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SC 6 Business Plan (PERIOD COVERED- June 2025 – April 2026)

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SC 6 Business Plan (PERIOD COVERED: June 2025 – April 2026)

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Description

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BUSINESS PLAN for JTC1/SC 6
Telecommunications and Information Exchange between Systems

PERIOD COVERED: June 2025 – April 2026

1.0 Executive Summary

JTC 1/SC 6 (Telecommunications and Information Exchange between Systems) was established in 1964. It works on standardization in the field of telecommunications, dealing with the exchange of information between open systems, including system architectures, functions, procedures, parameters, and the conditions for their use. This standardization encompasses protocols and services of lower layers, including the physical, data link, network, and transport, and those of upper layers, including but not limited to Directory and ASN.1, OID, MFAN, NFC, PLC, UAAN, and Future Network.

SC 6 is responsible for 420 published International Standards and 15 open project items. Much of the work has been done in practical cooperation with ITU-T Study Groups such as SG11, SG13, SG17, SG21, and other standardization bodies, including IEEE 802, ECMA International, and NFC Forum.

Over the past five years, SC 6 has been:

1. Revising the NFC series

2. Developing future network architecture and corresponding protocols and mechanisms to support emerging services and applications beyond the limitations of the existing networks

3. Developing new standards in communication protocols of unmanned aircraft area networks (UAAN)

4. Developing new standards for Wireless LAN access control Architecture and protocols

5. Developiong and maintenance of standards on ASN.1, Directory, and Registration, etc.

SC 6 is now expanding into areas such as Connected Automated Vehicles (CAVs) Proving Ground Area Networks, Wearable Suit Area Network, AI enabled Networks, Blockchain enabled communications, and High-precision Time Synchronization Protocol For Fibre Channel Network.

2.0 Environment

2.1 Market Requirements and Innovation

NFC standards have become a significant success in the market. Many vendors, including Google, Nokia, and Samsung, are incorporating NFC technology in their smartphones. NXP, Sony, NFC Forum, and ECMA International have contributed significantly to develop the NFC standards.

The current network has become an essential communication infrastructure for data transfer and social applications. However, SC 6 has noticed many concerns, such as scalability, security, robustness, mobility, quality of service (QoS), reconfigurability, context awareness, etc. SC 6 is continuously carrying out standards development work on emerging technologies to resolve various challenges.

Directory standards have been designed to permit the deployment of large directory databases distributed in many systems with a very efficient, flexible, and reliable replication mechanism.

The ASN.1 standard is used in many protocols (directory, network management, security) and permits usage of multiple encoding rules.

2.2 Technology Trends

SC 6 is working on:

- Revising NFC standards to harmonize with NFC Forum specifications
- Standardizing MAC/PHY and application layer protocols for Wearable Suit Area Network
- Developing Future Network standards to address emerging challenges
- Exploring new areas such as AI-enabled networking/communications, network slicing over WLAN, and High-precision Time Synchronization Protocol For Fibre Channel Network, application control protocols for UAAN
- Exploring the guidelines for designing communication security protocols in the context of migration to Post Quantum cryptography, dealing with the challenges in Quantum era

3.0 Achievements and benefits

3.1 Key Achievements

- Successful development and adoption of NFC standards
- Publication of standard deliverables on Future Networks - Problem statement and requirements (ISO/IEC TR 29181 series)
- Publication of Standards on Architecture for future networks and corresponding protocols and mechanisms (ISO/IEC 21558 series, ISO/IEC 21559 series, ISO/IEC 4396 series)
- Publication of standards for Unmanned Aircraft Area Networks (ISO/IEC 4005 series)
- Publication of standards for Wireless LAN access control (ISO/IEC 5021 series)
- Publication of standards for ISO/IEC 9594 series (Directory)
- Publication of standards for ISO/IEC 8824 and 8825 series (ASN.1)
- Publication of standards for ISO/IEC 29168 series (OID)

3.2 Benefits

- Improved interoperability in NFC applications
- Enhanced network capabilities to support emerging services and applications
- Standardization in new technological domains like unmanned aircraft systems
- Supporting industries for applying application protocols such as Directory, ASN,1, and OID

4.0 Participation and cooperation/collaboration

4.1 Membership

SC 6 has 18 P-members and 36 O-members.

4.2 Collaboration

SC 6 collaborates closely with:

- ITU-T Study Groups 11, 13, 17, 21
- IEEE 802
- ECMA International
- NFC Forum

It is also working to strengthen cooperation with:

- IEC TC 124
- ISO TC 20/SC 16
- ISO TC 215
- ISO TC 307
- JTC 1/WG 14
- JTC 1/AG 19
- JTC 1/SC 17
- JTC 1/SC 24
- JTC 1/SC 27
- JTC 1/SC 41
- JTC 1/SC 42
- JTC 1/SC 43

5.0 Objectives and strategies to achieve them

5.1 Objectives

- Harmonize NFC standards with market deployments
- Develop standards for future networks and related emerging technologies
- Expand into new areas like AI-enabled networking/communications, High-precision Time Synchronization Protocol For Fibre Channel Network, blockchain enabled communications, Wearable Suit Area Network, network slicing over WLAN, communications between software-centric vehicles and related systems, communication aspects of metaverse
- Maintain and update existing standards in Directory, ASN.1, and Registration

5.2 Strategies

- Encourage the establishment of ad hoc groups and advisory groups for new technological areas
- Utilize flexible meeting formats, including interim and e-meetings
- Strengthen collaboration with other SDOs and industry forums
- Invite experts from liaison organizations to participate in relevant activities
- Regularly update and maintain existing standards
- Hold regular technical seminars and workshops to promote standardization activities

6.0 Factors affecting completion and adoption of the work program

- Shortage of experts, particularly for maintaining older standards
- Rapid technological changes requiring quick standardization responses
- Potential competition with other SDOs in emerging technological areas
- Need for closer collaboration with new TCs and SCs in related fields

7.0 Structure, current projects, and publications

7.1 Organizational Structure

SC 6 is organized into three main working groups, five advisory groups and two Ad hoc groups:

Working Groups:

- WG 1: Physical and data link layers
- WG 7: Network, Transport, and Future Network
- WG 10: Directory, ASN.1 and Registration

Advisory Groups:

- AG 1 on Wearable Devices
- AG 2 on Concepts and Terminology
- AG 4 on MCS Innovation
- AG 5 on Operations
- AG 6 on metaverse

Ad hoc groups:

- AHG 3 on Promotions
- AHG 4 on Best practices

7.2 WG 1 – Physical and data link layers

7.2.1 Accomplishments

WG1 has completed the following works:

- NFC-series: ISO/IEC 18092, 21481, 22536, 23917, 28361, 19369, 13157-series, 22425, 16353

- MFAN-series: ISO/IEC 15149-1, 15149-2, 15149-3, 15149-4
- PLC: ISO/IEC 12139-1, 21228
- UAAN-series: ISO/IEC 4005-1, 4005-2, 4005-3, 4005-4

7.2.2 Current Projects

- Revision of ISO/IEC 22536 (NFCIP-1 - RF interface test methods)
- Development of ISO/IEC 11913-1 (Wearable Suit Area Network – Part 1: Physical and MAC layers)
- Work on Preliminary Work Items: PWI on APGAN, and PWI on High-precision Time Synchronization Protocol for Fibre Channel Network (HTS-FC), PWI on Guidelines for Designing Communication Security Protocols in the Context of Migration to Post-quantum Cryptography (GD-CSP-PQC), PWI on RIS assisted Wireless Communication (RIS-WCom), PWI on UAS protection against Stealthy Cyber Attacks (UPSCA) , and others

7.2.3 Strategies

- Utilize liaison relationships with other SDOs or fora
- Encourage the establishment of ad hoc groups and PWIs if mature
- Organize interim meetings/E-meetings for flexible discussion
- Hold regular workshops related to ongoing projects

7.2.4 Publications Overview

Key publications from WG 1 include:

- NFC-series: ISO/IEC 18092, 21481, 22536, 23917, 28361, 19369, 13157-series, 22425, 16353
- MFAN-series: ISO/IEC 15149-1, 15149-2, 15149-3, 15149-4
- PLC: ISO/IEC 12139-1, 21228
- UAAN-series: ISO/IEC 4005-1, 4005-2, 4005-3, 4005-4

7.3 WG 7 – Network, Transport, and Future Network

7.3.1 Accomplishments

- ISO/IEC 17811-series (Device Control and Management): 17911-1 ~ 17811-3
- ISO/IEC TR 29181-series (Future Network problem statement and requirements): 29181-1 ~ 29181-9
- ISO/IEC 21558-series (Future Network Architecture) : 21558-1 ~ 21558-3
- ISO/IEC 21559-series (Future Network Protocols and mechanisms): 21559-1 ~ 21559-3
- ISO/IEC 4396-series (Future Network - RINA, Recursive Inter-Network Architecture): 4396-1 ~ 4396-9
- ISO/IEC 5021-series (Wireless LAN Access Control): 5021-1~5021-2

7.3.2 Current Projects

- Work on Communication protocols for LEO Inter-Satellite Networks
- Work on Blockchain-based Satellite Resource Allocation
- Work on Artificial Intelligence Enabled Networking and communications
- Work on High-Throughput Communication Protocol for Federated Learning
- Work on Efficient Loss Recovery for Remote Direct Memory Access Transmission
- Work on Network Slicing Technology over WLAN
- Work on Intelligent allocation mechanism for transmission resource adapted to user applications
- Work on Overall aspects of Future Network 2.0
- Work on application protocol for intersection operation and guided landing control of UA based on ISO/IEC 4005-2
- Work on Fine-Grained Traffic Classification method for Automated Decision-Making
- Work on Fine-grained Offloading Decision Method for Satellite Mobile Edge Computing

7.3.3 Strategies

- Invite experts from liaison organizations
- Strengthen collaboration with other SDOs, including ITU-T SG11, SG13, SG17 and SG21
- Focus on emerging technologies like 5G/6G, multi-access edge computing, metaverse, blockchain and AI enabled networking and communications, and application protocol for UA control

7.3.4 Publications Overview

Key publications from WG 7 include:

- ISO/IEC 17811-series on Device Control and Management
- ISO/IEC TR 29181-series on Future Network problem statement and requirements
- ISO/IEC 21558-series on Future Network Architecture
- ISO/IEC 21559-series on Future Network Protocols and mechanisms
- ISO/IEC 4396-series on Future Network Recursive Inter-Network Architecture (RINA)
- ISO/IEC 5021-series on Wireless LAN Access Control

7.4 WG 10 – Directory, ASN.1 and Registration

7.4.1 Accomplishments

- Publication of the 9th edition of ISO/IEC 9594 (Directory)
- New edition of ISO/IEC 29168-1 (Object Identifier Resolution System)

- Publication of Amendments on various parts of ISO/IEC 9594 to separate ASN.1 modules related to directory service and modules related to cybersecurity (ISO/IEC 9594-1 Amd.1, ISO/IEC 9594-2 Amd.2, ISO/IEC 9594-3 Amd.1, ISO/IEC 9594-4 Amd.1, ISO/IEC 9594-5 Amd.1, ISO/IEC 9594-6 Amd.1, ISO/IEC 9594-7 Amd.1, ISO/IEC 9594-8 Amd.1, ISO/IEC 9594-9 Amd.1, ISO/IEC 9594-11 Amd.1)
- Publication of ISO/IEC 9594-12 (Key management and public-key infrastructure establishment and maintenance)

7.4.2 Current Projects

- Maintenance of Edition 9 of ISO/IEC 9594
- Dévelopment of a new Edition of ISO/IEC 9694-11 (Protocol specifications for secure operations)
- Assistance to other groups with ASN.1-related texts and object identifiers

7.4.3 Strategies

- Update X.509 certificates to include the usage of quantum-resistant algorithms
- Develop object identifiers for various applications, including IoT

7.4.4 Publications Overview

Key publications from WG 10 include:

- ISO/IEC 9594 series (Directory standards)
- ISO/IEC 8824 and 8825 series (ASN.1 standards)
- ISO/IEC 29168-1 (Object Identifier Resolution System)
- ISO/IEC 29168-2 (Procedures for the object identifier resolution system operational agency)

7.5 Advisory Groups

7.5.1 AG 1 on Wearable Devices

Terms of Reference:

- AG 1 assesses the current state of standardization of communication systems for wearable devices and studies the harmonized coexistence among the existing standards.

Current Work:

- Establishing a JWG or category A liaison with IEC TC 124 (Wearable electronic devices and technologies)
- Studying new work items related to communication systems for wearable devices

Future Plan:

- Call for comments on new work items such as Conductive Fabric Area Network, Wearable Robot Area Network
- Discuss the establishment of a liaison with ISO TC 299 (Robotics)

7.5.2 AG 2 on Concepts and Terminology

Terms of Reference:

- AG 2 focuses on defining and addressing terminological issues within SC 6, providing concept and terminology advice to SC 6 WG Management, project editors, and rapporteurs.

Current Work:

- Developed a Standing Document: a glossary of Telecommunications and information exchange between systems Terminology
- Updated the SD on Glossary to the 8th version by May. 2025

Future Plan:

- Regularly update the SD on SC 6 Glossary
- Research and provide suggestions on terminology references
- Discuss the possibility of drafting a terminology standard

7.5.3 AG 4 on MCS Innovation

Terms of Reference:

- AG 4 studies the challenges of MCS schemes, explores ways to improve MCS efficiencies of communication and network systems, and proposes standardization projects for SC 6.

Current Work:

- Studying MCS technological gaps and requirements for innovation
- Collecting, identifying, and evaluating innovative MCS technologies

Future Plan:

- Make recommendations for adoption of innovative MCS technologies by SC 6 as standardization projects

7.5.4 AG 5 on Operations

Terms of Reference:

- Its purpose is to study the challenges faced by SC 6 (Telecommunications and information exchange between systems), improve its vitality and productivity, and make recommendations to address these challenges.

Current Work:

- Collecting the most urgent issues facing SC 6 through case studies
- Developing practical solutions for each case

Future Plan:

- Building complete solutions at the SC 6 level to ensure that the solutions for new cases are consistent with those for existing ones.

7.5.4 AG 6 on metaverse

Terms of Reference:

- Study the future direction and strategy of metaverse activities and detailed standard development issues within the scope of SC 6;
- Provide plans for standardization and advice on related issues to SC 6, including metaverse system interoperability and communication protocols.

Current Work:

- AG 6 has been established in June 2025 and started to work

Future Plan:

- Analyze the status of metaverse activities being carried out by various SDOs and open-source communities to identify standardization landscape and gaps within SC 6's domain
- Provide strategic guidance on SC 6's participation in metaverse-related standardization initiatives and recommend specific implementation plans for future standard development work

7.6 Ad hoc groups

7.6.1 ISO/IEC JTC 1/SC 6/AHG 3 – Promotions

Objective：

- Organizing and holding seminar to promote SC 6 standardization activities by introducing current and emerging topics of SC 6 to experts from P-members, O-members and Liaison Organizations. Other related work regarding promotion of SC 6 standards development activities could be carried out in cooperation with AG 5 (Operation).

Scope：

- Organizing and holding seminar for experts from P-members, O-members and Liaison Organizations to introduce the main technical topics and to find new participants to participate in SC 6 standard development work, in close collaboration with Convenor of each WG;
- Carrying out other related work regarding promotion of SC 6 activities, if necessary;
- Analysis and reporting of workshop results.

Note: AHG-Promotion activity will be managed by AG 5 to achieve the harmonious goals of AG 5.

Deliverable：

- Report on organizing and holding seminar;
- Report on the related work regarding promotion of SC 6 activities, if any.

7.6.2 ISO/IEC JTC 1/SC 6/AHG 4 – Best practices

Terms of Reference:

- to identify best practice topics, develop and provide detailed guidance to lower barriers to participation in SC 6 standardization activities, and help newcomers efficiently carry out standards development work.

Current Work:

- Identifying best practice topics that require guidance to enable efficient standard development work within SC 6.
- Investigating and analyzing the content of study reports for PWI projects that have been completed or are currently under development in SC 6.
- Developing template documents and best practice documents that can be referenced when developing PWI study reports.
- Promoting the use of templates and best practice documents when carrying out PWI projects in SC 6.

Future Plan:

- Maintaining and improving the developed study report template based on user feedback and practical experience.
- Identifying demand for additional templates and guidelines that may be needed for SC 6 standardization activities.
- Completing reports on the identification of best practice topics needed for development and the results of best practice document development.