Automatic Spatial Metadata Update- A New Approach

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Centre for SDIs and Land Administration (CSDILA)

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spatial metadata automation

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Outlines of Presentation

spatial metadata automation

- Introduction to “Spatial Metadata Automation Research Project”
- Spatial Metadata Creation and Updating- Approaches, Challenges and Drivers
- Spatial Metadata Automation Framework
- New Approach to Automatic Update Metadata
- Further Research

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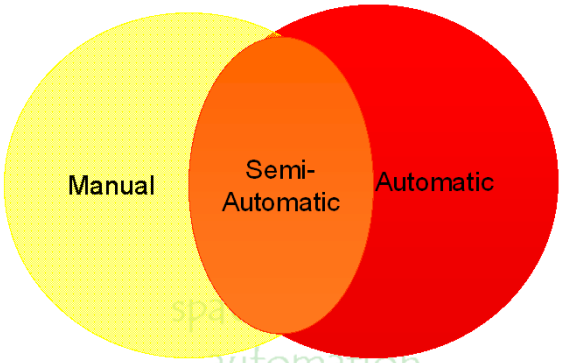
Spatial Metadata Creation and Updating Approaches



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Spatial Metadata Creation and Updating - Challenges

- Creation and updating spatial metadata by manual and semi-automatic input is *expensive, time consuming, monotonous and a labor-intensive* process.
- Spatial data and its related metadata are *stored in separate data bases*; so they cannot be updated at the same time.
- *Inconsistency between the standards* used to create metadata by organizations.
- *Multiple parties involved* in the spatial data and metadata creation and update process.
- *Lack of policies and governance processes* to create, update, deliver, share and publish metadata.
- *The variety of tools* used for metadata creation and updating.
- *Lack of user friendly tools*.

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Drivers of Metadata Automation

- Challenges facing the current approaches
- Increasing use of spatial information
- Increasing amount of spatial information
- Diversity of spatial information use
- Thousands of spatial databases are now networked via the Internet

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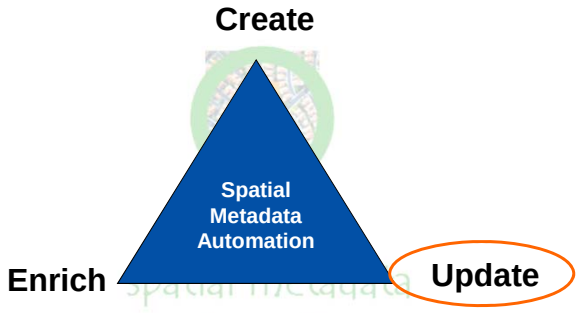
Spatial Metadata Automation Framework



Automatic spatial metadata update/synchronization is a process by which properties of a spatial dataset are read from the dataset file and written into its spatial metadata file automatically.

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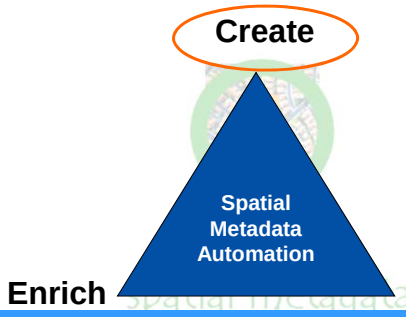
Spatial Metadata Automation Framework

spatial metadata automation



When there is no exiting metadata associated with spatial data there is a need for other methods such as:

- *Hand-coded rule-based parsers (domain specific)*
- *Machine learning*

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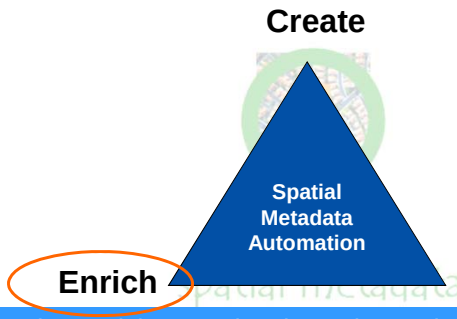
Spatial Metadata Automation Framework

spatial metadata automation



Automatic enrichment involves improving content of metadata through *monitoring tags and keywords* that are used by users for finding datasets. Creating metadata by monitoring user interaction is based on the Folksonomy concept.

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Automatic Metadata Updating

- Updating is the *most significant streamline* of automation
- *Previous* efforts
- The importance and potential of integrating spatial data and metadata *in a common file*
- Using Geography Markup Language (*GML*)- by OGC as a *medium* to automate spatial metadata updating
- *Mapping GML elements to ISO 19115 elements*

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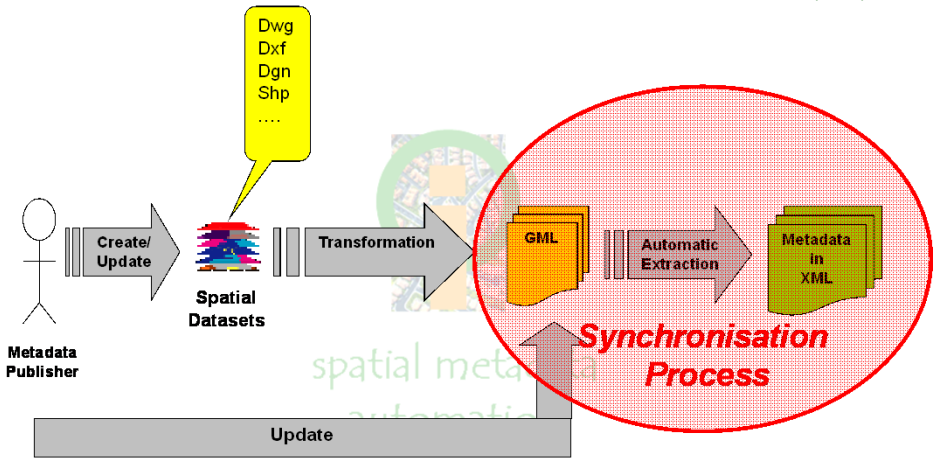
Automatic Spatial Metadata Update - New Approach



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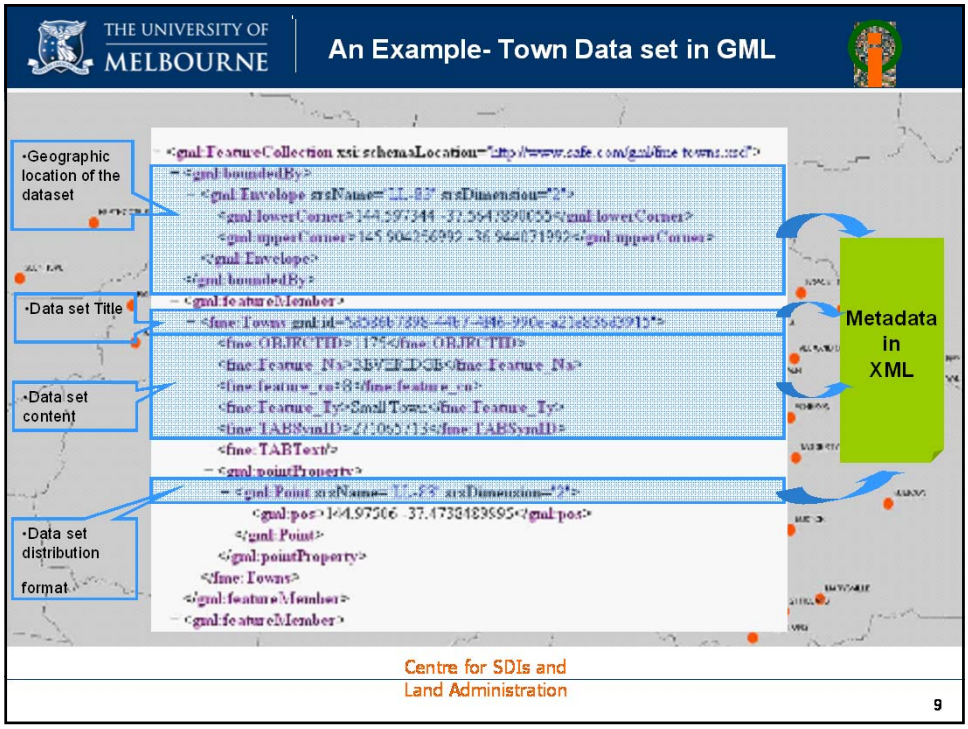
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An Example- Town Data set in GML
•Geographic location of the dataset
•Data set Title
•Data set content
•Data set distribution format
Metadata in XML
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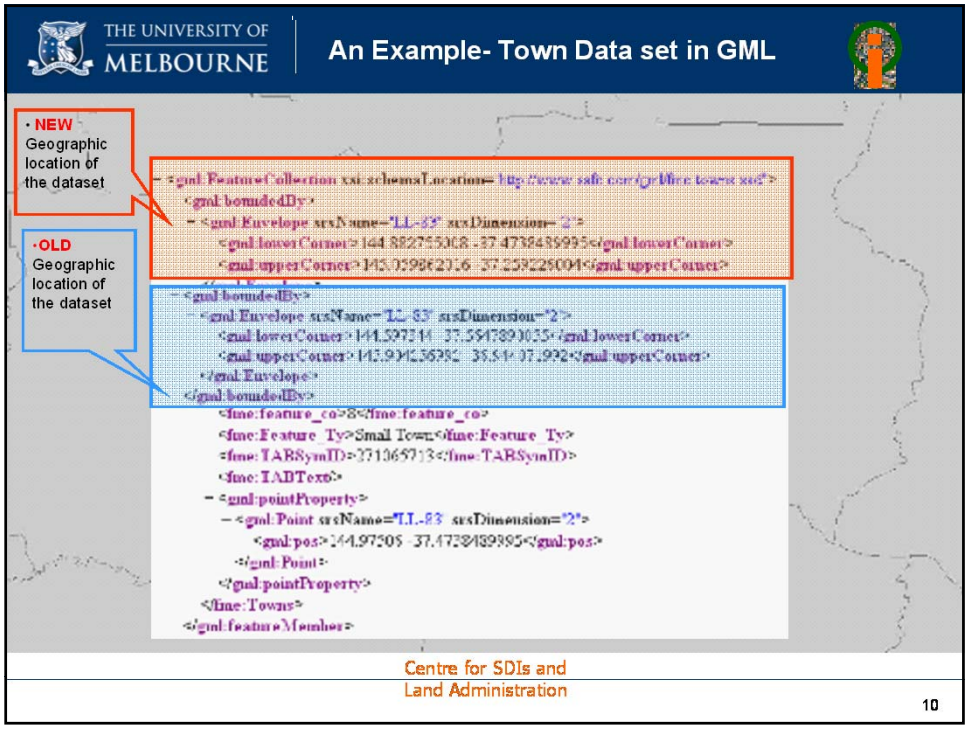
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An Example- Town Data set in GML
• NEW Geographic location of the dataset
•OLD Geographic location of the dataset
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New Approach Benefits

- Simplifying the *interoperability* issues relevant to spatial data transfer and storage through the web environment.
- Saving more *time, resources and energy* through reducing the number of updating processes.
- Decreasing the publishers' *concerns* on spatial data creation and update methods and output formats.
- Updating a *large number* of spatial metadata elements automatically.
- Requiring *less-complicated synchronisation algorithms*.
- Minimizing the risk of spatial data and metadata *inconsistency* and *redundancy*.

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Further Research

- Exploring *the key areas of spatial metadata automation research in Australia*
- Investigation on *mapping the GML elements to ISO 19115*
- Developing an *updating prototype* based on GML
- Developing an *enrichment prototype* based on the concept of Folksonomy in different case studies

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Acknowledgments

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logica

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The Place To Be

DPI, DSE

AUSSOFT

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spatial metadata automation

http://www.csdila.unimelb.edu.au/projects/metauto/index.html

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