



Many Spectrum Models, One AI-Native 6G Fabric

Policy foundations for Physical AI, integrated sensing, and industrial productivity

Private Wireless Reimagined



The Purpose of 6G Is Productivity

Customers don't necessarily expect more data:

4G

5G

Standards



Spectrum



Throughput and
peak rates

Focus of current Wireless networks should be on:

Industrial intelligence

Autonomous operations

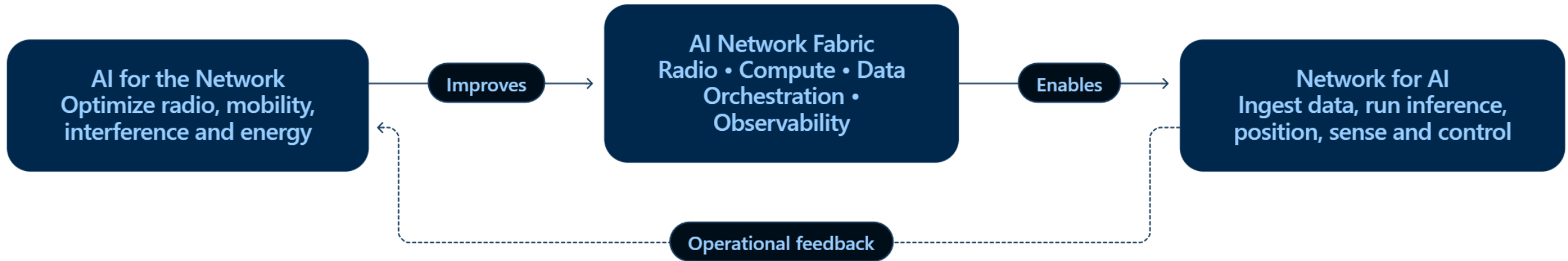
Continuous learning

Safer and more productive workplaces

RAN-AI fabric for enablement

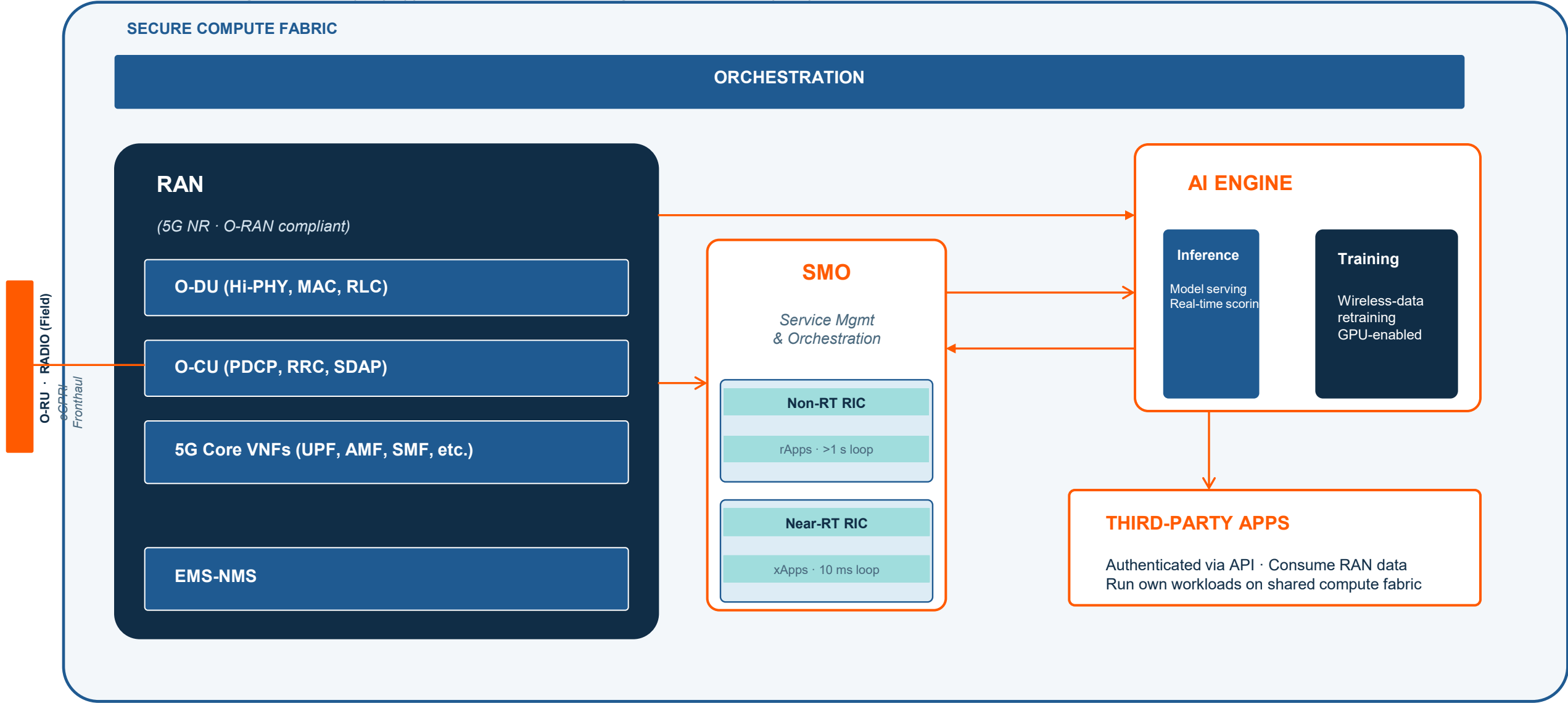


The AI Network Fabric



The Fabric Extends Beyond the RAN

5G RAN functions, AI engine, and third-party applications co-hosted on a single orchestrated compute platform



All functions share the same physical compute (CPU · GPU · FPGA · SmartNIC) managed by a single Kubernetes plane. Third parties access RAN data through authenticated APIs without touching RAN internals.

Two Applications Pull 6G Forward, One Network Delivers Them

Physical AI and integrated sensing set the hardest requirements; a single terrestrial and non-terrestrial network is what meets them

Physical AI



Machines act through the network instead of only talking over it

- Robots, drones and vehicles run closed control loops over the air
- Inference at the edge, model updates pushed over the network
- Reliability and latency budgeted per task, not per link



Integrated Sensing and



The same waveform that carries data also returns a picture of the environment

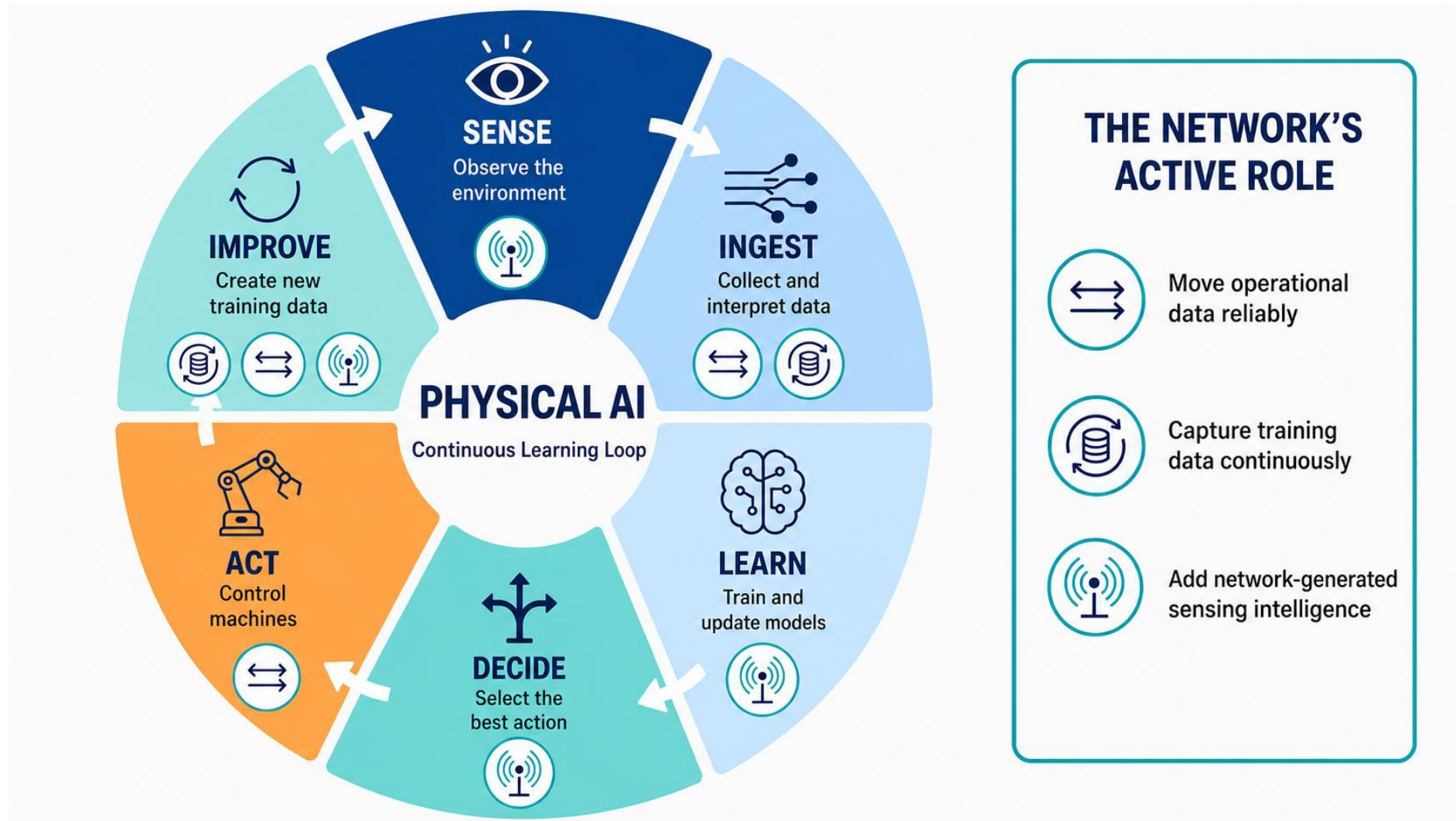
- Detection, ranging and tracking come from the radio network itself
- No extra spectrum and no dedicated sensors to deploy
- First users: road safety, drone airspace, site intrusion



Enabler: One integrated network potentially across terrestrial and non-terrestrial

Both applications follow the user outdoors, offshore and airborne, where terrestrial coverage stops

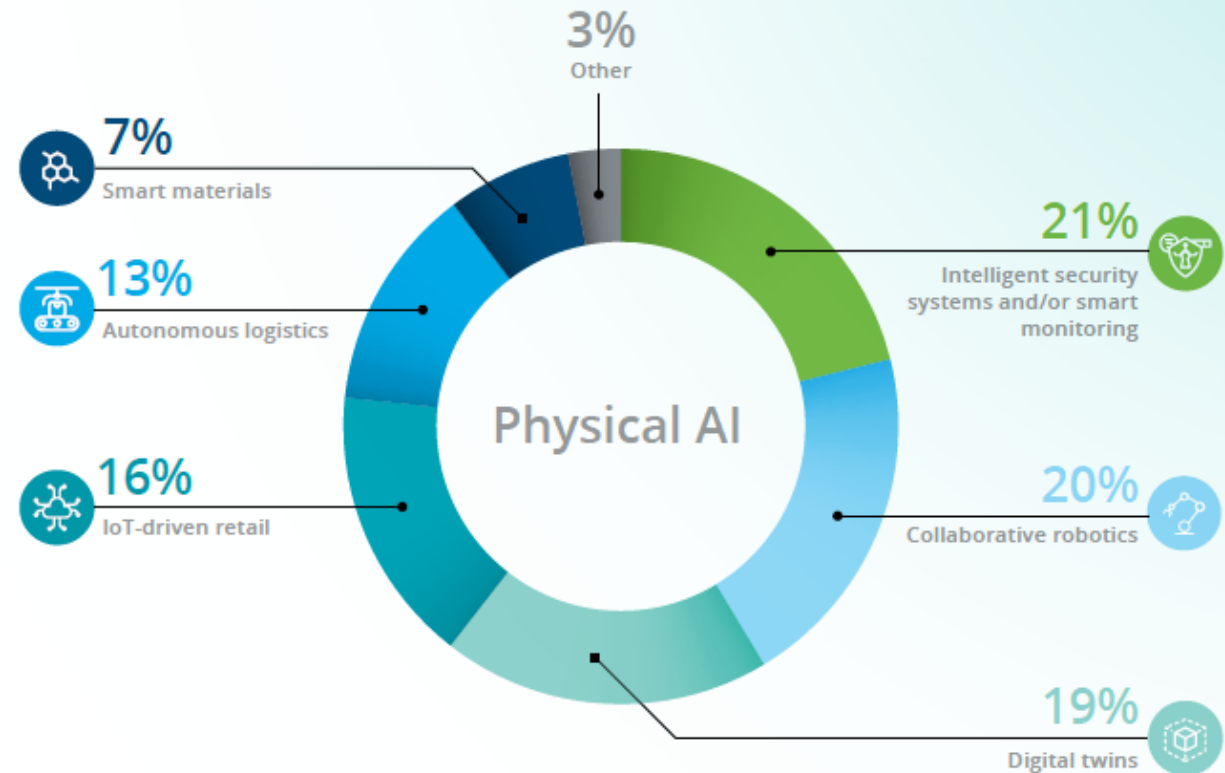
The Physical AI Flywheel Depends on the Network



Physical AI Moves Intelligence Into the Physical World

Physical AI combines

Machines and sensors
Edge and distributed AI
Digital twins
Autonomous control
Continuous operational learning



Question: Which area of physical AI do you believe will have the greatest impact on your industry?

* Figures may not sum to 100% due to rounding.

N=3,235

ISAC: The Network Becomes a Source of Intelligence

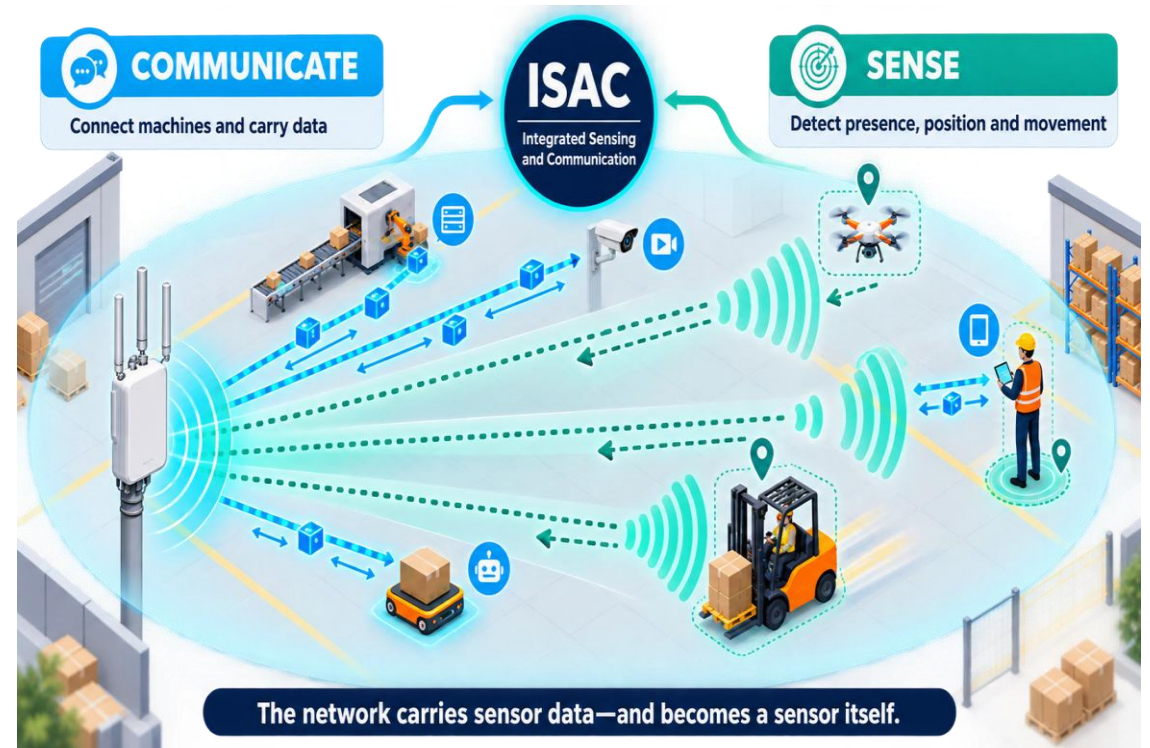
From transporting observations to generating observations

Integrated Sensing and Communication

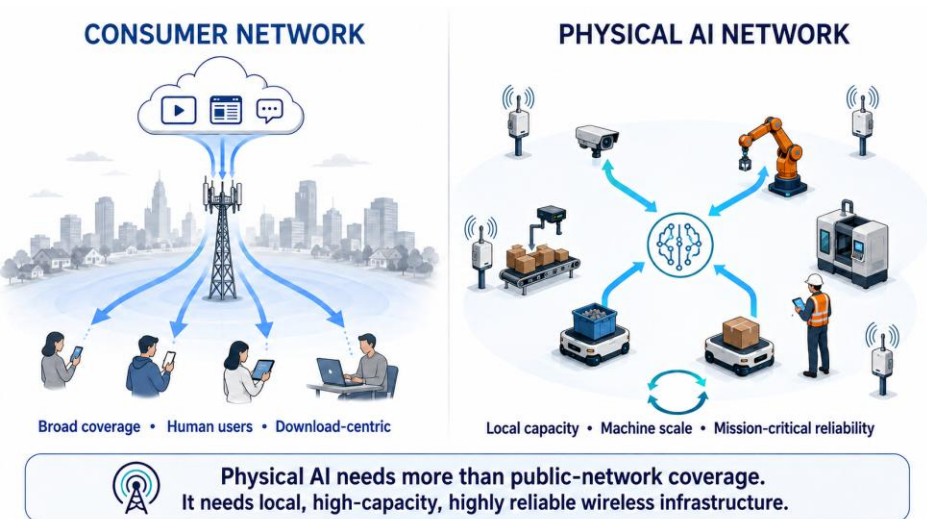
Communication: move information

Positioning: determine where assets are

Sensing: detect presence, motion and change



The network carries sensor data—and becomes a sensor itself.



RAN Requirements for such Applications

Physical AI requirement

High uplink capacity

Consistent performance

Low interruption

Scalability

Flexibility

Data control

Industrial challenge

Many machines generate data simultaneously

Deterministic high-end performance

Autonomy cannot tolerate connectivity gaps

Ability to scale performance and manipulate performance

Future-proof to new requirements

Industrial and operational data are sensitive

These are also 5G networks requirements

XCOM RAN Provides the Local Connectivity Foundation

Distributed MIMO + SingleSuperCell architecture

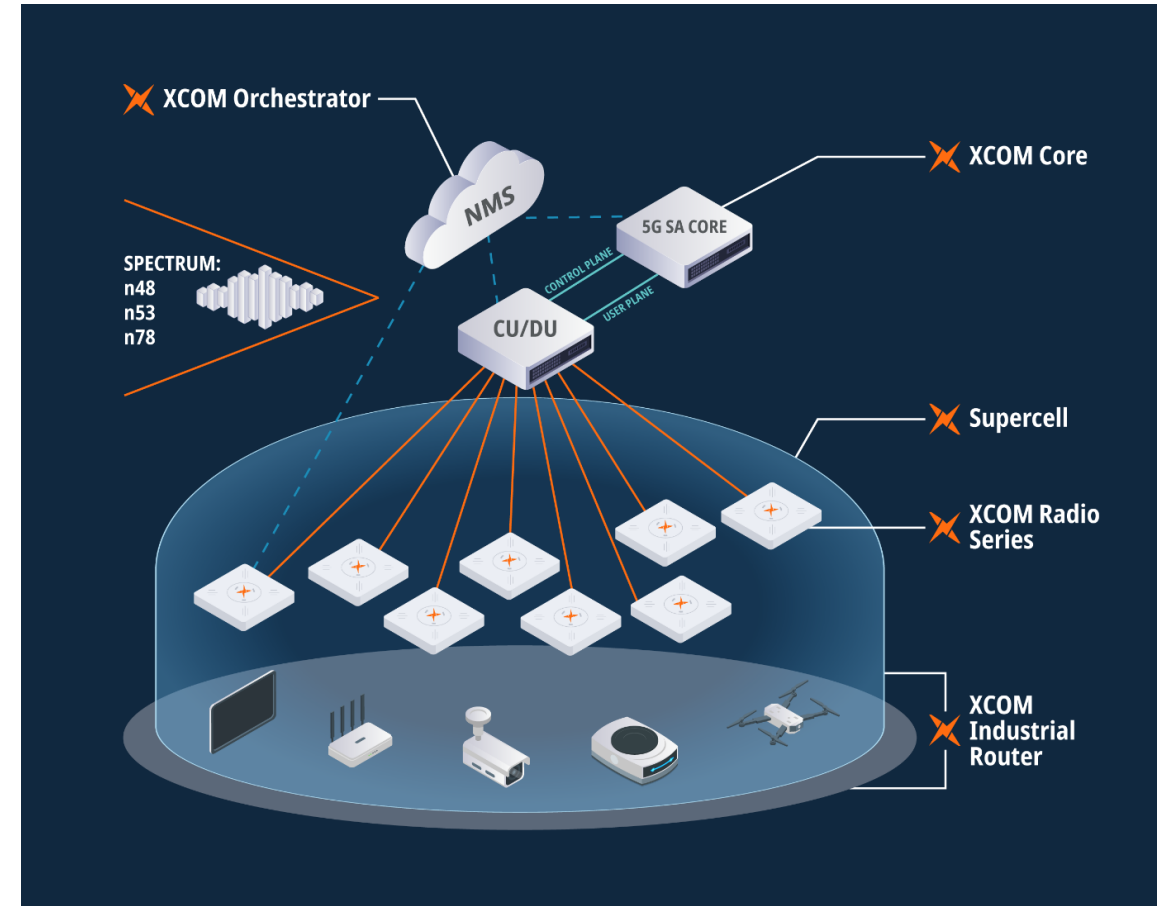
Coordinated radio resources

Seamless machine mobility

Concurrent uplink and downlink capacity

Private operational control

5G-Advanced / 6G Features

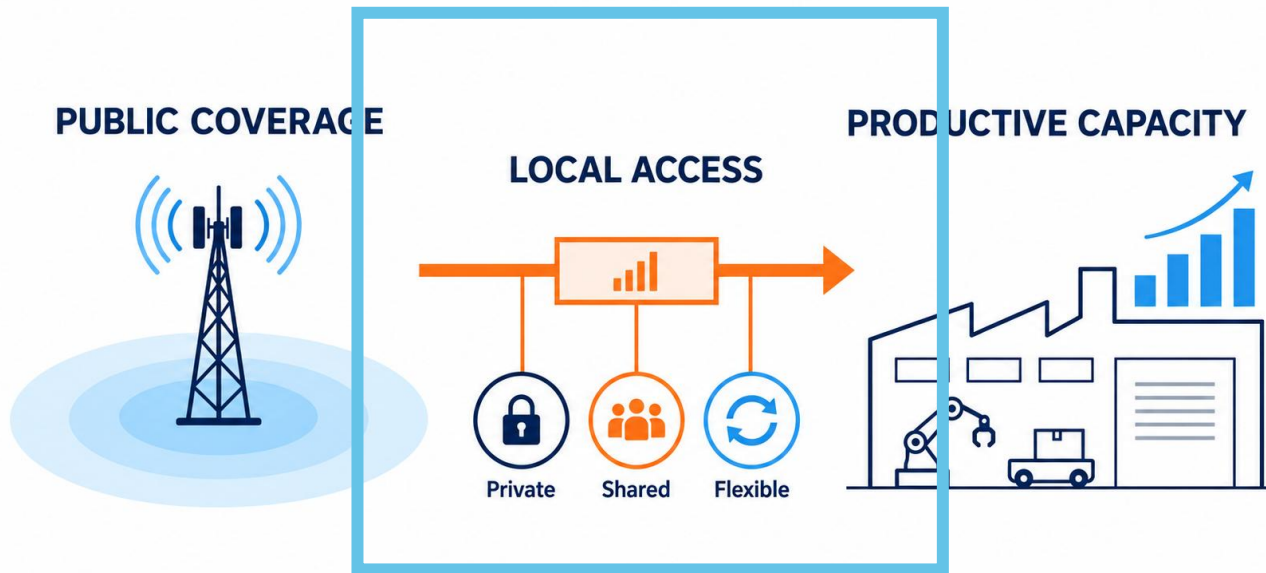


Connect the machine, preserve the data stream, accelerate the learning cycle

No Single Spectrum Layer/Deployment Architecture Can Serve Every Application

Spectrum layer	Principal contribution
Public terrestrial	Wide-area mobility and ecosystem scale
Local/private licensed	Predictability, control and data locality
Shared licensed	Local access with improved utilization
Unlicensed	Low-cost complementary capacity
NTN	Remote coverage and infrastructure resilience
Higher-frequency spectrum	Dense capacity and sensing resolution

Private and Shared Spectrum Convert Coverage Into Productive Capacity



Policy mechanisms should support:

- Local licensing
- Shared-access frameworks
- Indoor and campus authorization
- Flexible license areas and durations
- Automated coordination where practical

RIGHT-SIZED SPECTRUM ACCESS TURNS SIGNAL INTO OPERATIONAL VALUE

Also on the agenda

Type approval that travels across markets

Spectrum Harmonization when appropriate

Same identity, on every link. Session continuity

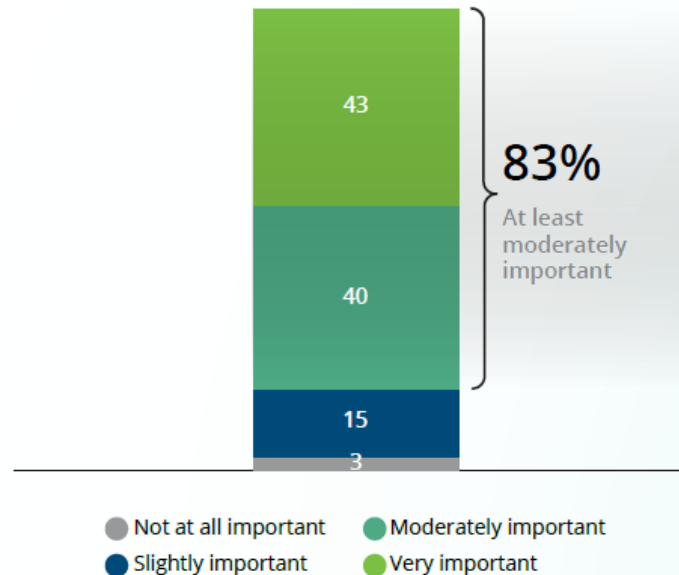
Data locality for sensor data and models

Sovereignty Will Influence Network and AI Architecture

Sovereignty can apply to:

- Spectrum and network control
- Operational data
- Model training and retraining
- Inference location
- Vendor provenance
- Cross-border data movement
- Audit and incident records

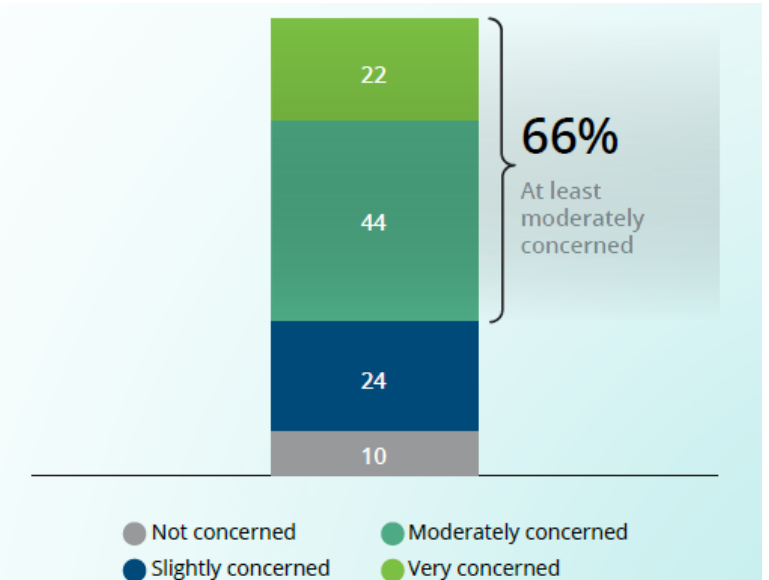
Importance of data residency constraints and compute considerations in strategic planning



Question: How important are data residency constraints and in country/region compute considerations to your organization's strategic planning?

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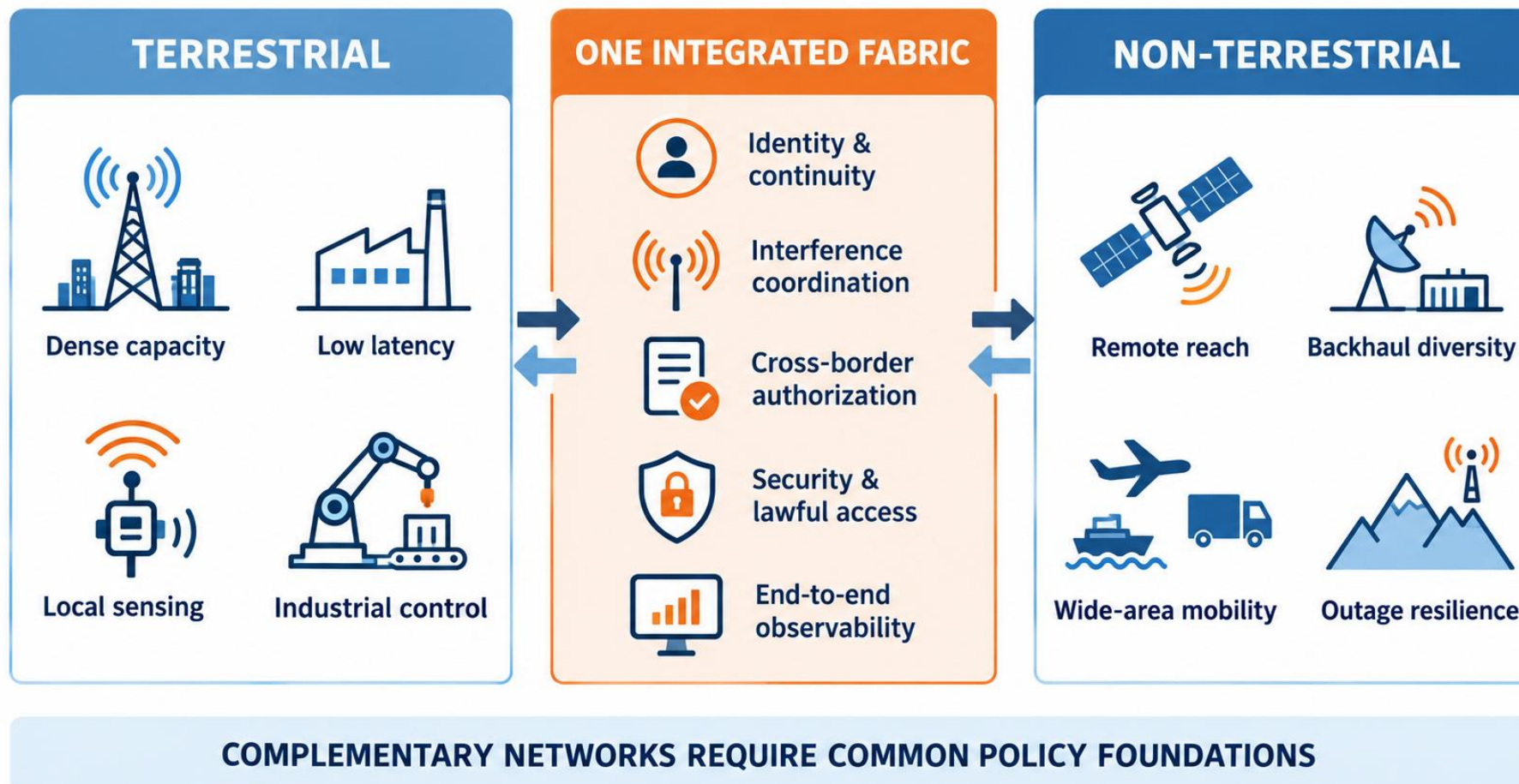
Level of concern over reliance on foreign-owned AI



Question: To what extent are you concerned about your organization's reliance on foreign-owned AI technologies and compute provision?

N=3,235

Terrestrial and Non-Terrestrial Networks Should Form One Fabric



Policy Actions for an Inclusive, AI-Native 6G Future

Provide **local and shared spectrum** pathways

Harmonize bands and interfaces where possible

Enable **terrestrial-NTN** interoperability

Support **sovereign** control without fragmenting 6G

Create **industrial testbeds** and regulatory sandboxes

Measure **productivity, safety, and outcomes**

Build the Industrial Learning Loop Now

The inclusive 6G opportunity is not simply to connect more things.

It is to give more industries—and more countries—the ability to learn, automate, and produce.

Deploy industrial networks

Experiment with ISAC early

Define practical data governance structures

Scale engagements for quick learnings

One inclusive 6G world does not require one policy. It requires different policies to operate across a trusted, interoperable foundation.

Private Wireless Reimagined



Thank You

