



A Blueprint for Success

Jason Burke explains why architecture is more than a specialist IT topic: it's an essential component of your entire electronic business process.

Information is expanding at an exponential rate. Most organisations already have more data than they can manage, but information critical to R&D and commercial operations may not yet be inside the organisation, instead residing in the computers of partners or other institutions. Through the ongoing industry discussions of data warehouses and data standards, it is ironic that more attention is not being focused on how to get usable information and make better decisions, rather than just how to store bigger quantities of standardised data.

The life sciences industry has been advocating the use of standards for decades. Yet despite this long-standing emphasis, there are no agreed-upon data standards for basic patient information such as vital signs and demographics. The adoption of [CDISC standards](#) over the past few years has successfully moved the industry forward, but data standards are only one type of standard needed to bring about fundamental improvements. Considerable data is not useful unless one has the context: under what conditions was the data generated, why was it sent, etc.? Standards are currently missing some important aspects.

The importance of architecture

The financial services industry uses data standards to define financial transactions: a credit card charge, money transfer or balance inquiry, for example. On its own, the standardised data 'payload' — Best Buy gets \$23.29 from Jason Burke's account, for example — would not allow automation. Other standards related to things like electronic communication (how payment information is communicated between store and bank) and workflow (what process is used to authorise and execute payment) actually fulfil the electronic process. The payload (that is, Jason Burke, Best Buy, bank account numbers, amount) does need to be standardised, but retail stores, credit card providers, banks and other entities involved in the transaction have agreed to the communication and workflow standards as well. Thankfully, there is a discipline devoted to figuring out how to develop and implement standards like that: architecture.

When the topic of architecture comes up in discussions, I often see scientists, physicians and executives suddenly have phone calls to make. There is a misconception that architecture is just an IT topic. As the examples above illustrate, architecture is as much of a

business discussion as an IT discussion. The topic of architecture is very broad, but we can summarise it by noting that architecture can hold the collection of standards needed to support an electronic business process.

The maturity of an organisation's architecture in large measure determines the relative contribution information technology is able to make to the business. Companies with well-developed enterprise architectures can more readily implement new technology, automate their business processes, ensure timely quality data and draw information from multiple sources to make educated decisions. Consider that the retail industry uses real-time transactions to manage product stock levels. Stores are able to monitor product availability, automatically reorder the product as needed and estimate product availability date. Whether you know anything about technology or not, it is fairly easy to see that if a company has defined "rules of the road" through an architecture plan, it is much easier for a business to navigate that road.

One of the reasons that architecture is so important relates to the growing need for life sciences organisations to interoperate with the broader healthcare ecosystem. These organisations must be able to embrace a dramatically growing diversity of structured and unstructured data from healthcare providers, payers and other external sources (for example, government, academia). Without a standards-based architecture, not only is it more difficult to get consistent and timely access to data, it is also unlikely that organisations will have enough context around the data for it to be fully useful.

Consider also that in a business climate characterised by increasing business partnerships, good architecture provides flexibility in who does work and how it gets done. The Web 2.0 technology buzz (for example, social networking, blogs) often overlooks the fact that the power of these technologies is not just in what they do for the user — connect people, allow people to publish their ideas, etc. These technologies share common architecture standards that allow them to interoperate in real time. Want to see blog postings in your e-mail client? No problem. Want to see social networking data in your portal? Done. The intelligent use of architecture creates considerable opportunities for information aggregation and sharing — two challenges we all face today.

Of course, even if you have access to the data and its relevant context, you still need a way to draw conclusions from it. In our financial services example, operational efficiencies accrue in process automation and data quality through the use of standards and architecture. But considerable new value comes from the use of business analytics to detect and prevent financial fraud. By using pattern analysis, data mining, and predictive models, banks can stop improper transactions before incurring considerable damage and losses. Similarly, in our retail example, retailers apply

advanced business analytics to predict inventory levels over time and thereby optimise their spending, storage and shipping. For these organisations, analytics is not seen as a specialist area — it is seen as an enterprise competency. The opportunity for leveraging predictive models in patient recruitment, adaptive clinical trials, manufacturing demand forecasting and promotional response modelling rests firmly on the assumption that standards, architecture and analytics become enterprise competencies.

I have been pleased to be a part of a CDISC team exploring the idea of an industry-level architecture. Such an architecture would allow life sciences organisations to leverage standardised data and analytics to much greater effect. Until we have such industry architectures, there is much that can be done within organisations today to move us in this direction. Under the guise of regulatory compliance, we should not insulate ourselves from how other industries are leveraging technology. Rather, we should be actively exploring how to take these concepts and make them compliant in the service of patients. ■



About the Author

Jason Burke is the global director of the health and life sciences market segments at [SAS](#).

Jason co-ordinates the development and execution of the company's industry strategy and solutions portfolio across pharmaceutical, healthcare provider, health plan, biotechnology

and regulatory organisations around the world. Prior to joining SAS, Jason held leadership positions in companies such as Microsoft, Quintiles Transnational and Glaxo Wellcome. A scientist by training, Jason holds a Master of Arts in Cognitive Neuroscience from the University of Missouri-Columbia.

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