As normas ISO

Sumário
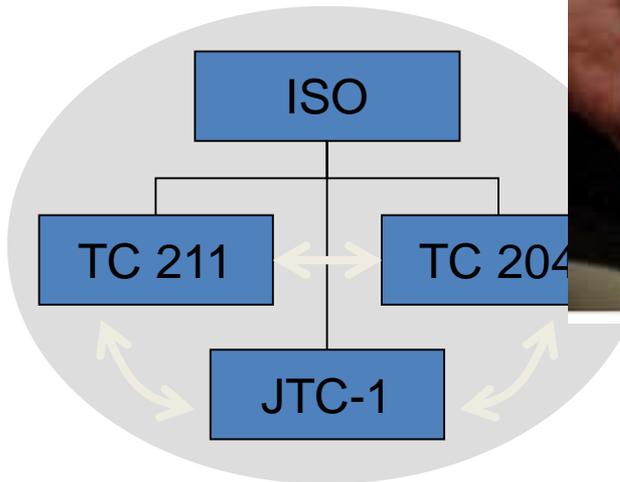
- ❏ Características das Normas
- ❏ Classificação das normas
- ❏ A ISO
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- ❏ ISO/TC211
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- ❏ INSPIRE

Standards are the Foundation of Data Ecosystems

By Dr. Nadine Alameh

Location counts. There is no dearth of articles and talks around the 'new spatial revolution' or how 'location is at the heart of Industry 4.0.' The fact is that geospatial has finally moved up the value chain and is now being acknowledged as both an enabler *and* a differentiator in more domains than can fit in this article.

More Prime Read

Geo4SDGs: Relevance to the Digital Age

The growing recognition of 'geospatial' is largely due to location's unparalleled ability to function as the organizing principle that unites heterogeneous data. But while location allows us to *contextualize* diverse data, the ability to *seamlessly integrate* it for analysis requires standards.

Seamless data integration

Over time our community has evolved from being seen as geospatial pioneers to GIS technologists, and now, to experts at using location to integrate diverse data and create new value. One current example of this location-based value is how the geospatial industry mobilized to support responses to the COVID pandemic. Every dashboard, every quarantine/de-quarantine plan, and every contact-tracing app relies on location for data integration and contextualization, and every one of these applications is creating tremendous value for communities the world over.

ht

Data integration sits at the heart of the decision-making, analysis, and prediction processes that help us make sense of, and exist in, our world. Because of humanity's newfound appetite for — even reliance on — data, we continue to invent new technologies that generate data about nearly every aspect of human activity

Standards and interoperability

The only way to create such a data ecosystem is for data providers and software developers to agree upon a set of standards that guarantee interoperability. Consensus-based open standards, when created by an engaged user community, ensure interoperability, enhance collaboration, and create a diverse, interoperable, decentralized software and data ecosystem that benefits all participants. Simultaneously, this means that the only requirement for participation in the ecosystem is compliance with its standards, making it as accessible for the small players as it does the large.

While it's impossible to create universal, perpetual standards, it *is* possible to design them to easily evolve in-step with technological progress, so that we don't have to start from scratch every few years. This is why the new OGC API family of standards are being developed in a fully modular and extensible fashion, and with

As Normas (standard)

O que é uma norma?

"regra de procedimento; principio; modelo; lei."

➡️ **As boas normas são simples e únicas**

Por exemplo as letras romanas são usadas há mais de 2000 anos e são capazes de se adotar à maioria das línguas do mundo.

Por contraste os números romanos não tiveram tanto sucesso como norma e acabaram por desaparecer.

Características das Normas

Todos os dias contactamos com normas e quase não nos apercebemos do quanto estas contribuem para a simplificação ou facilitação de tarefas.

São exemplos:

Folha de papel A4, A3, etc

Formatos de ficheiros
        *.DOC (MicrosofWord),
        *.TIF, (Tagged Interchange Format, Adobe)
        *.DXF (AutoCad), *.shp (Shape ESRI)

Perspectiva Linguística

(Em inglês o termo correspondente a **norma** é "**standard**", em Francês "**la norme**" e alemão "**die Norm**").

Uma organização internacional como a ISO (International Organization for Standardization) publica normas formais que têm algum nível de relevância no domínio das aplicações.

Estas normas são referidas por "**de-jure**" ("*pela lei*")

As empresas desenvolvem normas com o objectivo de melhor operar com os seus produtos.

Se o "standard" for bem aceite pela comunidade torna-se uma norma "**de-facto**" ("*na prática*")

Perspectiva Económica

O motivo para a industria investir na normalização é o retorno financeiro. Um estudo provou que os ganhos de normalização na industria alemã eram de 15 mil milhões de euros anuais (em 2000).

As razões para este ganhos são:

1. Normalização evita a opção de interfaces para um variado número de aplicações

2. Participação no processo de normalização coloca as empresas em vantagem relativamente às outras que não participam

3. As normas permitem as empresas terem vários fornecedores

4. As normas suportam o processo legislativo. Cerca de 20% das normas alemãs (DIN) são referenciadas por leis. Neste sentido as normas simplificam o processo legislativo

Perspectiva Nacional

Os princípios de normalização são:

Faz uma vez,   faz certo,   faz internacionalmente

No domínio das Tecnologias da Informação qualquer abordagem de âmbito nacional só poderá ser vista como referência de uma solução internacional.

De qualquer modo, as normas internacionais têm de ser adaptadas a cada país (linguística) e devem obter o contributo dos vários Estados.

Em Portugal a instituição participante é o
IPQ (Instituto Português de Qualidade)

O Instituto Portugues de Qualidade

"No quadro do Sistema Português da Qualidade (SPQ) - Decreto-Lei nº 142/2007, de 27 de Abril - o IPQ, como Organismo Nacional de Normalização (ONN), coordena a actividade normativa nacional, a qual está definida nas "Regras e Procedimentos para a Normalização Portuguesa, aprovadas por Despacho IPQ nº 26/2010 de 28 de Setembro."

"No que concerne à participação ao nível internacional, o IPQ assegura a representação de Portugal em inúmeras estruturas europeias e internacionais relevantes para a sua missão, designadamente,

European Committee for Standardization (CEN),

European Committee for Electrotechnical Standardization (CENELEC),

International Electrotechnical Commission (IEC),

Conference General des Poids et Mésures (CGPM),

International Organization for Legal Metrology (OIML), e

International Organization for Standardization (ISO)."

Instituto Português da Qualidade 28 anos

IPQ | **SPQ** | **Normalização** | **Metrologia** | **Temas Europeus**

NORMALIZAÇÃO

ORGANISMO NACIONAL DE NORMALIZAÇÃO +

A IMPORTÂNCIA DA NORMALIZAÇÃO +

ATIVIDADE NORMATIVA NACIONAL +

REGRAS E PROCEDIMENTOS DA NORMALIZAÇÃO PORTUGUESA +

ENTIDADES PARCEIRAS (ONS/OGCT) +

COMISSÕES TÉCNICAS DE NORMALIZAÇÃO +

PLANO NORMALIZACAO +

DOCUMENTOS NORMATIVOS EM INQUÉRITO PÚBLICO +

NORMAS PORTUGUESAS EM REEXAME +

As normas dão um enorme contributo em muitos aspetos das nossas vidas, embora muitas vezes, seja um contributo impercetível para o cidadão.

A vida seria muito difícil sem normas. O que aconteceria se, por exemplo, não existissem normas sobre produtos de construção, material elétrico ou sobre segurança de equipamentos? A título de exemplo sem dimensões normalizadas de contentores de carga, o comércio internacional seria mais lento e caro.

Habitualmente desconhecemos o papel desempenhado pelas normas no aumento dos níveis de qualidade, segurança, eficiência, interoperabilidade, bem como no fornecimento de todos estes benefícios, com um custo mais económico.

Qualquer norma é considerada uma referência idónea do mercado a que se destina, sendo por isso usada em processos de legislação, de acreditação, de certificação, de metrologia, de informação técnica e de relações comerciais Cliente - Fornecedor.

As normas são documentos de aplicação voluntária, salvo se existe um diploma legal que as torne de cumprimento obrigatório.

Política de privacidade | Responsabilidade (Di Conceção e Desenv

GOVERNO DE PORTUGAL | MINISTÉRIO DA ECONOMIA

COMPETE | QREN QUADRO DE REFERÊNCIA ESTRATÉGICO NACIONAL

Instituto Português da Qualidade

A IMPORTÂNCIA DA NORMALIZAÇÃO

Estes são alguns exemplos dos 24 000 documentos que integram o acervo normativo português

NP EN ISO 8468 — VIANA do CASTELO
NP 1130 — BRAGANÇA
NP EN 14533 — BRAGA
NP 1989 — VILA REAL
EN 13272 — PORTO
NP 4494 — VISEU
NP EN 25651 — AVEIRO
NP EN 771-1 — GUARDA
NP 593 — COIMBRA
NP ISO 6322-1 — CASTELO BRANCO
NP EN 844-3 — LEIRIA
NP EN ISO 2589
NP 4475 — SANTARÉM
NP ISO 1216
AÇORES — PORTALEGRE
LISBOA
SETÚBAL — ÉVORA
NP 453
NP EN 1467
NP 2287 — BEJA
MADEIRA — NP 3062
EN ISO 4254-1
FARO
NP 4388

Cada um de nós no desempenho da sua atividade particular ou profissional rege-se, consciente ou inconscientemente, por normas.

A Normalização é a atividade que, de forma organizada, viabiliza a elaboração das normas.

As normas tornam a nossa vida mais fácil e incrementam o progresso. Se não acreditam, atentem no seguinte: quando nos deslocamos de automóvel, o combustível utilizado (gasolina sem chumbo) está normalizado pela EN 228, ou quando lavamos, secamos e passamos roupa temos, por trás do bom desempenho dos aparelhos utilizados, as normas NP EN 60335-2-7, NP EN 61121 e NP EN 60335-2-3, respetivamente.

As normas são documentos de caráter voluntário que definem requisitos técnicos aos quais respondem:

• produtos - por ex. capacetes de segurança industrial (EN 397); telefones móveis (NP EN 50360); panelas de pressão (NP EN 12778); brinquedos (segurança - série NP EN 71);
• métodos de ensaio - por ex. microbiologia alimentar - leites - contagem de bactérias termorresistentes (NP 462);
• processos de produção - por ex. funções e instrumentação para a medição e controlo de processos industriais (NP ISO 3511-1).

A atividade de Normalização nasceu da necessidade de dar resposta a problemas de natureza técnico-industrial, mas a tendência mais recente da normalização abrange áreas de um âmbito muito mais alargado como:

• serviços - por ex. turismo de habitação e turismo no espaço rural (NP 4494); transporte público de passageiros - rede de metro e linhas de autocarro urbano (NP 4475 e NP 4493 respetivamente);
• sistemas de gestão - por ex. sistemas de gestão da qualidade (NP EN ISO 9001); sistemas de gestão ambiental (NP EN ISO 14001); sistema de gestão de recursos humanos (NP 4427);
• questões de ordem ambiental - por ex. avaliação ambiental de sítios e organizações (NP ISO 14015); rótulos e declarações ambientais (NP EN ISO 14020);
• inovação - por ex. gestão da investigação, desenvolvimento e inovação (NP 4457);
• social - responsabilidade social (NP ISO 26000) e a ética (NP 4460-1).

A Normalização propicia a redução de custos para fornecedores e clientes, aumenta a transparência do mercado, ajudando a criar novos negócios e mantendo os existentes, pois são um meio de garantir aos clientes que os produtos/serviços detêm o adequado grau de qualidade, segurança e respeito pelo ambiente.

As normas facilitam igualmente as trocas comerciais na medida em que, para além da diminuição dos custos, reduzem as assimetrias de informação entre a oferta e a procura. Numa economia aberta como é a economia portuguesa, as atividades de Normalização são de extrema importância para reforço e credibilidade das transações comerciais, sejam elas efetuadas no mercado nacional ou além-fronteiras.

Características das Normas

Um outro tipo de normas são as normas da série ISO9000 para gestão de qualidade.

ISO 9000 ➤ É definido um conjunto de regras para investigar a eficiência na gestão da qualidade numa organização

Estes exemplos ilustram a natureza heterogénea da normalização.

As normas podem ser:

➡ Orientadas para a gestão ou técnicas

➡ Detalhadas ou abstractas

➡ Resultado do consenso internacional ou o resultado do desenvolvimento de uma empresa

Organizações Internacionais de Normalização

As várias organizações internacionais de normalização podem ser divididas em dois grupos:

Organizações Internacionais

A sua decisão é baseada no consenso

O seu funcionamento é baseado no financiamento de cada estado membro em função do seu potencial económico permitindo funcionar de forma independente dos estados ou empresas.

Exemplos:
ISO – International Organisation for Standardization
IEC - International Electrotecnical Organization
ITU – International Telecomunication Union

Organizações Internacionais de Normalização

Consórcios Internacionais

São liderados pela industria com participação de agências governamentais.

O objectivo principal é defender os interesses dos seus membros.

Um dos interesses será desenvolver normas comuns de modo a potenciar outros desenvolvimentos (as normas "de-facto")

Exemplos:
OGC – Open Geospatial Consortium
       (o maior e mais importante consorcio da comunidade da IG)
W3C – World Wide Web Consortium

https://www.ogc.org/

OGC

OGC Standards and Resources

OGC Standards and Resources:
Made by our Member Community for use by the Global Community

Standards	Registries	Best Practices	Community Practices
International standards that detail conceptual models, interfaces, or encodings to enable interoperability.	Web accessible sources of information about things ("Concepts") the OGC defines or that communities ask that we host on their behalf. Applies FAIR principles for interoperability in systems.	Member-agreed and -approved documents describing the use of one or more OGC standards to address a domain-specific topic or provide a solution to an interoperability challenge.	Documents describing implemented standards, specifications, or technologies that originate outside of OGC, but also address interoperability requirements in geospatial and related communities.
View all OGC Standards	Visit the OGC Definition Server	Read More on Best Practices	

Engineering Reports	Discussion Papers	White Papers	OGC Reference Model
Developed in the OGC Innovation Program to highlight the initiatives completed by OGC members. They document the partners involved, the standards used, their importance, and potential future impacts.	Technology issues being considered in the Working Groups of the OGC Technical Committee. They create discussion in the geospatial information industry.	Technology issues of interest to OGC Members and the geospatial community at large. They provide necessary background to highlight and forecast information and trends.	The OGC Reference Model (ORM) describes the OGC Standards Baseline and the relationships between the baseline documents.
Read more about Engineering Reports	Read more about Discussion Papers	Read more about White Papers	Read the ORM

A ISO (International Organization for Standardization)

A ISA (International Federation of the National Standardizing Associations) foi fundada em 1926 e estava focada na engenharia mecânica. A sua actividade terminou em 1942.

Em 1947 sucedeu-lhe a ISO (International Organization for Standardization) como organização não governamental. A sua sede é em Genebra, Suíça.

O trabalho na ISO é baseado em três princípios:

Consensus	Industry-wide	Voluteering
As diferentes visões dos diferentes parceiros são tomados em consideração. A aprovação de uma norma é feita com 75% dos votantes	As normas deverão sempre conduzir a soluções globais que satisfaçam as necessidades da industria e dos consumidores	É baseado no envolvimento voluntário de todos as partes interessadas

A ISO (International Organization for Standardization)

O trabalho na ISO é descentralizado

O trabalho de normalização é realizado pelas

Comissões Técnicas (TC)   e   **Sub-Comissões (SC)**

Cada TC e SC tem o seu próprio secretariado numa instituição competente num qualquer lugar do mundo. Neste momento a ISO tem 186 TC e 50 SC.

No caso da TC-211 (IG/Geomatics) o secretariado é na Suécia,

O número de membros de um TC pode variar entre os 10 e 1000. No caso da TC211 são cerca de 60 que se encontram 2 vezes por ano.

Normas da IG-Geomática – TC211

As primeiras normas na área da IG surgiram na década de 1990.

(Embora já existissem na Europa há muitos anos normas para a execução de trabalhos nas áreas da Geodesia, Cadastro e Cartografia)

1991: O primeiro projecto para normalizar a informação geográfica, liderado pela AFNOR, a agência francesa, a Organização Europeia de Normalização CEN (Comité Européen de Normalisation) criou o Comité Técnico 287 (Geographic Information). O trabalho dessa comissão resultou em 8 pré-normas europeias.

1994: ISO/TC211 é criada e a congénere europeia foi extinta.

A Comunidade Europeia implementou recentemente (2007) uma iniciativa chamada INSPIRE que pretende desenvolver uma SDI a nível europeu. Este projecto suporta as normas ISO.

ISO/TC211

A principal força impulsionadora da ISO/TC211 foi a Defence Geospatial Information Working Group (DGIWG) dos EUA e os esforços de normalização nos EUA e Canadá.
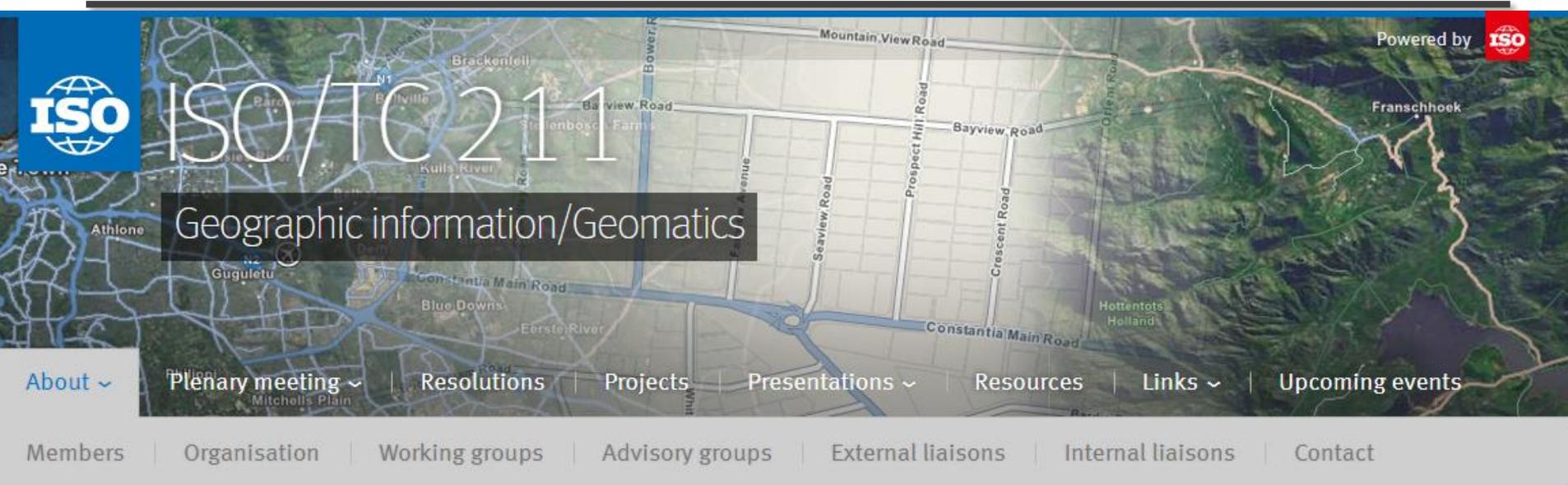
As outras duas organizações que contribuíram para o aparecimento da ISO/TC211 foram a IHO (International Hydrographic Organization) e a CEN/TC278 (Geographic Data Files, GDF)

Âmbito: A Informação Geográfica / Geomática

As normas deverão especificar uma infra-estrutura e os necessários serviços para o manuseamento de dados geográficos incluindo a sua **gestão, aquisição, processamento, análise, acesso, representação e transferência**.

Quando possível a norma deverá estabelecer a ligação com outras normas das Tecnologias da Informação.

https://committee.iso.org/home/tc211

ISO/TC 211

Geographic information/Geomatics

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Scope

Standardization in the field of digital geographic information.
This work aims to establish a structured set of standards for information concerning objects or phenomena that are directly or indirectly associated with a location relative to the Earth.

These standards may specify, for geographic information, methods, tools and services for data management (including definition and description), acquiring, processing, analyzing, accessing, presenting and transferring such data in digital/electronic form between different users, systems and locations.

The work shall link to appropriate standards for information technology and data where possible, and provide a framework for the development of sector-specific applications using geographic data.

Do not miss the newsletter

We know not all have time to look at the web page but did you know you can keep yourself updated with ISO/TC 211 news via the Newsletter.

Newsletter September 2019

UN-GGIM on ISO/TC 211 website

ISO/TC211

Group photo taken at the University of Maribor Faculty of Electrical Engineering and Computer Science in Maribor, June 2019.

ISO/TC 211 Business Plan

Click here to access the business plan

Related ISO pages

Our page on iso.org

Who develops ISO standards?

Why get involved in standards development?

If you are not receiving the Newsletter already let Mats Ahlin know and you will be on the list for the next one.

75

published ISO standards*

under the direct responsibility of ISO/TC 211

25

ISO standards under development*

under the direct responsibility of ISO/TC 211

* number includes updates

ISO/TC211

SUSTAINABLE DEVELOPMENT GOALS

This committee contributes with 21 standards to the following Sustainable Development Goals:

TC

STANDARDS BY ISO/TC 211 🔊

Geographic information/Geomatics

Filter: ☑ ⊘ Published standards ☐ ⊘ Standards under development ☐ ⊘ Withdrawn standards ☐ ⊘ Projects deleted

Filter the list

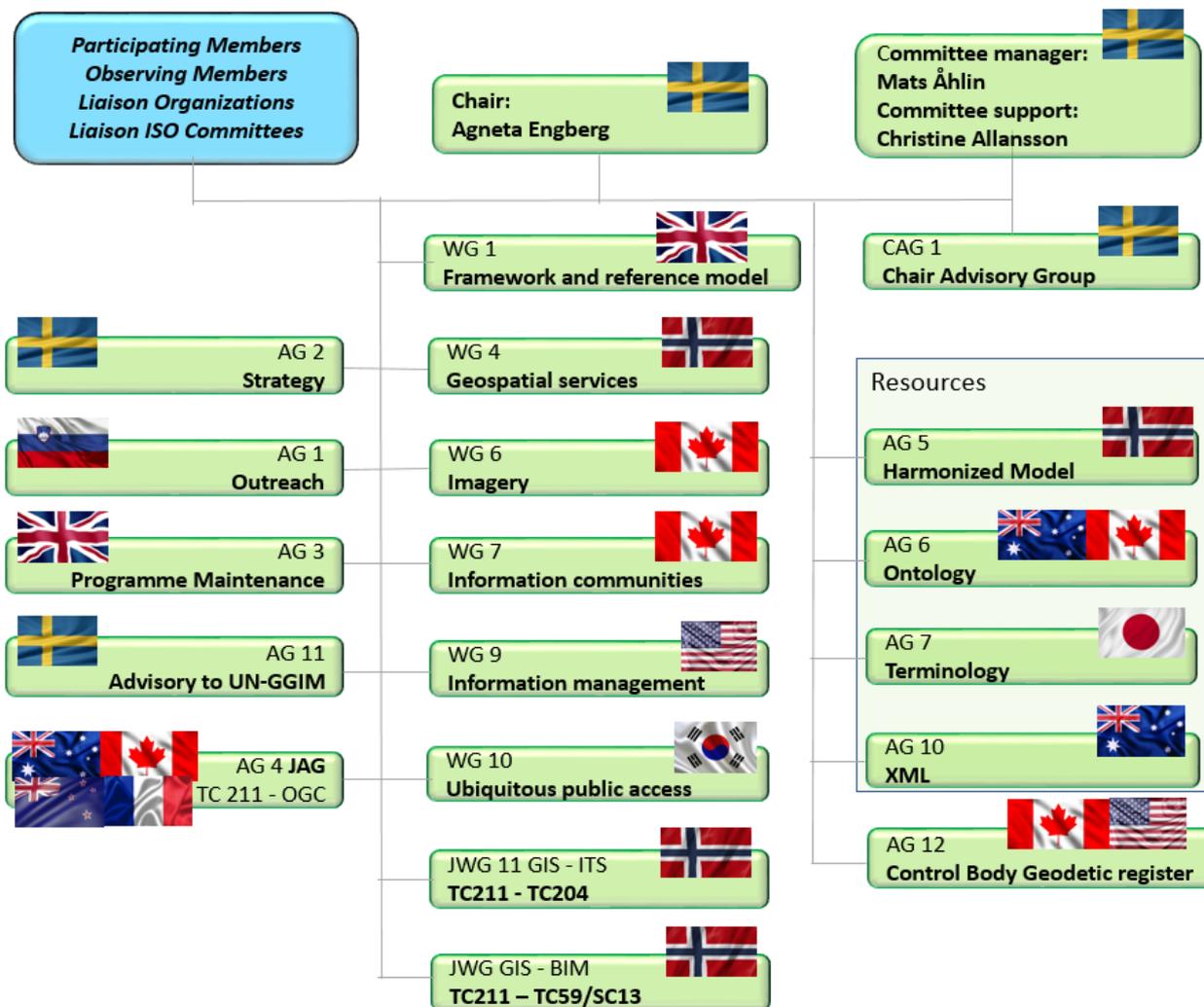| STANDARD AND/OR PROJECT UNDER THE DIRECT RESPONSIBILITY OF ISO/TC 211 SECRETARIAT (75) ↓	STAGE	ICS
⊘ ISO 6709:2008 Standard representation of geographic point location by coordinates	90.92	35.240.70
⊘ ISO 6709:2008/COR 1:2009 Standard representation of geographic point location by coordinates — Technical Corrigendum 1	60.60	35.240.70
⊘ ISO 19101-1:2014 Geographic information — Reference model — Part 1: Fundamentals	60.60	35.240.70
⊘ ISO 19101-2:2018 Geographic information — Reference model — Part 2: Imagery	60.60	35.240.70
⊘ ISO 19103:2015 Geographic information — Conceptual schema language	60.60	35.240.70
⊘ ISO 19104:2016 Geographic information — Terminology	60.60	01.040.35 35.240.70
⊘ ISO 19105:2000 Geographic information — Conformance and testing	90.92	35.240.70
⊘ ISO 19106:2004 Geographic information — Profiles	90.93	35.240.70
⊘ ISO 19107:2003 Geographic information — Spatial schema	90.92	35.240.70
⊘ ISO 19108:2002 Geographic information — Temporal schema	90.93	35.240.70
⊘ ISO 19108:2002/COR 1:2006 Geographic information — Temporal schema — Technical Corrigendum 1	60.60	35.240.70

ISO/TC211 - Membros
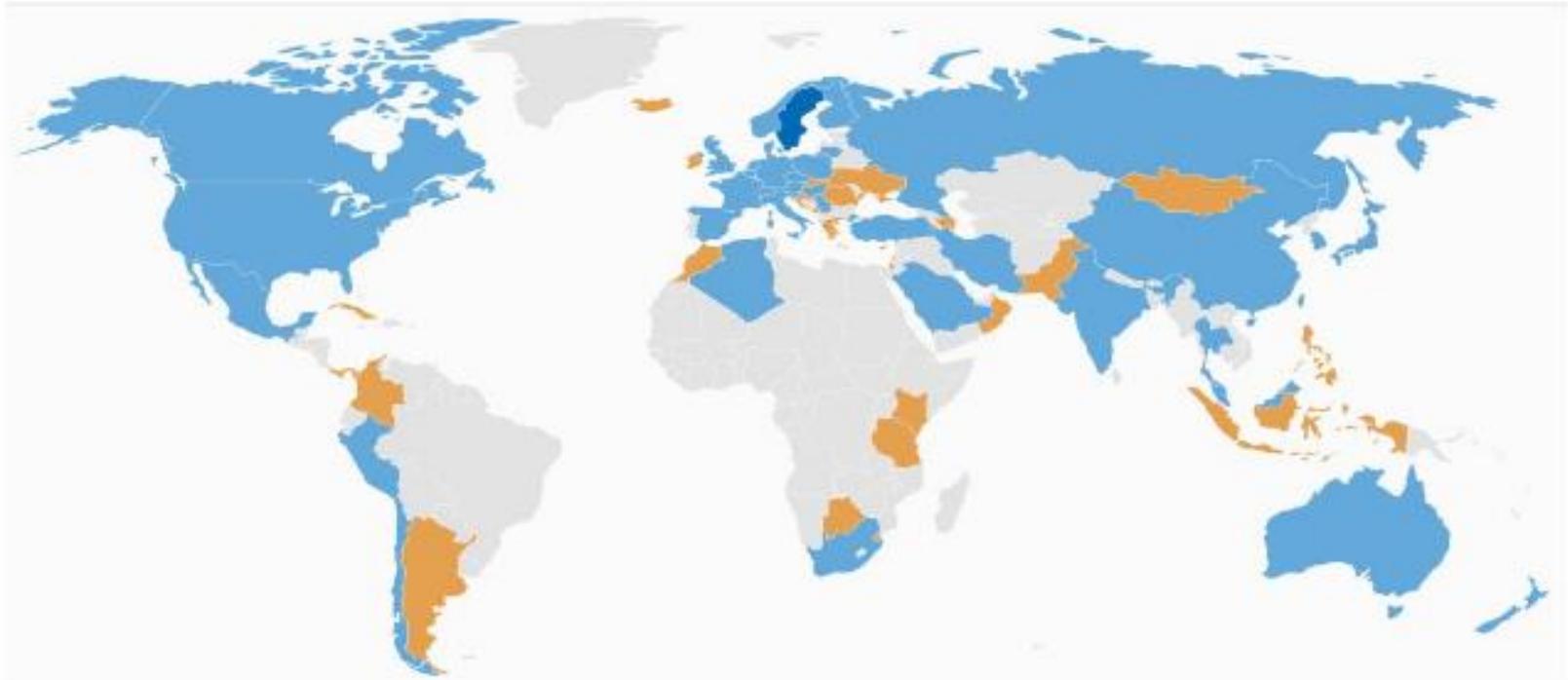
Secretariat

Sweden - Swedish Standards Institute (SIS)

Ciências ULisboa

Participating Members
Observing Members
Liaison Organizations
Liaison ISO Committees

Chair:
Agneta Engberg

Committee manager:
Mats Åhlin
Committee support:
Christine Allansson

WG 1
Framework and reference model

CAG 1
Chair Advisory Group

AG 2
Strategy

WG 4
Geospatial services

AG 1
Outreach

WG 6
Imagery

AG 3
Programme Maintenance

WG 7
Information communities

AG 11
Advisory to UN-GGIM

WG 9
Information management

AG 4 JAG
TC 211 - OGC

WG 10
Ubiquitous public access

JWG 11 GIS - ITS
TC211 - TC204

JWG GIS - BIM
TC211 – TC59/SC13

Resources

AG 5
Harmonized Model

AG 6
Ontology

AG 7
Terminology

AG 10
XML

AG 12
Control Body Geodetic register

Geographic information/Geomatics

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Members | Org. structure | **Working groups** | Advisory groups | Ad hoc Groups | External liaisons | Internal liaisons

Active working groups

	Number on livelink
Working group 1 Framework and reference model Convenor: Mr. Andrew Jones, Australi (2013-11 - Reappointed 2016-12)	ISO/TC 211/WG 01
Working group 4 Geospatial services Convenor: Mr. Morten Borrebæk, Norway (1995-08 - Reappointed 2017-06)	ISO/TC 211/WG 04
Working group 6 Imagery Convenor: Mr. Doug O'Brien, Canada (2002-05 - Reappointed 2017-06)	ISO/TC 211/WG 06
Working group 7 Information communities Convenor: tdb	ISO/TC 211/WG 07
Working group 9 Information management Convenor: Mr. John Herring, USA (2011-05 - Reappointed 2017-06)	ISO/TC 211/WG 09
Working group 10 Ubiquitous public access Convenor: Professor Sang-Ki Hong, Korea (2008-01 - Reappointed 2017-06)	ISO/TC 211/WG 10

Next ISO/TC 211 meeting

Nov 27th - Dec 1st 2017 in Wellington, New Zealand

Register here

Practical information

Draft Agenda

May 28th - June 1st 2018 in Copenhagen, Denmark

Registration not open yet

Working Group 1 - Framework and reference model

Published standards/specifications
ISO 19101-1:2014 Geographic information - **Reference model** - Part 1: Fundamentals
ISO/TS 19103:2005 Geographic information - **Conceptual schema language** - Under revision in WG 4
ISO/TS 19104:2008 Geographic information - **Terminology** -
ISO 19105:2000 Geographic information - **Conformance and testing**

ISO/TR 19121:2000 Geographic information - Imagery and gridded data
WI 19124 Geographic information - Imagery and gridded data components - Completed with review summary, N 1017
ISO/TS 19129:2009 Geographic information - Imagery, gridded and coverage data framework - Moved to new WG 6
WI 19130 Geographic information - Sensor and data models for imagery and gridded data - Moved to new WG 6

ISO/TC 211 Publications (2)

Working Group 4 - Geospatial services

ISO 19116:2004 Geographic information - Positioning services

ISO 19117:2012 Geographic information - Portrayal

ISO 19118:2011 Geographic information - Encoding

ISO 19119:2005 Geographic information - Services *(under revision)*

ISO 19119:2005 Amd 1:2008 Geographic information - Services - Amendment 1

ISO 19125-1:2004 Geographic information - Simple feature access - Part 1: Common architecture

ISO 19125-2:2004 Geographic information - Simple feature access - Part 2: SQL options *(under revision)*

ISO 19128:2005 Geographic information - **Web Map server interface**

ISO 19136:2007 Geographic information - **Geography Markup Language (GML)**

ISO 19136-2:2016 Geographic information - **Geography Markup Language (GML) - Part 2:** Extended schemas and encoding rules

ISO 19142:2010 Geographic information - **Web Feature Service**

ISO 19143:2010 Geographic information - Filter encoding *(under revision)*

ISO 19149:2010 Geographic information - Rights expression language for geographic information - GeoREL

Working group 6 - Imagery

Published standards/specifications

ISO/TR 19120:2001 Geographic information - Functional standards
ISO 19101-2:2008 Geographic information - Preference model - Part 2: Imagery
ISO 19115-2:2009 Geographic information - Metadata - Part 2: Extensions for imagery and gridded data *(under revision)*
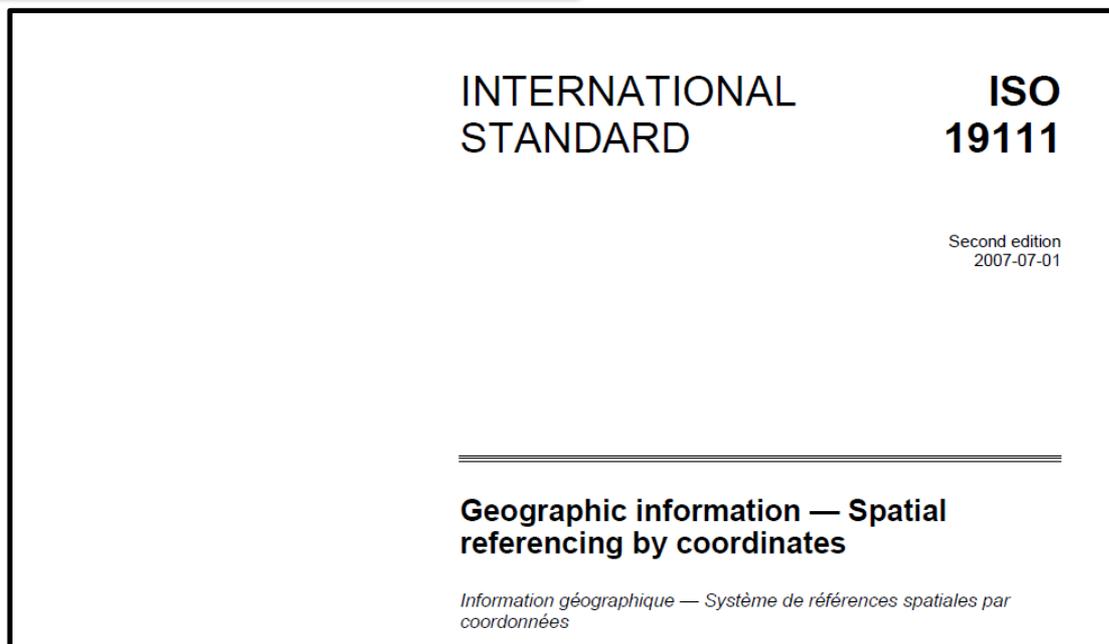ISO/TS 19129:2009 Geographic information - Imagery, gridded and coverage data framework
ISO/TS 19130:2010 Geographic information - Imagery sensor models for geopositioning *(under revision)*
ISO/TS 19130-2 Geographic information - Imagery sensor models for geopositioning - Part 2: SAR, InSAR, lidar and sonar
ISO/TS 19139-2:2012 Geographic information - Metadata - XML Schema Implementation - Part 2 : Extensions for imagery and gridded data
ISO/TS 19159-1 Geographic information - Calibration and validation of remote sensing imagery sensors - Part 1: Optical sensor

Working group 7 - Information communities

Published standards/specifications

ISO 19110:2005 Geographic information - Methodology for feature cataloguing
ISO 19110:2005 Amd. 1:2011
ISO 19115-1:2014 Geographic information - Metadata – Part 1: Fundamentals
ISO/TR 19122:2004 Geographic information/Geomatics - Qualification and certification of personnel

ISO 19126:2009 Geographic information - Feature concept dictionaries and registers
ISO 19137:2007 Geographic information - Core profile of the spatial schema
ISO/TS 19139:2007 Geographic information - Metadata - Implementation specifications *(under revision)*
ISO 19144-1:2009 Geographic information - Classification Systems – Part 1: Classification system structure
ISO 19144-1:2009 Corrigendum 1:2012
ISO 19144-2:2012 Geographic information - Classification systems - Part 2: Land Cover Meta Language (LCML)
ISO 19150 Geographic information - Ontology - Review summary N 2705
ISO/TS 19150-1 Geographic information - Ontology - Part 1: Framework
ISO 19150-2:2016 Geographic information - Ontology - Part 2: Rules for developing ontologies in the Web Ontology Language (OWL)
ISO 19152:2012 Geographic information - Land Administration Domain Model (LADM)

ISO/TC 211 Publications (5)

Working group 9 - Information management

Published standards/sepcifications

ISO 6709:2008 Standard representation of geographic point location by coordinates

ISO 19111-2:2009 Geographic information - Spatial referencing by coordinates - Part 2: Extension for parametric values

ISO/TS 19127:2005 Geographic information -- Geodetic codes and parameters *(under revision)*

ISO 19131:2007 Geographic information - Data product specifications

ISO 19131:2007/Amd 1:2011

ISO 19135-1 Geographic information - Procedures for item registration - Part 1: Fundamentals *(Revision of ISO 19135:2005)*

ISO 19135-2 Geographic information - Procedures for item registration - Part 2: XML Schema Implementation

ISO 19138:2006 Geographic information - Data quality measures (Withdrawn, replaced by ISO 19157:2013)

ISO 19145:2013 Geographic information - Registry of representations of geographic point location

ISO 19146:2010 Geographic information - Cross-domain vocabularies

ISO 19153:2014 Geospatial Digital Rights Management Reference Model (GeoDRM RM)

ISO 19156:2011 Geographic information - Observations and measurements

ISO 19157:2013 Geographic information - Data quality

ISO/TS 19158:2012 Geographic information - Quality assurance of data supply

ISO/TS 19162:2016 Geographic information - Well-known text representation of coordinate reference systems

Review summary: Geographic information - Amendment to ISO 19113:2002 Geographic information - Quality principles and ISO 19115:2003 Geographic information - Metadata

ISO/TC 211 Publications (6)

⊘ ISO/TS 19130:2010 Geographic information - Imagery sensor models for geopositioning	90.92	35.240.70
⊘ ISO/TS 19130-2:2014 Geographic information -- Imagery sensor models for geopositioning -- Part 2: SAR, InSAR, lidar and sonar	90.60	35.240.70
⊘ ISO 19131:2007 Geographic information -- Data product specifications	90.92	35.240.70
⊘ ISO 19131:2007/Amd 1:2011 Requirements relating to the inclusion of an application schema and feature catalogue and the treatment of coverages in an application schema.	60.60	35.240.70
⊘ ISO 19132:2007 Geographic information -- Location-based services -- Reference model	90.93	35.240.70
⊘ ISO 19133:2005 Geographic information -- Location-based services -- Tracking and navigation	90.93	35.240.70
⊘ ISO 19134:2007 Geographic information -- Location-based services -- Multimodal routing and navigation	90.93	35.240.70
⊘ ISO 19135-1:2015 Geographic information -- Procedures for item registration -- Part 1: Fundamentals	60.60	35.240.70
⊘ ISO/TS 19135-2:2012 Geographic information - Procedures for item registration -- Part 2: XML schema implementation	90.93	35.240.70
⊘ ISO 19136:2007 Geographic information -- Geography Markup Language (GML)	90.92	35.240.70
⊘ ISO 19136-2:2015 Geographic information -- Geography Markup Language (GML) -- Part 2: Extended schemas and encoding rules	60.60	35.240.70
⊘ ISO 19137:2007 Geographic information -- Core profile of the spatial schema	90.93	35.240.70
⊘ ISO/TS 19139:2007 Geographic information -- Metadata -- XML schema implementation	90.92	35.240.70
⊘ ISO/TS 19139-2:2012 Geographic information -- Metadata -- XML schema implementation -- Part 2: Extensions for imagery and gridded data	90.93	35.240.70

Formato de uma Norma ISO

Todos as normas têm o mesmo aspecto.

As normas ISO são documentos com uma estrutura rígida com páginas informativas e normativas

Têm uma página de rosto

INTERNATIONAL STANDARD	**ISO**

ISO 19111

Second edition
2007-07-01

Geographic information — Spatial referencing by coordinates

Information géographique — Système de références spatiales par coordonnées

Formato de uma Norma ISO

Escopo

INTERNATIONAL STANDARD   ISO 19111:2007(E)

Geographic information — Spatial referencing by coordinates

1 Scope

This International Standard defines the conceptual schema for the description of spatial referencing by coordinates, optionally extended to spatio-temporal referencing. It describes the minimum data required to define one-, two- and three-dimensional spatial coordinate reference systems with an extension to merged spatial-temporal reference systems. It allows additional descriptive information to be provided. It also describes the information required to change coordinates from one coordinate reference system to another.

In this International Standard, a coordinate reference system does not change with time. For coordinate reference systems defined on moving platforms such as cars, ships, aircraft and spacecraft, the transformation to an Earth-fixed coordinate reference system can include a time element.

This International Standard is applicable to producers and users of geographic information. Although it is applicable to digital geographic data, its principles can be extended to many other forms of geographic data such as maps, charts and text documents.

Define sem ambiguidade o assunto do documento e os aspectos abordados indicando os limites de aplicabilidade.

O âmbito deverá ser sucinto de modo a ser usado como sumário para efeitos bibliográficos

Modelo de Referência (19101)

É assumido na família de normas ISO19100 que :

Por essa razão, a normalização da informação geográfica na série **ISO19100** é baseada na integração de conceitos de IG com conceitos de TI

A ISO19101 (Reference Model) define um modelo de referência hierárquico estruturado para a família ISO19100.

O modelo de referência é uma aplicação especial do "ponto de vista da informação" (semântica da informação e processamento da informação) que é identificado como o mais importante para a normalização da Geomática. Uma componente do modelo de referencia é baseado na abordagem computacional que se reporta aos serviços.

Modelo de Referência (19101)

Geographic Information

- Spatial reference
- Temporal reference
- Spatial properties
- Spatial operations
- Topology
- Quality
- ....

Information technology

- Open Systems Environment (OSE)
- Information Technology Services
- Open Distributed Processing (ODP)
- Conceptual Schema Languages (CSL)
- ....

Framework and reference model

Reference model, Overview, Conceptual schema language, Terminology, Conformance and testing

Geographic information services

Positioning services
Portrayal
Services
Encoding

Data administration

Cataloguing
Reference by coord.
Reference by geo. id.
Quality principles
Quality evaluation procedures
Metadata

Data models and operators

Spatial schema
Temporal schema
Spatial operators
Rules for application schema

Profiles and functional standards

Road-Map das ISO 19100

Road-Map das ISO 19100

Basic standards

- Services (ISO 19119) 3.2.1
- Rules for application schema (ISO 19109) 3.2.2
- Spatial schema (ISO 19107) 3.2.3, 4.3
- Temporal schema (ISO 19108) 3.2.4
- Portrayal (ISO 19117) 3.2.6
- Encoding (ISO 18118) 3.2.7
- Georeference
  - Coordinate reference (ISO 19111) 3.2.5.1
  - Geodetic codes (ISO 19127) 3.2.5.2
  - Geographic identifiers (ISO 19112) 3.2.5.3
  - Positioning (ISO 19116) 3.2.5.4
- Metadata (ISO 19115) 3.2.8
- Quality (ISO 19113, ISO 19114, ISO/TS 19138) 3.2.9

Imagery standards

- Framework (ISO 19129, ISO/TR 19121, ISO/RS 19124) 3.3.1
- Sensors (ISO 19130) 3.3.2, 3.4.3
- Coverages (ISO 19123) 3.3.4, 4.5

Catalogue standards

- Procedure for registration (ISO 19135) 3.4.1
- Feature catalogues (ISO 19110) 3.4.2
- Data dictionary registers (ISO 19126) 3.4.3

Implementation standards

- Data product specification (ISO 19131) 3.5.1
- Simple features (ISO 19125-1/2) 3.5.2, 4.4
- Geography Markup Language (ISO 19136) 4.6
- Web Map server interface (ISO 19128) 3.5.3
- Location based services (ISO 19132 – 19134) 3.5.4
- Metadata implementation (ISO 19139) 2.3.2
- Qualifications and certification of personnel (ISO/TR 19122) 3.6

ISO 19104 Terminology

B.179
feature
abstraction of real world phenomena

NOTE   A feature may occur as a **type** (B.503) or an **instance** (B.253). Feature type or feature instance shall be used when only one is meant.

[ISO 19101:2002]

B.180
feature association
relationship (B.395) that links **instances** (B.253) of one **feature** (B.179) **type** (B.503) with instances of the same or a different feature type

[ISO 19110:2005]

B.181
feature attribute
characteristic of a **feature** (B.179)

EXAMPLE 1   A feature attribute named "colour" may have an **attribute** (B.18) **value** (B.515) "green" which belongs to the **data type** (B.121) "text".

EXAMPLE 2   A feature attribute named "length" may have an attribute value "82.4" which belongs to the data type "real".

B.201
geodetic coordinate system
ellipsoidal coordinate system
coordinate system (B.90) in which **position** (B.365) is specified by **geodetic latitude** (B.204), **geodetic longitude** (B.205) and (in the three-dimensional case) **ellipsoidal height** (B.156)

[ISO 19111:2007]

B.202
geodetic datum
datum (B.124) describing the **relationship** (B.395) of a two- or three-dimensional **coordinate system** (B.90) to the Earth

[ISO 19111:2007]

B.203
geodetic height
ellipsoidal height
h
distance of a **point** (B.352) from the **ellipsoid** (B.154), measured along the perpendicular from the ellipsoid to this point, positive if upwards or outside of the ellipsoid

NOTE   Only used as part of a three-dimensional **ellipsoidal coordinate system** (B.155) and never on its own.

[ISO 19111:2007]

B.204
geodetic latitude
ellipsoidal latitude
φ
angle from the equatorial plane to the perpendicular to the **ellipsoid** (B.154) through a given **point** (B.352), northwards treated as positive

[ISO 19111:2007]

Aquisição de Dados

A ISO não normaliza os procedimentos de aquisição de dados para um SIG.

As normas ISO 19100 apenas providenciam linhas de orientação e elementos de metadados para descrever a **origem** e **qualidade dos dados**

As normas relevantes são:

ISO 19113   – Quality principles
ISO 19114   – Quality Evaluation Procedures *
ISO 19115   – Metadata
ISO 19115:2   – Metadata for imagery

* Aconselha sobre os diferentes níveis de detalhe para o controlo de qualidade

Aquisição de Dados

Supondo que temos de escrever um relatório do controlo de qualidade do nosso SIG. Este relatório deverá ser normalizado de acordo com a norma ISO 19114.

Deverá incluir os valores dos "elementos de qualidade dos dados" ("data quality elements") da seguinte forma:

Completude (Completeness) : 100%

Consistência Lógica (Logical Consistency) : sem erros

Exactidão posicional (Positional accuracy) : $\pm$ 5 m

Exactidão temporal (temporal accuracy) : a última revisão foi há três anos, a informação da Câmara Municipal foi fornecida na última Primavera.

Exactidão Temática (Thematic accuracy) : a carta topográfica não tem indicação das paragens de autocarro ou outros elementos similares para efeitos de turismo

A ISO19115 (Metadata) fornece as normas formais de todos os elementos necessários

Representação Gráfica

Universo do Discurso
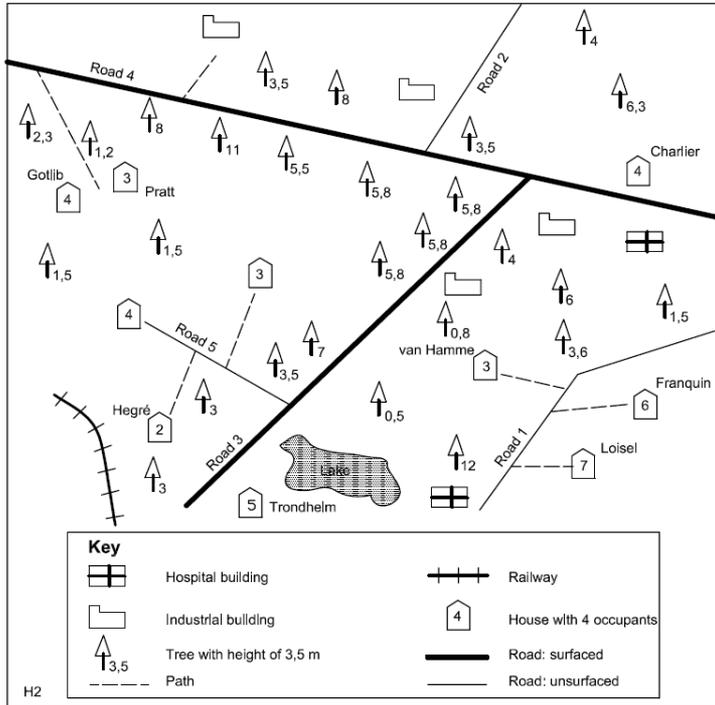
Base de dados
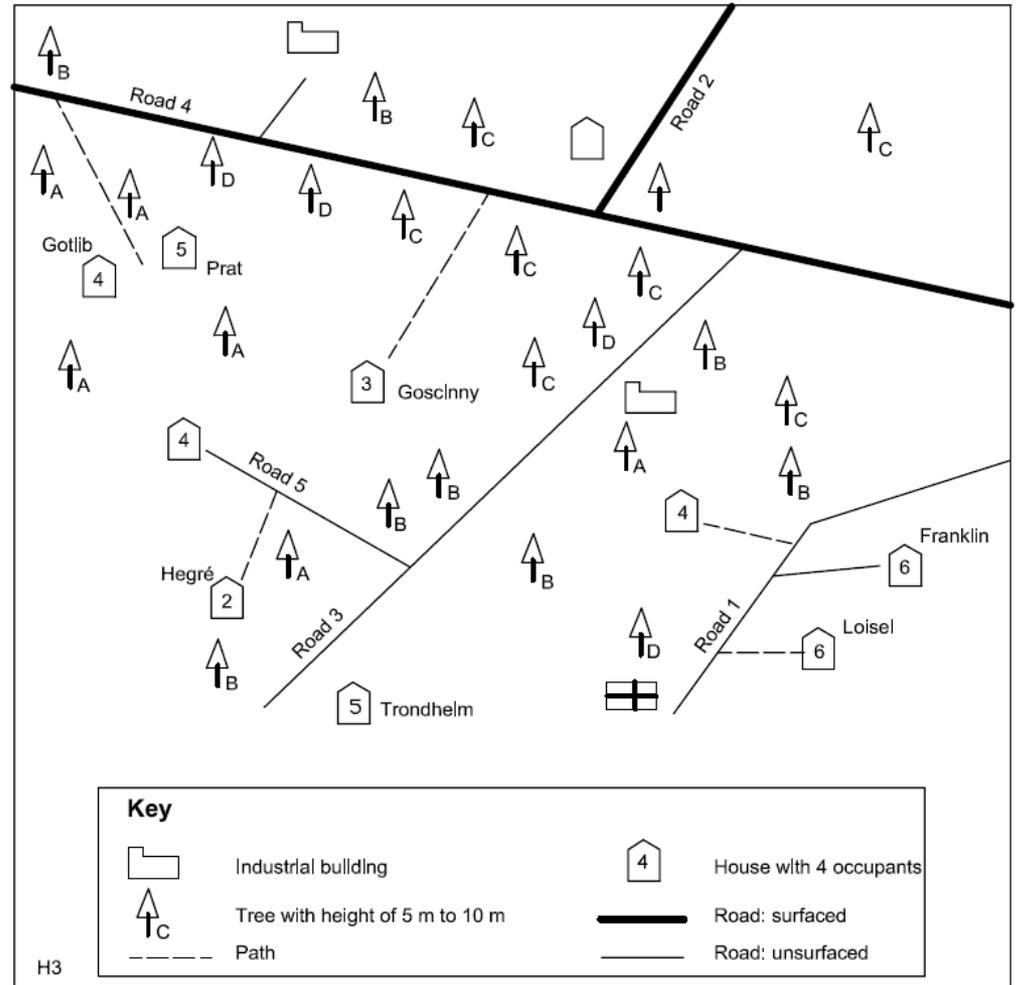
G.3.2 Completeness

ISO 19113 defines completeness as the presence and absence of features, their attributes and their relationships. Completeness in this example is classified by feature class. The types of measures tested for are commission and omission. Table G.1 depicts a way to classify completeness.

Table G.1 — Completeness by feature class

Feature class	Number of instances in the universe of discourse	Commission count	Commission percentage[a]	Omission count	Omission percentage[b]
Path	7	0	0	2	29
Road	5	2	40	0	0
Tree	25	3	12	2	7
Industrial building	4	0	0	2	50
House	10	1	10	1	10
Hospital	0	1	100	0	0

[a] Commission percentage = number of included items/number of items in the universe of discourse × 100

[b] Omission percentage = number of omitted items/number of items in the universe of discourse × 100

Linguagem do esquema conceptual

A ISO19103 define um perfil **UML (Unified Modelling language)** para a Informação Geográfica.

A UML é uma norma ISO/IEC 19501-1

EXPRESS é uma linguagem conceptual usada no campo da engenharia mecânica e foi normalizada pela ISO/TC184

Os esquemas conceptuais em UML são baseados em elementos gráficos e léxicos enquanto que os esquemas em EXPRESS contêm apenas texto.

De acordo com as normas ISO 19100 ambas as linguagens são válidas para modelação de IG. Contudo UML é preferível.
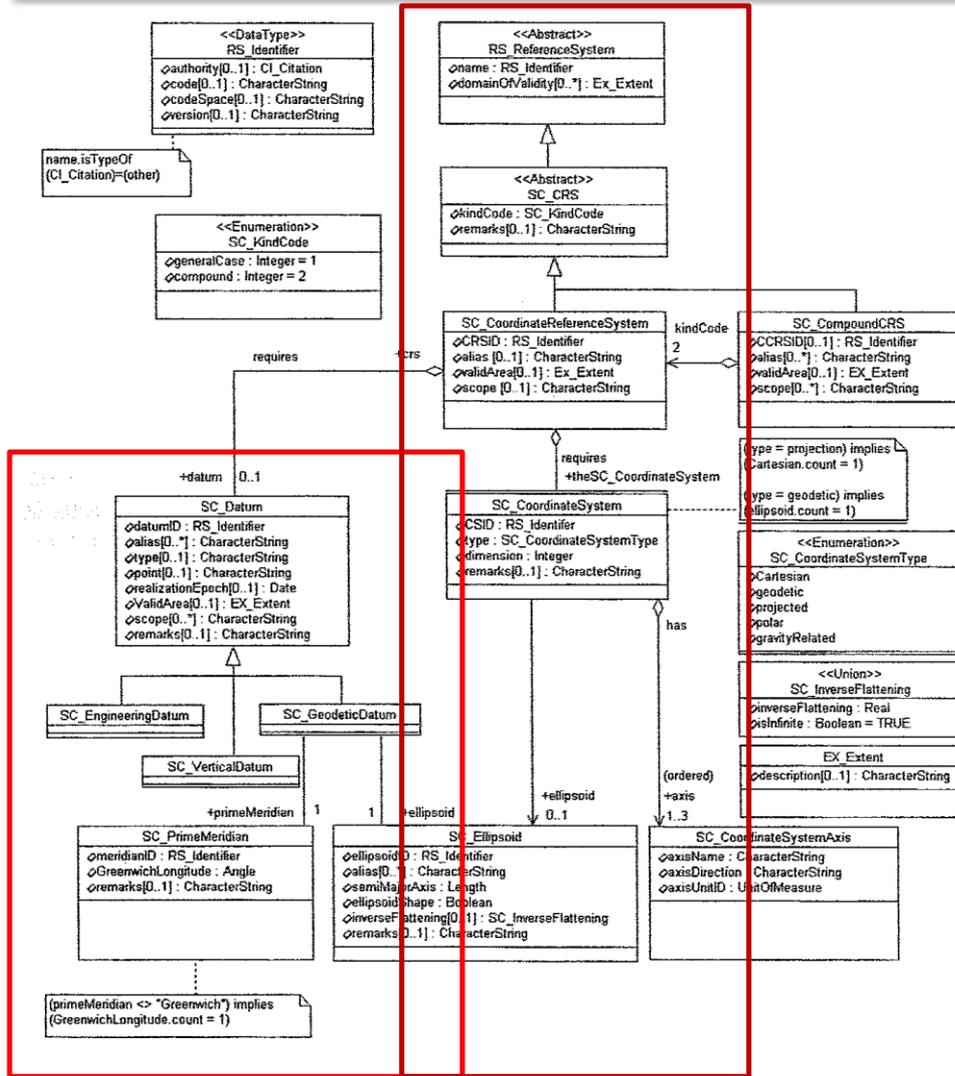
Basicamente, consiste em duas árvores de generalização uma com a classe mãe RS_ReferenceSystem e outra com a classe SC_Datum.
O Diagrama de classes é normativo

SC - spatial referencing by coordinates

ISO19111, SC_CoordinateReferenceSystem package

CS_CoordinateSystem package
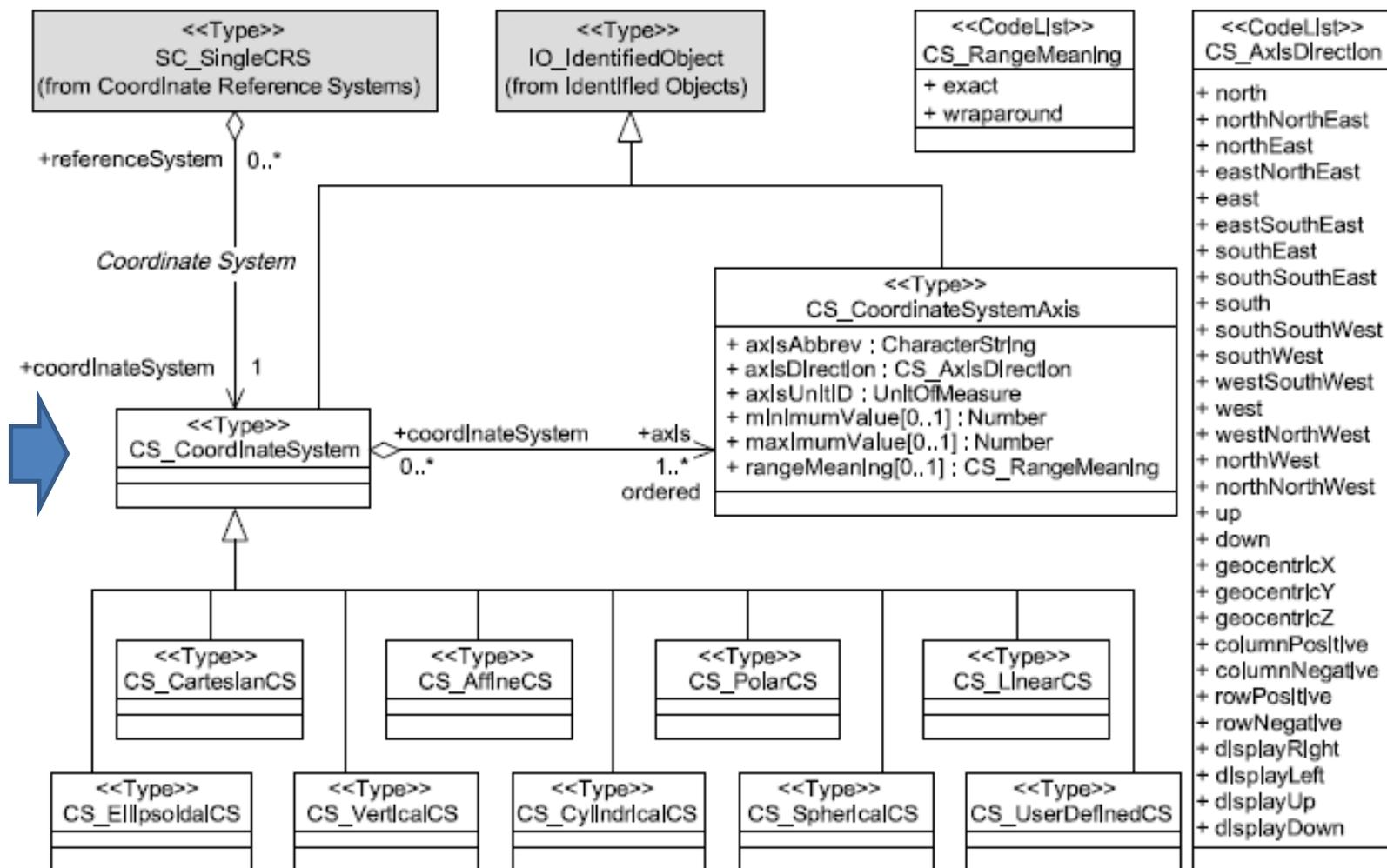
CD_Datum package
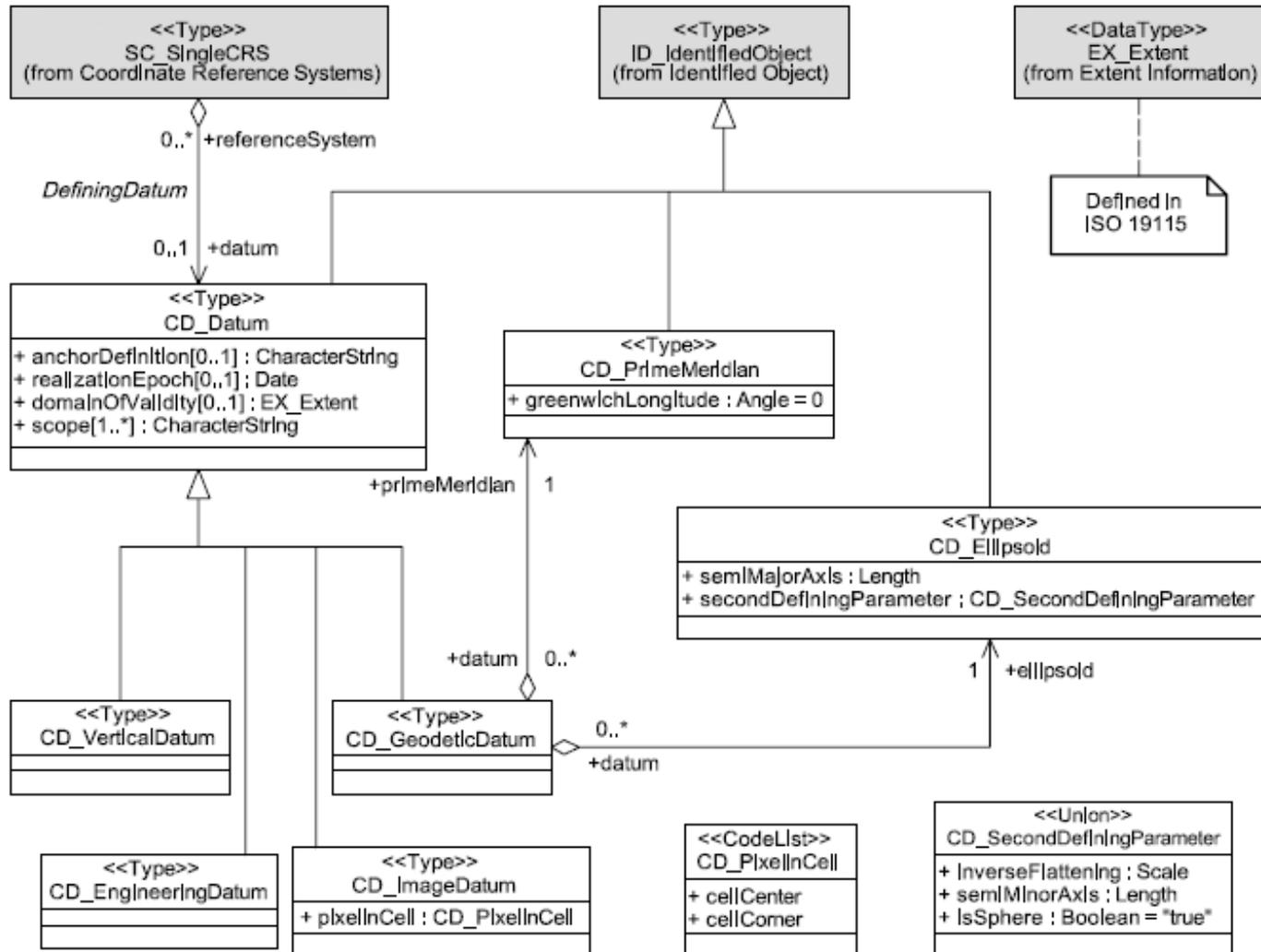
Changes to Access to EPSG definitions from the OGC Definitions Server

Post date: 3 August 2020

Any software implementors that access EPSG Coordinate Reference System (CRS) definitions through the OGC Definitions Server should read this blog post.

Publishing of EPSG CRS definitions through the OGC Definitions Server is enabled by the IOGP Geodetic Registry API (epsg.org). The IOGP Geodetic Registry API is undergoing an upgrade that will require some changes to both the data model and the interface through which EPSG definitions are retrieved from the OGC Definitions Server.

IOGP will take the legacy IOGP Geodetic Registry API offline in September, 2020. A related announcement is at https://epsg.org

Therefore, OGC is planning to reconfigure the OGC Definitions Server to support the upgraded IOGP Geodetic Registry API by then or soon after.

A proposed mapping from the current OGC URIs to the current EPSG URNs and new EPSG URIs is shown below.

OGC Syntax	Current EPSG URN Syntax	Future EPSG URI Syntax	Notes
http://www.opengis.net/def/...	http://www.epsg-registry.org/export.htm?gml=urn:ogc:def:...	http://apps.epsg.org/def/...	1, 2, 11, 12, 13
...area/EPSG/0/[code]	...area:EPSG::[code]	...extent/EPSG/0/[code]/gml	3
...axis/EPSG/0/[code]			4
...axis-name/EPSG/0/[code]	...axis-name:EPSG::[code]	...axis-name/EPSG/0/[code]/gml	

https://www.ogc.org/blog/3260

EPSG, geodetic parameters dataset

Ciências ULisboa

Geodetic Parameters

Search Database

| Text Search | | GO |

point | Clear all

Search Results (456 Objects Found) | Export

Search results only display valid entries. Please login or register to include deprecated and invalid objects.

Report Selected Results

EPSG Dataset : v10.002

| CRSs (197) | Transformations (146) | Point Motion Operations (0) | Concatenated Operations (3) | Conversions (34) | Datums (76) | More... |

REPORT ☐	▲ NAME	CODE	TYPE	EXTENT	DATA SOURCE	REMARKS	REVISION DATE
☐	↑ Cascais height	5780	vertical	Portugal - mainland - onshore	EPSG		14 March 2008
☐	ⓘ Datum 73	4274	geographic 2D	Portugal - mainland - onshore	EPSG		6 January 2004
☐	Datum 73 / Modified Portuguese Grid	27493	projected	Portugal - mainland - onshore	EPSG	The projection parameters have...	14 March 2008
☐	Datum 73 / UTM zone 29N	27429	projected	Portugal - mainland - onshore	EPSG		2 June 1995
☐	ⓘ ED79	4668	geographic 2D	Europe - west	EPSG		27 May 2005
☐	ⓘ ED87	4231	geographic 2D	Europe - west	EPSG		6 January 2004
☐	↑ EGM2008 height	3855	vertical	World	EPSG	Zero-height surface resulting...	17 July 2019
☐	↑ EGM84 height	5798	vertical	World	EPSG	Zero-height surface resulting...	17 July 2019
☐	↑ EGM96 height	5773	vertical	World	EPSG	Zero-height surface resulting...	17 July 2019
☐	ⓘ ETRS89	4258	geographic 2D	Europe - ETRF by country	EPSG	Has been realized through ETRF...	14 March 2020
☐	ETRS89 / Portugal TM06	3763	projected	Portugal - mainland - onshore	EPSG		30 March 2020
☐	ETRS89 / UTM zone 29N	25829	projected	Europe - 12°W to 6°W and ETRS8...	EPSG	The distinction in usage betwe...	30 March 2020
☐	ETRS89 / UTM zone 29N (N-E)	3041	projected	Europe - 12°W to 6°W and ETRS8...	EPSG	ETRS89-LCC (CRS code 3034) use...	30 March 2020
☐	ⓘ ETRS89 + EVRF2000 height	7409	compound	Europe - EVRF2000	EPSG	Replaced by ETRS89 + EVRF2007...	30 March 2020
☐	ⓘ ETRS89 + EVRF2007 height	7423	compound	Europe - EVRF2007	EPSG	Replaces ETRS89 + EVRF2000 hei...	30 March 2020

First | < Previous | 1 2 3 4 | Next > | Last

Items per page: 50 ▾

Coordinate Transformation: Cascais height to EVRF2000 height (1)

Transformation Details [VALID]

NAME:	Cascais height to EVRF2000 height (1)
CODE:	5427
VERSION:	EuG-Prt
VARIANT:	1
ACCURACY (M):	0.1
USAGE:	

Usage Details

SCOPE:	Change of height to a different vertical reference surface.
EXTENT:	Portugal - mainland - onshore

SOURCE CRS:	Cascais height
TARGET CRS:	EVRF2000 height
TRANSFORMATION PARAMETERS:	

Parameter	Value	Reversible	Unit
Vertical Offset	-0.315	YES	metre

TRANSFORMATION METHOD:	Vertical Offset

META DATA

REMARKS:	Determined at 5 points. RMS residual 0.013m, maximum residual 0.021m. The Cascais vertical reference surface is below the EVRF2000 vertical reference surface.
INFORMATION SOURCE:	EuroGeographics, http://crs.bkg.bund.de/crs-eu/
DATA SOURCE:	EPSG
REVISION DATE:	16 de outubro de 2017
CHANGE ID:	[2008.01] [2014.027]
ALIAS:	

Alias	Naming System	Remarks
PT_CASC / OH to EVRF2000	EuroGeographics Identifier	

ISO/TC 211 web-site

https://www.iso.org/committee/54904.html

Contém :
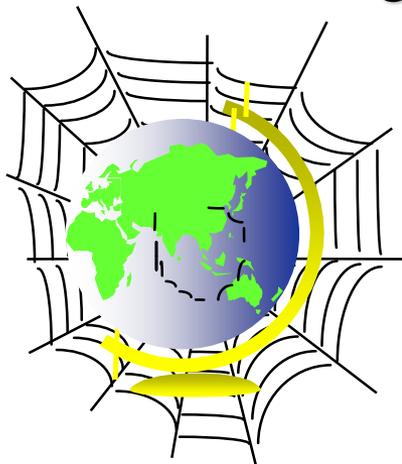
- Secretariat
- Organization
- Calendar
- About...
- Resolutions

- Document list
- Scope and work programme
- Mail to secretariat
- News and information
- Presentations (slides)

OGC
Making location count.

OGC TECHNOLOGY TRENDS

Technology that has transformative effects on businesses and society

OGC, as a consortium of over 500 of the most influential geospatial organizations, is *the* global forum for innovation and standards in location technology. As such, we are uniquely positioned to track the latest tech innovations and forecast their impact on geospatial - something we undertake quarterly as part of our Tech Trends process.

> " Technological change is as inevitable as it is beneficial. However, it's those organizations that anticipate technological change that benefit the most from it.
>
> ~George Percivall (OGC Chief Technology Officer and Chief Engineer)

In order to help the 80% of businesses that need to "get smart" about new technologies, we've recently made our Tech Trends insights available for any organization to use in their business planning

Subscribe to Tech Trends

A subscription includes **Tech Trends Reports** twice every year, enabling you to:

- **Inform** your organization's strategy using trusted technology forecasting
- **Identify** new areas of investment and potential strategic partnerships
- **Plan** your technology direction using a proven OGC process

EMERGENT TRENDS

Clusters of emerging trends that score high on the criteria, assessments and roadmaps are developed and provided in the complete OGC Technology Forecast. For example, COVID-19 has triggered the convergences of multiple geospatial trends in order to respond to the pandemic. Assessments of key trends are conducted to better

characterize the most impactful trends. In a typical report, 6 clusters will be evaluated in-depth. TThe table below lists the current set of 12 emergent clusters. A full version of the OGC Tech Trends Report provides an in-depth evaluation and development roadmap of several of these clusters.

EMERGENT TRENDS CLUSTERS:

Responding to COVID-19	Spatial Data on the Web	AI & Machine Learning
Connected Autonomous Vehicles	New Space Exploration	Geo IT Ethics
Cloud Native & Edge Computing	Geospatial Data Science	Immersive Geo: AR XR
Urban Digital Twin	Open API Management	Model Interoperability

TRENDS THAT ARE ASSESSED TO BE BOTH DISRUPTIVE AND NEXT ARE DEEMED TO BE OF THE HIGHEST PRIORITY.

	Standards Development Underway	Ripe - High Priority	Near Ripe - Medium
Disruptive	Responding to COVID-19	AI/Machine Learning	Quantum Computing
	Spatial Data on the Web	Connected Auto. Vehicles — Immersive Geo	Spatial Brain
	Open API Management	New Space — Urban Digital Twin	
	Cloud, Edge Computing	Model Interoperability	
	Geospatial Data Science	Geo IT Ethics	
Sustaining	Precise Positioning		
		Near Ripe - Medium	Track - Low
	Now - Current	Next - Emerging	After Next - Future

2020-05-23

OGC Takes action based on the OGC Technology Forecast. As a hub for thought leadership and innovation on geospatial standards and innovation for all things related to location - OGC activities in the Standards Program and Innovation Program are developing the next generation geospatial technology ecosystem.

Inspire

DIRECTIVES

DIRECTIVAS

DIRECTIVAS

DIRETTIVE

DIRETTIVA 2007/2/CE DEL PARLAMENTO EUROPEO E DEL CONSIGLIO

del 14 marzo 2007

che istituisce un'Infrastruttura per l'informazione territoriale nella Comunità europea (Inspire)

INSPIRE – DIRECTIVE 2007/2/EC

Será que é irrelevante esta questão? (da designação)

Infraestrutura para (de)

Informação Ambiental

Informação Geográfica

Informação Cartográfica

Art. 4 - The Infrastructure for Spatial Information in the European Community (Inspire) should assist policy-making in relation to policies and activities that may have a direct or indirect impact on the **Environment.**

Termos:
'spatial data' means any data with a direct or indirect reference to a specific location or geographical area; (ISO : geographic feature)

http://inspire.ec.europa.eu/

INSPIRE KNOWLEDGE BASE

European Commission

Search... 🔍

Infrastructure for spatial information in Europe

European Commission > INSPIRE

Home   Learn   Implement   Participate   Use   Toolkit

INSPIRE Video

The INSPIRE Directive: a brief description

▶

Focus On

Inspire Helsinki 2019
22–24 October, Finland

Latest News

13/08/2019
Call for expression of interest to tender: Data ecosystems for geospatial data
02/08/2019
Call for expression of interest to tender: Facilitating access to INSPIRE data through standard-based APIs
01/08/2019
Have Your Say: Data flow mapping across the EU

All News

Events

22/10/2019
Inspire Helsinki 2019
07/05/2019
Webinar: INSPIRE good practices – Alternative Encodings
27/11/2018
EG/EuroSDR Workshop "Use of INSPIRE Data: Past experiences and scenarios for the future"

All Events

Quick Links

INSPIRE

Infrastructure for spatial information in Europe

Home   Learn   Implement   Participate   Use   Toolkit

Learn

About INSPIRE
INSPIRE Policy Background
INSPIRE Principles
INSPIRE Legislation
Implementing Rules
INSPIRE Technical Guidance
Who's who?
Training

Quick search

Community
Data and Service Sharing
Data Specifications
Implement
INSPIRE
INSPIRE in your Country
Learn
Maintenance and Implementation
Metadata
MIG Workprogramme
Monitoring and Reporting
Network Services
Spatial Data Services
Use

About INSPIRE

The INSPIRE Directive aims to create a European Union spatial data infrastructure for the purposes of EU environmental policies and policies or activities which may have an impact on the environment. This European Spatial Data Infrastructure will enable the sharing of environmental spatial information among public sector organisations, facilitate public access to spatial information across Europe and assist in policy-making across boundaries.

INSPIRE is based on the infrastructures for spatial information established and operated by the Member States of the European Union. The Directive addresses 34 spatial data themes needed for environmental applications.

The Directive came into force on 15 May 2007 and will be implemented in various stages, with full implementation required by 2021.

This video provides an overview of why INSPIRE is needed and what types of spatial are covered by INSPIRE.

The INSPIRE Directive: a brief description

https://inspire.geoportal.ec.europa.eu/

🔍 water pollution

▶

Data Specifications

The INSPIRE Implementing Rules on interoperability of spatial data sets and services (IRs) and Technical Guidelines (Data Specifications) specify common data models, code lists, map layers and additional metadata on the interoperability to be used when exchanging spatial datasets.

Datasets in scope of INSPIRE are ones which come under one or more of the 34 spatial data themes (below) set out in the INSPIRE Directive. Interoperability in INSPIRE means the possibility to combine spatial data and services from different sources across the European Community in a consistent way without involving specific efforts of humans or machines. Interoperability may be achieved by either changing (harmonising) and storing existing data sets or transforming them via services for publication in the INSPIRE infrastructure.

While the Implementing Rules specify what must be implemented at an abstract and generic level, the non-binding Technical Guidelines specify how legal obligations could be implemented, making reference to existing geospatial standards where appropriate. Implementing these Technical Guidelines will maximise the cross-border and cross-thematic interoperability of INSPIRE spatial data sets and services as well as guaranteeing interoperability with other sectors.

Each Annex has a set of milestones for when metadata, data, and network services for datasets are to be available, set out in this roadmap.

ANNEX: 1

Addresses

Administrative units

Cadastral parcels

Coordinate reference systems

Geographical grid systems

Geographical names

Hydrography

Protected sites

Transport networks

Implement

- Guide for implementers
- Roadmap
- ❯ Data Specifications
- ❯ Monitoring & Reporting
- ❯ Metadata
- ❯ Network Services
- ❯ Data and Service Sharing
- ❯ Spatial Data Services
- Maintenance and Implementation Framework

Data Specifications

- Overview
- Technical Guidelines
- Legislation
- Roadmap
- Themes
- Data Models
- XML Schemas
- Library
- News
- Events
- Training
- MIG Work Programme
- Experts
- Tools

Quick search

- Community
- Data and Service Sharing
- Data Specifications
- Implement
- INSPIRE
- INSPIRE in your Country
- Learn

Areas defined by cadastral registers or equivalent.
Annex 1

▸ **Description**

INSPIRE Data Specification on Cadastral Parcels – Technical Guidelines 3.1

Read/Compare Technical Guidelines

Registry entry for [Cadastral parcels]

Thematic Clusters Links

Topographic and Cadastral Reference Data
Cadastral parcels

[Cadastral parcels] Data on INSPIRE Geoportal

Find Your Scope

Implementations

Data Models

Data Schema

Experts

http://inspire.ec.europa.eu/Themes/122/2892

INSPIRE Data Sets - EU & EFTA Country overview

INSPIRE Geoportal Data Set Statistics

📄 **172876**
Metadata records

⬇ **28521**
Downloadable Data Sets

👁 **32357**
Viewable Data Sets

Spatial scope coverage:
☐ 🏳 National
☐ 📍 Regional

Leaflet | Credits: © OpenStreetMap contributors | EC-GISCO, © EuroGeographics for the administrative boundaries (disclaimer)

Select a COUNTRY

Country	Stats	Country	Stats	Country	Stats	Country	Stats
Austria	📄 503 | ⬇ 427 | 👁 439	Finland	📄 625 | ⬇ 97 | 👁 111	Latvia	📄 138 | ⬇ 42 | 👁 69	Portugal	📄 631 | ⬇ 268 | 👁 277
Belgium	📄 602 | ⬇ 460 | 👁 497	France	📄 43371 | ⬇ 2399 | 👁 3039	Liechtenstein	📄 49 | ⬇ 9 | 👁 11	Romania	📄 116 | ⬇ 28 | 👁 32
Bulgaria	📄 134 | ⬇ 23 | 👁 23	Germany	📄 44692 | ⬇ 22029 | 👁 23627	Lithuania	📄 125 | ⬇ 99 | 👁 31	Slovakia	📄 266 | ⬇ 36 | 👁 45
Croatia	📄 114 | ⬇ 10 | 👁 22	Greece	📄 58 | ⬇ 58 | 👁 58	Luxembourg	📄 306 | ⬇ 213 | 👁 248	Slovenia	📄 93 | ⬇ 12 | 👁 12
Cyprus	📄 42 | ⬇ 32 | 👁 34	Hungary	📄 121 | ⬇ 23 | 👁 20	Malta	📄 157 | ⬇ 136 | 👁 152	Spain	📄 219 | ⬇ 153 | 👁 47
Czech Republic	📄 143 | ⬇ 54 | 👁 68	Iceland	📄 147 | ⬇ 7 | 👁 0	Netherlands	📄 196 | ⬇ 120 | 👁 132	Sweden	📄 251 | ⬇ 172 | 👁 202

A Directiva INSPIRE

A presente directiva abrange os conjuntos de dados espaciais que satisfaçam as seguintes condições:

Estarem relacionados com uma zona sobre a qual um Estado-Membro tenha e/ou exerça jurisdição;

Estarem disponíveis em formato digital;

Serem mantidos por entidades públicas (ou terceiras) por conta da mesma;

Dizerem respeito a um ou mais dos temas enumerados nos anexos I, II ou III.

A presente diretiva NÃO exige a recolha de novos dados espaciais.

Generic Conceptual Model

Requirement 4   The reference model specified in ISO 19101 shall be used as the reference model of the INSPIRE data specifications.
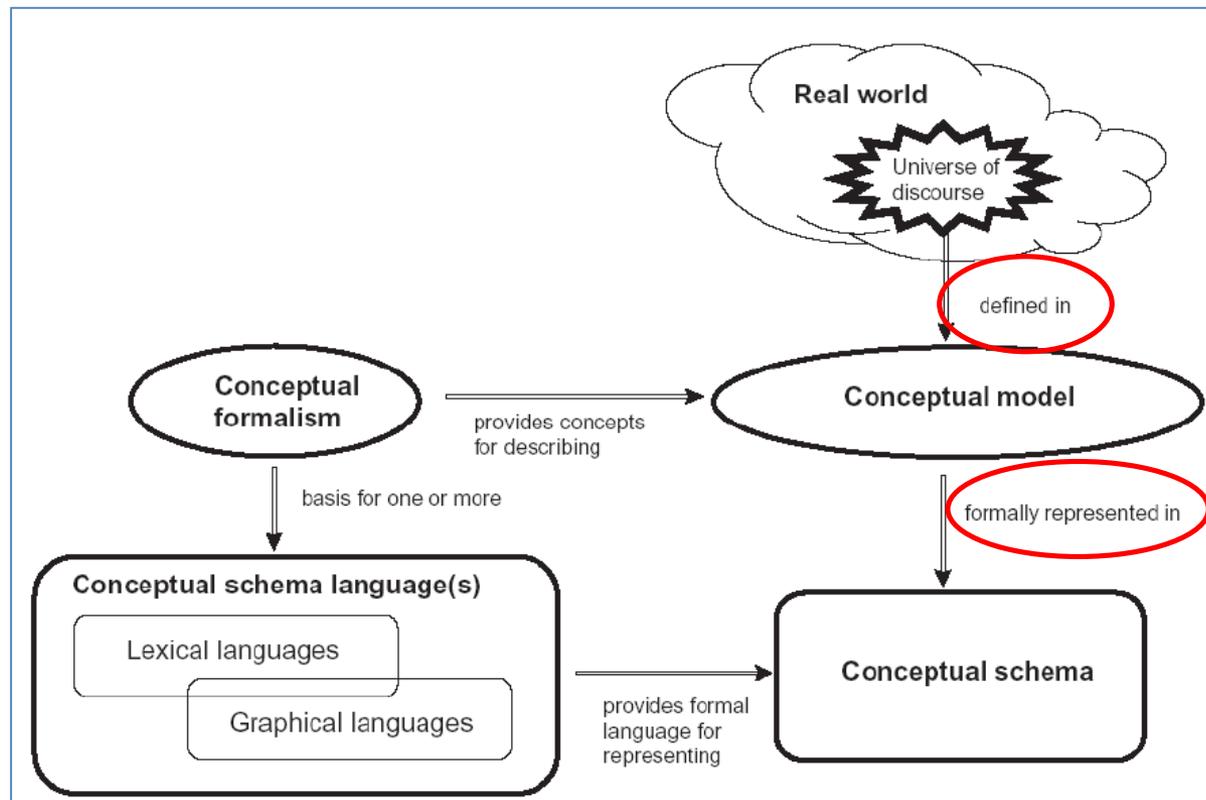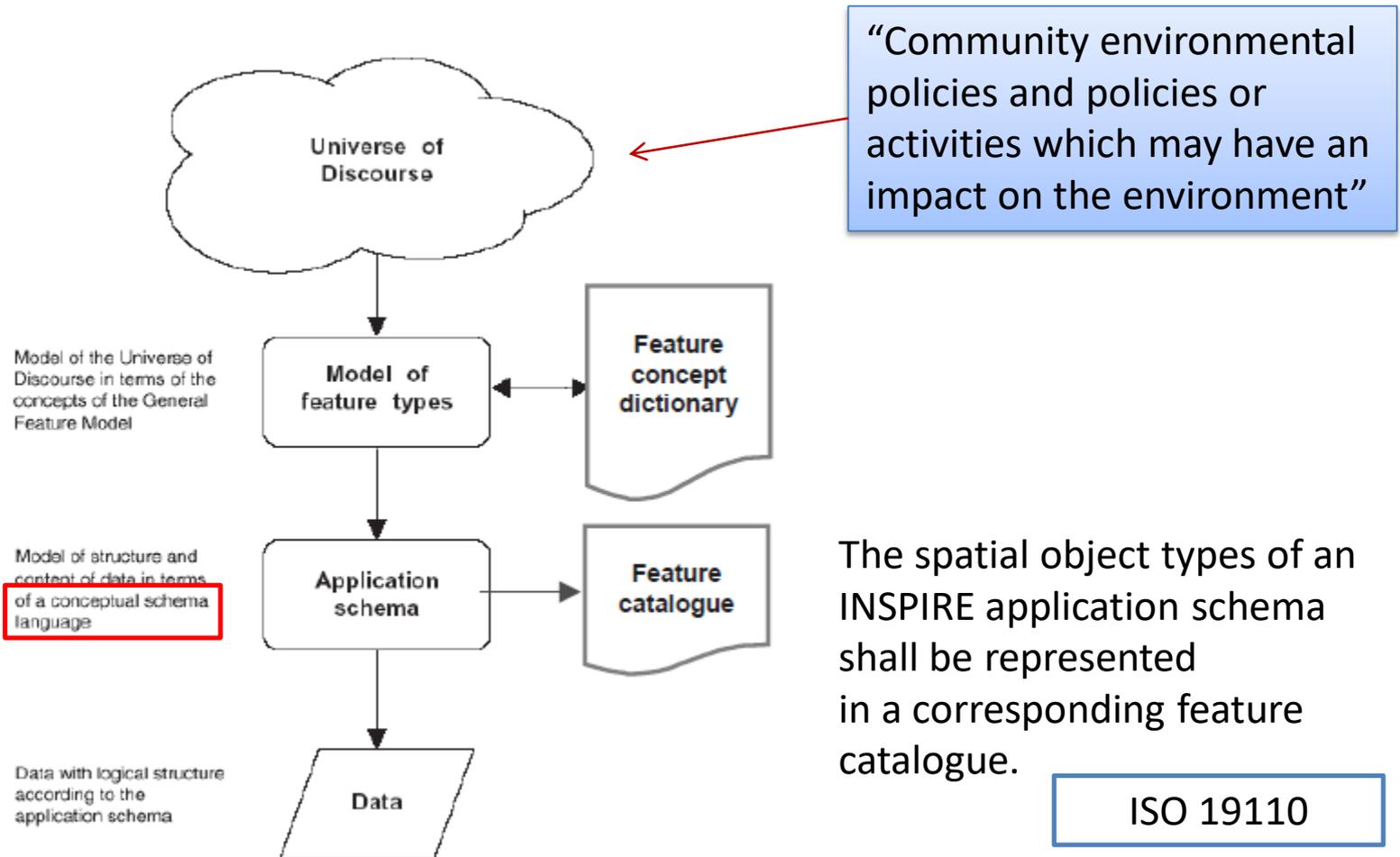
Conceptual schema language

Requirement 20   Every INSPIRE application schema shall be specified in UML, version 2.1.

The use of a common conceptual schema language (i.e. UML) allows for an automated processing of application schemas and the encoding, querying and updating of data based on the application schema – across different themes and different levels of detail.

Requirement 21   Every spatial object type and its properties shall be shown in class diagrams in the UML package describing the application schema (or packages contained by that package).

Requirement 22   The use of UML shall conform to ISO 19109 8.3 and ISO/TS 19103 with the exception that UML 2.1 instead of ISO/IEC 19501 shall be used.

General Feature Model

"Community environmental policies and policies or activities which may have an impact on the environment"

Model of the Universe of Discourse in terms of the concepts of the General Feature Model

Model of structure and content of data in terms of a conceptual schema language

Data with logical structure according to the application schema

Universe of Discourse

Model of feature types

Feature concept dictionary

Application schema

Feature catalogue

Data

The spatial object types of an INSPIRE application schema shall be represented in a corresponding feature catalogue.

ISO 19110

General Conceptual Model

2 Normative references

EN ISO 19101:2005, Geographic information — Reference model

ISO/TS 19103:2005, Geographic Information — Conceptual schema language

NOTE A revision of the standard is a current work item of ISO/TC 211. To the extent possible, alignment of this document with the future version has been taken into consideration.

EN ISO 19107:2005, Geographic information — Spatial schema

EN ISO 19108:2005, Geographic information — Temporal schema

EN ISO 19109:2006, Geographic Information — Rules for application schemas

EN ISO 19110:2006, Geographic information — Methodology for feature cataloguing

EN ISO 19135:2007, Geographic information — Procedures for item registration

EN ISO 19136:2009, Geographic Information – Geography Markup Language

ISO/TS 19139:2007, Geographic Information – Metadata – XML Schema implementation

ISO 19156:2011, Geographic Information – Observation and Measurements

UML 2.1.2, Unified Modelling Language (UML) Superstructure and Infrastructure, Version 2.1.2

A Directiva INSPIRE

Apart from logical consistency (see the Generic Conceptual Model clause 20), the INSPIRE Directive **does not** spell out

(D2.6) 7.5 Data quality
ISO 19131 requires a data specification to cover the data quality elements and data quality subelements defined in ISO 19113. Those quality elements are:
- Completeness
- Logical Consistency
- Positional Accuracy
- Temporal Accuracy
-Thematic Accuracy

metadata

Methodology for the development of data specifications (D2.6_v3.0.pdf)

However, as INSPIRE is based on existing data, it won't be possible that all data sets will be compliant with the quality required (or at least desirable).

Recommendation 25
Specify the positional accuracy desirable in the common data specification; accept deviations and ask data providers to register them in metadata, at data set level.

In the INSPIRE **administrative unit** data specification, there are no mandatory quality requirements. However it is recommended that Member States provide the data at the source accuracy where possible targeting a minimal positional accuracy of **50 meters**. The actual values of data quality elements (omission, topological and conceptual consistency, positional, thematic, and temporal accuracy) have to be published as metadata, when they are available.

Methodology for the development of data specifications (D2.6_v3.0.pdf)

Recommendation 26
The main point to ensure consistency across national boundaries is to combine data sets at similar levels of detail.

Recommendation 27
The possible levels of detail to be considered for INSPIRE data specifications are:
- European
- National
- Regional
- Local

Example 1 (geology):
- european level (continent) : from 1 : 5 000 000 to 1 : 1 500 000.
- national level (nation) : 1 : 250 000 to 1 : 1 000 000
- regional level : from 1 : 250 000 to 1 : 25 0000
- local level : scale > 1 : 25 000.

Definition of Annex Themes and Scope

Estrutura dos dados Espaciais

Dados referência
(reference data)

➕

Dados temáticos

Reference data is a series of dataset that everybody involved with geographic information uses to reference his/her own data as part of their work.

It is used as a common base to which **thematic data** may be referenced.

Os dados de referência deve cumprir três requisitos funcionais:

- fornecer uma localização inequívoca para a informação do utilizador
- permitir a fusão de dados de diversas fontes
- Fornecer o contexto que permita aos outros a melhor compreensão do que está a ser apresentado

Definition of Annex Themes and Scope

Reference Data

1. Geodetic reference data
2. Units of administration
3. Units of property rights (parcels, buildings)
4. Addresses
5. Selected topographic themes (hydrography, transport, height)
6. Orthoimagery
7. Geographical names

É expectável que os Dados de Referencia sejam produzidos ou organizados pelas Agencias Nacionais de Cartografia e Agencias Cadastrais.

Anexos

The data themes of INSPIRE are divided in modular blocks. "Annexes I and II focus on reference data, while Annex III focuses on data for environmental analysis and impact assessment.

Annex I

1. Coordinate reference systems
2. Geographical grid systems
3. Geographical names
4. Administrative units
5. Addresses
6. Cadastral parcels
7. Transport networks
8. Hydrography
9. Protected sites

Annex II

10. Elevation
11. Land cover
12. Ortho-imagery
13. Geology

Annex III

14. Statistical units
15. Buildings
16. Soil
17. Land use
18. Human health and safety
19. Utility and governmental services
20. Environmental monitoring facilities
21. Production and industrial facilities
22. Agricultural and aquaculture facilities
23. Population distribution – demography
24. Area management/restriction/regulation zones & reporting units
25. Natural risk zones
26. Atmospheric conditions
27. Meteorological geographical features
28. Oceanographic geographical features
29. Sea regions
30. Bio-geographical regions
31. Habitats and biotopes
32. Species distribution
33. Energy Resources
34. Mineral resources

Implementation Roadmap

INSPIRE Implementation Roadmap

IR-ISDSS = Implementing Rules on interoperability of spat
1089/2010), including its amendments Regulations (EU
[1] Transformation Services only need to be provided if dat
other means (see Art. 7(3) of the INSPIRE Directive)
[2] With the exception of newly collected and extensively r
compliant with the IR-ISDSS by 23/11/2012

Coordinate Reference Systems (CRS)

O âmbito do tema *Coordinate reference systems abrange os Sistemas de Referencia de Coordenadas Geodésicas (Geodetic Coordinate* Reference Systems (CRS)) necessários para referenciar de forma inequivoca a informação espacial como um conjunto de coordenadas (X, Y, Z) e /ou latitude, longitude e altitude .

As coordenadas latitude, longitude e altitude elipsoidal podem ser calculadas a partir das coordenadas (X,Y,Z) usando um elipsóide de referencia.

As **coordenadas planas** (cartográficas) são calculadas a partir da latitude e longitude usando uma projeção cartográfica apropriada. São adoptadas e recomendadas diferentes projeções para diferentes objectivos.

Coordinate Reference Systems (CRS)

Requirement 1	For the three-dimensional and two-dimensional (horizontal component) coordinate reference systems, the European Terrestrial Reference System 1989 (ETRS89) shall be used for the areas within the geographical scope of ETRS89.

Requirement 2	The International Terrestrial Reference System (ITRS) or other geodetic coordinate reference systems compliant with ITRS shall be used in areas that are outside the geographical scope of ETRS89.

Requirement 3	For the computation of latitude, longitude and ellipsoidal height, and for the computation of plane coordinates using a suitable mapping projection, the parameters of the GRS80 ellipsoid shall be used.

Requirement 4	For representation with plane coordinates one of the Lambert Azimuthal Equal Area (ETRS89-LAEA), the Lambert Conformal Conic (ETRS89-LCC) or the Transverse Mercator (ETRS89-TMzn) projection shall be used.

Coordinate Reference Systems (CRS)

Requirement 8 — For the vertical component on land, the European Vertical Reference System (EVRS) shall be used to express gravity-related heights for the areas within the geographical scope of EVRS.

Requirement 9 — Other vertical reference systems related to the Earth gravity field shall be used to express gravity-related heights in areas that are outside the geographical scope of EVRS.

Recommendation 6 — For referring the coordinate reference systems adopted by INSPIRE, identifiers presented in the table 1 are recommended.

Recommendation 7 — For referring a compound CRS, one 2D and one 1D system combined together, the respective identifier shall be created by appending the identifiers of the 2D and 1D CRS with a slash between both.

EXAMPLE   When both ETRS89-GRS80 and EVRS the CRS used the identifier shall be ETRS89-GRS80/EVRS.

Coordinate Reference Systems (CRS)

Table 1

Identifier	Type of coordinates
ETRS89-XYZ	Cartesian coordinates in ETRS89 in space (X,Y,Z)
ETRS89-GRS80h	Geodetic (geographic) coordinates and ellipsoidal height in ETRS89 on the GRS80 ellipsoid (Latitude, Longitude, Ellipsoidal height)
ETRS89-GRS80	Geodetic (geographic) coordinates in ETRS89 on the GRS80 (Latitude, Longitude)
EVRS	Height in EVRS (H)
LAT	Depth of the sea floor, where there is an appreciable tidal range (D)
MSL	Depth of the sea floor, in marine areas without an appreciable tidal range, in open oceans and effectively in waters that are deeper than 200m (D)
ISA	Pressure coordinate in the free atmosphere (P)
PFO	Pressure coordinate in the free ocean (P)
ETRS89-LAEA	ETRS89 coordinates projected into plane coordinates by the Lambert Azimuthal Equal Area projection (Y,X)
ETRS89-LCC	ETRS89 coordinates projected into plane coordinates by the Lambert Conformal Conic projection (N,E)
ETRS89-TMzn[18] (29N)	ETRS89 coordinates projected into plane coordinates by the Transverse Mercator projection (N,E)

Geographical grid systems

Definition:
'grid' means a network composed of two or more sets of curves in which the members of each set intersect the members of the other sets in an algorithmic way,

Geographical Grids	=	Quadricula Geográfica

Requirement 1   The Grid_ETRS89-LAEA as defined in this document shall be used as a geo-referencing framework for the themes where grids with fixed and unambiguously defined locations of equal-area grid cells are needed.

The grid – proposed as the multipurpose Pan-European standard – is based on the ETRS89 Lambert Azimuthal Equal Area coordinate reference system with the centre of the projection at the point 52° N, 10° E and false northing: $Y_0 = 3210000$ m, false easting: $X_0 = 4321000$ m (CRS identifier in INSPIRE: ETRS89-LAEA).

The grid is designated as Grid_ETRS89-LAEA. For identification of an individual resolution level the cell size in metres is appended to the name.

EXAMPLE   The grid at a resolution level of 100km is designated as Grid_ETRS89-LAEA_*100K*.

Buildings

Definition:
Considered as under scope of the theme Buildings are constructions above and/or underground which are intended or used for the shelter of humans, animals, things, the production of economic goods or the delivery of services and that refer to any structure permanently constructed or erected on its site.

	Basic semantic	Rich semantic
2D geometry	**Core 2D profile** *uses application schemas:* - base - Buildings2D	**Extended 2D profile** *uses application schemas:* - base - Buildings2D - base extended - extended 2D
3D geometry	**Core 3D profile** *uses application schemas:* - base - Buildings3D	**Extended 3D profile** *uses application schemas:* - base - Buildings3D - base extended - extended 3D

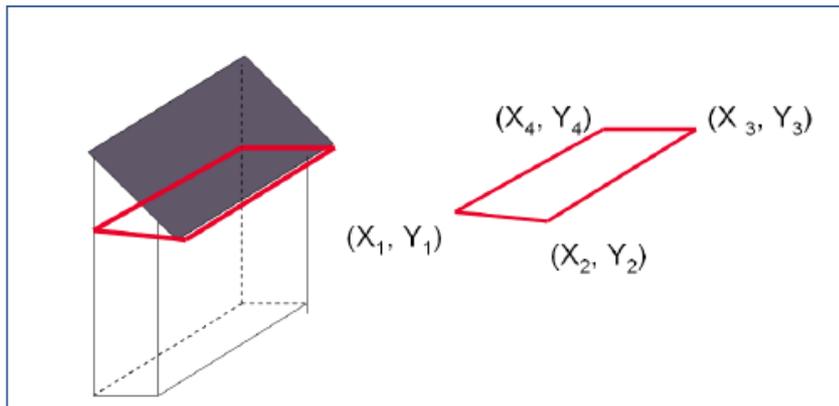The profile approach for theme Buildings

Buildings
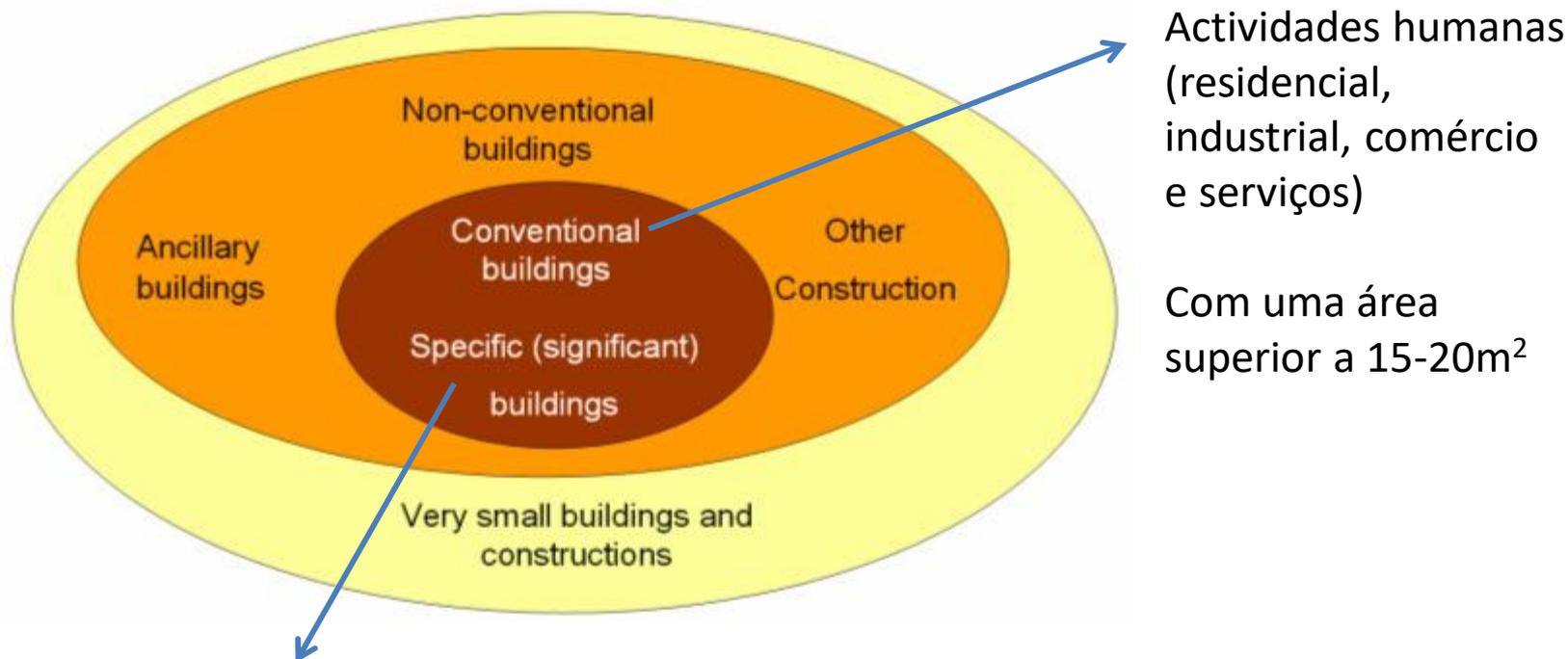
Actividades humanas (residencial, industrial, comércio e serviços)
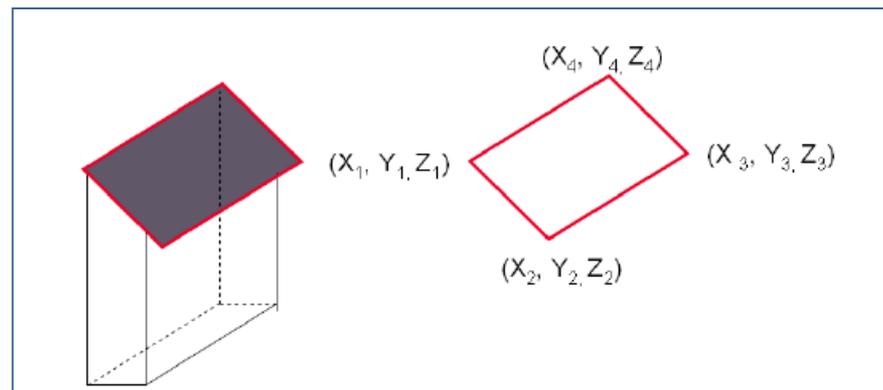
Com uma área superior a 15-20m^2

Edifícios com área ou altura significativos para serem usados como referencias (Igrejas, torres, estádios, ..)

What shall be in INSPIRE

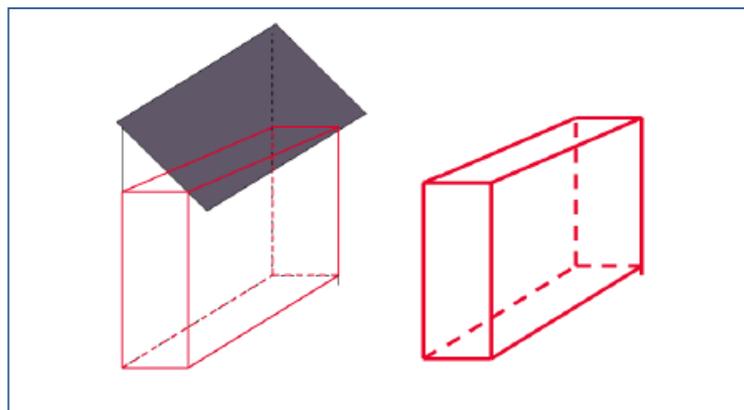What should be in INSPIRE

What maybe in INSPIRE

Buildings

Edifício representado por dados a 2D

Edifício representado por dados a 2.5D

A cada para (X,Y) corresponde apenas um valor de Z (exemplo dos modelos digitais do terreno)

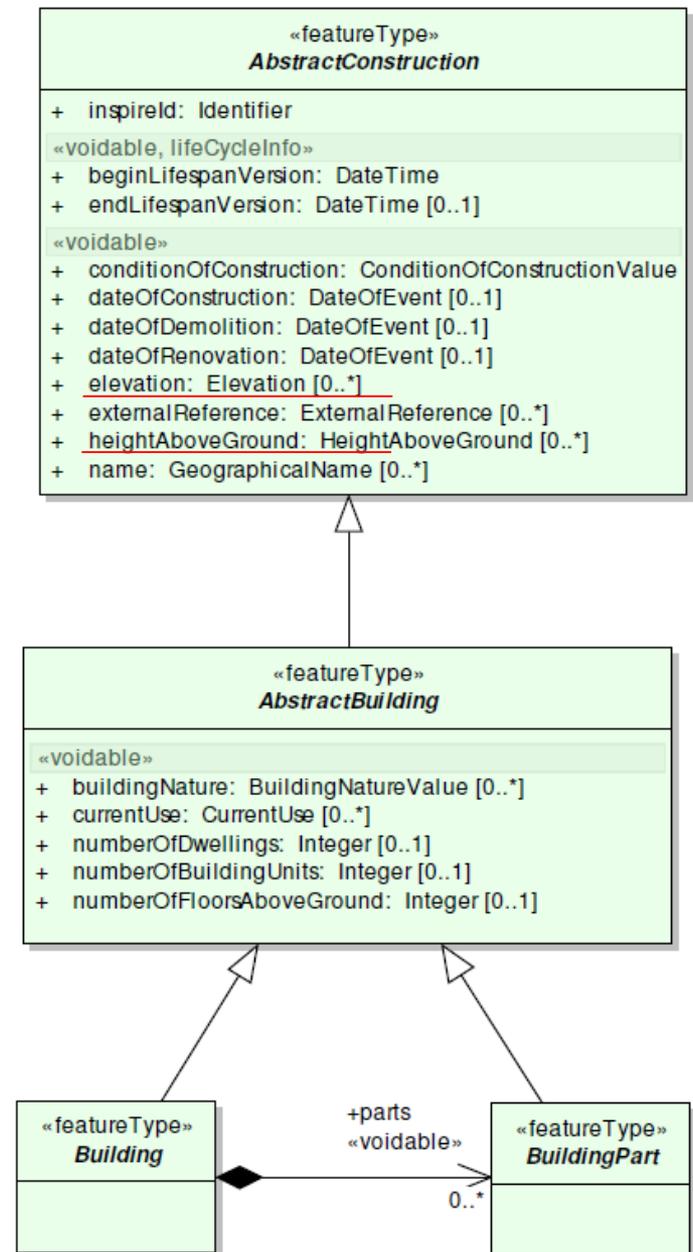
Edifício representado por dados a 3D

Buildings

The types to be used for the exchange and classification of spatial objects from data sets related to the spatial data theme Buildings are defined in the following application schemas (see following sections):

– BuildingsBase application schema describes the concepts that are common to all other Buildings application schemas; it contains mainly the **core normative semantics** of theme Buildings

– Buildings2D application schema describes the **2D geometric representation** of the spatial object types defined in Buildings Base application schema, namely buildings and building parts; it inherits from the common semantics of Buildings base

– Buildings3D application schema describes the **3D geometric representation** of the spatial object types defined in Buildings Base application schema, namely buildings and building parts; it inherits from the common semantics of Buildings base

BuildingsBase Aplicat

Tipos de elementos do esquema de aplicação "Buildings Base"

AbstractBuilding is an abstract feature type grouping the common properties of instanciable feature types Building and BuildingPart

AbstractConstruction is an abstract feature type grouping the semantic properties of buildings, building parts and of some optional feature types that may be added to core profiles, in order to provide more information about theme Buildings.

«featureType»
AbstractConstruction

+ inspireId: Identifier

«voidable, lifeCycleInfo»
+ beginLifespanVersion: DateTime
+ endLifespanVersion: DateTime [0..1]

«voidable»
+ conditionOfConstruction: ConditionOfConstructionValue
+ dateOfConstruction: DateOfEvent [0..1]
+ dateOfDemolition: DateOfEvent [0..1]
+ dateOfRenovation: DateOfEvent [0..1]
+ elevation: Elevation [0..*]
+ externalReference: ExternalReference [0..*]
+ heightAboveGround: HeightAboveGround [0..*]
+ name: GeographicalName [0..*]

«featureType»
AbstractBuilding

«voidable»
+ buildingNature: BuildingNatureValue [0..*]
+ currentUse: CurrentUse [0..*]
+ numberOfDwellings: Integer [0..1]
+ numberOfBuildingUnits: Integer [0..1]
+ numberOfFloorsAboveGround: Integer [0..1]

«featureType»
Building

«featureType»
BuildingPart

+parts
«voidable»

0..*

Search...

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Implement

Guide for implementers
📘 Good Practice Library
❯ Data Specifications
❯ Monitoring & Reporting
❯ Metadata
❯ Network Services
❯ Data and Service Sharing
❯ Spatial Data Services
❯ INSPIRE Coordination
Maintenance and Implementation
Framework

Data Specifications

Overview
Technical Guidelines
Legislation
Roadmap
Themes
Data Models
XML Schemas
Library
News
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Training
MIG Work Programme
Experts
Tools
INSPIRE Theme Icons

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Data Specifications > Themes > Buildings

Buildings - Annex 3

https://inspire.ec.europa.eu/Themes/126/2892

INSPIRE Data Specification on Buildings – Technical Guidelines

Read/Compare Technical Guidelines

Theme description from Registry

INSPIRE community forum link
  › Topo & Cadastre, Reference Data

[Buildings] Data on INSPIRE Geoportal

Find Your Scope
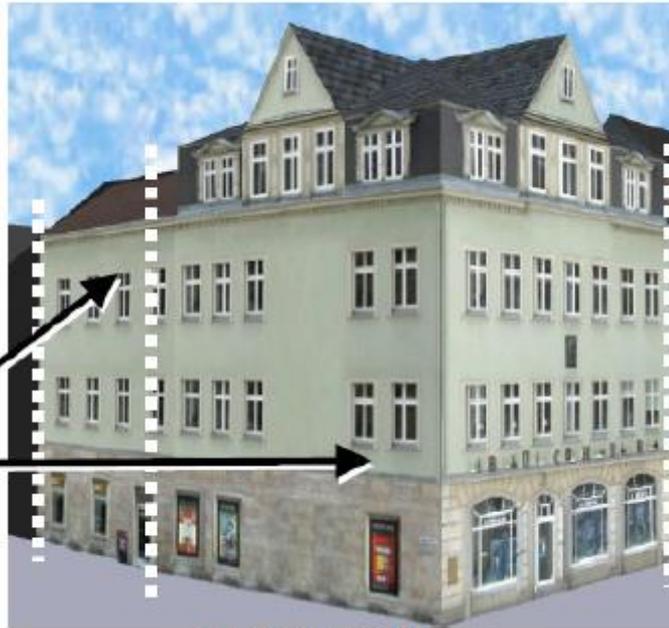
Implementations

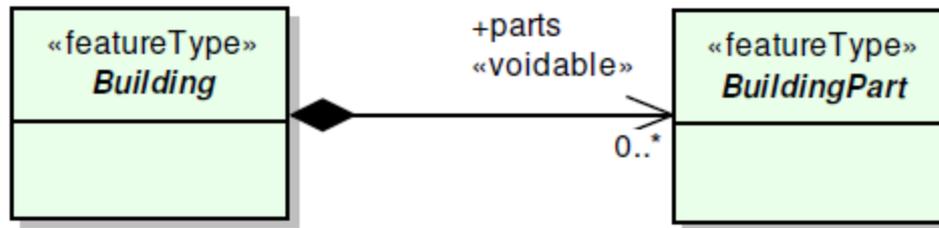# BuildingsBase Aplication Schema

Edificio composto por duas partes

De acordo com o conceito do CityGML, um edificio complexo é considerado como uma agregação de "BuildingParts"

From City GML

«featureType»
Building

+parts
«voidable»

«featureType»
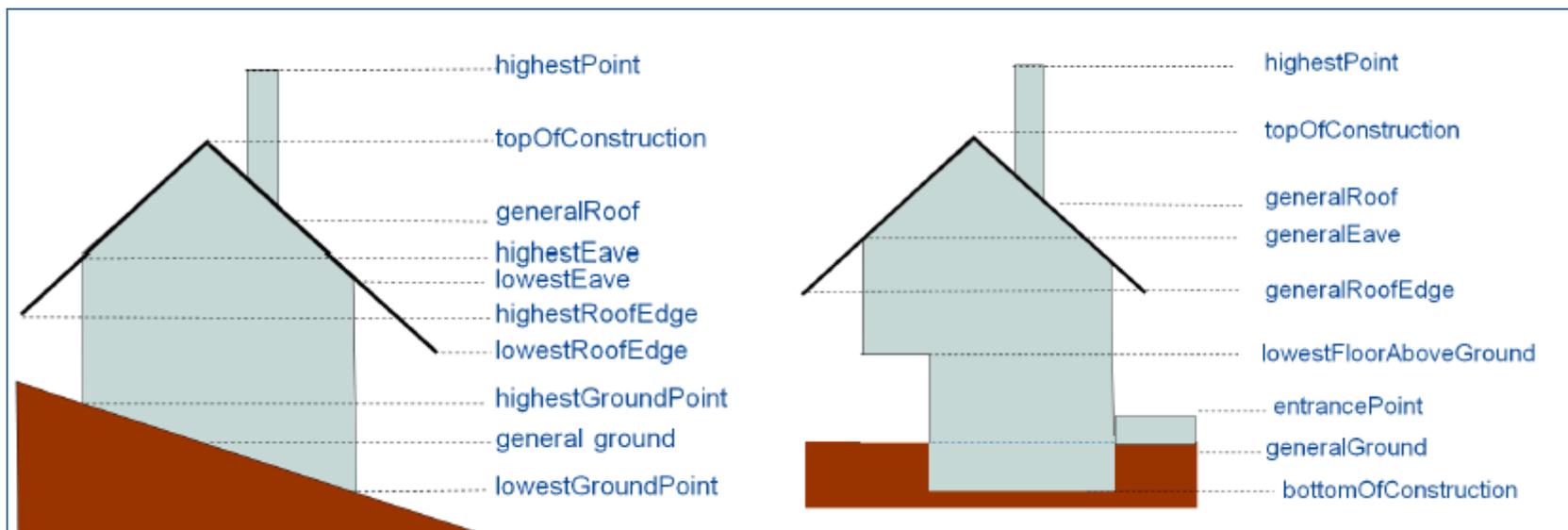**BuildingPart**

0..*

Instanciable feature types

Buildings Attributes

Elevation

«dataType»
Elevation

+ elevationReference: ElevationReferenceValue
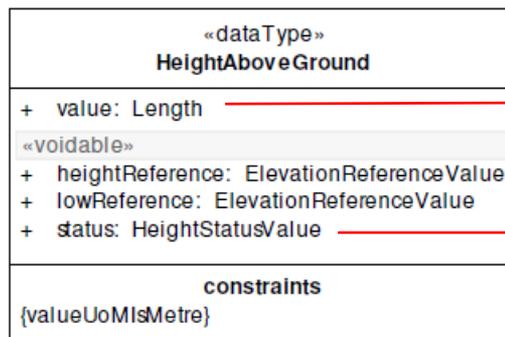+ elevationValue: DirectPosition

above ground envelope, bottom of construction, entrance point, general eave, general ground, general roof, general roof edge, highest eave, highest ground point, highest point, highest roof edge, lowest eave, lowest floor above ground, lowest ground point, lowest roof edge, top of construction.

Recommendation 7   For territories that are in the scope of EVRS, the use EVRS as elevation datum is recommended.
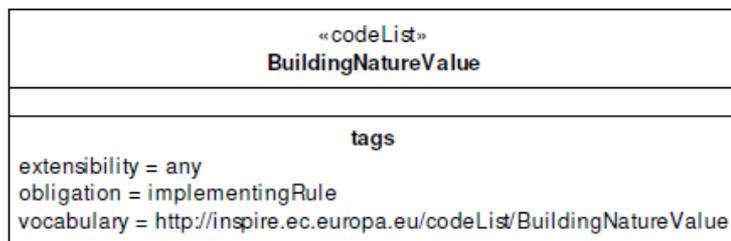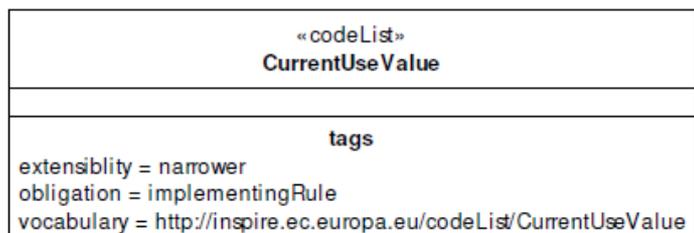
Buildings Attributes

HeightAboveGround

«dataType»
HeightAboveGround

+ value: Length

«voidable»
+ heightReference: ElevationReferenceValue
+ lowReference: ElevationReferenceValue
+ status: HeightStatusValue

constraints
{valueUoMIsMetre}

Diferença de altitude entre *heightreference* e *lowreference*

Estimado ou medido

BuildingNature

«codeList»
BuildingNatureValue

tags

extensibility = any
obligation = implementingRule
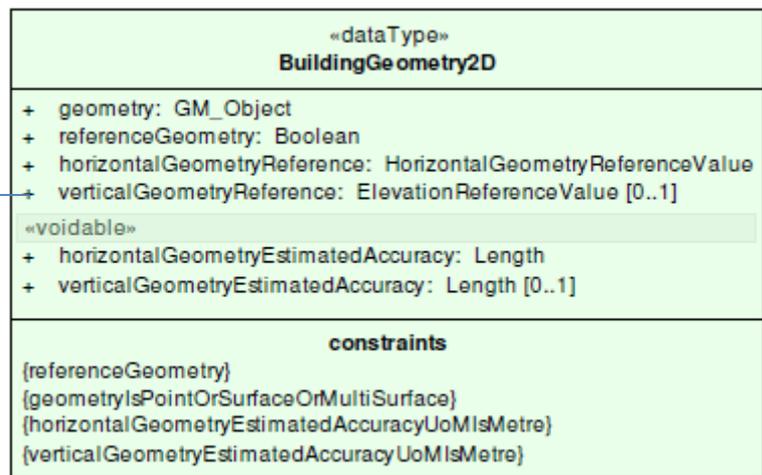vocabulary = http://inspire.ec.europa.eu/codeList/BuildingNatureValue

arch, bunker, canopy, castle, cave building, chapel, church, dam, greenhouse, lighthouse, mosque, shed, silo, stadium, storage tank, synagogue, temple, tower, windmill, wind turbine.
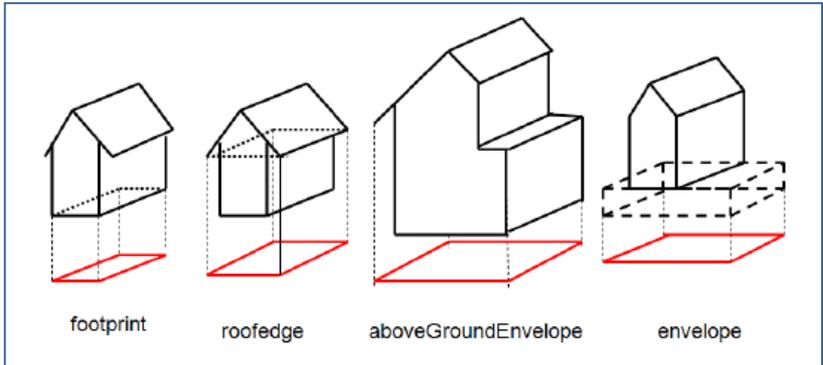
«codeList»
CurrentUseValue

tags

extensiblity = narrower
obligation = implementingRule
vocabulary = http://inspire.ec.europa.eu/codeList/CurrentUseValue

residential
    individualResidence
    collectiveResidence
        twoDwellings
        moreThanTwoDwellings
    residenceFor Communities
agriculture
industrial
commerceAndServices
    office
    trade
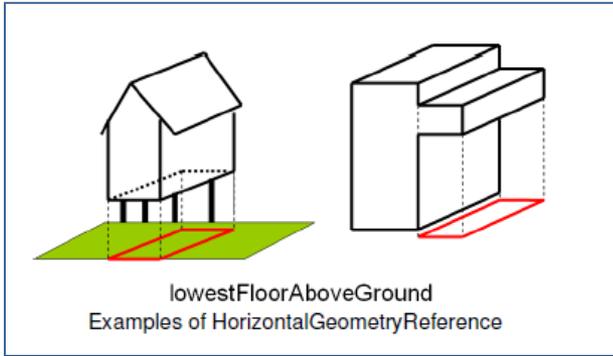   publicServices
ancillary

CurrentUse

Building Geometry data type

«dataType»
BuildingGeometry2D

+ geometry: GM_Object
+ referenceGeometry: Boolean
+ horizontalGeometryReference: HorizontalGeometryReferenceValue
+ verticalGeometryReference: ElevationReferenceValue [0..1]

«voidable»
+ horizontalGeometryEstimatedAccuracy: Length
+ verticalGeometryEstimatedAccuracy: Length [0..1]

constraints
{referenceGeometry}
{geometryIsPointOrSurfaceOrMultiSurface}
{horizontalGeometryEstimatedAccuracyUoMIsMetre}
{verticalGeometryEstimatedAccuracyUoMIsMetre}

above ground envelope, combined, entrance point, envelope, footprint, lower floor above ground, point inside building, point inside cadastral parcel, roof edge.
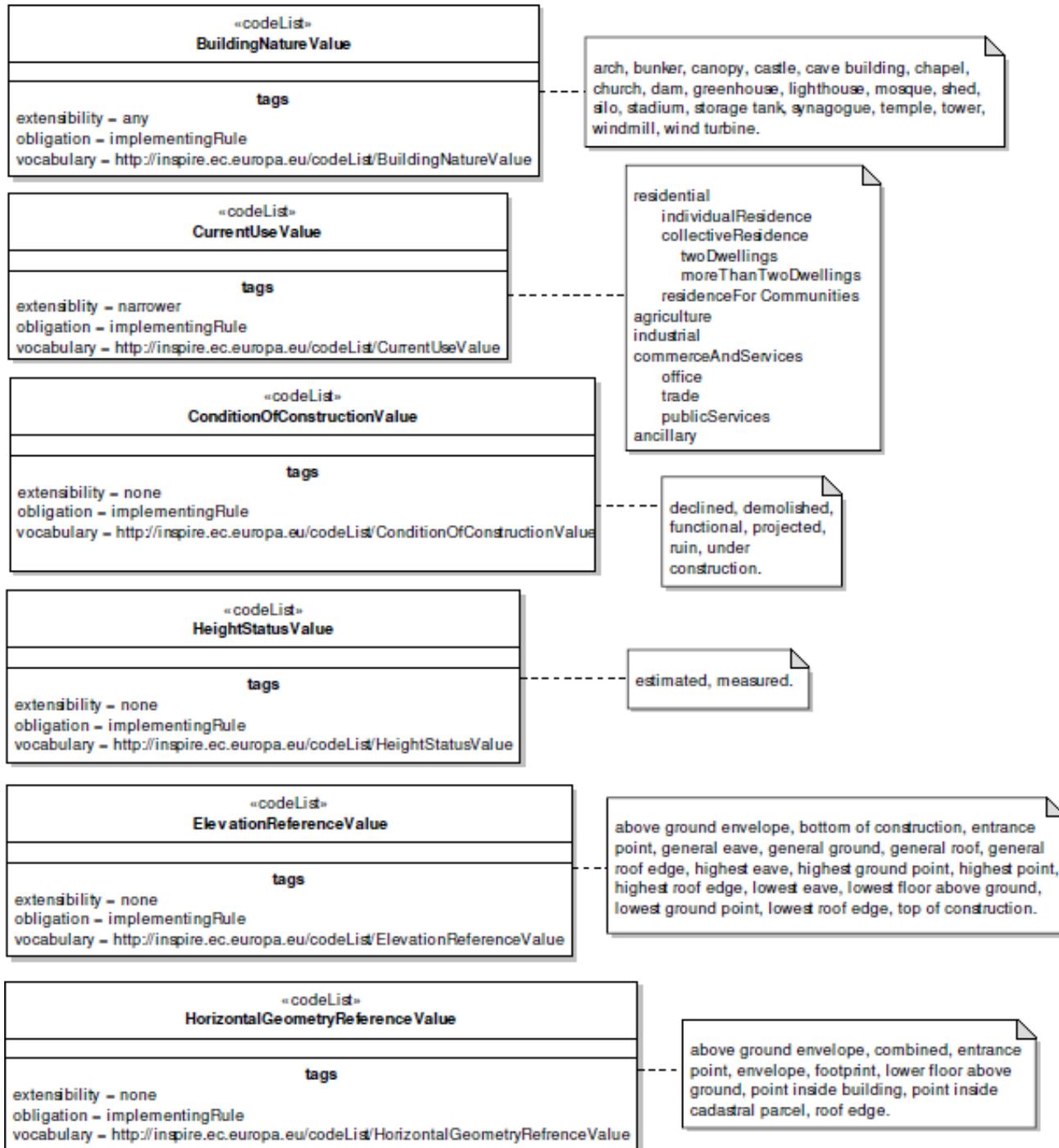
above ground envelope, bottom of construction, entrance point, general eave, general ground, general roof, general roof edge, highest eave, highest ground point, highest point, highest roof edge, lowest eave, lowest floor above ground, lowest ground point, lowest roof edge, top of construction.
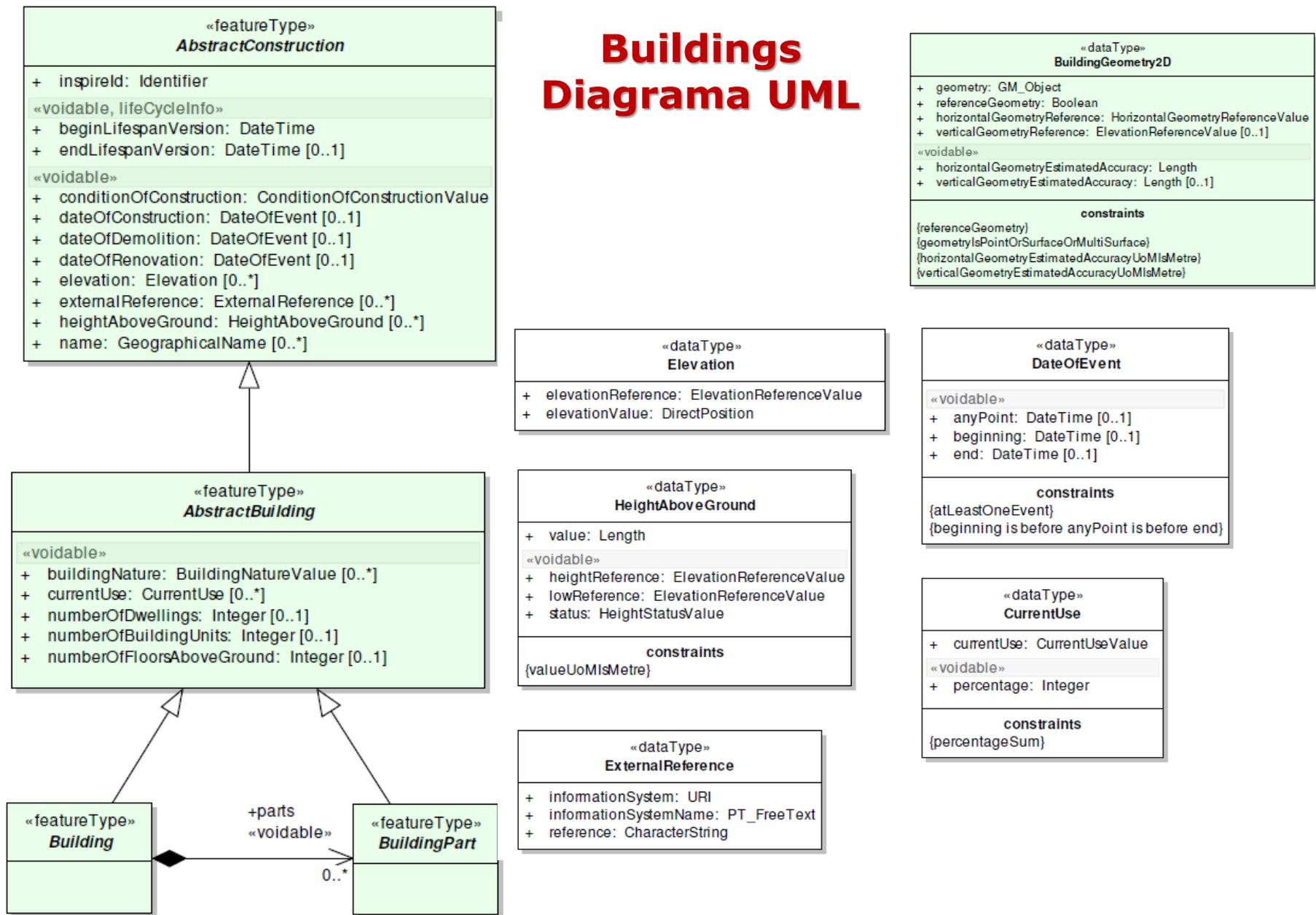
footprint   roofedge   aboveGroundEnvelope   envelope

lowestFloorAboveGround
Examples of HorizontalGeometryReference

«codeList»
BuildingNatureValue

tags

extensibility = any
obligation = implementingRule
vocabulary = http://inspire.ec.europa.eu/codeList/BuildingNatureValue

arch, bunker, canopy, castle, cave building, chapel, church, dam, greenhouse, lighthouse, mosque, shed, silo, stadium, storage tank, synagogue, temple, tower, windmill, wind turbine.

«codeList»
CurrentUseValue

tags

extensiblity = narrower
obligation = implementingRule
vocabulary = http://inspire.ec.europa.eu/codeList/CurrentUseValue

residential
   individualResidence
   collectiveResidence
     twoDwellings
     moreThanTwoDwellings
   residenceFor Communities
agriculture
industrial
commerceAndServices
   office
   trade
   publicServices
ancillary

«codeList»
ConditionOfConstructionValue

tags

extensibility = none
obligation = implementingRule
vocabulary = http://inspire.ec.europa.eu/codeList/ConditionOfConstructionValue

declined, demolished, functional, projected, ruin, under construction.

Code List

«codeList»
HeightStatusValue

tags

extensibility = none
obligation = implementingRule
vocabulary = http://inspire.ec.europa.eu/codeList/HeightStatusValue

estimated, measured.

«codeList»
ElevationReferenceValue

tags

extensibility = none
obligation = implementingRule
vocabulary = http://inspire.ec.europa.eu/codeList/ElevationReferenceValue

above ground envelope, bottom of construction, entrance point, general eave, general ground, general roof, general roof edge, highest eave, highest ground point, highest point, highest roof edge, lowest eave, lowest floor above ground, lowest ground point, lowest roof edge, top of construction.

«codeList»
HorizontalGeometryReferenceValue

tags

extensibility = none
obligation = implementingRule
vocabulary = http://inspire.ec.europa.eu/codeList/HorizontalGeometryRefrenceValue

above ground envelope, combined, entrance point, envelope, footprint, lower floor above ground, point inside building, point inside cadastral parcel, roof edge.

Buildings Diagrama UML

«featureType» AbstractConstruction

+ inspireId: Identifier

«voidable, lifeCycleInfo»
+ beginLifespanVersion: DateTime
+ endLifespanVersion: DateTime [0..1]

«voidable»
+ conditionOfConstruction: ConditionOfConstructionValue
+ dateOfConstruction: DateOfEvent [0..1]
+ dateOfDemolition: DateOfEvent [0..1]
+ dateOfRenovation: DateOfEvent [0..1]
+ elevation: Elevation [0..*]
+ externalReference: ExternalReference [0..*]
+ heightAboveGround: HeightAboveGround [0..*]
+ name: GeographicalName [0..*]

«dataType» BuildingGeometry2D

+ geometry: GM_Object
+ referenceGeometry: Boolean
+ horizontalGeometryReference: HorizontalGeometryReferenceValue
+ verticalGeometryReference: ElevationReferenceValue [0..1]

«voidable»
+ horizontalGeometryEstimatedAccuracy: Length
+ verticalGeometryEstimatedAccuracy: Length [0..1]

constraints
{referenceGeometry}
{geometryIsPointOrSurfaceOrMultiSurface}
{horizontalGeometryEstimatedAccuracyUoMIsMetre}
{verticalGeometryEstimatedAccuracyUoMIsMetre}

«dataType» Elevation

+ elevationReference: ElevationReferenceValue
+ elevationValue: DirectPosition

«dataType» DateOfEvent

«voidable»
+ anyPoint: DateTime [0..1]
+ beginning: DateTime [0..1]
+ end: DateTime [0..1]

constraints
{atLeastOneEvent}
{beginning is before anyPoint is before end}

«featureType» AbstractBuilding

«voidable»
+ buildingNature: BuildingNatureValue [0..*]
+ currentUse: CurrentUse [0..*]
+ numberOfDwellings: Integer [0..1]
+ numberOfBuildingUnits: Integer [0..1]
+ numberOfFloorsAboveGround: Integer [0..1]

«dataType» HeightAboveGround

+ value: Length

«voidable»
+ heightReference: ElevationReferenceValue
+ lowReference: ElevationReferenceValue
+ status: HeightStatusValue

constraints
{valueUoMIsMetre}

«dataType» CurrentUse

+ currentUse: CurrentUseValue

«voidable»
+ percentage: Integer

constraints
{percentageSum}

«dataType» ExternalReference

+ informationSystem: URI
+ informationSystemName: PT_FreeText
+ reference: CharacterString

«featureType» Building

«featureType» BuildingPart

+parts
«voidable»

0..*

Buildings - Feature Catalogue

Feature catalogue metadata

Application Schema	INSPIRE Application Schema BuildingsBase	buildingsBase.xsd
Version number	3.0rc3	

Types defined in the feature catalogue

Type	Package	Stereotypes
AbstractBuilding	BuildingsBase	«featureType»
AbstractConstruction	BuildingsBase	«featureType»
Building	BuildingsBase	«featureType»
BuildingGeometry2D	BuildingsBase	«dataType»
BuildingPart	BuildingsBase	«featureType»
CurrentUse	BuildingsBase	«dataType»
DateOfEvent	BuildingsBase	«dataType»
Elevation	BuildingsBase	«dataType»
ExternalReference	BuildingsBase	«dataType»
HeightAboveGround	BuildingsBase	«dataType»

5.3.2.1. Spatial object types

5.3.2.1.1. AbstractConstruction

AbstractConstruction (abstract)	
Name:	Abstract construction
Definition:	Abstract spatial object type grouping the semantic properties of buildings, building parts and of some optional spatial object types that may be added in order to provide more information about the theme Buildings.
Description:	The optional spatial object types that may be added to core profiles are

::: HUMBOLDT

Towards the Harmonisation of Spatial Information in Europe

HUMBOLDT contributes to the implementation of a European Spatial Data Infrastructure (ESDI) that integrates the diversity of spatial data available for a multitude of European organisations. It is the aim to manage and advance important parts of the implementation process of this ESDI.

The main goal of the HUMBOLDT project is to enable organisations to document, publish and harmonise their spatial information. The software tools and processes created will demonstrate the feasibility and benefits of an Infrastructure for Spatial Information in Europe as planned by the INSPIRE initiative (♂ INSPIRE), meeting the goals of Global Monitoring for Environment and Security (♂ GMES).

The technical goal of HUMBOLDT is to support Spatial Data Infrastructure (SDI) enablement by providing the functionalities for covering the data hamonisation process as a whole. The HUMBOLDT Tools and Services are built on current state of the art and standards, designed to provide solutions to all types of users, data custodians as well as private end-users. HUMBOLDT enables the use of single functionalities as part of your own infrastructure.

Learn more about HUMBOLDT

At a Glance provides a concise overview on the project's benefits.

Scenarios present example use cases explaining the application areas of HUMBOLDT.

Get Involved! Find out about possibilities to participate in and benefit from HUMBOLDT.

Please also visit our ♂ Community Website and the ♂ HUMBOLDT Training Platform.
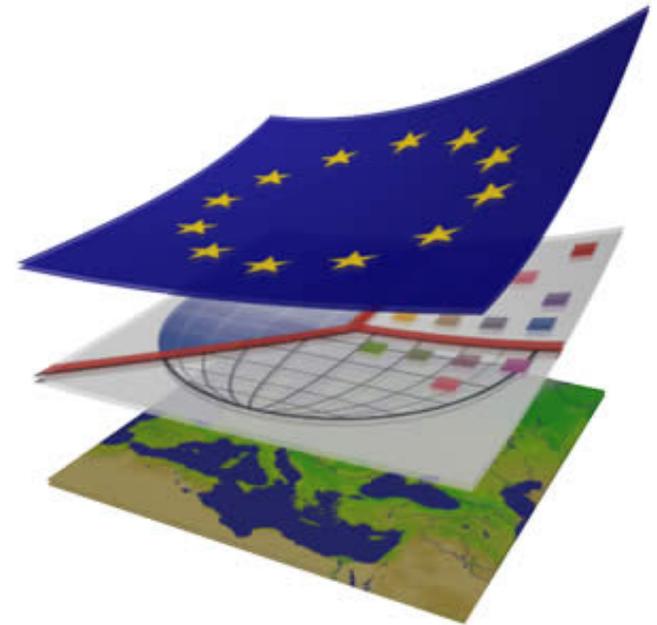
HUMBOLDT Video

Download the HUMBOLDT Video: [MP4] [OGV] [WEBM]

Humboldt

GeoServer App-Schema configuration

Publishing OGC services based on GML Application Schemas and Complex Features with GeoServer is now easier than ever. Use HALE to define the mapping from your data store to an application schema, such as INSPIRE or NAS. Then, upload the resulting configuration for the GeoServer App-Schema plugin directly to your GeoServer instance. This feature was developed together with GeoSolutions S.R.L, Italy. More information on the new feature including future plans is available at the GeoSolutions Blog.
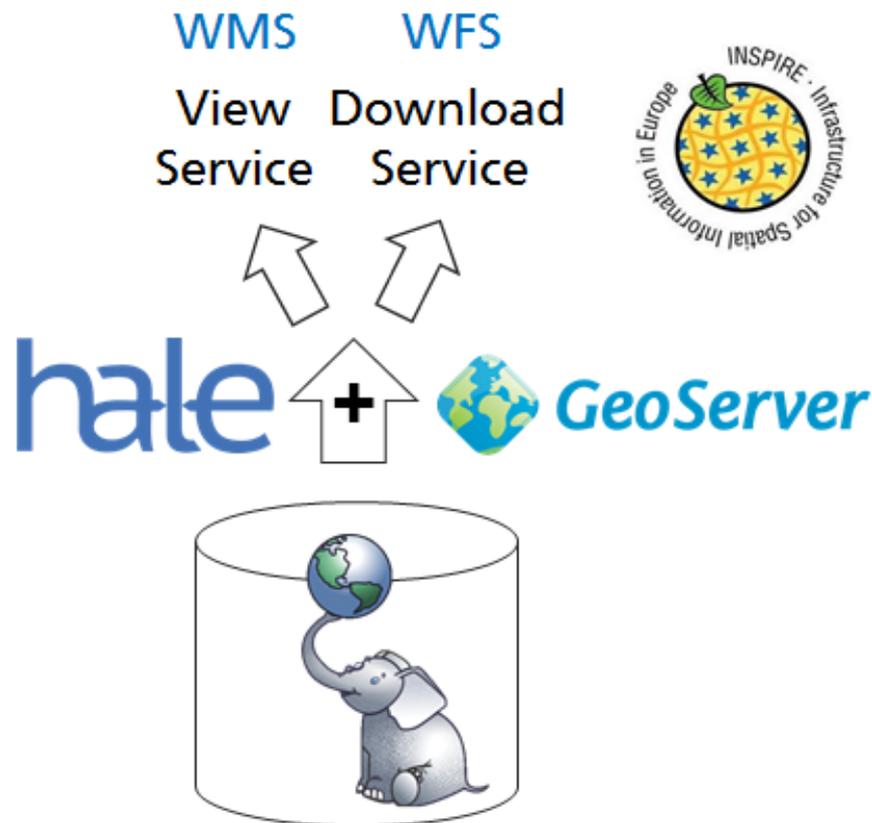
Ver programa HALE

SNIT e SNIG

http://www.dgterritorio.pt/sistemas_de_informacao/snit/igt_em_vigor__snit_/acesso_simples/

INSPIRE

Página Inspire (ver vídeo)

http://inspire.jrc.ec.europa.eu/

Data Specifications

http://inspire.jrc.ec.europa.eu/index.cfm/pageid/2

Ver datamodels
Descarregar XML

Projecto Humboldt

http://www.esdi-humboldt.eu/home.html

Importar BuildingsBase no HALE