User-driven redefinition of quality requirements and specification: How to make EuroRegionalMap future-proof

Tim Trautmann (Production Manager ERM, EBM and OG BKG)
Victoria Persson (Project Manager – Data Access and Integration, EuroGeographics)
EuroRegionalMap (ERM)

EuroRegionalMap is a **pan-European dataset** containing **topographic information** at **medium scale** resolution. It is a seamless and **harmonised** dataset ideal for a wide range of uses, including **spatial analysis**, **cartographic publishing** and **backdrop visualisation**, or in combination with other datasets for marketing planning and socio-economic analysis, environmental analysis, and transport management.
EuroRegionalMap (ERM)

- 25 years of legacy
- Increased Quality and information requirements
- Well-established production process
- 7 million objects, 60 layers, 7 themes
- Over 340 tests
- Users from european institutions, research and private sector
- Open since 2021
User-driven redefinition of quality requirements and specification

User survey
- 10 Questions short survey
- Asking for use cases, quality assessment, suggestions for improvement
- Open from 22nd August to the 30th of September -> 46 answers
- Answers from public authorities, research and teaching institutions and the private sector

Drafting of three user stories
- Concept from software development and product management
- “User stories are written by or for users to influence the functionality of the system or products being developed.” (https://en.wikipedia.org/wiki/User_story)

Development of simplification of specification and prioritisation of quality requirements
- Exemplary changes for TRANS
For which use cases do you use ERM?

The bar chart shows the percentage of participants using ERM for different purposes:

- **GIS**: 40% of participants use GIS for ERM.
- **Publication**: 30% of participants use ERM for publication.
- **WebGIS**: 20% of participants use WebGIS for ERM.
- **Reference**: 10% of participants use ERM for reference.
- **Spatial analysis**: 5% of participants use ERM for spatial analysis.
- **Other**: 15% of participants use ERM for other purposes.
- **NA**: Not applicable or not reported by participants.
Description of main use cases
Overall quality rating

The diagram shows box plots for different categories:

- **All**: The box plot covers the full range of ratings from 4 to 10.

- **Base map**: The box plot indicates a concentration of ratings around 8, with a spread from 6 to 10.

- **Spatial analysis**: The box plot shows a concentration of ratings around 8 as well, but with a narrower spread compared to base map, ranging from 7 to 9.

The overall quality rating appears to be high, with most categories receiving ratings close to the top 50% of the scale.
Aspect importance

The diagram illustrates the aspect importance across different completeness and logical dimensions. The x-axis represents the importance level ranging from 0 to 10, with a categorical distinction between completeness and logical aspects. Each aspect (Completeness, Logical, Thematic, Scale) is further divided into two groups: all and Basemap. The bars indicate the comparative importance of each group across different levels of importance.
User story – Basedata for maps

We (Mapping John Doe Inc.) want to use ERM as base data for my road maps and we use for this mainly the TRANS theme. We display roads with national motorways with labels.

Quality requirements:
• Complete dataset
• Harmonised level of generalisation and included streets
• Correct attributisation of the street (Route Intended Use)
• For correct labeling we route numbers for national motorways
User story – Basemap WebGIS

We the EU institution for cycling (EUROcyc) offer a WebMap and need a basemap for visualizing long distance road routes. We use ERM to create our own basemap. We use BND, TRANS, NAME and VEG to create this basemap.

Quality requirements:

- Logical consistency
- Thematic consistency
- Harmonisation on international borders (edge matching)
- Sufficient information for labeling of landmarks
- Harmonised generalisation level
User story – Spatial analysis

We (StatIndicator Company) want to use the European administrative boundaries to calculate indicators per administrative unit and use for this ERM data as well as external data.

Quality requirements:

• Complete dataset of administrative units without holes
• Sufficient attributisation to calculate indicators
• Diverse data set for calculating indicators
ERMCore – ERM

- Distinction in specification and quality requirements into ERMcore and full ERM
- ERM data model is maintained to ensure the sustainable use of data production workflows
- Core requirements are communicated clearly through specification and production management process to data producers and users
- Core requirements are designed to meet the needs of our end users
- Restriction to core requirements may allow improvement in update frequencies in all themes
Types of simplification & prioritization:

- Make layer optional
- Make attributes optional
- Make validations optional
- Delete validations
# First iteration of suggestion list

<table>
<thead>
<tr>
<th>Suggestions</th>
<th>Affected Layers</th>
<th>Affected Validationcodes</th>
<th>Description</th>
<th>Additional comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL-S01</td>
<td>All with NAMN</td>
<td>several, T019</td>
<td>Automatically generate NAMA and generate it on European aggregation level</td>
<td></td>
</tr>
<tr>
<td>ALL-S02</td>
<td>All</td>
<td></td>
<td>Allow submission of all themes per production year -&gt; improvement on temporal quality and completeness</td>
<td></td>
</tr>
<tr>
<td>ALL-S03</td>
<td>All</td>
<td></td>
<td>Create onboarding document for new data producers and staff changes</td>
<td></td>
</tr>
<tr>
<td>TRANS-S01</td>
<td>LevelcC</td>
<td>T051, T052, T005, T082, T083</td>
<td>Automated creation of LevelcC</td>
<td>Evaluate feasibility and check potential false positives (potential add RJC in IntercC for non motorways)</td>
</tr>
<tr>
<td>TRANS-S02</td>
<td>RoadL</td>
<td>T066, T035</td>
<td>Automated calculation of COR based on BuildupA and RTT / make COR optional</td>
<td></td>
</tr>
<tr>
<td>TRANS-S03</td>
<td>RoadL</td>
<td>T066, T035</td>
<td>make RST, TEN, TENTEC_ID, TOL optional</td>
<td></td>
</tr>
</tbody>
</table>
### First iteration of suggestion list - continuation

| TRANS-S04 | RailrdL | T033, T034, T065 | make FCO, GAW, RGC, RRA, RRC, TEN optional |
| TRANS-S05 | AirfldP, AirfldC | T022, T023 | make FUC, IATA, TEN, TENTEC_ID, TUC, ZV3 |
| TRANS-S06 | RailrdC | T031 | make TUC and RStationID optional |
| TRANS-S07 | several | T005, T008, T048, T050, T054, T080, T089 | make validations not mandatory (not core) (based on mandatory column) |
| TRANS-S08 | several | T002, T003, T004, T015, T016, T075, T083, T084, T086, T087, T088 | delete validations; T004 is covered by T071; T075, T088 now T097; T083 and T084 see TRANS-S01 | Validations are covered by other validations or lost their relevance |
Development of suggestion list - aims

- Iterative process
- Feedback loop with PMT and users
- Until end 2023 suggestions for all themes
- After feedback -> simplified specification, technical guide and quality requirements for new production year
- Evaluate changes with complete dataset in Q4/2024
Thank you for your kind attention!