

BIM in the Developing World

Adam Sheather

Developing World BIM

Professional Technology Innovation usually aims to improve 1 of 3 Categories.

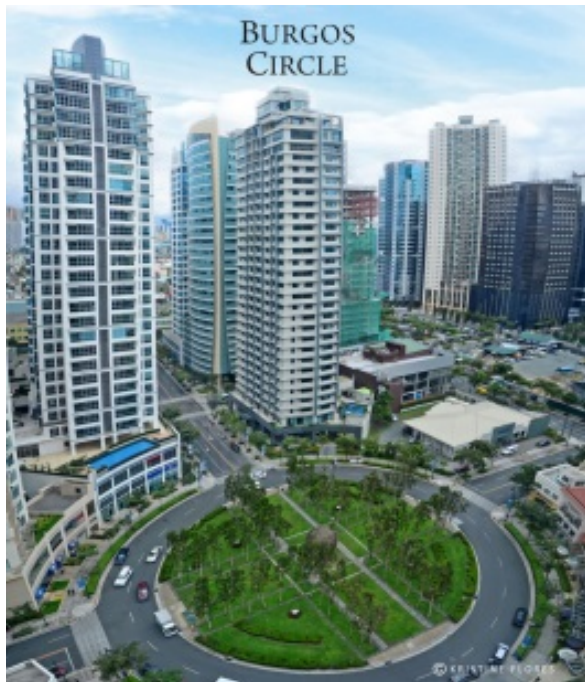
- Cost Efficiency – Time/Labour
- Quality Control
- Speed of Delivery

Developing World can mean many things, in this scenario we will look at 2 very different developing local city economies. Manila in the Philippines, and Doha in Qatar.

Both are experiencing massive growth in the Built Environment Space.

Manila

- Current Construction Activity – Lots
- Hotel, Residential High Rises
- Concrete Precast/Insitu Designs



Fort Bonaficio



BIM Development in Philippines

- Cost Efficiency is High!
- Quality Control is Low!
- Speed of Delivery is Low!

Cost of staff in Philippines is minimal, in many instances having legal copies of software on good computers will exceed an employee's yearly salary, so ROI is very long term.

Many Local Employee's require staff to work 6 days a week.

Due to nature of local work competition generally higher skilled employee's take up work for international office doing low skilled required labour.

In many cases doing things twice or 3 times is still cheaper than buying expensive software that removes time for 1 person. Teams can be much larger to spread the load of work at much lower costs.

Philippines Local BIM Market

- Local Market Support for BIM is very Low
- Contractor driven with only 1 Major Contractor doing comprehensive trials of using BIM technology
- Sourcing the required Models from the local market has been difficult for this contractor due to the costs
- As well as needing models, up skilling and changing the workflow of existing team is also a very large cost
- However the cost of engaging the correct skill levels that work for international companies is a support role is far to high
- Cost of hardware/software and updating to new versions is also a big deterrent.

Standard AEC Projects in Philippines

- Generally Architecture concepts are typically outsourced.
- All Engineering and Construction Services can continue under 1 roof.
- D&C Cost driven structure for projects, with PPP, World Bank funding and other projects the exception to use international firms to many Quality
- More BIM work done in the Infrastructure/Resources Markets then Buildings & Property

BIM use on Local Projects to Date

- BIM is used at the beginning of Designs
- Work and Skills demand at local level is mostly related to AutoCAD
- Owners not yet engaged in BIM deliverables cost would be a big driver
- Universities/Colleges yet to offer any BIM based schooling or upskilling
- Due to demand by International firms for good talent to perform below par work, large Vacuum of skills in the Local Market.

BIM Development in Qatar

- Cost Efficiency is ok!
- Quality Control is ok!
- Speed of Delivery is High!

Qatar design and construction is very interesting, generally a lot of drafting staff are sourced from overseas Nationals. The general skill sets of this staff are generally of a pretty good level.

The type of projects in the Middle East are generally very complex & expensive and as such typically Design Consultants have a lot more oversight/risk and control then in places like Australia.

Standard AEC Projects in Qatar

- Many Government Projects require BIM Deliverables
- BIM Requirements from Project Management Consultancies are unrealistic and normally disregarded compared to Costs
- Contractors almost all have no Design Staff only site staff
- Design Consultants are required to supply staff to site to manage quality control and oversee work of the Contractor
- Once wins are award turn around times skyrocket being quickly assembling drawings and finalizing documents quickly

DA's for Proposals

- Documentation submissions require far more detail than Australian Market for Proposal.
- Can typically include the following;
 - Full Architectural Floor plans, elevations and Major Sections, wet areas
 - Structural Design GA's foundations, vertical sizes and typical Details
 - Mechanical Plant Room/Isometrics/Schematics & Riser Drawings
 - Electrical Power, Comms, Security and Lighting Floor plans and Schematics
 - Hydraulic Schematics
 - Fire Schematics and Plant Room Equipment Sizings

BIM Advantages in Qatar

- Design Consultants – Site & Contractor Oversight
- Iconic Project Complexity requires use of Advanced Software
- Pre-fabrication a typical part of Middle East projects, so better designs via BIM tools to lower co-ordination Risks
- On Local Projects with Local Consultants Price becomes a very BIG issue
- Big disconnect between Consultant and Contractor workflows with BIM
- Most BIM deliverables are Project Management and Client driven by ask for a number of things that only benefit Contractors as such much money is lost as the Contractor produces BOQ's, 4D sequences, to meet contract requirements NOT to improve the work or their bottom line.