In partnership with the Commissioning Specialists' Association, we regularly promote the importance of commissioning and its vital contribution to the effective and energy-efficient operation of buildings — and the realisation is growing.

Name any problem in a building, and commissioning will be the answer — or a large part of it.

A coming together of BIM and commissioning

Commissioning is vital to the successful operation of buildings, and the growing deployment of Building Information Modelling opens up new possibilities and opportunities. **Matt Ward** of the Commissioning Specialists' Association takes up the story.

The seeds of change planted only a few years ago have instigated change on grand proportions within the construction industry. The shoots are prevalent as the construction industry finally realises and embraces the digital tools available to streamline the process. BIM is set to revolutionise the way we work and will require a true cultural shift in order to be successful.

It is a major challenge, but one which will see a positive outcome in terms of quality of delivery and improvements in client/end user satisfaction.

Over the coming years, commissioning practitioners and those ensuring the commissioning dependencies are met will finally be brought into the mix, and with that will come requirements for additional skills and competencies in order to keep up. For those with the foresight to start engaging with this technological change now, the benefits and rewards will be abundant; for those that don't, well, they will be playing catch-up, which will inevitably be more expensive.

Building Information Modelling/Management or BIM as it is better known, has been the buzz phrase within construction for a few years now, and level 1 of the technology is becoming more prevalent on sites — especially the 3D-modelling aspects with engineering manufacturers now engaged to provide objects and libraries of the equipment supplied and installed. The UK is currently unique in that it is the only deployment of BIM that is being backed by Government legislation. That is to say that the UK Government has stipulated that all Government contracts will have to include for BIM level 2 by 2016, which really incentivises those normally involved with this type of work, to invest in its development.

BIM as a powerful aid to commissioning — Matt Ward.

> **"BIM is set to revolutionise the way we work and will require a true cultural shift in order to be successful. It is a major challenge, but one which will see a positive outcome in terms of quality of delivery and improvements in client/end user satisfaction"**

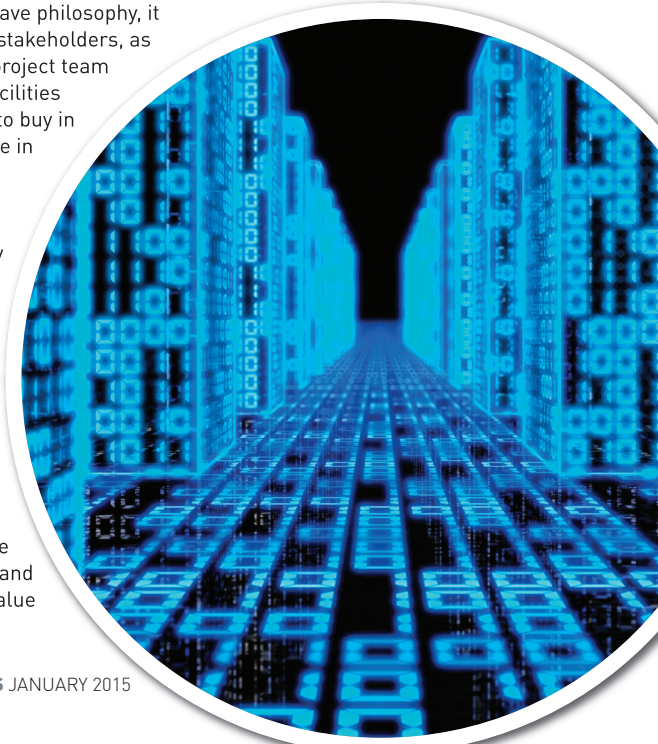
BIM itself is much more about collaborative working than it is about the various software programs 'plugged into' the model at the different stages of the project. Ultimately, being a cradle-to-grave philosophy, it requires all stakeholders, as well as the project team (including facilities managers), to buy in to the change in culture and working practices in order to fully appreciate its value. If some of the parties do not contribute or adopt the philosophy, then the model will be incomplete, and the loss of value becomes disproportionate.

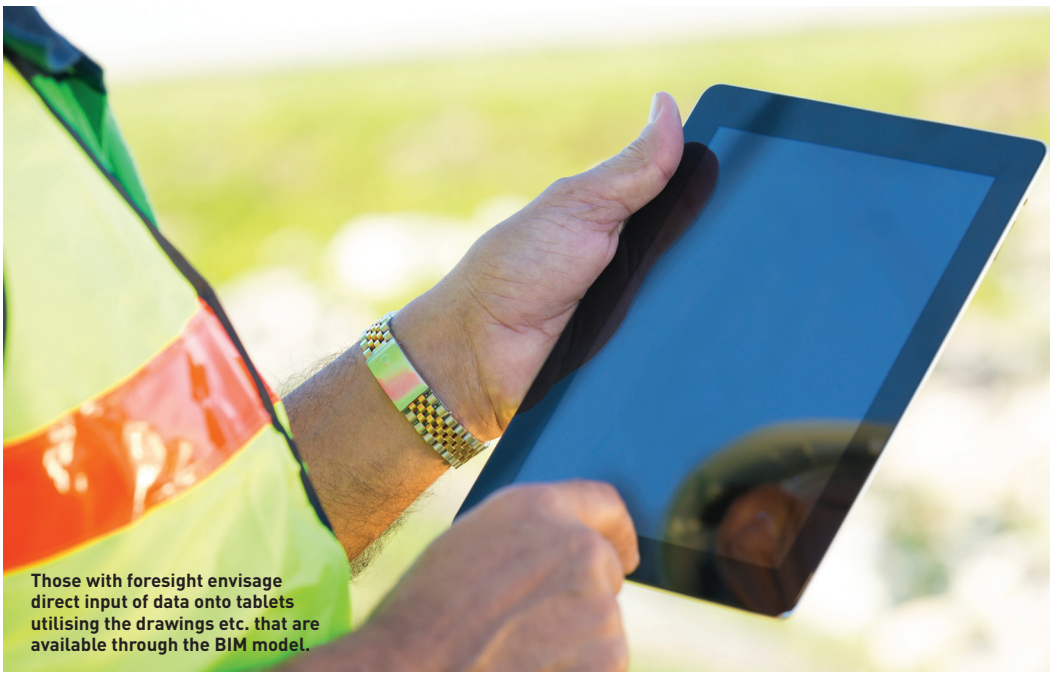
So where does commissioning fit in to all of this?

Commissioning generates a huge amount of data, as all of the services installed within a building will have been thoroughly tested, set to work and integrated. The current guise of BIM merely facilitates this information being stored in a repository, much like a modern digital O&M.

However, the next stage should be to integrate the standard test

Commissioning generates a huge amount of data, but the current guise of BIM merely facilitates this information being stored in a repository.





Those with foresight envisage direct input of data onto tablets utilising the drawings etc. that are available through the BIM model.

> **“Commissioning generates a huge amount of data, as all of the services installed within a building will have been thoroughly tested, set to work and integrated”**

documentation for population on-site and in real time. The benefits to this for the commissioning practitioner are straightforward, in that there is no need to manually type up the test sheets and, going forward, the record of verification is done immediately and again in real time.

This is the current challenge, which will see those with the foresight, ensuring that the shift in practices on site involves direct input of data onto tablets utilising the drawings etc. that are available through the model and providing that saving on to the project.

If we look further into the future, it is not unfathomable to foresee that the integration of the BEMS into the model at 'handover' stage will convert the model from a passive one to a truly dynamic one. Couple this with the technological advances in building services and the 'Internet of things', and it should be possible to mechanically commission HVAC systems remotely or from a laptop plugged in locally.

It is not unthinkable to appreciate that with a robust design model within BIM, software will be developed to balance the systems automatically, utilising real-time feedback from sensors within the systems to then manipulate control dampers to satisfy the design criteria. This will leave mechanical commissioning engineers to troubleshoot the issues, because there will always be issues, and may provide a degree of a solution for the anticipated skills shortage.

This may all seem like pie in the sky at the moment, but after recently familiarising myself with Google's imminent arrival to the world of construction, 'Flux, the comment was made that at some point in the future there will only be a requirement for programmers, as technology will do the rest — much more efficiently.

Matt Ward is chairman of the Commissioning Specialists' Association.