FEATURE

BUILDING INFORMATION MODELLING: DIGITAL DETOXING OF MALAYSIAN CONSTRUCTION INDUSTRY FOR DIGITAL PRODUCTIVITY

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The implementation of Building Information Modelling (BIM) in the country has been fragmented, to say the least. However, wide spread acceptance resides in a few major stakeholders with current and future benefits.

i. Architects have been using BIM for aesthetic purposes to sell their imagination via the 3-D visualisation of desired building.
ii. Engineers have been "putting together" building facilities with hindsight and foresight. With the depletion of engineering expertise over time, BIM may be the only tool that provides engineering insight in the future.
iii. Contractors are "doers" who need to anticipate physical issues that go against a smooth cost-effective field implementation endeavours. They will benefit the most from the standard approaches with high volume implementations.
iv. The "owners" need full contextual information for renovation, change, enhancement and functional opportunities to be exploited both now, and in the future. BIM serves as the "database" for that purpose.
v. The Government hopes the full implementation of BIM will assist in transferring knowledge between the generations of engineers to come. It is also the means of putting knowledge in the hands of many – one of the many measures of a nation's progress.

PRODUCTIVITY MEASUREMENT

As the world progresses, the need to be effective and efficient has only increased. This can be seen in the way our lifestyle has changed from the early days to the present and in the projected future.

It is futile to hang on to our past practices, old habits and comfort zones based on cultural, political, religious and human nature basis. One such area is the adoption of BIM in the construction industry.

Unfortunately, the only measurement for efficiency and effectiveness has been KPIs in terms of ringgit, as balanced scorecard practices and other measurements have yet to be prevalent. This has led to such KPIs being subjected to cost increases and misplaced optimisation. Some argue that it is realistic to use cost-based KPIs only, but if engineering excellence is the objective, then this can be misleading. This is especially so when risk, safety, reliability, innovation etc. cannot be quantified exactly and comfortably with costs.

Therefore, it will be these areas that are going to be compromised when we go overboard with the cost-based BIM engineering KPIs. Having said that, when should we have proper engineering based KPIs for BIM, for an industry wide comparison?

DIGITAL PRODUCTIVITY

There are numerous digital AutoCad drawings from previous projects that will be used in future projects with slight modifications. However, any experienced engineer knows that brown field (modification) projects are far more tedious than green field (new approach) projects. As such, when one modification is made to a building, then multiple discipline related drawings have to be updated accordingly. With BIM, all the relevant and related drawings are updated automatically. This comes with the benefit of clashes, conflicts and constraints in space being checked in 3-D and real-time before the 2-D drawings are produced for the Contractor's activities.

The best candidate for this are housing developers who build high-volume, standard construction on a short delivery time mode basis. Therefore, a quick achievable success factor for BIM implementation should be to target this segment of users.

Applying BIM to a nuclear or rail project may be deemed necessary, but where are the track records for the validation and verification process in the Malaysian construction scene going to come from? The focus should be chronologically shifted from the architectural and consultancy companies to the housing development application area, by the power that be.

DIGITAL DETOX

There are various BIM systems running in various architects, consultants and engineering companies.

This variety of systems with their various levels of application has been the main toxification against the successful application of BIM in Malaysia. Everyone claims to be BIM compliant and a BIM practitioner for one purpose:The Malaysian Government directive to be BIM-centric by 2020.

The benefit of being perceived to be so, is being awarded projects by clients who are BIM-biased. However, incompatibilities between the architect's, engineer's and contractor's BIM systems can only result in such awards having complications and increased cost of implementation. Hence, not a single BIM "solution" can take on the Microsoft approach of Windows dominance. BIM-data mobility has to be the primary focus of future solutions. It is this that will be recommended as the detox to the widespread adoption of BIM. The data associated with layouts, look and feel from the architects should be a BIM template for the engineering of facilities within, that will be construction-wise sequenced by the contractors. For this, the data set has to be contextually universal.

Data mining of the construction industry and applying contextual data analytics to the BIM application areas should be the focus of BIM evangelists. BIM is the most data-centric application that engineers in the Malaysian construction industry have faced so far.

SUMMARY

BIM cannot and should not be under the jurisdiction of a single "authority" entity as it is part of the engineering construction process in an ever-expanding construction industry.

Fortunately, the focused implementation will come from international expectations, effective approaches and efficient implementations that will make BIM a necessity in the face of stringent times, adverse competition scenarios and the use of highly in demand resources and knowledge. ■

Author's Biodata

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