ITU Journal
Future and evolving technologies

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The ITU Journal on Future and Evolving Technologies (ITU J-FET) is an international journal providing complete coverage of all communications and networking paradigms, free of charge for both readers and authors. The ITU Journal considers yet-to-be-published papers addressing fundamental and applied research. It shares new techniques and concepts, analyses and tutorials, as well as learning from experiments and physical and simulated testbeds. It also discusses the implications of the latest research results for policy and regulation, legal frameworks, the economy and society. This publication builds bridges between disciplines, connects theory with application, and stimulates international dialogue. Its interdisciplinary approach reflects ITU's comprehensive field of interest and explores the convergence of ICT with other disciplines. The ITU Journal welcomes submissions at any time, and on any topic within its scope.

Special issue on

Network orchestration and management for 6G and beyond

Call for papers

The evolution towards 6G networks introduces unprecedented complexity, driven by the convergence of terrestrial and non-terrestrial networks, the proliferation of Reconfigurable Intelligent Surfaces (RIS), and the demand for highly immersive and mission-critical applications. The scale and heterogeneity of these future networks, combined with stringent requirements for zero-latency, high-fidelity, and hyper-reliable services, render traditional network management paradigms obsolete. A fundamental shift is required towards fully automated, AI-native, and zero-touch operational solutions. This special issue seeks to bring together cutting-edge research that addresses the profound challenges and opportunities in the orchestration and management of 6G systems and beyond.

We invite contributions that explore novel frameworks, architectures, systems and algorithms for intelligent, efficient, safe, and resilient network automation. The focus is on enabling end-to-end orchestration across multiple domains, from the cloud continuum to the radio access network, ensuring seamless service delivery and optimized resource utilization. This includes harnessing advanced AI/ML techniques, such as generative AI and deep reinforcement learning, to create self-healing, self-optimizing, and self-evolving networks. We also encourage submissions on topics related to security, trust, and sustainability in network management, which are paramount for the successful deployment and societal acceptance of 6G. This special issue aims to foster collaboration among researchers and practitioners to define the future of autonomous network operations.

Suggested topics (but not limited to):

AI-native automation and zero-touch management	• Intent-based networking for 6G • Generative AI for network analysis and optimization • AI/ML model lifecycle management (MLOps) in the network • Zero-touch network and service management • Digital twins for network simulation and management • Human-in-the-loop automation and augmented intelligence
Resource orchestration and network slicing	• End-to-end resource orchestration across cloud-edge-IoT continuum • AI-driven network slicing management • Cross-domain orchestration (e.g., terrestrial and non-terrestrial networks) • Serverless and cloud-native paradigms for virtualized network functions • Energy-efficient and sustainable orchestration
Security, resilience, and trust	• AI-driven Security Orchestration, Automation, And Response (SOAR) • Automated threat detection and mitigation in 6G networks • Resilient network design and recovery mechanisms • Decentralized trust management frameworks (e.g., using blockchain) • Security for AI models used in network management
Management of novel networking paradigms and architectures	• Semantic and goal-oriented communications and networking • Programmable data planes and network fabrics for real-time control • Management of RIS and holographic communications • Knowledge-defined networking and reasoning engines

Keywords
6G, network management, network orchestration, AI/ML, zero-touch networking, intent-based networking, network slicing, security orchestration, automation, digital twin, resource management, non-terrestrial networks (NTN), resilience

Deadlines
Paper submission: 12 January 2026
Paper acceptance notification: 30 March 2026
Camera-ready paper submission: 30 April 2026

Paper submission
This special issue calls for original scientific papers. Submitted papers should not be under consideration for publication elsewhere. Submissions must be made electronically using ScholarOne Manuscripts at: https://mc04.manuscriptcentral.com/itujournal, where templates and guidelines are also available.

Publication
Papers will be published in the ITU digital library.

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Inquiries should be addressed to Alessia Magliarditi at: journal@itu.int.