

Network X Americas 2026

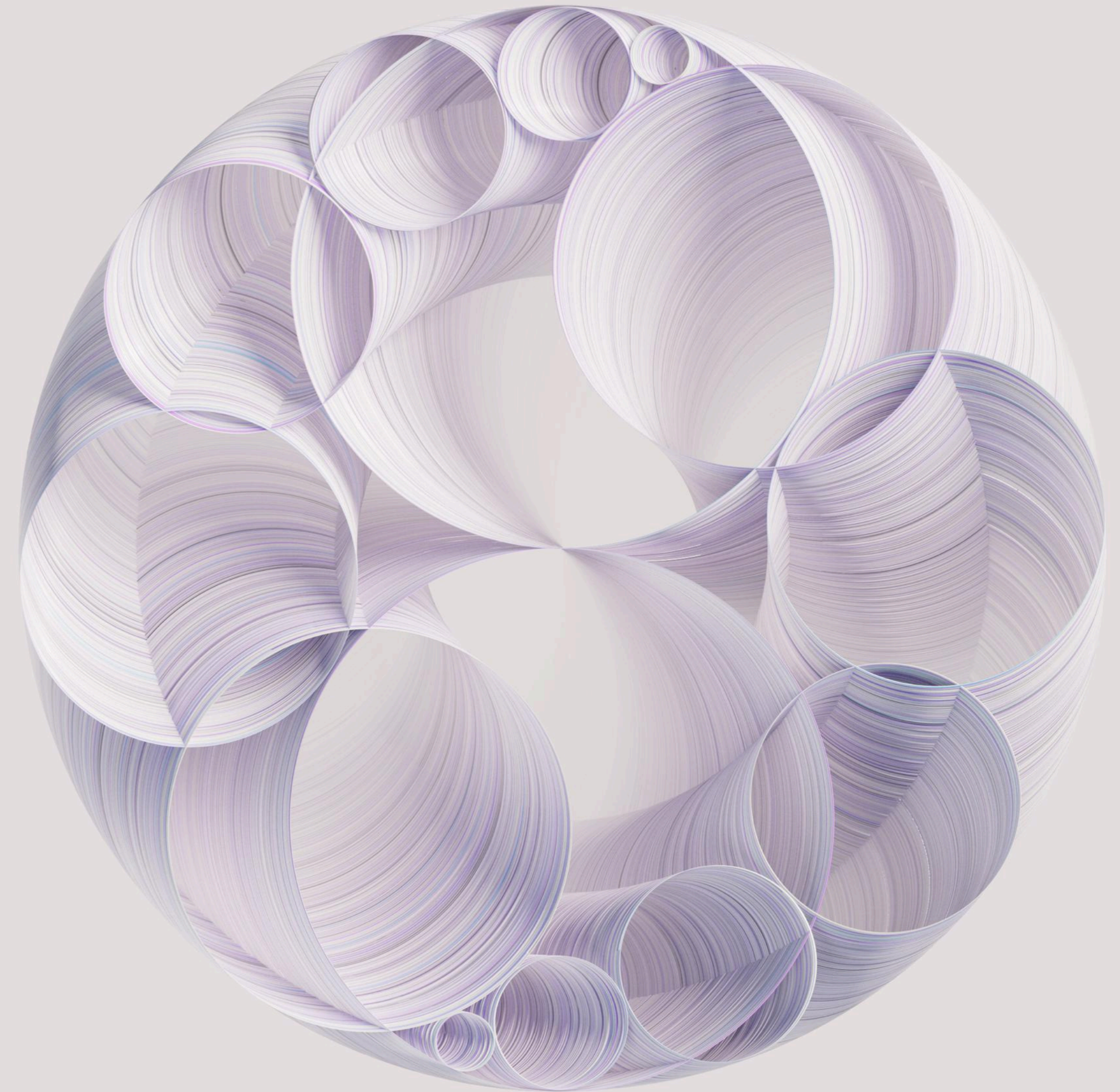
Journey to AN Level 4: *Executing the Target Operating Model*

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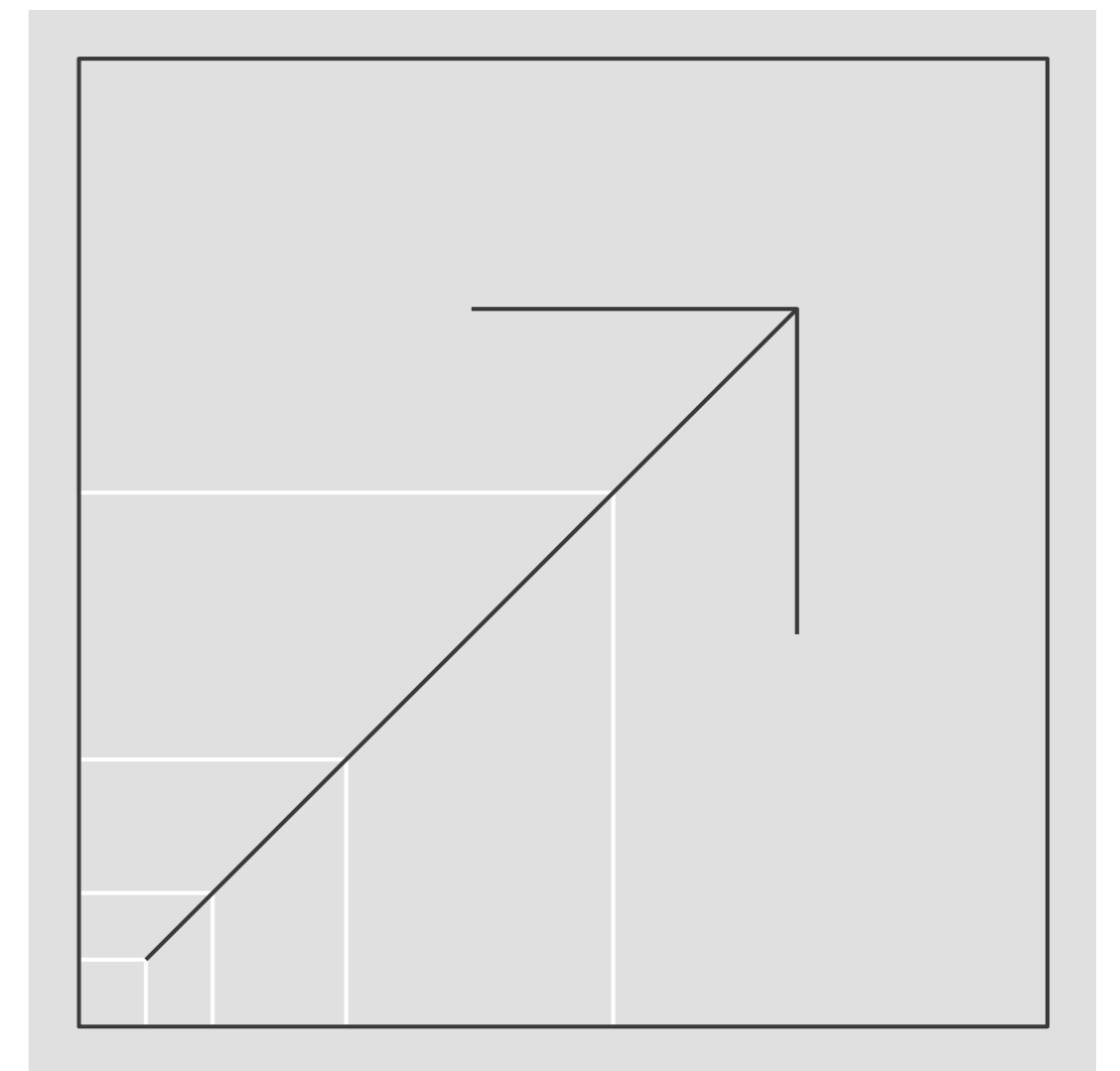
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Topics for today...

- | The need for a new operating model
- | Defining the new operating model
- | Process, technology and organizational evolution
- | Alignment of AN with AI operations center
- | Key takeaways



The need for a new Autonomous Networks operating model...

AN Goals

Rapid rollout of advanced technologies & services with AI frameworks

Innovation and Time to Value

Network Lifecycle Automation

Automate the entire network lifecycle of planning, design, engineering, deployment, and operations

Enable dynamic adjustments to network configurations, capacity, and traffic management

Real-Time Decisions & Optimization

Automated Network Operations

Create Self-X networks to minimize human intervention



Develop Zero-X experience to predict & resolve customer issues before they arise

Strategic Shifts

The future operating model is not process-centric alone. It becomes a continuously learning control system.

Traditional Telco Model

- Plan → Design → Deploy → Operate → Maintain
- Sequential handoffs
- Siloed organizations

Autonomous Network Model

- Intent → Observe → Analyze → Decide → Execute → Learn
- Continuous closed-loop operations
- Cross-domain orchestration

Human + Digital workforce

- Not humans augmented by AI
- Will be AI augmented by humans

ANOC will operate in collaboration with AIOC

It is not just about reaching a certain level of autonomy but measuring the value/ROI of having reached that level.

TM Forum Levels of Autonomous Operations

CSPs are aspiring to achieve Autonomous Network **Level 4**, which provides a **high level of autonomy**, while keeping a **human in the control loop**

0	1	2	3	4	5
Manual Management	Assisted Management	Partial Autonomous Network	Conditional Autonomous Network	Highly Autonomous Network	Fully Autonomous Network
All tasks are executed manually by humans	System executes certain repetitive sub-tasks based on pre-configured rules	Automation is driven by statically configured rules	Automation implementation is driven by dynamically programmable policies	Automation implementation is driven by AI-assisted knowledge with continuous learning and rapid evolution, under human supervision in emergencies.	The system is capable of self-evolution and adapting to changes through self-learning and self-evolving for new scenarios, achieving complete autonomy in all scenarios.
<ul style="list-style-type: none"> Assisted operations Recommendations only Human executes 		<ul style="list-style-type: none"> Partial Automation of process steps by AI Human Approval Required 	<ul style="list-style-type: none"> Conditional AI Autonomy System Executes with Guardrails Human Approval for critical cases 	<ul style="list-style-type: none"> Full closed-loop automation for trusted AI flows Human Approval for critical cases Human only handles exceptions/fallout 	<ul style="list-style-type: none"> Closed-loop autonomous operations Self-healing and self-optimizing networks Minimal human intervention

ANL4 is not achieved by just adding AI to operations. It requires redesigning the operating model itself.

* As of 4Q 2025 only 6% had achieved ANL4 in multiple domains. 26% had set the goal to achieve ANL4 in 3 years

AN Target Operating Model

Autonomous Network Operating Model Across the Full Lifecycle needs to address...

Full Lifecycle Scope

- Planning
- Design
- Engineering
- Deployment
- Operations
- Optimization
- Maintenance

Future-State Platform Characteristics

- Unified Intelligence across the Lifecycle
- Shared telemetry and observability
- Unified topology and knowledge models
- Common AI and automation platform

Continuous Feedback Loops

- Operations continuously informing planning
- Deployment outcomes refining engineering models
- Runtime intelligence optimizing future designs

Process-as-Code

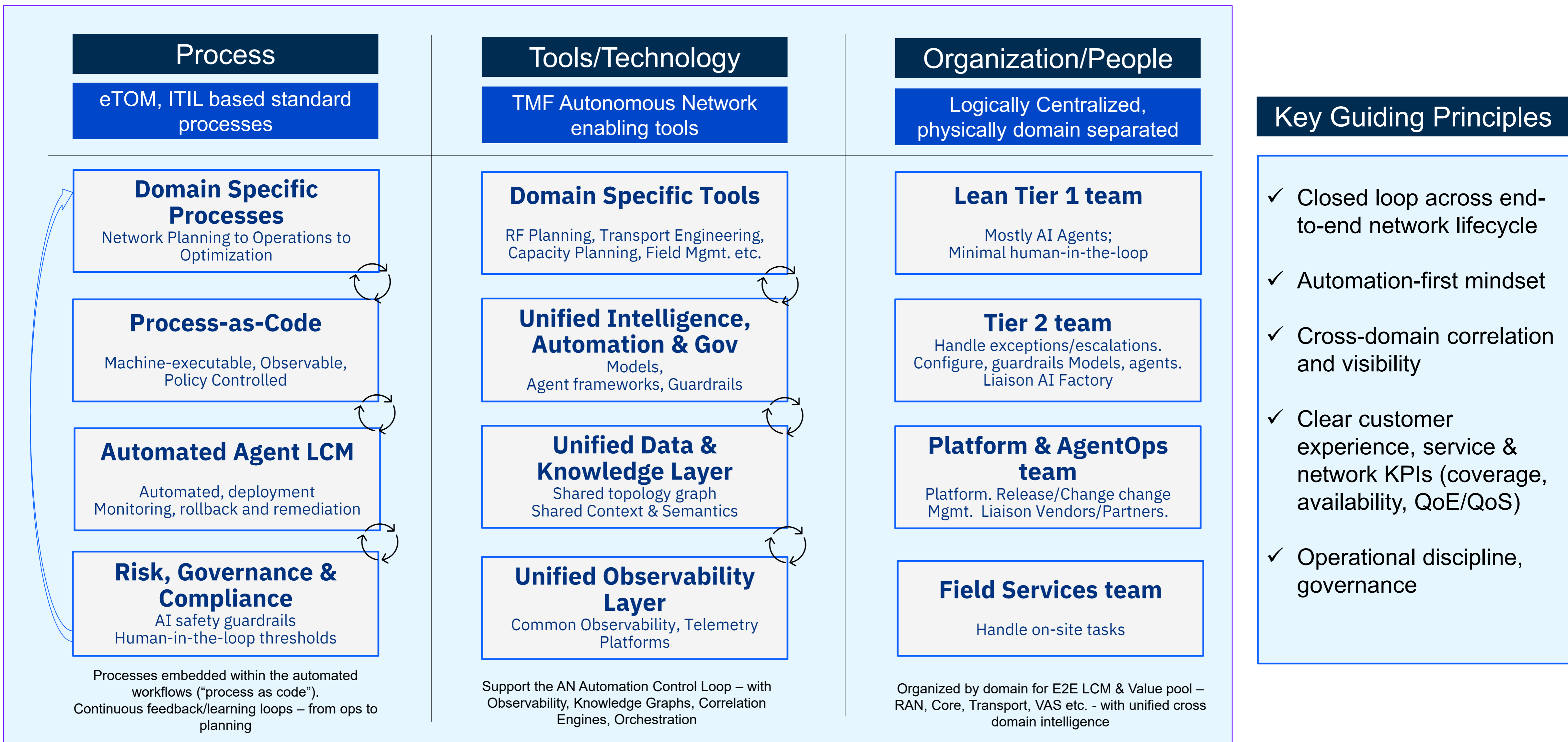
Operational workflows become:

- Machine executable
- Policy-driven
- Observable
- Continuously optimized

The network lifecycle becomes a continuous intelligent pipeline instead of isolated operational stages.

The E2E Autonomous Networks Operating Model for ANL4

Desired state – will be a phased transition...



Organizational Framework

Evolving the Workforce and Organizational Model

Traditional Model – Siloed Organizations

- NOC operations
- Planning teams
- Engineering teams
- Maintenance teams
- Separate automation groups

Future AN Operating Model - Lifecycle-Oriented Organization

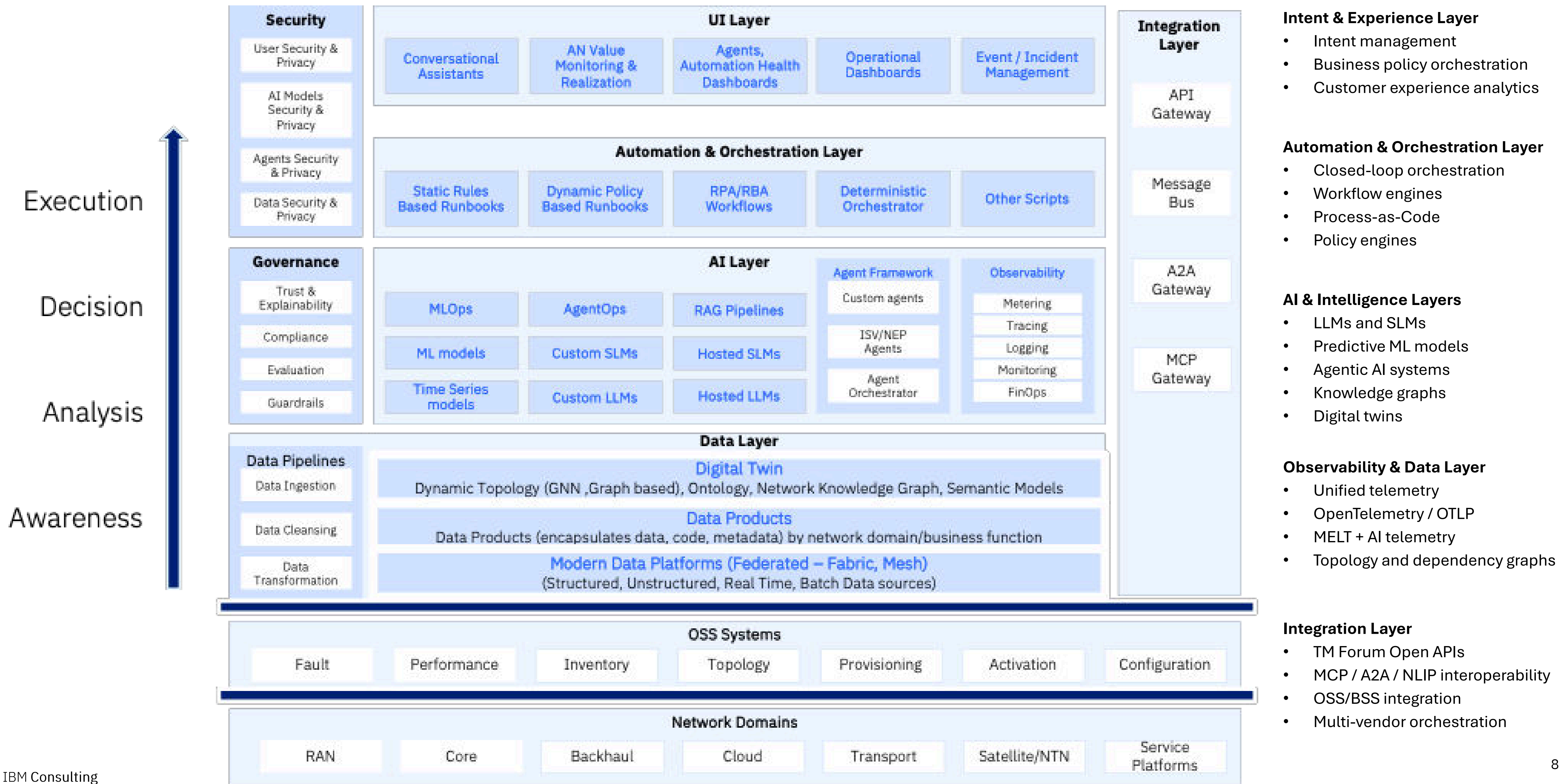
- Autonomous Networks Operations Center (ANOC)
- AI Operations Center (AIOC)
- Automation Engineering
- AgentOps / ModelOps
- Knowledge Engineering
- Governance and Policy Management

New Roles Emerging

- AI Reliability Engineers
- AgentOps Engineers
- Knowledge Graph Engineers
- AI Governance Specialists
- Closed-Loop Automation Engineers

You are not just managing network and services, but AI decisions and outcomes

Autonomous Networks Technology stack for ANL4+



AI Operations Center (AIOC)

The Emerging Operational Backbone for AI-Native Enterprises

AI systems introduce new operational failure domains

- Model drift
- Hallucinations
- Agent misbehavior
- Tool misuse
- Prompt injection
- Policy violations

Core AIOC Functions - AI Service Assurance

- AI observability
- Incident and problem management
- Hallucination detection
- Runtime governance

AI Lifecycle Management

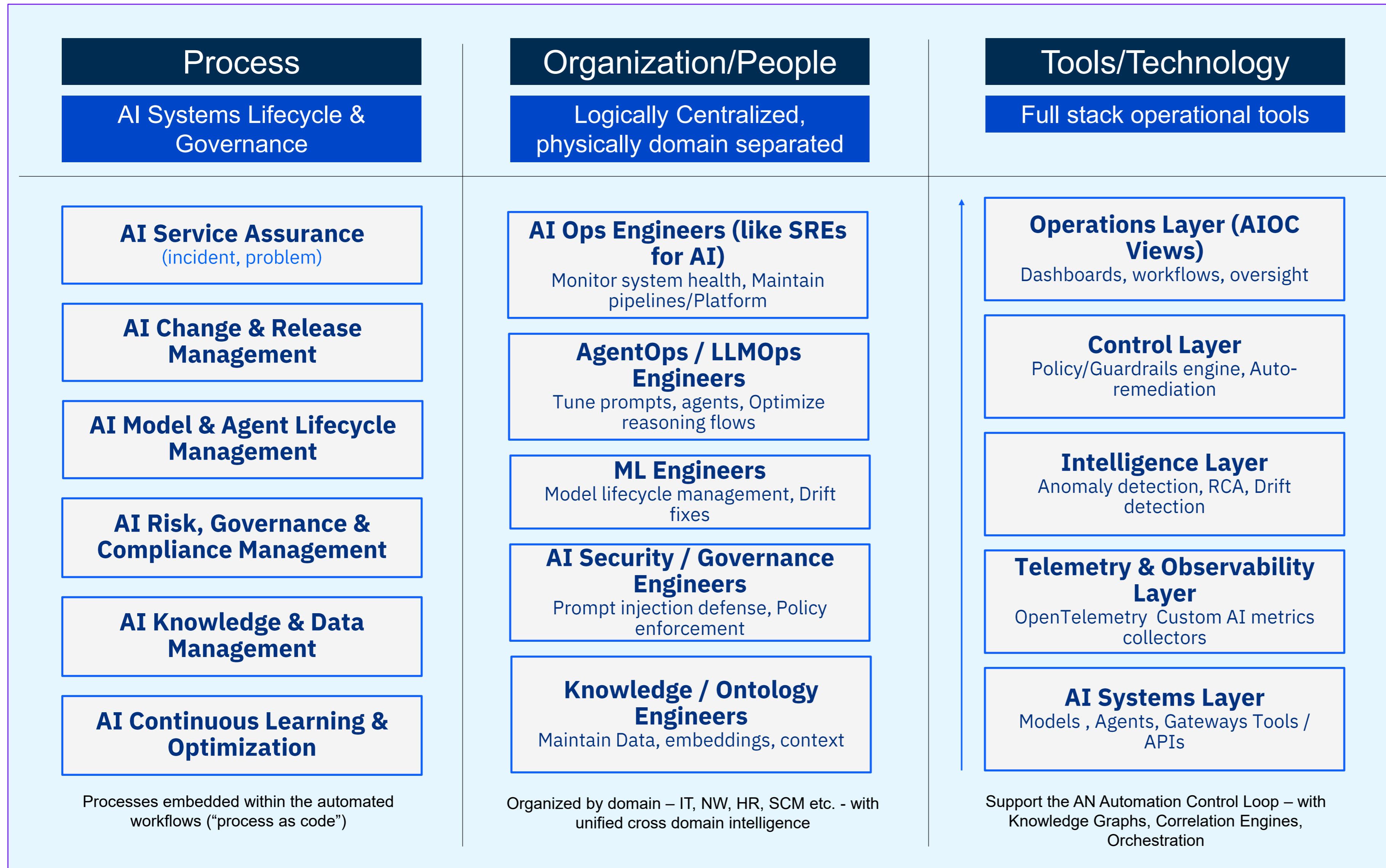
- Model versioning
- Prompt management
- Canary deployments
- Drift remediation

AI Governance & Security

- AI risk management
- Compliance monitoring
- Human oversight controls
- Runtime policy enforcement

ANOCs manage Outcomes. AIOCs manage behavior.

AI Operations Center Target Operating Model



- ### Key Design Principles
- ✓ **Observability-first**
If you can't trace it, you can't operate it.
 - ✓ **Process-as-code**
Incident workflows
Guardrails
Policies
 - ✓ **Human-in-the-loop (strategic, not operational)**
Humans for edge cases
Not routine ops
 - ✓ **Unified telemetry**
Models, agents, tools = one pipeline
 - ✓ **Governance by design**

- ### Notable KPIs
- % successful AI outcomes (Decision Accuracy)
 - Cost per inference / per workflow (Token Efficiency)
 - % auto-resolved issues
 - Human intervention rate
 - Policy violation rate
 - Security incident rate

Alignment of AN Operating Model and AI Operating Model

Autonomous Networks and AI Operations may begin to Converge

AN Operating Model Focus

- Network autonomy
- Closed-loop assurance
- Service orchestration
- Lifecycle automation

AI Operating Model Focus

- AI observability
- Agent governance
- Model reliability
- Runtime control

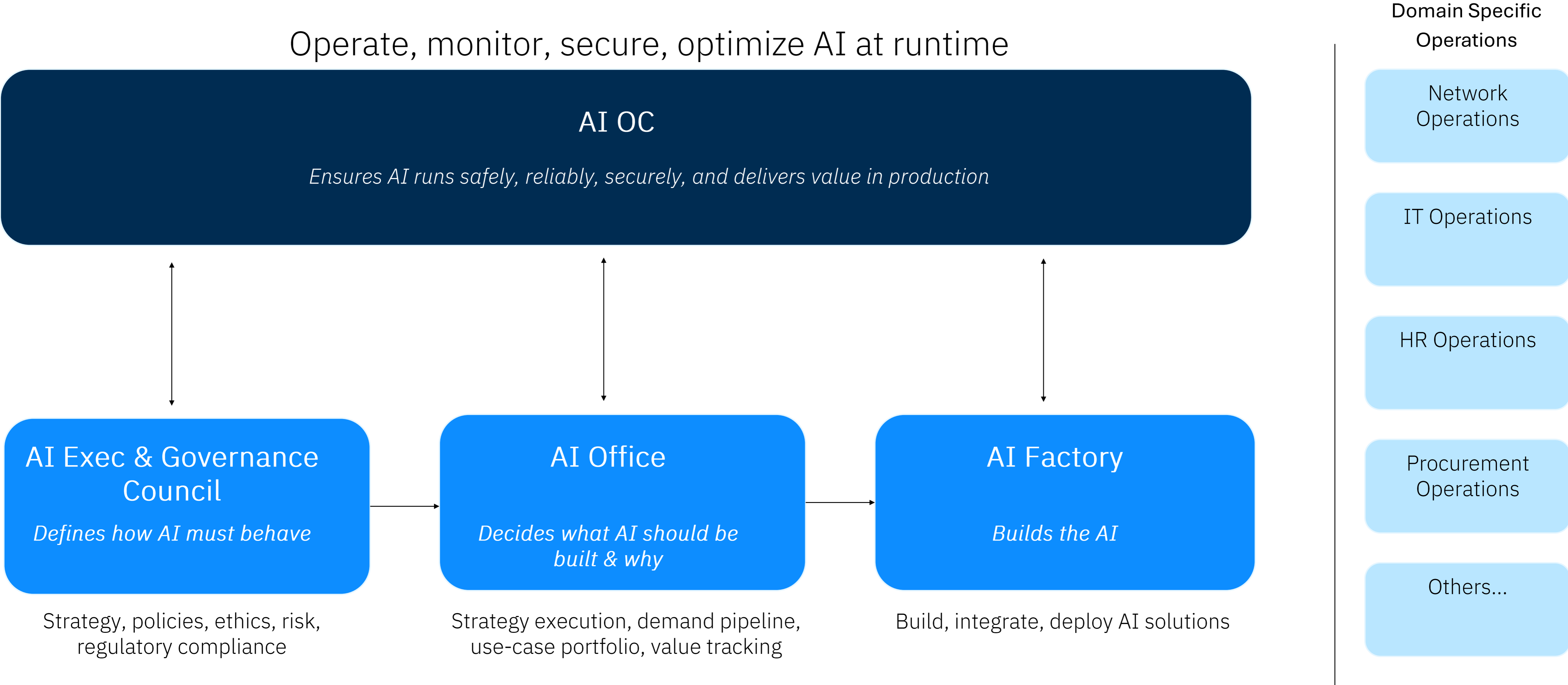
Shared Foundations

- Unified telemetry and observability
- Policy-driven automation
- Process-as-Code
- AI governance frameworks
- Closed-loop control systems
- Runtime decision assurance

Strategic View: The future telecom operating model combines: Network autonomy + AI operational governance

Enterprise Scope: How the AI OC fits within the enterprise AI Program

The AI OC is the central control tower that ensures the AI program runs in accordance with the direction set by Governance Council and AI Office.



Key Takeaways

ANL4 is an Operating Model Transformation

Not simply an AI & Automation initiative

Lifecycle Integration is Critical

Planning, engineering, deployment and operations must converge into a continuous intelligent system

Process-as-Code Enables Scalable Autonomy

Operational governance must become executable and policy-driven.

The Future of Network Operations is a Living System

Continuously learning, optimizing and adapting in real time.

AI Operations Will Become Foundational

AIOCs will become the NOCs and SOCs of the future

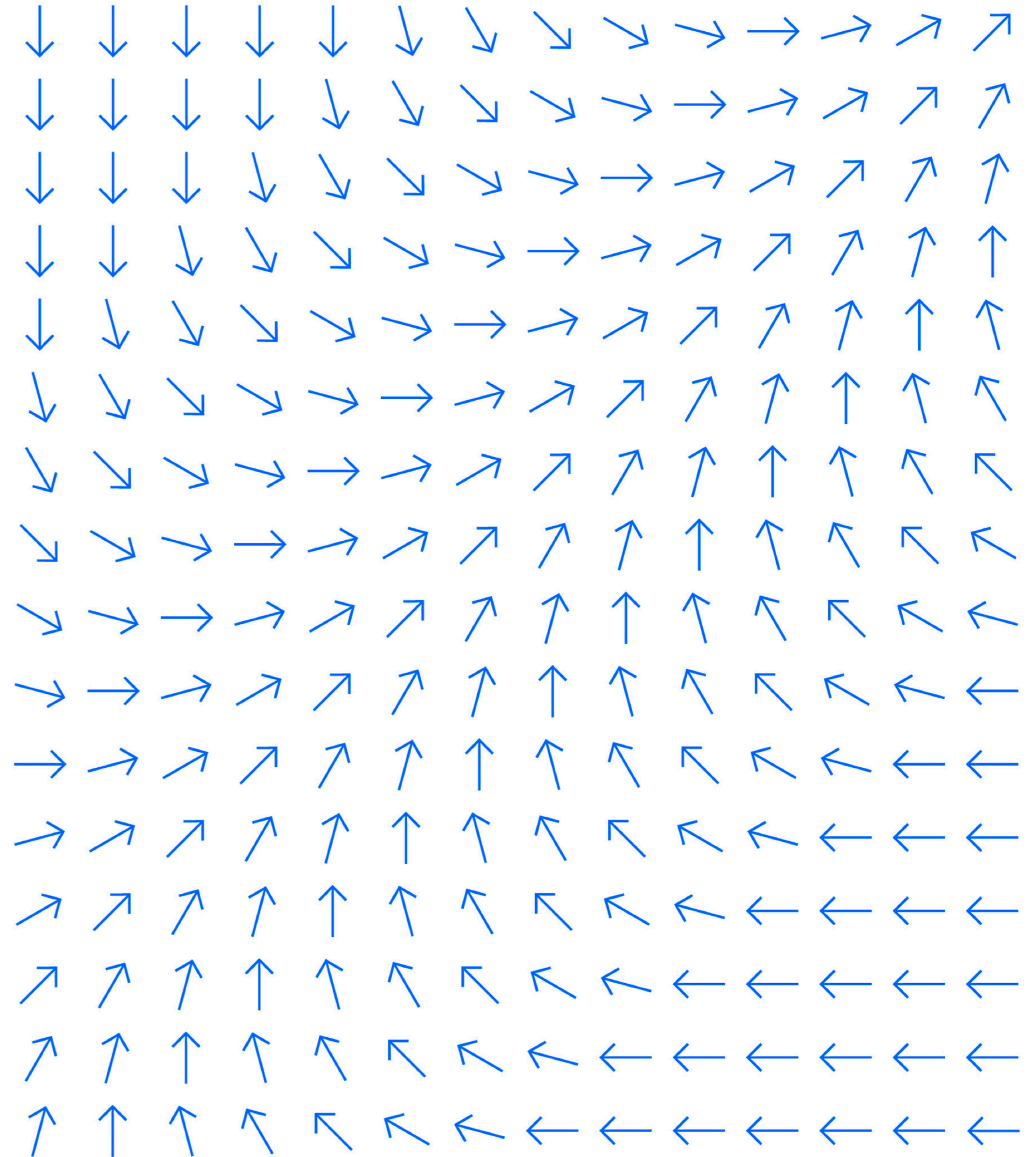
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The future of telecom operations will not be defined by isolated automation projects.

It will be defined by the ability to operate networks as intelligent, continuously learning systems.

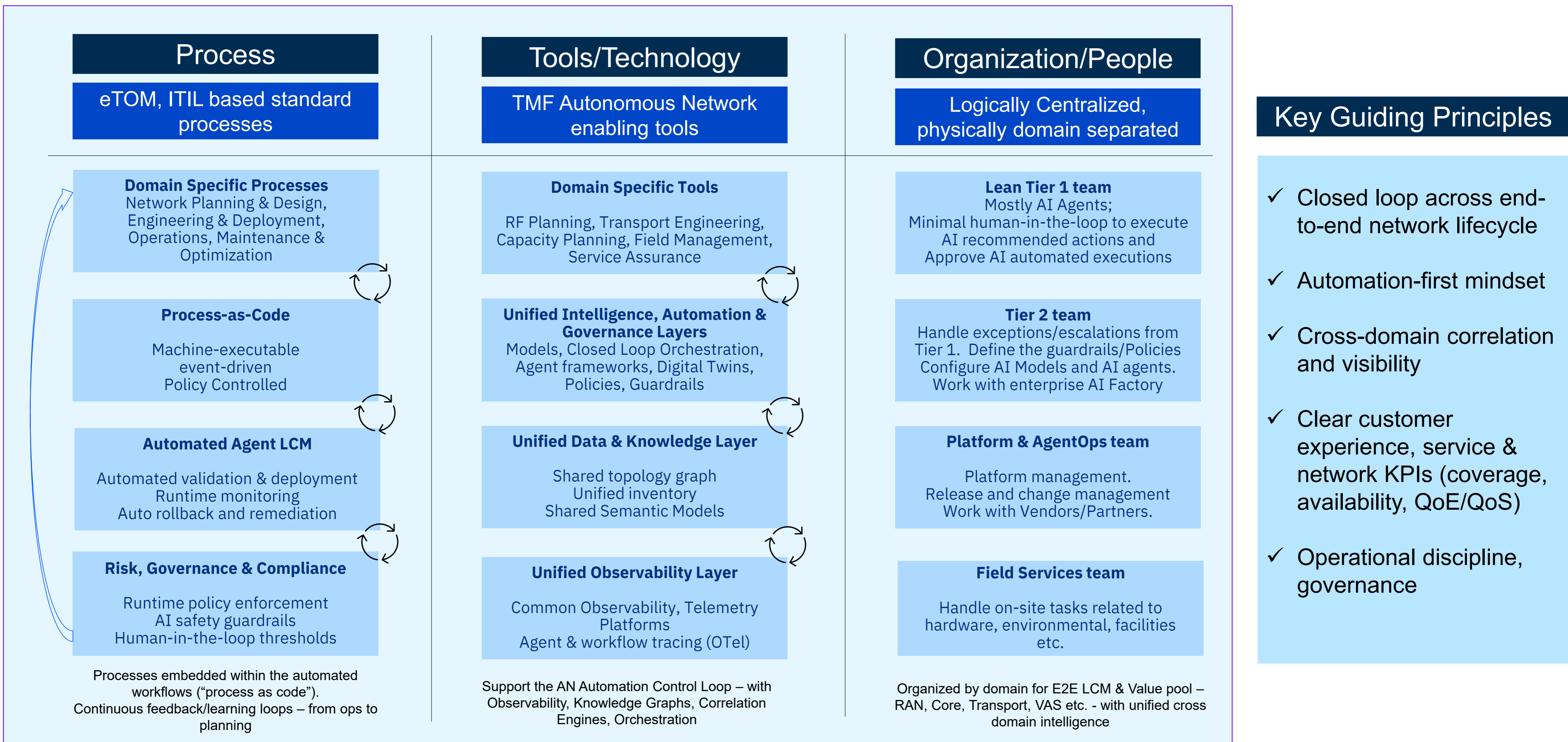
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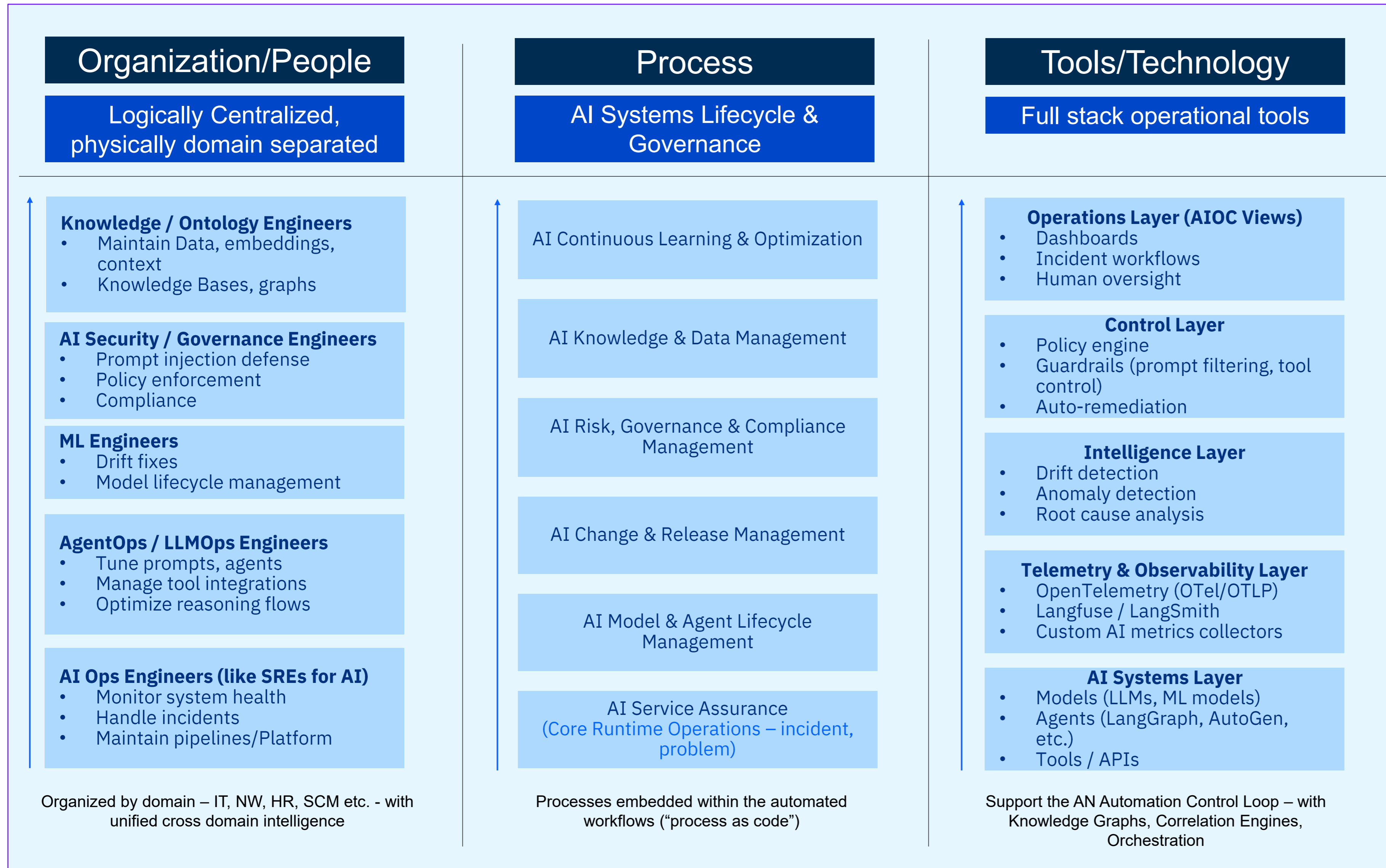


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AI Operations Center Target Operating Model



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Notable KPIs

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