Rules-based spatial data quality engineering:

Implementation of data quality standards

Seb Lessware, 1Spatial
Data Quality Engineering

- Define Quality
- Measure Quality
- Improve Quality
- Maintain Quality
- Master Data Management
Define Quality

Real world issues via consistency checks:
- Meets schema specifications
- Internal consistency
- External consistency
Define Quality

- ISO, OGC, INSPIRE...
- Product Specs (schema, accuracy, precision, ranges, codelists)
- Local Semantics
- Mandatory and Optional rules
Measure Quality

- Schema, codelists, ranges
- Geometry: Type, Validity
- Positional Accuracy
- Topology
- Semantics (Classification, meaning)
Using **Rules**, you can check your data to ensure it **conforms to the right specifications**

- No-code business **rules catalogue**: repeatable, searchable and shareable (No Python rats’ nests)
- Issues are **reported clearly** so you can take the required action.
- Quality can be **quantitively measured** and tracked as metadata
Improve Quality: Fix

- Manual
- Auto: Fix Geometry Errors (e.g. spikes) and Topology Errors (e.g. overlaps, gaps)
- Auto: Fix Attribute consistency
- Auto: Fix Semantic (classification) errors
- Auto: Positional Accuracy Shifts
Improve Quality: Infer New

- Polygonise, Restructure
- Infer missing features
- Generalise small scale from large scale
Maintain (Repeat)

- Re-run rules
- Automatically for changes or new imports or periodic whole data
- Record results as metadata
- Track trends
- Independent of other tools
Trends

**Data Providers:** OS Ireland, OS N.Ireland, OS GB, Danish Geodata Agency, Defence, German States

- 3D checks
- Check and Integrate: Sensed/Automated/AI processed data
- Accept and Integrate: External suppliers
- Master Data Management, Lifecycle
Trends

Asset Managers/Data Aggregators:
Utilities, Environment Agency (UK), Rail (HS2, UK), US Census Bureau, National Underground Asset Register (NUAR)

➤ Data Aggregation Portals
➤ Check before you load
➤ Formats, Schemas, SRS, Location
➤ File Management
➤ Digital Twins: Lifecycle
➤ Quality data for AI processes
Rules Camp: At the stand outside

➤ Speak to us (Charley Glynn, Seb Lessware, Dan Warner)
➤ Try the 1Integrate Rules Engine
➤ See examples
➤ Share Ideas, Requirements