

Teaching New Dynamics

The history of the OGC began in 1994 with campaigning for interoperability of Geographic Information Systems (GIS). Then, at the end of the nineties, came web-based services and mobile location-aware services, also coined Small GIS, which required integration of spatial data and operations across the web. We are now experiencing an exploratory phase in geosensor networks and witnessing the advent of virtual globes, ubiquitous positioning and community-generated content. These are fundamentally changing the industry. The developments open the door to completely decentralised services that might interact and interoperate in an ad hoc manner, such that Duckham recently attempted to debunk the hypothesis that GIS were here to stay at all.

We are here witnessing an impressive dynamic. Clearly this is facilitated by seamless integration of data, operations and platforms that in such a heterogeneous environment can be provided only by standards. Interoperability brings a revolution, not only in the established world of geographic information systems and spatial data infrastructures, but also in our way of thinking about geographic information. The new dynamic has people talking about a neo-geography, and it puts teaching of GIS programmes into perspective.

So what are the challenges for education and training in this dynamic environment? Although much progress has been made at technical and institutional levels over the last twenty years, interoperability is not an established field; it has not yet built up a persistent body of knowledge, as is apparent from the lack of textbooks or course material. Recognising this dilemma, some universities formed themselves into the OGC University Working Group and there now exist certain initiatives for sharing course ideas and materials. However, individual educational environments and programmes differ and the perspectives on spatial interoperability vary significantly between, for example, Software Engineering, Artificial Intelligence, Spatial Cognition and Geomatics.

The University of Melbourne Geomatics programme has long been teaching interoperability concepts. Subjects dedicated to integrated spatial systems, distributed spatial computing or spatial-data infrastructures are taught in balance with traditional GIS subjects. I expect this trend to grow, propelled by demand in the spatial professions. Teaching interoperability is research-led: the credibility of lecturers rests on their activity in this area. (Our research has so far contributed to several OGC initiatives.) Problem-oriented components provide hands-on experience with OGC and other relevant specifications and standards. Classroom components provide background information and theoretical knowledge on standardisation challenges such as conceptualisation and the semantics of geographical reality or its digital representation, integrating the ontologies of information communities, and policy and economic frameworks for data integration and sharing. Admittedly, the fast pace of progress here makes maintaining these subjects unusually expensive and demonstrates a clear commitment to excellence in Geomatics. Graduates from the University of Melbourne are qualified to face the challenges of interoperability leading to ubiquitous spatial computing and information, and they have the skills to swiftly explore, acquire and adopt new technologies.

1) At the Spatial Sciences Institute Victorian Region Open Meeting 'Spatial Mythbusters' held 17th July 2008.

2) http://spatial.typepad.com/news/2006/05/what_is_neogeog.html

3) See for example OGC column GIM September 2007.