MATCHING DEMAND TO DATA AND INFORMATION SUPPLY

The Use of Earth Observation (EO) Data for Policy Support in the EU

Results from the Euforeo poject

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The Context

- Spatial data to support EU and national policies are still lacking or incomplete in many areas
- EO data provide a unique source of data:
  - For mapping stock/extent
  - For monitoring change
  - As a proxy for other data
  - As a basis for stratification, interpolation and spatial transformation
  - As a framework for modelling
- As yet, however, use of EO data for policy support is limited

Ostensible advantages of EO data

- EU wide coverage
- Repeatability
- Consistency and comparability
- Short lag times between monitoring and data delivery
- Many different sensors, providing different data at different scales
- Low cost (apart from cost of satellite!)

So why are they not used more?

Aims and objectives

- to define the scientific, technical/ operational and institutional obstacles which act to restrict the use of EO data for policy-related purposes in the EU;
- to identify the measures needed to enhance and improve the effectiveness of EO data for policy support

Results have value not only for use of EO data but also other spatial data sources and needs

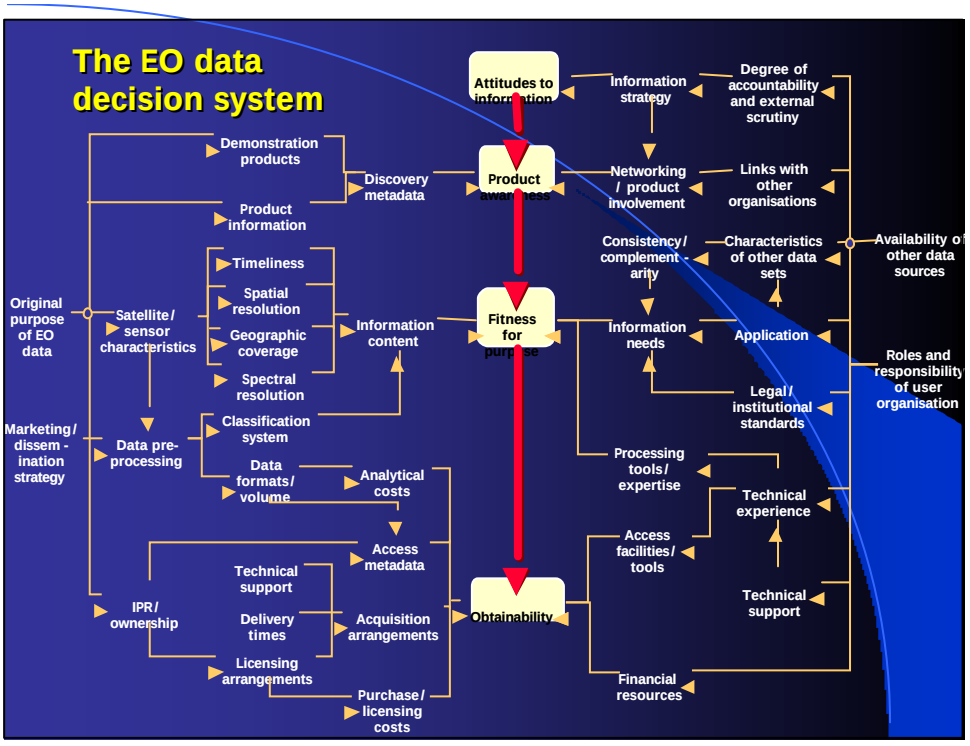
Methods/data sources

1. 4th and 5th FP projects

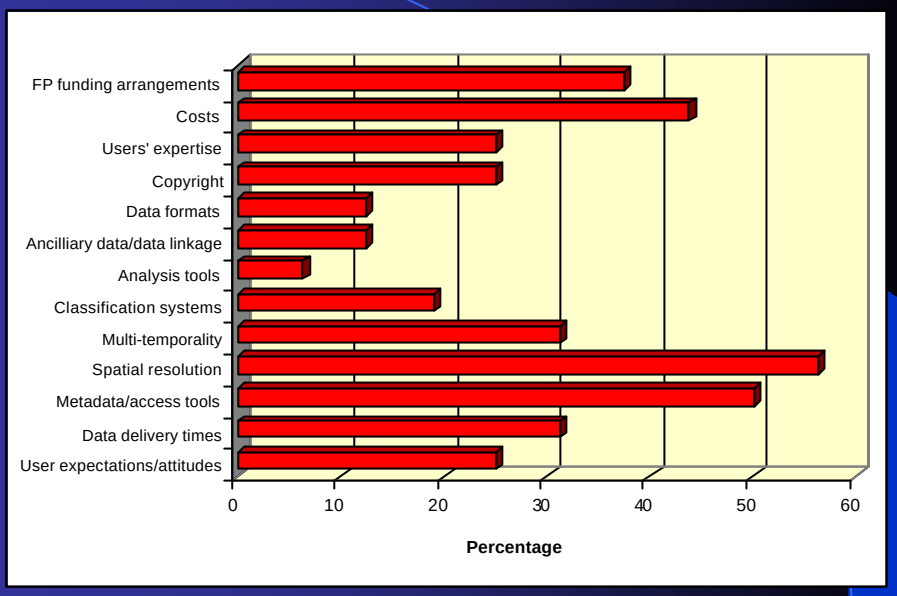
- Review of 15 project reports
- Interviews with project leaders and user partners from subset of 10 projects (19 interviewees)
- Workshop – ca. 10 projects

2. Other data sources

- UK Countryside Survey 2000
- PhD thesis (Tantram, 2001)
- Literature review



Key issues



Attitudes to information

- Not all potential users have information-based approach to decision-making
- Attitudes/needs often shaped by regulatory environment – can lead to demand for EO or vice-versa
- Tradition of relying on other data sources
- EO data often seen as last resort – EO given problems not solved by other data sets

Awareness

- Many potential users remain unaware of what EO data can offer
- Many have negative expectations because of past experience (over-selling of product)
- Expertise is often in the hands of a few – and is lost when these individuals leave
- Lack of easily available demonstration products/sample data sets
- Assumptions that EO data have low reliability compared to traditional data sets

Utility - spatial resolution

- EU landscape is spatially complex – small patches, mosaics, associations, while change is often subtle and slow
- Aerial photography (or field survey) often seen as the benchmark – though ground survey data often sample/ point based
- Demand is therefore often for data with resolution of 1-10 metres (rarely met by any but best EO data)
- Yet for many existing applications coarser scale data are often used – and EO data provide capability for rescaling

Utility - timeliness

- Repeat data needed for accurate classification of many features and for change detection
- EO data face major problems because of cloud cover (and sensor failure)
- Repeat intervals often too short to monitor/ detect short-term events (e.g. disasters)
- In the long-term, sensors and analytical methods change, making temporal comparisons difficult
- Yet EO data often as good as the available alternatives, and offer multiple observations

Utility - classification systems

- Emphasis on multivariate, classified features (typologies) – e.g. habitats, land use, soil types
- Many pre-existing (field- or policy-based) classifications with which EO data must comply
- Many-to-many relationships between these classifications
- Classifications not defined in relation to EO capability – though in many cases could be, if validity of EO data recognised

Obtainability

- Users often inexperienced in accessing and obtaining EO data
- Access arrangements overly complex, technical and disparate (e.g. Web browsers)
- Long delays in acquiring data (<4 months)
- Unreliable and misleading metadata (e.g. on cloud cover)
- EO data costs often high compared to traditional (subsidised) sources
- Data delivery does not match standards set by other providers (much to learn!)

Conclusions

- EO data have considerable potential in the policy area – both as a data source and as a way of providing added value to other data
- EO data have not yet started to meet this potential
- Problems relate to some extent to technical limitations and complexity of EO
- But more to lack of awareness, misapprehensions and conservatism of potential users...
- to poor understanding of user needs (and constraints) by data providers...
- and to poorly developed market for EO data

Developing the EO data market

- Improve exchange of experience and knowledge transfer – both horizontally and vertically
- Develop a better understanding of user needs (and the mechanisms of data selection and use) and provide more customised and varied EO data products and services
- Recognise the validity/value of EO data in policy and legislation
- Develop fair and appropriate pricing policies for key user communities
- Improve methods for data access and acquisition
- Integrate use of EO data with other, traditional data sources

Some specifics…

- Customised purchase/lease arrangements for EO data
- Production of core, generic data sets aimed at specific user communities (and at different scales)
- 'Demonstration' projects aimed at providing examples of how to use EO data for routine applications Funding for development projects to translate research into application
- Workshops/networks to bring users and providers (of EO and non-EO data) together
- EU Directives (and national legislation) to recognise EO as valid data source where appropriate