

PCC - CLR KEN meeting– Bratislava – 17 November 2016

UN-GGIM : Europe core data and its impact on cadastral themes

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General presentation of UN-GGIM



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UN-GGIM (United Nations initiative on Global Geospatial Information Management)

- Objectives

- coordination forum between Member States on geographic information
- Targeting the Sustainable Development Goals

Unleashing the power of 'Where'



... to make the world a better place.



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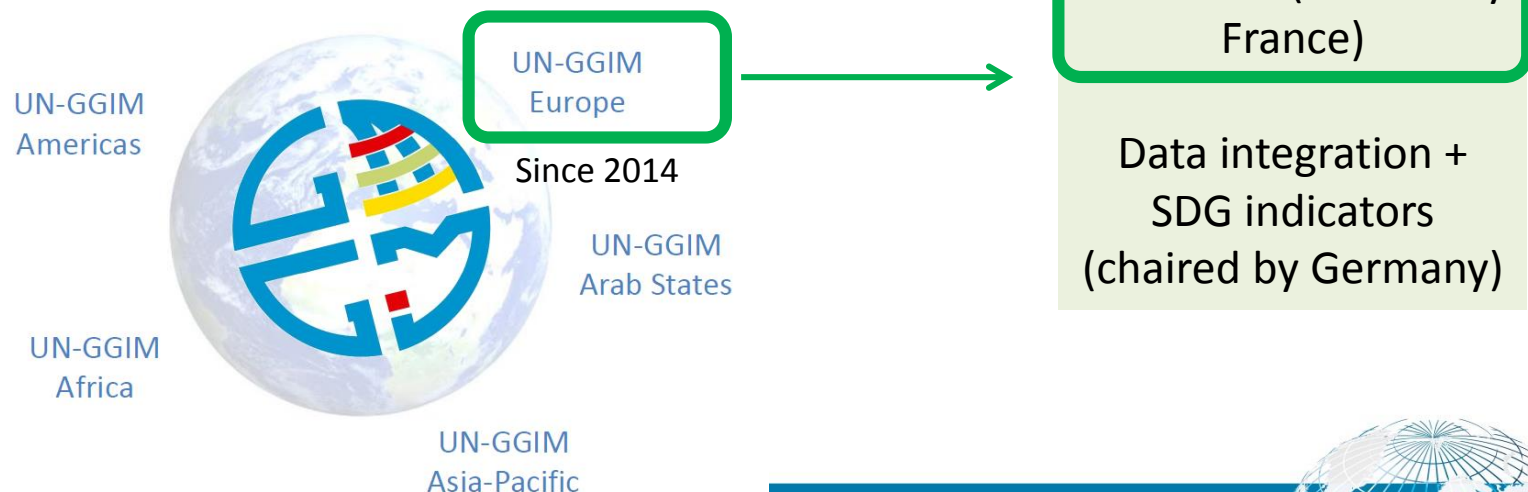


UN-GGIM

- Organisation

- Activities at global level (since 2011)
 - Global Geodetic Reference Framework
 - Land registration
 - Institutional arrangements
 - Fundamental data
 -
- Activities at regional level

Strong
involvement of
statistical
community



Core data context and objectives



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Objectives of the Working Group on European core data

- **Specify homogeneous core data** to be supplied by geographic Europe Member States
- **Define priorities** for production of new data or for improvement of existing data
 - Specifications = recommendation for politicians and data providers



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Context

- INSPIRE aims to harmonise existing data
- INSPIRE supplies first level of interoperability (common data model)
- But INSPIRE data will remain heterogeneous
 - No requirements about levels of detail
 - Most concepts are « voidable »

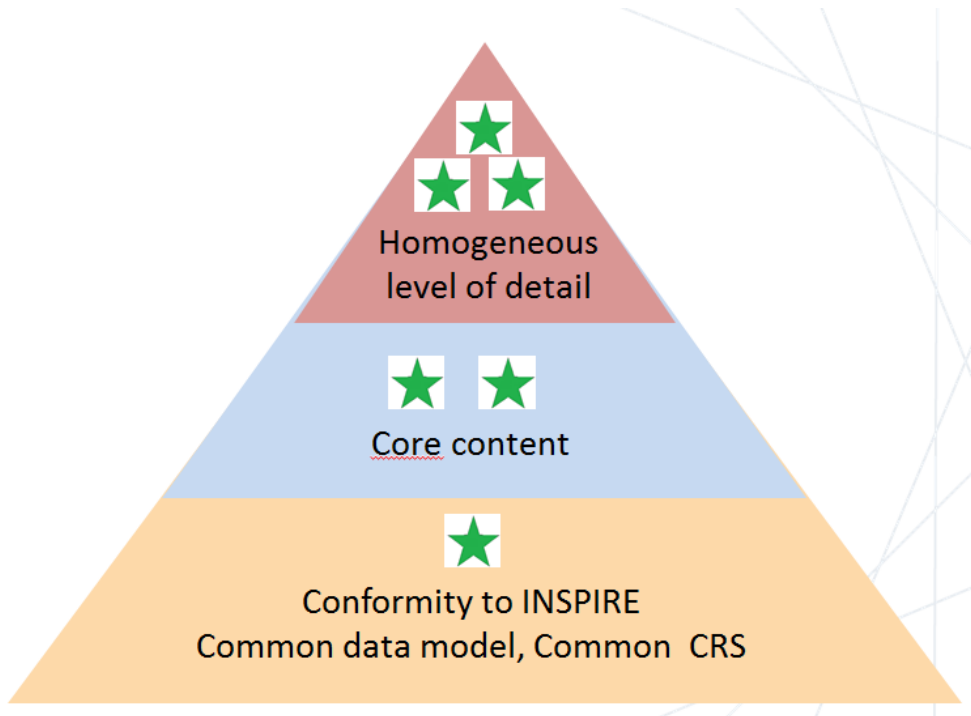


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Objectives of the Working Group on European core data



Data harmonisation degrees (ELF project)

- Target data ★ ★ ★
- Select core content from INSPIRE
- Include quality criteria to ensure homogeneous data



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Comparison with INSPIRE

	INSPIRE	UN-GGIM: Europe WG core data
Driver	European Commission (DG ENV, JRC, Eurostat, EEA)	United Nations (UN-GGIM: Europe Executive Committee)
Geographic scope	European Union Politic Europe	Geographic Europe
Objective	Harmonise existing data, ensure common structure	Ensure common similar content
Expected mean	Data transformation	Data upgrade, production of new data.
Status	European Directive Legal obligation for MS	UN Recommendation Encouragement to MS

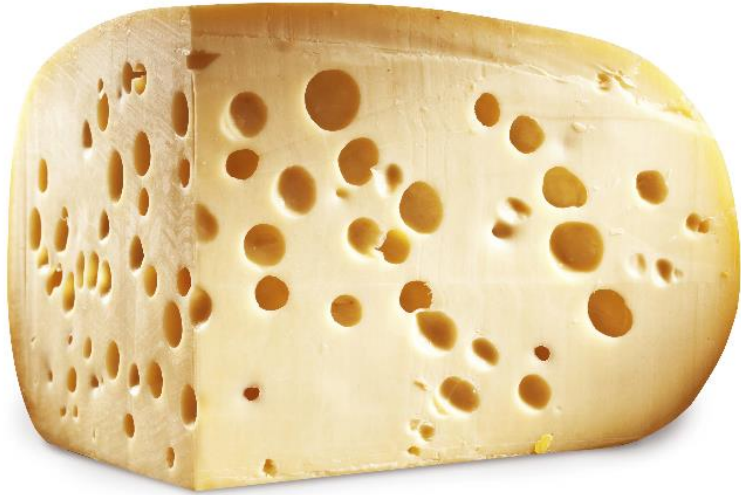


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Comparison with INSPIRE



The INSPIRE big cheese
with lots of holes



The core data cheese:
smaller but compact
and really filled



Users begin to complain:
not so much to eat!



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Organisation and calendar

- 15 European countries
 - Austria, Belgium, Finland, France (chair), Germany, Greece, Netherland, Poland, Spain, Sweden, Switzerland, United Kingdom, Turkey
- Observers
 - JRC, EEA, EuroSDR
- Calendar
 - Theme selection : January 2016
 - Core data specifications : 2016 – 2017
 - ...



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Core data theme selection (January 2016)



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Approach: user requirements

- Sustainable Development Goals



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Approach: user requirements

- Selection criteria
 - Pertain to **geospatial data** (with mandatory geometric representation);
 - Be widely used: it should be the most necessary, most common, priority data required to **analyse, monitor and achieve the SDGs**, either directly or indirectly;
 - Meet requirements common to many countries.



Final list of selected core data themes

Annex I

Coordinate Reference Systems

Geographical Grid Systems

Geographical Names

Administrative Units

Addresses

Cadastral Parcels

Transport Networks

Hydrography

Protected Sites

Annex II

Elevation

Land Cover

OrthoImagery

Geology

Annex III

Statistical units

Buildings

Soil

Land use

Human health and safety

Utility and governmental services

Environmental monitoring facilities

Production and industrial facilities

Agricultural and aquaculture facilities

Population distribution - demography

Area management/restriction/regulation

Natural risk zones

Atmospheric conditions

Meteorological geographical features

Oceanographic geographical features

Sea regions

Bio-geographical regions

Habitats and biotopes

Species distribution

Energy resources

Mineral resources

Core data content recommendations



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Calendar

- On-going work
- 3 themes to be specified before end 2016
 - Cadastral Parcels
 - Geographical Names
 - Addresses
- All themes to be specified before end 2017



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Principles

- Use INSPIRE specification and SDG user requirements as starting points
- Define priorities, extract core data:
 - From data model
 - From theme scope
- Decide on levels of detail, quality criteria



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Principles

- 3 types of recommendations:
 - **Core recommendation**: highly required, achievable => ideally, short term action
 - **Good practice**: bring added value to core data => to be encouraged
 - **Further considerations**: *data for innovative applications => long term*



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Theme Cadastral Parcels



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Answers to questionnaire

Answers from 21
countries



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Geographic extent

- **Core recommendation:** have core CP (vector) data on whole territory, according to national law
- Potential impact:
 - Encourage achievement of cadastre under elaboration (Romania ...)
 - Encourage vectorisation of remaining raster CP (France ...)

Geographic extent

- **Good practice** : have CP data on whole land territory, including public domain
- Potential impact:
 - Possible change in national legislation
 - Need to survey missing parts

Geographic extent

- **Further consideration:** have marine cadastre
- Present in few countries (6)
- Not yet mature (e.g. what has to be surveyed?)

Data model

Core recommendation: Cadastral Parcel with its geometry and national cadastral reference

class CadastralParcels

«featureType»
CadastralParcel

+ geometry: GM_Object
+ nationalCadastralReference: CharacterString
+ inspireId: Identifier
+ label: CharacterString

«voidable»

+ areaValue: Area [0..1]
+ referencePoint: GM_Point [0..1]
+ validFrom: DateTime [0..1]
+ validTo: DateTime [0..1]

«lifeCycleInfo, voidable»

+ beginLifespanVersion: DateTime
+ endLifespanVersion: DateTime [0..1]

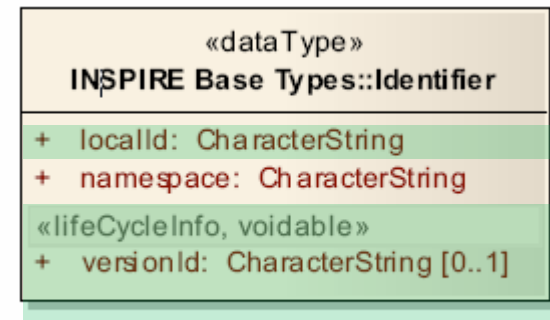
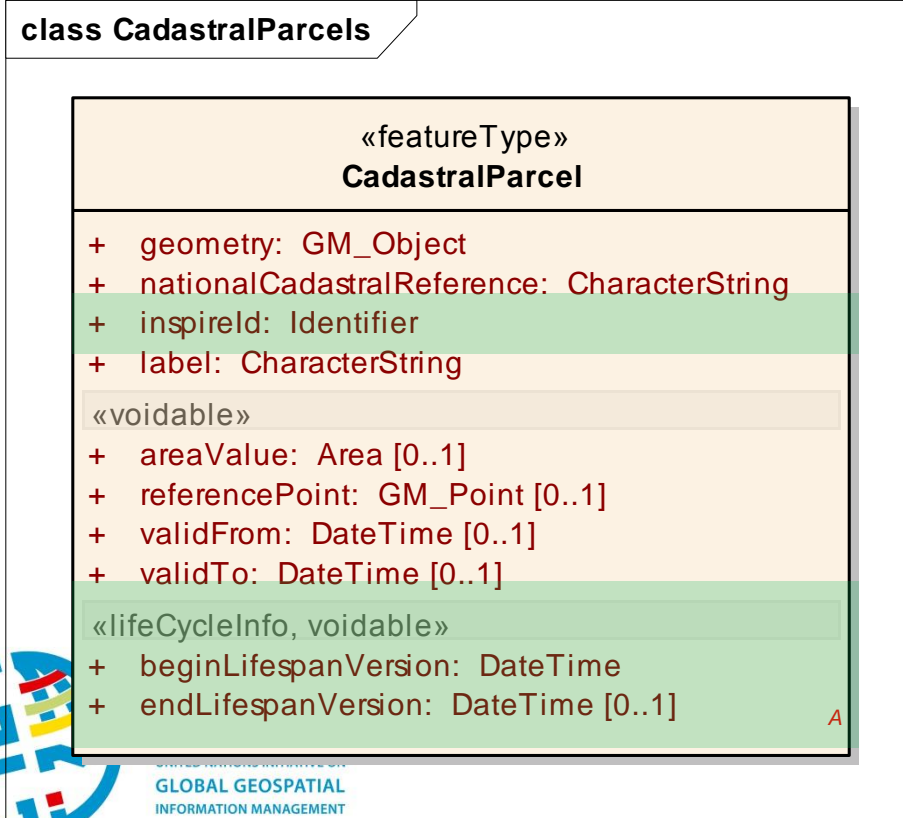
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Data model

Good practice: encourage temporal management according to INSPIRE mechanism (versioning + life-cycle attributes)



areaValue, validFrom/To more related to the legal parcel (Land Registry) than to the spatial parcel (cadastral map).

Data model

Good practice: heterogeneous accuracy to be documented using INSPIRE feature types Cadastral Boundary or Cadastral Zoning





Quality rules: initial proposal

Quality	Priority	Comment
Completeness = 100%	1	INSPIRE recommendation. Necessary to get reliable information
CP data consistent with cadastral administrative data => continuous update	1	Necessary for land market use cases
Topological consistency	2	Useful for most use cases
Accuracy better than 1 m in urban areas and better than 2,5 m in rural areas	2	INSPIRE recommendation.



Quality rules: questionnaire results

- Consistency between geographic data (cadastral plan) and administrative data (cadastral registry)
 - Generally considered as a requirement
 - But some delay (a few days) can't always be avoided
 - This delay looks acceptable for users
- **Core recommendation** : continuous update (weekly or better)

Quality rules: questionnaire results

- Accuracy
 - General agreement
 - Should even be better
- **Core recommendation** : keep INSPIRE as general target (1m in urban, 2,5 m in rural) + recommend more accurate data for new surveys (50 cm or better)

Quality rules

- All quality rules to be set as “core recommendations”



Theme Addresses



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Scope - Addressable objects

INSPIRE

Land parcels

Buildings

Flats

Street
furniture

Water
pumping
stations

Parking lots

Agricultural
barns

Mooring
places



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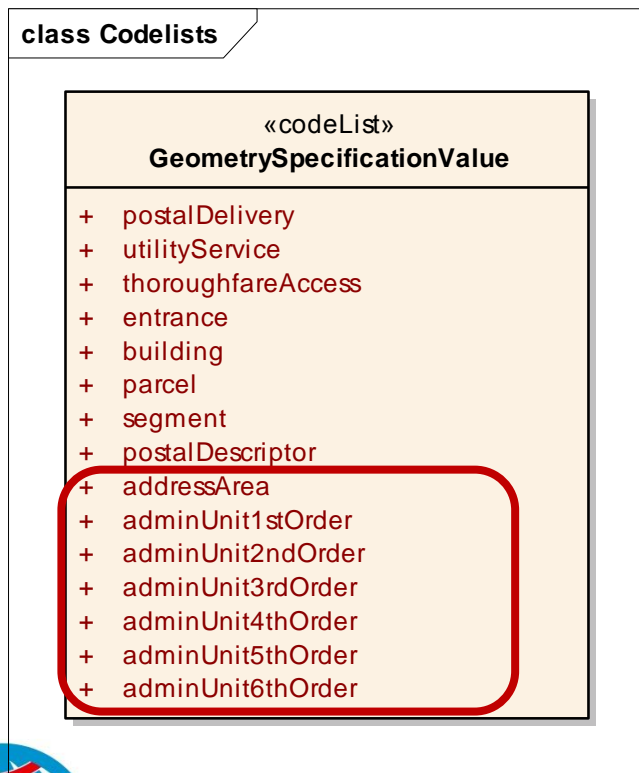
Core data

Buildings to be
occupied by
people

Postal
addresses

Address position

- INSPIRE allows very approximate position of address



Addresses may be located only at address area level (e.g. village) or even at administrative unit level

In practice, this occurs mainly in rural areas (villages without street names + house numbers)



Address position

- (Potential) good practice: recommend creation of “true” addresses everywhere
 - Street name + house number
 - House name



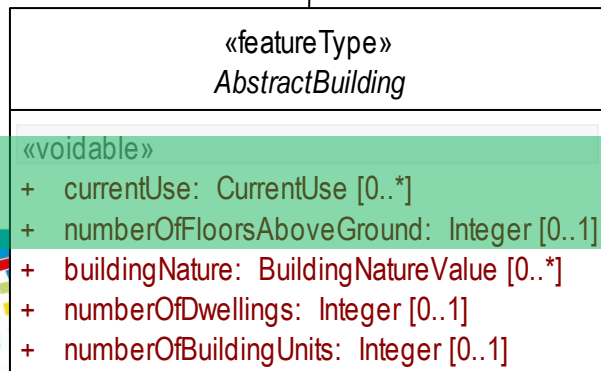
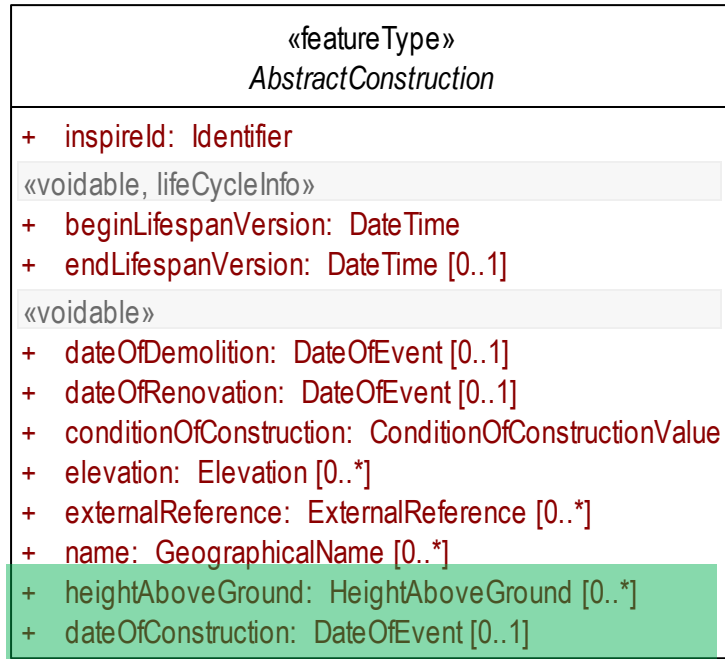
Theme Buildings



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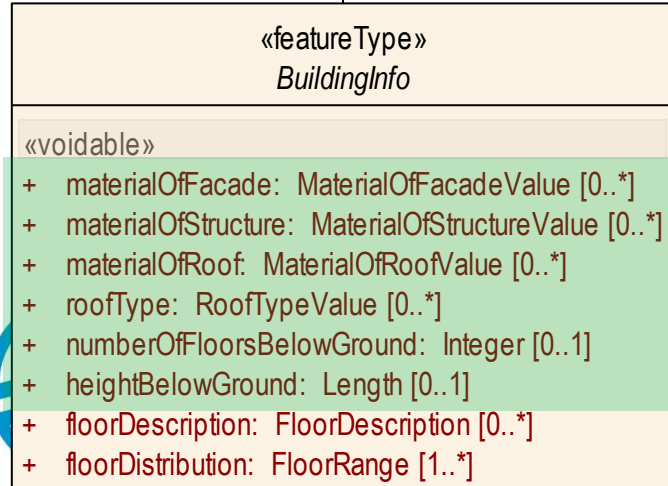
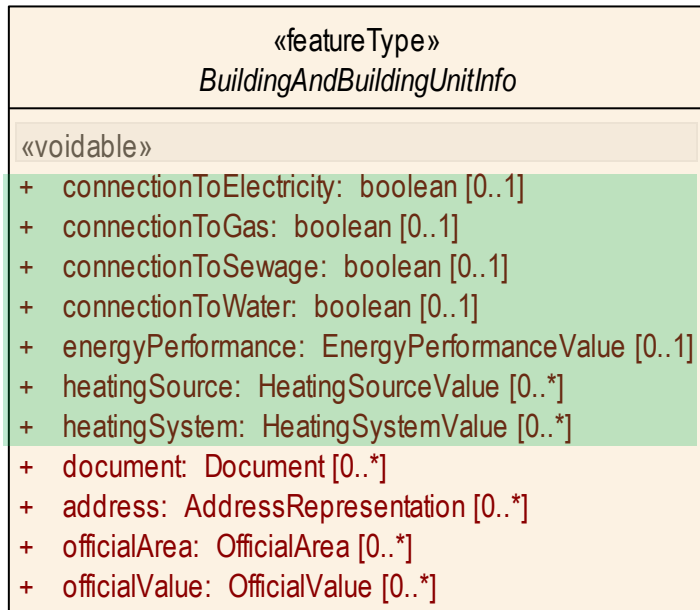
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Data model

- “obvious” core attributes
 - (2D) Geometry
 - Height and/or number of floors above ground
 - Current use
 - Date of construction



Data model

- More INSPIRE attributes also quite useful

=> questionnaire

Data management

- Building data may be in a single database or in various databases
- How to provide the additional attributes?
 - By integrating them to core data
 - By linking core data to other databases
 - Official identifiers (e.g. cadastral reference)
 - Other means (address)

- To know more:
 - Selection of core data themes
 - Next data content recommendations

<http://un-ggim-europe.org/content/wg-a-core-data>



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