



XML: When will engineering lead?

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It's closing in on midnight and I'm pondering such imponderables as why are dogs always happy to see you? How could Jimmy Buffet team up with a country singer? Should I grab a scoop of butter pecan ice cream before bed? Then it hit me as I was reading XML Weekend Crash Course and the first few paragraphs extolling the virtues of XML leapt off the page: "XML allows for information reuse."

It was only a few years ago, 2000 to be precise, that I was playing around with an XML editor creating structured documents and considering the ability of XML to provide vendor neutral information storage. During the early 1990s I worked at the ISO to help design and develop the STEP standard — a.k.a. ISO10303. There were a few of us truly pushing the ideas of vendor independence as far as it would go.

Most of the initial discussion of STEP at that time was as a Product Definition Data exchange file format — IGES on steroids. A few of us had grander dreams of what could be done. While STEP never materialized as the universal format for engineering data exchange it did raise the bar a little higher.

I bring this up because there is another window of opportunity that Web technology has enabled and XML has created that window. For the next several years as businesses automate using Web technology such as SOAP, ASP, .NET and the like, most of this programming technology is based upon supporting and exploiting the power of XML. The basic idea being, create reusable content that can be distributed via the Web, desktop and database. The other line that hit home from this book was directed at vendor's usage of proprietary formats that lock the data and its structure making it difficult for end users to access their data without the vendor's tools. Sound familiar? Am I on another crusade for vendor independence? Not exactly.

What I am saying is that much if not most of the data you are using — if you're the typical type "A" engineer my mentor at Rockwell, Ed Schechter described — is reused or re-missioned.

Ed told me early on in my career that the first true engineer had to have been the laziest guy on earth. His rationale for such a statement was that a real engineer never built original components, but rather he would always seek to reuse or adapt the brilliance of others. When I look back at some of the other brilliant engineers I've had the privilege of knowing and working with, it proves the case.

That being so, how well has engineering, your company, your department or more specifically you adopted or adapted XML for your use? I can see entire catalogues of engineering data stored in databases that could be reused, where before it would have to be literally printed out or cut and pasted together. How about just writing your technical reports in XML in such a way that you can search and extract key sections for usage in other projects or documents? If you had a product definition documented in XML image, you'd be able to ship it around the extended enterprise without need of proprietary tools.

How about the creation of an engineering glossary or dictionary for usage with your customers, suppliers and colleagues? Imagine being able to converse rather exactly with engineers across the globe irrespective of each person's native tongue because everyone speaks a standard engineering language. How about the possibility of integrating mechanical and electronic engineering information into a single document without having to resort to part one as mechanical and part two as electronic?

No doubt, unless you're still using a drafting table, (if so I salute you) you're familiar with the Internet. It is this next generation of the Web that is being powered by XML and XML technologies. Likewise, large corporations like Microsoft, IBM and Google are developing technologies to create and manipulate XML data. These could and should be your tools of the future.

These tools will not be without cost (review your studies on thermo law). To gain benefits from these tools many of us will have to retool to ensure our data is at least semi-structured and we will have to learn how use these new technologies. It would be nice if there really was an "easy button" you could push that would restructure, classify and encode your data. Unfortunately there isn't.

So the question before us is, will engineering take the lead to encode and store data for reuse or will we continue to retreat to our cubicles and let others take the lead relegating engineering to a second-rate profession?

Given that 30 per cent of captured data lacks precision, accuracy, and quality — another subject for another column — XML's advantage is its interoperability. Without parsing, categorizing, cleansing, restructuring and giving the data human cogitative context that organizes the elements into something meaningful, XML is just another bandage solution being universally marketed by vendors. It holds out the promise of achieving a standard engineering language that is capable of integrating mechanical, electronic, industrial, and business information into a single document.

If this task is accomplished, we will have the ability to create new engineering designs worldwide.

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