

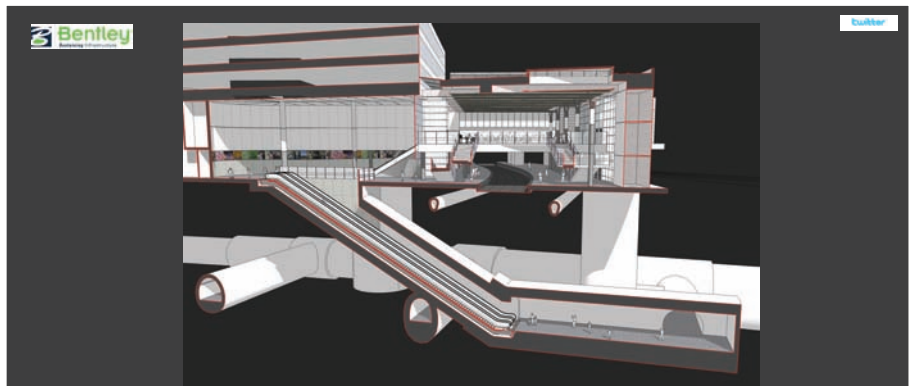
Information overload averted!

We may not be able to stem the incoming tide of information, but with Bentley's AssetWise Initiative we can learn to manage it better, argues David Chadwick

I hereby lay claim to be the originator of the phrase 'Information Overload!' I first used it way back in the early ninties, at an Xplor Conference in Koenigshoven, Holland when talking about the printer market. Now the phrase is rearing its head again, this time in relation to all of the information that we are accruing from BIMs, analyses, surveys, databases, documents, schedules and other sources that need to be sifted for relevance and importance before being effectively used in the decision making process. You can add to the problem the fact that the information comes from a variety of locations in many different formats.

In order to use the information effectively we need to configure an information management system - something that allows us to define what we are looking for, when we will need to use it, and what format we want it in. Recognising the problem, Bentley Systems has recently launched its AssetWise Initiative. Coming on the back of the company's recent acquisition of Enterprise Informatics and Exor Corporation, AssetWise utilises the former company's eB (enterprise Bridge) that allows information assets to be governed, secured and controlled for the distribution of contextual information to users, whilst Exor information modelling software and applications facilitate the management and operation of linear networks for infrastructure operations, such as roads, rail and water networks, and associated components.

This is the sort of project that Crossrail is working on at the moment, and which they presented as a keynote at Bentley's recent BE Inspired Awards conference in Amsterdam, as an early example of the use of AssetWise. The launch was also backed up by a whitepaper from ARC



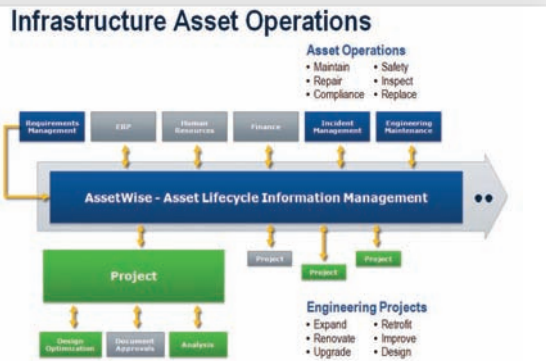
Strategies that provided a report on current trends in Asset Lifecycle Management (ALM), which included some alarming figures highlighting the problems associated with poor information management.

The whitepaper stated that information sharing is fundamental to ALM, emphasising the need for an overall Asset Lifecycle Information Management strategy. It also pointed to the NIST report conducted in 2004 which suggested that a conservative estimate of \$16 billion was wasted on projects with a capital cost of some \$374 billion - 4.2% of the installed cost - due to poor ALM. This was also supported by an ARC and Intergraph report in 2007 which gave similar percentages.

They didn't stop at figures though, outlining some of the problems caused by poor interoperability - which they categorised as Avoidance, Mitigation and Delay (sounds like an ideal name for a solicitors practice!) Avoidance accounts for attempts to minimise the impact of technical interoperability before it occurs, arising from redundant CAD/CAE systems, maintaining paper backups, etc. Mitigation activities involve the re-entering of information into multiple

systems, redesign and rework, and the subsequent verification of such data. Delay arises from interoperability problems that hold the project up - resulting in idle resources, profits lost to delay, through the loss of customers and consumers because of the unavailability of services.

For more of an impact though consider a technician's 'wrench time' - the time that maintenance technicians actually spend 'doing the work' (inspecting and repairing) in process manufacturing and power plants. Studies put the average at about 30-40% with 60-70% being considered a 'world class' performance. What is alarming, though, is that maintenance technicians commonly spend 40% of their time just looking for information or searching for parts. With companies trying to save costs wherever they can, such an inefficient use of resources is just one area where lack of an effective ALM strategy could be ruinously expensive. There is another aspect to consider of course, and that's where Health & Safety is involved. Asset information is vital to ensure that employees follow correct procedures, and critical for identifying the root cause of incidents, especially if there is litigation



(Diag 1.) Infrastructure Asset operations

This Infrastructure Asset Operations diagram shows how project information, both during design/build (the large green project box) as well as operations/maintenance (smaller project boxes), have interdependent asset information that needs to be shared with various departments across the enterprise. AssetWise provides the ALIM platform which manages that information so that it is accurate, complete, comprehensive and granular enough for each process and user role. The blue boxes above the platform are additional applications which the AssetWise platform provides

imminent. Greg Bentley also highlighted the problem with the BP oil rig catastrophe, where Haliburton had difficulty finding the data it needed to deal with the blowout.

What does this mean in practice? The ARC Whitepaper breaks responsibilities down into three separate processes; Project Performance Management, Asset Performance Management and Asset Portfolio Management. The first process is the Design and Build element, where managers are concerned with bringing new assets on stream, and ensuring that budgets and schedules, permits and compliances, bids and purchase orders and all other activities at this stage of the process are correctly administered.

Asset Performance Management looks after the asset once it has been completed and commissioned. To do this managers need information about the property, procedures for safe occupation and maintenance of all equipment and infrastructure, MRO bills of materials, inventory reports and supplier lists, in order to conduct preventive maintenance and repairs, and operate warranties and service contract agreements.

Asset Portfolio Managers look at the long-term financial implications of

managing assets, including investments and financial resources. This enables them to evaluate costs and benefits of modifications, developments and new opportunities, and to minimise service disruptions and manage the assets financial viability. For this they need information on the project history, its current asset status and performance, forecasts of customer requirements, trends in material costs and the availability of labour, etc.

We are back in information overload territory again, as the amount of information required for ALM is, as you have just seen, substantial. It includes reference data about every asset's functional capabilities, physical design and safe operational requirements, plus status information about projects and assets to enable people to control performance and historical records to find out the root cause of problems (see diagram 1.)

THE CHALLENGES OF ALM

The information required for ALM comes in many formats - paper documents, scanned images, CAD drawings, data tables - complicated by much digital data and historical data held in proprietary file or ancient archived formats, not to mention multiple versions of Microsoft Office documents and spreadsheets,

Operations Information Modeling

- Classification
- Relationships
- Information Reach
- Templates
- Behavioral Control
- Presentation



(Diag 2.) Operations Information Modelling

This diagram shows a sampling of the types of interrelated and interdependent information that AssetWise manages, providing a robust platform to manage changing asset information throughout its lifecycle

RDBs, PDF files and so on. On top of that, each document and data item is generally linked to other documents and data items, requiring complex information linkages. This is a major problem for an ALM solution, which has to incorporate efficient navigation and change management systems alongside a comprehensive search engine.

Sharing information between different groups also has to take into account the requirements of each, with some requiring individual identification of single assets and others preferring to classify such items in groups. Accountants, for example, will want depreciable bundles to appear alongside other assets, instead of individual item costs.

This leads us into the benefits of asset-centric versus project-centric modelling, the latter helping managers navigate through the maze of budgets, schedules, contracts, procedures, analyses and reports, and elements that can't be related to physical assets. The principal holds, though, in that a proper ALM information management strategy identifies and supports the linkage needs of all ALM stakeholders (see diag 2).

The more complex projects become, the more information we will be presented with, and the more pressing becomes the need to manage that information effectively. Bentley's AssetWise Initiative is, perhaps, an expression of the - rather late - maturity of the Information Industry.

www.bentley.com