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Sustainable cities and communities — Descriptive framework for cities and communities

PREVIEW

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National foreword

This Mauritian Standard is identical with the International Standard **ISO 37105:2019- Sustainable cities and communities — Descriptive framework for cities and communities.** It was adopted by the Mauritius Standards Bureau on the recommendation of the **Building and Construction Standards Committee** through its Subcommittee on Sustainable cities and communities. The standard was approved by the **Standards Council** on **21 August 2020** and notified in the Government Gazette on **19 September 2020.**

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 268, *Sustainable cities and communities.*

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The descriptive framework for cities and communities detailed in this document helps city and community stakeholders define a common language to describe cities and communities. This framework can facilitate the sharing of ideas, data and solutions within, and also between, cities. The descriptive framework, which can also be referred to as the city anatomy, serves as a basic blueprint to facilitate the integration of operating systems and services within a city or community[4],[5]. Ultimately, the descriptive framework can be the basis of a formal ontology, or knowledge model, which can be useful for helping to plan and implement city operating solutions, particularly those that might require digital machine-readable information.

A city or community is a system of systems and interactions that foster and are fostered by emergent human behaviour[6]. It can be seen as an arrangement of, and set of relationships between, the multiple layers of a permanent human settlement, with an administrative and legal status supported by laws and generally recognized throughout the world. Rather than being static, discreet entities, cities or communities often have porous and sometimes ambiguous borders (politically, economically, environmentally and socially) and can thus often be difficult to describe. The structure, interactions and societal aspects of a city or community are also integral parts of all wider systems extending beyond the city borders. However, more than half the world's population now lives in cities or communities and many of humanity's chronic challenges are faced in cities or communities. A common descriptive framework for cities or communities is a useful tool to assist them in sharing knowledge and finding solutions to issues common to cities or communities all over the world.

Solutions to the issues cities face are intended to improve the quality of life for all city citizens and follow sustainable development principles. These principles dictate that the solutions to city issues implemented today do not compromise the ability of future generations to meet their own needs. The United Nations Sustainable Development Goals (UNSDG) issued in 2015 resolve this relatively abstract ideal into more tangible objectives. The UNSDG Goal 11[7] provides these objectives for cities, creating 10 targets for improving the quality of life for citizens and the city's resiliency, while also limiting the impact of human activity on the environment. Tools such as ISO standards, for example ISO 37101 and ISO 37120, help cities plan for, monitor and reach these objectives. The purpose of this document is to provide a common language for the description of cities that will enable those goals and support the sharing of city solutions.

The descriptive framework is based on work by the City Protocol Society. It uses an analogy to human anatomy and its dynamic physiology to describe any city or community, of any size, in a manner that is timeless, culturally agnostic, scalable and generic. The descriptive framework categorizes the components of the city into three major elemental systems: a set of physical structures (structure), the living entities that create a city's society (society) and the flow of interactions between them (interactions). These elemental systems are further resolved into, or described by, layers that capture all the activities of importance to a city, both within and outside the city boundaries, as well as all the natural and built domain components within a city.

ISO 37100 contains a list of relevant terms and definitions which are also useful in understanding the descriptive framework.

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Sustainable cities and communities — Descriptive framework for cities and communities

1 Scope

This document specifies a descriptive framework for a city including an associated foundational ontology of the anatomical structure of a city or community. The descriptive framework is intended to have the following qualities:

— *timeless*, i.e. compatible with any human settlement at any time in history;

— *acultural*, i.e. valid for any culture and any type of city;

— *scalable*, i.e. valid for a metropolis, a city, a small town or a village;

— *generic*, so that everything we could define as a "human settlement", such as a "smart city", has a place in this structure.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 37100, *Sustainable cities and communities — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 37100 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
descriptive framework
logical structure that describes how the key entities within a specific domain can be classified so as to show their relationship with each other

Note 1 to entry: "Entities" refers not only to tangible things, but also to anything important that has a separate and distinct existence, for instance elemental conventions, principles, practices, strategies, policies, decision-making structures and accountabilities.

3.2
ontology
specification of concrete or abstract things, and the relationships among them, in a prescribed domain of knowledge

[SOURCE: ISO/IEC TR 19763-9:2015, 3.1.3, modified — Note removed.]

3.3
urbanism
urban life and environment

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