Standards are the Bones of Global Applications, but Where's the Beef?

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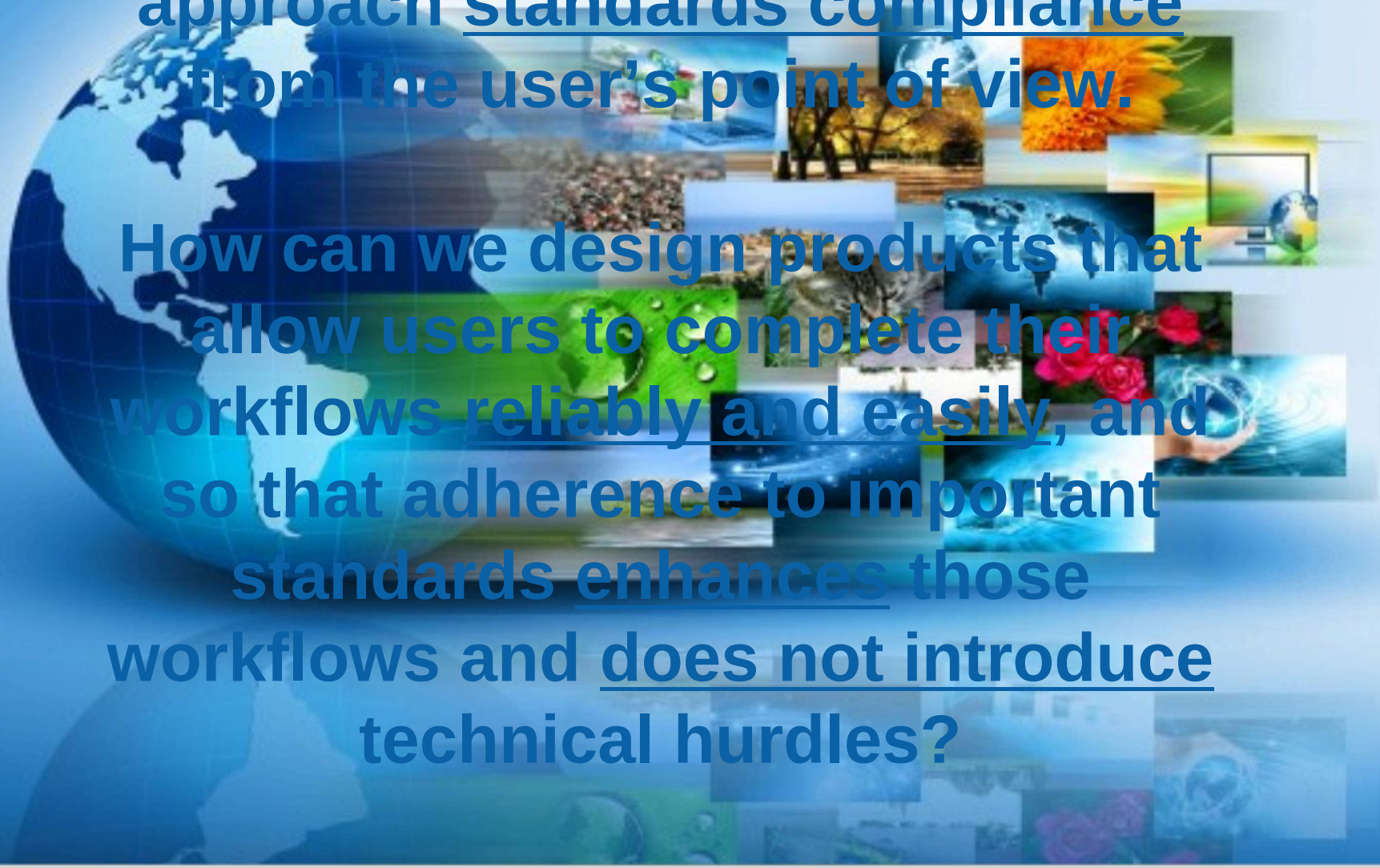
- Intergraph Corporation, SG&I Division

2013 FROM POLE TO POLE

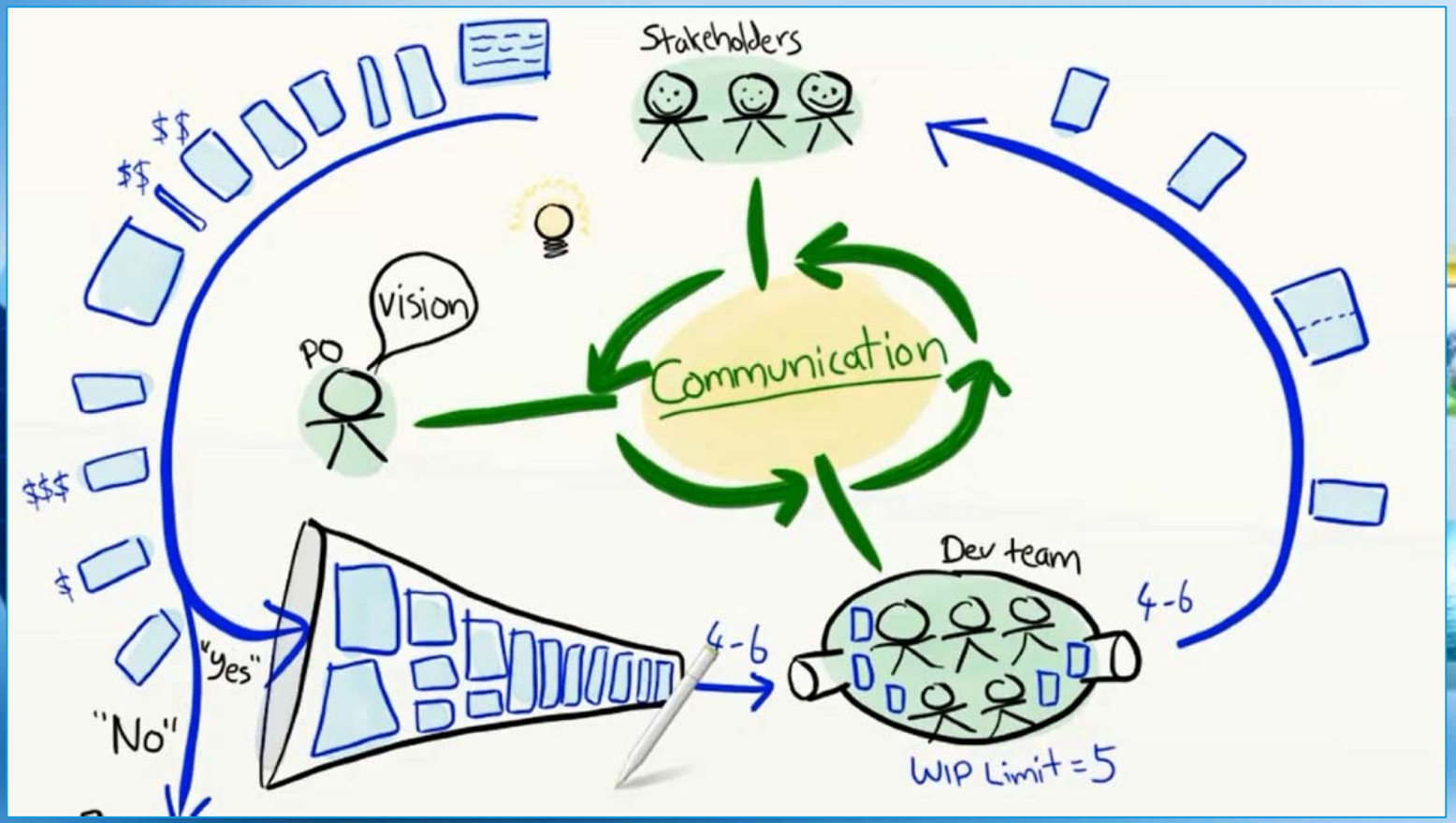
SMARTERDECISIONS



The vendor's opportunity is to approach standards compliance from the user's point of view.

How can we design products that allow users to complete their workflows reliably and easily, and so that adherence to important standards enhances those workflows and does not introduce technical hurdles?

Where's the Beef?



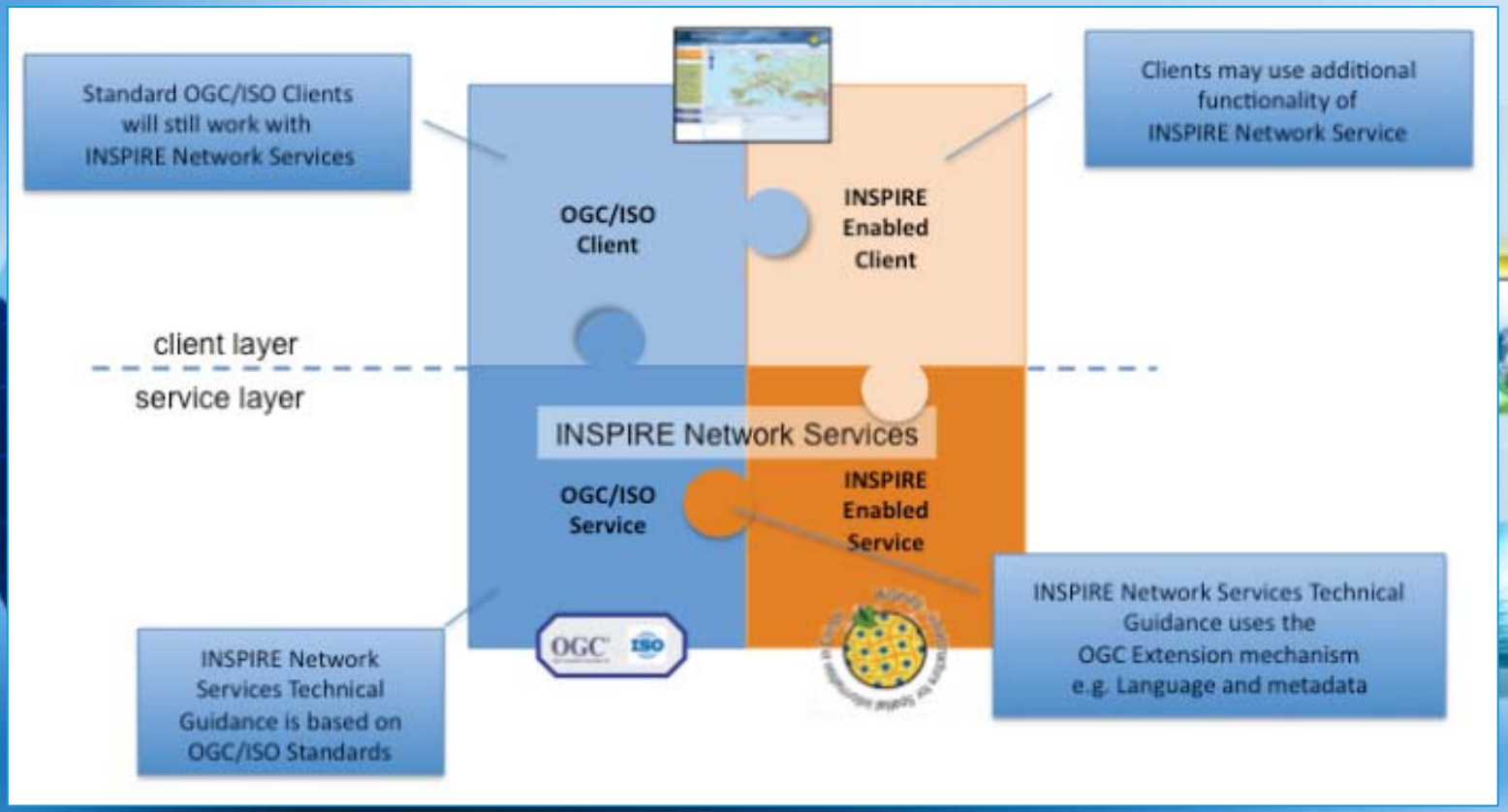
Agile/Scrum development means that stakeholders play a primary role in defining exactly what development efforts will provide the greatest customer value.

Where's the Beef?

Organization & Standard	Summary Scope of the Standard
INSPIRE -- Technical Guidance for the implementation of INSPIRE Discovery Services, v3.1	"Specifies Technical Guidance for Member States to implement INSPIRE Discovery Services as mandated by the Regulation on INSPIRE Network Services."
ISO -- ISO/TS 19139:2007 -- Geographic information -- Metadata -- XML schema implementation	"Defines Geographic MetaData XML (gmd) encoding, an XML Schema implementation derived from ISO 19115."
OGC ® -- OpenGIS Catalogue Service Implementation Specification v2.0.2 – OGC-07-006r1	"Identifies the interfaces, bindings, and a framework for defining application profiles required to publish and access digital catalogues of metadata for geospatial data, services, and related resource information."

Customers WANT standards: they think standards assure multi-vendor interoperability, they have to meet legal requirements, or they think standards "are the right thing to do(!)

Where's the Beef?

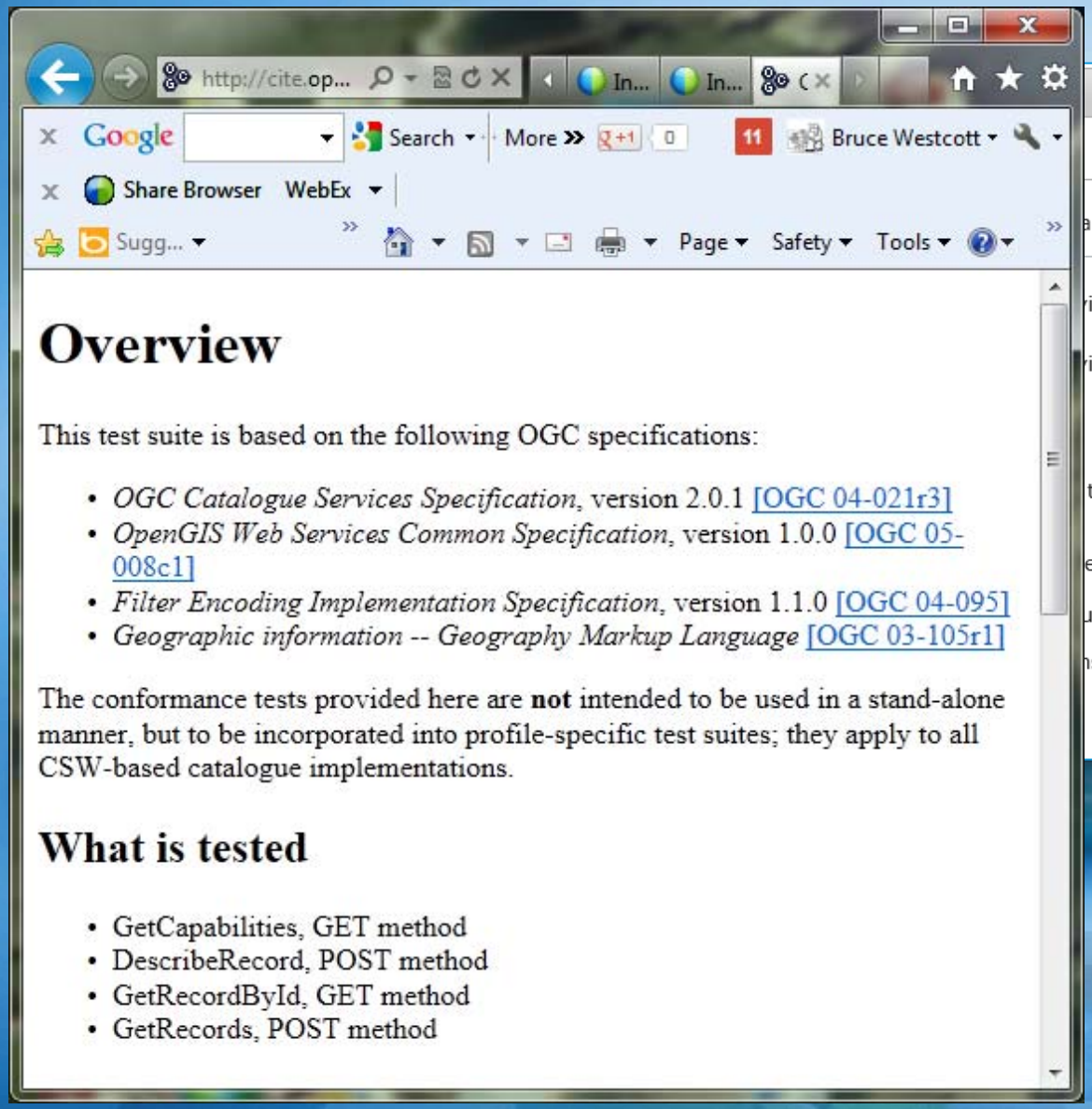


Standards -- *de jure & de facto* (including "rules" & "specifications"
Interlocking; interdependent; serial dependencies

Our Approach:

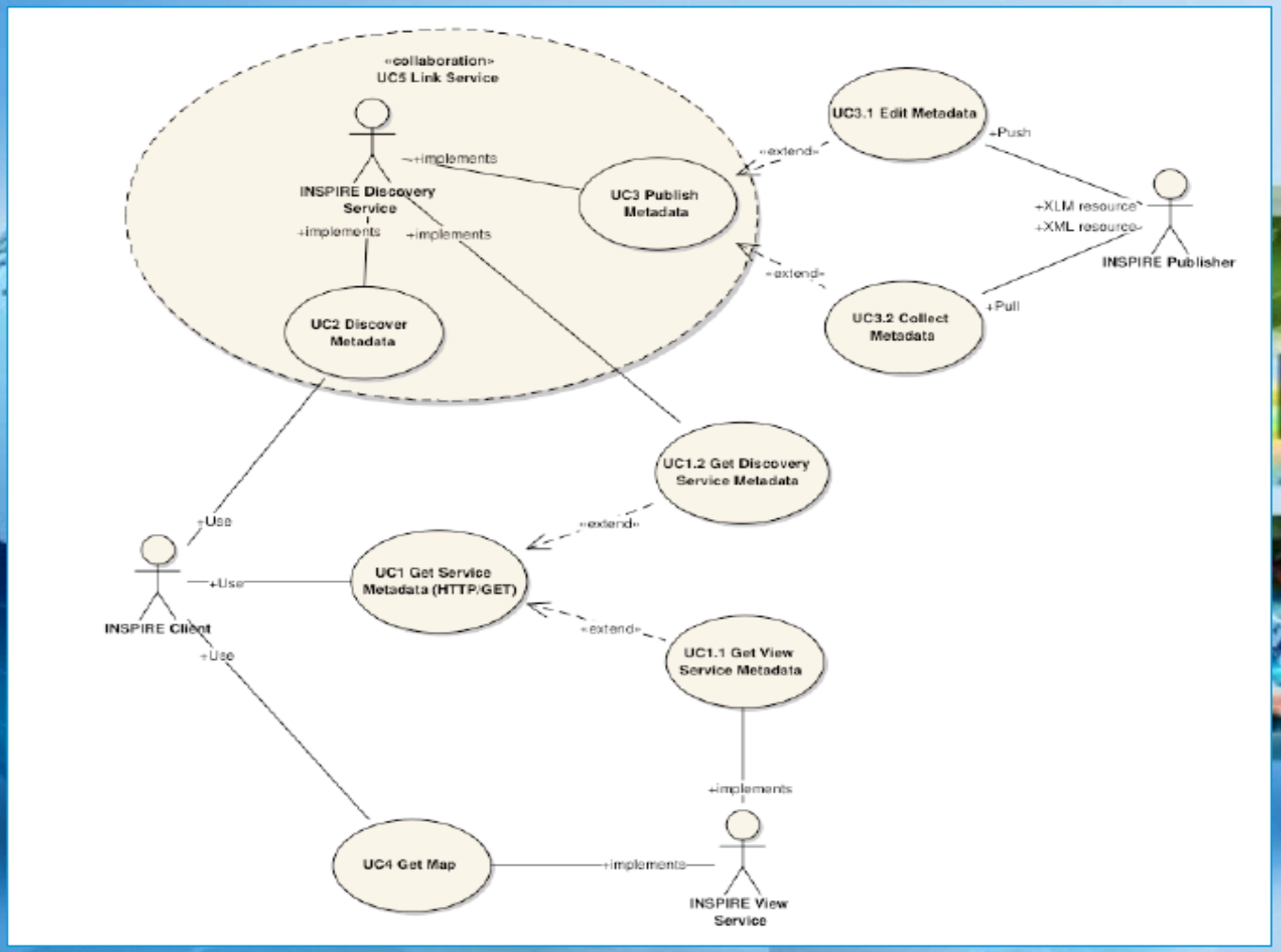
1. Compliance through Testing/Certification
2. Providing Friendly and Flexible Data Display Formats
3. XML Stylesheeting
4. Supporting Multi-Lingual Display & Data Entry
5. Assuring Compliance at Data Entry
6. Moving Beyond Mandatory Provisions in Standards
7. Anticipating and Implementing Extended Workflows (Beyond Standards)

Where's the Beef?



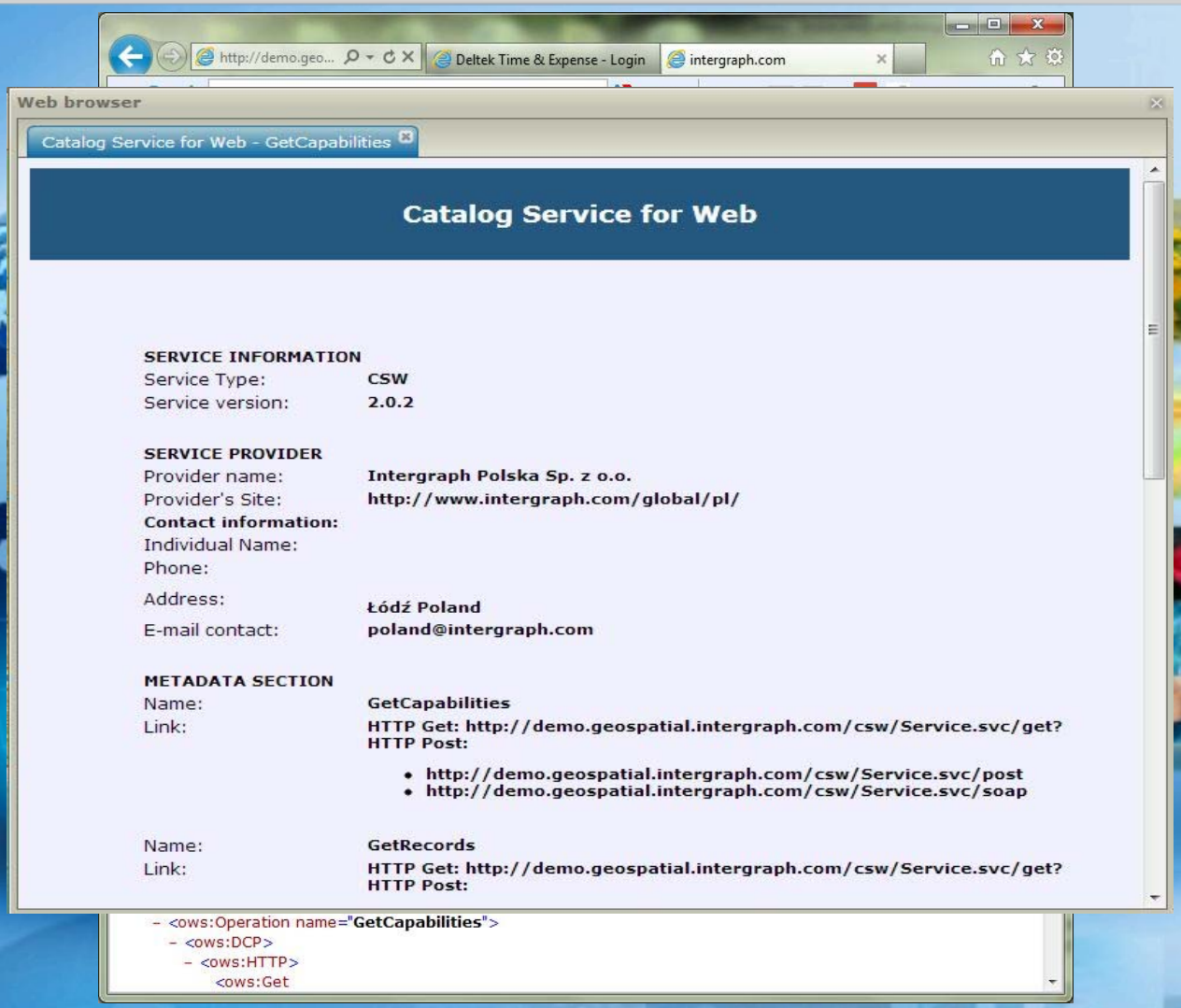
Intergraph must perform internal testing of software, and assure conformance with all available standards testing or certification programs, and demonstrate and advertise conformance for potential customers..

Where's the Beef?



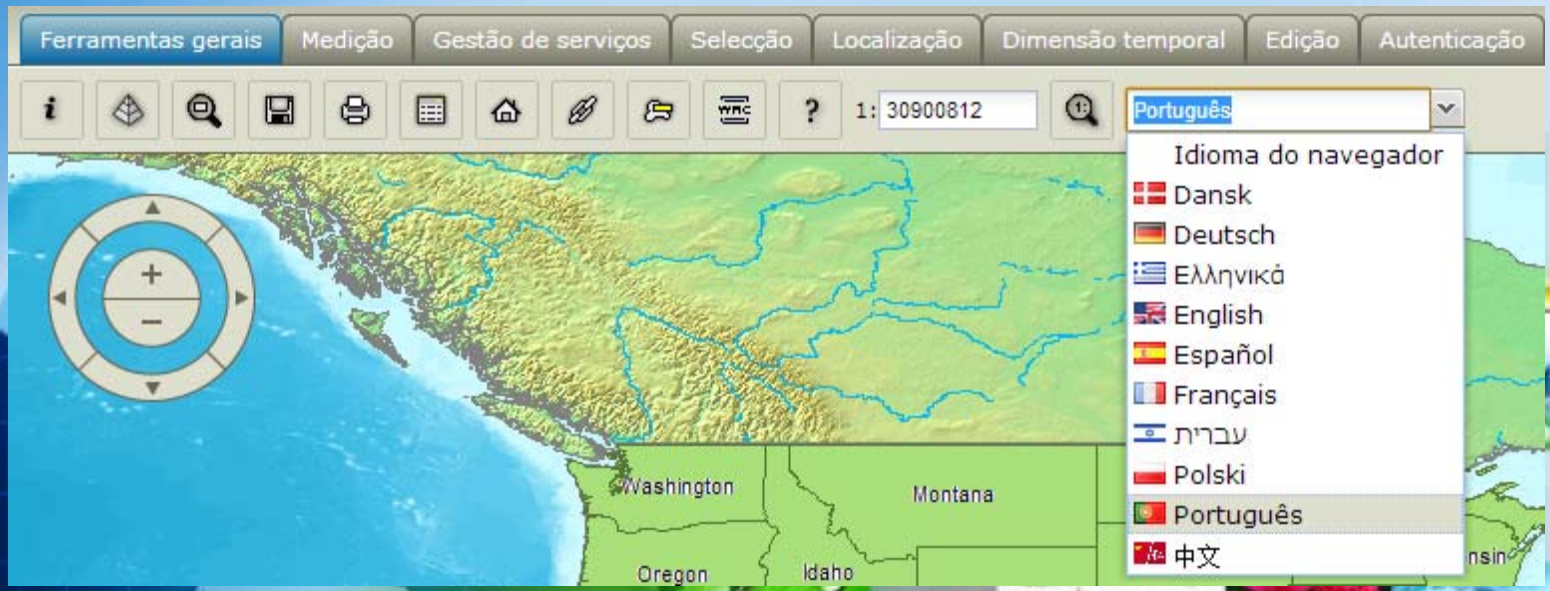
Intergraph efforts focus on Customer Workflows; figure shows the "Discovery" use cases in the INSPIRE literature.

Where's the Beef?



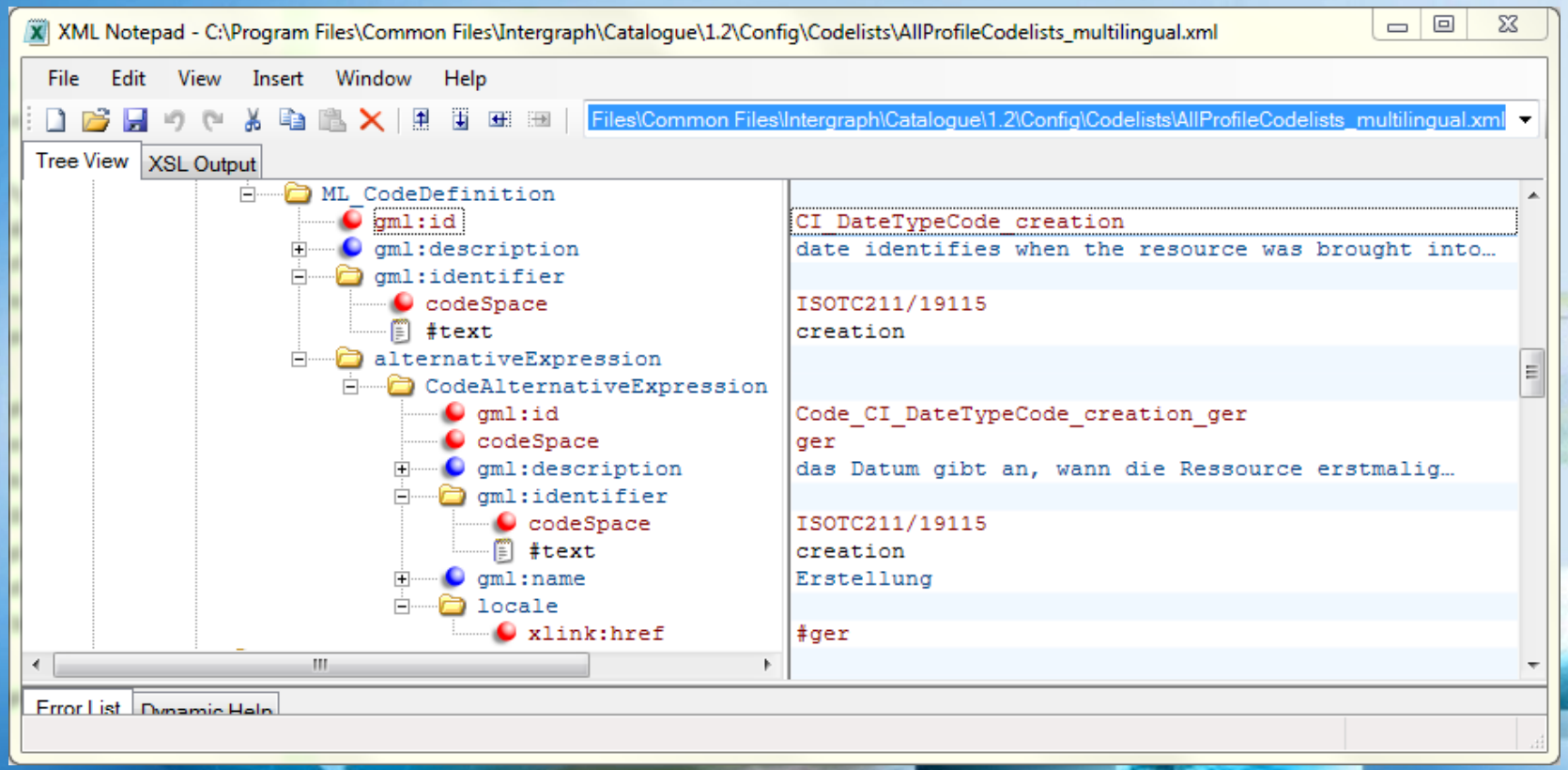
Stylesheeting example: **GetCapabiliites** -- user wants to see information about a web service: Who provides the services, what sorts of data are served, and what are other details?.

Where's the Beef?



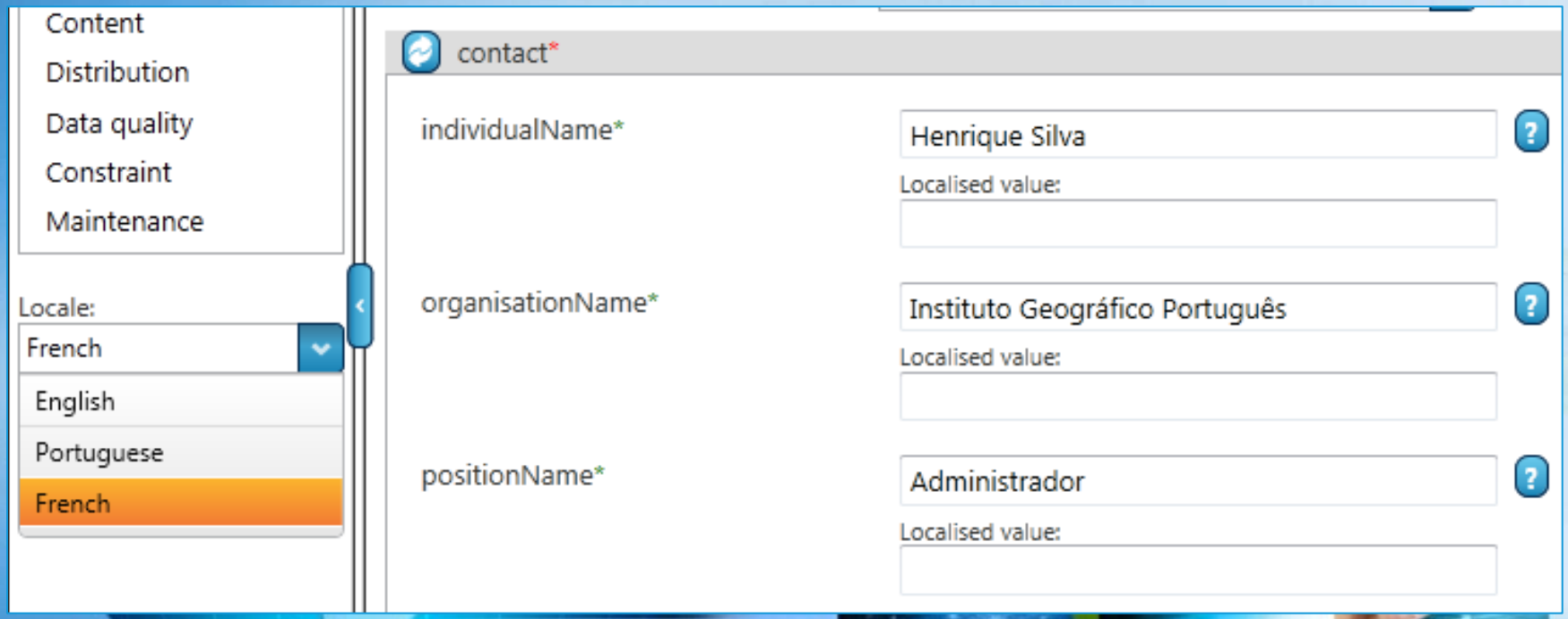
- Intergraph adheres to Microsoft standards and practices for globalizing and localizing our applications , supporting release on operating systems of all languages.
- We provide out-of-the-box localization for locales in which there is high demand for specific products, and
- We use an architecture and advanced tools that make further localization projects as efficient as possible.

Where's the Beef?



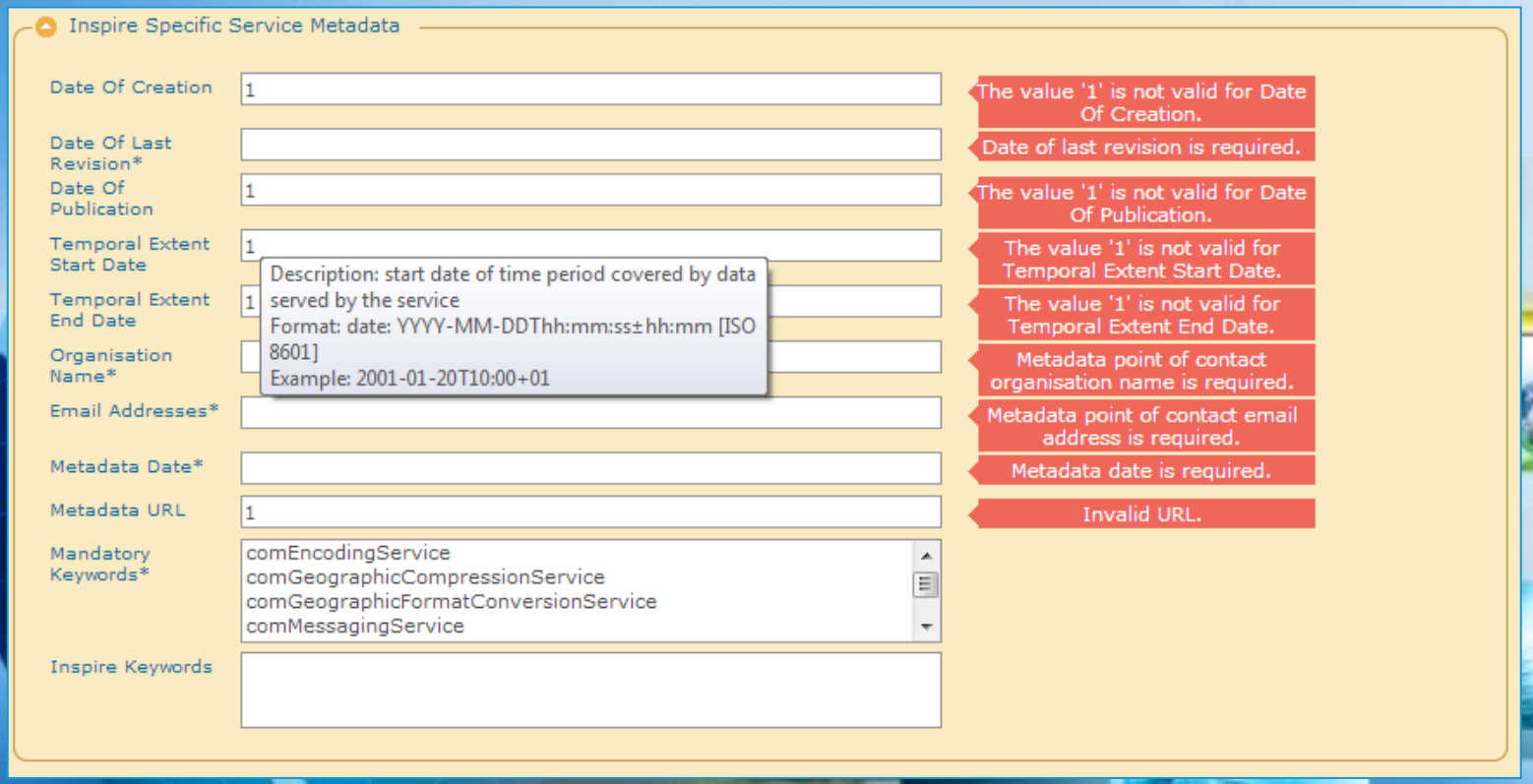
Intergraph builds applications to utilize XML strings for initializing user interfaces, we provide administrators with opportunities to modify the code-lists, input tags, HELP phrases, and other elements in different languages.

Where's the Beef?



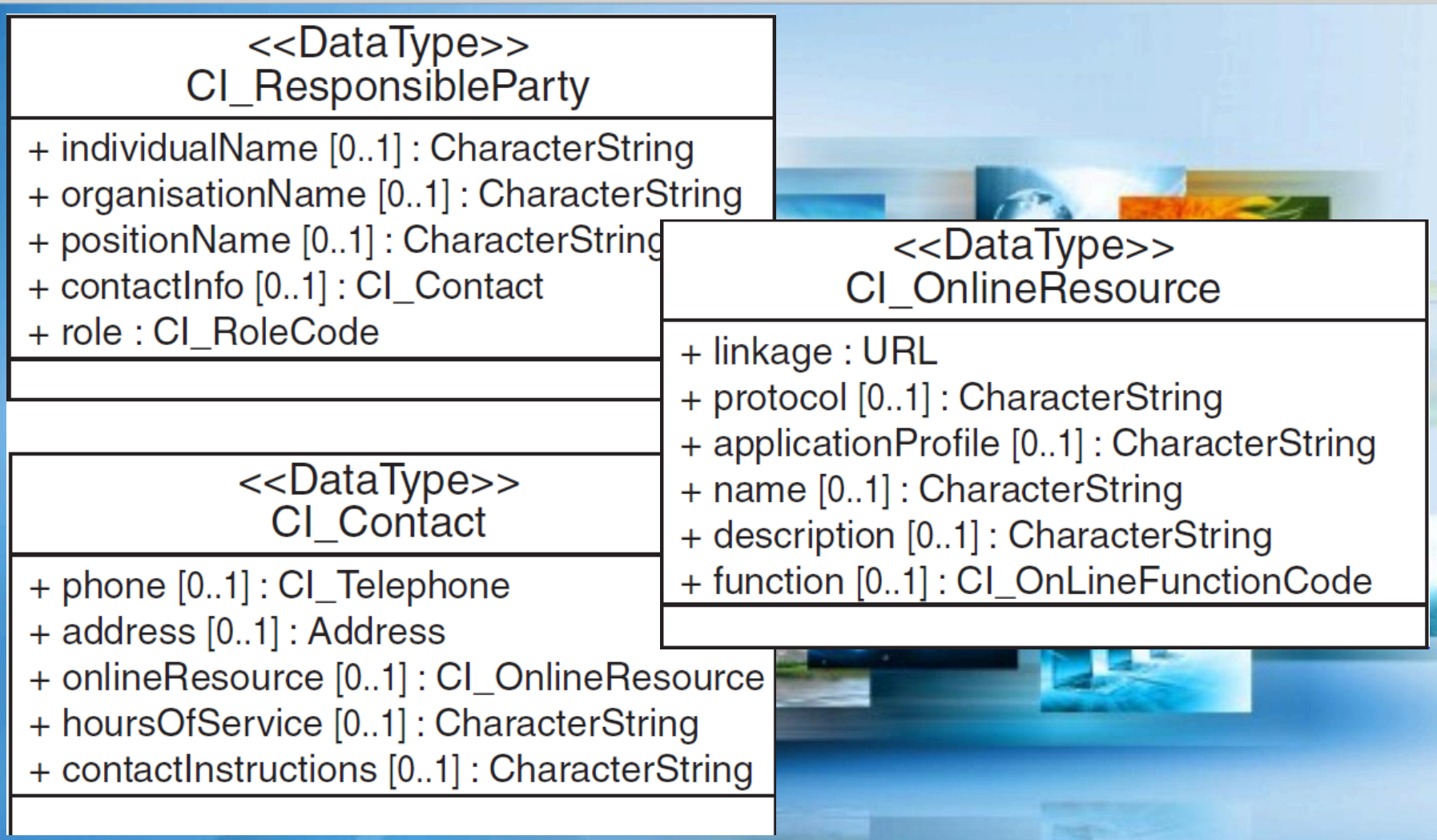
Intergraph uses the flexibility inherent in XML to present a UI in the language based on the Windows user preference, and configurable to allow the user to select an alternate language and character set for data input, as illustrated by the figure above.

Where's the Beef?



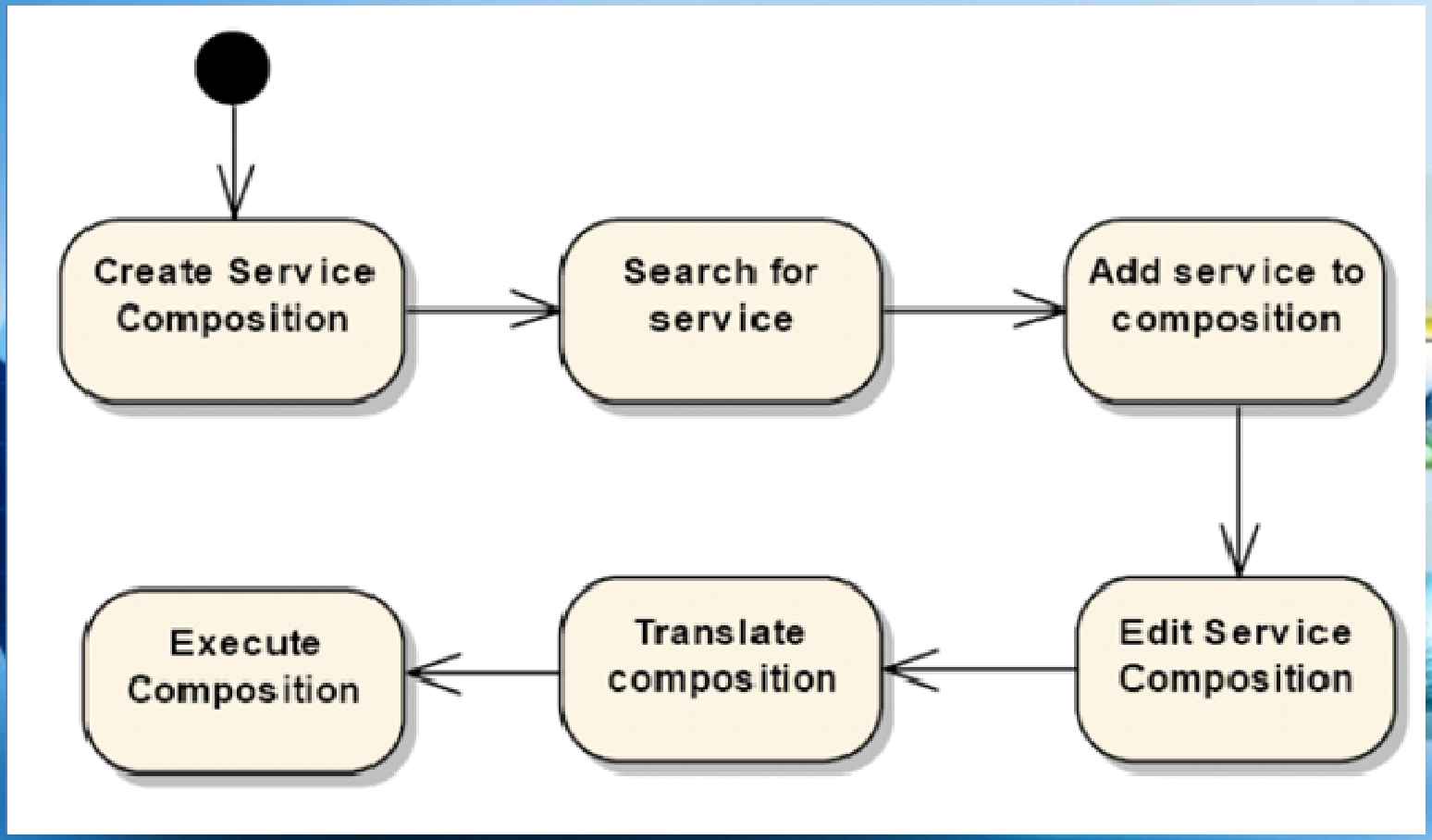
Standards Compliance in Data Entry:

1. Standardized naming of each element, including visual indicator for "Mandatory/Optional,"
2. "Hover Help" that includes the definition, format and a sample value for the element,
3. Element-level automatic error-messaging, highlighted visually and
4. Drop-down code lists.



Moving beyond the Mandatory

Where's the Beef?



Web-based "open" geoprocessing workflows integrate data and services in an interoperable way, each step of the workflow is responsible for only a specific task, without being aware of the general purpose of the workflow.

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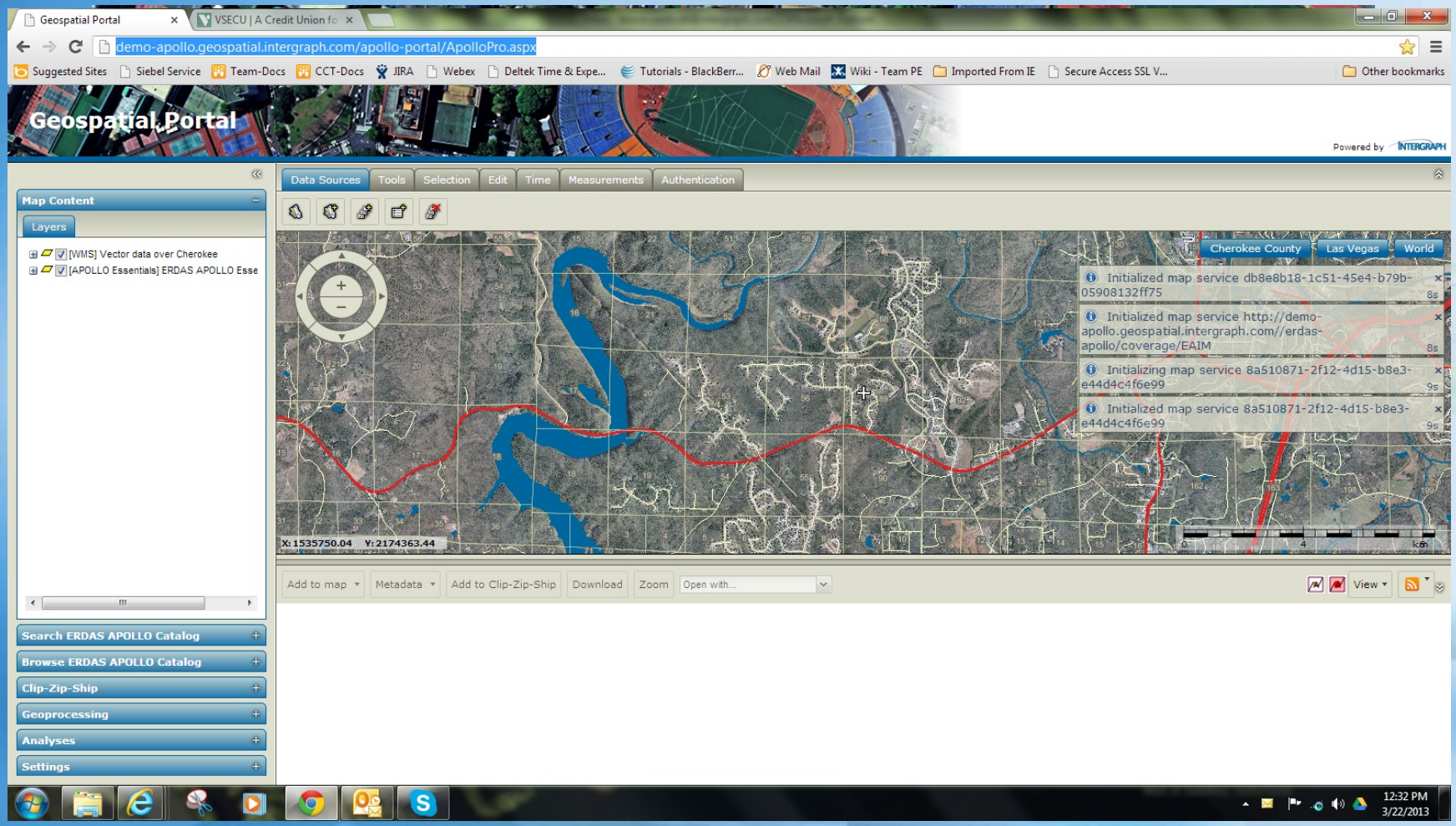

Intergraph portal for discovery, viewing, analysis, (optional) download of features or images, and their deployment within other web-based mapping applications or proprietary desktop applications.

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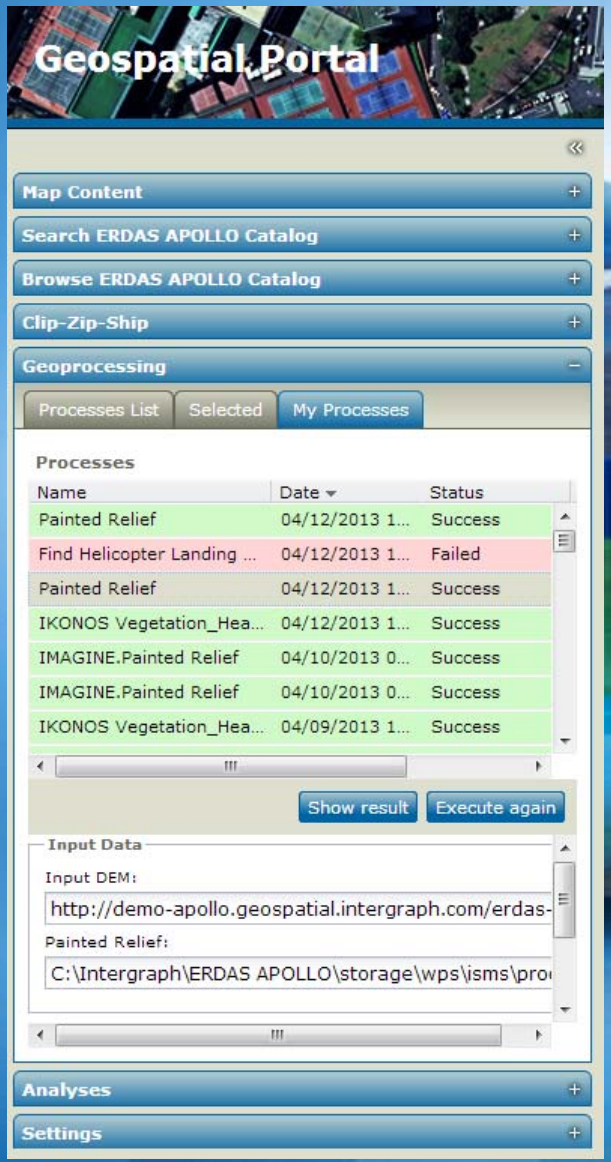


Customized workflow steps

–

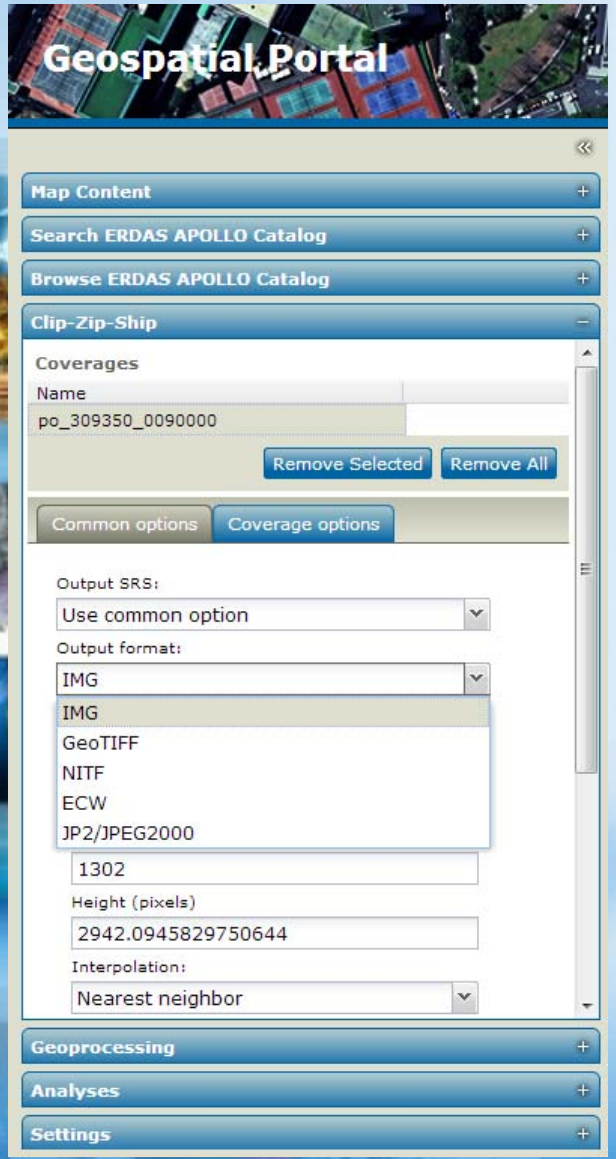
geoprocessing and data extraction

–

follow **standards-based workflow steps**

–

discovery and viewing



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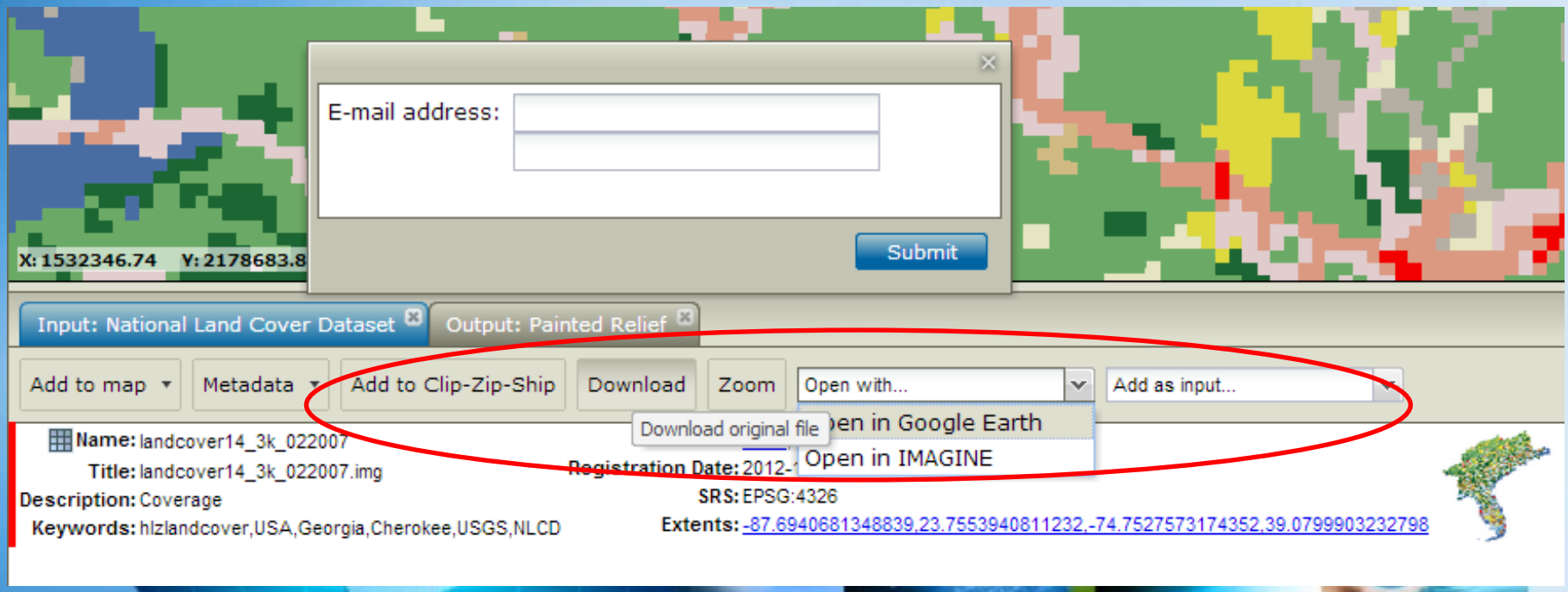

Optional back end the workflow steps :

1. Downloading a file directly,
2. Adding it to a Zip file for emailing to the user, or
3. Opening directly in a web-based or desktop application.

Where's the Beef?

Standards for Spatial Data Infrastructure

"Foundational" SDI Standards

- W3C Recommendation: eXtensible Markup Language (XML) Version 1.1
- W3C Recommendation: XML Schema Version 1.0
- W3C Recommendation: Hyper Text Transport Protocol (HTTP) Version 1.1
- W3C Recommendation: Simple Object Access Protocol (SOAP) Version 1.2
- W3C Note: Web Services Description Language (WSDL), Version 1.1
- Oil and Gas Producer (OGP, formerly EPSG) Geodetic Parameter Dataset, Version 6.9 (2006)
- Geographic Tagged Image File Format (GeoTIFF) Version 1.0
- JPEG-2000 (ISO/IEC 15444-1:2004)
- Information retrieval (Z39.50)—application service definition and protocol specification (ISO 23950:1998)
- W3C XLink 1.1 Schema

"Core" SDI Standards

- OGC Web Map Service 1.3
- OGC Web Feature Service 1.1
- OGC Filter Encoding 1.1
- OGC Web Coverage Service 1.1.2
- OGC Geography Markup Language 3.2.1
- OGC Catalogue Service 2.0.2 HTTP protocol binding (CS-W)
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- ISO 19115:2003 and ISO/TS 19139:2007
- OGC KML 2.2
- OGC WPS 1.0 + corrigenda

"Supplemental" SDI Standards

- OGC Styled Layer Descriptor 1.1
- OGC Web Map Context 1.1/Corrigendum 1
- Future SDI Standards
- OGC Web Coverage Service 2.0, corrigenda, and KVP, XML/POST, and XML/SOAP protocol binding extensions
- OGC Web Feature Service 2.0/ISO 19142:2010
- OGC GML 3.3
- OGC Filter Encoding 2.0

Intergraph finds that reliance on standards as building blocks is not just the *most efficient and open way* to implement user workflows; rather, our adoption and extension of these standards is the *only way* to implement them.

Thank you!

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