

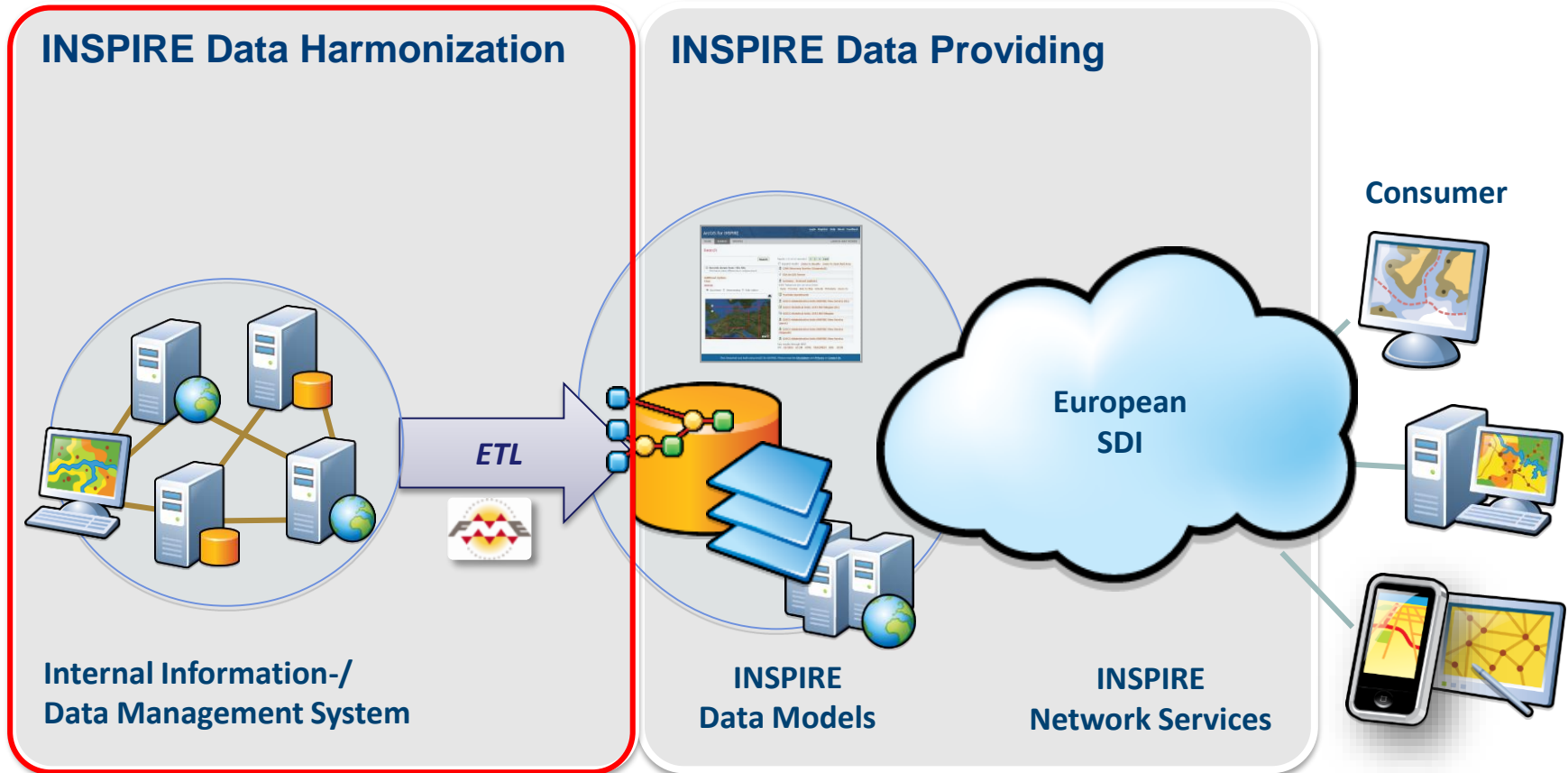


INSPIRE Data Harmonization for ArcGIS for INSPIRE

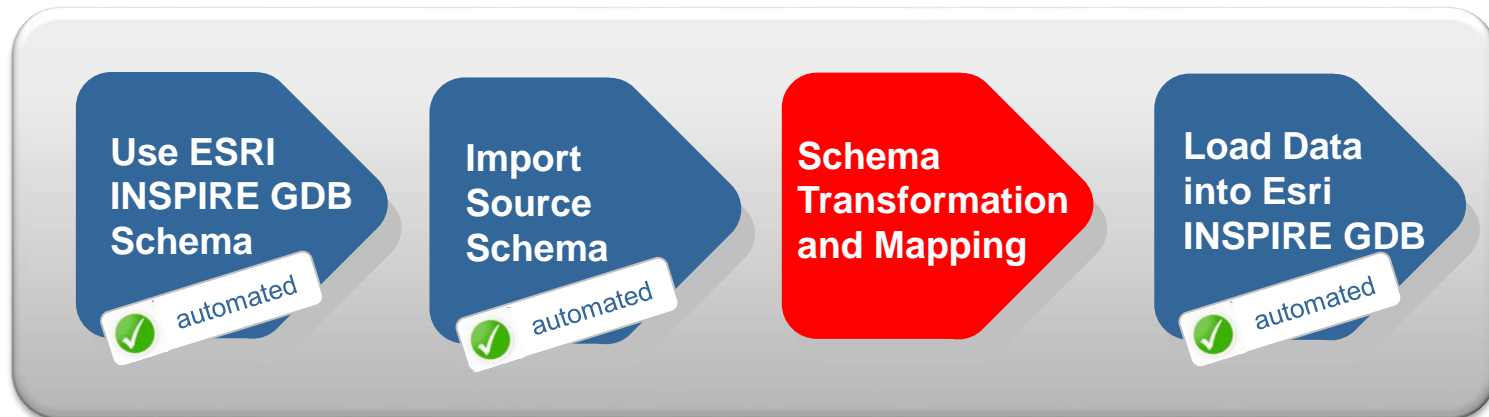
Simplifying INSPIRE Schema Mapping Challenges

Mark Döring

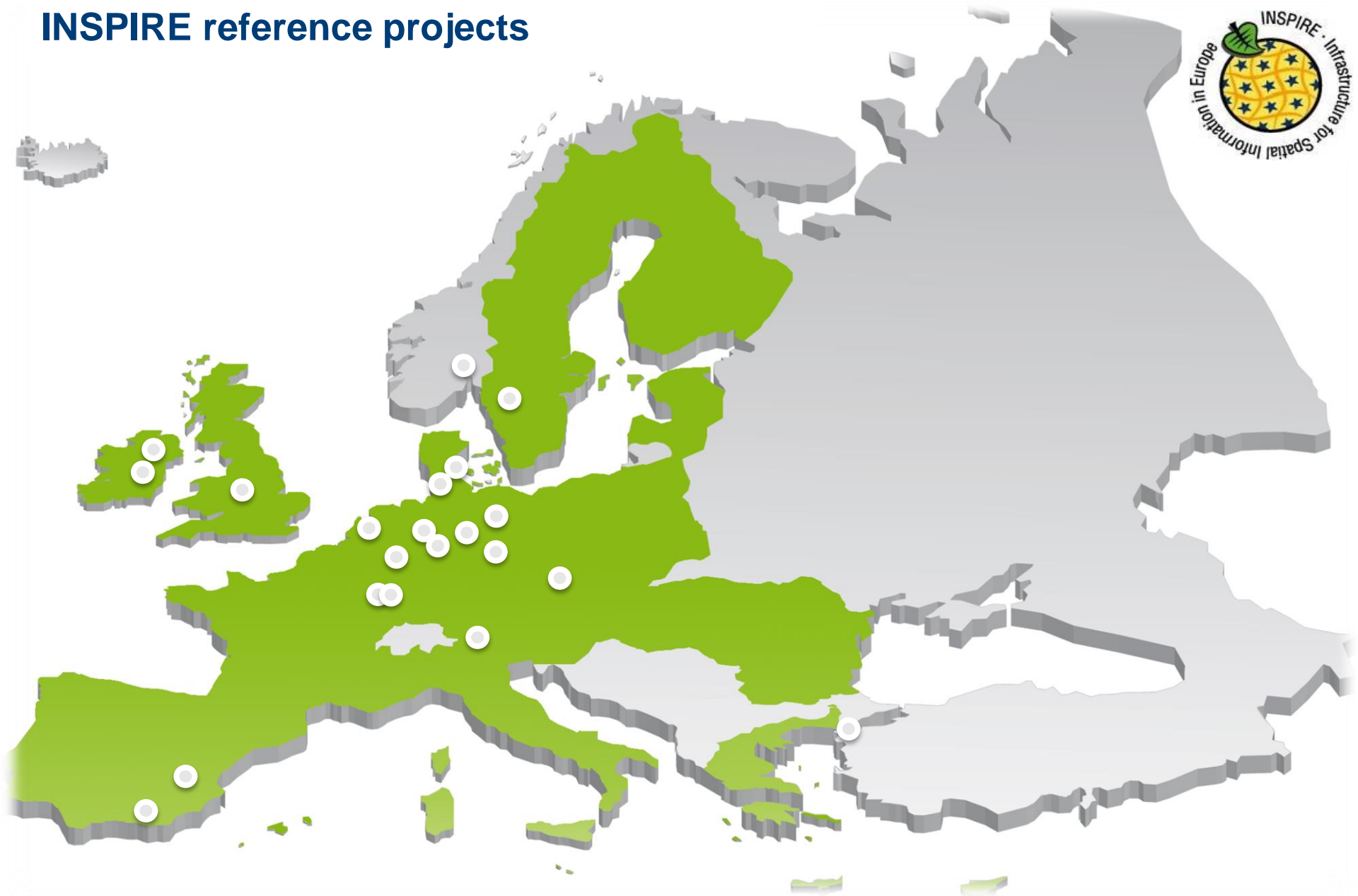
General INSPIRE Approach



ETL Workflow Description



INSPIRE reference projects



Three Development Goals

INSPIRE Solution Pack for FME



- **design INSPIRE schema mapping as simple as possible**
- **uses FME standard functionality (ETL)**
- **extend FME with INSPIRE specific information and functionalities**

FME Workbench

The screenshot displays the FME Workbench interface with a workspace titled "D:\FME_Schulungen_Workshop\Workshop_Informationstag\Demo\Demo1\mapinfo2geodb_mdb.fmw - MAPINFO -> GEODB_MDB - FME Workbench". The workspace contains a data flow graph with several transformers:

- Input-Model:** Includes a "Source" transformer connected to a "KREIS" dataset, followed by a "Joiner (Joined)" transformer.
- Schema-Mapping:** Features a "Dissolve (60M)" transformer, an "Aggregator" transformer, and a "Counter (Counted)" transformer.
- Output-Model:** Includes a "Geometry (Filtered)" transformer and a "Destination" transformer.

At the bottom of the window, a console window shows the following log output:

```

2006-11-23 17:08:59 | 8.6 | 0.0 | STATS | Total Features Read | 681
2006-11-23 17:08:59 | 8.6 | 0.0 | STATS | -----
2006-11-23 17:08:59 | 8.6 | 0.0 | STATS | Features Written Summary
2006-11-23 17:08:59 | 8.6 | 0.0 | STATS | -----
2006-11-23 17:08:59 | 8.6 | 0.0 | STATS | KGR500_WGS84_POLYGON | 17
  
```

FME Workbench ETL Demo

The screenshot displays the FME Workbench interface. At the top is a toolbar with various icons for file operations, workspace management, and execution. Below the toolbar is a sidebar with two main sections: 'Getting Started' and 'Recent Files'. The 'Getting Started' section includes links for 'Blank workspace', 'Create workspace...', 'Generate workspace...', and 'Open workspace...'. The 'Recent Files' section lists 'Untitled.fmw', 'geo.fmw', 'voronoi_bug.fmw', and 'QS_Demo2.fmw'. The main workspace area contains several promotional banners: 'Free FME Training Resources' with a laptop icon and a link to 'Browse FREE Training Resources'; 'Weekly Webinar' for 'FME Overview Webinar - Weekly' with a link to 'Get Full Details'; 'Technical Support' with a 'Submit a Question' link; and 'Videos' with a link to watch popular FME videos. At the bottom, a 'Log' window shows the following text:

```
-----  
-----  
Total Features Written                                0  
-----  
-----  
CSV Reader: Done reading CSV files in directory `~/Users/mdo/Daten/FME_Daten/01_Demo_1_Spatial_ETL/data`  
Translation was SUCCESSFUL with 0 warning(s) (0 feature(s) output)  
FME Session Duration: 4.8 seconds. (CPU: 4.5s user, 0.1s system)  
END - ProcessID: 22047, peak process memory usage: 0 kB, current process memory usage: 0 kB  
-----  
-----
```

INSPIRE FME Template Workspaces

- Connection to individual, INSPIRE relevant Source Data

The screenshot displays the FME Workbench interface for a workspace titled "Administrative Units". The workspace is divided into two main sections:

- Individual Mapping (Red Highlight):** This section shows a complex network of transformers connected to source data. The transformers are arranged in a hierarchical structure, with input transformers on the left and output transformers on the right. The text "individual mapping" is written vertically in white over this section.
- Predefined Mapping (Green Highlight):** This section shows a similar network of transformers, but with a more structured and predefined layout. The text "predefined mapping" is written vertically in white over this section.

The left sidebar contains the "Navigator" and "Transformer Gallery". The "Transformer Gallery" lists various INSPIRE Administrative Units transformers, including:

- INSPIRE Administrative Units
 - auAdmBoundary_country
 - auAdmBoundary_legalStatus
 - auAdmBoundary_nationalLevel_nat
 - auAdmBoundary_technicalStatus
 - auAdmUnit_country
 - auAdmUnit_nationalLevel

The bottom right panel shows the "Transformer Description" for the "INSPIRE Administrative Units Category". The description states: "Contains transformers for the INSPIRE Annex I Theme 'Administrative Units'." The logo for "INSPIRE - Infrastructure for Spatial Information in Europe" is also visible in the bottom right corner.



Top three Benefits of the INSPIRE Solution Pack for FME

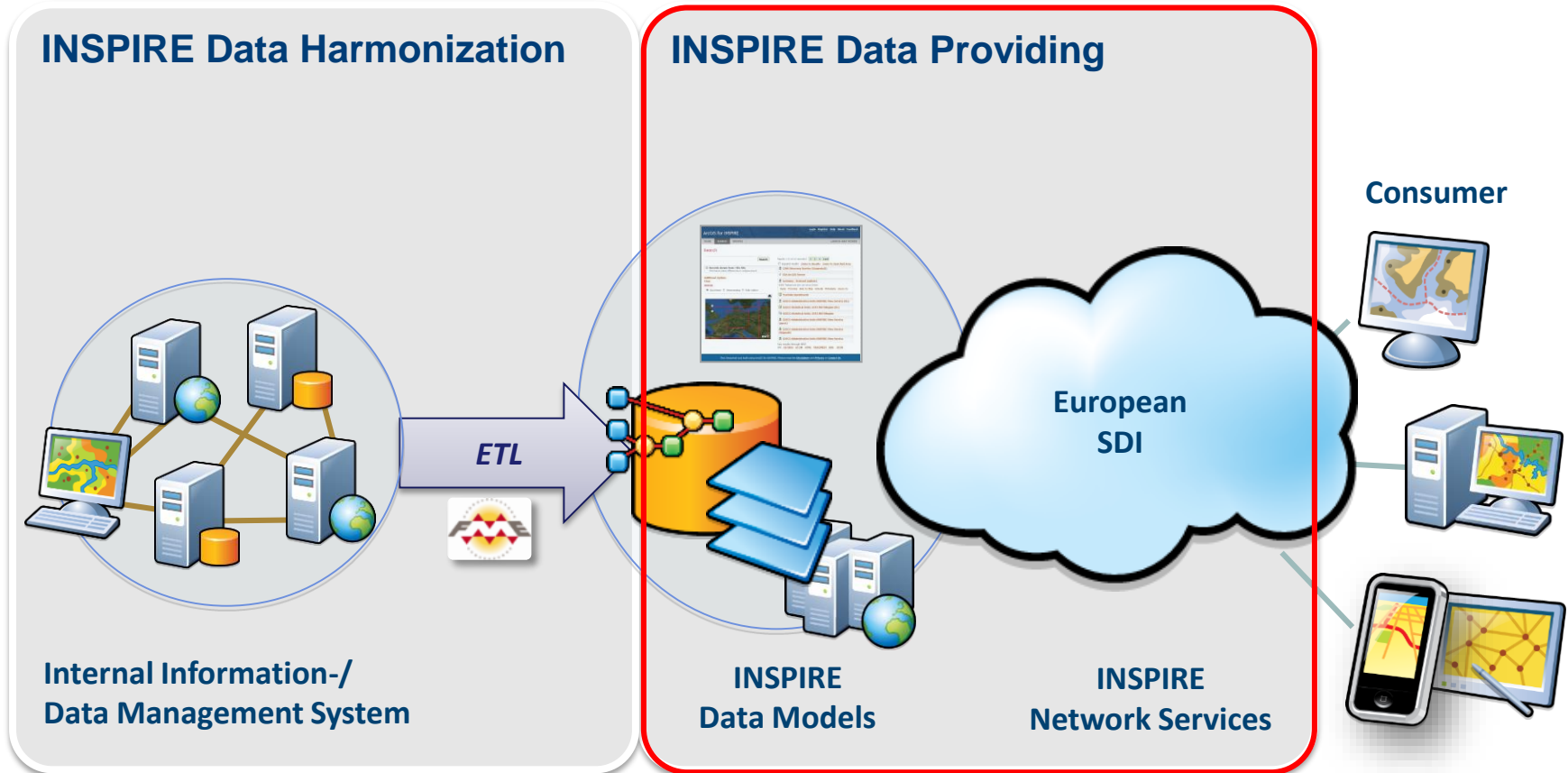


- **More than 100 additional INSPIRE Transformers**
 - INSPIRE Specific creation of Attributes, setting of Values and Relations
- **FME Workbench „Template Workspaces“ for all Annex I Themes**
 - Prepared Interface for the ArcGIS for INSPIRE Data Models
 - INSPIRE specific Transformers are already connected with the correct Destination FeatureTypes
- **Context sensitive FME Workbench Help for INSPIRE specific information**
 - Description of all transformers incl. Technical INSPIRE description

INSPIRE Solution Pack for FME

The screenshot displays the FME software interface. The top menu bar includes File, Edit, View, Insert, Readers, Transformers, Writers, Inspection, Tools, and Help. The File menu is open, showing options like Open Recent, Save, and Run Translation. The main workspace area is divided into several sections: 'Getting Started' with links for Blank, Create, Generate, and Open workspace; 'Recent Files' listing 01_SHP_export.fmw, upload.fmw, updateBaustellen2.fmw, and download.fmw; 'Free FME Training Resources' with a magnifying glass icon and a link to browse resources; 'Weekly Webinar' for 'FME Overview Webinar – Weekly' with a link to receive a guided tour; 'Technical Support' with a question mark icon and a link to submit a question; and 'Videos'. At the bottom, the 'Transformer Description' pane shows the 'values' section with 'agreed' and 'notAgreed' properties, and the 'Voidable Properties' section with a detailed description of the voidable property.

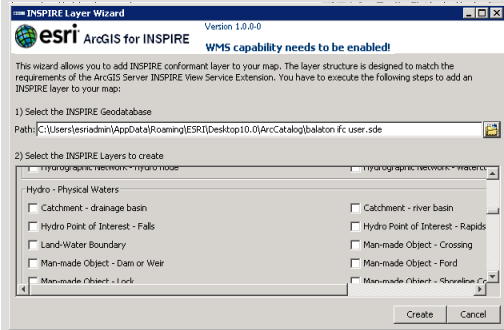
General INSPIRE Approach



3 Steps to create a INSPIRE Network Service...

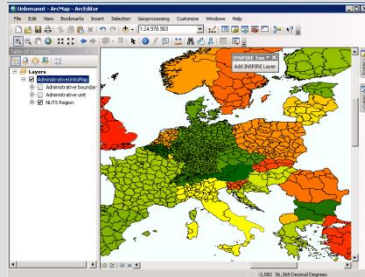
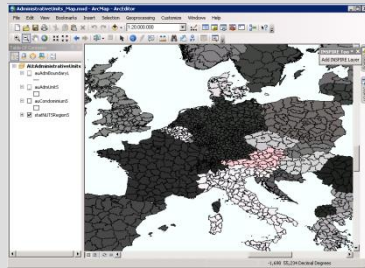
1 ANNEX-Theme Layer creation

INSPIRE Too X
Add INSPIRE Layer



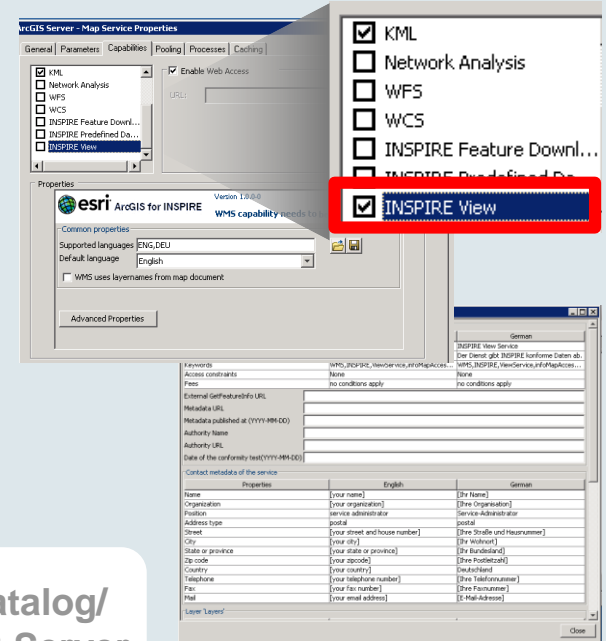
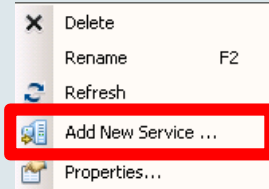
ArcMap

2 Create map layout msd file



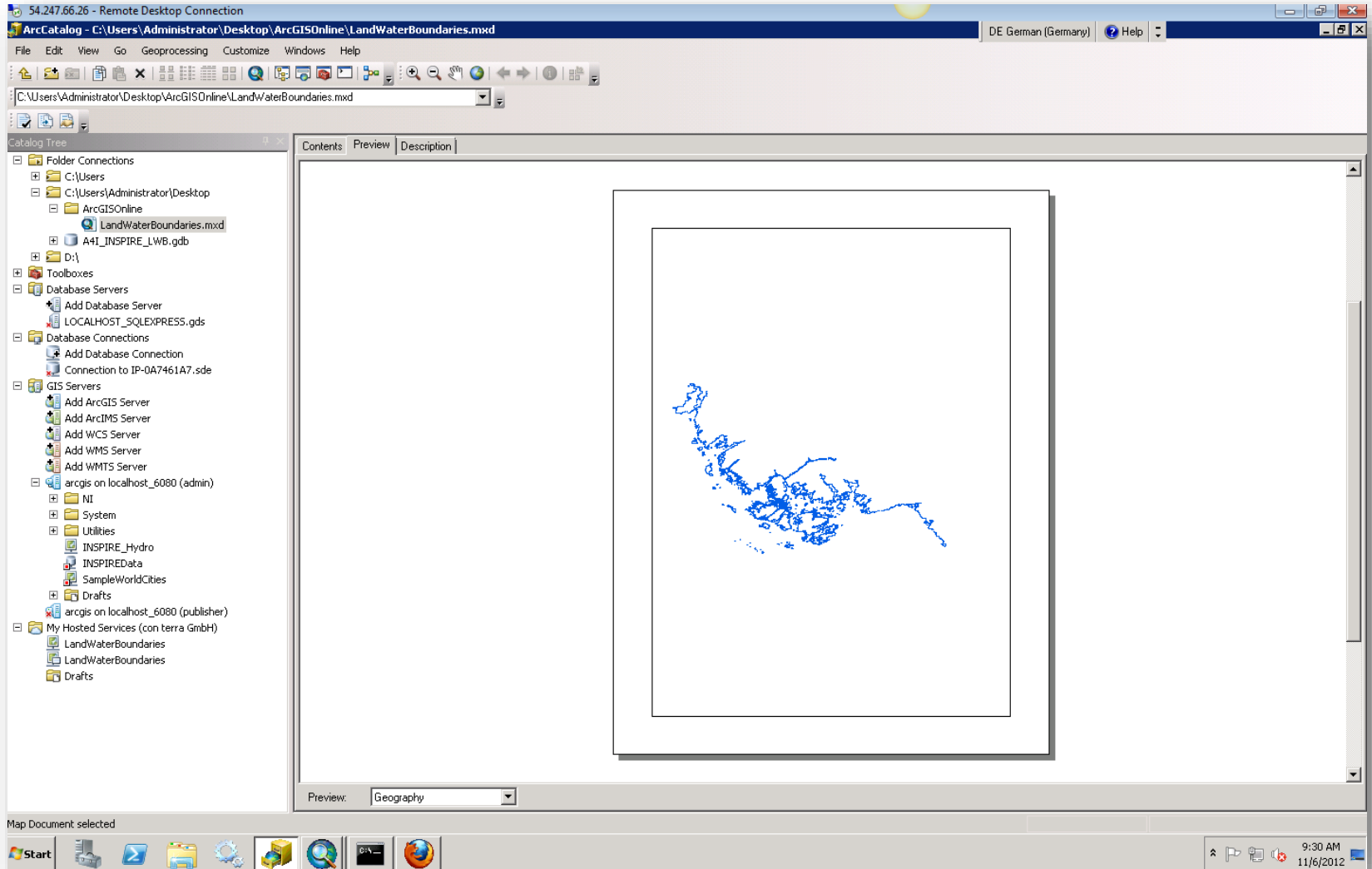
ArcMap

3 Publish INSPIRE Network Service



ArcCatalog/
ArcGIS Server

Result MXD File INSPIRE GDB (LandWaterBoundary)



Usage of INSPIRE data in ArcMap

The screenshot displays the ArcMap interface with the following components:

- Window Title:** LandWaterBoundaries - ArcMap
- Language:** DE German (Germany)
- Scale:** 1:500,022
- Table of Contents:**
 - Layers
 - Reference
 - hy-p:LandWaterBoundary (
 - Basemap
 - Canvas/World_Light_Gr
- Map Labels:** Høyjord, Horten, Moss, Råde, Sarpsborg, Tønsberg, Stokke, Sandefjord, Fredrikstad, Halden, Rakkestad
- Status Bar:** 10.403 59.251 Decimal Degrees
- System Tray:** 9:38 AM, 11/6/2012

Usage of INSPIRE data in ArcMap

04_Z47.bb.Zb - Remote Desktop Connection

LandWaterBoundaries - ArcMap

DE German (Germany) ? Help

File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help

1:500,022

Table of Contents

- Layers
 - Reference
 - hy-p:LandWaterBoundary (1)
 - Basemap
- Identify

Identify from: <Top-most layer>

- hy-p:LandWaterBoundary (Curve)
 - NO.KARTVERKET.HYD.LWB
 - NO.KARTVERKET.HYD.LWB
 - NO.KARTVERKET.HYD.LWB
 - NO.KARTVERKET.HYD.LWB
 - NO.KARTVERKET.HYD.LWB

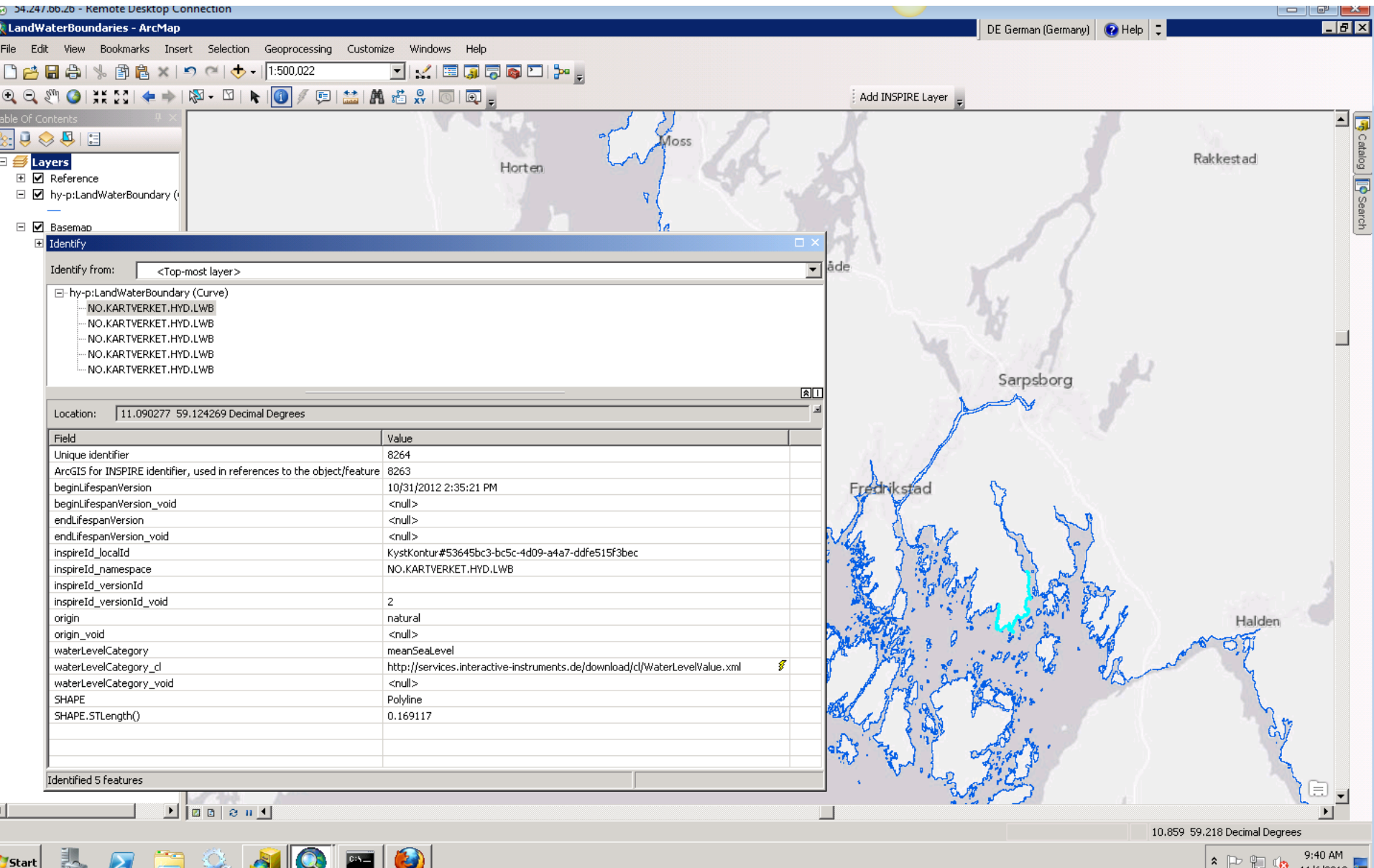
Location: 11.090277 59.124269 Decimal Degrees

Field	Value
Unique identifier	8264
ArcGIS for INSPIRE identifier, used in references to the object/feature	8263
beginLifespanVersion	10/31/2012 2:35:21 PM
beginLifespanVersion_void	<null>
endLifespanVersion	<null>
endLifespanVersion_void	<null>
inspireId_localId	KystKontur#53645bc3-bc5c-4d09-a4a7-ddfe515f3bec
inspireId_namespace	NO.KARTVERKET.HYD.LWB
inspireId_versionId	
inspireId_versionId_void	2
origin	natural
origin_void	<null>
waterLevelCategory	meanSeaLevel
waterLevelCategory_cd	http://services.interactive-instruments.de/download/d/WaterLevelValue.xml
waterLevelCategory_void	<null>
SHAPE	Polyline
SHAPE.STLength()	0.169117

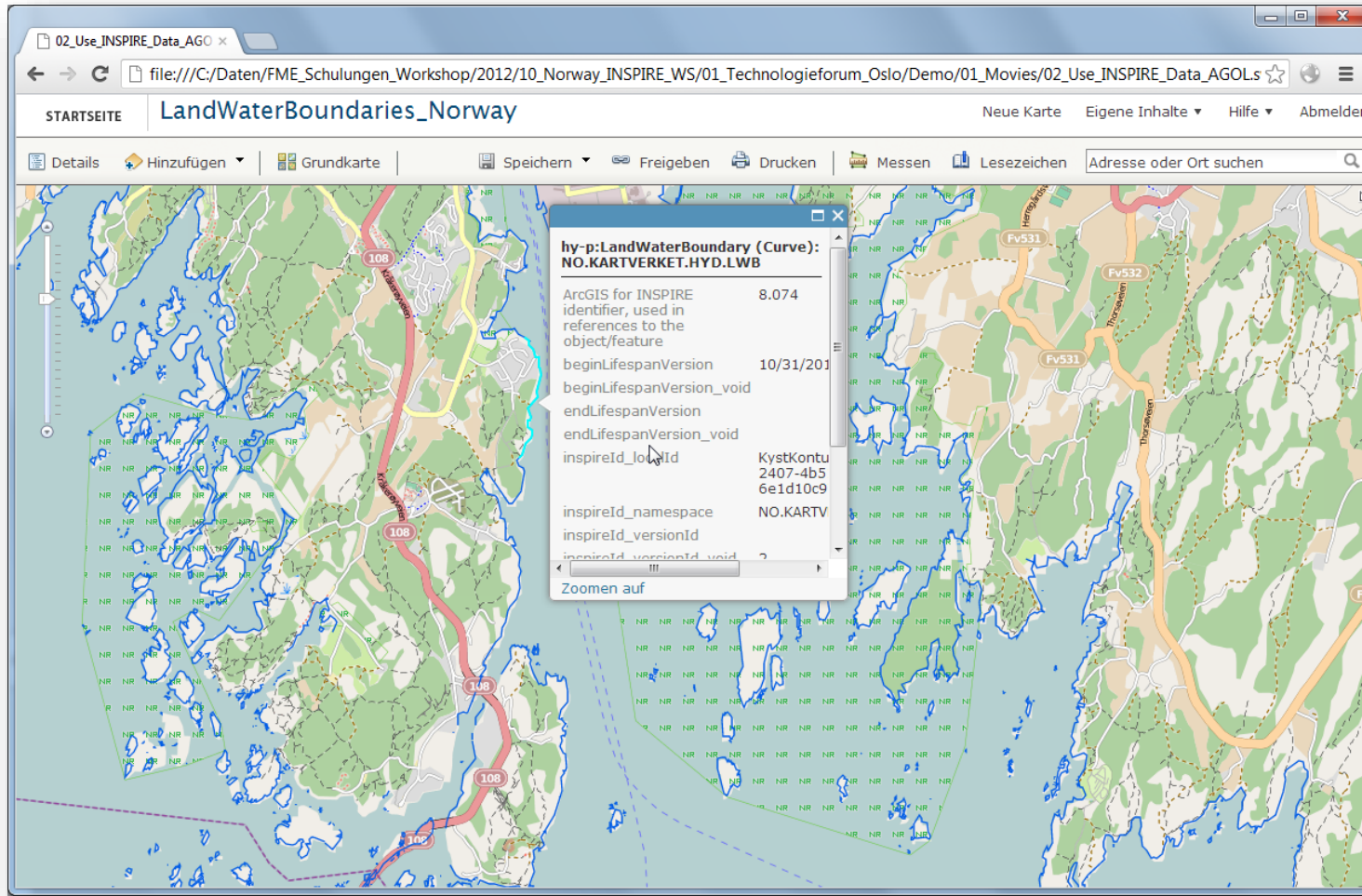
Identified 5 features

10.859 59.218 Decimal Degrees

9:40 AM 11/6/2012

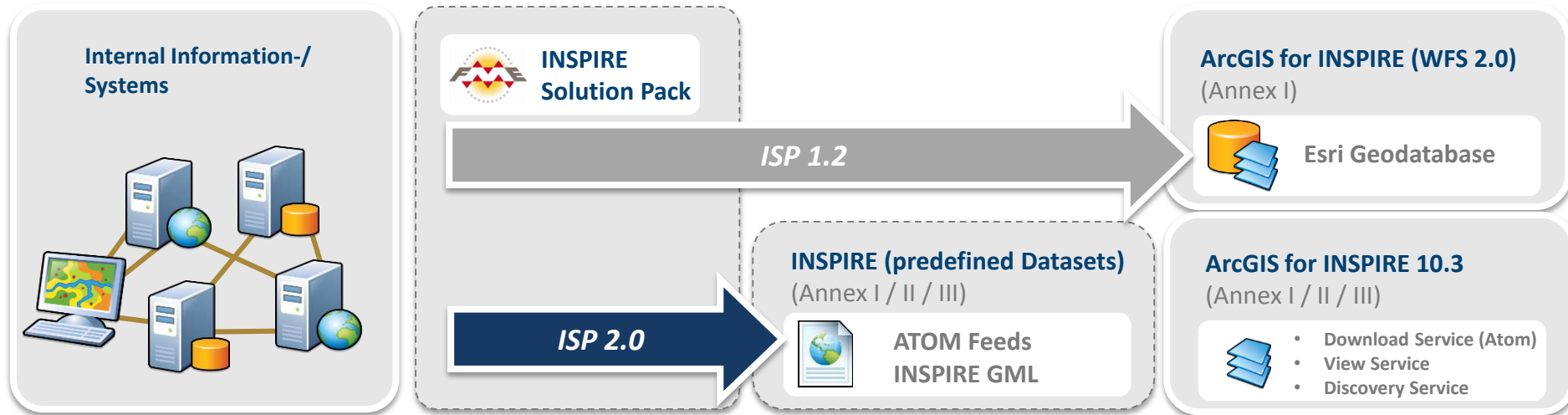


Usage of INSPIRE data in ArcGIS Online



Road Ahead to 2020

INSPIRE Solution Pack for FME



ArcGIS for INSPIRE - Implementation Options

- **INSPIRE compliant View Service based on**
 - > OGC WMS
 - > OGC WMTS

- **INSPIRE compliant Download Service based on**
 - > OGC WFS 2.0
 - > ATOM Feeds (and predefined dataset download)
 - > ... with or without harmonized data

- **INSPIRE Discovery Services (Geoportal)**
 - > OGC CSW

- **All significant options to meet the current INSPIRE requirements are available**



Road Ahead to use INSPIRE data and services

Requirements

- Easy access to INSPIRE data and services
- Hide INSPIRE complexity

Next Steps

- user focused apps to access INSPIRE information
- download data availability in different formats

Thank you very much for your attention!



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