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**Smart community infrastructures - Maturity model for
assessment and improvement**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is equivalent to ISO 37153.2017 "Smart City Infrastructure Assessment and Improvement Maturity Model".

This document has made the following minimal editorial changes.

--- Added Notes 2 and 3 of term 3.9 and sources to ensure the coordination of this document with GB /Z 42192-2022;

---Deleted Note 1 in Table 1 of 4.2, and the content of Note 1 has been directly displayed in Table 1 after being translated into Chinese.

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

Introduction

In September.2015, world leaders adopted the United Nations "Transforming Our World. The 2030 Agenda for Sustainable Development" in New York.

sustainable development agenda. The agenda includes 17 Sustainable Development Goals and 169 targets, aiming to eradicate poverty by 2030 and promote

Prosperity and improved well-being, and reduced adverse impacts of human activities on the environment. Goal 11 of the United Nations Sustainable Development Goals deals with urban issues.

The theme is "Building inclusive, safe, resilient and sustainable cities".

Under the Sustainable Development Goals, cities and communities are positioned as "centers of ideas, commerce, culture, science, productivity and social development."

At the same time, many cities around the world are developing rapidly and are facing equity and sustainability challenges while meeting the needs of citizens.

With the growth of urban population and rapid urbanization, urban infrastructure such as energy, water, transportation, waste disposal facilities and

According to the "Infrastructure 2030" report of the Organization for Economic Cooperation and Development (OECD), within 20 years (2010-2030), new

The total cumulative investment demand for urban infrastructure and improved urban infrastructure is approximately US\$53 trillion.

Proper development of urban infrastructure is fundamental to support urban operations and activities and not only helps solve urban problems but also supports all

The 17 United Nations Sustainable Development Goals have played an important role in helping cities cope with challenges. In addition to providing high-quality services, the city

Municipal infrastructure should also be economically efficient and strive to reduce the environmental impact of urban activities.

In order to be able to effectively develop urban infrastructure and continuously improve performance in all aspects, it is necessary to measure the existing maturity of urban infrastructure.

level (compared to future expectations), maturity models are widely considered to be an effective tool. The maturity model describes each

The practices and processes required at each level to reliably and sustainably achieve the expected performance at that level. For example, in the ISO /IEC 15504 series

The proposed Capability Maturity Model (CMM) implements this function in the field of software development; documents such as ISO 18091 and ISO 37101 also

A framework similar to the Capability Maturity Model was promoted for local government.

This document describes the Urban Infrastructure Maturity Model (CIMM) and the use of the Urban Infrastructure Maturity Model for assessment and improvement.

A good standardization approach. The Urban Infrastructure Maturity Model helps all stakeholders understand the performance, processes and interactions of urban infrastructure.

level of operability and contribution to the city, helping them set improvement goals for urban infrastructure, thereby guiding investment and identifying

Recognize the gap between current level and target level.

Conceptually, the urban infrastructure maturity model can be represented as a series of levels, each level is built on the basis of the levels shown in Figure 1.

on top of that. See Chapters 4 and 5 of this document for details.

Figure 1 Conceptual representation of the Urban Infrastructure Maturity Model (CIMM)

In order to promote sustainable development, it is particularly important to make decisions based on the overall characteristics of urban infrastructure systems. Therefore, this document is a review

The assessment method provides a systematic framework, namely the urban infrastructure maturity model, including five parameters of the maturity of each characteristic of urban infrastructure.

Exam level.

The assessment based on the urban infrastructure maturity model can compare different cities, and can also compare by defining the assessment objects and scope.

Compare the current and future state of infrastructure in individual cities. For example, in the "Plan-Implement-Verify-Act" process of developing urban infrastructure

(PDCA)" cycle, this document may be particularly useful during the "Planning" and "Verification" phases to help users assess current performance, processes and interactions.

operability and review progress towards achieving expected improvements.

Specifically, this document supports the following stakeholders.

a) Residents.

---Improve their quality of life.

b) Urban infrastructure owners.

---Determine which performance characteristics of urban infrastructure should be prioritized;

---Determine which aspects of technical performance should be prioritized for improvement.

c) Urban infrastructure providers.

---Determine which urban infrastructure products will meet specified requirements;

---Determine the development direction of future urban infrastructure products and services.

d) Urban infrastructure operators.

--- Determine the current performance of the urban infrastructure they operate;

---Determine appropriate performance improvement processes.

e) Investors.

---Determine which type of infrastructure investments will best meet expected performance levels.

f) Urban planner or government decision-maker.

---Evaluate urban planning and determine which infrastructure needs priority.

g) All stakeholders.

---Ensure investments in urban infrastructure maximize performance and minimize life cycle costs;

---Promote the coordination of residents, city managers and environmental needs;

---Promote the sustainable development and disaster resilience of cities.

smart city infrastructure

Evaluate and improve maturity models

1 Scope

This document provides the basis for a maturity model that assesses the technical performance, processes and interoperability of urban infrastructure and its contribution to the city.

foundations, guidelines, requirements, and suggestions for future improvements.

This document applies to.

a) All types of urban infrastructure, including but not limited to energy, water, transport, waste disposal and information and communication technologies (ICT);

b) Single type of urban infrastructure or multiple types of urban infrastructure;

c) All types of cities, regardless of geographical location, size, economic structure, and economic development stage;

d) All applicable stages of the infrastructure life cycle (e.g. planning/design, construction, operations, decommissioning).

Note. The utilization of natural systems, such as green infrastructure, is also considered a type of infrastructure.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations

For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all