The vision of Zero Touch operations
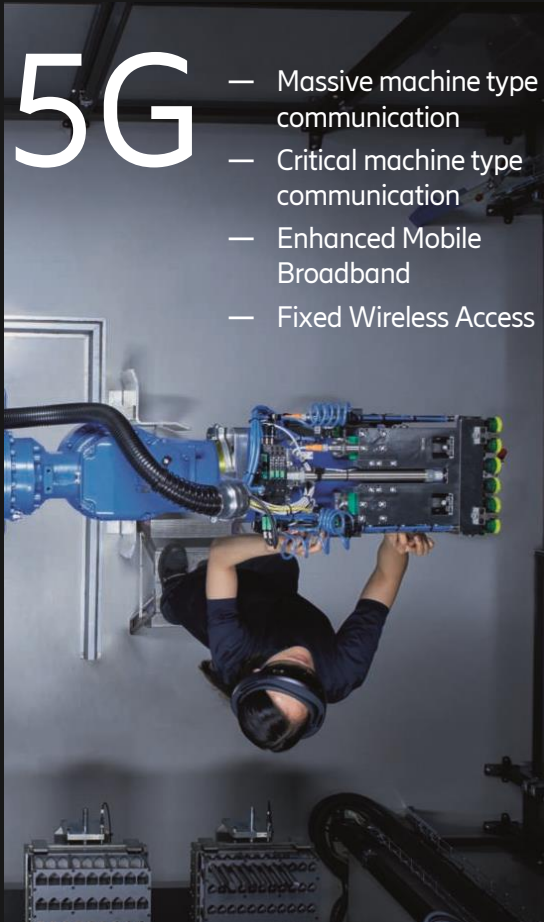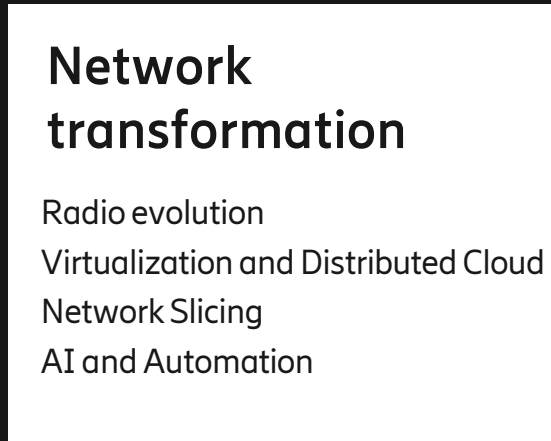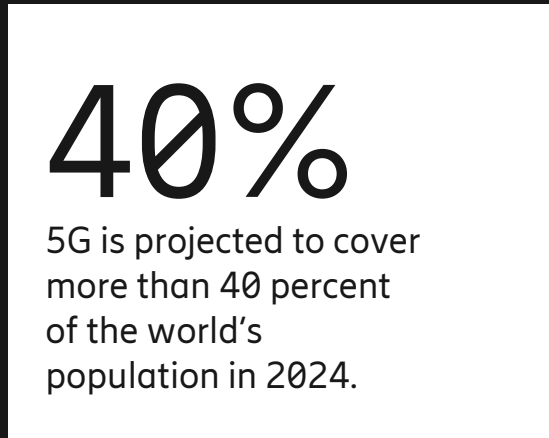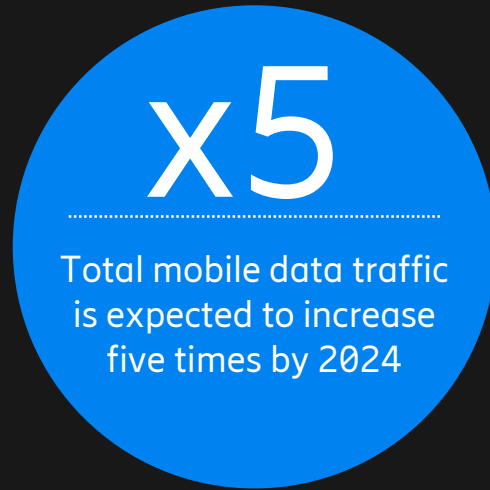
Technology shifts create market opportunity

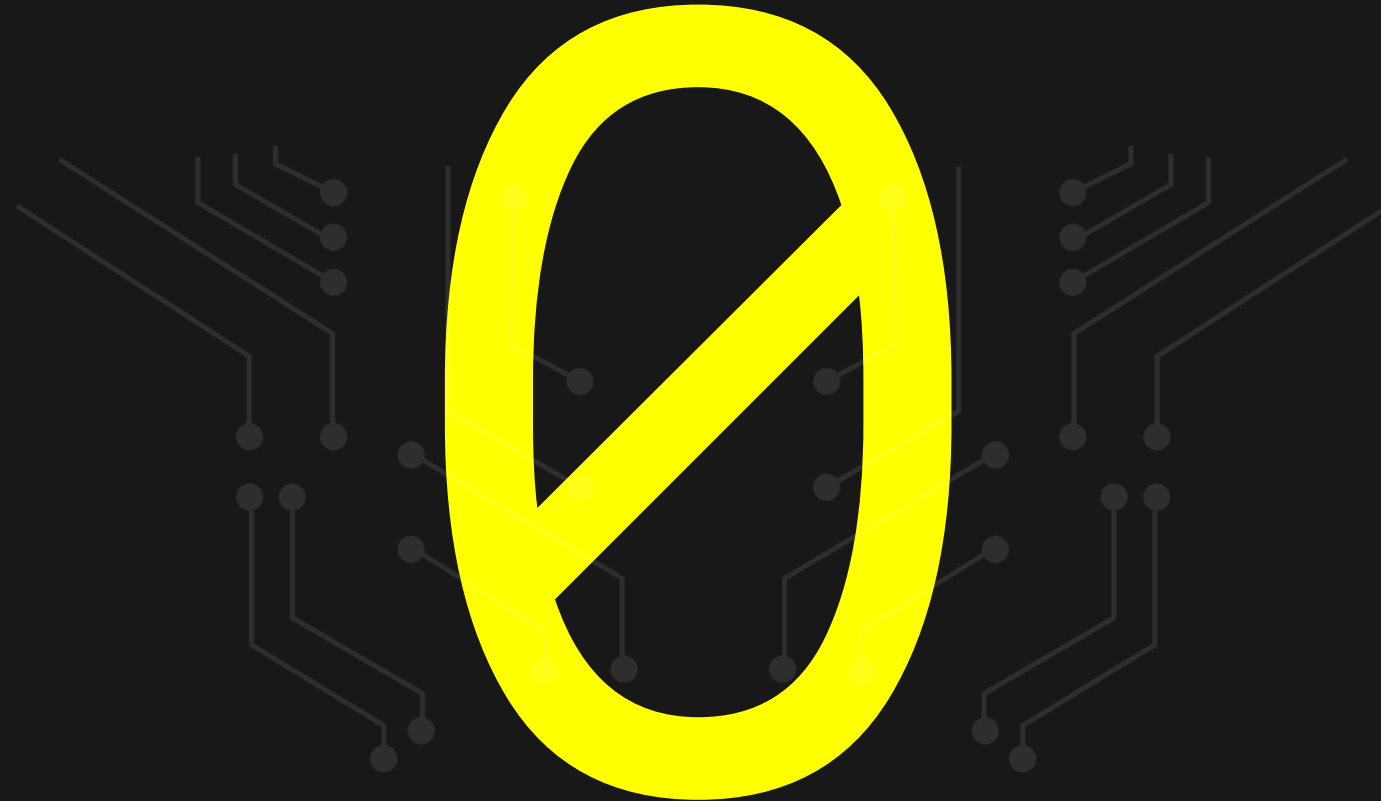## 5G
— Massive machine type communication
— Critical machine type communication
— Enhanced Mobile Broadband
— Fixed Wireless Access

x5

Total mobile data traffic is expected to increase five times by 2024

40%

5G is projected to cover more than 40 percent of the world's population in 2024.

Network transformation

Radio evolution
Virtualization and Distributed Cloud
Network Slicing
AI and Automation

4.1 bn

Cellular IoT connections are set to pass the 4.1 billion mark by 2024, driven by strong uptake in North East Asia.

Service providers digital transformation journey

From operating technologies to managing experiences

Enabling new business models and ecosystems

This slide contains forward-looking statements. Actual result may be materially different.

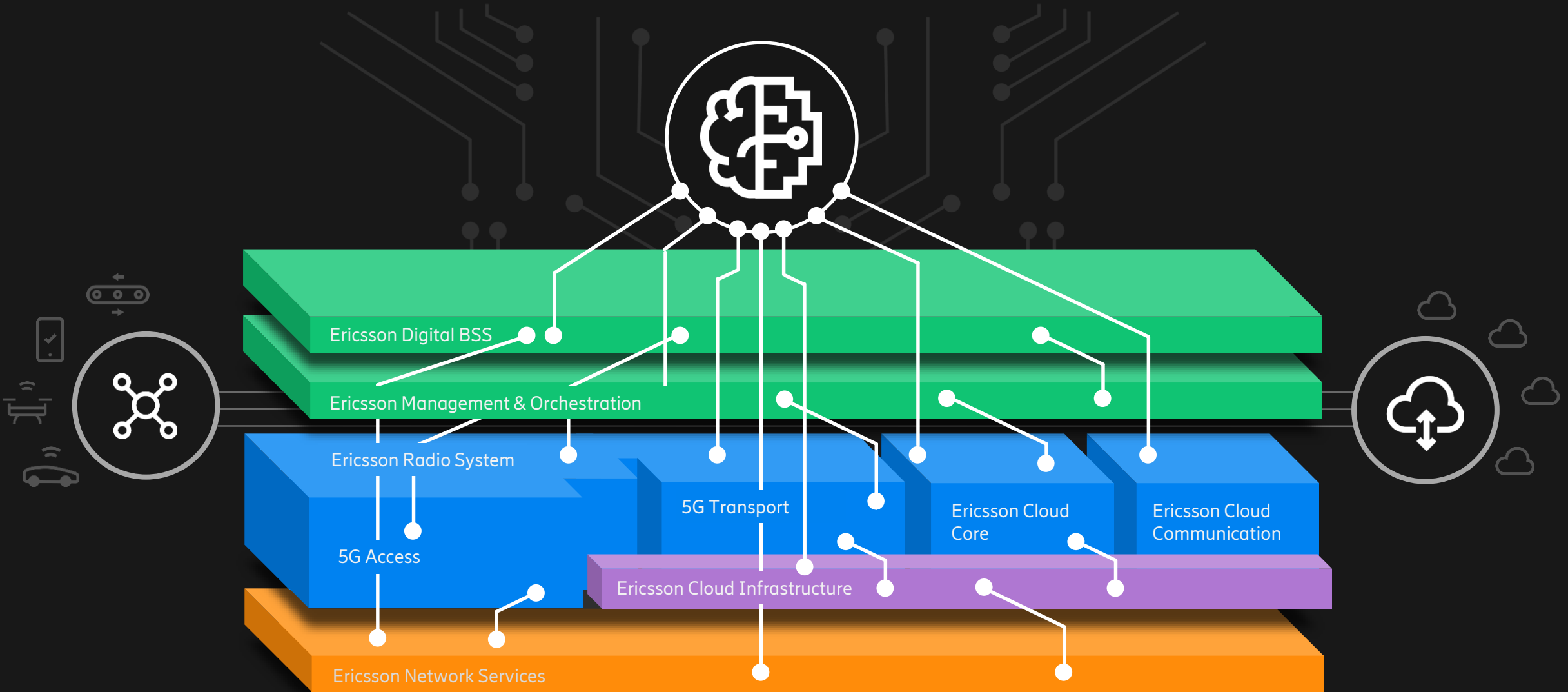# Zero touch

AI Technology Waves
From Web-Linked to Autonomous

AI applications can be categorized into four waves, happening simultaneously, but with different starting points and velocity

— Internet AI
— Business AI
— Perception AI
— Autonomous AI

End to end federated AI across product & service portfolio

Ericsson Digital BSS

Ericsson Management & Orchestration

Ericsson Radio System

5G Access

5G Transport

Ericsson Cloud Core

Ericsson Cloud Communication

Ericsson Cloud Infrastructure

Ericsson Network Services

From Network KPIs to Service KPIs

Relentless Efficiency

Improve the efficiency and manage OPEX and CAPEX

End-Customer Experience

Understanding and enhancing the customer experience
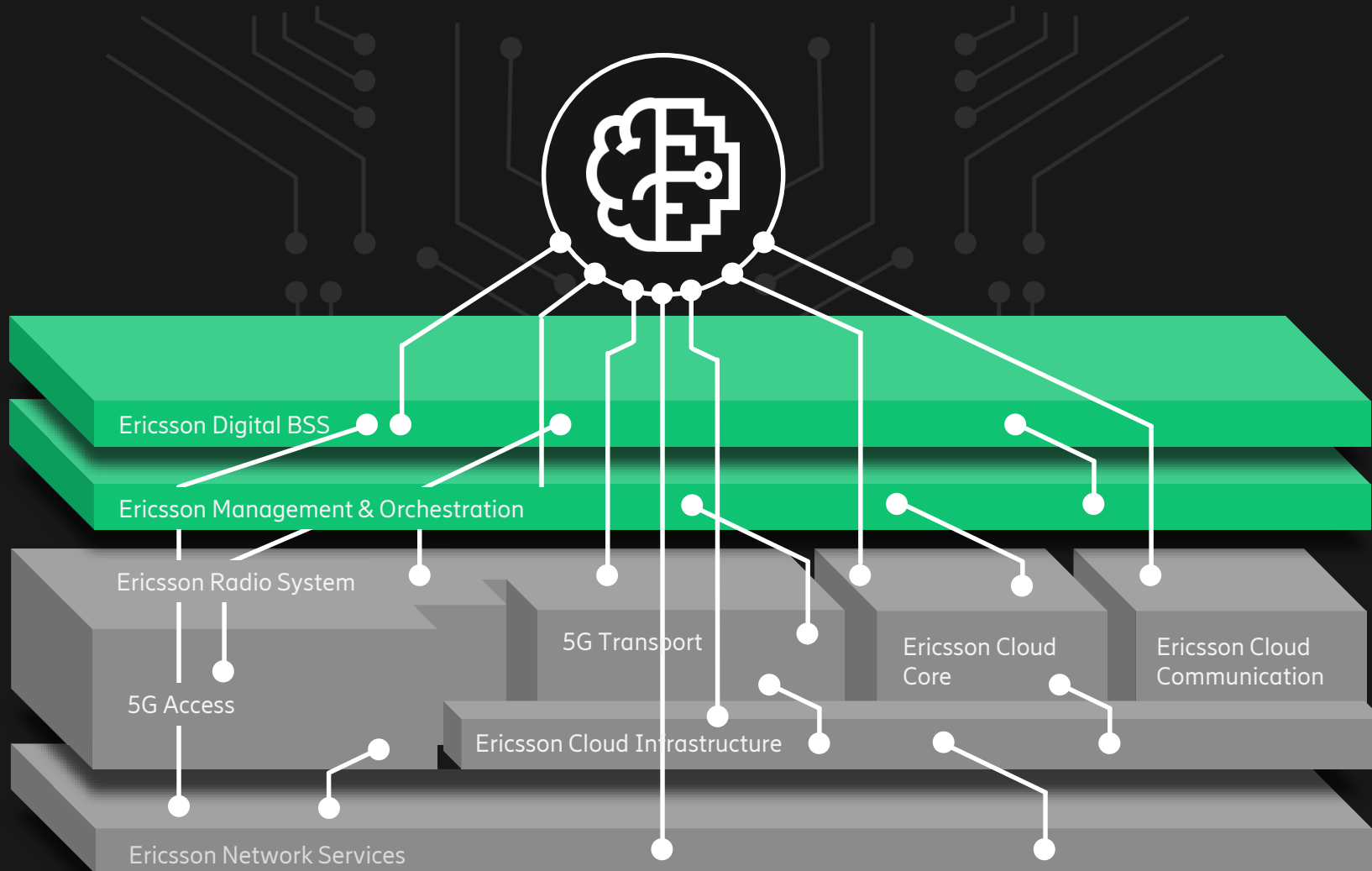
Network Performance

Evolving from a cell and node centric network to a user centric network

New Revenues

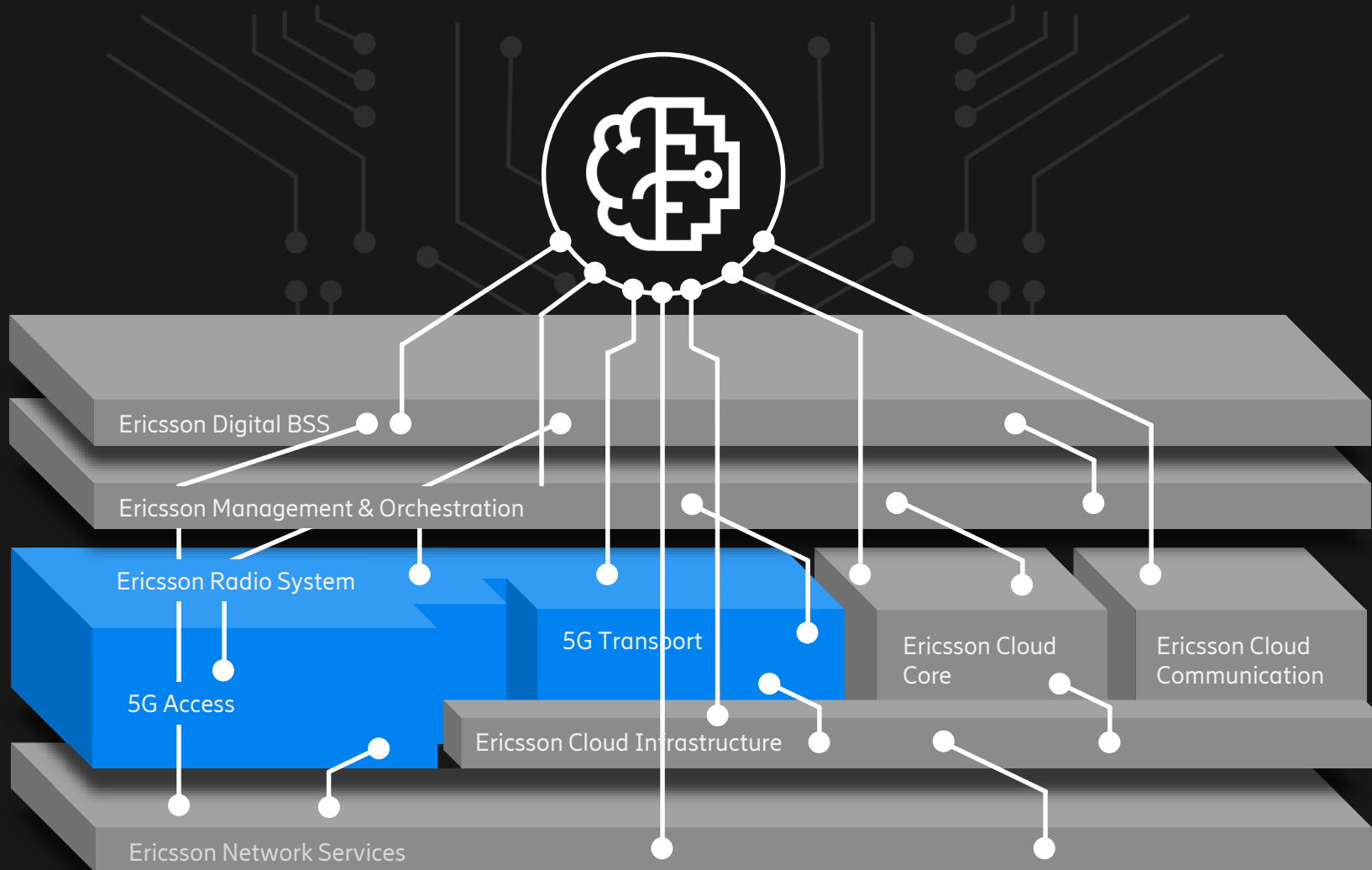New business models and 5G & IoT enabled use cases

End to end federated AI across product & service portfolio

Ericsson Digital BSS and Management & Orchestration

- Predictive Customer Care
- Dynamic Orchestration
- Subscriber Experience Analyzer
- RAN Engineering Insight
- Automated Operations
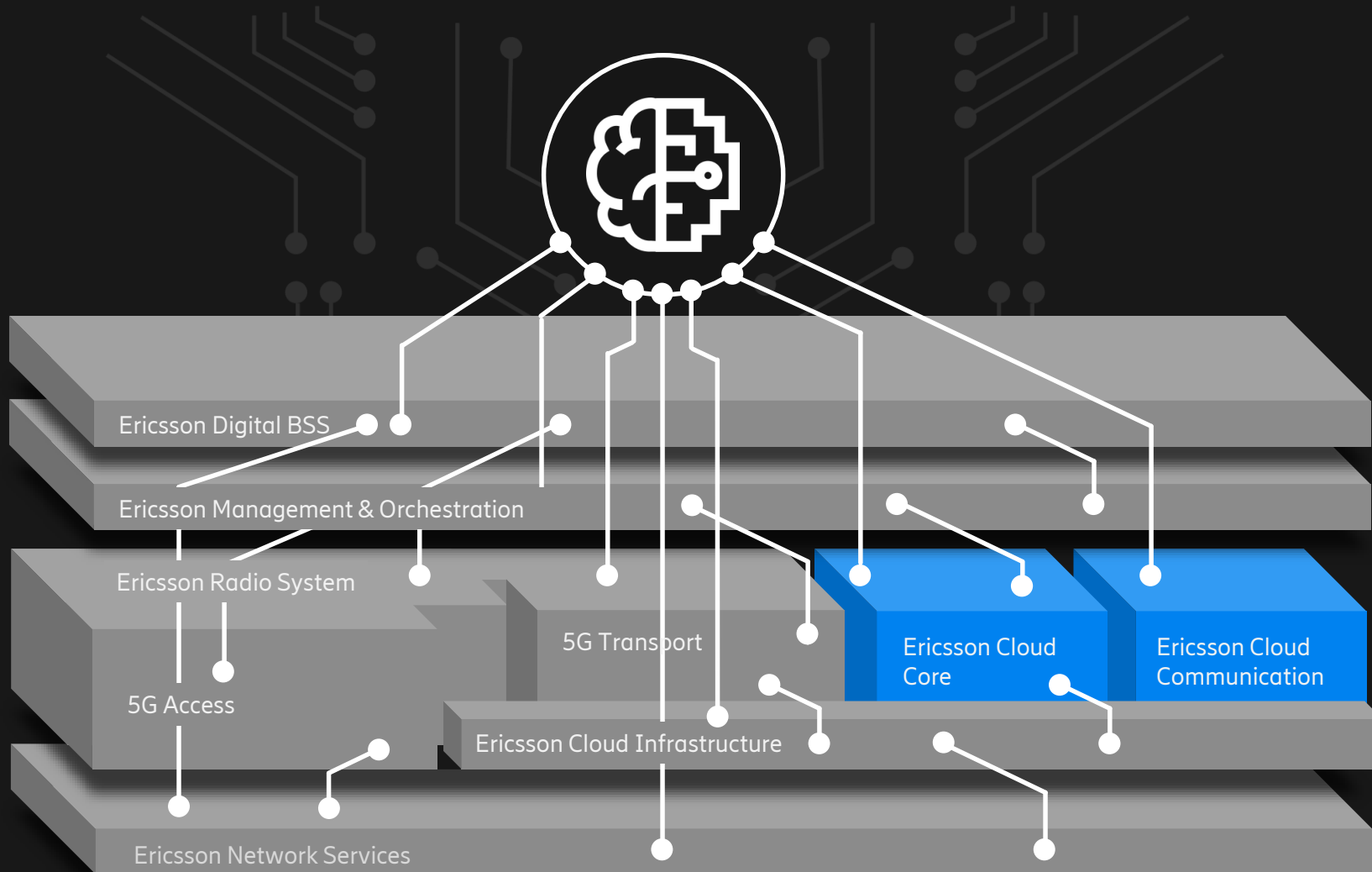- Autonomic Incident Management

Ericsson Digital BSS

Ericsson Management & Orchestration

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5G Access

5G Transport

Ericsson Cloud Core

Ericsson Cloud Communication

Ericsson Cloud Infrastructure

Ericsson Network Services

End to end federated AI across product & service portfolio

5G Access

- MIMO Sleep Mode Traffic Aware Power Saving
- AI-enabled Handover
- Data aware UE handling
- 5G aware Traffic Control
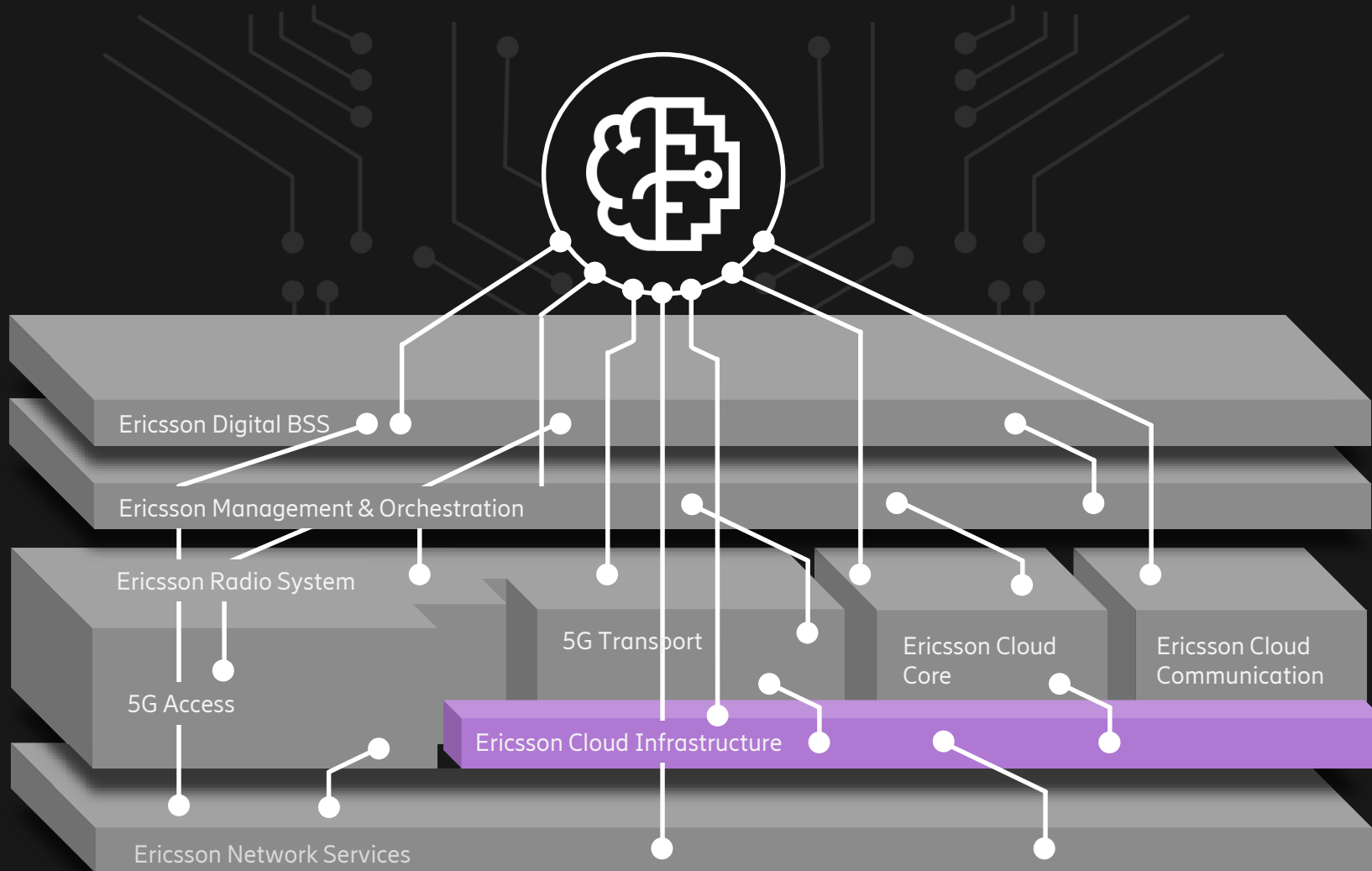- Evolved Load balancing

Ericsson Digital BSS

Ericsson Management & Orchestration

Ericsson Radio System

5G Access

5G Transport

Ericsson Cloud Core

Ericsson Cloud Communication

Ericsson Cloud Infrastructure

Ericsson Network Services

End to end federated AI across product & service portfolio

Cloud Core

- Subscriber Experience Analyzer
- VoLTE Call Browser

Ericsson Digital BSS

Ericsson Management & Orchestration

Ericsson Radio System

5G Transport

Ericsson Cloud Core

Ericsson Cloud Communication

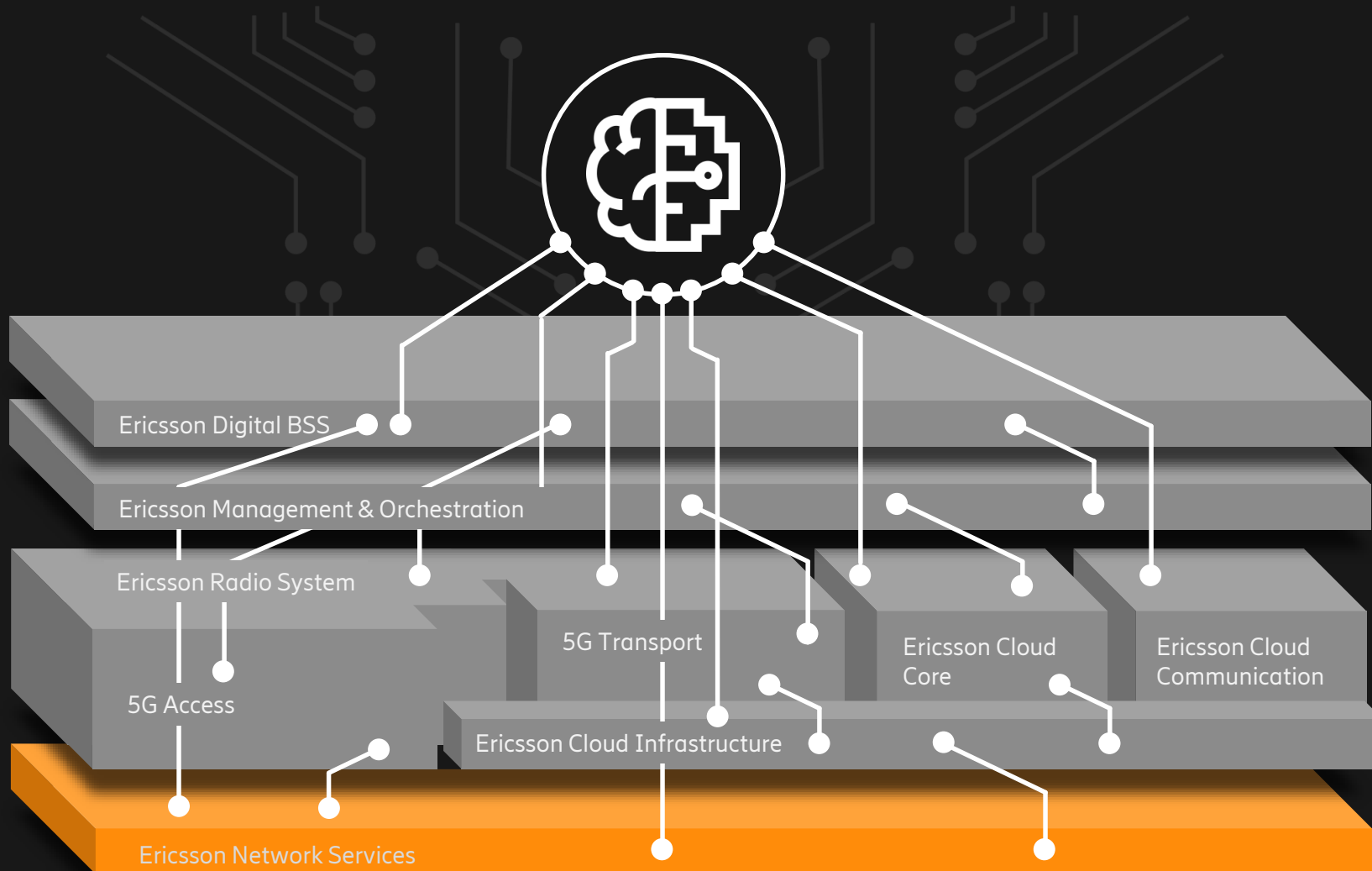5G Access

Ericsson Cloud Infrastructure

Ericsson Network Services

End to end federated AI across product & service portfolio

Cloud Infrastructure

- AI enabled lifecycle management trouble-shooting

Ericsson Digital BSS

Ericsson Management & Orchestration

Ericsson Radio System

5G Transport

Ericsson Cloud Core

Ericsson Cloud Communication

5G Access

Ericsson Cloud Infrastructure

Ericsson Network Services

End to end federated AI across product & service portfolio

Ericsson Network Services

- Proactive Customer Support
- Sleeping Cell Prediction
- Preemptive incident predication
- Anomaly detection
- Predictive Network SLA Degradation
- 5G Network Design and Optimization
- AI driven Hybrid Cloud operations

Ericsson Digital BSS

Ericsson Management & Orchestration

Ericsson Radio System

5G Access

5G Transport

Ericsson Cloud Infrastructure

Ericsson Cloud Core

Ericsson Cloud Communication

Ericsson Network Services
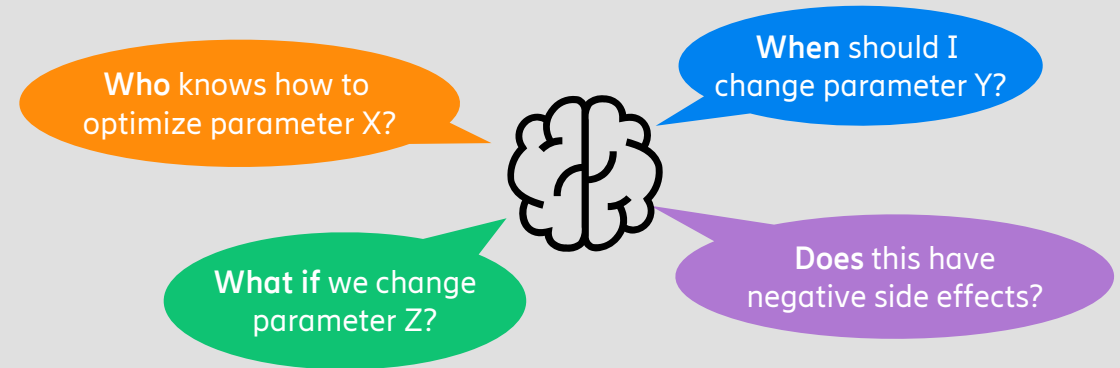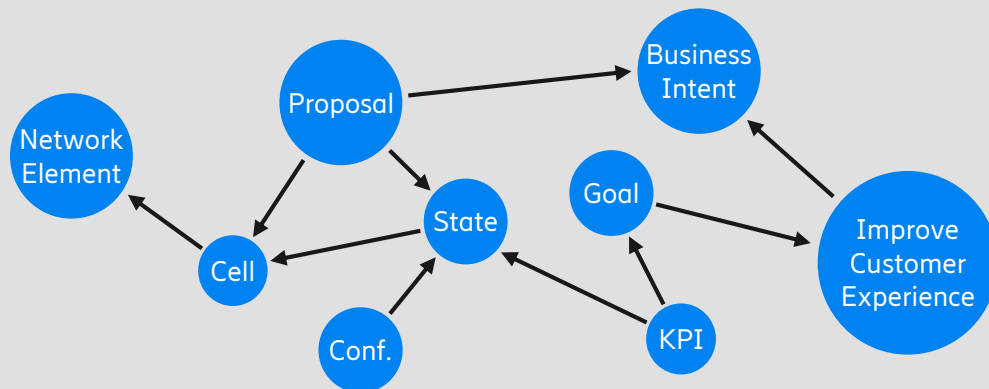
What is machine reasoning and why do we need it

Reasoning

Enables access to **inference** from knowledge.

Provides awareness of **cause-effect** connections.

Makes the system **interpretable**.

Who knows how to optimize parameter X?

When should I change parameter Y?

What if we change parameter Z?

Does this have negative side effects?

... is implemented on top of ...

Knowledge Representation

Structures knowledge.

Models **relations** between entities.

Establishes **ground truth**.

Business Intent

Proposal

Network Element

State

Cell

Goal

Conf.

KPI

Improve Customer Experience

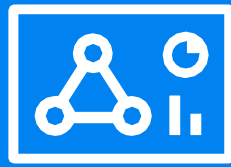# Applying Machine Reasoning for Zero Touch operations
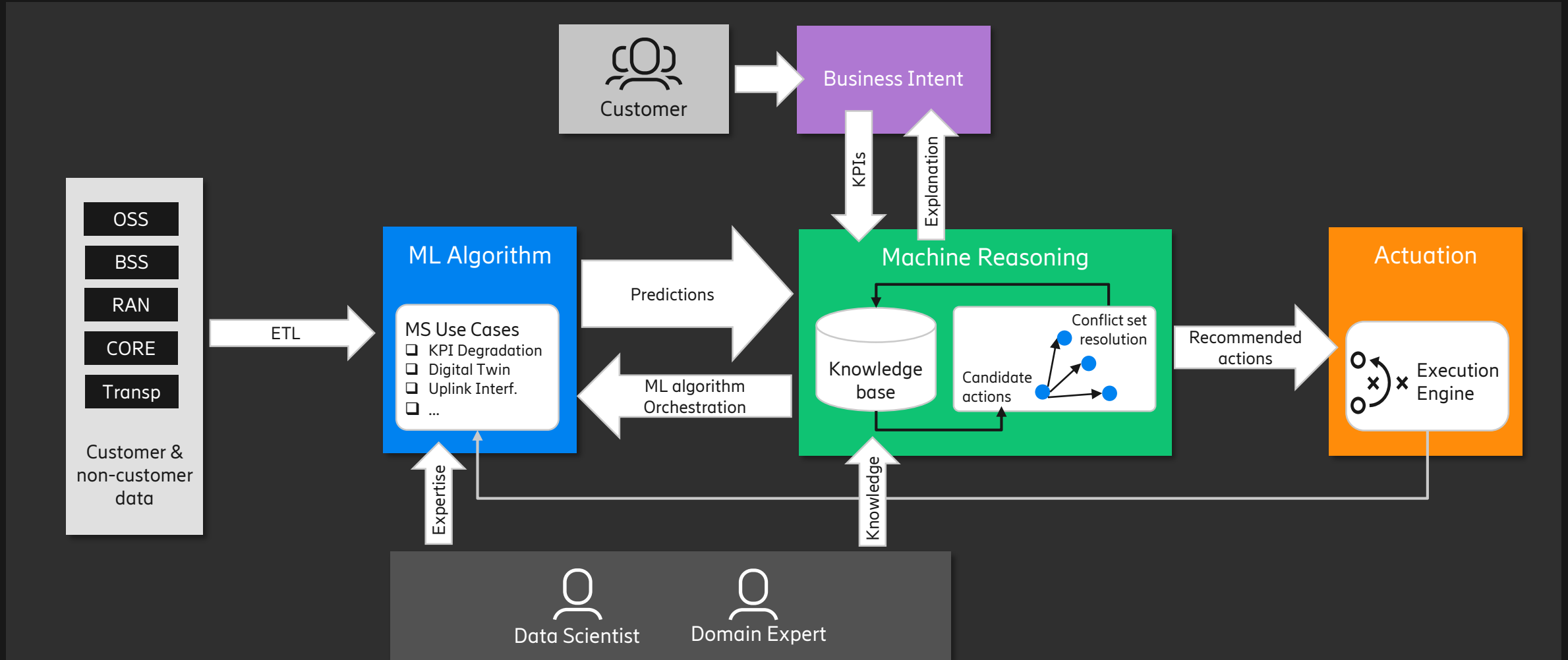
Securing long term technology leadership in AI

Business & Data ecosystem

Technology Leadership

Competence

Q & A

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Exponential benefits and exponential risks

— Technology in itself is neutral, it all depends on how you use it or not
— In the data driven world, both benefits and risks are exponential, all organizations should be thinking about how their use of data may impact society

Potential AI Challenges

AUTOMATION & HUMAN CONTROL
AI/ML systems can support and accomplish certain human activities. Systems should *augment humans* while maintaining relevant human control.

TRANSPARENCY & EXPLAINABILITY
Many AI/ML systems are opaque and can't explain how they arrived to its conclusions. Lack of transparency can *undermine trust* in the systems.

SECURITY & PRIVACY
AI/ML draws it's value from analyzing data. And it can identify patterns beyond human capabilities. In the quest for new insights it will be crucial not to *risk the privacy of individuals and keep data secure*

PERSONAL & PUBLIC SAFETY
Systems, from traffic control systems to cars and robots, are increasingly controlled by AI/ML. The need to *ensure human safety* will be critical for any organization developing or implementing AI/ML.

BIAS & DISCRIMINATION
Technology is neutral but AI/ML systems can be influenced by human biases, or by skewed or incomplete data sets. This in turn can *impact or pollute results* in an unwanted way.

ACCOUNTABILITY & REGULATION
Expectations on responsible usage is increasing. Regulation is lagging. Organizations will *stand accountable* for usage and misusage of AI/ML systems.