



**Esri International User Conference | San Diego, CA**  
**Technical Workshops | Thursday, July 14, 2011**

# **Supporting European SDI with ArcGIS for INSPIRE**

Roberto Lucchi

# INSPIRE

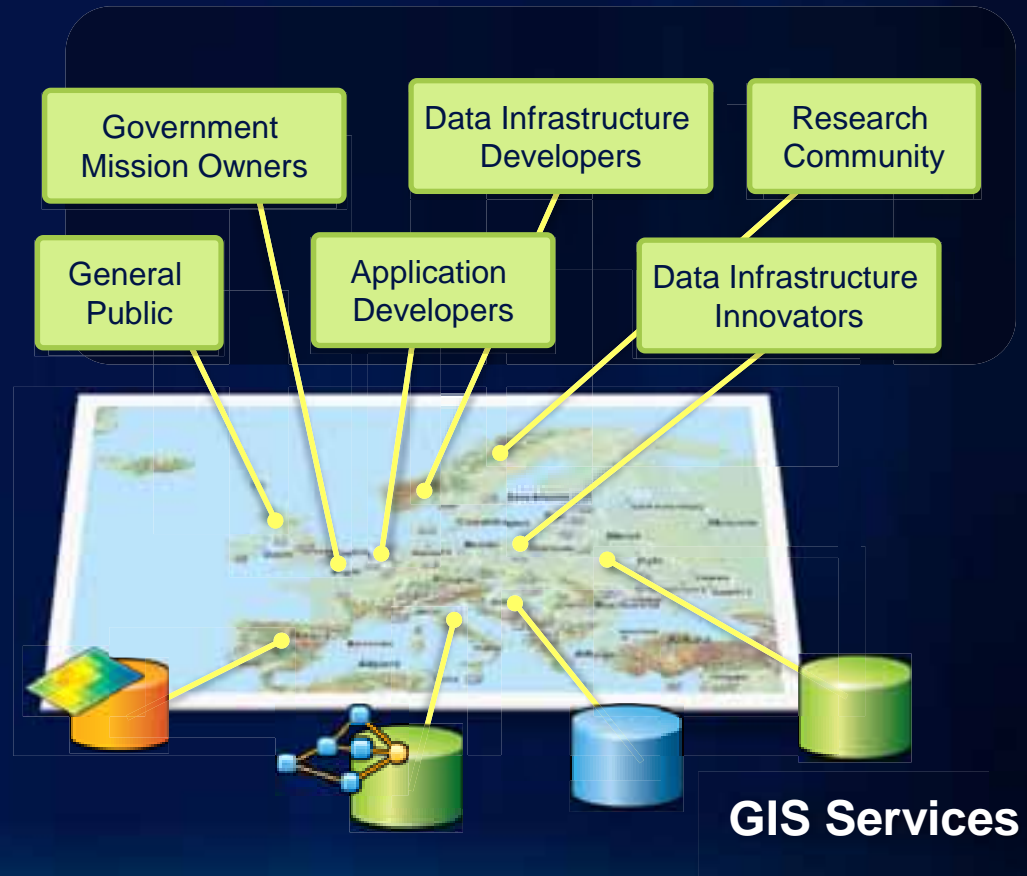
- **INSPIRE is the legal framework for a European Spatial Data Infrastructure for the Environment**
  - Data must be published according to INSPIRE Implementing Rules
  - Member States are responsible for implementation
- **Implementing Rules**
  - Data (organized into three Annexes)
  - Metadata
  - Network Services
  - Discovery, Access, Sharing
  - Monitoring/Reporting

# The Annexes

Annex I	Annex II	Annex III
<ul style="list-style-type: none"> <li>▪ Coordinate Reference System</li> <li>▪ Geographical Grid System</li> <li>▪ Geographical Names</li> <li>▪ Administrative Units</li> <li>▪ Addresses</li> <li>▪ Cadastral Parcels</li> <li>▪ Transport Networks</li> <li>▪ Hydrography</li> <li>▪ Protected Sites</li> </ul>	<ul style="list-style-type: none"> <li>▪ Elevation</li> <li>▪ Land Cover</li> <li>▪ Orthoimagery</li> <li>▪ Geology</li> </ul>	<ul style="list-style-type: none"> <li>▪ Statistical Units</li> <li>▪ Buildings</li> <li>▪ Soil</li> <li>▪ Land Use</li> <li>▪ Human Health and Safety</li> <li>▪ Utility and Governmental Services</li> <li>▪ Environmental Monitoring Facilities</li> <li>▪ Production and Industrial Facilities</li> <li>▪ Agricultural and Aquacultural Facilities</li> <li>▪ Population Distribution – Demography</li> <li>▪ Area Managements/Restriction/Regulation Zones and Reporting Units</li> <li>▪ Natural Risk Zones</li> <li>▪ Atmospheric Conditions</li> <li>▪ Meteorological Geographical Features</li> <li>▪ Oceanographic Geographical Features</li> <li>▪ Sea Regions</li> <li>▪ Bio-geographical Regions</li> <li>▪ Habitats and Biotopes</li> <li>▪ Species Distribution</li> <li>▪ Energy Resources</li> <li>▪ Mineral Resources</li> </ul>

# INSPIRE Results in a European Geospatial Platform

- Environmental
- Climate change
- Conservation
- Health
- Safety
- Transportation
- Urban planning
- ...and many more



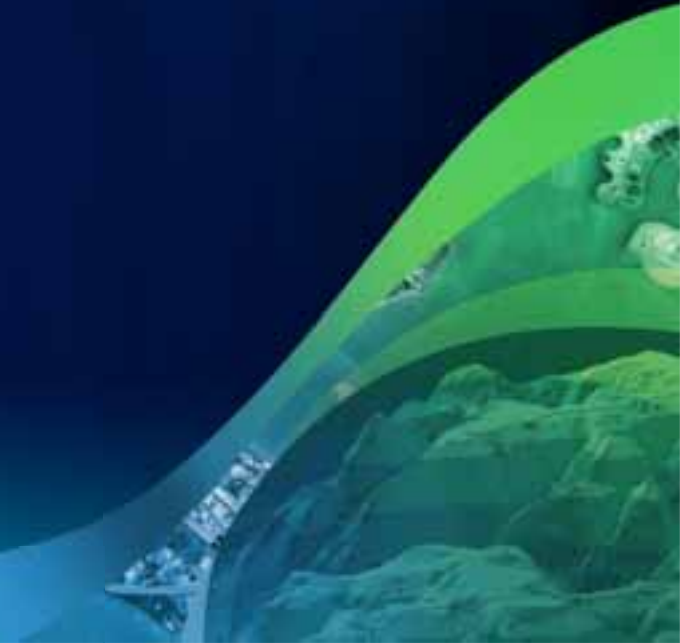
# Why INSPIRE is Important

- **Promotes European collaboration and cooperation**
  - Among countries
  - Between different governmental levels
  - In different thematic areas
  - Also for private organizations and independent research
- **Improve response time through interoperability**
  - Streamline decision making processes
  - Reacting to environmental emergency situations
- **Reduce Costs**
  - Create once, use multiple
- **Establishes European Geospatial Platform**

# Who Needs to Implement INSPIRE

- **Legally Mandated Organizations**
  - **European Commission**
    - Establish Community Level Geoportal
    - Establish Implementing Rules
  - **Member States**
    - Ensure compliance with Implementing Rules
  - **Public Authorities**
    - Meet Member State and EC Mandates for INSPIRE

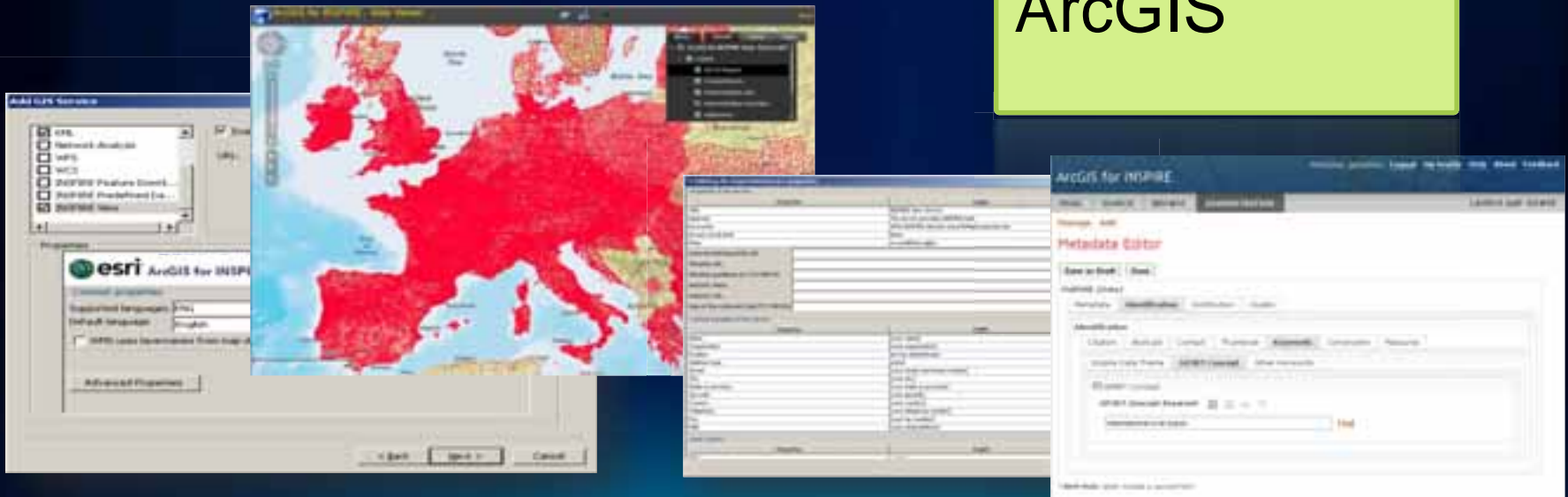
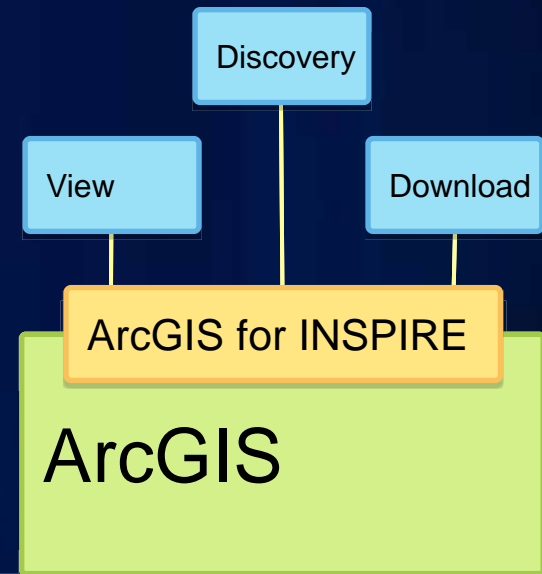
# ArcGIS for INSPIRE



# ArcGIS for INSPIRE

Extends ArcGIS with Discovery, View and Download Services, Metadata, Data Models

- Web Services
- Data Models
- Integrated Tools
- Desktop and Server Extensions

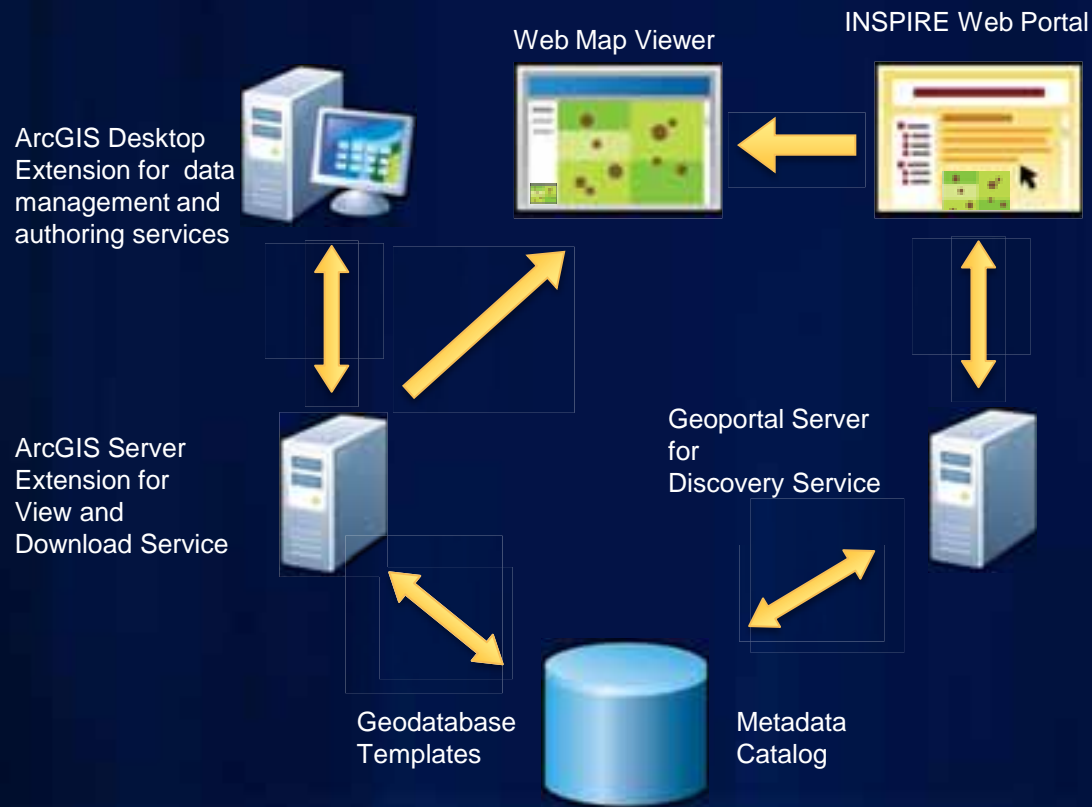




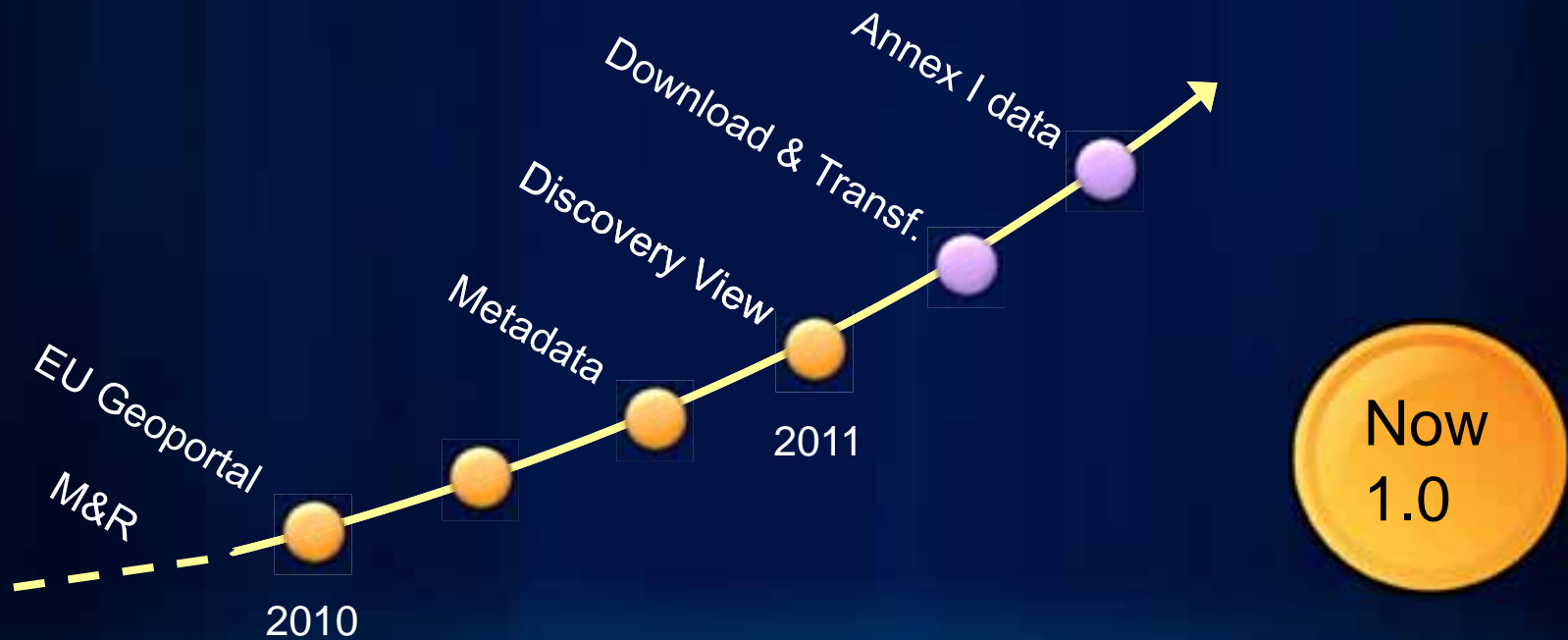
# ArcGIS for INSPIRE Connects Producers and Users



# ArcGIS for INSPIRE: What's Included



# Meet INSPIRE Compliance in a Timely Manner



# Meet INSPIRE Compliance in a Timely Manner



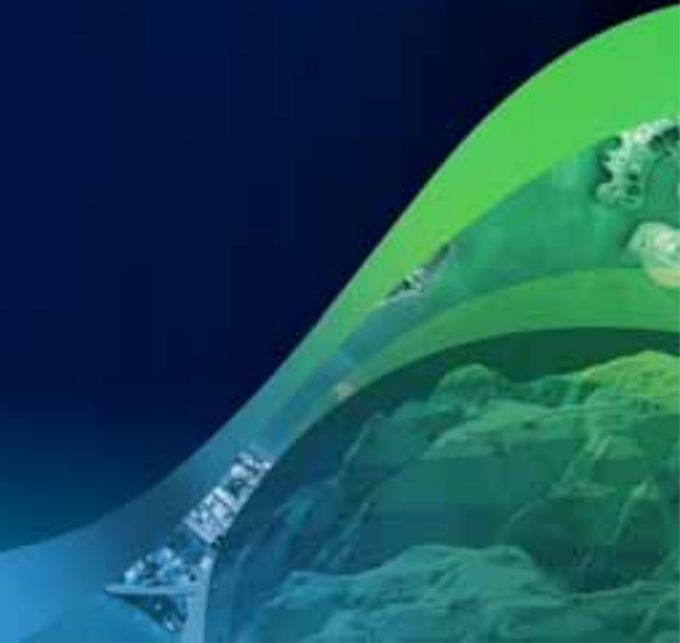
INSPIRE Roadmap

<http://inspire.jrc.ec.europa.eu/index.cfm/pageid/44>

# INSPIRE Compliance

INSPIRE Implementing Rule	Implemented in ArcGIS for INSPIRE 1.0
Regulation on INSPIRE Network Services - INSPIRE <b>View Service</b>	Technical Guidance for the implementation of INSPIRE View Services 2.12 (with Service Pack <b>3.0</b> )
Regulation on INSPIRE Network Services -INSPIRE <b>Download Service</b>	Draft Technical Guidance Download Services 1.0
Regulation on INSPIRE Network Services -INSPIRE <b>Discovery Service</b>	Technical Guidance for the implementation of INSPIRE Discovery Service 2.12 (with Service Pack <b>3.0</b> )
Regulation on INSPIRE <b>Metadata</b>	Technical Guidelines based on EN ISO 19115 and EN ISO 19119 (Version 1.2)
Regulation on interoperability of <b>spatial data sets</b> and services	Technical Guidance on Annex I data themes (Administrative Units, Cadastral Parcels, Geographical Names, Hydrography, Protected Sites, Transport Networks, Addresses, Coordinate Reference Systems, Geographical Grid Systems) 3.0.1

# Implementing an INSPIRE Node



# What is so challenging about INSPIRE

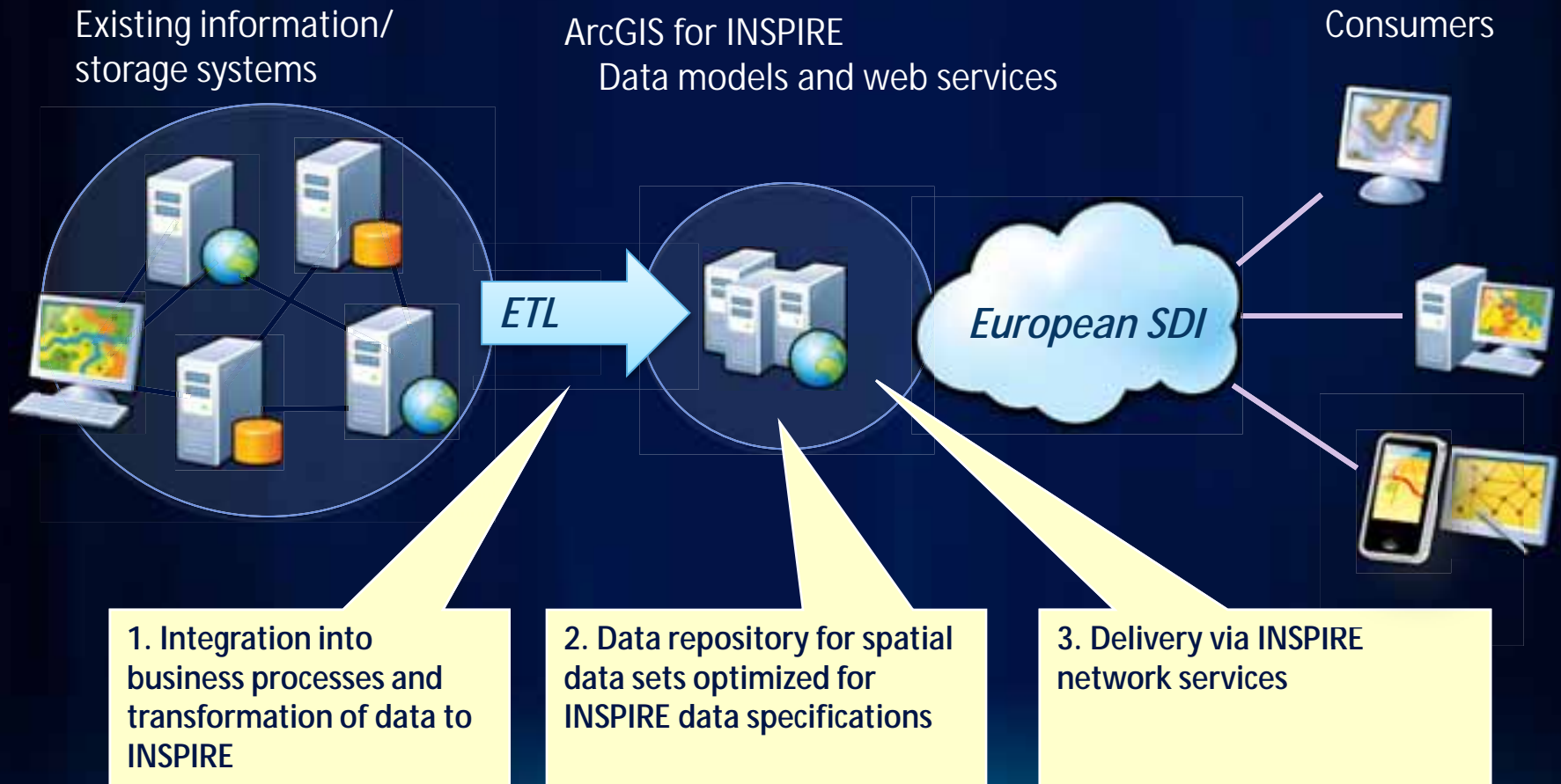
- **INSPIRE is Demanding**
  - **Many Complex Specifications**
    - **Metadata**
    - **Data specifications**
    - **Web services**
  - **Long term commitment**
  - **Strict Conformance Requirements**
  - **Strict Quality of Service Requirements**
- **INSPIRE is**
  - **Driving geospatially enabling the information society**
  - **Core pillar of the geospatial information society**
  - **Prerequisite to add geospatial to eGovernment processes**

# **ArcGIS for INSPIRE is a Complete Solution**

- **Create INSPIRE compliant datasets using the geodatabase templates for INSPIRE Annex data themes**
- **Manage INSPIRE Data**
- **Create and publish INSPIRE Metadata**
- **Author INSPIRE Services**
- **Deploy INSPIRE View & Feature Download Services**
- **Create and federate INSPIRE Discovery Services**
- **Discover and consume INSPIRE resources**

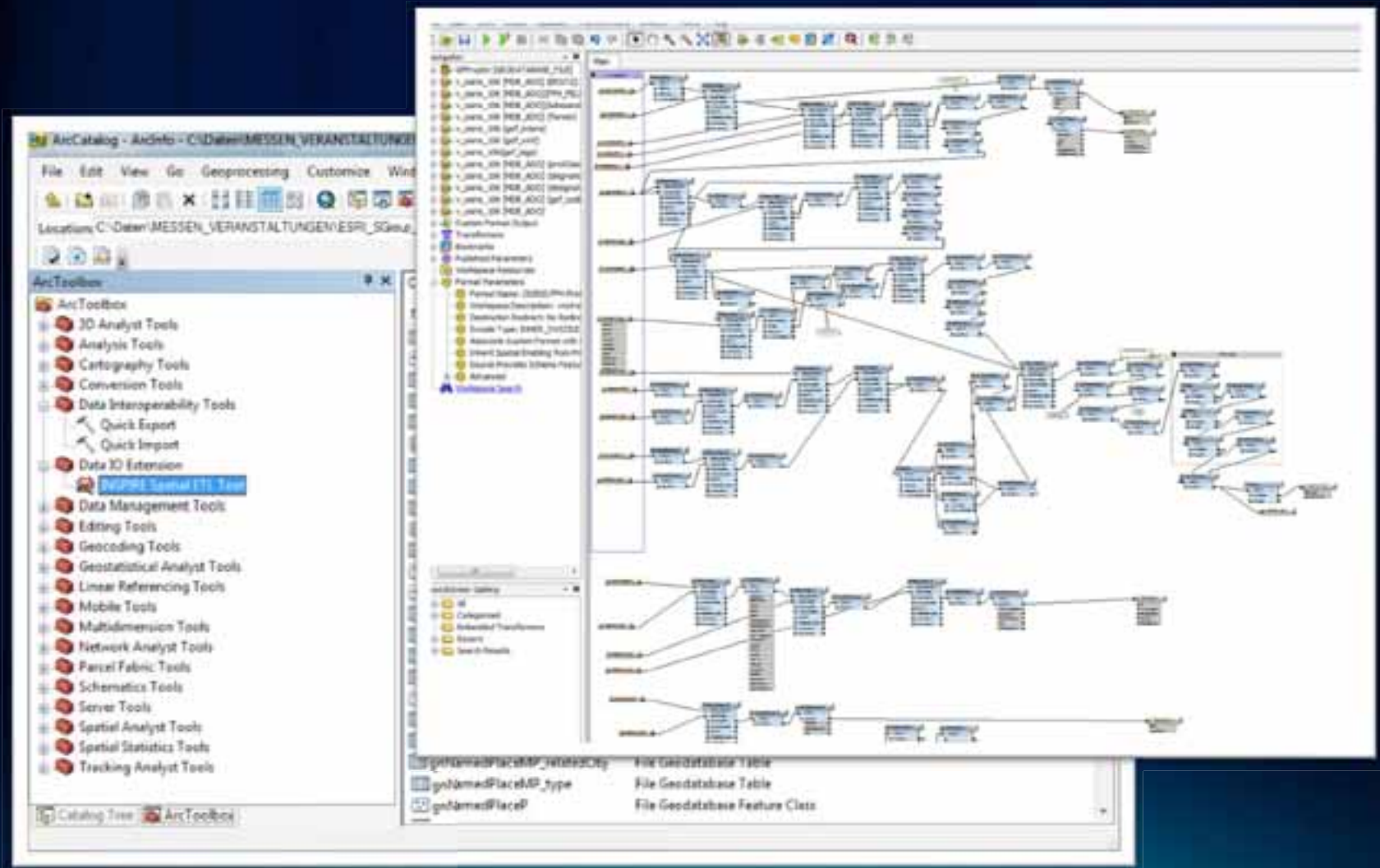


# ArcGIS for INSPIRE Implementation Pattern



# Transform Existing Data into INSPIRE Datasets

Example based on Data Interoperability Extension



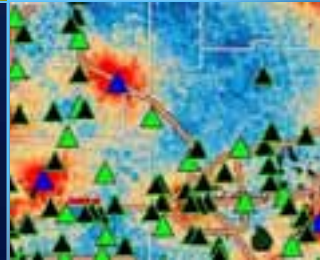
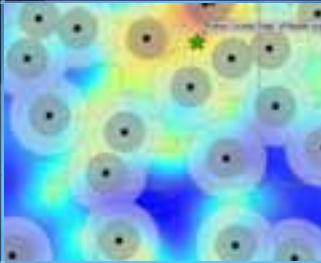
# Create INSPIRE Maps and Services

1. “Add INSPIRE Layers” desktop tool: allows loading INSPIRE specific data themes and feature types
2. Create INSPIRE View, Feature and Predefined Feature Download services using ArcCatalog



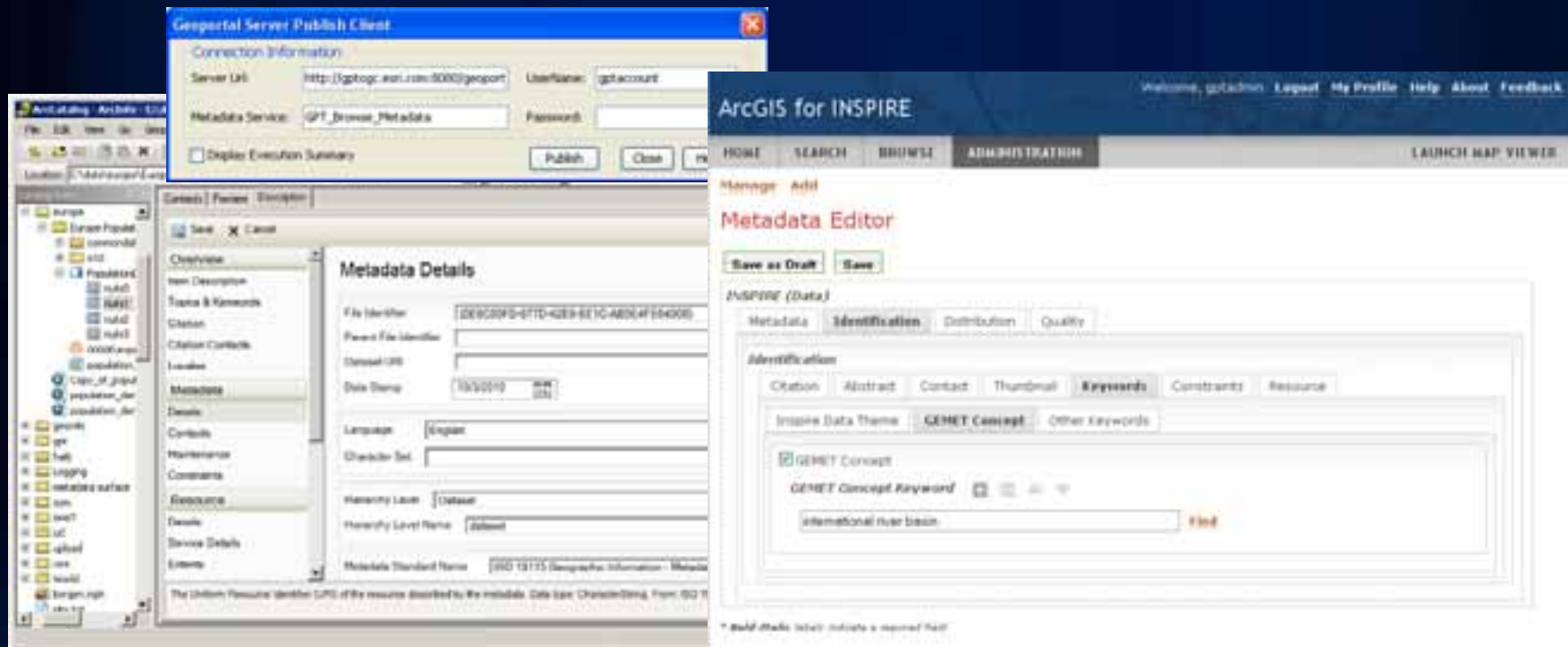
# Demo: Authoring INSPIRE Services

Roberto Lucchi



# Create and Publish Metadata

1. Create INSPIRE metadata by using the desktop editor or the Geoportal Web editor
2. Publish metadata from desktop to Geoportal with publish tool





# Discover and Consume INSPIRE Resources

The image displays the ArcGIS for INSPIRE web application interface, which is split into two main sections: a search and browse area on the left, and a map viewer on the right.

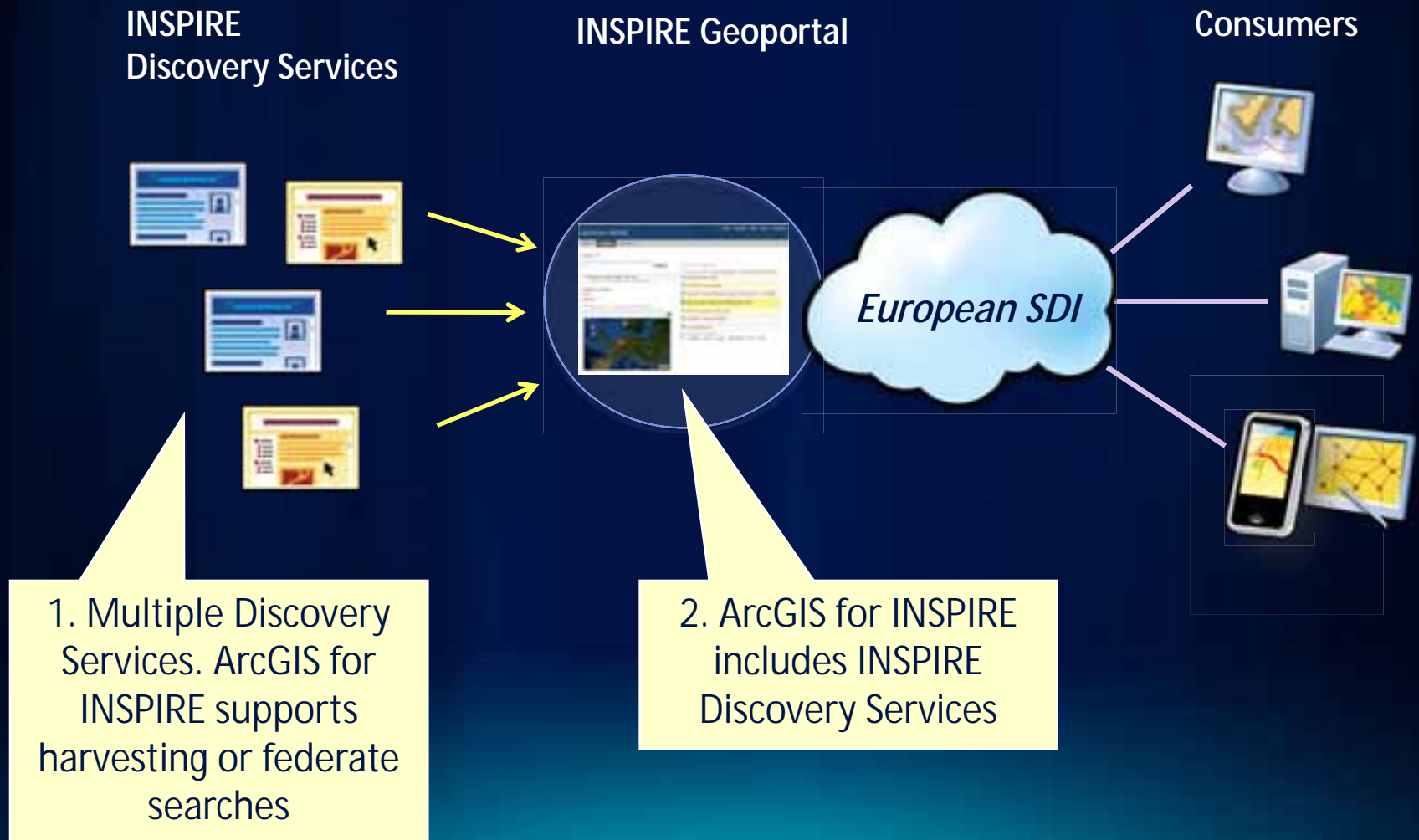
**Search and Browse Section (Left):**

- Header:** "ArcGIS for INSPIRE" with navigation links: HOME, SEARCH, BROWSE, and a "LAUNCH MAP VIEWER" button.
- Search:** A search bar with a "Search" button. Below it, a message states "Records shown from: This Site" with a link to "Click here to select different site or configure search."
- Additional Options:** A "Clear" button and a "WHERE" section with radio buttons for "Anywhere", "Intersecting", and "Fully within".
- Map:** A small map of Europe with red bounding boxes indicating search areas.
- Results:** "Results 1-10 of 65 record(s)" with pagination links (1, 2, 3, 4, 5, >, Last). A checkbox for "Expand results" is present.
- Search Results List:**
  - Vernede områder:** Description: "Tjenesten inneholder områder og enkeltobjekt som er vernet etter Naturvernloven, Viltloven og/eller loven om naturfredning." Links: Details, Metadata, Zoom To.
  - AskGiraffe Data Locator and Data Integrator Service**
  - Basemap Data**
  - PROVINCIAS\_TESTDATASET CEN EDITOR**
  - antenne\_installaties**
  - Republic of Slovenia - Surveying and Mapping Authority**: Description: "This site offers some free data and maps on line, as well as data available to order for a fee. Free data includes basic information about the organization of the geodetic service in Slovenia, data about communes,(area, length of border, houses, streets, ..." Links: Open, Preview, Details, Metadata, Zoom To.
  - IMGPRD.DE24\_197024**

**Map Viewer Section (Right):**

- Header:** "ArcGIS for INSPIRE - Web Viewer" with a "Geoportal Search" button and "Results 1 to 3 of 3 records".
- Map:** A detailed map of a region in Southern Highlands, showing roads (A902, A199, A4, A7, A68) and administrative boundaries. The text "SOUTHERN HIGHLANDS" is visible on the map.
- Layer List:** A panel on the right showing "Layer Visibility" with checked items: "Administrative units [6766]", "Layers", and "Administrative boundary".

# ArcGIS for INSPIRE Enables Data Discovery



# ArcGIS for INSPIRE Connects Producers and Users





# Demo: Create and Discover Metadata



## For Further Information

- ArcGIS for INSPIRE product website: [www.esri.com/inspire](http://www.esri.com/inspire)
  - Flyer, Product description, White papers
- ArcGIS for INSPIRE Resource center:  
<http://resources.arcgis.com/content/arcgis-inspire/1.0/about>
  - Geodatabase templates, Forum, Code gallery
- SDI & INSPIRE user stories:  
<http://www.esri.com/industries/map-chart-dataproduction/spatial-data-infrastructure/europe.html>
- Email at [inspire@esri.com](mailto:inspire@esri.com)

# ArcGIS for INSPIRE

- **Compliant Services**
- **Data Models**
- **Integrated Tools**
- **Extending Desktop and Server**



