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Smart community infrastructures — Maturity model for assessment and improvement

Infrastructures communautaires intelligentes — Modèle de maturité pour l'évaluation et l'amélioration

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This document was prepared by Technical Committee ISO/TC 268, *Sustainable cities and communities*, Subcommittee SC 1, *Smart community infrastructures*.

This second edition cancels and replaces the first edition (ISO 37153:2017), which has been technically revised.

The main changes are as follows:

— Annexes B, C, and D replaced Annexes A, B, and C to the first edition.

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The United Nations (UN) sustainable development agenda, "Transforming Our World: The 2030 Agenda for Sustainable Development", adopted in 2015, aims to end poverty, promote prosperity and well-being, while reducing environmental impact by 2030. It includes 17 Sustainable Development Goals (SDGs), of which Goal 11 focuses on "Make cities inclusive, safe, resilient and sustainable". As cities and communities grow, they face challenges in meeting the needs of citizens in an equitable and sustainable way. The demand for community infrastructure(s) such as energy, water, transportation, waste and information and communication technology (ICT) will increase with the growth of urban populations and urbanization. Appropriate development of community infrastructure(s) is crucial to support the operations and activities of communities to overcome urban challenges and make progress towards achieving the SDGs. It also needs to be economically efficient and aims to reduce the environmental impact of urban activities.

For the efficient development of community infrastructure(s) and continuous performance improvement, communities can benefit from a tool that measures the current level of maturity of the community infrastructure(s) relative to the desired future improvements. In this context, a maturity model is widely recognized as an efficient and effective tool. This model describes the necessary practices and processes at each level to achieve the desired level of performance in a reliable and sustainable manner. For example, the capability maturity model (CMM) presented in the ISO/IEC 15504 series provides this function in software development. Documents such as ISO 18091 and ISO 37101 also promote a CMM-like framework for local governments or communities.

This document provides the basis, requirements and guidance for assessment and improvement of community infrastructure(s) using a community infrastructure maturity model (CIMM). The CIMM assesses the level of performance, process and interoperability of the community infrastructure(s) as well as its contribution to the community. It also helps stakeholders set improvement targets to guide investment by identifying gaps in the current level of community infrastructure.

The CIMM can be expressed conceptually as a series of levels, each building on the previous one as shown in Figure 1. See Clauses 4 and 5 for more information.

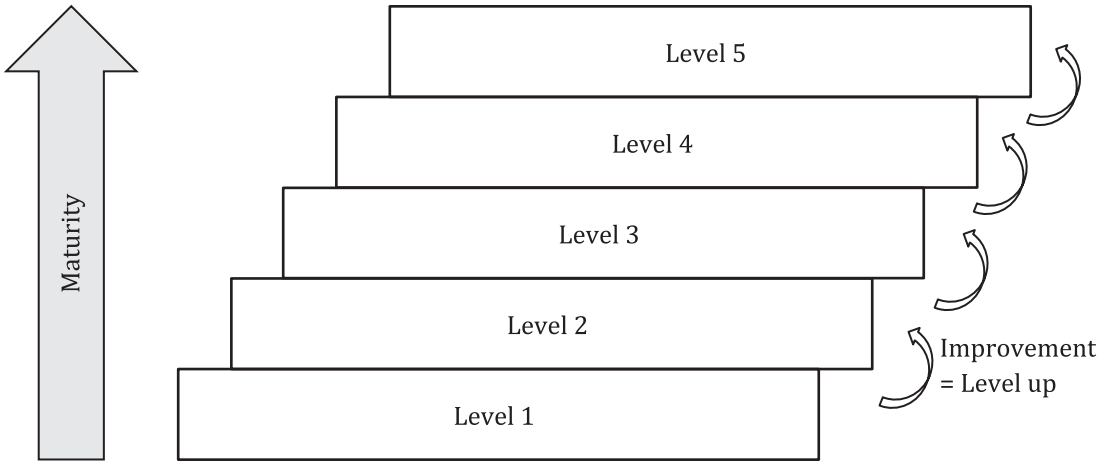

Figure 1 — Conceptual expression of CIMM

Decisions are made on the basis of a systematic overall picture of the characteristics of the community infrastructure in order to promote continuous improvement. The CIMM is a systematic assessment framework that includes the five reference levels of maturity for each of the community infrastructure characteristics.

An assessment using the CIMM can be used to compare different communities, but can also be used to compare the current and future state of infrastructure in a single community by defining the object and scope of the assessment. For example, see Annex A for an overview of the "Plan-Do-Check-Action (PDCA)" cycle for developing community infrastructure(s), where this document is particularly helpful in the "Plan"

More specifically, this document supports the following stakeholders:

— citizens:
  — to improve their quality of life;
  — to make community infrastructure accessible for a wide range of people, regardless of their individual language, disability, etc.;
— owners of community infrastructure:
  — to identify which performance characteristics of the infrastructure should be prioritized;
  — to identify what technical performance aspects should be prioritized for improvement;
— suppliers of community infrastructure:
  — to determine which community infrastructure products meet the specified requirements;
  — to identify a direction for the development of future community infrastructure products and services;
— operators of community infrastructure:
  — to determine the current level of performance of the community infrastructure they operate;
  — to determine the appropriate processes to improve performance;
— investors:
  — to determine which types of infrastructure investment will best achieve the desired level of performance;
— city planners or government decision makers:
  — to assess city planning and identify infrastructure priorities;
— all stakeholders:
  — to ensure that investment in community infrastructure maximizes performance and minimizes life cycle costs;
  — to promote the harmonization of the needs of residents, community managers and the environment;
  — to promote the sustainable development and community resilience.