Approaches in Quality: The user perspective

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Evolution in Quality concepts

- Very initial quality principle:
  "let the buyer beware…"
- Later on, quality became:
  "achieving a level of excellence"
- Finally, it became:
  "meeting specifications"
- Industrial revolution led to new challenges:
  "meeting specifications for large quantities produced with different production-chains by different people"
- Multinational environments and very demanding specifications lead to:
  "company quality"
- Finally, "Total Quality Control " is the most necessary inspection; control of all aspects over the full process.
- However, the major problem with "Total Quality Control" may be that it does no longer include the most important factor:
  "**What did the customer ask for ?**"

Actual views on Quality

Harvey & Green (1993):

- Exceptional view: notion of excellence
- Perfection: consistent outcome
- Value for money: return on investment
- Transformation: (organisations) change from one state to another
- Fitness for purpose: fulfilling customers requirements

ISO 8402 Quality

- “The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.”
- Not to be mistaken for “degree of excellence”
- “fitness for use” addresses only part of the definition.

Quality as fitness for purpose

- This implies that a project's "purpose" should be **precisely defined** and that resources should not be squandered on attempting to produce a higher quality product than is necessary.

- Challenge: How to reconcile "**multi-purpose**" reference spatial data with precisely defined **individual requirements**?

Quality in spatial data & services

Quality elements of spatial data include:

- data completeness,
- data consistency,
- data accuracy,
- data precision

Quality elements in spatial services include:

- performance,
- availability,
- interoperability conformance
- ...

- logical consistency,
  - data models and representation
- semantic consistency
  - features and catalogue
- topological consistency
  - edge matching, shared topology...
- positional accuracy

Temporal resolution ???
crucial for usability of the data & services !!!

Sources of spatial data discrepancies

- **Data capture**:
  e.g. optimisation of sources in view of distinction of individual objects
- **Data type and source**:
  e.g. not all GI-tools allow for correct topology
- **Data transfer**:
  e.g. from web to pc, and “improving” afterwards may yield bad results
- **Metadata**:
  e.g. should contain all relevant information to evaluate fitness for purpose

Potential for Quality improvement

- Choice of relevant data from a relevant source: timeliness !!!
  - Review of the data sources
    - authentic data sources
  - Review of the workflow of the users !!!
    - e.g. utility companies: utilities for new re-allotments
    - e.g. mobility planning: multi-modal modelling
    - e.g. emergency services: risk assessment
- Include “usability” as part of the quality concept (ISO 19157 WD ?)

Beyond data quality: fitness for purpose and electronic information resource use

J.E. Klobas:

- "The accuracy, currency, relevance and ease of use of electronic information resources can be measured to provide an indication of the resource's 'product quality'... However, use is better explained as a function of 'fitness for purpose': **the extent to which the information resource is of appropriate quality for the situation in which it is to be used**."
- "Potential users' perceptions of fitness for purpose are formed by convenience and, most significantly, **the extent to which potential users believe using the resource will benefit them**."

Conclusions

- Quality may go beyond standard quality elements in GI
- Temporal resolution is crucial
  - Timeliness
  - Near Real Time needed for some services
  - Planned situation needed for some applications
- Usability in spatial data & services is important for the development of SDI, GMES services etc... and should therefore be part of Quality assessment techniques and standards