BIM a Vital Industry Tool

Alex Lloyd, Managing Director, Jacopa Ltd

Building Information Modelling (BIM) is fast becoming an important tool for engineers across all business areas and is set to become a cornerstone of the construction and operation of assets in the future.

BIM is a set of processes, supported by 3D models and digital technology, that add value by creating, managing and sharing digital information about an asset throughout its lifecycle. It provides information on the detailed physical characteristics and functions of buildings, assets, and networks resulting in solutions that can radically change the way in which buildings, infrastructure and utilities are planned, designed, constructed and managed.

Strategically, BIM improves collaboration within the supply chain to redefine what is possible in terms of design, construction, operations and maintenance performance. And, it's these benefits which have led wastewater solutions expert Jacopa to adopt and integrate the principles of BIM into their business model. However, Jacopa believe that to really reap the benefits of BIM the whole supply chain must resolve inconsistent perceptions and embrace the strategy.

The BIM Maturity Model

The standard BIM Maturity Model has various levels and companies can plot their maturity on the Model. An engineering or product business with very little data use or integration might be seen as Level 0. Yet in reality many businesses have some foundation of knowledge of basic CAD (computer aided design), for example, and many will be moving towards Level 1, Jacopa's current level.

Level 1 maturity:

- Several years of progress in 3D drawings, working routinely with 3D.
- Integrating business systems such as bills of materials (BoMs) and item master records with engineering drawing information on a material requirements planning (MRP) or enterprise resources planning (ERP) system
- Having historical paper based information and drawings digitised with search engine capability
- Having an extensive library of components
- Listening to customer feedback and investing in engineering to create standard products that are easily used in a collaborating library

Jacopa's Managing Director, Alex Lloyd says, "There are sound business reasons to follow BIM principles to this level. If you are interested in lean thinking and are applying even basic lean tools, BIM can be used to reduce waste. Other benefits include improved outcomes and performance, optimised solutions, greater predictability, faster project delivery and reduced risk".

Level 2 maturity:

Moving to Level 2 needs to be justified by a business case. As Alex Lloyd says, "both soft and hard investment is required to reach this stage and there is a risk that this would not be recovered. Jacopa is often product focused, within a project environment, and we

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seek standardisation to bring cost benefits, shorter delivery times and ease of operation and maintenance for our customers".

BIM practice is also often focused on the project environment. Here Jacopa would like to see collaboration being extended to standardised, configurable product supply across projects and programmes.

The Company is working to formally assess its own competence against PAS1192 which would feed into the BIM Execution Plan. It has already achieved excellent results with all of its core products and are now putting most non-core products into 2D AutoCAD with all general arrangement and contract-specific detailed drawings now at least in 2D AutoCAD.

Alex Lloyd notes, "All of our bills of materials are generated electronically by our IFS ERP system, and most of our range is standardised, so compatibility between new and old systems is extremely good. We also operate BIM Exchange, an Inventor plug-in programme, and we 'shrink wrap' drawings in a file format that produces models in block form for BIM, as well as exporting building components in HTML file format.

"The investment in standardisation has helped to improve our efficiency by better organising our data and information, and created a useful focus on "one-time" engineering. This work has given us a much clearer idea of how to generate our 3D Inventor models, and how to store and organise our electronic data and BIM-related information. This will provide an excellent platform for complying with BS1192:2007 and PAS1192-2:2013, and maturing to Level 2".

The Company has focused its efforts on four or five key product lines to become better BIM enabled, with the aim of creating a firm platform for moving to Level 2 when there is a strong business case.

Delivering BIM

Alex Lloyd believes that the industry must promote BIM as a "benefit to business rather than a hurdle to be overcome". Says Lloyd, "BIM must not only be the preserve of senior management, we have many employees who are keen to champion BIM and to lead collaborative working".

Even the Jacopa rotating biological contactor (RBC) which is more of a process system than a product, can and has been modelled for collaborative working. In this case BIM is made more workable by standardising design through one time engineering.

Success with BIM also involves having a business strategy, and ensuring that all stakeholders have input into it. This requires companies to think about formally assessing their competence against PAS1192. To reach this stage, it is necessary to understand how information is processed and transferred in the business, both internally and externally.

Alex Lloyd considers it vitally important to ensure that all processes are in place before tackling either a one-off BIM project or overall BIM implementation, "Everyone must be BIM enabled, there should be no exceptions, which means investing in training. It's also necessary to ensure that infrastructure, computers and software are up to the task, which means investing in IT and advanced information systems".

Product development:

Jacopa already have a number of products that are BIM enabled including the robust and well known Jones and Attwood Jeta Grit Trap and are confident that the BIM models and reports created for this can be used in collaborating libraries.

BIM information mainly consists of details such as the product envelope (dimensions), interface and key properties, and generally excludes proprietary details. Jacopa have found that for more complex products such as its STS Straight Through Screen the use of BIM principles and tools supports product development to deliver early wins, even before the benefits of collaboration accrue.

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Progressing BIM to include product lifecycle information also provides on-going benefits. Here Jacopa's product support and aftermarket services are key to the development and understanding which can maximise the benefits of BIM to both the supplier and the end user.

Conclusion

Jacopa freely admit that there is much work yet to do to understand how the business should optimise the storage and use of information to enable conformity with BS1192:2007 and PAS1192-2:2013 . As Alex Lloyd says, "We are ready for BIM and both we and our customers are already benefitting from using its principles, practices and tools. This use will undoubtedly grow, however, unless there is industry wide demand for Level 2 maturity, it will be very difficult to justify the investment to reach this level.

"BIM is not a technology, it is a process with ways of thinking and working which adds value when creating, managing and sharing the properties of an asset throughout its lifecycle.

"The BIM challenge for the water sector is about very effective use of digital information through supply chains and the digital transition to asset lifecycle information management and that's a strategy which must be applied on a consistent basis across the entire industry."

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