

Visual representation of metadata in the process of selecting datasets

Paula Ahonen-Rainio
Helsinki University of Technology,
Finland

ICC 2005, La Coruna, 14.7.2005

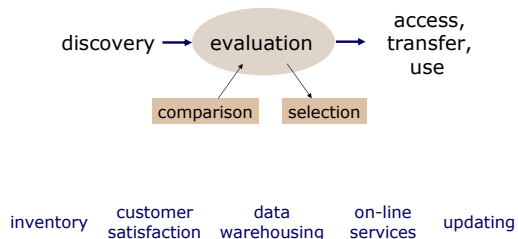
TEKNILLINEN KORKEAKOULU
MAANNEITÄISÖOSASTO
KARTTOGRAAFIA JA GEOSINFORMATIikka

Outline

- Introduction: Selecting a dataset & geospatial metadata in that context
- Aims of the study
- Test setting
- Results: use of metadata & different representation forms in the process
- Conclusions and recommendations for metadata services

TEKNILLINEN KORKEAKOULU
MAANNEITÄISÖOSASTO
KARTTOGRAAFIA JA GEOSINFORMATIikka

Various uses of geospatial metadata



TEKNILLINEN KORKEAKOULU
MAANNEITÄISÖOSASTO
KARTTOGRAAFIA JA GEOSINFORMATIikka

Selecting datasets

- Comparison of a dataset to the requirements
- Mutual comparison of alternative datasets (of similar theme)

Requirements?

- implicit, non-specific
- contradictory
- unrealistic
- translating them to metadata elements

TEKNILLINEN KORKEAKOULU
MAANNEITÄISÖOSASTO
KARTTOGRAAFIA JA GEOSINFORMATIikka

Selecting datasets

- Comparison of a dataset to the requirements
- Mutual comparison of alternative datasets (of similar theme)

Iterative decision-making

overview of supply
specification of requirements
searching
evaluation & comparison



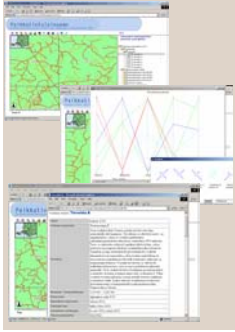
Aims of the study

Within the framework of user centred design:

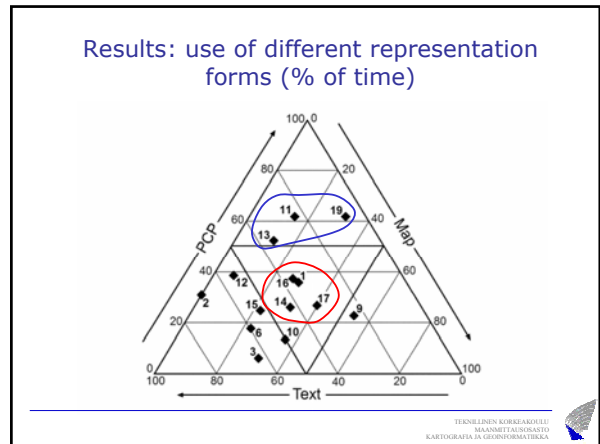
- To understand the selection process
- Use of visual representations of metadata
 - to reduce the cognitive load of comparison
cf. multivariable description of multiple datasets
parallel coordinate plot & star glyphs
 - to gain insight of spatial aspects of data
cf. limitations of textual metadata
sample maps (as browse graphic of ISO 19115)

TEKNILLINEN KORKEAKOULU
MAANNEITÄISÖOSASTO
KARTTOGRAAFIA JA GEOSINFORMATIikka

Test setting



- Use scenario
 - selecting a suitable dataset for an intended application
- 18 professional users of spatial data in 6 organisations
- Metadata for 6 real road datasets (A-F)
- Prototype simulating a web service
 - Sample maps
 - PCP & star plots
 - Textual metadata
- Thinking aloud protocol & video recording



Results: tools & overall process

- Users were motivated in using the PCP
 - simple and intuitive enough
- Users were confident in their choice

But

- PCP should be tailored for "simple" use
 - limited number of objects
 - rough pointing on the axes

In addition,

- Users have presumptions
- Users lack terminology & are sensitive to the wording

TEKNILLINEN KORKEAKOULU
MAANNEITÄISÖOSASTO
KARTTOGRAAFIA JA GEOSINTEETTITIEDE

Results: test setting & method

Recording

- Thinking aloud is not necessarily easy
 - when browsing information >> speed
 - when the user is missing proper terms
- but reasoning aloud worked well by each user
- Contextual information - subjectivity of observations?

Limitations

- Simple comparison task: the most suitable one
 - cf. compatibility of datasets for integration
- Type of the data: easy overlay of road networks
- Pre-selected metadata elements

TEKNILLINEN KORKEAKOULU
MAANNEITÄISÖOSASTO
KARTTOGRAAFIA JA GEOSINTEETTITIEDE

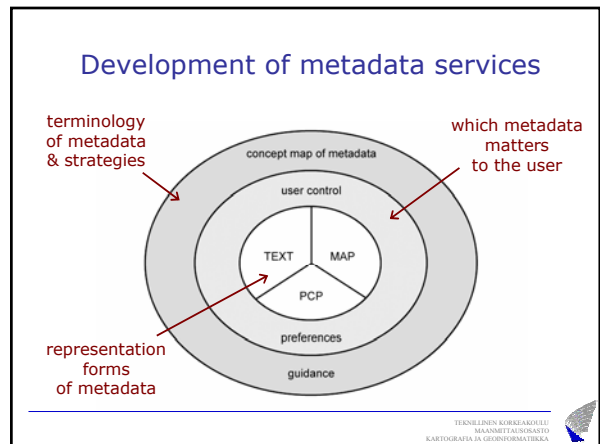
Conclusions

When selecting a dataset

- Users refine their criteria while gaining insight of data available
- Users benefit from a parallel coordinate plot in comparison
- Sample maps give an overview of spatial resolution
- Textual metadata are essential for confirming the choice

>> Exploratory tools and multiple representations are necessary in metadata services

TEKNILLINEN KORKEAKOULU
MAANNEITÄISÖOSASTO
KARTTOGRAAFIA JA GEOSINTEETTITIEDE



Further details...

D.Sc. dissertation available at

<http://lib.hut.fi/Diss/>

> 2005

> Ahonen-Rainio, Paula, Visualization of
Geospatial Metadata for Selecting ...

