EDITORIAL:

Tagging the Noosphere

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One of the many intriguing concepts mooted by Pierre Tielhard de Chardin, a French philosopher and Jesuit priest with polymathic insights (his academic explorations range from paleontology to the meaning of the Cosmos) is the "noosphere." In de Chardin's vision, the reality of the world encompassed not just the geosphere (inanimate matter) and biosphere (all forms of life), but an ever expanding nimbus of knowledge representing the fusion of the minds and knowledge of all humans.

The postulation of a noosphere was appealing in its simplicity, but in those pre-networked days (de Chardin died in 1955) it was without much practical application. Even as knowledge continued to expand, information remained sequestered in hundreds of disparate languages, and archived in millions of globally distributed libraries. De Chardin's concept could therefore at best be considered a philosopher's abstraction – an interesting paradigm to be bandied about in conceptual discussions.

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With the advent of the Internet and the Web, though, de Chardin's noosphere seemed to have become real rather than abstract. With so much accessible so easily to so many, the philosopher's vision of the noosphere as the foundation for the next evolutionary step of the cosmos seemed plausible, or at least a jumping off point for the next major advancement in humanity's own developmental path. Indeed, the emergence of language allowed the first humans to share individual discoveries, and the development of writing permitted knowledge to be more widely shared and more reliably passed on to future generations. Each of these major advances had unquestionably provided the basis for new and dramatic advances in the development of human society. Must not the ability to synthesize and share all of the world's information in real time lead to another great leap forward?

One didn't need to buy into de Chardin's more abstract views of evolution to agree that indeed it might. But before such a transcendental (or even a less cosmic) next step could be taken, a great and invisible void remained to be filled, less obvious than the need for more powerful telecommunications lines and ubiquitous computer access, but equally essential and challenging to address. That abyss was the lack

of the tools needed to manage and make sense of the constantly burgeoning flood of data that lay tantalizingly just beyond our grasp. Only if new automated tools could be developed to create, store, rediscover, and synthesize that data could the riches of the noosphere be realized.

When we think of that challenge, we are likely to think of Google, and assume that the creation of ever more sophisticated search algorithms will be sufficient to allow us to delve into the remotest corners of the Web. But essential as search technology may be, it would at best be an imperfect, inefficient and very user-unfriendly tool had not a series of mostly unknown and unsung software engineers, supported largely by corporate sponsors, devised the vital handful of standards needed to allow the noosphere to become practically accessible to us all.

One of the most important of those standards is the Extensible Markup Language, or XML, which allows any piece of information to be "tagged" once at the time of creation to make it not just now, but forever identifiable for any of a number of different purposes, both mundane and vital (e.g., as the contents of a table that needs to be formatted as such, or as the genus name of a new species). Moreover, as indicated by the "Extensible" in the standard's name, XML is a flexible tool that allows anyone to create their own tag set to make the recorded information of their unique knowledge domain universally manageable and more self aware, whether it be Old Testament scriptural references, chemical compounds, baseball batting averages or financial reporting data.

How pervasive has the use of XML become? The following is taken from the W3C press release marking the tenth year anniversary (on February 12, 2008) of the formal adoption of XML:

> Indeed, one can hardly get through the day without using technology that is based on XML in some fashion. When you fill your auto tank with gas, XML often flows from pump to station. When you configure your digital camera, on some models you do so via XML-based graphical controls. When you plug it into a computer, the camera and the operating system communicate with each other in XML. When you download digital music, the software you use to organize it is likely to store information about songs as XML. And when you explore the planet Mars, XML goes with you.

Today, just 11 years after the first release of XML, there are hundreds of XML languages, schema and supporting standards. Because of standards like XML (and HTML and the Unicode), the noosphere has morphed from a philosopher's foil to a boundless resource to be mined by the great and the humble, the rich and the poor, wherever they may be.

XML will not be the last standard we will need to fully capture the promise of the noosphere. But it is one of the small set of foundational standards that have set us on our way into a future that could not have been imagined but a short time ago. Except by visionaries, like de Chardin, who were able to look past the horizon of time to imagine a world that it will be our privilege to experience first hand.

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