



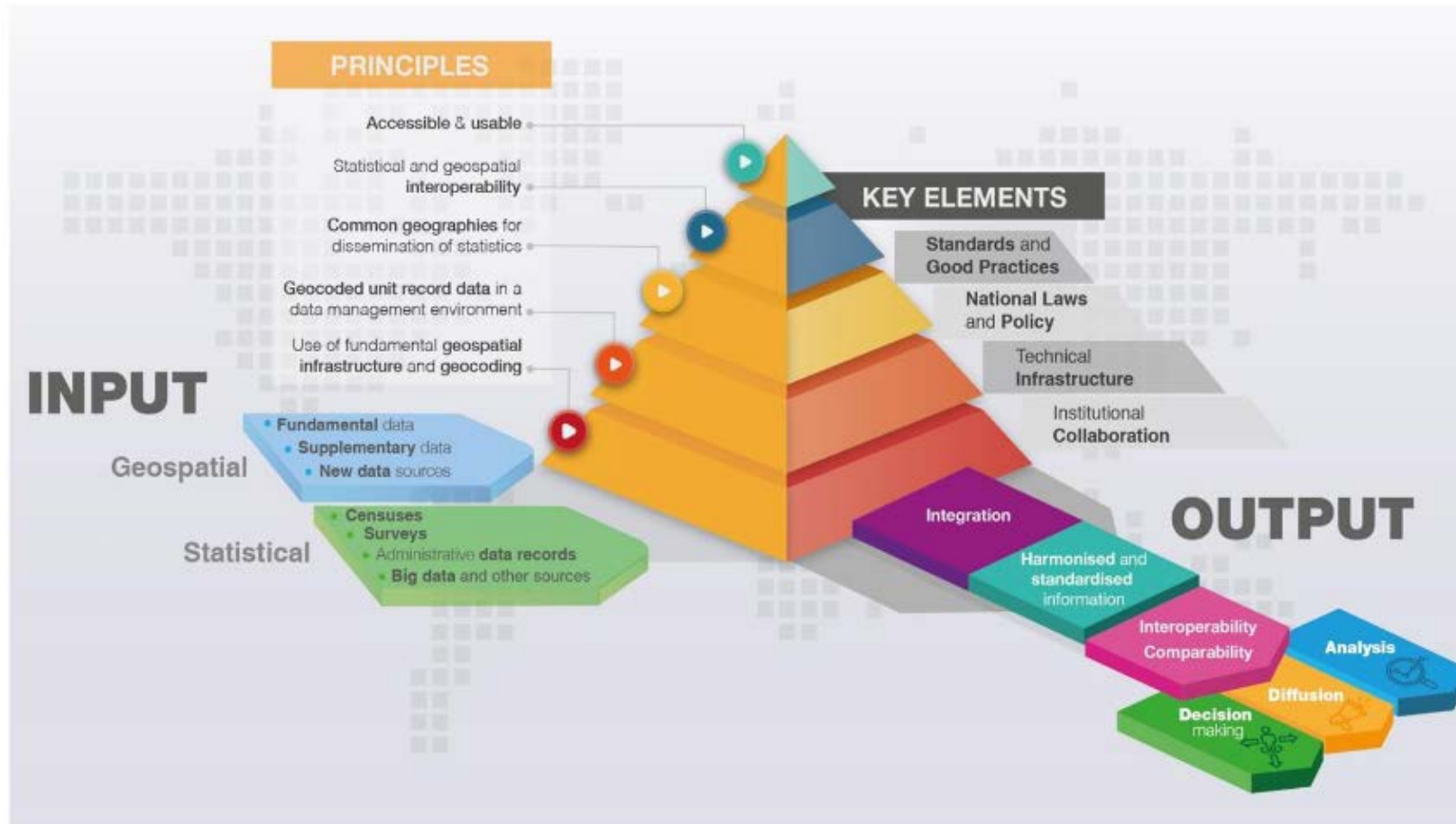
Building up a European address database – GISCO's first experiences

*GISCO Team (Hannes REUTER),
European Commission, Eurostat*

Overview

- Principles and European Commission requirements
- Example Cases and Current Status
- Outlook

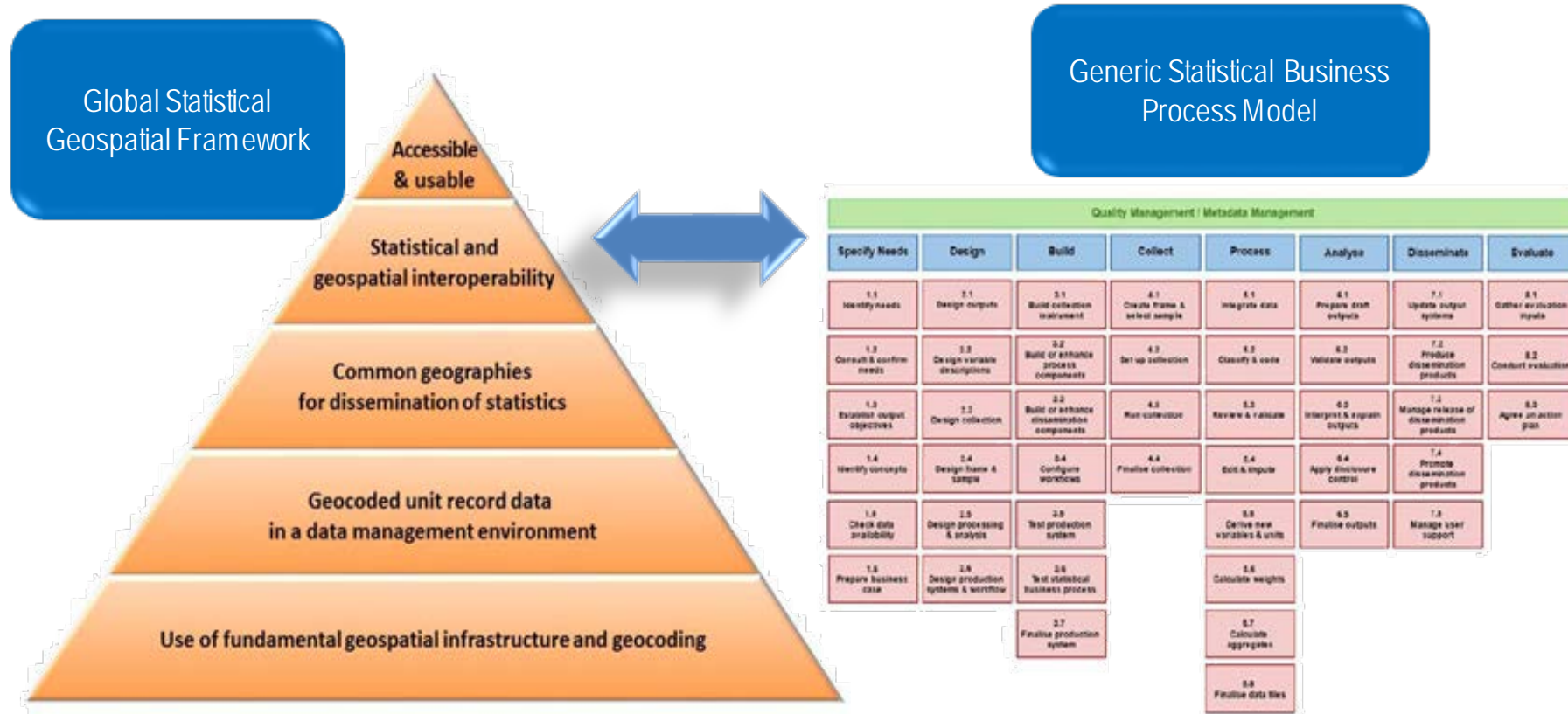
Global Statistical Geospatial Framework



- **Address**, property, building, and location information are accurate and consistent, meeting country-level agreed standards and good practices;
- Geocoding results are as accurate and consistent as possible using common approaches or systems; and,
- Any geocoding issues are consistently managed through application of standardised approaches

Enhancing the generic business process model to integrate GSGF into the GSBPM

GEOSTAT-3: Implementation guide for the GSGF Europe



European Commission Geospatial Data Requirements and international requirements converge



UN-GGIM: Europe

United Nations Committee of Experts on
Global Geospatial Information Management

...to provide a consolidated and consistent overview of the European Commission user needs and set out cross-cutting and domain specific requirements of the European Commission for EU wide geospatial information and data products from Member States in support to Sustainable Development and other EU policies....



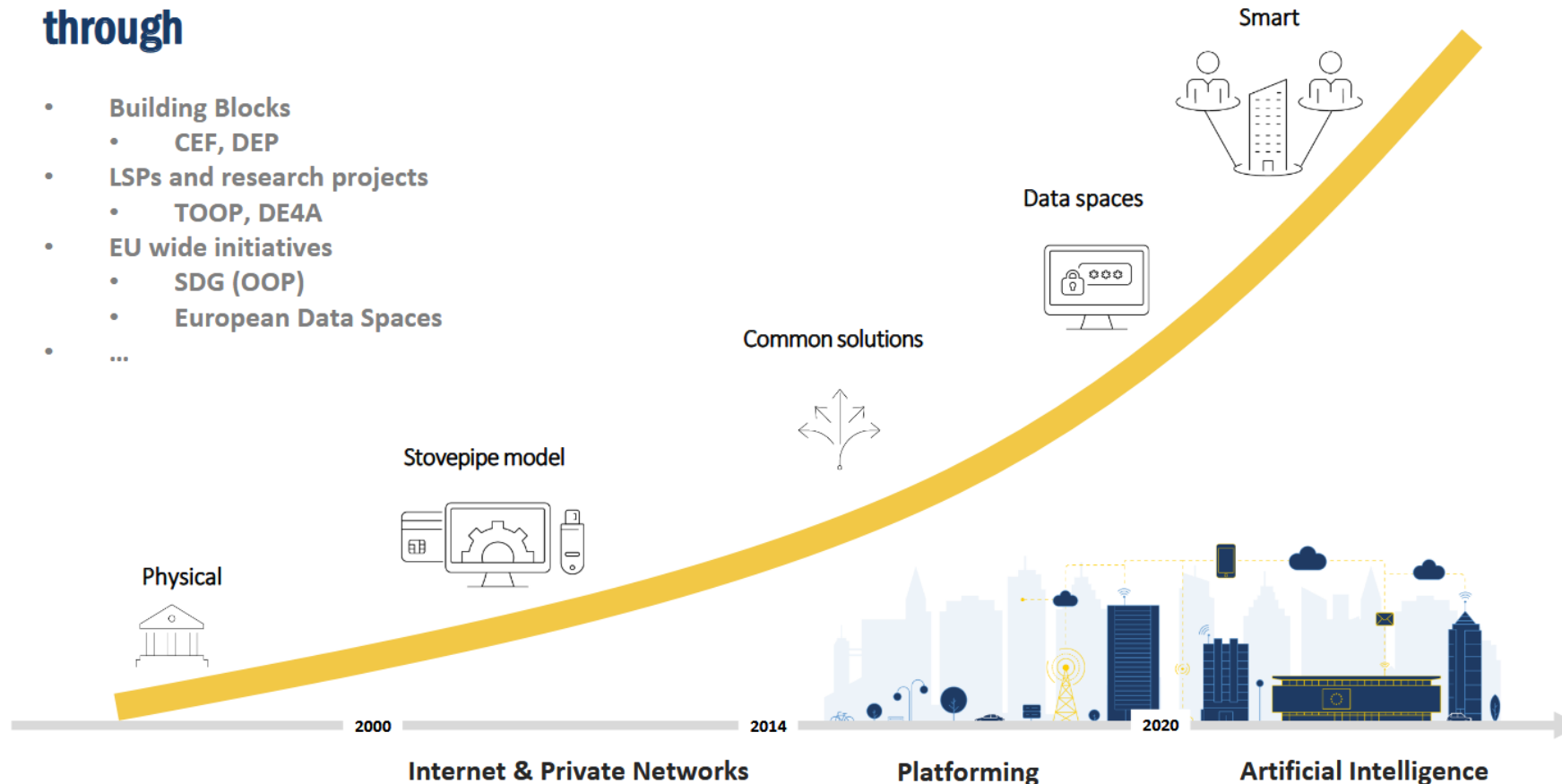
UN-GGIM
UNITED NATIONS INITIATIVE ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT



Digital Single Market - Connecting Europe

Transforming European Public Administrations through

- Building Blocks
 - CEF, DEP
- LSPs and research projects
 - TOOP, DE4A
- EU wide initiatives
 - SDG (OOP)
 - European Data Spaces
- ...



What is GISCO? - triple role

"GISCO is a permanent service of [Eurostat](#) that answers the needs of Eurostat and the [European Commission](#) for geographical information at the level of the [European Union \(EU\)](#), its Member States and regions."

- Service provider for Eurostat
- Service provider for the EC (and the EU)
- Coordination and partnership with MS



Objective

- Implements the base for “**use of fundamental geospatial infrastructure and geocoding**” in the Global Statistical Geospatial Framework (UN, 2019) in the EC
- Allow any European Commission service to locate an address based on **authoritative member states** information e.g. ERASMUS + CORDIS (RTD), REGIO, ARES (HR), SYSPER(HR),
- Make the addresses information available to NSIs for survey reporting (e.g. transport statistics) to Eurostat
 - inline with DG CONN requirements – see [API study](#)

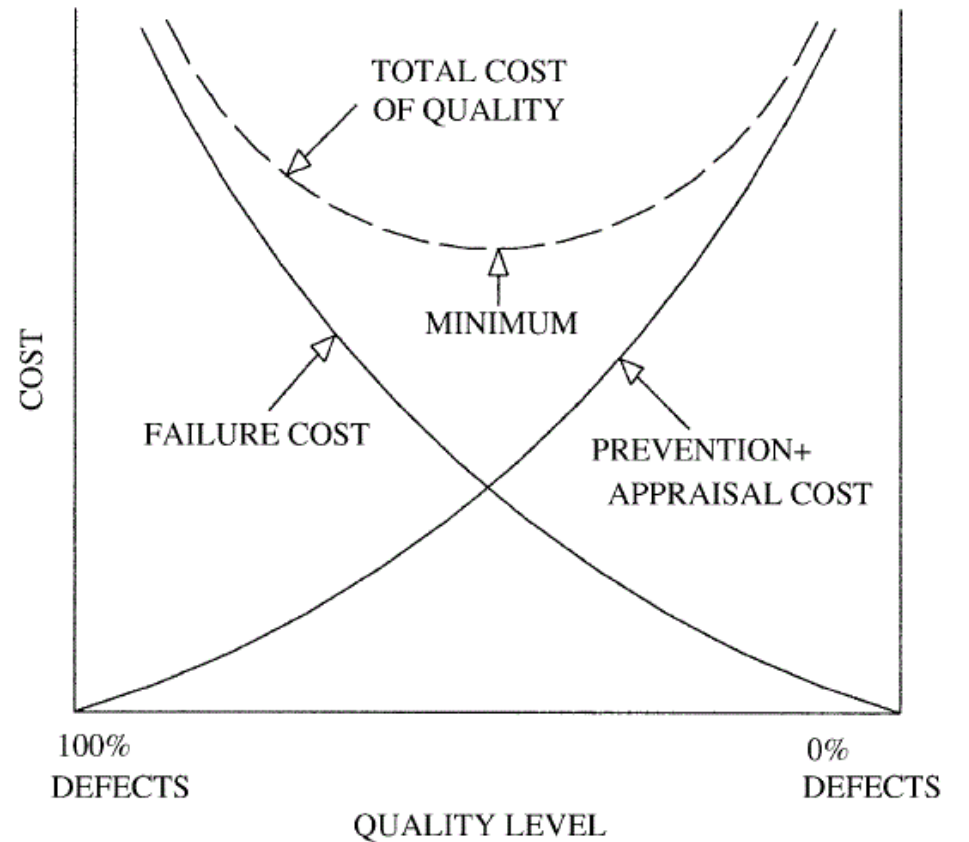
Objective (II)

- Short-term:
 - explore data availability, analyse available formats,
 - support internal EC geocoding and EC services requests,
 - link with NUTS and support regulated statistical reporting to Eurostat with cross country requirements (e.g. European road freight survey)
- Longer term:
 - enable centralised availability of harmonised open data (data availability, quality, accessibility, etc.)

Real world examples

Examples of addresses stored:

- 10 regions in southern France
- ATTICA, EPIRUS, NORTHERN GREECE, CENTRAL GREECE (THESSALY)
- 4.04 Biosciences Institute, 0000, Cork, Ireland
- 37 Convent Drive, Bldg 37, room 4134
- Amsterdam
- Brussels - APRODEV



An inside peak

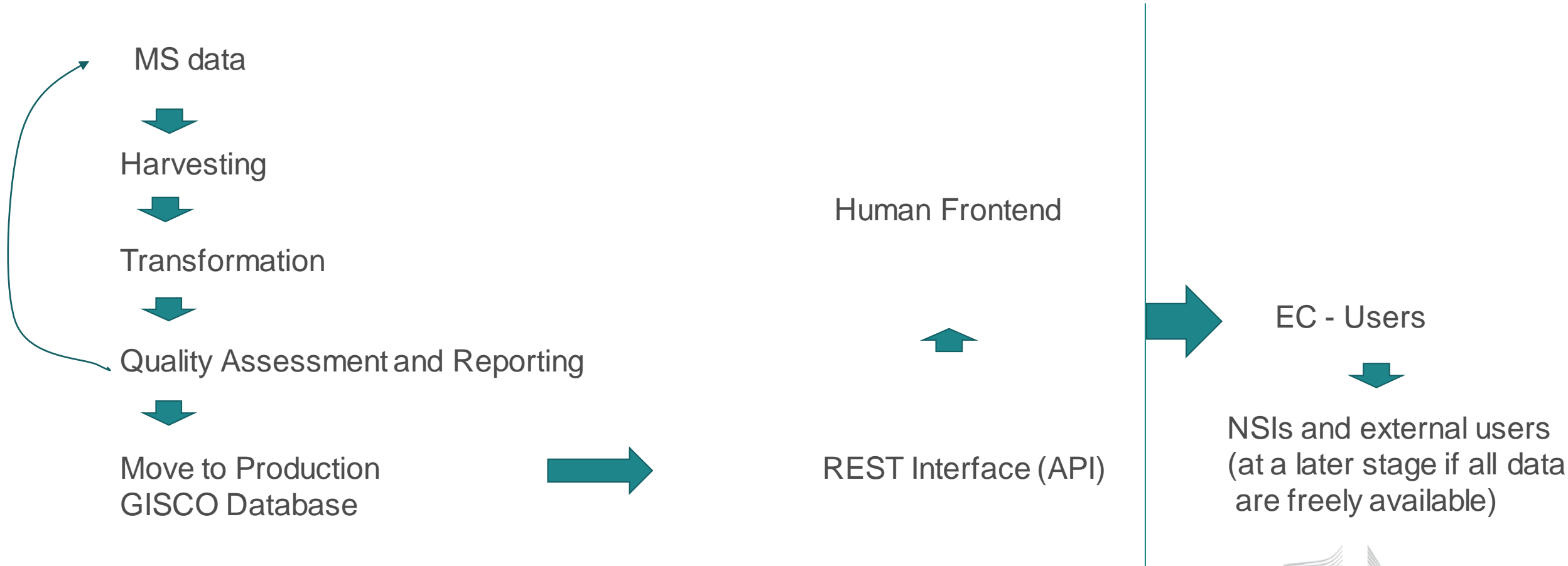
In which country is the longest street name in Europe ?

What is your estimate for the highest number of house numbers per street in Europe ?

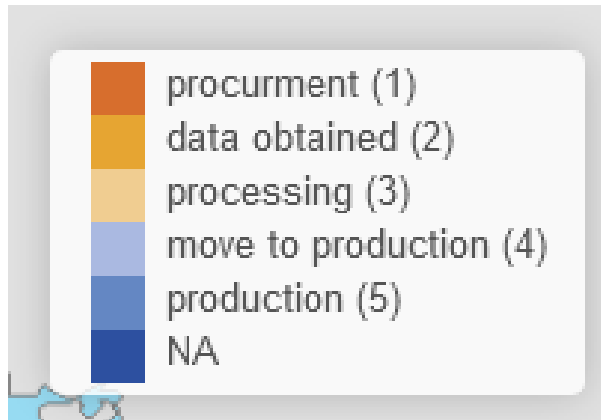
(in your country ?)

The Workflow

GISCO's Workflow



Current status



- ☰
- 🏠 Home
- 📄 API Flowchart
- Geocoding
 - 🔍 Structured Search
 - 🔍 Free-form Search
 - 📄 API Documentation
- Reverse Geocoding
 - 🔍 Reverse Search
 - 📄 API Documentation
- ⚙️ Batch Geocoder

Welcome to the Address API developed by GISCO!

It aims to provide a RESTful API which allows developers to carry out both geocoding and reverse geocoding from a pan-european address database.

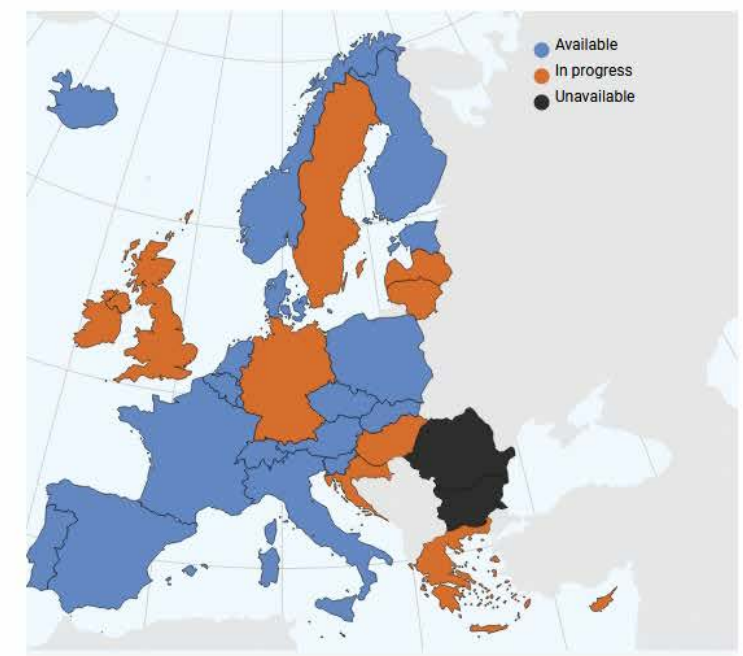
Endpoints

The following table shows the different endpoints available, along with examples of their usage:

Endpoint	Description										
/search	Accepts both structured and free-form queries. See the geocoding section for more details.										
/reverse	Accepts x and y coordinates and will return a human-readable address										
/countries	Returns all country codes that are compatible with the address API										
/provinces	Returns all provinces within the specified country										
/cities	Returns all cities within the specified province										
/roads	Returns all roads or streets within the specified city										
/houseNumbers	Returns all house numbers or names within the specified road or street										
/bbox	Returns a WKT bounding box for an address component depending on the parameters specified:										
	<table border="1"> <thead> <tr> <th>Address component</th> <th>Required parameters</th> </tr> </thead> <tbody> <tr> <td>Country</td> <td>country</td> </tr> <tr> <td>Province</td> <td>country & province</td> </tr> <tr> <td>City</td> <td>country & city</td> </tr> <tr> <td>Road</td> <td>country & province & city & road</td> </tr> </tbody> </table>	Address component	Required parameters	Country	country	Province	country & province	City	country & city	Road	country & province & city & road
	Address component	Required parameters									
	Country	country									
	Province	country & province									
City	country & city										
Road	country & province & city & road										

Coverage

This map shows the current coverage of the addressAPI.



Observations

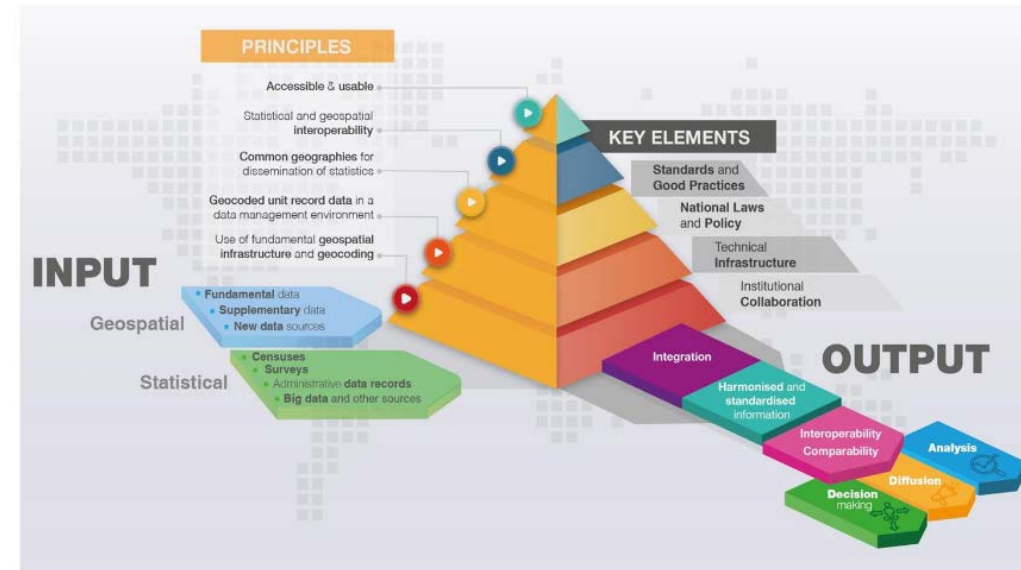
- Temporal Access varies: daily to a decadal old dataset
- A variety of data format (INSPIRE, AS-IS XML, AS-IS CSV)
- INSPIRE AD schema selected for DB as it provides necessary flexibility to model everything
- Harmonisation needed (e.g. AddressAreaName used by 3 countries, AU not filled for all scales)
- Feedback loop with MS extremely important to improve spatial and temporal quality of the datasets.
- 75% of MS provide data under OpenDataLicence
- Eurostat may obtain part of the remaining data available by other national sources

Observations (II)

- Fragmentation of data availability (e.g. part of the data in one organisation, part in another)
- Some NSIs rely on purchase of commercial data for next year census
- MS with multiple addresses datasets in different organisations
- Access conditions: from free and open - very restricting conditions and pricing depending on no of users, dissemination practices, confidentiality concerns, etc.
- Variable coverage levels (urban vs rural) and accuracy (individual vs grouping of building numbers)
- MS without the info: only available after the census 2022

Pan-European Address data - Conclusions I

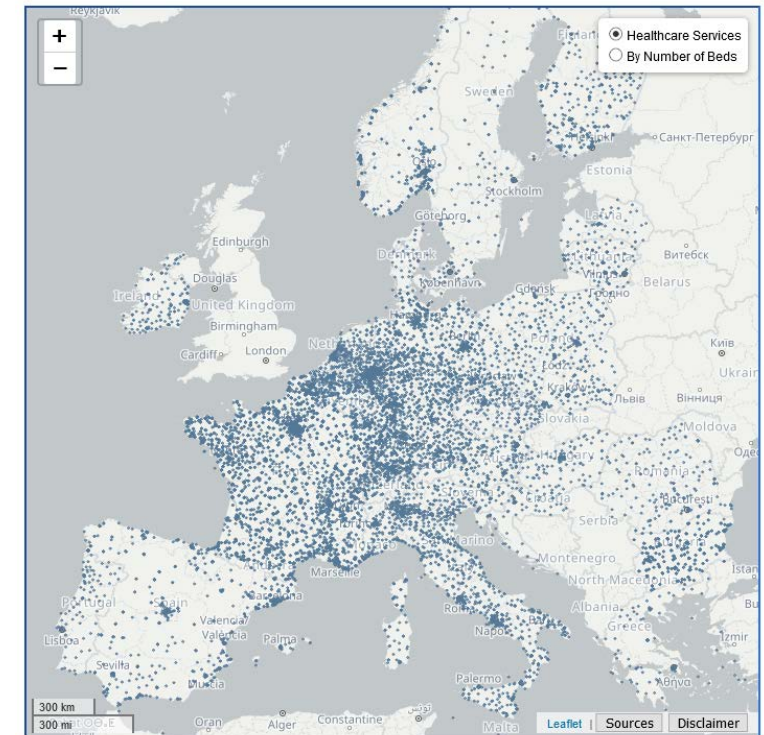
- Implementation example of the Fundamental geospatial infrastructure ..
- Data ingested into INSPIRE Schema
- Provided via API and Human Friendly Interface
- Proof of concept in Acceptance – Developing optimizations is next, and then vulnerability testing



Conclusions (II)

- It's needed to pursue a similar development of other pan-European data e.g. the healthcare and education locations
- long term vision of pan-European data for integration: open, free, accessible, detailed, high quality, centrally available, continuously incrementally updated

Locations of Healthcare Services in Europe



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Thank you



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