INTERNATIONAL STANDARD

ISO 37155-2

First edition
2021-05

Framework for integration and operation of smart community infrastructures —

Part 2: Holistic approach and the strategy for development, operation and maintenance of smart community infrastructures

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

Partie 2: Approche holistique et stratégie pour le développement, le fonctionnement et la maintenance des infrastructures communautaires intelligentes

Reference number
ISO 37155-2:2021(E)

Contents

Page

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 .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 .org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 .org/iso/foreword.html.

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

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 .org/members.html.

Introduction

In the foreseeable future, urban density is likely to increase, resulting in further urbanization complexity. From this perspective, a "smart community" approach is an important concept to address the urban challenges by integrating different forms of infrastructures in a rational and efficient manner.

An important aspect of a smart community is integrating infrastructures as "a system of systems". In addition to that, smart community has various stakeholders including users, and each smart community infrastructure has an extended scope lifecycle (See Figure 1). A major benefit of a system of systems is that the sector specific performance of all infrastructures can be validated with regard to their contribution to the overall goals of a community. As a result of this validation, these goals can be adapted and improvement targets for each infrastructure can be derived. Thus, an intended concept of a smart community being validated and updated through its lifecycle concerning the integration and operation of smart community infrastructures is realized efficiently at all times (See Figure 2).

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, functions of each subsystem need to be clarified and arranged based on the needs for a smart community, and secondly, the perspectives of various stakeholders and lifecycle of infrastructures need to be considered.

To solve the above 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 3):

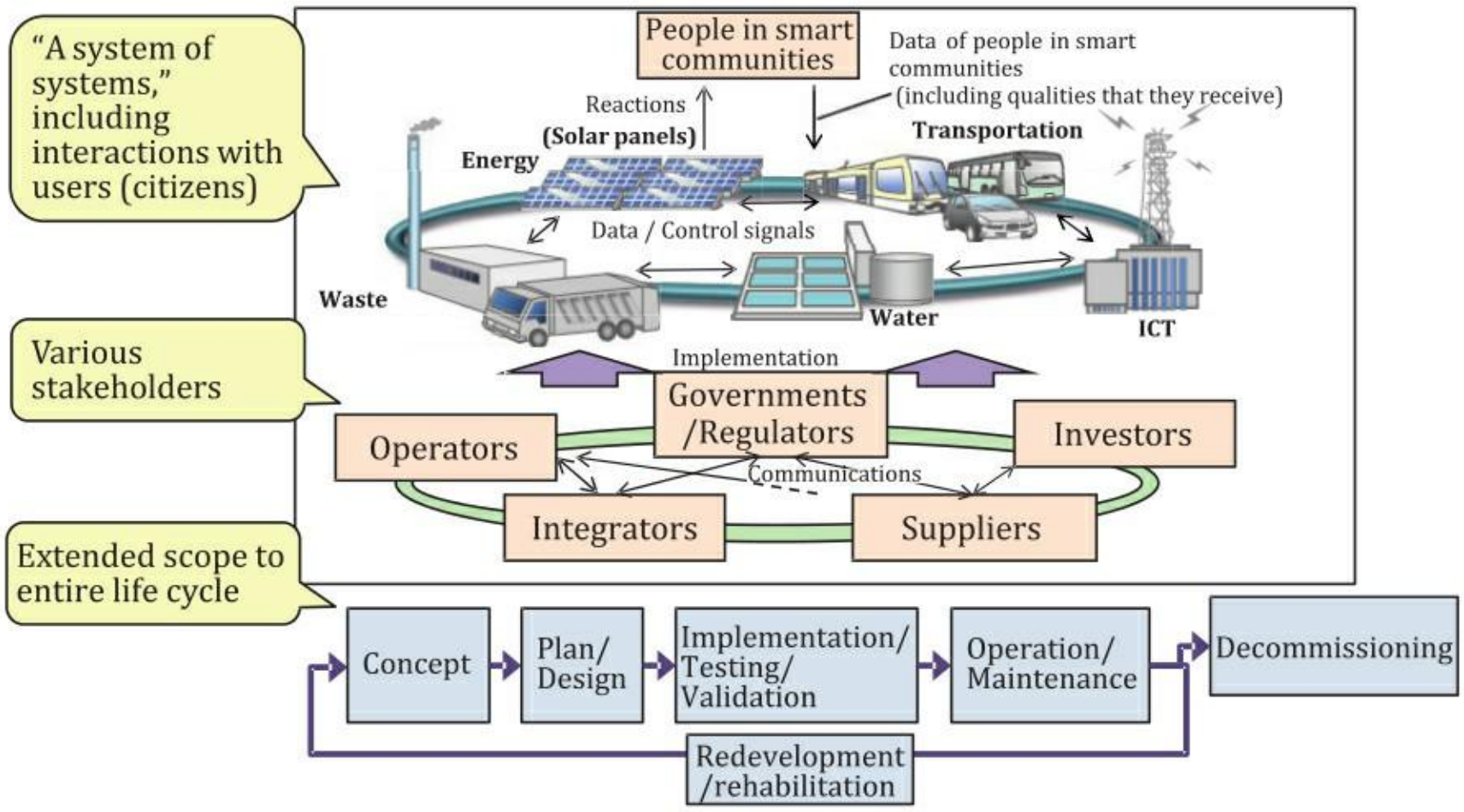
— element (A), allocation of consistent specification requirements to each component of a system and validation of the allocating procedures;

— 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 the study, it was found that each stakeholder will have various benefits through applying this framework. (See Clause 5)

This document provides the guideline to realize element (A), providing guidelines for specification to ensure consistency of smart community infrastructure and to adopt adequate measures into planning and operation. Part 1 is about element (B).



NOTE The infrastructures, stakeholders and lifecycle phases pictured in this figure are only some of the examples. Other infrastructure, such as urban agricultural system, might also be included.

Figure 1 — Characteristics of smart community infrastructure

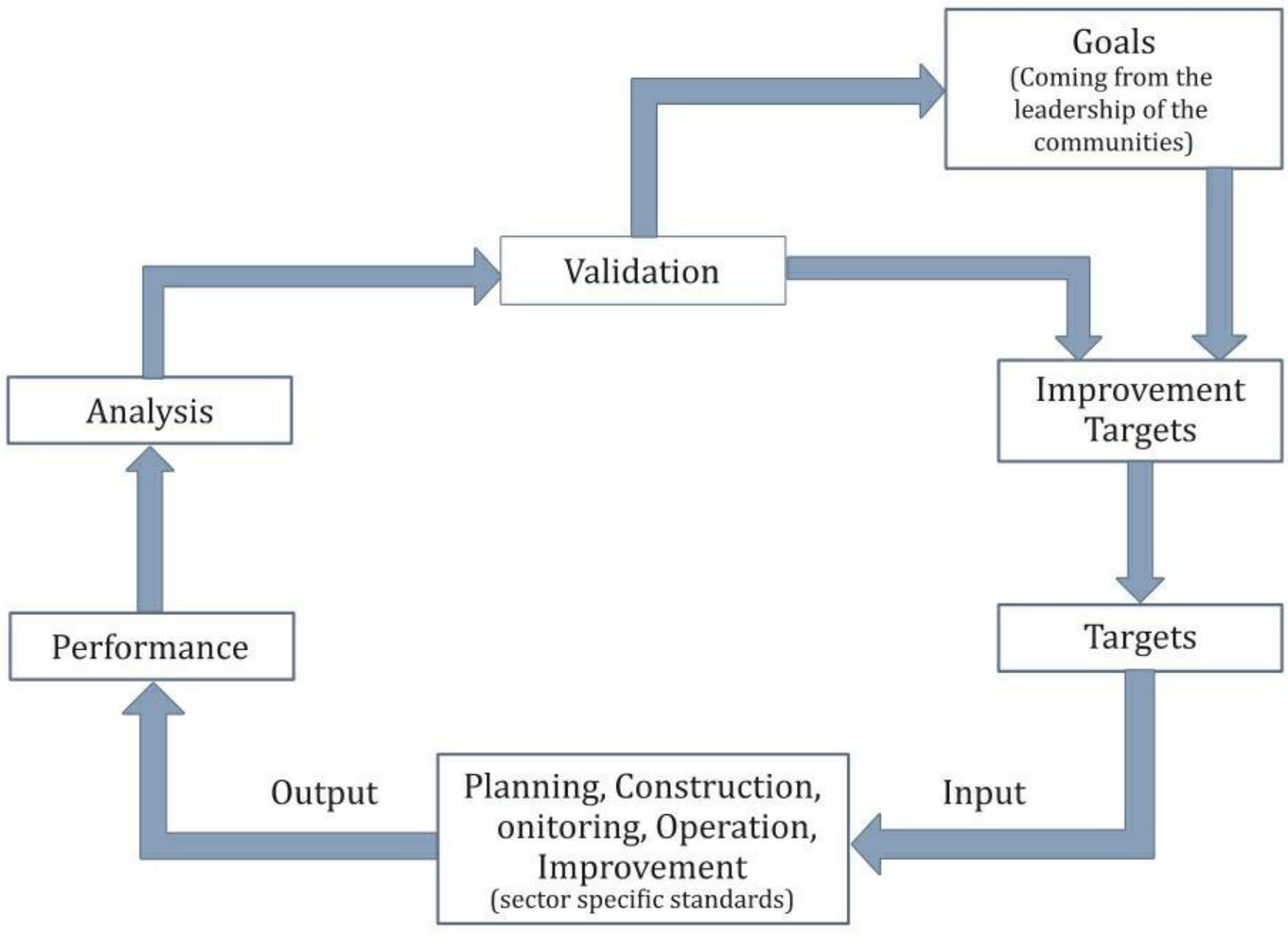


Figure 2 — Workflow of a system of systems concerning integration and operation of smart community infrastructures

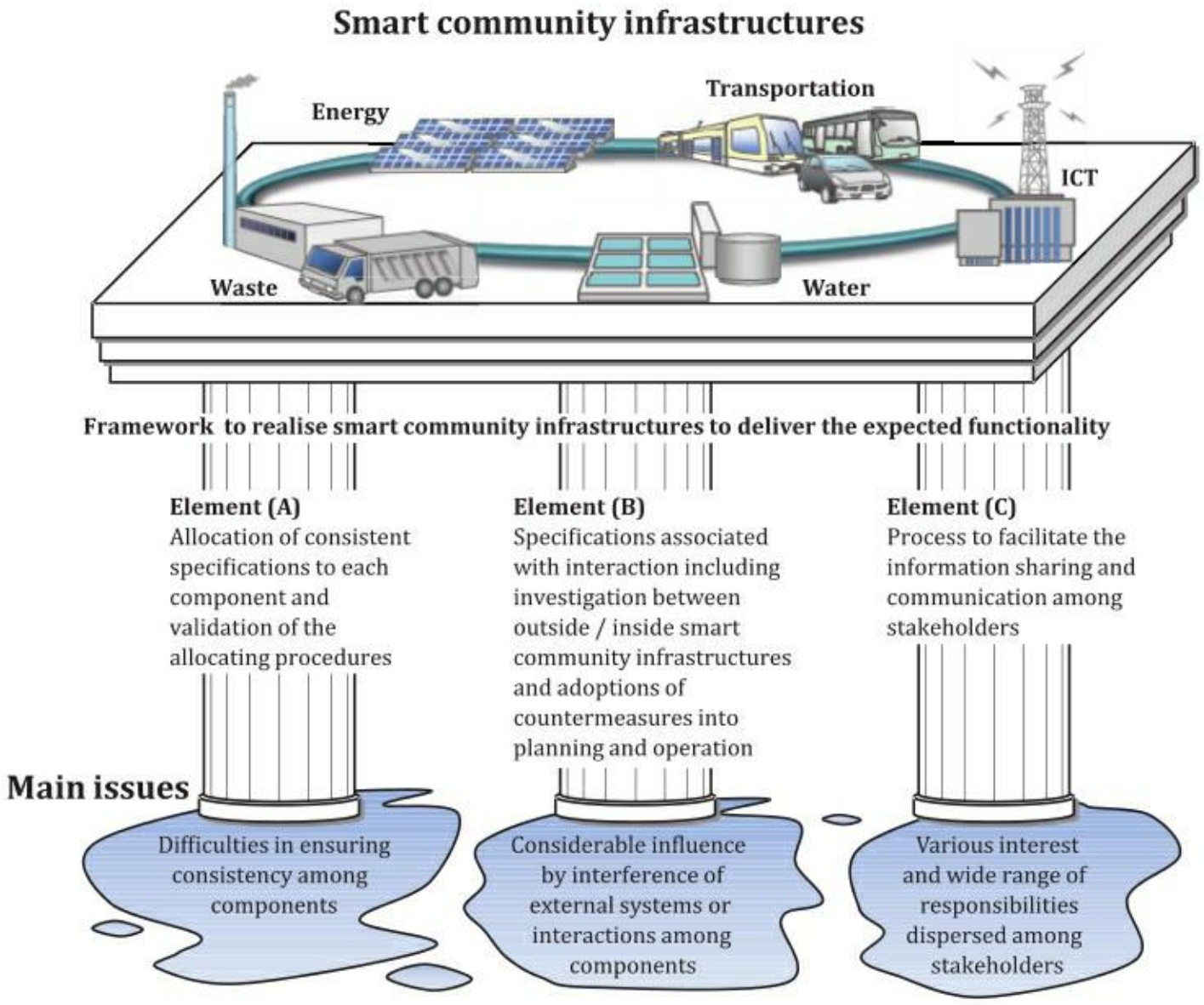


Figure 3 — Three elements of the framework