

Recommendation

ITU-T M.3386 (01/2024)

SERIES M: Telecommunication management, including
TMN and network maintenance

Telecommunications management network

**Requirements for the management of network
operation cost within AI enhanced Telecom
Operation and Management (AITOM) in
telecommunication operational aspects**

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Recommendation ITU-T M.3386

Requirements for the management of network operation cost within AI enhanced Telecom Operation and Management (AITOM) in telecommunication operational aspects

Summary

Recommendation ITU-T M.3386 focuses on network operation cost management within AITOM in telecommunication operational aspects. This Recommendation provides the classification standard and functional requirements of network operation cost management.

History *

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Recommendation ITU-T M.3386

Requirements for the management of network operation cost within AI enhanced Telecom Operation and Management (AITOM) in telecommunication operational aspects

1 Scope

This Recommendation defines the framework of AI technology in network operation cost management in telecommunication network operation and maintenance, and defines the functional requirements under the AITOM standard.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T M.3200] Recommendation ITU-T M.3200 (1997), *TMN management services and telecommunications managed areas: overview*.

[ITU-T Y.3101] Recommendation ITU-T Y.3101 (2018), *Requirements of the IMT-2020 network*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 artificial intelligence model [b-ITU-T M.3080]: The model created by applying artificial intelligence (AI) technology to data to learn from.

3.1.2 artificial intelligence pipeline [b-ITU-T M.3080]: A set of logical nodes, each with specific functionalities, that can be combined to form an artificial intelligence (AI) application in systems of telecom operation and management.

3.1.3 machine learning (ML) [b-ITU-T Y.3172]: Processes that enable computational systems to understand data and gain knowledge from it without necessarily being explicitly programmed.

3.1.4 on-site overhaul [b-ITU-T M.3040]: A kind of on-demand preventive maintenance performed at facility site in the condition of natural disasters or major events.

3.1.5 on-site patrol [b-ITU-T M.3040]: A kind of routine preventive maintenance periodically performed at a facility site.

3.1.6 on-site troubleshooting [b-ITU-T M.3040]: A kind of corrective maintenance performed at a facility site when the quality of equipment degrades.

3.1.7 work order [b-ITU-T M.3382]: A ticket through which the superior department assigns a network management, operation and maintenance task to the subordinate department.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 consumable material: All supplies used in the performance of maintenance work that are disposable after use and must be replaced regularly to continue with the performance of maintenance work.

NOTE – Some typical consumable materials are patch cord, pigtail, connectors and registered jack.

3.2.2 maintenance support services: Services provided by the original equipment manufacturer or provider to support the operator's maintenance work according to the maintenance contract.

NOTE – Maintenance support services include technical support in case of operational failures, regular inspection and repairing of the device, etc.

3.2.3 network operation cost: Human and other resources spent during the operation and maintenance of a network.

3.2.4 spare parts: Extra components or devices prepared in advance for replacing the ones in use according to maintenance work needs.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

AI	Artificial Intelligence
AITOM	AI enhanced Telecom Operation and Management
NLP	Natural Language Processing
OS	Operation System
TMA	Telecommunications Managed Areas
TSMS	Telecommunication Smart Maintenance System

5 Conventions

In this Recommendation:

The keywords "**is required to**" indicate a requirement which must be strictly followed and from which no deviation is permitted if conformance to this Recommendation is to be claimed.

The keywords "**is recommended**" indicate a requirement which is recommended but which is not absolutely required. Thus this requirement needs not be present to claim conformance.

6 Overview

The application framework of AI technology in network operation cost management is a detailed application based on AITOM, focusing on the network operation cost management of telecommunication network equipment, telecommunication machine room, base station and transmission lines. This Recommendation proposes the classification of network operation cost and the framework and functional block of artificial intelligence-based network operation cost management, and describes how to use artificial intelligence to correlate network status data, business operation data and maintenance execution data to achieve real-time dynamic network operation cost decision-making and management.

7 Framework for the management of network operation cost within AITOM

7.1 Classification of network operation cost

7.1.1 Classification principle of network operation cost

The classification structure design of network operation cost should follow these basic principles: