ISO/IEC/JTC Smart and Sustainable Cities and Communities

PROPOSAL FOR A NEW FIELD OF TECHNICAL ACTIVITY

PROPOSER:	DATE OF CIRCULATION:
AFNOR	

RATIONALE OF THE PROPOSAL

Currently, there are approximately 125 standardization deliverables in the Smart Cities domain that cover: Vocabulary, Indicators, Management systems and operating model; Infrastructure, Mobility and transportation, Information Technology, Systems and Disaster risk reduction. These have been developed across several ISO and IEC technical structures to date: ISO/TC 268 (including SCs and WGs); IEC Systems Committee on Electrotechnical Aspects of Smart Cities (including its WGs); and through ISO/IEC JTC 1 Working Group 11 on Smart Cities.

However, the technical domain of smart cities is complex, with users requiring cohesive, complementary, and interoperable standards to implement. For example, smart and sustainable cities encompass various domains like urban planning, information technology, sustainability, transport, energy and public services. Thus, an interdisciplinary approach bringing together all these experts under one umbrella is essential to creating that cohesive and functional smart and sustainable city eco-system – via a new Joint Technical Committee.

Both IEC/SMB and ISO/TMB have a duty to ensure that technical work is conducted and managed in an efficient and effective manner for the benefit of experts, users and the wider system.

The existing set-up is deemed not optimal and results in fragmentation, taxes existing experts as they need to go and work across several groups and has led to coordination issues in standardization work despite the well-intentioned efforts to prevent overlaps over the years.

Therefore, there is a need to reorganize that work and take a systematic and holistic approach within a single Joint Technical Committee as a cross-cutting technical domain for IEC and ISO, as well as to create an attractive and engaging environment for existing experts, to attract new experts and stakeholders, including city leaders.

A proposal for a new field of technical activity shall be submitted to the ISO Secretariat, which will assign it a reference number and process the proposal in accordance with ISO/IEC Directives, Part 1, 1.5. Guidelines for proposing and justifying a new field of activity are given in the ISO/IEC Directives, Part 1, Annex C.

THE PROPOSAL (to be completed by the proposer):

TITLE (the title shall be described unambiguously and as concisely as possible)

ISO/IEC/JTC Smart and Sustainable Cities and Communities

SCOPE (the scope shall define precisely the limits of the proposed new field of activity and shall begin with "Standardization of ..." or "Standardization in the field of ...")

Scope:

Standardization in the field of smart and sustainable cities and communities, including the development of requirements, frameworks, guidance and supporting techniques and tools related to the achievement of sustainable development.

The scope includes resilience and disaster risk reduction, sustainability and sustainable mobility and transport, community infrastructure, climate change mitigation and adaptation, digitalization, and ICT and system aspects only as it pertains to and helps all cities and communities and their interested parties, in both rural and urban areas, become more sustainable and smarter. It also fosters the development of standards with electrotechnology to support the integration, interoperability and effectiveness of city systems.

It recognizes the strategic importance of collaborating with, building on and highlighting the work of existing ISO, IEC and Joint Technical Committees, to ensure a coherent set of standards.

JTC4 is responsible for the overall system aspects and infrastructure aspects of smart and sustainable cities and communities, as well as the coordination of the overall ISO/IEC work programme in this field including the schedule for standards development, taking into account the work of existing international standardization bodies and existing work of ISO and IEC technical committees"

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PURPOSE AND JUSTIFICATION (the justification shall endeavour to assess the economic and social advantages which would result from the adoption of International Standards in the proposed new field)

As indicated in the rational section, the domain is cross cutting and important for ISO and IEC, an interdisciplinary approach is required to bring together all experts from the various diverse fields under one technical structure.

In addition, having a single technical structure composed of all the right expertise would help put ISO and IEC on the map as the global home of standardization for sustainable and smart cities, allows for more efficient communication and relationship with entities, city managers and leaders and other key stakeholders outside of ISO and IEC.

Overall, by establishing a single structure this should bring clarity, reduce fragmentation in technical work and will support ISO and IEC in delivering relevant and interoperable standards, in a way that optimizes the resources of experts, for the benefit of end-users.

Building on the existing standards portfolio, the JTC will produce standards that will support cities and the common challenges they face, such as maintaining economic growth, meeting the needs of increasing or aging populations, combatting climate change, and reducing use of resources – with sustainability and digitalization underpinning this – enabling cities to make a holistic decision on their future path to meet the aspirations of their citizens. It will also reinforce the existing coordination and cooperation with ITU.

Please select any UN Sustainable Development Goals (SDGs) that this committee will support. For more information about SDGs, please visit our website at https//www.iec.ch/SDG/

- ☒**GOAL 1:** No Poverty
- ☒**GOAL 2:** Zero Hunger
- ☒**GOAL 3:** Good Health and Well-being
- ☒**GOAL 4:** Quality Education
- ☒**GOAL 5:** Gender Equality
- ☒**GOAL 6:** Clean Water and Sanitation
- ☒**GOAL 7:** Affordable and Clean Energy
- ☒**GOAL 8:** Decent Work & Economic Growth
- ☒**GOAL 9:** Industry, Innovation & Infrastructure
- ☒**GOAL 10:** Reduced Inequality
- ☒**GOAL 11:** Sustainable Cities and Communities
- ☒**GOAL 12:** Responsible Consumption & Production
- ☒**GOAL 13:** Climate Action
- ☒**GOAL 14:** Life Below Water
- ☒**GOAL 15:** Life on Land
- ☒**GOAL 16:** Peace, Justice Strong Institutions
- ☒**GOAL 17:** Partnerships to achieve the Goals

The outcome of the work of the JTC is expected to support all of the 17 UN Sustainable Development Goals, whether directly or indirectly.

PROGRAMME OF WORK (list of principal questions which the proposer wishes to be included within the limits given in the proposed scope, indicating what aspects of the subject should be dealt with, e.g. terminology, test methods, dimensions and tolerances, performance requirements, technical specifications, etc.)

Since this is not a new technical area and is instead a reorganization of existing work, the JTC will encompass the existing programmes of work/areas dealt with by those existing committees, subcommittees and working groups of those mentioned in the rationale for the proposal.

The development of new approaches should be sought to deal with the existing deliverables.
A detailed programme of work to be provided following discussions with existing experts from those committees.

In order to ensure its duties of standards development and coordination of overall system aspects and infrastructure aspects of Smart and Sustainable Cities and Communities, the creation of the following cross-cutting groups is proposed.

1. CAG - Strategy and allocation of NWI/topics - Roadmap and strategic business plan

2. Advisory group on Structure and Transition plan (1 year) to work on the smooth transition from previous structure. This group will be an advisory group as the question of optimizing the structure of JTC4 will be useful also after the transition phase.
3. Advisory Group on 'Coordination with ITU, Liaisons, and External Organizations. This group will also handle coordination with other ISO and IEC committees, as recommended by the JTC1 Chair, and not only focus on ITU and other organizations
4. Advisory Group System approach and Electrotechnical and System aspects (currently IEC SYC Smart cities) to ensure that systems-related tasks can evolve and be developed over time, preserving the work done in the IEC within the system's committee

PREFERRED TYPE OF DELIVERABLES

International standards and technical specifications

RELEVANT EXISTING DOCUMENTS AT THE INTERNATIONAL, REGIONAL AND NATIONAL LEVELS (relevant documents to be considered: national standards or other normative documents)

ISO 37124:2024	Sustainable cities and communities — Guidance on the use of ISO 37120, ISO 37122 and ISO 37123
ISO 37123:2019	Sustainable cities and communities — Indicators for resilient cities
ISO 37122:2019	Sustainable cities and communities — Indicators for smart cities
ISO/TR 37121:2017	Sustainable development in communities — Inventory of existing guidelines and approaches on sustainable development and resilience in cities
ISO 37120:2018	Sustainable cities and communities — Indicators for city services and quality of life
ISO 37110:2022	Sustainable cities and communities — Management requirements and recommendations for open data for smart cities and communities — Overview and general principles
ISO 37109:2023	Sustainable cities and communities — Recommendations and requirements for project developers — Meeting ISO 37101 framework principles
ISO 37108:2022	Sustainable cities and communities — Business districts — Guidance for practical local implementation of ISO 37101
ISO/TS 37107:2019	Sustainable cities and communities — Maturity model for smart sustainable communities
ISO 37106:2021	Sustainable cities and communities — Guidance on establishing smart city operating models for sustainable communities
ISO 37105:2019	Sustainable cities and communities — Descriptive framework for cities and communities
ISO 37104:2019	Sustainable cities and communities — Transforming our cities — Guidance for practical local implementation of ISO 37101
ISO 37101:2016	Sustainable development in communities — Management system for sustainable development — Requirements with guidance for use
ISO 37101:2016/Amd 1:2024	Sustainable development in communities — Management system for sustainable development — Requirements with guidance for use — Amendment 1: Climate action changes
ISO 37100:2016	Sustainable cities and communities — Vocabulary
ISO/TR 37112:2024	Sustainable cities and communities — Case studies in how smart city operating models support an effective public-health emergency response
ISO 37111:2024	Sustainable cities and communities − Urban settlements − Guidance for a flexible approach to phased implementation of ISO 37101
ISO/CD 37116	Sustainable cities and communities — Disaster risk finance — Principles and general requirements for finance for ex-ante investment in risk reduction
ISO/PRF 37125	Sustainable cities and communities – Environmental, social, and governance (ESG) indicators for cities

ISO/AWI TR 37118	Sustainable cities and communities — Survey and best practices of integrated citizen-centric services
ISO/AWI TR 37115	Sustainable cities and communities — Use Cases on Net Zero Carbon Cities Pathways
ISO/DIS 37114	Sustainable cities and communities — Appraisal framework for datasets and data processing methods that create urban management information
ISO/FDIS 37113	Sustainable cities and communities — Guidance for managing a public-health emergency response in smart city operating models
ISO/PWI 37126	Sustainable cities and communities - Indicators for carbon-neutral cities
ISO/TR 37178:2023	Smart community infrastructures — Data exchange and sharing for the lamppost network in smart community
ISO 37174:2024	Smart community infrastructures — Disaster risk reduction — Guidance for implementing seismometer systems
ISO 37173:2023	Smart community infrastructure — Guidance for the development of smart building information systems
ISO/TS 37172:2022	Smart community infrastructures — Data exchange and sharing for community infrastructures based on geographic information
ISO/TR 37171:2020	Report of pilot testing on the application of ISO smart community infrastructures standards
ISO 37170:2022	Smart community infrastructures — Data framework for infrastructure governance based on digital technology in smart cities
ISO 37166:2022	Smart community infrastructures — Urban data integration framework for smart city planning (SCP)
ISO 37160:2020	Smart community infrastructure — Electric power infrastructure — Measurement methods for the quality of thermal power infrastructure and requirements for plant operations and management
ISO 37156:2020	Smart community infrastructures — Guidelines on data exchange and sharing for smart community infrastructures
ISO 37155-1:2020	Framework for integration and operation of smart community infrastructures — Part 1: Recommendations for considering opportunities and challenges from interactions in smart community infrastructures from relevant aspects through the life cycle
ISO 37155-2:2021	Framework for integration and operation of smart community infrastructures — Part 2: Holistic approach and the strategy for development, operation and maintenance of smart community infrastructures
ISO 37153:2017	Smart community infrastructures — Maturity model for assessment and improvement
ISO/TR 37152:2016	Smart community infrastructures — Common framework for development and operation
ISO/TS 37151:2015	Smart community infrastructures — Principles and requirements for performance metrics
ISO/TR 37150:2014	Smart community infrastructures — Review of existing activities relevant to metrics
ISO/TR 6030:2022	Smart community infrastructures – Disaster risk reduction – Survey results and gap analysis
ISO/CD 37187	Smart community infrastructures — Requirements for data framework and functions based on city information modeling platform
ISO/FDIS 37179	Smart community infrastructures — Disaster risk reduction — Basic framework for the implementation of disaster risk reduction
ISO/DIS 37190	Guidance for practical implementation of ISO 37155 series for supervising at each life cycle phase of smart community infrastructures

ISO/AWI 37186	Smart community infrastructure — Guidance on data acquisition and utilization of resident communities to address health emergency
ISO/AWI 37194	Smart community infrastructures — Disaster risk reduction — Guidance for the process of selecting seismometer systems suitable for specific purposes
ISO/CD 37189	Smart community infrastructure — Guidance for data-driven visualization in newly developing areas
ISO 37176:2024	Smart community infrastructure — Responsiveness assessment and maturity model
ISO 37175:2024	Smart community infrastructures — Operation and maintenance of utility tunnels
ISO 37153:2024	Smart community infrastructures — Maturity model for assessment and improvement
ISO 37151:2024	Smart community infrastructures — Principles and requirements for performance metrics
ISO/TR 16497-1:2024	Sustainable mobility and transportation — Sustainable mobility services — Part 1: Use cases
ISO 37154:2017	Smart community infrastructures — Best practice guidelines for transportation
ISO 37157:2018	Smart community infrastructures — Smart transportation for compact cities
ISO 37158:2019	Smart community infrastructures — Smart transportation using battery-powered buses for passenger services
ISO 37159:2019	Smart community infrastructures — Smart transportation for rapid transit in and between large city zones and their surrounding areas
ISO 37161:2020	Smart community infrastructures — Guidance on smart transportation for energy saving in transportation services
ISO 37162:2023	Smart community infrastructures — Smart transportation for newly developing areas
ISO 37163:2020	Smart community infrastructures — Smart transportation for parking lot allocation in cities
ISO 37164:2021	Smart community infrastructures — Smart transportation using fuel cell light rail transit (FC-LRT)
ISO 37165:2020	Smart community infrastructures — Guidance on smart transportation with the use of digitally processed payment (d-payment)
ISO 37167:2021	Smart community infrastructures — Smart transportation for energy saving operation by intentionally driving slowly
ISO 37168:2022	Smart community infrastructures — Guidance on smart transportation by Electric, Connected and Autonomous Vehicles (eCAVs) and its application to on-demand responsive passenger services with shared vehicles
ISO 37169:2021	Smart community infrastructures — Smart transportation by run-through train/bus operation in/between cities
ISO 37180:2021	Smart community infrastructures — Guidance on smart transportation with QR code identification and authentification in transportation and its related or additional services
ISO 37181:2022	Smart community infrastructures — Smart transportation by autonomous vehicles on public roads
ISO 37182:2022	Smart community infrastructures — Smart transportation for fuel efficiency and pollution emission reduction in bus transportation services
ISO 37183:2023	Smart community infrastructures — Smart transportation by facial recognition payment (f-payment)
ISO 37184:2023	Sustainable mobility and transportation — Framework for transportation services by providing meshes for 5G communication
ISO/CD 16481	Sustainable mobility and transportation — Digital governance — Strategic needs regarding the ISO 37101 purposes of sustainability

ISO/CD 16499-1	Sustainable mobility and transportation — Automated mobility using physical and digital infrastructure — Part 1: Service role architecture
IEC 60050-831	International Electrotechnical Vocabulary (IEV) - Part 831: Smart city systems
IEC SRD 63235:2021	Smart city system - Methodology for concepts building
IEC 63152:2020	Smart cities - City service continuity against disasters - The role of the electrical supply
IEC SRD 63152-2:2022	Smart cities - City service continuity – Implementation guideline and city service cases
IEC SRD 63188:2022	Smart Cities Reference Architecture Methodology
IEC SRD 63233-1:2022	Smart city standards inventory and mapping - Part 1: Methodology
IEC SRD 63233-2:2023	Smart city standards inventory and mapping - Part 2 : Standards inventory
IEC SRD 63233-4:2024	Smart city standards inventory and mapping - Part 4: Guidance on standards for public health emergencies
IEC SRD 63273-1:2023	Smart city use case collection and analysis - City information modelling - Part 1: High-level analysis
IEC SRD 63273-2:2024	Smart city use case collection and analysis - City information modelling - Part 2: Use case analysis
IEC SRD 63320-1:2023	Smart city use case collection and analysis - Smart urban planning for smart cities - Part 1: High-level analysis
IEC 63205 ED1	Smart Cities Reference Architecture (SCRA)
IEC TS 63301-1 ED1	Smart city use case collection and analysis - Water systems in smart cities - Part 1: High-level analysis
IEC SRD 63301-2 ED1	Smart city use case collection and analysis - Water systems in smart cities - Part 2 : Use case analysis
IEC SRD 63302-1 ED1	Smart city use cases collection and analysis - intelligent operations center for Smart Cities - Part 1: High-level analysis
IEC SRD 63302-2 ED1	Smart city use case collection and analysis - Intelligent operations center for smart cities - Part 2 : Use Case Analysis
IEC SRD 63320-2 ED1	Smart city use case collection and analysis - Smart urban planning for smart cities - Part 2: Use case analysis
IEC SRD 63326 ED1	City Needs Analysis Framework
IEC SRD 63347-1 ED1	Smart city use case collection and analysis - Management of Public Health Emergencies in Smart Cities - Part 1: High Level Analysis
IEC SRD 63347-2 ED1	Smart city use case collection and analysis - Management of Public Health Emergencies in Smart Cities - Part 2 : Use Case Analysis
IEC SRD 63476-1 ED1	Smart city system ontology - Part 1: Gap analysis
IEC SRD 63520 ED1	Smart cities - Application of IEC SRD 63235 - Concept system building for energy challenge
IEC TS 63526 ED1	Gap Analysis on Standards Related to City Information Modelling and Urban Digital Twins
PWI SmartCities-2	Sustainable Digital Transformation of the Urban Landscape
PWI SmartCities-3	Terminology & ontology repository (e-glossary) of IEC SyC Smart Cities
PWI SRD SyCSmartCities-4	Smart Lamp Post
PWI SyCSmartCities-5	A systems approach to smart city standards - a collaboration framework
ISO/IEC 30145-1:2021	Information technology – Smart City ICT reference framework Part 1: Smart city business process framework
ISO/IEC 30145-2:2020	Information technology – Smart City ICT reference framework Part 2: Smart city knowledge management framework

ISO/IEC 30145-3:2020	Information technology – Smart City ICT reference framework Part 3: Smart city engineering framework
ISO/IEC 30146:2019	Information technology – Smart city ICT indicators
ISO/IEC 24039:2022	Information technology – Smart city digital platform reference architecture Data and service
ISO/IEC 21972:2020	Information technology – Upper level ontology for smart city indicators
ISO/IEC 5087-1:2023	Information technology – City data model Part 1: Foundation level concepts
ISO/IEC 5087-2:2024	Information technology – City data model Part 2: City level concepts
ISO/IEC 5153-1:2024	Information technology – City service platform for public health emergencies Part 1: Overview and general requirements
ISO/IEC 30182:2017	Smart city concept model Guidance for establishing a model for data interoperability
ISO/IEC 17917:2024	Smart cities Guidance to establishing a decision-making framework for sharing data and information services
ISO/IEC TS 27570:2021	Privacy protection – Privacy guidelines for smart cities
ISO/IEC TS 5147:2023	Information technology – Computer graphics, image processing and environmental data representation Guidelines for representation and visualization of smart cities
ISO/IEC 5087-3	Information technology – City data model Part 3: Service level concepts - Transportation planning
ISO/IEC AWI 21252	Information technology – Guidance on smart city ICT infrastructure planning Overview
ISO/IEC AWI TR 20169	Information technology – Overview of information technology standards for smart cities
ISO/IEC AWI 25005-1	Information technology – Data use in smart cities Part 1: Framework
ISO/IEC AWI TR 25005-2	Information technology – Data use in smart cities Part 2: Use case analysis and common considerations
ISO/IEC AWI TS 25005-3	Information technology – Data use in smart cities Part 3: Measurement, evaluation and reporting
IEC TS 63526 ED1	Gap Analysis on Standards Related to City Information Modelling and Urban Digital Twins
ISO/IEC AWI 5087-4	Information technology – City data model Part 4: Service level concepts for public health emergencies
ISO/IEC PWI 20822-1	Information technology — Domain knowledge trustworthiness evaluation for smart cities — Part 1: Overview and concepts
ISO/IEC PWI 20822-2	Information technology — Domain knowledge trustworthiness evaluation for smart cities — Part 2: Use cases
ISO/IEC PWI 10311-2	Information technology – City service platform for public health emergencies Part 2: Response resource management
ISO/IEC PWI 20822-3	Information technology — Domain knowledge trustworthiness evaluation for smart cities — Part 3: Framework
ISO/IEC PWI 20822-4	Information technology — Domain knowledge trustworthiness evaluation for smart cities — Part 4: Measurement of DKM components

RELATION TO AND IMPACT ON EXISTING WORK

Since this is not a new technical area and is instead a reorganization of existing work, the JTC will encompass the existing programmes of work/areas dealt with by those existing committees, subcommittees and working groups of those mentioned in the rationale for the proposal.

A transition plan has been developed, in coordination with relevant committee leadership/experts to minimise any disruption to existing work.

If the JTC is created in June 2025, transition plan:

- From June 2025 to the JTC first meeting in 2025 (phase 1)
  - All work ongoing in current structures, (no structure modifications allowed)
  - JTC4 CAG including chairs/conveners of previous structure (ISO TC 268, SC1, SC2, SYC SC, JTC1WG11) to work on draft structure
- 1st meeting of JTC to finalize and endorse the proposed structure
- Ratification by TMB and SMB by correspondence by the end of 2025
- January 2026 latest (phase 2):
  - All work published and ongoing from ISO TC 268, SYC SC and JTC1WG11 transferred to JTC4 after ratification of the structure

Note: The transition phase must carefully consider ongoing projects. For instance, if a project has been active in an existing committee, we need to determine the appropriate time to transfer it to the new JTC. Additionally, all project details (e.g., timelines, milestones, etc.) must be smoothly transitioned where the new P-members can pursue the work.

RELEVANT COUNTRY PARTICIPATION

The Joint Technical Committee would be relevant for all countries that are members of ISO and/or IEC.

LIAISON ORGANIZATIONS (list of organizations or external or internal bodies with which co-operation and liaison should be established)

Internal: ISO TC 22, ISO TC 59, ISO TC 147, ISO TC 204, ISO TC 207, ISO TC 211, ISO TC 215, ISO TC 224, ISO TC 228, ISO TC 258, ISO TC 269, ISO TC 279, ISO/TC 289, ISO TC 292, ISO TC 301, ISO TC 309, ISO TC 314, ISO TC 323, ISO TC 331, ISO TC 341, ISO TC 344, ISO/PC 343,ISO/IEC JTC 1, ISO/CASCO, IEC TC 9, IEC TC 111, IEC TC 1, IEC TC 23, IEC TC 62, IEC TC 105, IEC SyC AAL, IEC SyC COMM, IEC SyC LVDC, IEC SyC SET, IEC SyC SE

External: ITU, AIMF, ECOS, EFCA/FIDIC, ELA, GCIF, ICLEI, UNDDR, UNP, UNIDO, APEC, RESIN, INCOSE, CEN-CENELEC, ISSCC.

STAKEHOLDERS

All relevant industry sectors, consumers, NGOs, governments, ministries/public management of environment, water and energy, regulators, national and local authorities, public sector (including transport and road administrations), associations of cities, and city leaders and managers etc.

LEADERSHIP COMMITMENT

AFNOR commits to provide the secretariat for the new JTC if approved.

Following a review of the existing technical work programme and taking into account the existing technical structures and transition plan, it is recommended that ISO acts as the administrative support to ensure a smooth transition.

Since this is not a new technical area and is instead a reorganization of existing structures led by different ISO/IEC members, it is envisaged that the chairperson will be nominated by another member than AFNOR.

OTHER COMMENTS (if any)

COMMENTS OF THE SECRETARY-GENERAL (to be completed by the ISO and IEC Secretariats):