

TSM7-5.9

Issues with the Part 9-7 Data Input Schema

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for
TSM7

9-7 Data Input Schema Issues

Spatial Model

Not consistent with GFM

No concrete types

Not Machine Readable

Can't be updated

Duplicative

Feature Catalogue

Inefficient

Unprocessed data

Portrayal Input Schema

- Products using XSLT Portrayal **MUST** extend the 9-7 data input schema
 - Note 9-7.1 paragraph 2

*[...] In this standard only the base types are described. The actual feature types of a data product **must be specified in a schema** that will be **part of the product specification**. [...]*
 - Spatial (9-7.7), information (9-7.8), and feature (9-7.9) object types are abstract
 - **Must** be extended
 - Spatial types need to be extended to provide association to information object(s)

Drawbacks



Complicates Product Development

Complicates Product Maintenance

Increases Application Development Time

No Machine Readability

Requires Application Updates when Schema Changes

Recommendation 1



Investigate simplification or replacement of data input schema

- Feature Catalog already describes and constrains features
- Describe how to create a DOM for parsing
 - Schema doesn't describe how to create a DOM, it is used to determine whether a DOM is valid

Recommendation 2

- Provide standard way to describe association between spatial objects and information types
 - Note 9-7.1 paragraph 3

[If] spatial objects and associations [...] are not sufficient for a specific data product, appropriate types can be derived [...]. This may be the case for spatial objects that [need associations to information quality].
 - i.e. **spatial quality cannot be described without extending the schema**

Recommendation 3

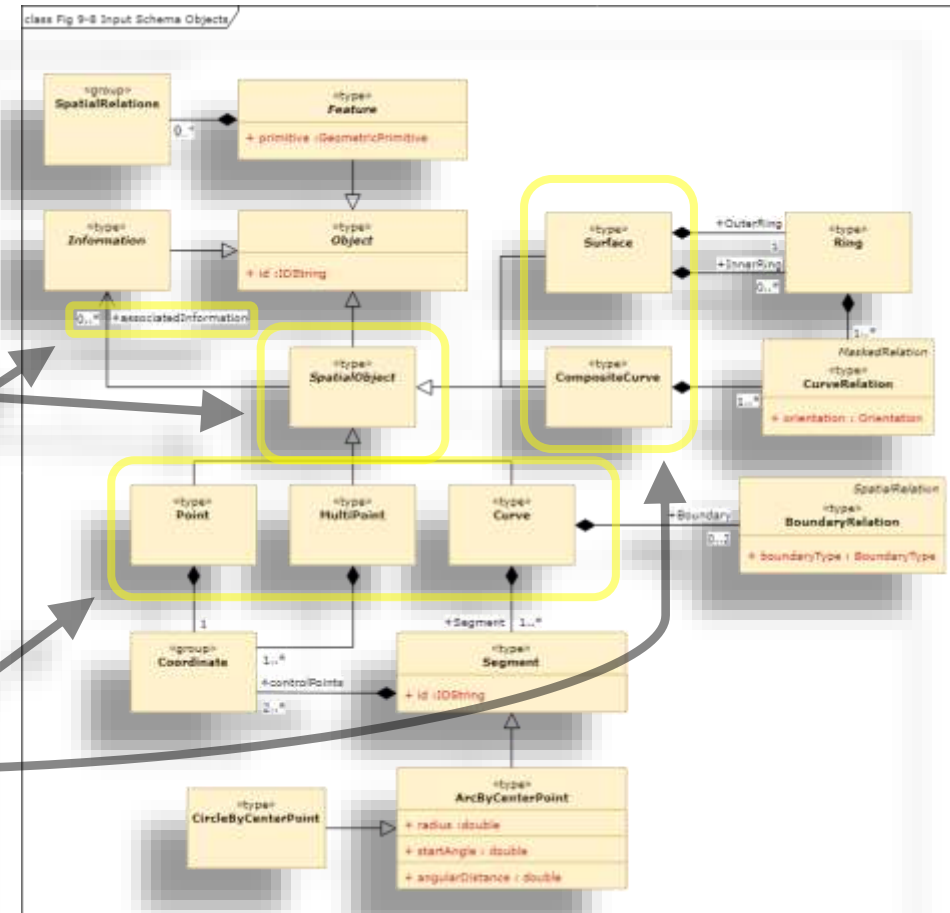
- Add concrete spatial classes to S-100 so products can use a generic spatial schema
 - Most (all?) products do not need to extend spatial types
 - Abstract types: Point, MultiPoint, Curve, Surface, etc.
 - Spatial schema is not described in feature catalogue, and therefore cannot be updated by the product
 - No machine readability

Recommendation 2 & 3

Align Input Schema with GFM / Part 7

- Recommended changes to figure 9-8

- Add class *SpatialObject*
 - Extension of 9-7.6 *Object*
 - Base class for all 9-7.7 spatial objects
- Provide one-way association from *SpatialObject* to *Information*
 - Supports spatial quality (see 3-6.5.3)
- Make Spatial Objects concrete vice abstract



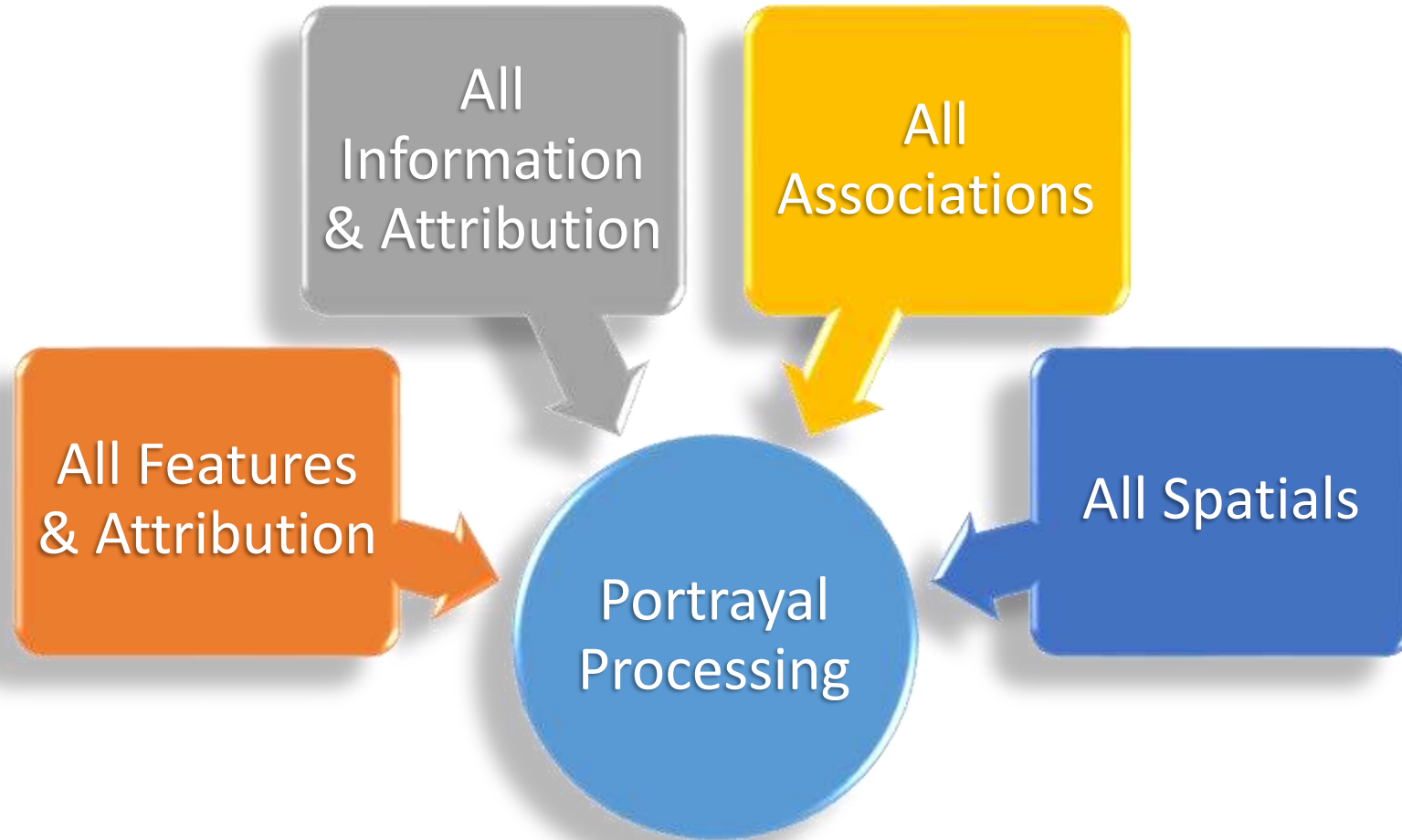
Result



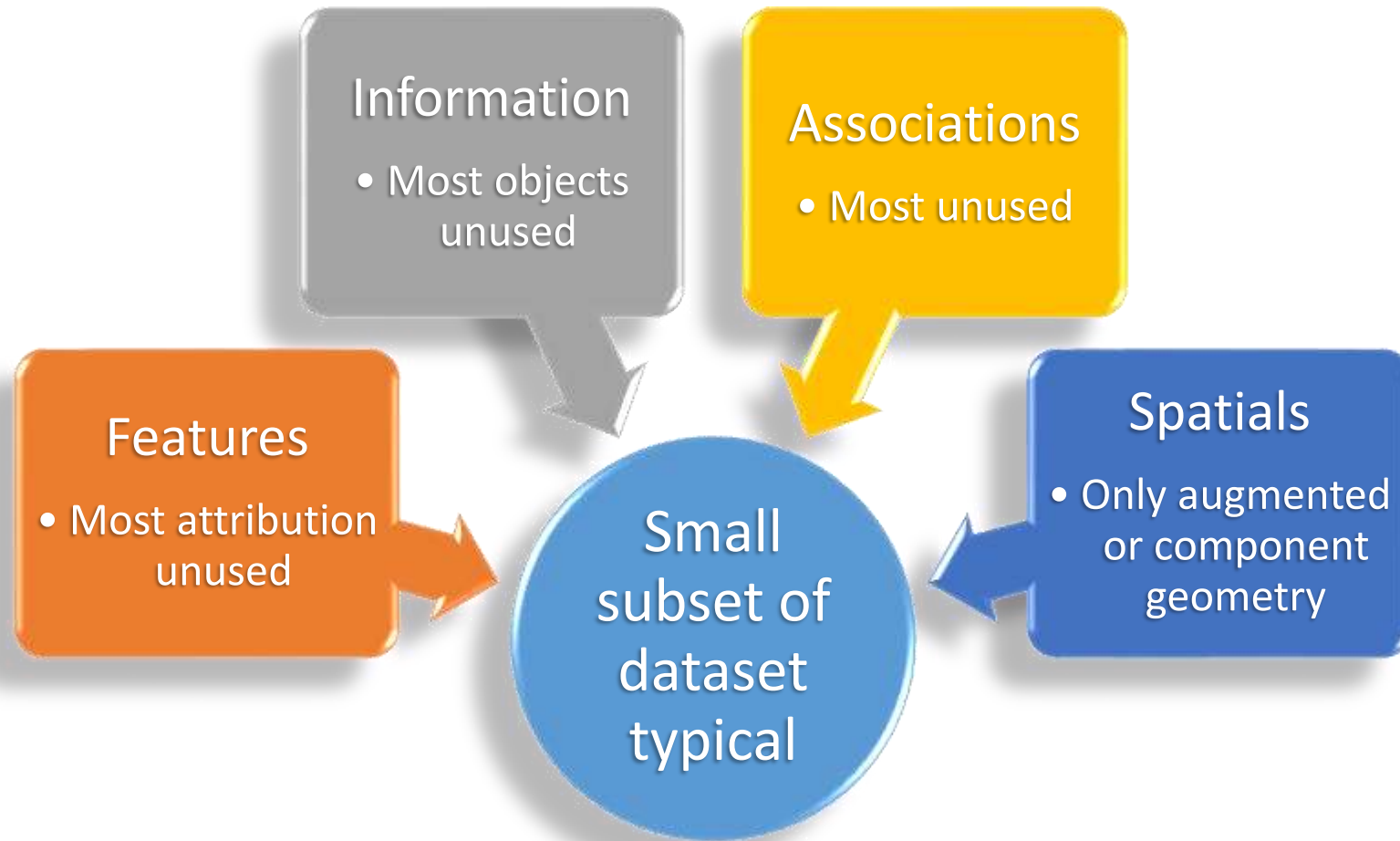
Supports machine
readability

- All products use the same spatial schema
- No extensions needed to provide spatial quality
- No updates to spatial schema required

Inefficiencies - Now



Inefficiencies - After



Recommendation 4



Investigate means to describe required elements

- Notionally, a list of feature catalog and spatial elements to be included and / or excluded from the data input to portrayal

Actions

Recommendation 1 & 4

- Group to investigate further changes to input schema

Recommendation 2 & 3

- Modify spatial model to align with GFM / Part 7