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GIM International Interviews David Schell, Chairman and CEO, Open Geospatial Consortium

On 23rd October 2007, at the annual Geoint Symposium, the Open Geospatial Consortium, Inc (OGC) announced that Microsoft Corporation had joined the organisation as a Principal Member. This important milestone was reason for us to approach David Schell, OGC chairman and CEO, and to ask him about the background to, benefits and consequences of Microsoft membership. Mr Schell touched on so many interesting issues that we are publishing this extended interview in two parts, this first focusing on the new Microsoft membership. The second part, to be published in GIM February, will focus on topics including benefits of standards implementation, public-private partnership, and the future.

By Mathias Lemmens, editor-in-chief, GIM International

What is the OGC mission and how is its scope expanding?

The mission is to facilitate a consensus process for defining, testing and approving standards that promote the integration and use of geospatial data and services. The scope has expanded as geospatial services have become accessible to more applications and often through our work with other standards bodies whose technology domains intersect with ours. Examples of these are the International Organisation for Standardisation (ISO), the Committee for European Normalisation (CEN), the Organisation for the Advancement of Structured Information Standards (OASIS), the International Electrotechnical Commission (IEC), the World Wide Web Consortium (W3C), the Internet Engineering Task Force (IETF), and the International Alliance for Interoperability Council (IAI). Our scope also expands with increase in our membership numbers and with the participation of major infrastructure companies such as Microsoft, Google and Oracle, as well as major national communities, including the European Union, India and China.

Could you describe the organisational structure of OGC?

A board of directors represents stakeholder communities and oversees the work of a CEO who directs a small staff, which facilitates several programmes:

- Interoperability Program, in which members work together in fast-paced test-beds, pilot projects and interoperability experiments to develop and test new candidate standards and validate them in real-world use cases
- Specification Program, which provides two consensus processes, the Technical Committee and the Planning Committee, in which members plan, document, review, approve and maintain OGC standards, many of which are developed initially in the OGC Interoperability Program, driven by the OGC Planning Committee's rigorous and ongoing analysis of market opportunities
- Outreach Program.

Microsoft has recently joined OGC as a Principal Member. What does this imply for OGC?

Whenever a major organisation like Microsoft joins it adds to the power and strength of the OGC and its ability to develop good standards that are widely used. Even when small organisations join, our process is strengthened through the synergy of network effects. New members "raise the ante", stimulating current members to raise their level of participation. Everyone benefits when this happens. Microsoft will be dealing in the Consortium with such competitors as Google and Oracle, as well as all the major geospatial technology companies, so I expect their participation to have a strong, positive, multiplier effect. With Microsoft joining, companies who use its platform now have a bigger stake in geospatial services and it will boost our membership numbers, I expect. But it is also good for the geospatial technology industry overall, and for the ICT industry as well. Everybody watches Microsoft, and its joining the OGC will tell more developers and decision-makers around the world that OGC is the world's pre-eminent geospatial standards organisation. Most of the ITC world now knows that the OGC provides the essential open specifications for geospatial services on the web.

OGC has thus now become a part of mainstream ICT?

Not only is OGC now a part of mainstream ICT activity, but we are also able now to "horizontalize" across related vertical industries such as architecture and engineering, construction, real-estate and logistics. Spatial information is a great unifier of many technology disciplines that may now be addressed within a common context and used together in more useful applications. Frankly, it's a humbling experience to have been involved in starting a process that's being used by the major platform developers to reconcile issues related to the future of spatial processing: sensor webs, the semantic web, building information models (BIM) and so on. Actually, a great deal of credit is owed to the major geospatial corporations that did the basic technology and market development on which our work was based, as well as the innovative small companies who were fearless in their experimentation. We are all, including Microsoft, standing on the shoulders of that group of brilliant people who created the initial interoperability mechanisms that have evolved into the standards platform on which the emerging consumer markets are based. It's very gratifying to me to see that people around the world are finally beginning to understand the significance of spatial thinking and digital maps, and this wouldn't have been possible without the pioneering efforts of our early members.

Standards are shipped in volume. Could the membership of Microsoft not result in pushing proprietary standards into becoming international standards?

Your premise is less valid than it was a decade ago, when a standard was indeed usually "a product shipped in volume." Standards have come of age. People are thinking ahead and working together in formal processes to set open standards for the future. Recent examples show that major corporations have failed to get their proposed standards, based on market-leading products, accepted by standards groups whose decisions will affect very large product volumes. Many of the most significant OGC innovations have come from small companies such as CubeWerx, Cadcorp, Galdos Systems and Ionic. Microsoft does bring tremendous influence but at the same time there are so many small companies doing remarkable things with web services in the plug-and-play environment. A major corporation like Microsoft is at the same time able to benefit from this diversity.

Can you give an example of a standard developed by a small company and adopted by a major company?

Standards like OGC's Geography Markup Language (GML), for example, were conceived by individuals outside the corporate mainstream and then fully developed and projected onto world markets through the collaborative work of the membership, both small and large organisations. Such efforts illustrate how individuals are able to wield significant influence in the market by leveraging the collective power of the consortium. In this context, Google has recently

brought Keyhole Markup Language (KML) to the OGC for standardisation. The future of KML may be influenced now by these same members, including Microsoft. Things are different now; we are in a new age in which competition is still fierce but consensus standards have become a very important mediating force. Negotiating standards within this environment is a critical strategic issue for both large and small companies, and the old rules no longer apply.

General ICT companies are increasingly interested in drawing geospatial business firms under the wing of their industry. For example, Navteq has been taken over by Nokia, and Microsoft too is very active in this arena. What are your feelings about this development?

This is a result of the natural evolution of technology markets. When has this not been the case? Twenty years ago for example the Artificial Intelligence (AI) market was largely assimilated by the major platform suppliers. Computer graphics companies were similarly absorbed. Like AI and graphics, geospatial issues are very basic and necessary in providing a whole new set of world-changing capabilities. It is natural that major corporations would want to acquire companies offering capabilities that help them build out important new strategic capabilities. Standards facilitate this kind of industry consolidation. It's good for big companies, but both standards and consolidation also create opportunities for small companies. Successful entrepreneurs whose companies are acquired often take what they have learned and go on to start companies based on new technologies, and this results in further technology evolution. The role of standards in influencing business evolution has been a motive force in OGC from the beginning. It's intriguing to look to the future and think about how this process is by increments providing us with the ability to address the complex information modelling required to deal with such burgeoning problems as climate change and disaster management. All issues which were impossible to conceptualise within the traditional environment of stove-piped disciplines and computing tools.

How should the academic world, research and education adapt to your "new age"?

I see a need for reform in what is still rather parochially referred to as "GIS education". The world of work is far more dependent on interoperability than is the academic world, so professors owe it to their students to expose them to real-world issues involving heterogeneous data and services in web environments. The next step for academics is to involve students in rigorous research into interoperability issues involving, for example, the "geospatial semantic web" and management of multiple inputs and outputs within the context of computer modelling of complex phenomena. And, finally, the academic community and providers of research findings need to recognise the terrible loss to science incurred by abandoning spatial data. The web makes it relatively easy to host data and register this with standard XML encoded metadata so that standard catalogues can be used by others to discover, evaluate and gain access to the data. It would be a tremendous advantage for interdisciplinary, horizontal and follow-on studies and verification of results if all data collected over a given location could be discovered and used. This issue needs to be trumpeted abroad, because it is on the one hand crucially important for society and on the other a radical departure for a tradition-bound sector of society.

For many years now this journal has been carrying an OGC column. What are the topics that in your view should be emphasised over the coming couple of years?

We ask our members to provide these "OGC Member Columns" and they choose the topics. I imagine that some will write about the need for sound global and national data policies. Some will write about the role of geospatial interoperability and standards participation in application domains like engineering and insurance. I hope that some of our academic members will take the opportunity to make your readers aware that interoperability is emerging as a fundamental area of inquiry, a science like applied physics, that must be dealt with and formalised as a subject for university research. Without

such rigour we won't be able to meet the growing demand for interoperability to support cross-disciplinary research and management in a world where the connections between different phenomena, trends and events are seen as critical.

Information Box: OGC

In the early years of GIS, users of earth-imaging systems and other geospatial technology found it very difficult to share data unless they used the same software. Non-interoperability being a problem for users made it one for vendors too; it limited the utility of the software and data and thus overall size of the market. In 1994 geospatial software providers, integrators, government agencies and academic organisations came together in the OGC to create a consensus process within which they could collaboratively address crucial interoperability issues. This process and participant organisations' commitment to it have resulted in the development of open software interfaces, encoding and best practices – "OpenGIS Specifications" – that enable different vendors' software systems to communicate and facilitates integration of different types of geospatial information. These standards have become the global standard for interoperable geoprocessing. Most OGC standards have been developed for the web environment. By enabling geospatial data and services to be easily integrated into any kind of web application these standards have had an extraordinary effect, not only on the world of geospatial technology but also on overall Information and Communication Technology (ICT).

Biography of Interviewee(s)

David Schell founded and serves as chairman of the board and CEO of the Open Geospatial Consortium Inc (OGC). Under his leadership the membership of the Consortium has evolved a unique and highly effective standards process under which user requirements are introduced into prototyping and testing activities, producing robust specifications for review and adoption during a formal committee process. Mr Schell, in 2005 appointed special professor at the University of Nottingham's Centre for Geospatial Science (CGS), is also chairman and president of the OGC Interoperability Institute (OGCII), a scientific and educational organisation that seeks to improve society's ability to use geospatial technologies to address important societal issues. He has received the CIO Magazine Vision 20/20 Award as a "visionary creator/seller of technology" (2002) and he was the first recipient of GeoTec Media's Visionary Achievement Award (2007).

References

<http://www.opengeospatial.org>

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