Working together towards a common objective will enable EC's Information Assets to be visible, useable, and shareable

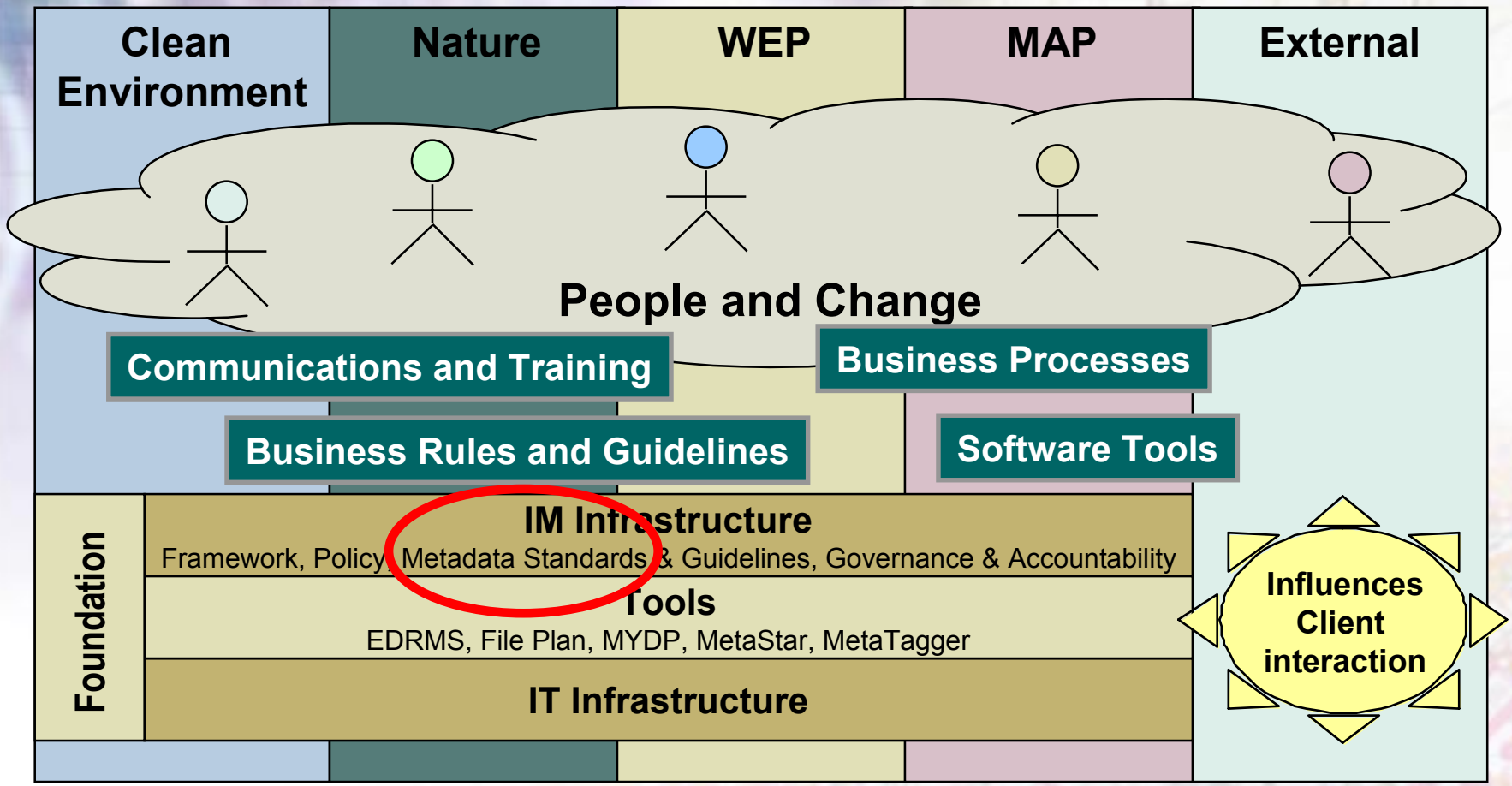
Metadata
is KEY *to*
Knowledge Sharing

Information as a Strategic Business Asset

Information is a STRATEGIC ASSET and must be managed with the same effort and commitment as other Departmental resources

Metadata… provides a means for knowing what we know

Components of Information Management



What Metadata can *do for* Environment Canada

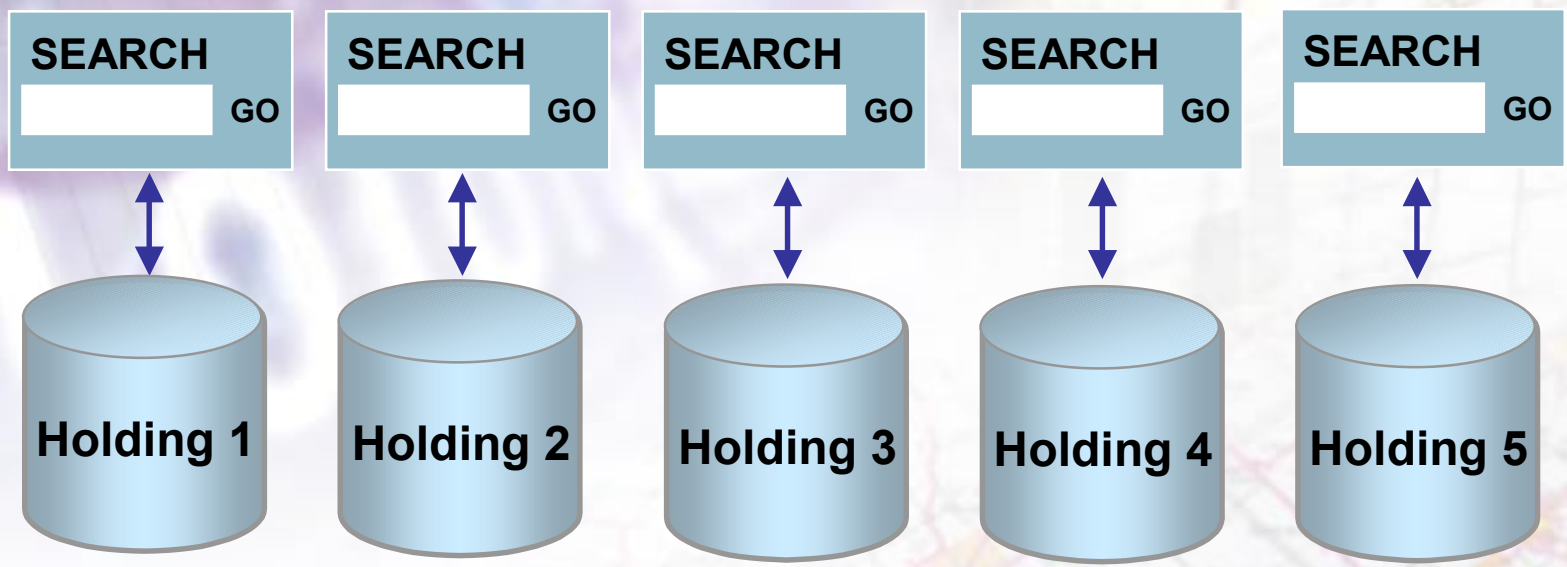
- Allows for interoperability (crosswalk) among distributed data sets
- Facilitates horizontal integration of business processes
- Provides the tools to enable content management for multiple re-use of information
- Enables consistent discovery, access and exchange by, **Citizens, Partners and EC Staff**

Multiple sources **one view,** and *one source*, **many views**

Searching *used to be* Ad-hoc

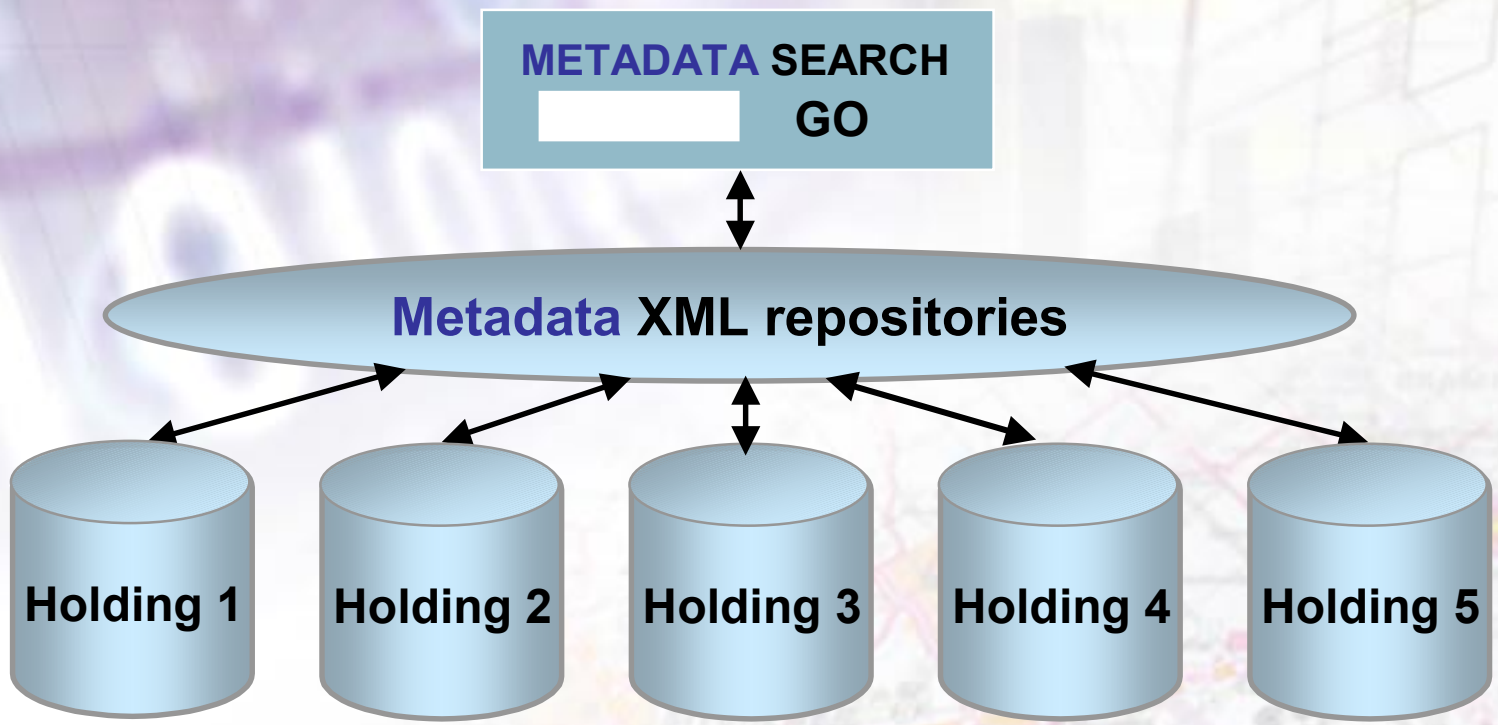
Without Metadata

The user must search each holding individually



Searching *is now* Integrated

With Metadata
One search yields all



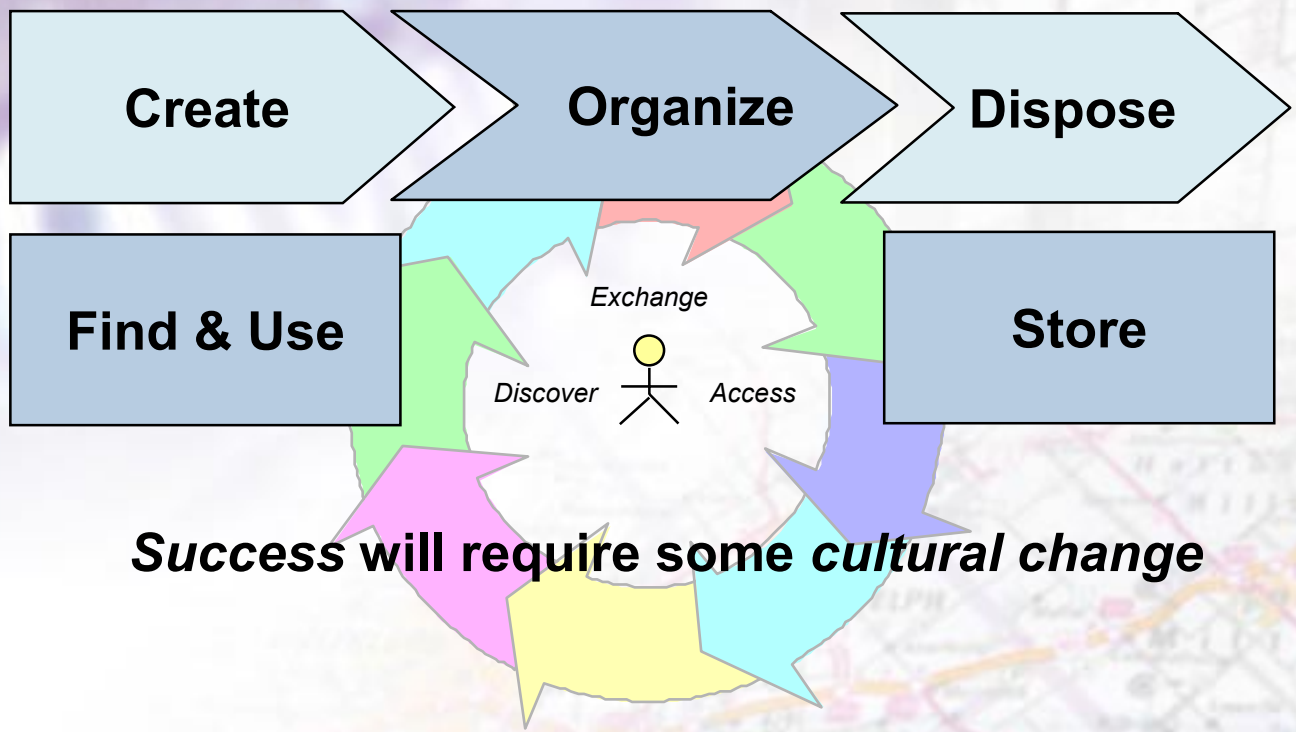
International Standards *Ensures* World View

- Conform to international standards while providing for the science-based nature of Environment Canada
- Key standards:
  - Federal:
    - Dublin Core (TBS mandate)
  - International:
    - FGDC CSDGM (Content Standard for Digital Geospatial Metadata); ISO TC 211

Metadata *is key to* Life Cycle

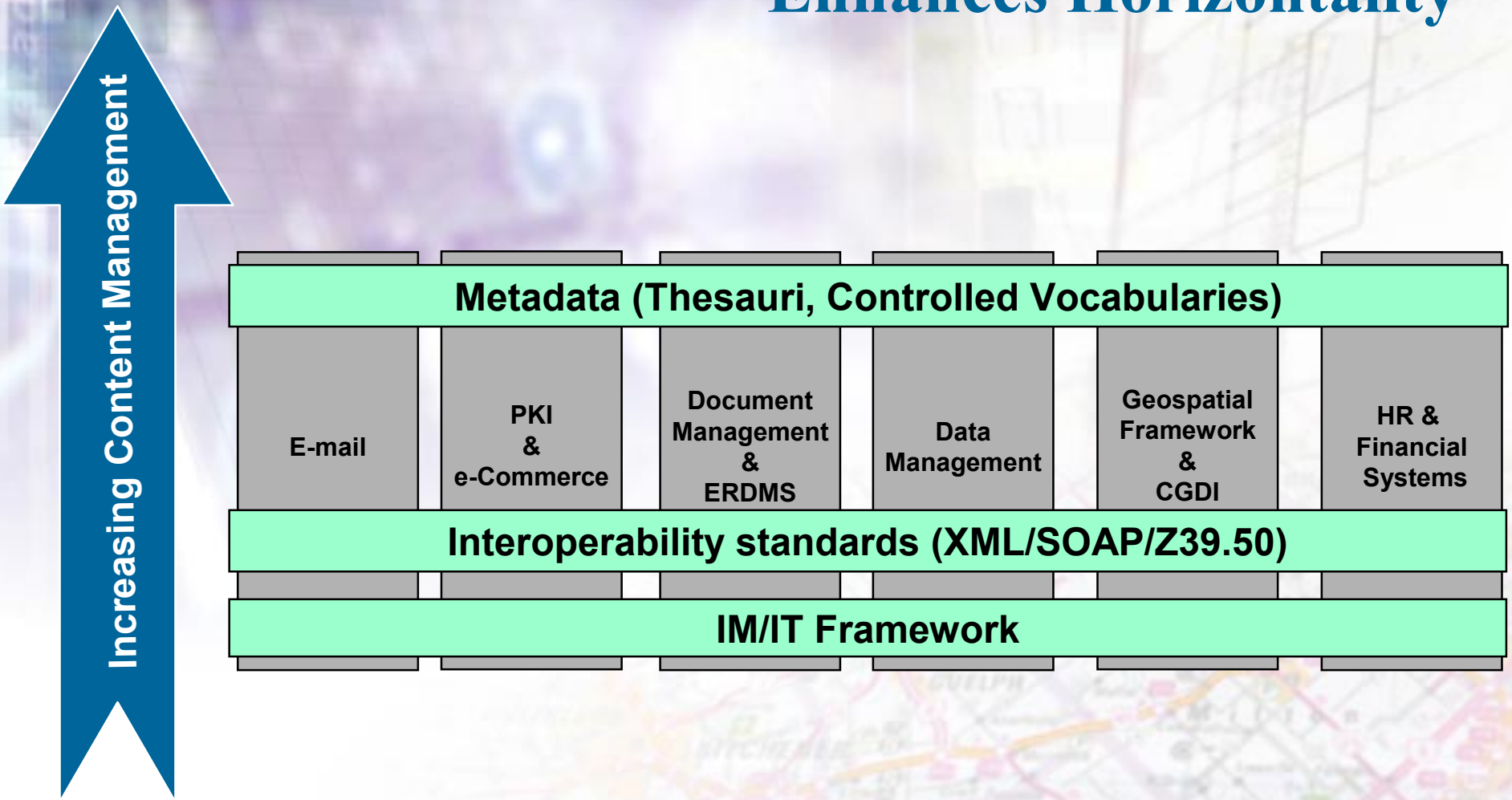
We apply Metadata to manage information

The information life cycle



Success* will require some *cultural change

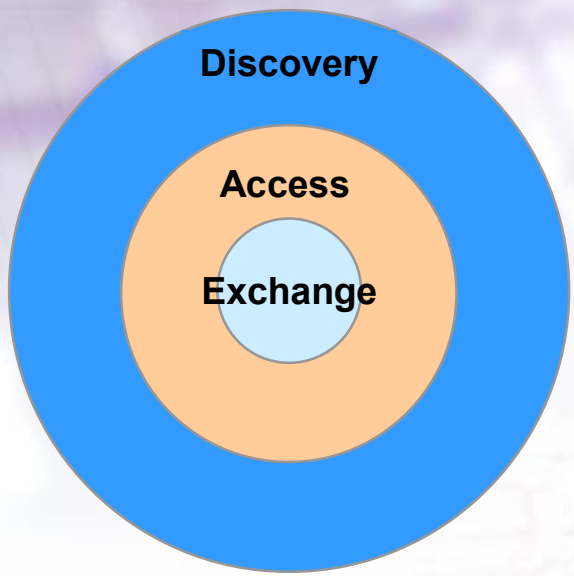
Content Management Enhances Horizontality



Metadata Standards
Keeping it simple

Three Levels of Metadata

A *flexible strategy*
that matches *effort to need*



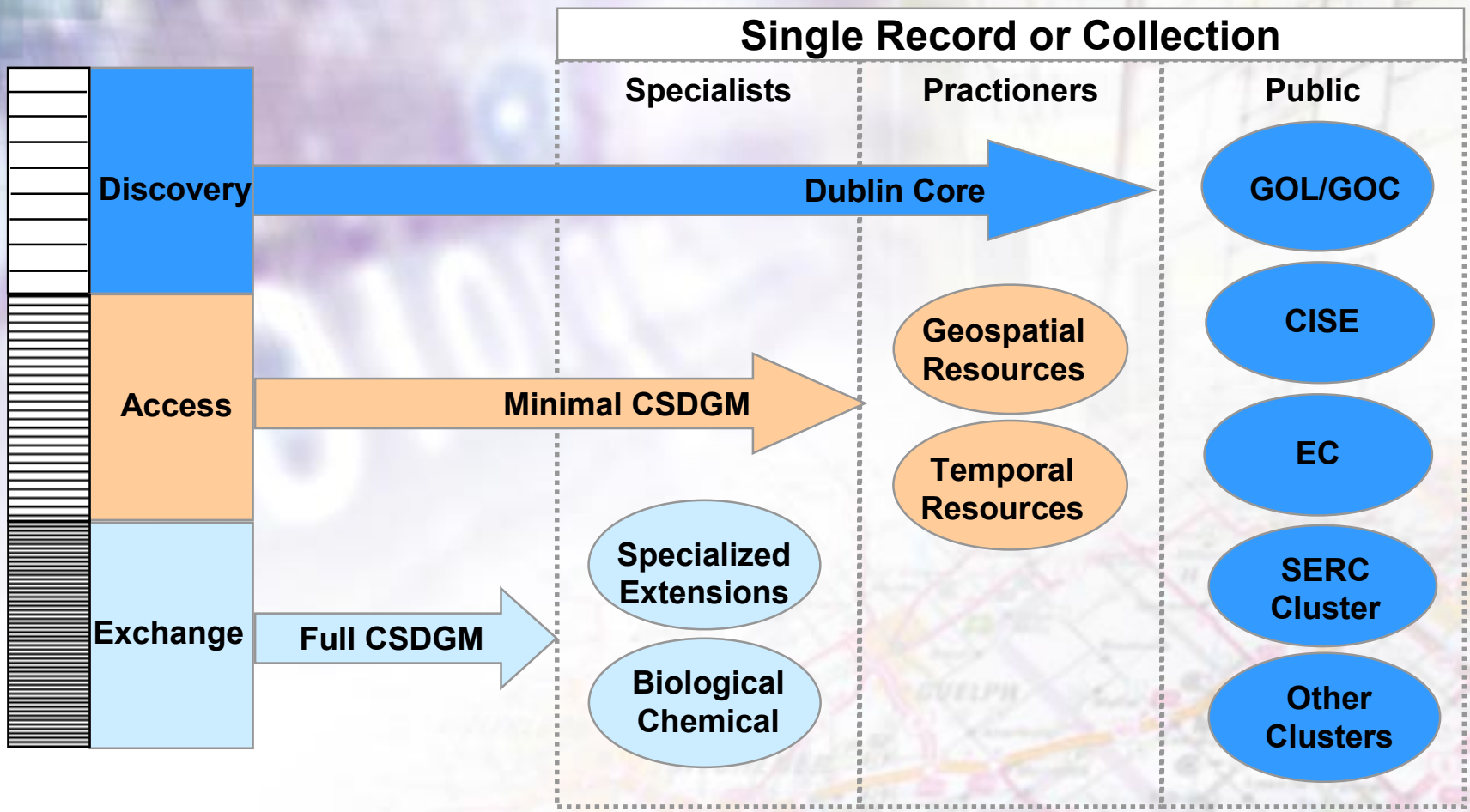
Using internationally recognized standards

Discovery
Most EC information assets will be described at this simplest level. This could be for a collection or single record.

Access
This level will be used to provide detailed access to scientific information holdings.

Exchange
Using the full geospatial and/or biological profile to enable the comprehensive disclosure and exchange of data.

Hierarchical Application of Metadata Standards



Metadata Standards

Dublin Core

- Lightweight (15 elements); web focus; industry support

FGDC CSDGM (Minimal)

- Middleweight (~30/300 elements); production rules

FGDC CSDGM – Biological Data Profile (NBII)

- Heavyweight (over 400 elements); data focus

Controlled Vocabularies: Metadata +

- Controlled vocabularies glue metadata together
  - Searchers use the same language as data owners, enabling discovery
  - Data owners use the same language, enabling data exchange and align
  - Enables horizontal integration of business processes
  - Translation is transparent
  - Facilitates crosswalking of metadata standards

mwg-gtm

Controlled Vocabularies: Thesaurus, Taxonomy

- **Thesaurus**
  - GoC Controlled Subject Thesaurus (CST) – high-level, generic; applicable to all government information resources, not specialized (i.e. environmental) holdings
  - Global Change Master Directory (GCMD) Science Keywords – maintained by NASA; used (and translated) by NRCan in their CSDGM tools; over 1200 specialized terms
- **Taxonomy**
  - SERC and Green Lane - high level, generic; provides for site navigation, contextual browsing, search

Controlled Vocabularies: Other Examples

- Other important vocabularies, lists and standards:
  - GEDS & EnviroTel
  - ISO Country Codes
  - ISO Language Codes
  - W3C Date-Time Format
  - URI
  - DCMI Type Vocabulary
  - Decimal-Degrees

Information is Managed to Deliver a Business Outcome

- Business logic
- Authority lists
- Life cycle management

Holding Holding Holding

Apply Content Management for Business Processes

- Find
- Use
- Share

Holding Holding Holding

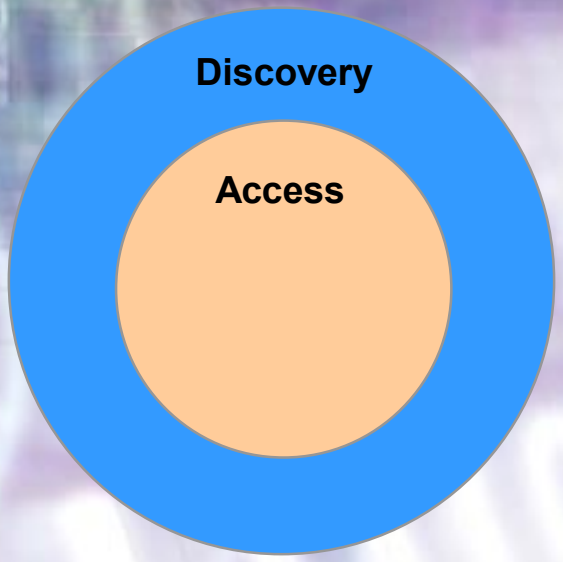
Apply **Metadata** *for consistency*

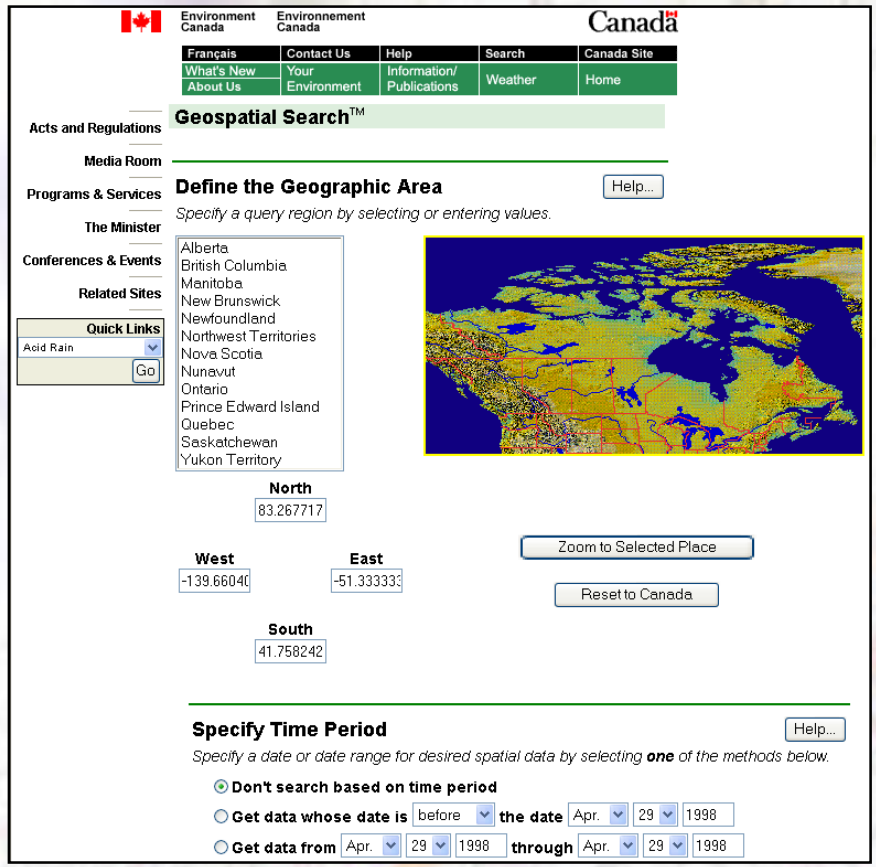
Libraries | Reports | Briefing Notes | Email | Books | Temporal Databases | Geospatial Databases

Existing situation: discrete holdings with inconsistent **Metadata**

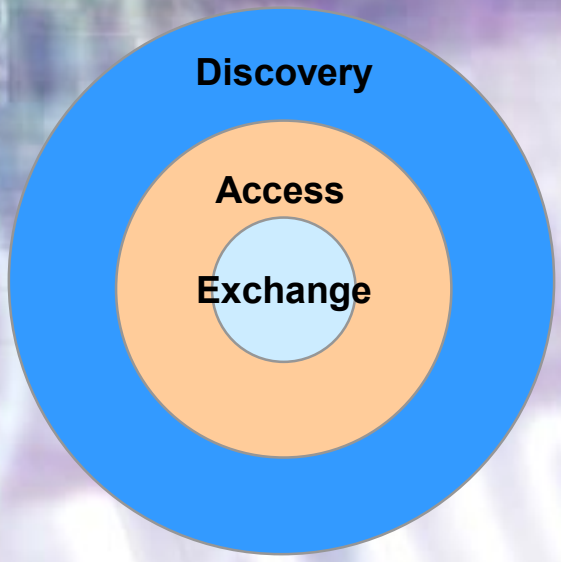
Metadata Discovery and Visualization

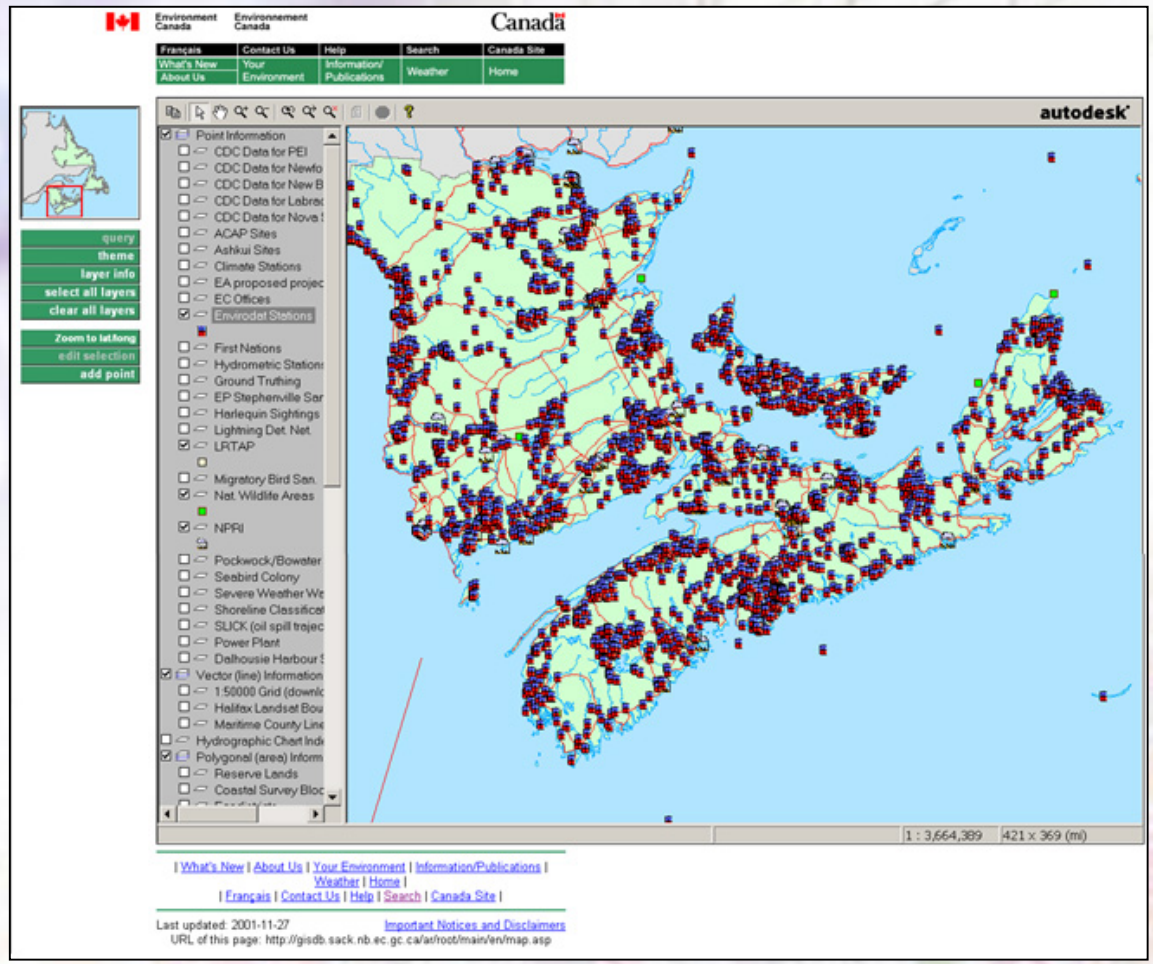
Metadata Discovery and Visualization

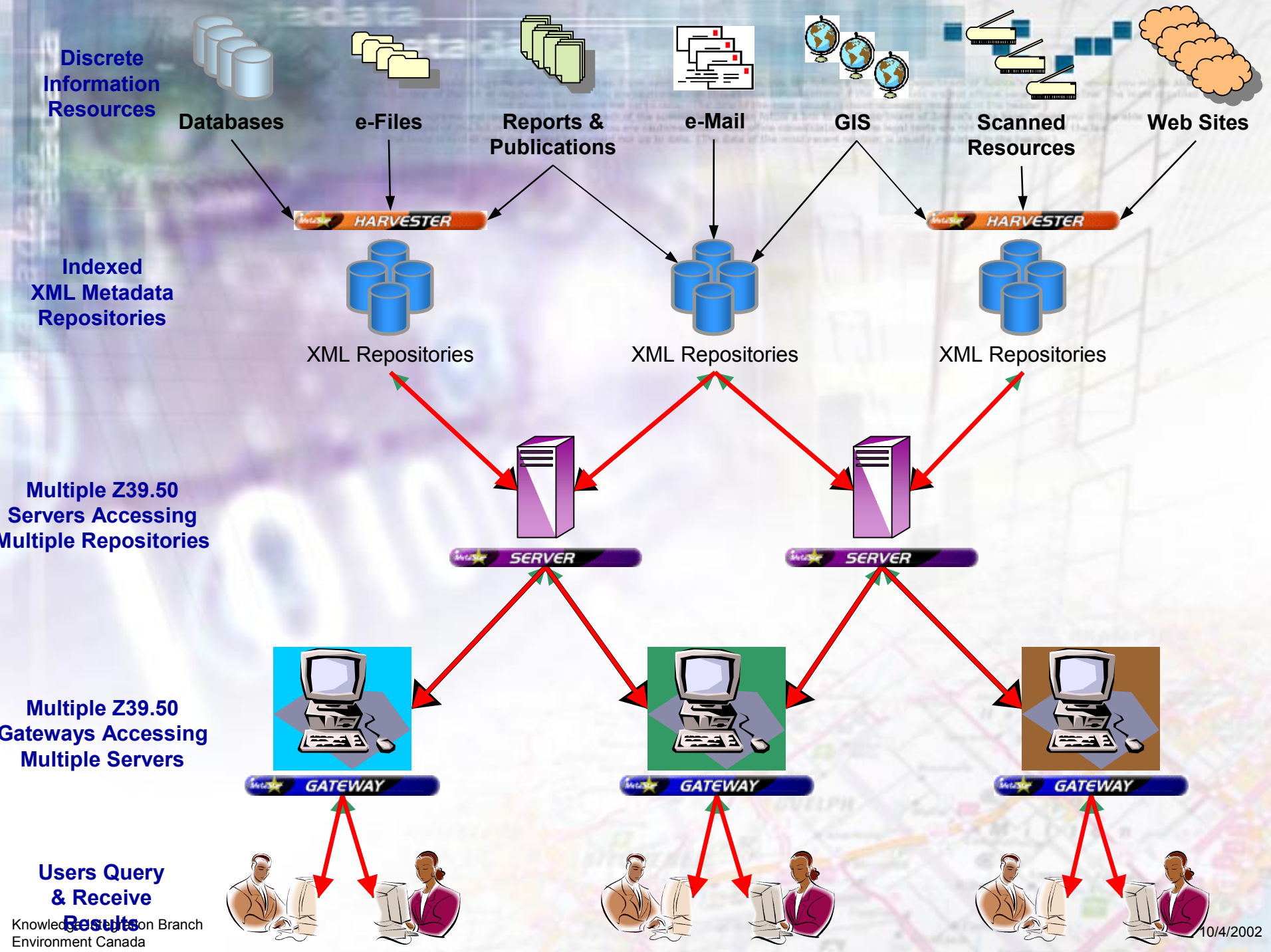




Metadata Discovery and Visualization






Discrete Information Resources
Databases
e-Files
Reports & Publications
e-Mail
GIS
Scanned Resources
Web Sites
HARVESTER
HARVESTER
Indexed XML Metadata Repositories
XML Repositories
XML Repositories
XML Repositories
Multiple Z39.50 Servers Accessing Multiple Repositories
SERVER
SERVER
Multiple Z39.50 Gateways Accessing Multiple Servers
GATEWAY
GATEWAY
GATEWAY
Users Query & Receive Results

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