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Foreword

This document (CEN/TR 15449-3:2012) has been prepared by Technical Committee CEN/TC 287 “Geographic information”, the secretariat of which is held by BSI.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TR 15449:2011.

The present standard comprises the following parts:

— CEN/TR 15449-1, *Geographic information — Spatial data infrastructures — Part 1: Reference model*

— CEN/TR 15449-2, *Geographic information — Spatial data infrastructures — Part 2: Best practices*

— CEN/TR 15449-3, *Geographic information — Spatial data infrastructures — Part 3: Data centric view* (the present part);

— CEN/TR 15449-4, *Geographic information — Spatial Data Infrastructure — Part 4: Service centric view*

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Introduction

Spatial data infrastructure (SDI) is a general term for the computerised environment for handling data that relates to a position on or near the surface of the earth. It may be defined in a range of ways, in different circumstances, from the local up to the global level.

This Technical Report focuses on the technical aspects of SDIs, thereby limiting the term SDI to mean an implementation neutral technological infrastructure for geospatial data and services, based upon standards and specifications. It does not consider an SDI as a carefully designed and dedicated information system; rather, it is viewed as a collaborative framework of disparate information systems that contain resources that stakeholders desire to share. The common denominator of SDI resources, which can be data or services, is their spatial nature. It is understood that the framework is in constant evolution, and that therefore the requirements for standards and specifications supporting SDI implementations evolve continuously.

SDIs are becoming more and more linked and integrated with systems developed in the context of e-Government. Important drivers for this evolution are the Digital Agenda for Europe, and related policies (see Part 1). By sharing emerging requirements at an early stage with the standardization bodies, users of SDIs can help influence the revision of existing or the conception of new standards.

The users of an SDI are considered to be those individuals or organisations that, in the context of their business processes, need to share and access geo-resources in a meaningful and sustainable way. Based on platform- and vendor-neutral standards and specifications, an SDI aims at assisting organisations and individuals in publishing, finding, delivering, and eventually, using geographic information and services over the internet across borders of information communities in a more cost-effective manner.

Existing material about SDIs abounds. The criteria used for determining if a given standard or specification is referred to in this report are that the publication addresses an aspect of SDI, and that it is non-proprietary in nature.

Based on these considerations, the following reports have been taken into account:

- legal texts and guidelines produced in the context of INSPIRE;
- documents produced by ISO/TC 211 (and co-published by CEN);
- documents produced by the Open Geospatial Consortium (OGC), including the OpenGIS Reference Model (ORM);
- the European Interoperability Framework and related documents;
- deliverables from the European Union-funded projects (e.g. GIGAS, SANY).

Considering the complexity of the subject and the need to capture and formalise different conceptual and modelling views, CEN/TR 15449 is comprised of multiple parts:

- Part 1: Reference model: this provides a general context model for the other Parts, applying general IT architecture standards;
- Part 2: Best Practice: this provides best practices guidance for implementing SDI, through the evaluation of the projects in the frame of the European Union funding programmes;
- Part 3: Data centric view: this addresses concerns related to the data, which includes application schemas and metadata;

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- Part 4: Service centric view (in preparation): this includes the taxonomy of services, concepts of interoperability, service architecture, service catalogue, and the underlying IT standards.

Further parts may be added in the future.

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1 Scope

Part 3 of the Technical Report describes a data-centric view of a Spatial Data Infrastructure (SDI). The Data Centric view addresses the concepts of semantic interoperability, the methodology for developing data specifications through the application of the relevant International Standards, and the content of such specifications including Application Schemas, Feature Catalogues, General Feature Model, Data Lifecycle Management and Data Quality, Data Access and Data Transformation.

The intended readership of this Technical Report are those people who are responsible for creating frameworks for SDI, experts contributing to INSPIRE, experts in information and communication technologies and e-government that need to familiarise themselves with geographic information and SDI concepts, and standards developers and writers.

2 Normative references

Not applicable.

3 Terms and definitions

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

3.1
conceptual formalism
set of modelling concepts used to describe a conceptual model

EXAMPLE UML meta model, EXPRESS meta model.

Note 1 to entry: One conceptual formalism can be expressed in several conceptual schema languages.

[SOURCE: EN ISO 19101:2005]

3.2
conceptual model
model that defines concepts of a universe of discourse

[SOURCE: EN ISO 19101:2005]

3.3
conceptual schema
formal description of a conceptual model

[SOURCE: EN ISO 19101:2005]

3.4
conceptual schema language
formal language based on a conceptual formalism for the purpose of representing conceptual schemas

EXAMPLE UML, EXPRESS, IDEF1X.

Note 1 to entry: A conceptual schema language may be lexical or graphical. Several conceptual schema languages can be based on the same conceptual formalism.

[SOURCE: EN ISO 19101:2005]

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