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## **Framework for integration and operation of smart community infrastructures —**

### **Part 1: Recommendations for considering opportunities and challenges from interactions in smart community infrastructures from relevant aspects through the life cycle**

*Cadre pour l'intégration et l'exploitation des infrastructures communautaires intelligentes —*

*Partie 1: Recommandations pour la prise en compte des opportunités et des défis découlant des interactions dans les infrastructures communautaires intelligentes, des aspects pertinents tout au long du cycle de vie*



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## Contents

	Page
<b>Foreword</b> .....	<b>v</b>
<b>Introduction</b> .....	<b>vi</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Understanding of smart community infrastructure layers</b> .....	<b>4</b>
4.1 Smart community infrastructure system layer.....	4
4.2 Smart community infrastructure layer.....	4
4.3 Smart community sub-infrastructure layer.....	4
<b>5 Benefits of applying this document</b> .....	<b>4</b>
5.1 General.....	4
5.2 General benefits.....	4
5.3 Benefits for community authorities.....	5
5.4 Benefits for investors or lenders.....	5
5.5 Benefits for developers, infrastructure owners and operators.....	5
5.6 Benefits for service providers.....	5
5.7 Benefits for people in smart communities.....	5
<b>6 Life cycle phases of smart community infrastructure</b> .....	<b>6</b>
6.1 General.....	6
6.2 Initiation (phase 1).....	6
6.2.1 Smart community concept (phase 1-1).....	6
6.3 Design of target infrastructures (phase 2).....	8
6.3.1 Basic concept (phase 2-1).....	8
6.3.2 Basic plan (phase 2-2).....	8
6.3.3 Fundamental design (phase 2-3).....	9
6.3.4 Tendering (phase 2-4).....	10
6.3.5 Implementation design (phase 2-5).....	10
6.4 Construction and assessment (phase 3).....	11
6.4.1 Manufacturing, construction and installation (phase 3-1).....	11
6.4.2 Individual and combination tests and validation (phase 3-2).....	11
6.4.3 Overall assessment of smart community infrastructures as a whole (phase 3-3).....	12
6.5 Operation and maintenance (phase 4).....	13
6.6 Redevelopment and rehabilitation (phase 5).....	13
6.7 Decommissioning (phase 6).....	13
<b>7 Interactions of smart community infrastructure</b> .....	<b>14</b>
7.1 General.....	14
7.2 Interactions between infrastructures.....	14
7.3 Interactions between infrastructures and stakeholders.....	14
7.4 Interactions with external environment.....	14
<b>8 General process for managing interactions and related opportunities and challenges</b> .....	<b>14</b>
8.1 General.....	14
8.2 Process overview.....	14
8.3 Action items in “design of target infrastructures” phase (item 2 in <a href="#">Figure 12</a> ).....	15
8.3.1 Identification of interactions.....	15
8.3.2 Addressing interactions.....	15
8.3.3 Clarification of the responsibility for the opportunities and challenges.....	15
8.3.4 Action items in “construction and assessment” phase (item 3 in <a href="#">Figure 12</a> ).....	15
8.4 Validation of measures and countermeasures.....	15
<b>9 Guidelines for managing interactions</b> .....	<b>16</b>
9.1 General.....	16

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9.2	Smart community concept (phase 1-1)	16
9.2.1	Recommendations for verification and validation	16
9.2.2	Responsibility	16
9.3	Basic concept (phase 2-1)	16
9.3.1	Recommendations for verification	16
9.3.2	Recommendations for validation	17
9.3.3	Responsibility	17
9.4	Basic plan (phase 2-2)	17
9.4.1	Recommendations for verification	17
9.4.2	Recommendations for validation	17
9.4.3	Responsibility	17
9.5	Fundamental design (phase 2-3)	17
9.5.1	Recommendations for verification	17
9.5.2	Recommendations for validation	18
9.5.3	Responsibility	18
9.6	Tendering (phase 2-4)	18
9.6.1	Recommendations for verification	18
9.6.2	Recommendations for validation	18
9.6.3	Responsibility	19
9.7	Implementation design (phase 2-5)	19
9.7.1	Recommendations for verification	19
9.7.2	Recommendations for validation	19
9.7.3	Responsibility	19
9.8	Manufacturing, construction and installation (phase 3-1)	20
9.8.1	Recommendations for verification	20
9.8.2	Recommendations for validation	20
9.8.3	Responsibility	20
9.9	Individual and combination tests and validation (phase 3-2)	20
9.9.1	Recommendations for verification	20
9.9.2	Recommendations for validation	20
9.9.3	Responsibility	20
9.10	Overall assessment and validation (phase 3-3)	21
9.10.1	Recommendations for verification	21
9.10.2	Recommendations for validation	21
9.10.3	Responsibility	21
9.11	Operation and maintenance (phase 4)	21
9.11.1	Recommendations for verification	21
9.11.2	Recommendations for validation	22
9.11.3	Responsibility	22
9.12	Redevelopment and rehabilitation (phase 5)	22
9.12.1	Recommendations for verification and validation	22
9.12.2	Responsibility	22
9.13	Decommissioning (phase 6)	22
9.13.1	Recommendations for verification	22
9.13.2	Recommendations for validation	23
9.13.3	Responsibility	23

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## Foreword

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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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

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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](http://www.iso.org/iso/foreword.html).

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

A list of all parts in the ISO 37155 series can be found on the ISO website.

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](http://www.iso.org/members.html).

## Introduction

Urban density is likely to increase for the foreseeable future, resulting in further urbanization complexity. From this perspective, a “smart community” approach is an important tool for addressing such urban challenges by integrating different forms of infrastructure in a rational and efficient manner.

An important aspect of a smart community is integrating infrastructures as “a system of systems”. In addition, a smart community has various stakeholders, including users, and each smart community infrastructure has extended scope life cycle (see [Figure 1](#)).

Until now it has not been possible to ensure consistency across infrastructure types to meet the requirements for smart community infrastructures, as owners have focused on just assembling solutions to each subsystem of infrastructures.

In order to ensure consistency of the specification of smart community infrastructures as a whole, firstly the functions of each subsystem need to be clarified and arranged based on the needs of a smart community. Secondly, the perspectives of various stakeholders and the life cycle of infrastructures need to be considered.

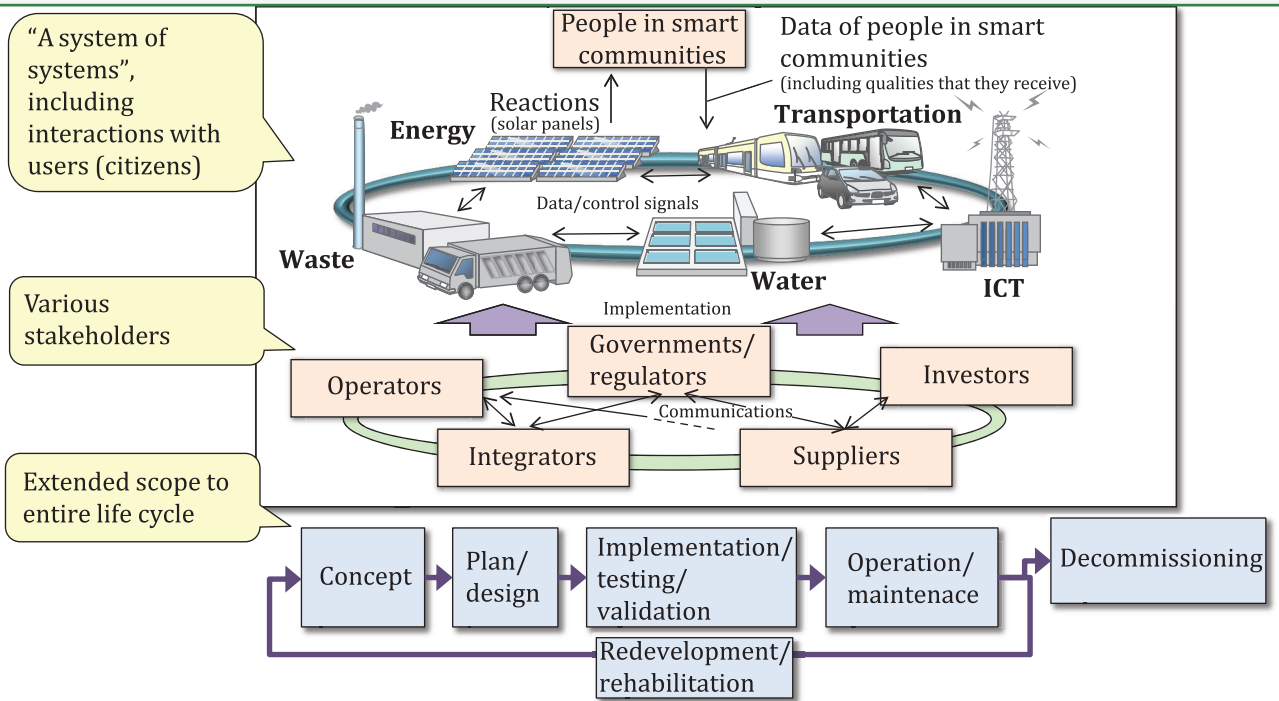
To solve these issues and realize well-functioning smart community infrastructures as a whole, infrastructure development and operation processes are expected to include a common framework, as described in ISO/TR 37152, composed of three elements (see [Figure 2](#)):

- element (A): allocation of consistent specification requirements to each component of a system and validation of the allocating procedures;
- element (B): specification requirements associated with interaction and adoption of adequate measures into planning and operation;
- element (C): process to facilitate information sharing and communication among stakeholders.

On conducting a study, it was found that all stakeholders will benefit from applying this framework (see [Clause 5](#)).

This document provides guidelines for realizing element (B), providing specification requirements to manage interactions and to adopt adequate measures into planning and operation. Parts 2 and 3 in the ISO 37155 series will be about elements (A) and (C), respectively. Should it be required, a guidelines document will be developed to support Parts 1 to 3.

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NOTE The infrastructures, stakeholders and life cycle phases pictured in this figure are only examples. Other infrastructures, such as an urban agricultural system, could be included.

**Figure 1 — Characteristics of a smart community infrastructure**

### Smart community infrastructures

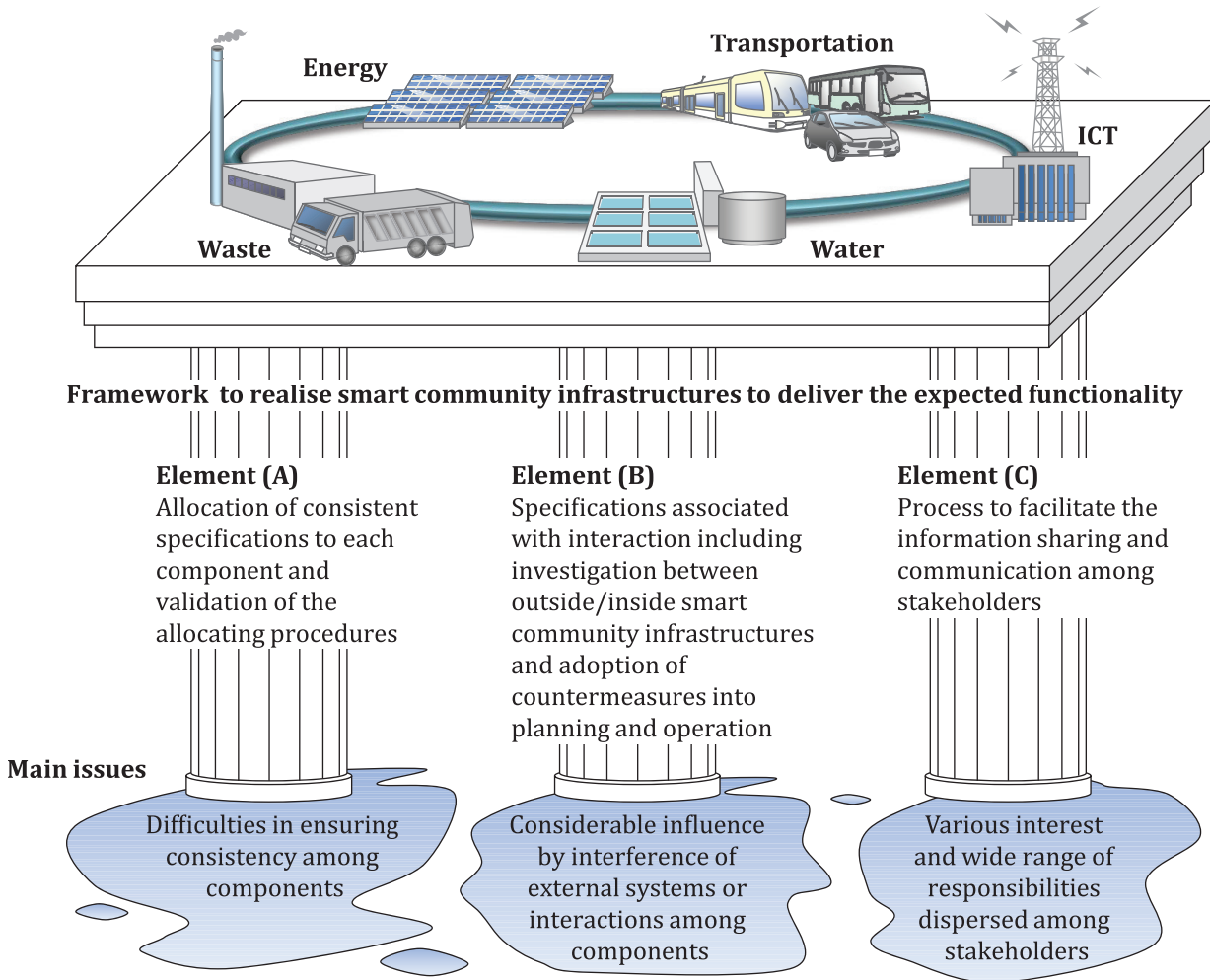


Figure 2 — Three elements of the framework