Impact analysis of the operational implementation of the INSPIRE rules in data harmonisation and aggregation: the GIS4EU case

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The GIS4EU project aim is to provide base cartography datasets for Europe on the following themes: administrative units, hydrography, transportation networks, elevation.
Impact analysis: The process

- Preparation of a questionnaire
- The questionnaire has been shared and refined
- 10 partners, 35 datasets, 15 new datasets
- Single interview for each partner
- First preliminary analysis and sharing of results
- Refinement of the questionnaire
- Further data collection

Final Analysis
Impact analysis: Survey overview

- Partner info (pre-filled)
- Cost for transformation
- Direct use value
- Frequency of data request
- Institution operational impact
- Social value
- Strategic and political value
- Possible strategic decision
The overall cost is independent by the complexity of the target model while it’s related to the complexity of the source data.
The cost to generate homogeneous data description is independent by the complexity of the data itself. The transformation, harmonisation and aggregation process are dependent by the complexity of the data source.

Scatter-grams of the correlation between input data complexity and related monitored cost related to the 4 activities.
Impact analysis: Cost for transformation

Extrapolation, as percentage reduction, of the effort needed to repeat the same activity, achieved thanks to the GIS4EU participation

- **Average overall cost reduction**: 30%
- **Less reduction in aggregation process**: contest dependent

![Bar charts showing effort reduction across different processes and datasets](chart.png)
Impact analysis: Cost for transformation

A qualitative assessment of the cost for transformation with respect to four aspects

- **Knowledge**
  - high as value and distribution

- **Human & Org. Resources**
  - high as value but flatter distribution
Impact analysis: Cost for transformation

An estimation of the effort needed to replicate the entire process on a new set of datasets

- 6 partners (4 regional and 2 local)
- For the first 2 tasks; less feedback has been provided for the second two tasks (Remodelling and Aggregation), mainly due to the contribution of the technological partners
- These values have been integrated by the feedback received by technological providers
Impact analysis: Direct Use Value

- Availability of data models
- Improved data compatibility
- Improved data sharing ability
There are two effects that seem linked to the participation in the GIS4EU project:

- The first concerns the benefits to work in network
- The other regards the lesson learnt being involved in the methodology set up as well as to apply it on the owner data
Impact analysis: Social Value

This aspect is linked, in such a way, to the previous, giving an assessment on the intangible benefits of the GIS4EU process.

The GIS4EU process allows, among all, an improvement of the capability communication to be achieved.
Impact analysis: Strategic Political Value

This aspect is linked, in such a way, to the previous, giving an assessment on the intangible benefits of the GIS4EU process.

Data providers confirm that, also from the strategic and political point of view, there is a higher feedback on the networking than the other submitted.
Impact analysis: Possible Strategic Decision

- There is a trend to go toward INSPIRE data compliance.
- Less expectation from the service side.

<table>
<thead>
<tr>
<th>Possible Strategic decision</th>
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<tbody>
<tr>
<td>Is your organisation going to fully keep the existing specification and produce INSPIRE conform data on the request?</td>
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<tr>
<td>0.82</td>
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...about GIS4EU impact on partners

Provision of interoperable datasets to open GI to EU communities
The results of GIS4EU meet the needs of users SDI?

Matching between impact analysis results and the user perspectives to emphasize the broader framework of the value of GIS4EU results.
1. Cost assessment addressed to the implementation of geodataset harmonization process

Result of project survey on users’ requirements and needs highlighted that standardization and harmonization play a very dominant role, followed by service requirements.

GIS4EU partners gained experience in a wealth of knowledge, methods and concrete solutions suitable for the harmonisation of GI in Europe and to underpin the INSPIRE process.

_Prosition of interoperable datasets to open GI to EU communities_
2. Awareness improvement of SDI key role

- GIS4EU experience has fostered the data providers awareness on the promotion of the geospatial data use, the re-use and on the necessary services to allow the user community to discover and exploit them.

- Data providers have recognized the importance of GIS4EU process with respect to the improvement of the direct use value of datasets, especially in terms of availability of data models (both original and harmonised), data compatibility and data sharing ability.

- The implementation of GIS4EU process requires commitment on training needed for SDI technicians. That is a crucial point because it also regards the cost aspect, as underlined in the previous point: SDI decision makers and managers will have to be aware that suitable funds will have to be allocated for such needs.

Provision of interoperable datasets to open GI to EU communities
3. Awareness improvement on networking cooperation

Impact analysis of the GIS4EU process gives encouraging prospects.

- Reducing costs of data integration between is considered a benefit when it is followed by the availability of common data sets for policy, specifically when approved by the European Authorities.

- Data providers judge GIS4EU positive in that sense, experience achieved is useful to promote inter-institutional collaboration: it increases communication capability and fosters a closer working relationship.
4. Improvement of data exposition management

GIS4EU Data Providers acquired the expertise to fully keep the existing specification and produce -in the same time- INSPIRE conformed data on the request.

Nevertheless, the same organizations are less ready to modify the existing specifications in order to accommodate specific INSPIRE specifications as well as to use INSPIRE specifications within a new data collection activity or a restructuration/updating existing ones.

Provision of interoperable datasets to open GI to EU communities
5. Awareness on end user driven role

- Results achieved confirm that, applying the GIS4EU process, SDI organisations may also achieve experience suitable to improve communication with end users and make knowledge and information they need available.

- GIS4EU impact on the
  - data compatibility,
  - availability of data models
  - data sharing ability
  may for sure foster SDI organisations to define less strict access rules to their spatial data as well as to improve the procedure for the metadata management.

- The impact on institution operativeness (promotion of inter-institutional collaboration and reuse of existing datasets) may positively affect the process of diffusion and awareness rising of GI culture within public and private sector users.
Conclusions

- GIS4EU Data Providers consider non-technical user requirements at least as important as the technical ones and both of them together are the engine of the GI development.

- Users would highly appreciate a pragmatic, non-bureaucratic platform for the exchange of encountered problems and best practice experiences.

- In this regard, the results of GIS4EU, as an example reported in terms of GI user satisfaction improvement, contribute to:
  - the INSPIRE process (testing phases, involvement of GIS4EU experts into the new TWGs, provision of reference materials to new TWGs for Annex II & III)
  - the upcoming projects ➔ GIS4EU project outcomes exploitation (Plan4all, Nature-SDIplus, Briseide, ...)

![GIS4EU Logo](image)
THANK YOU
for your attention!

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Provision of interoperable datasets to open GI to EU communities