

Building Information Modelling (BIM) and it's Role in Facilities Management.

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***Simon Moyes** is the Technical Manager for ArtrA at Micropower Solutions Ltd in Brisbane. He has an extensive IT background with 12 yearsâ€™ experience working in the ICT Industry and has been integral in the delivery of major projects in both the UK and US markets. He is an experienced systems administrator, certified Microsoft expert and has extensive knowledge of CAD applications. Simon has worked with in Australia, the UK and North America with such companies as, Volvo Construction Equipment, Ingersoll Rand and ARTRA UK. Since arriving in Brisbane in 2010 Mr Moyes has helped to develop the BIM market and the implementation of ArtrA into that market. His expertise and experience has been welcomed at such conferences as the Revit Technology Conference, where he delivered a paper on BIM.*

Over the last 10 years productivity growth in the construction industry has lagged behind other industries. It has been highlighted in one report that a shortage of skilled labour, competition-stifling regulation, inadequate infrastructure and a lack of innovation are behind this loss of productivity.

In answer to this productivity inefficiency Architects, Contractors and Engineers are increasingly embracing innovative building information modelling as a method of improving the visibility, efficiency and control of design and construction data. Owners are now realising the benefits that 3D modelling provides for facilities management and operational control of their buildings while at the same time improving the reporting of sustainability and energy output KPI's via visual workflows. Early adopters have found that the process is generating a cost saving throughout the construction process in the region of three dollars saved for everyone spent and it is expected that the added value will greatly increase this ratio in the operational phase.

Last year the UK government mandated that all projects will be delivered through BIM by 2016. In Australia organisations such as Lend Lease, University of Technology Sydney and The South Australian Health Department are now specifying the delivery through BIM. It is possible that the Federal and State governments may adopt a similar mandating decision to that of the UK in the near future.

BIM in Design:

In design this process makes it possible for architects and engineers to create a virtual building, complete with the entire internal fit-out before construction on a project begins. This allows for new processes that can help with energy analysis, programme planning and discipline co-ordination. It also includes the ability to develop photorealistic visualisations to help everyone comprehend the design intent, including the development of virtual reality environments. As the design moves through schematic design and the accuracy of the virtual building improves, the model can then in turn be relied upon by the contractors for use in the construction of the asset.

BIM in Construction:

After the architects have reached an appropriate level of design development, the model can then be used for construction programming, which is called 4D in the BIM world. This is where the construction programme is applied to show the constructible process in a virtual space. This includes modelling the construction plant and equipment to help identify any potential problems in their placement on site and any issues in the programme execution. The models also provide materials, quantities and costing information which is considered as the 5th D in the process. The model thus collects and controls the project data in databases such as the ArtrA database, to collect a full

historical record of the design and construction process, with the end result being an “as-built” virtual model.

BIM in FM:

If a Client commissions a fully co-ordinated BIM model comprising the Architectural, Structural, and Services Models with a data rich database complete with the Operations and Maintenance manuals, the Client gains the full benefit from the earlier stages in the process. The Model can then be used to deliver further benefits within the FM operational period such as Preventative Maintenance, Condition Assessments, Health and Safety and Asset Management. This visual interface provides far greater visibility for the FM / AM staff for the maintenance of the Asset which drives greater comprehension and a far greater efficiency in work flow.