AI powered Telecom :
Enabling Networks that Sense, Think and Act

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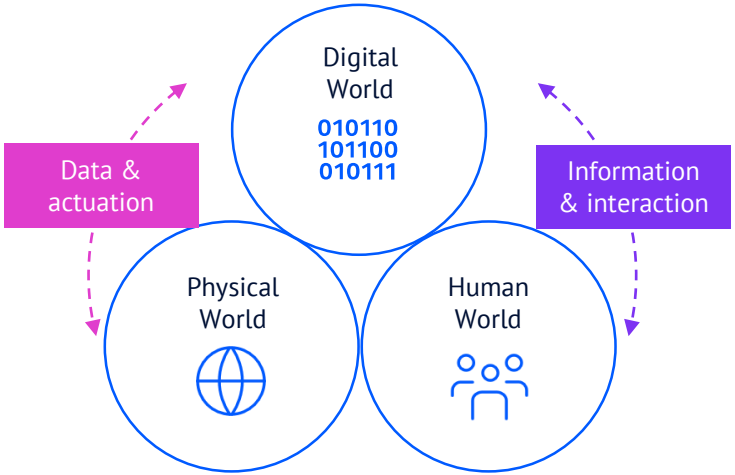
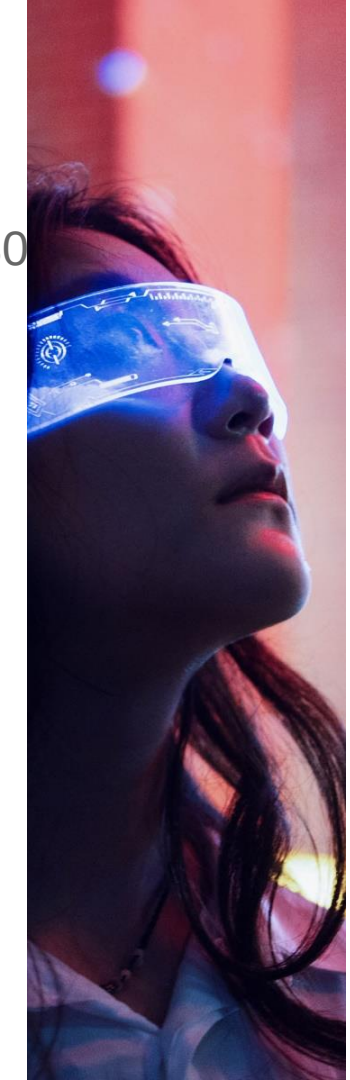
Technology in 2030

Connecting the physical, digital and human worlds to meet the needs of 2030

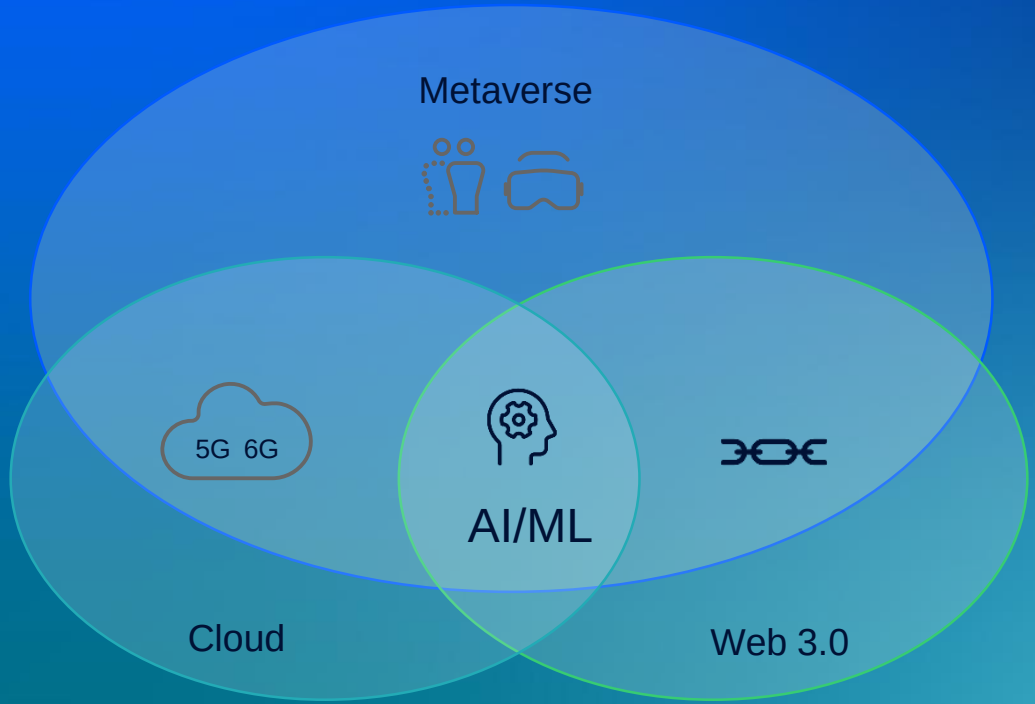


Digital convergence continuously extends the scope of human possibilities



AI : At the Centre of Digital Convergence

Technology themes shaping the world of 2030



India 5G subscribers by 2030

641 million[1]

Edge cloud computing opportunity

$543 billion addressable revenue by 2030.[2]

Web 3.0 blockchain opportunity

$199 billion global market by 2030.[3]

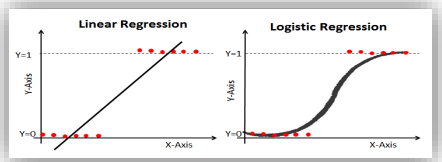
AI impact on Global GDP

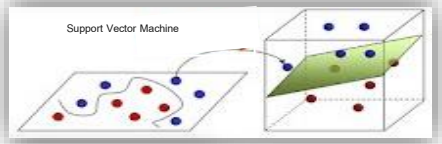
$7 trillion by 2033.[4]

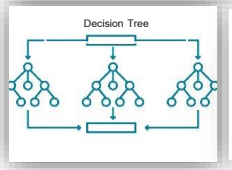
1.GSMA, 2024
2.STL Partners, December 2021.
2. GlobalData, May 2022.
3. Goldman Sachs, 2023

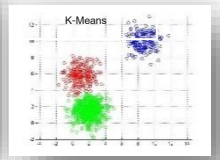
Different disciplines of AI – not just language models

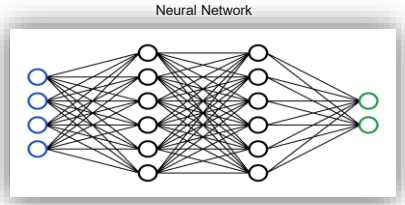
AI is not just GenAI

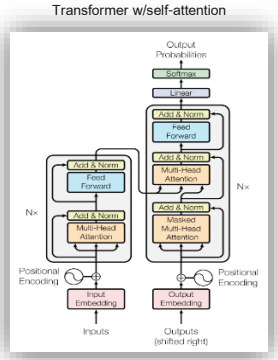










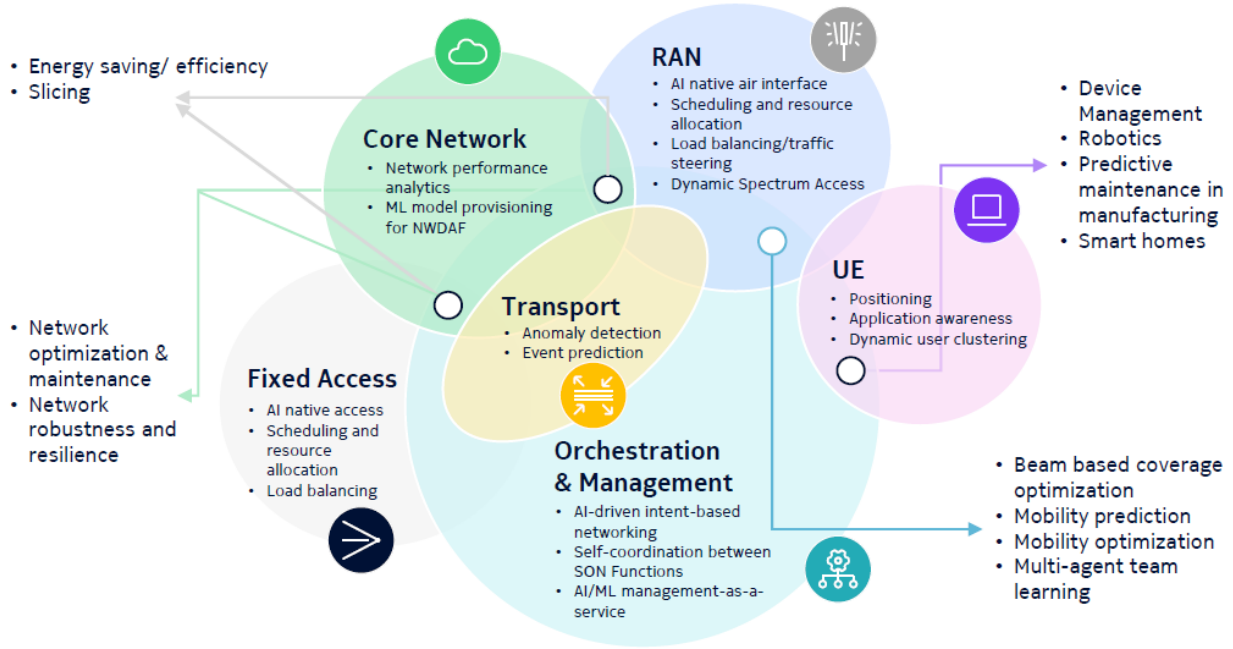


Expansion from regression, clustering, optimization, classification to …

… text summarization, multi-modal content generation, reasoning …

Use cases for AI are envisioned in all network domains

Illustrative examples

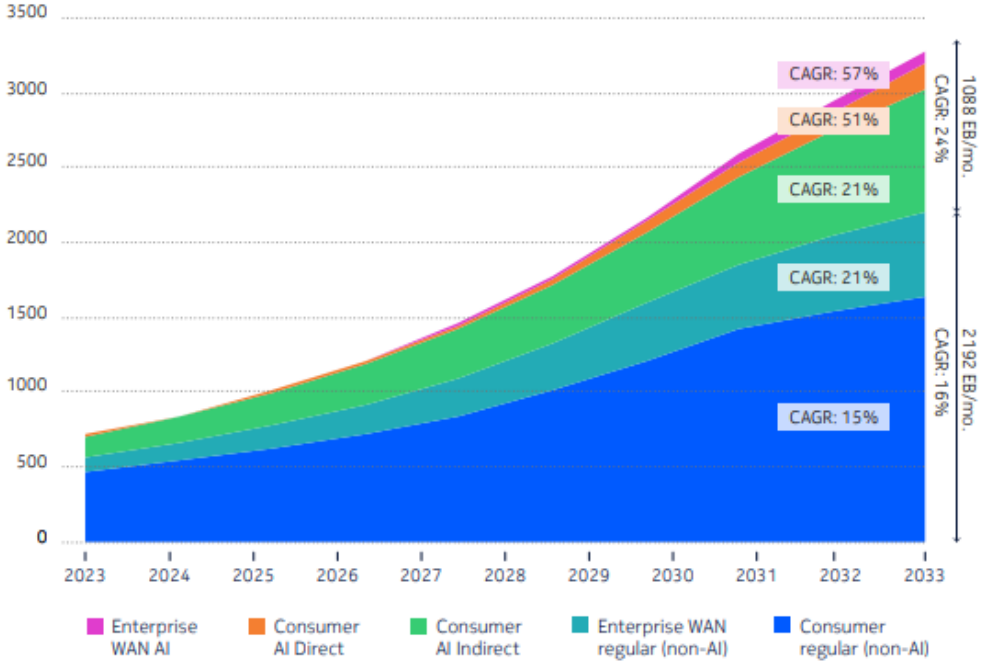


AI Everywhere

- Energy efficiency
- QoS
- Network optimization
- Resource scheduling
- Load balancing
- Anomaly detection
- Device management
- Intent-based autonomy

Global WAN AI traffic projections

WAN AI traffic, global, moderate scenario, EB/month



Global WAN AI traffic
1088 EB/month – CAGR: 24% (33% of Global WAN traffic)

Consumer WAN AI traffic
1006 EB/month – CAGR: 23%

Enterprise WAN AI traffic
81 EB/month – CAGR: 57%

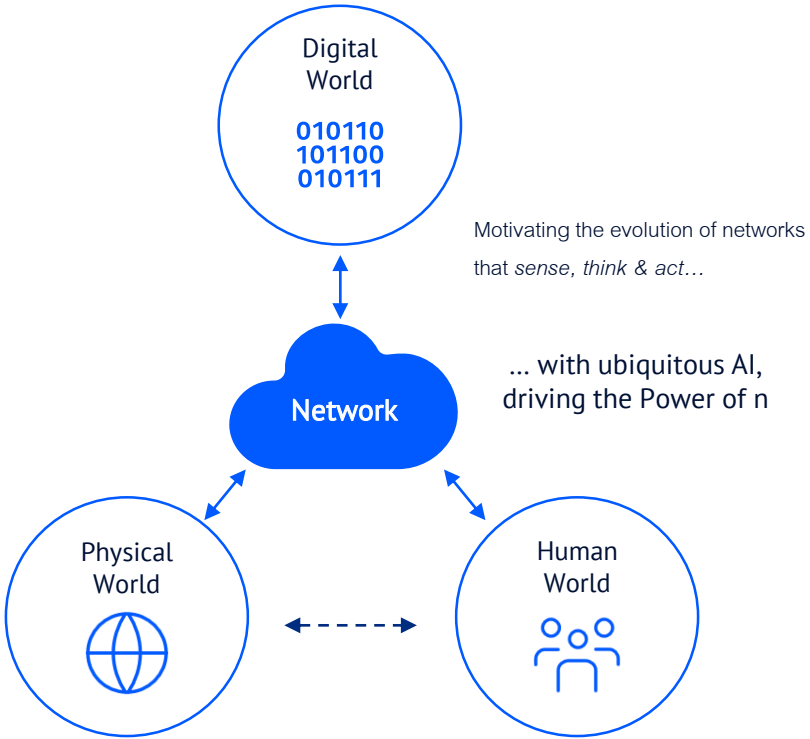
Global consumer AI traffic
(38% of Global consumer traffic)

Consumer direct AI traffic
174 EB/month – CAGR: 51%

Consumer in-direct AI traffic
832 EB/month – CAGR: 21%

Meeting the challenges, and addressing the needs of 2030

Requires connectivity capabilities taken to the next level



Key network capabilities show steady evolution

We need to keep up to keep the world moving

Evolutionary network technologies

- Edge cloud / Network-cloud continuum
- Cloud RAN & Open RAN evolution
- Extreme and distributed MIMO
- WiFi 7 -> WiFi 8
- 6G industrial automation
- Massive IoT
- Quantum-safe communications
- Spectrum sharing
- Multi-fiber -> multi-core -> multi-mode optical longhaul
- Energy efficient wireless networks (10x Capacity with -50% Energy)

Key network capabilities

Disruptive network technologies

- AI-native networks
- Agentic AI
- TN/NTN integration (radio and optical)
- Quantum repeaters / quantum internet communication
- Integrated sensing and communication

Mutual Benefits and Challenges

Networks	Semiconductors	Quantum	Security & Privacy	Sustainability
• AI for Networks • Networks for AI • *AI traffic*	• AI for semicon-ductors • Semiconductors for AI • *Moore's Law limit*	• AI for Quantum • Quantum for AI	• AI for security & privacy • Security & privacy for AI • *AI used by bad actors*	• AI for sustain-ability • Sustainability for AI • *AI is energy hungry*

We need to keep up, for the world to go forward

Nokia : Enabling AI powered Networks that …

Detecting changes in NWs for real-time awareness

- Real-time Network Performance monitoring
- Anomaly Detection
- Aggregate data at speed and scale across network

Intelligently learning,predicting actions

- NW management for optimum efficiency
- Energy efficiency measures for cost saving
- Potential failure detection to prevent NW disruption

Adapting and responding autonomously

- Adapt to changing network demands and autonomously scale as needed
- Near-instant responses to cyber-attacks/breaches
- Put people, systems and devices in sync

Celebrating 160 years