



## **A rhetorical approach to environmental information sharing**

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'Faceted search' has recently been widely adopted as a powerful information discovery framework, enabling users to navigate a complex landscape of information by successive refinement along key dimensions. The compelling user experience that results has seen adoption of faceted search by online retailers, media outlets, and encyclopedic publishers.

A key challenge with faceted browse is the choice of suitable search dimensions, or facets. Conventional facet analysis adopts principles of exclusivity and exhaustiveness; identifying facets on their relevance to the subject and discrimination ability (Spiteri, 1998).

The rhetoricians of ancient Greece defined seven dimensions ('circumstances') of analytical enquiry: who, what, when, where, why, in what way, by what means. These provide a broadly applicable framework that may be seen in Ranganathan's classic ('PMEST') scheme for facet analysis. The utility of the 'Five Ws' is also manifest through their adoption in daily discourse and pedagogical frameworks.

If we apply the 'Five Ws' to environmental information, we arrive at a model very close to the 'O&M' (ISO 19156) conceptual model for standardised exchange of environmental observation and measurements data:

- \* who: metadata
- \* what: observed property
- \* when: time of observation
- \* where: feature of interest
- \* why: metadata
- \* how: procedure

Thus, we adopt an approach for distributed environmental information sharing which factors the architecture into components aligned with the 'Five Ws' (or O&M). We give an overview of this architecture and its information classes, components, interfaces and standards. We also describe how it extends the classic SDI architecture to provide additional specific benefit for environmental information. Finally, we offer a perspective on the architecture which may be seen as a 'brokering' overlay to environmental information resources, enabling an O&M-conformant view.

The approach to be presented is being adopted by the Australian Bureau of Meteorology as the basis for a National Environmental Information Infrastructure.