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Smart city use case collection and analysis - Managing public health emergencies in smart cities -
Part 2: Use case analysis

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IEC SRD 63347-2 has been prepared by IEC systems committee Smart Cities: Electrotechnical aspects of smart cities. It is a Systems Reference Deliverable.

The text of this Systems Reference Deliverable is based on the following documents:

Draft	Report on voting
SyCSmartCities/403/DTS	SyCSmartCities/428/RVDTS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Systems Reference Deliverable is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 63347 series, published under the general title *Smart city use case collection and analysis - Managing public health emergencies in smart cities*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

INTRODUCTION

The construction of a smart city can create benefits for a society and its stakeholders. Tracking infectious diseases, responding to public health emergency, maintaining social order and recovering to normal life are critical to support urban long-term development and to keep good health and well-being as UN 17 Sustainability Goals. Early testing, effective treatment, medical supplies and related public services are important focal areas for IEC SyC Smart Cities.

This document focuses on leveraging Information and communication technology (ICT) to enhance the management of public health emergencies in smart cities. As demonstrated by the Covid 19 pandemic, technology simultaneously provides methods and approaches for achieving high visibility of diseases and controlling them.

A gap exists in effective coordination and clear orientation across sectors, which hinder industry and stakeholders' engagement.

Major stakeholders include citizens, the government sectors, healthcare facilities, business entities, research institutes, global professional organization and financial services provider. Each stakeholder has specific concerns and challenges on dealing with public health emergency.

Modelling these complex interactions into a systems architecture is a valuable exercise in understanding the issues, gaps and opportunities for sustainable development.

This document focuses on use case collection and analysis to refine requirements to support technical committees such as ISO/TC 224 and ISO/TC 147 in preparing standards.

This document also seeks to inform IEC technical committees to enable them to provide the technical standards needed.

The IEC SRD 63347 series contains two parts:

– IEC SRD 63347-1: Smart city use case collection and analysis - Managing public health emergencies in smart cities - Part 1: High level analysis

– IEC SRD 63347-2: Smart city use case collection and analysis - Managing public health emergencies in smart cities - Part 2: Use case analysis

This document aims to develop the list of user stories and the database of use cases, conduct integrative analyses of the use cases, scope out the requirements about management of public health emergencies system standards and provide recommendations for IEC and other standard development organizations (SDOs).

1 Scope

This part of IEC SRD 63347 develops the list of user stories and the database of use cases, conducts integrative analyses of the use cases, scopes out the requirements of management of public health emergencies standards and provides recommendations for IEC and other standard development organizations (SDOs).

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.

IEC SRD 63347-1, *Smart city use case collection and analysis - Managing public health emergencies in smart cities - Part 1: High level analysis*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 63347-1 and the following apply.

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

– IEC Electropedia: available at https://www.electropedia.org/
– ISO Online browsing platform: available at https://www.iso.org/obp

3.1
domain
area of knowledge or activity characterized by a set of concepts and terminology understood by the practitioners in that area

EXAMPLE Taken from Smart Grid/energy system area: Generation, transmission, distribution, customer.

Note 1 to entry: Major area of similar technologies and organizational background, for the energy system some domains are suggested in this document as examples throughout this document.

[SOURCE: ISO/IEC 19501:2005, Glossary, modified – Example and note to entry added.]

4 Use case analysis approach

A top-down approach is adopted in the process of use case collection and analysis concerned in this document, following the general methodology set forth by the IEC 62559 series. See Figure 1.

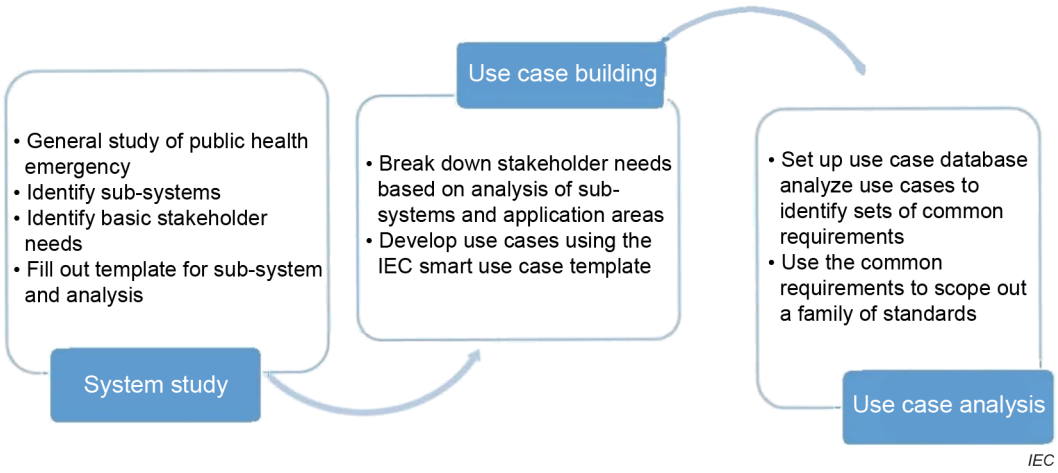

Figure 1 – Approach for use case collection and analysis

At the start of use case collection and analysis, a thorough study of management of public health emergencies should be conducted, with the purpose of identifying sub-systems, identifying basic stakeholder needs, and forming materials for sub-system analysis as use case prototypes, as accomplished in IEC 63347-1. According to IEC 63347-1, this document develops the list of user stories and the database of use cases, conducts integrative analyses of the use cases, and scopes out the requirements of management of public health emergencies standards.

Use case building starts from breaking down stakeholder needs, and developing use cases from user stories which perform as the prototypes.

The user stories centers on a statement explaining what are the stakeholders supposed to do, and what they need. Under certain circumstances, the structure is as follows:

"As a" (title), "when I am" (situation), "I need to" (motivation), "so that" (outcome).

Building on user stories, each use case follows the IEC short use case template laid out in IEC TR 62559-1:2019, IEC 62559-2:2015 and IEC 62559-3:2017, which includes the name of the use case, scope/objective, narrative, and list of actors. The actors include human and non-human actors. The main stakeholder is the first actor in each use case.

Use stories and use cases are coded as shown in Figure 2, forming a use case database.

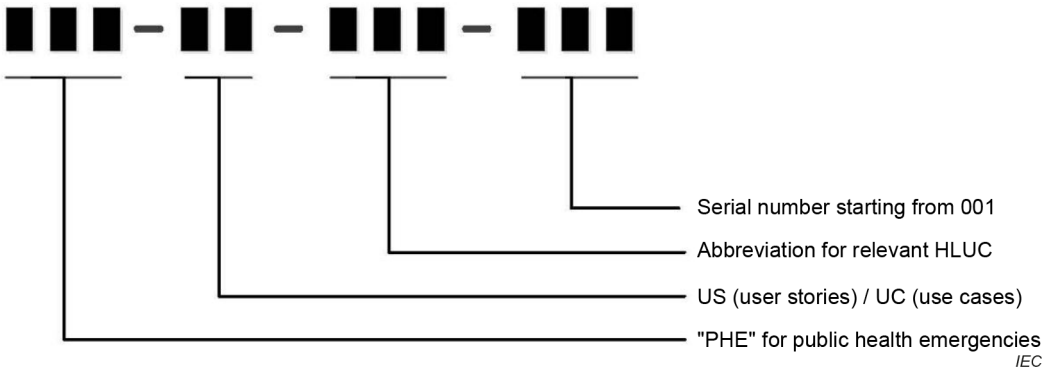

Figure 2 – Coding for user stories /use cases

Having arranged the use case database, integrative analysis can be made to give recommendations and identify the standard gaps for public health emergencies, and scope out a family of public health emergency standards.