

A child wearing a red dress, a grey and orange striped long-sleeved shirt, and yellow rain boots is crouching on a dark, wet surface. The child is using a piece of blue chalk to draw several parallel blue lines on the ground. The background is dark and out of focus. The overall image has a dark, moody aesthetic with a white geometric line pattern overlaying the right side.

# Innovating Future Networks

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# Six global megatrends



## Network, compute & storage

Broadband everywhere, distributed cloud, near infinite storage



## Internet of Things

Connectivity for a trillion things



## Augmented intelligence

Human assistance and task automation at machine scale



## Human & machine interaction

Virtual and augmented reality, reshaping how we interact with machines



## Social & trust economics

Sharing economy and digital currencies making trust and security essential



## Digitalization & ecosystems

Digitalization of operations expanding into consumer and biology

# Rapid urbanization and demographic shifts in Asia Pacific have created enormous pressures on cities

14%

of global GDP growth  
generated by Asia  
Pacific

Asia Pacific population  
forecast to reach

5 billion

by 2050

22

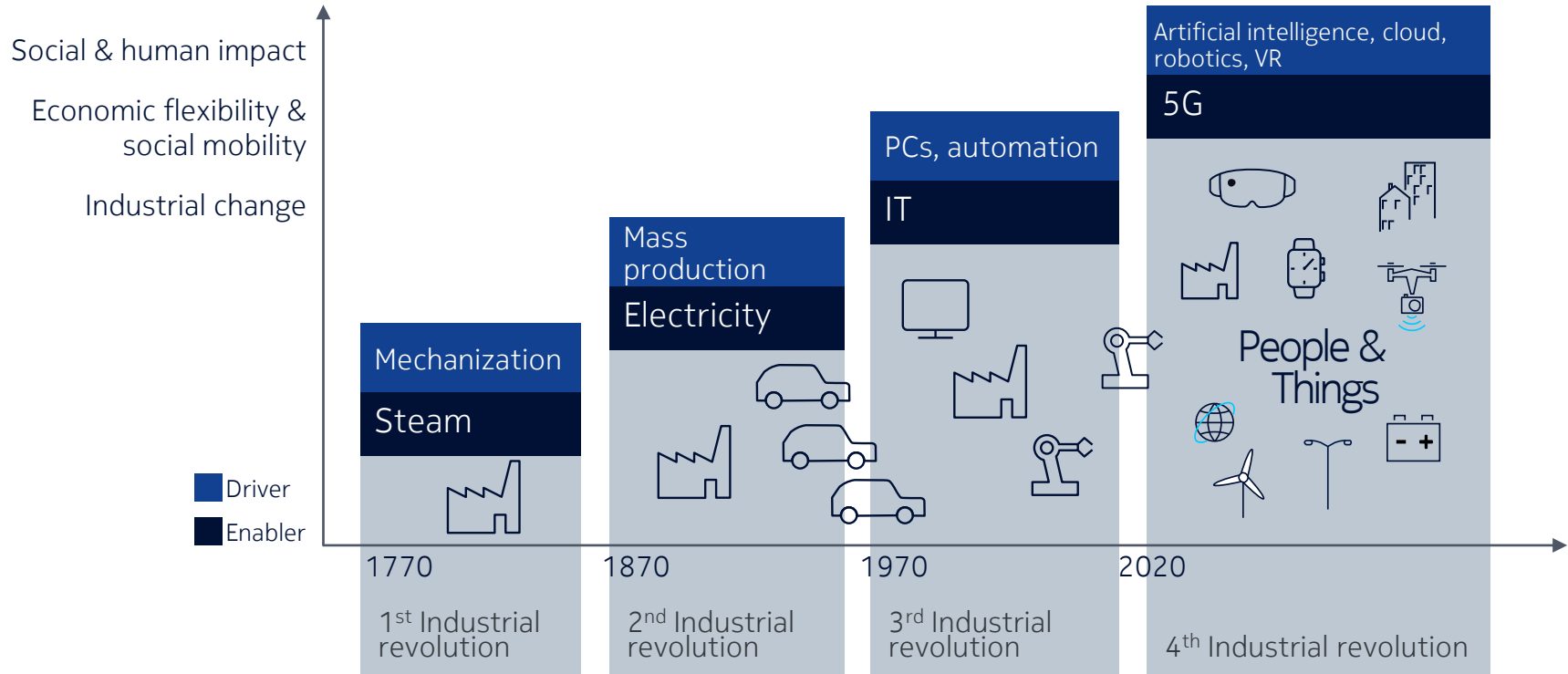
megacities in Asia  
Pacific by 2030

66%

of Asia Pacific  
population will live in  
cities by 2050

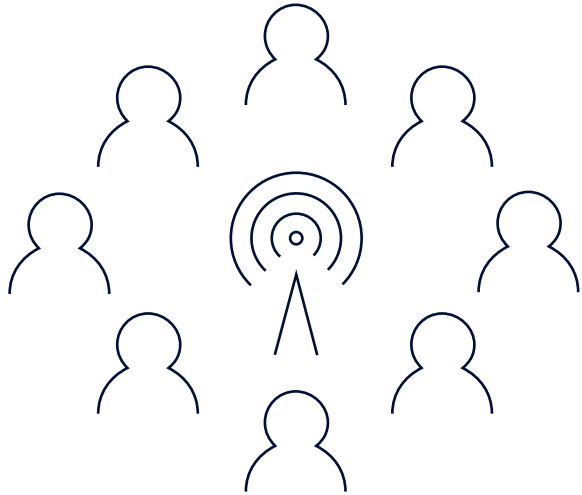


# 4<sup>th</sup> industrial revolution changes the fundamental way we live and work



# The power of networks lies in the hands of end-users

Each of us consumers, enterprises, venues, governments, cities...



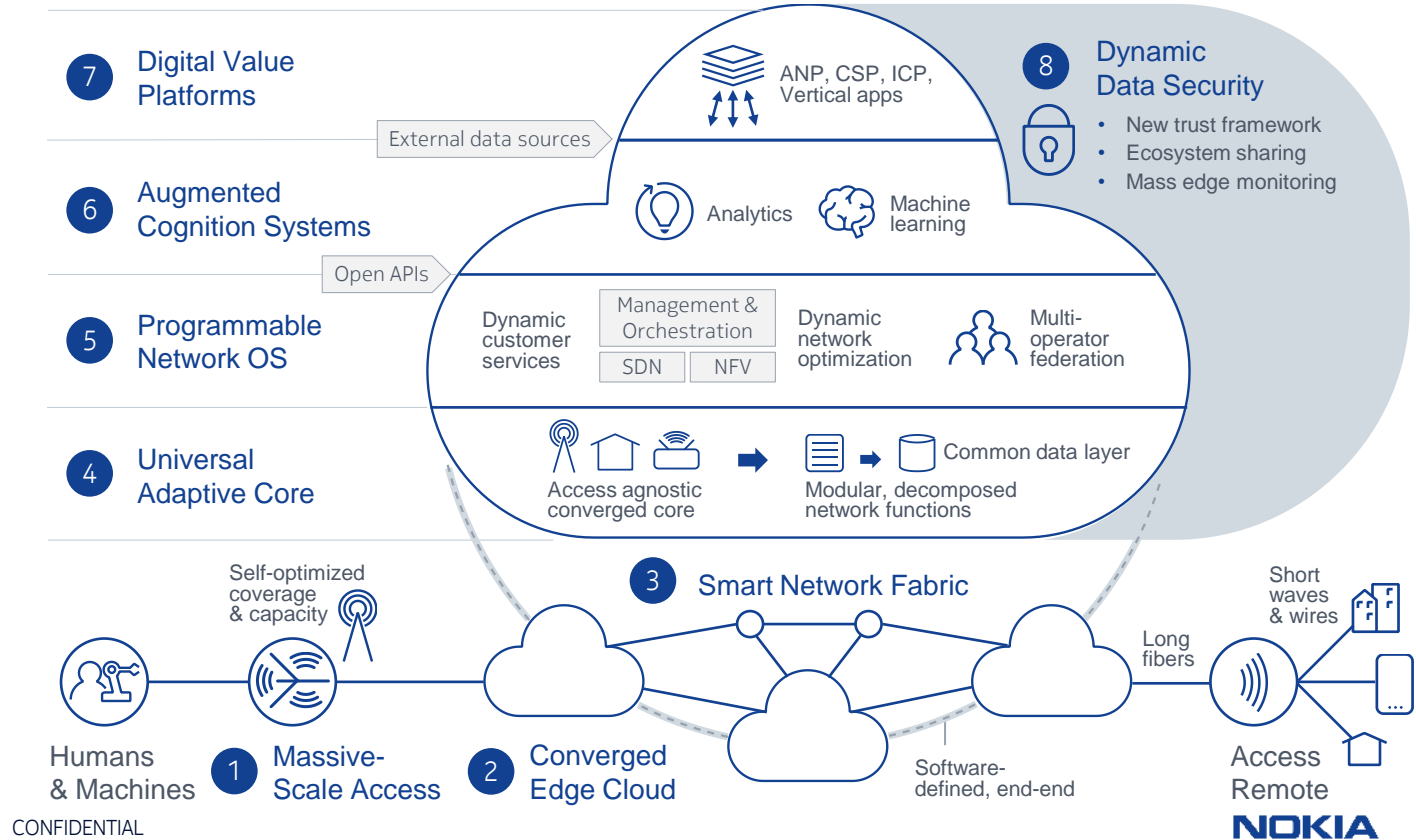
Technology -> Products -> Use-cases -> Value  
**Coverage first deployment**



Value -> use-cases -> Technology -> Products  
**Use-case led deployment**

# A significant change in networks as we know them today

A clear vision of how networks need to evolve



Devices	4 Create new business and licensing opportunities in the consumer ecosystem			
Applications	3 Build strong standalone software business			5 Incubate new select businesses and disruptive business models for the long term
Platforms				
Cloud Infrastructure	1 Lead in high-performance end-to-end networks with communication service providers	2 Expand network sales to select vertical markets with carrier-grade needs		
Core Network				
Access Network				
	Communication Service Providers	Webscale	Vertical Markets	Consumer

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# Lead through existing strongholds

- Advanced markets
- Emerging markets

**MM, Ooredoo:** Greenfield network partner; First 4G launch; E2E partner

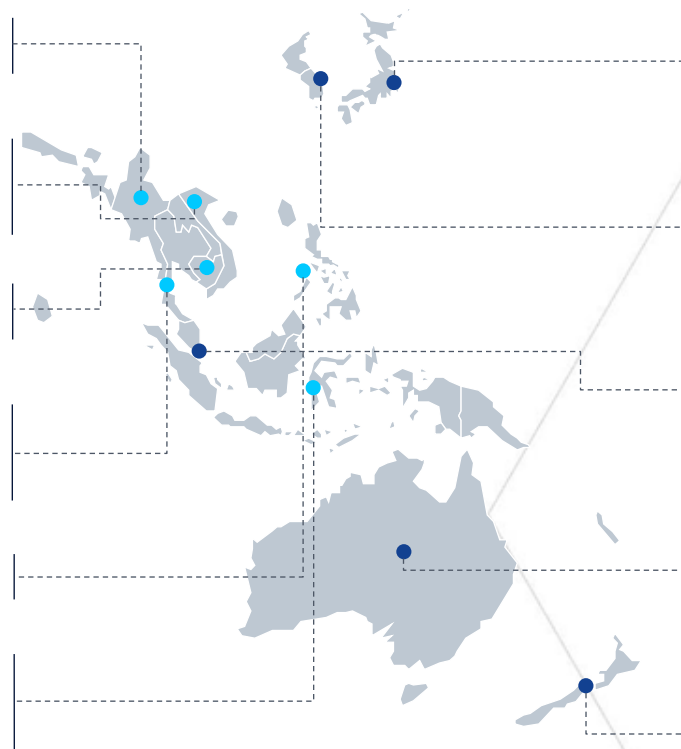
**VN, Viettel:** E2E partner  
**VNPT/Vinaphone:** 3G  
**Mobifone:** Optical Transport Network; DWDM

**KH, CamGSM/Cellcard:** 3G/4G

**TH, AIS:** E2E partner; Optical Transport Network; small cells  
**True:** IP/Optical  
**Telenor Asia:** Transport & IP core network; Partner

**PH, Smart:** Mobile network partner  
**PH, Globe:** Under NSB

**ID, Smartfren:** E2E Partner  
**XL Axiata:** Partner  
**Telkomsel:** Partner; NB-IoT  
**Indosat:** Partner  
**Hutch 3:** Partner



**JP:** Leading radio market share, strong IP footprint  
**KDDI:** 5G, Mobile network partner  
**NTT Docomo:** E2E Partner; 5G Partnership  
**Softbank:** Partner

**KR:** #1 foreign LTE vendor, PS-LTE Partnerships and 5G Footprint  
**KT:** 5G for 2018 Olympics; NB-IoT  
**SKT:** Public Safety; 5G; IoT  
**LGU+:** Partner

**SG, StarHub:** 5G, Southeast Asia's 1st VoLTE call; Industry's 1st TDD-FDD VoLTE handover; Southeast Asia's 1st 4x4 MIMO  
**M1:** First NB IoT; NetGuard Security  
**SingTel:** Partner

**AU, Optus:** E2E Partnership; 5G MoU  
**VHA:** Partner  
**NBN:** Fixed Partner  
**Telstra:** Legacy Partner – Strong Engagement

**NZ, Spark:** 5G; IoT; Strong Legacy  
**Vodafone:** World's 1st APT 700MHz; SD-WAN  
**Chorus:** Fixed partner



# Expand into adjacent markets

Expand into

E

Enterprise  
ICT  
market

Global  
resources /  
mining  
company

X

-sell with  
end-to-  
end  
portfolio

Asian rail  
operator

Expand footprint  
through

P

Partners

Asian telco  
operator

A

Automating  
channel  
distributors

Public  
sector



N

New  
solutions

Transportation



D

Diversification  
into more  
verticals

Energy



Web-scale

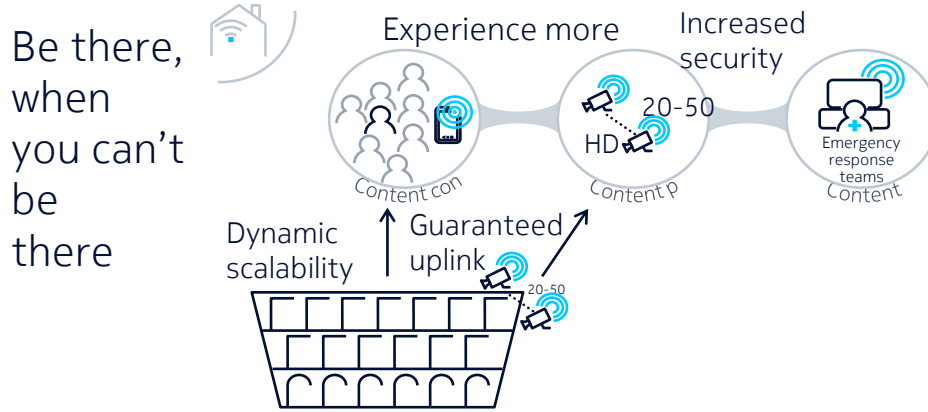




Making 5G a commercial reality.

# Reimagine event experience – get closer to the action

Multiple camera views and virtual reality to thousands of spectators



## Benefits

20 x lower delivery cost of HD multi-feed video

40 x more capacity in a stadium

Ticket upsell with video and VR services

Strategic positioning amongst sport enthusiasts

## StarHub broadcast WTA in 360 3D Virtual Reality



Multi-view video feeds at live events

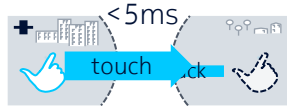
# Reimagine healthcare

Immediate network response for critical interaction with humans

Remote care



Remote examination and surgery



Same sense of touch

Haptics & vision in sync

## Benefits

Reduced care costs while improving quality of life

Remote surgery, a niche but high margin business

Remote care meets aging population trend

## Asia's first fall prediction video analytics application MoU with St. Luke's Eldercare Center

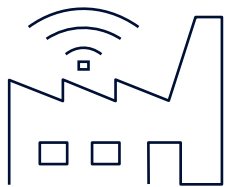
- Nokia Bell Labs' proprietary video analytics technology
- A continuous, real-time, and unobtrusive way of measuring and predicting fall risk

The personalized and predictive solution will analyze information about walking speed, gait width and step width, and predict and send an alert when there is an increased risk of the person falling.



# Reimagine factories – enabling Industry 4.0 through robotics & AI

Resilient, secure low-latency communication



Wireline connections today  
>90%

## Benefits

Removing cost of cabling installation and maintenance

Greater automation

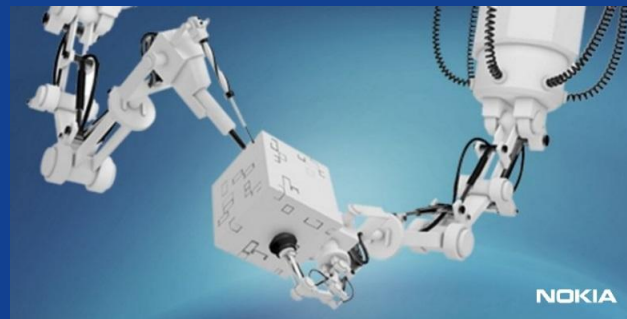
Less reconfiguration time

Improvement in productivity

Increase staff safety

## Partnering Japanese SI player to transform digital factories

- Safe-guard workers physical well-being with **automated guided vehicles** and **robots** for hazardous tasks and environment
- Enhance workers' strength and efficiency by utilizing **exoskeletons**





A young child with brown hair, wearing a blue hoodie, is seen from behind, sitting on a balcony and looking out at a city skyline across a body of water. The child's hands are near their ears. The background shows a blurred cityscape with tall buildings and lights reflecting on the water. The text "We accelerate Asia's digital future" is overlaid in white, with a small orange circle above the apostrophe in "Asia's".

# We accelerate Asia's digital future

**NOKIA**