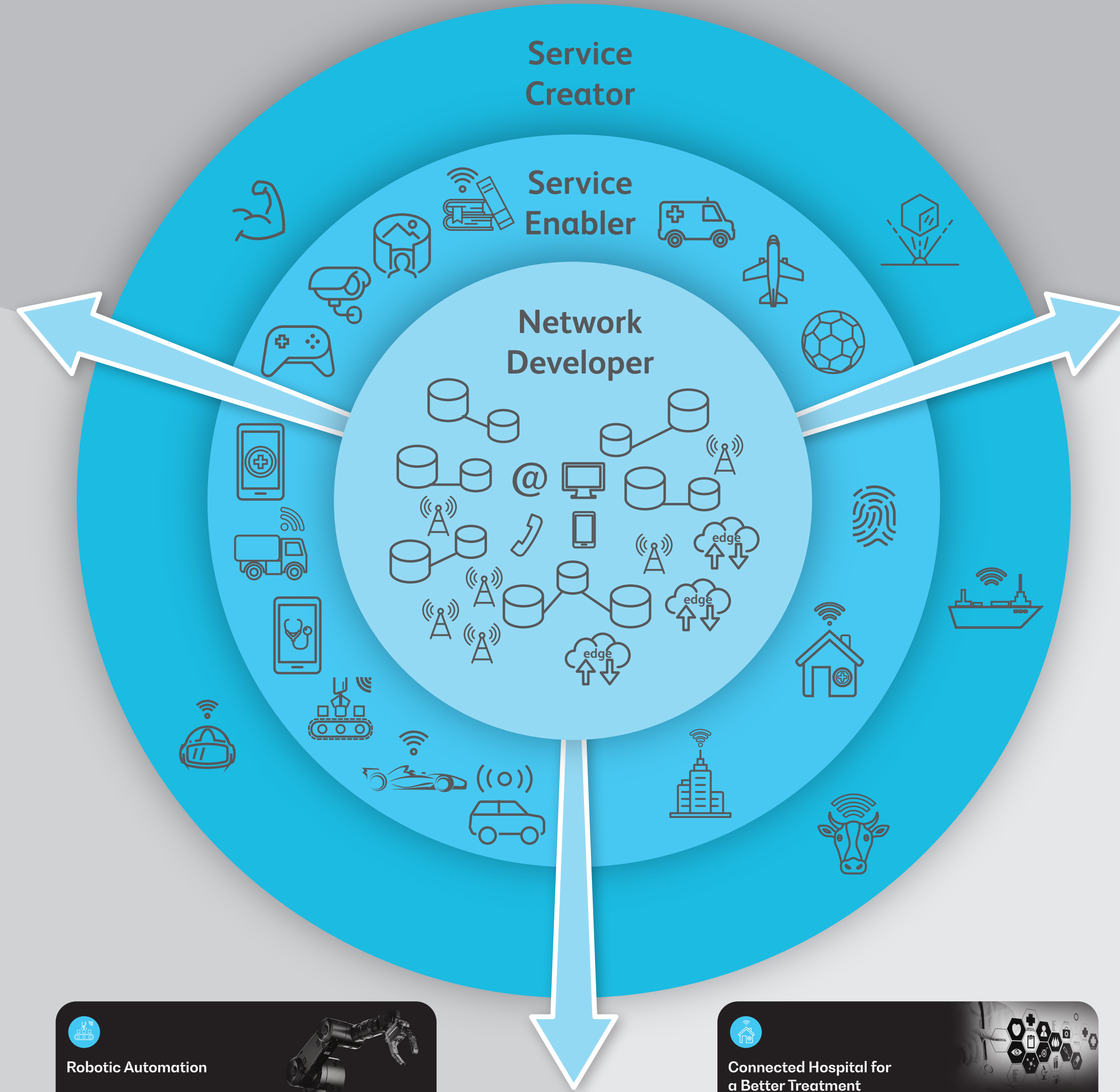
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MMTC Massive Machine Type Communication

Harbor Asset Tracking and Scanning

Description
Harbor asset tracking and scanning uses 5G to provide low latency and high bandwidth for real-time video and audio. Harbor asset tracking and scanning uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Logistics

Use Case Maturity
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Wireless Device Authentication

Description
Wireless device authentication uses 5G to provide low latency and high bandwidth for real-time video and audio. Wireless device authentication uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Security

Use Case Maturity
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Connected Building for Maximizing Efficiency

Description
Connected building for maximizing efficiency uses 5G to provide low latency and high bandwidth for real-time video and audio. Connected building for maximizing efficiency uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Real Estate

Use Case Maturity
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Highly Automated Driving

Description
Highly automated driving uses 5G to provide low latency and high bandwidth for real-time video and audio. Highly automated driving uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Automotive

Use Case Maturity
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Real-Time Vehicle Diagnostics in F1

Description
Real-time vehicle diagnostics in F1 uses 5G to provide low latency and high bandwidth for real-time video and audio. Real-time vehicle diagnostics in F1 uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Sports

Use Case Maturity
Use case in prototype and proof of concept stage

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Remote Surgery in Crisis Areas

Description
Remote surgery in crisis areas uses 5G to provide low latency and high bandwidth for real-time video and audio. Remote surgery in crisis areas uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Healthcare

Use Case Maturity
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Robotic Automation

Description
Robotic automation uses 5G to provide low latency and high bandwidth for real-time video and audio. Robotic automation uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Manufacturing

Use Case Maturity
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Connected Hospital for a Better Treatment

Description
Connected hospital for a better treatment uses 5G to provide low latency and high bandwidth for real-time video and audio. Connected hospital for a better treatment uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Healthcare

Use Case Maturity
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Animal Health Tracker in Large-Scale Farming

Description
Animal health tracker in large-scale farming uses 5G to provide low latency and high bandwidth for real-time video and audio. Animal health tracker in large-scale farming uses 5G to provide low latency and high bandwidth for real-time video and audio.

Target Industry
Agriculture

Use Case Maturity
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Definition of Value Creation Levels

Network Developer
Network Developer is characterized by its ability to provide digital platforms, Telcos could, for example, configure industry solutions, so that these value-added, digital functionalities can flow highly automatically into their business processes. As a Service Enabler, Telcos are able to offer value-added services for revenue increase. However, the main part of the value chain remains with third parties.

Service Enabler
Service Enabler delivers connectivity and can additionally recover some of the lost value by providing digital platforms. Telcos could, for example, configure industry solutions, so that these value-added, digital functionalities can flow highly automatically into their business processes. As a Service Enabler, Telcos are able to offer value-added services for revenue increase. However, the main part of the value chain remains with third parties.

Service Creator
Service Creator is characterized by the fact that it extends the offer of telecommunication services by the production of completely new, innovative (digital) services. However, to break completely out of the bit pipe and be more than a Network Developer or Service Enabler, new business models are needed to reach the Service Creator status. As a Service Creator, Telcos are able to generate the main part of the value chain by offering value-added services.

Recommendations

- Diversify**
 - 5G offers a wide variety of services which allow Telcos to delve deeper into value creation and to improve financial Key Performance Indicators
 - The new opportunities enable Telcos to transform their business significantly and to broaden their horizon
- Specialize**
 - Telcos are offered great potential by focusing on certain vertical markets or fields of application to gain a competitive advantage
 - Focusing on the most promising niches increases the efficiency of investments and creates a greater competitive advantage
- Partner up**
 - Partnerships and ventures across communication technologies will play a critical role for vertical industries
 - Sharing 5G deployment across horizontal partnerships will gain time to market and efficiency
- Strengthen up**
 - Telcos are offered great potential by focusing on certain vertical markets or fields of application to gain a competitive advantage
 - Exploit opportunities in proximity to Telcos' core business around networks and build security services
 - Build a robust governance framework around distributed technologies to ensure business continuity
- Be efficient**
 - Commercial impacts of huge 5G investments need to be closely tracked to effectively push innovation and cultural changes
 - Softwareization mainly driven by network function virtualization, network slicing, edge computing and zero touch operations will increase efficiency and flexibility for new services
- Be prepared**
 - 5G business opportunities require specific skill sets and training of resources that need to be addressed at early stages
 - Manage your ecosystem strategically including innovative venture scouting

Selected Sources

- BearingPoint Analysis
- AT Kearney
- Forrester Research
- Gartner
- 3GPP
- GSMA
- IEEE Spectrum
- Statista
- Ericsson
- Nokia
- Samsung
- 5G.co.uk
- IoT World Summit
- NetWorld
- TechRadar
- NVIDIA
- Qualcomm
- GSMA
- IEEE Spectrum
- Statista
- Ericsson
- Nokia
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