Autonomous Telecom Networks Training Course: Self-Optimising Operations and Assurance

3 – 7 January 2027
Zoom

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Programme Summary

Autonomous telecom networks are the subject of this one-week training course for telecom network directors, heads of operations and planning leads, taught at strategic level and ending in a network autonomy roadmap. Operators face rising traffic, tighter broadband quality demands and growing fault volumes, while manual tuning and ticket handling cannot keep pace. The programme moves from autonomy levels and data foundations to optimisation, closed-loop assurance and governance, using prepared performance records from mobile and fixed broadband operators. Mars Training Centre UK delivers this programme on autonomous telecom networks to mixed-organisation cohorts.

The Business Case

Leaders who can judge which network tasks are ready for automation, set limits on automated change and hold suppliers to clear evidence make sound investment and operating choices. Without that discipline, automation spreads unevenly, faults repeat and customers notice the gaps before the operator does. The programme works on the measures below.

- Service Quality: Improves when congestion and faults are predicted and handled before customers are affected.
- Operating Cost: Reduces when routine tuning, energy settings and fault triage follow tested automated rules.
- Change Risk: Falls when automated changes carry guardrails, approval thresholds and rollback.

Principles and Evidence Base

- TM Forum Autonomous Networks levels: The industry ladder from Level 0 manual operation to Level 5 fully autonomous operation, applied in Sessions 1 and 5 to set an autonomy target and roadmap.
- Self-optimising networks SON: The practice of letting the network tune its own parameters from measured performance, applied in Sessions 2 and 3 to select optimisation cases.
- Closed-loop control: The principle of measuring, deciding, acting and re-measuring, applied in Sessions 3 and 4 to design guardrails and assurance flows.
- Key performance indicator analysis: The practice of reading service measures against a baseline, applied in Session 2 to find strain and faults.

Intended Participants

- Network directors who decide how far operations move toward automated control.
- Heads of operations who answer for service quality, fault handling and team capacity.
- Planning leaders who size capacity and rank network investments.
- Assurance and performance managers who own service measures and escalation rules.
- Technology and supplier managers who judge automation offers and exit terms.

Typical settings include mobile operators, fixed broadband providers, tower and infrastructure companies and national network wholesalers.

Learning Outcomes

1. Participants will be able to evaluate the autonomy level of a network operation against the TM Forum ladder.
2. Participants will be able to diagnose congestion and fault patterns from performance records.
3. Participants will be able to construct guardrails and approval thresholds for automated optimisation.
4. Participants will be able to prioritise optimisation cases by service value and change risk.
5. Participants will be able to compare supplier automation offers using lock-in and data ownership tests.
6. Participants will be able to justify a network autonomy roadmap to a network board.

Programme Structure

Day 1: Autonomous Telecom Networks Foundations and Autonomy Levels

What does an autonomous telecom network need before automation can be trusted?

- TM Forum Autonomous Networks Level 0 to Level 5 Ladder
- Network Operations Task Inventory
- Performance Data Quality Checklist
- Self-Optimising Network Capability Map
- Autonomy Target and Gap Statement

Day 2: Reading Network Performance and Predicting Congestion

How do traffic, latency and throughput records show where a network will strain?

- Radio and Broadband KPI Tree
- Traffic and Congestion Forecast Review
- Anomaly Detection Screening Table
- Fault Pattern and Root-Cause Grouping
- Customer Experience and Churn Signal Matrix

Day 3: Designing Self-Optimising Operations

Which optimisation tasks can be handed to automated loops, and under what limits?

- Capacity and Radio Parameter Optimisation Cases
- Energy Saving Rule Design
- Closed-Loop Control Design Sheet
- Automation Guardrail and Rollback Rules
- Human Approval Threshold Table

Day 4: Service Assurance, Governance and Supplier Choices

How is automated assurance kept accountable, secure and independent of one supplier?

- Closed-Loop Service Assurance Flow
- Automated Change Audit Trail
- Model Drift and Data Ownership Review
- Supplier Lock-In and Exit Test
- Operations Team Skills and Role Plan

Day 5: Autonomous Telecom Networks Roadmap Review for One Operator

Do the earlier findings join into a roadmap that a network board can approve?

- Applying the Session 1 Autonomy Target
- Testing the Session 2 KPI Tree
- Checking the Session 3 Guardrail Rules
- Reviewing the Session 4 Assurance Flow
- Completing the Network Autonomy Roadmap

Methodology

The programme is a data workshop built on prepared traffic, latency, throughput and fault records from mobile and fixed broadband operators. Participants read the records, rank optimisation cases, set limits on automated change and test supplier claims, then defend the roadmap to peers acting as a network board.

- Suggested activity: Reading a busy-hour congestion trend and naming the first action.
- Suggested activity: Setting guardrails and rollback rules for an automated parameter change.
- Suggested activity: Scoring two supplier offers on lock-in and data ownership.

Capstone Output

Each participant completes a network autonomy roadmap. It holds an autonomy target, a KPI tree, a ranked list of optimisation cases, guardrail rules and an assurance flow. At work it goes to the network board for approval and sets the standard for judging later automation proposals.

Frequently Asked Questions

Is autonomous telecom networks training suitable for leaders who are not network engineers?

Yes. Autonomous telecom networks are taught through prepared records and templates. You need responsibility for operations, planning or network investment, but no engineering configuration skills.

Which framework does autonomous telecom networks training rest on?

Autonomous telecom networks here rest on the TM Forum Autonomous Networks levels, with self-optimising network practice, closed-loop control and indicator analysis supporting each decision.

How is the roadmap from autonomous telecom networks training used at work?

You take the network autonomy roadmap to your board, use its guardrail rules to judge automation proposals, and keep its KPI tree as the shared view of service quality.