



Herbert Van de Sompel, the first SPARC Innovator, is the initiator of the Open Archives Initiative (OAI) and the open reference linking framework (OpenURL). The Open Archives Initiative develops and promotes interoperability standards that aim to facilitate the efficient dissemination of content, and it has had wide-ranging influence on a variety of other initiatives within the open access and institutional repository movements.

When Herbert Van de Sompel was studying for degrees in mathematics and computer science at the University of Ghent in Belgium, scholarly communication – the process by which academics and researchers publish articles – was the last thing on his mind. When he graduated, Van de Sompel got a job running library automation at Ghent, and he relocated from his library carrel to a library office with his name on the door. For the next 17 years, as he refined the inner workings of the library system, he gradually realized that the system of scholarly communication was more broken than any computer he'd come across.

“Year after year, I sat through library board meetings with the president of the university and faculty representatives, meetings about budgets, cutting journals, and high subscription costs, and I didn't ask any questions because that was our reality,” Van de Sompel remembered. “But I started wondering what academic research libraries are really about, and what their true function is. We are there to facilitate access to scholarly information. That's how simple it really is. And with the digital networked environment that was then emerging [1997], new approaches to fulfill that task were becoming possible.”

Though Van de Sompel acknowledges that “ideas were floating around” about the best way to take advantage of digital publication options for research, his twin interests in computer science and library automation enabled him to come up with a workable solution to reposition libraries in a digital age. Van de Sompel pitched his fledgling idea about how to create digital, linked research repositories, and with a grant from the Belgian Science Foundation and a travel grant from CLIR, he relocated to the Los Alamos National Laboratory (LANL) in 1998 to flesh out a blueprint. He collaborated with Rick Luce and Paul Ginsparg, and in 1999 co-founded the Open Archives Initiative (OAI) with Cornell University's Carl Lagoze. The OAI released the Open Archives Protocol for Metadata Harvesting (OAI-PMH), a protocol supported by digital repositories typically used to facilitate the emergence of cross-repository discovery services, but increasingly used to address other interoperability needs.

OAI-PMH was immediately embraced by the community of users that grappled with scholarly communication issues day in and day out. “Conceptually, the time was right,” Van de Sompel acknowledged. “Lots of things were happening in parallel.” One compelling



factor in OAI-PMH's quick take-up was the activist approach many librarians began to take in advocating for changes in the scholarly communication marketplace. "The OAI protocol emerged and became successful in part because it was tied to the political struggle for open access," he said. "OAI is now simply a technical protocol, but in the beginning, the link to open access helped enormously in making the technology successful because it had a global advocacy group behind it. There was a clear need that people could relate to."

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Clifford Lynch

Van de Sompel stresses that he is mainly concerned with the technical side of scholarly communication functions; instead of focusing on the end-user experience, his goal is to help establish a foundation for a fully digital, networked communication system, honing in on how information flows from one repository to another. "I want to help lay the foundation for a global workflow across repositories," he said. "You submit something to a repository, a colleague grabs it, adds value [based on their own research findings], and posts to another repository. That's what scholarly communication is all about. We must lay the technical foundation for this to become possible on the basis of all those scholarly repository systems that are emerging out there."

Experts in the field believe that Van de Sompel is perfectly positioned to make a profound, long-lasting contribution to the field. "Herbert is one of our leading thinkers on system architecture," said Clifford Lynch,

executive director of the Coalition for Networked Information (CNI), who has worked extensively with Van de Sompel. "What's striking to me, however, is the extent to which his work in this area is driven by his commitment to improving information flow and information access within the global system of scholarly communication. This gives his work a concreteness and focus, a validation and verification, that's very important to its quality and depth."

Van de Sompel followed his work on OAI with creation of OpenURL, a project that created a standardized syntax for transferring metadata describing an article or a journal. Van de Sompel calls it simply a way of organizing metadata in a URL and pointing it to a destination that can provide services about the thing described by the metadata. It is a key component in a broader linking system, bringing him one step closer to his goal of interlinking digital scholarship. The initial OpenURL concept eventually led to a generic NISO standard for requesting context-sensitive services.

These efforts have had "a fundamental impact on the scholarly communication infrastructure," according to Carl Lagoze, Senior Research Associate in the Cornell Information Science department, who has worked with Van de Sompel for over six years. Lagoze, Sandy Payette, and Simeon Warner are currently collaborating with Van de Sompel on the NSF-funded Pathways project to represent scholarly communication as a distributed workflow that can be disaggregated across a service-based networked foundation, and Lagoze believes that "although the results of this work are still unknown, the vision and Herbert's unique contribution to that vision have already dramatically affected the scholarly communication landscape."

SPARC Executive Director Heather Joseph returns to the importance of Van de Sompel's vision in outlining the reasons behind his selection as the first SPARC Innovator. "Herbert brought tremendous dedication and perseverance to the task of finding support and making



the connections necessary to see his vision through,” she said. “He used his intellect as well as street smarts to make the Open Archives Initiative and OpenURL a reality, and both projects have laid the foundation for research and scholarship to become available to more people than ever before.”

Since his early days at LANL creating these protocols, Van de Sompel, who is 49, has followed opportunities across North America and Europe – returning to Ghent to finish his Ph.D in 2000, then a visiting professorship at Cornell in 2000-2001, followed by a short stint as director of e-strategy and programs at the British Library. In 2002 he headed back to LANL, where he is now leading the Digital Library Research and Prototyping Team at the Research Library. The Team does research regarding various aspects of scholarly communication in the digital age, including information infrastructure, interoperability, digital preservation and indicators for the assessment of the quality of units of scholarly communication.

While his own focus is on interoperability and information infrastructure, Van de Sompel is excited about research his team does in trying to find alternative indicators for the assessment of the quality of scholarly works. He believes that this area of study has the potential for profound impact on the economic and sociologic aspects of the scholarly communication system, since the use of the ISI impact factor has “dominated promotion and tenure reviews and funding decisions... it’s obvious to anyone who understands the problems with scholarly communication that we need new indicators to break out of the status quo. Having alternative indicators to balance the one we currently use should open up the market.”

Van de Sompel believes that his current areas of study have potential for helping to transform scholarly communications, but he does not take for granted the importance of grassroots support. After all, he saw firsthand that the success of both the OAI and the OpenURL

RELATED WEB SITES:

- Herbert’s Biography (<http://public.lanl.gov/herbertv/#briefbio>)
- 1999 CLIR interview (<http://www.clir.org/pubs/pain/pain06.html#repositioning>)

About scholarly communication as global workflow:

- “Rethinking scholarly communication: Building the system that scholars deserve,” *D-Lib Magazine*, September, 2004. (<http://dx.doi.org/10.1045/sep-tember2004-vandesompel>)
- Interoperability Meeting (<http://msc.mellon.org/Meetings/Interop/>)

About research for new metrics:

- “Prestige is factored into journal ratings,” *Nature*, February 13, 2006 (<http://www.nature.com/news/2006/060213/full/439770a.html>)
- “Journal Status,” Bollen, Rodriguez, and Van de Sompel (<http://arxiv.org/abs/cs.DL/0601030>)
- “Toward alternative metrics of journal impact: A comparison of download and citation data,” *Information Processing & Management*. Volume 41, Issue 6, December 2005. (<http://dx.doi.org/10.1016/j.ipm.2005.03.024>) (Preprint at arXiv)

About Digital Preservation research:

- “A Standards-based Solution for the Accurate Transfer of Digital Assets,” *D-Lib Magazine*, June 2005. (<http://dx.doi.org/10.1045/june2005-bekaert>)
- aDORe: a modular, standards-based Digital Object Repository. *The Computer Journal*, Vol. 48, No. 5, 2005. (<http://dx.doi.org/10.1093/comjnl/bxh114>) (Preprint at arXiv)



effort was due in part to the advocacy groups that backed it. The experience taught Van de Sompel that “there’s not a single thing you can do on your own in this world. There are so many bright and brilliant ideas out there, but you just cannot make them fly on your own,” he said. “I’ve been very lucky so far that smart and influential people, as well as leading organizations, have been willing to actively support some of my ideas. I hope they will continue to do so.”

About the SPARC Innovator Program

The SPARC Innovator program is a new initiative that recognizes an individual, institution, or group that exemplifies SPARC principles by working to challenge the status quo in scholarly communication for the benefit of researchers, libraries, universities, and the public. SPARC Innovators are featured on the SPARC Web site each month.

SPARC Innovators are named by the SPARC staff in consultation with the SPARC Steering Committee. Individuals can nominate their colleagues as potential SPARC Innovators at <http://www.arl.org/sparc/innovator/>. Criteria are listed on the Web site.

A SPARC Innovator can be an individual, a group of people, an institution, or another group that has been active in the areas listed above. Their actions may be broadly defined and may include online activity (i.e., postings on listservs and Web sites); on-campus programs and conferences; writing and editing (i.e., articles and books); promoting awareness and activism among others; and creating technologies and/or programs. There is no monetary award for SPARC Innovators.

For further information, please see the SPARC Web site at <http://www.arl.org/sparc/>.

RELATED WEB SITES:

About OAI-PMH:

- The Open Archives Initiative Protocol for Metadata Harvesting (<http://www.openarchives.org/OAI/openarchivesprotocol.html>)
- “The making of the Open Archives Initiative Protocol for Metadata Harvesting,” *Library Hi Tech*, June 2003. (<http://dx.doi.org/doi:10.1108/07378830310479776>)

About OpenURL:

- The OpenURL Framework for Context-Sensitive Services - An American National Standard Developed by the National Information Standards. Approved: April 15, 2005. (http://www.niso.org/standards/resources/Z39_88_2004.pdf)
- “Open Linking in the Scholarly Information Environment Using the OpenURL Framework,” *D-Lib Magazine*, March 2001. (<http://dx.doi.org/10.1045/march2001-vandesompel>)