

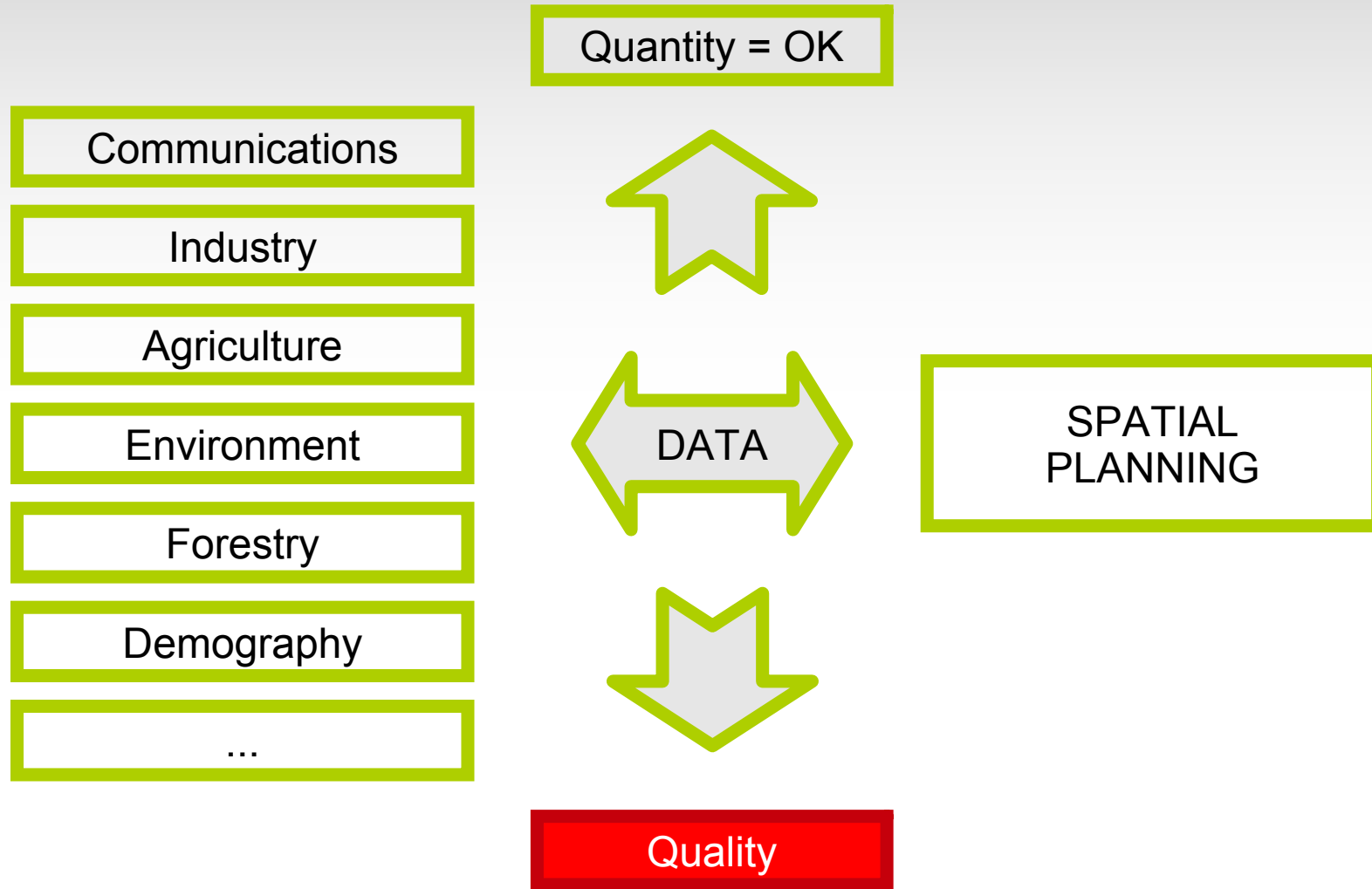
WEB SERVICES AND DATA HARMONISATION FOR SPATIAL PLANNING

J. Čepický, O. Čerba, K. Charvát, J. Ježek,
T. Mildorf

Objectives

- Spatial planning & data heterogeneity
- Data harmonization
- Humboldt project & Humboldt Scenario
Urban Planning
- Application of web services
- Conclusion

Data for spatial planning



Data heterogeneity...

- **...the fundamental problem of spatial planning**
- Poor rules for data sharing
- Redundant data sets (problems with updating)
- Poor data description – metadata, ontologies, data models, terminologies, etc.
- Limited implementation of international standards

Data harmonization

Data harmonization



Data quality improvement

Elimination of data heterogeneities

Reasons of data heterogeneity

(A) INSPIRE Principles	(B) Terminology	(C) Reference model
(D) Rules for application Schemas and feature catalogues	(E) Spatial and temporal aspects	(F) Multi-lingual text and cultural adaptability
(G) Coordinate referencing and units model	(H) Object referencing modelling	(I) Data translation model/guidelines
(J) Portrayal model	(K) Identifier Management	(L) Registers and registries
(M) Metadata	(N) Maintenance	(O) Quality
(P) Data Transformation	(Q) Consistency between data	(R) Multiple representations
(S) Data capturing	(T) Conformance	

Components of data harmonization

Harmonization goals

- Any duplicities in data
- Clear origin and assurance of quality of the data
- Data structure standardisation
- Data purity, security and structure uniformity
- Better data manipulation
- Fall of cost for data updating and maintenance
- Better software development and source exploitation
- Improvement of chances in communication with authorities
- Better utilization and commercialization of urban planning spatial data

Project Humboldt (2006-2010)

- Project HUMBOLDT will contribute to the implementation of an European Spatial Data Infrastructure (ESDI) that integrates all the diversity of spatial data available from the multitude of European organizations, it is the aim of this project to manage and advance the implementation process of this ESDI

Plan4all (2009-2011)

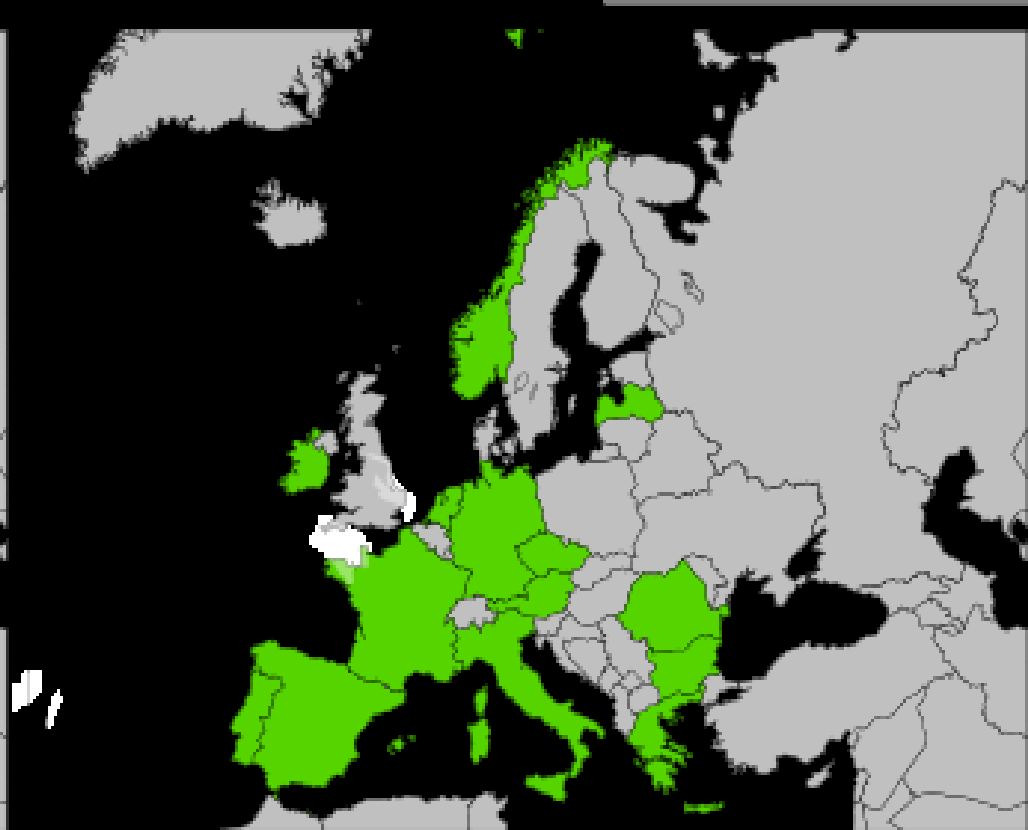
- The Plan4all is focused on implementation of INSPIRE directive into spatial planning processes, with focus on built spatial planning data model for selected themes and implemented recommendation of drafting teams for metadata and networking.
- The project uses experiences from previous projects like Armonia, Humboldt, eSDInet+ or EURADIN

Project countries

Humboldt



Plan4all



Harmonization steps

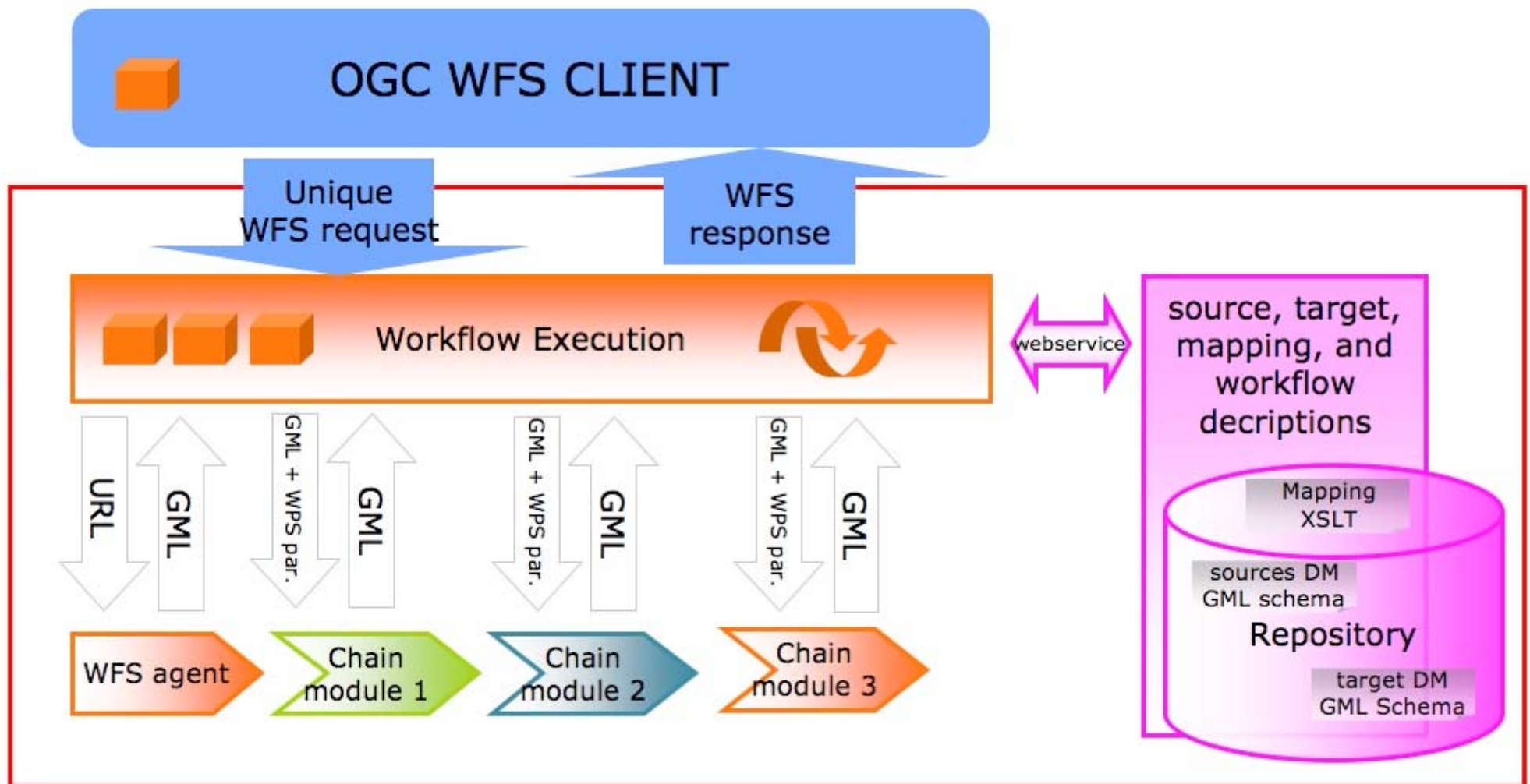
- Data formats conversion (to GML)
- Classifications schemes and systems, codelists, terminology and vocabulary (selection of corresponding items)
- Types of geometric primitives
- Metadata profile
- Coordinate system
- Geometry improvement
- Generalisation, multi-linguality...

Data harmonization – web services

- WPS (OGC)
- It is gaining traction as an interface for the description and execution of transformation capabilities.
- WPS provide web service advantages like low coupling.
- **Preferred way in Humboldt**
- WS – SOAP
- The most complex approach (non-geo-specific services).
- Using this approach fits the needs of most general processing tasks.
- Advantages of SOAP: amount of software tools, BPEL for chaining and executing SOAP services.

Simple architecture of Humboldt services

Framework Test Implementation



Conclusion

- The elimination of the some factors of heterogeneity **cannot** be based on a creation of some uniform rules and data models, because, there are too many partners with individual requirements – formats, precision, reference systems, terminology...

Conclusion

- Our approach is based on
 - networking, partnership and cooperation,
 - detailed data description,
 - using and creating of products and services focused on semantics,
 - implementation of standards,
 - using of existing data sources and similar solutions

Conclusion

- Web services
 - Support networking, partnership and cooperation,
 - Need detailed data description,
 - Can use and create products (data sets) focused on semantics (e.g. WFS),
 - Are standardised on high level
 - Represent universal solution

Thank you for your attention

ota.cerba@seznam.cz

