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Information technology — Computer graphics, image processing and environmental data representation — Guidelines for representation and visualization of smart cities

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Contents

Page

Foreword ... **iv**
Introduction ... **v**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms, definitions and abbreviated terms ... **1**
3.1 Terms and definitions ... 1
3.2 Abbreviated terms ... 3
4 Representation and visualization standards ... **4**
4.1 Standards overview ... 4
4.2 Representation standards ... 4
4.3 Visualization standards ... 5
4.4 Mixed and augmented reality standards ... 6
5 Concepts ... **7**
5.1 Overview ... 7
5.2 Modelling, representing and visualizing smart cities ... 7
5.3 Smart city object ... 8
5.4 Guidance for representation of smart city objects ... 10
5.5 Guidance for visualization of smart city objects ... 12
5.6 Guidance for representation and visualization of smart cities ... 12
6 Representation and visualization methods for smart city data categories ... **13**
6.1 Guidelines for representation and visualization ... 13
6.2 Representation and visualization methods ... 15
6.2.1 Natural environment ... 15
6.2.2 Built environment ... 15
6.2.3 Dynamic entities ... 16
6.2.4 Networks ... 16
6.2.5 Weather ... 16
6.2.6 Sensors ... 16
6.2.7 Spatiotemporal data ... 16
6.2.8 Physical properties ... 17
6.2.9 Semantic properties ... 17
6.2.10 Analytical data ... 18
6.2.11 Imagery ... 19
6.2.12 Video ... 19
6.2.13 Sound ... 19
6.2.14 Haptics ... 19
6.2.15 Multidimensional data ... 19
6.2.16 Social media ... 20
6.3 Mapping of data categories to presentation / visualization methods ... 21
7 Representation and visualization of smart cities using standards ... **21**
8 Use cases ... **22**
Annex A (informative) **Use cases for applying standards to smart cities** ... **23**
Bibliography ... **32**

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Foreword

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Introduction

Developers and users of a smart city need tools to evaluate and examine options and trade-offs and predict outcomes. Parts or all of a smart city may need to be modelled, and smart city functions need to be simulated to evaluate possible outcomes. The modelling and simulation of smart city functions and processes require representation and visualization of the data. Representation and visualization of smart cities enable prototyping, demonstration and analysis of smart city concepts for further development. Both physical/geometric and semantic data can be represented and visualized. Representation and visualization of smart cities is a prime application for an integrated approach to leverage standardization since no single standard may address all requirements. This document provides guidance as to what needs to be represented for smart cities and how this can be achieved.

This document describes categories of data associated with smart cities and guidelines for their representation and visualization. It describes how standards can be applied to represent and visualize urban infrastructure, services and features. Use cases are presented that explore how these standards could be applied in smart city analysis and visualization applications.

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Information technology — Computer graphics, image processing and environmental data representation — Guidelines for representation and visualization of smart cities

1 Scope

This document specifies guidelines for the representation and visualization of smart cities. This document:

a) describes the concepts of a smart city, smart city object and smart city data,

b) describes categories of data associated with smart cities,

c) provides guidance for representation of smart cities,

d) describes guidance for visualization of smart cities,

e) provides guidance in selecting the appropriate representation and visualization technique for different categories of smart city data using standards, and

f) provides use cases for applying standards to the representation and visualization of smart cities.

2 Normative references

There are no normative references in the document.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

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

3.1.1
3D city model
representation of an urban environment with a 3D geometry of typical or specific urban objects and structures, with buildings as the most prominent features

3.1.2
analytical data
data that has been derived from properties or applications of a smart city

Note 1 to entry: Examples of analytical data include data describing car traffic and pedestrian movements obtained from sensors.

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