On a Smaller Scale

When I was first approached to write on the topic of BIM implementation in large firms versus smaller ones, I thought, "What's there to write about?" However, after giving it some consideration I realized that there are some major differences between the BIM workflow in large and small firms. The subject grew on me, so to speak. This is not a roadmap—we have those in the form of BIM Execution Plans, BIM Protocols, and such. This is my view on the pitfalls that you encounter when trying to implement BIM, or any disruptive technology or work process, in "small" companies.

I would like to stress that this can also be a very enlightening article for those of you working in large firms, especially if you find yourself getting axtremely frustrated whenever you deal with small firms. So keep reading, even if it does not immediately seem to affect you directly…I am sure it will!

DEFINING "SMALL"

What is small? Well, obviously, there are the numbers and in some cases it is that simple. Regarding the numbers, I would consider mine a small firm, since it is just me. (*A firm any smaller would be non-existent!*) That said, small is project-dependent and not simply about the number of staff. A firm of one can be small or large; small is fundamentally about the size and complexity of projects. To demonstrate this I offer up two examples:

1. I have a client and friend who is self-employed, just like me. However, he works on Big projects (and the capital B is there for a reason). I mean, he works on huge, multi-billion dollar projects! He is an extremely specialized expert who, employed for his particular field of knowledge, operates both with and within large and complex project teams. I do not consider his firm small in any way, even though it is as numerically small as my firm is. His is an example of a big firm.
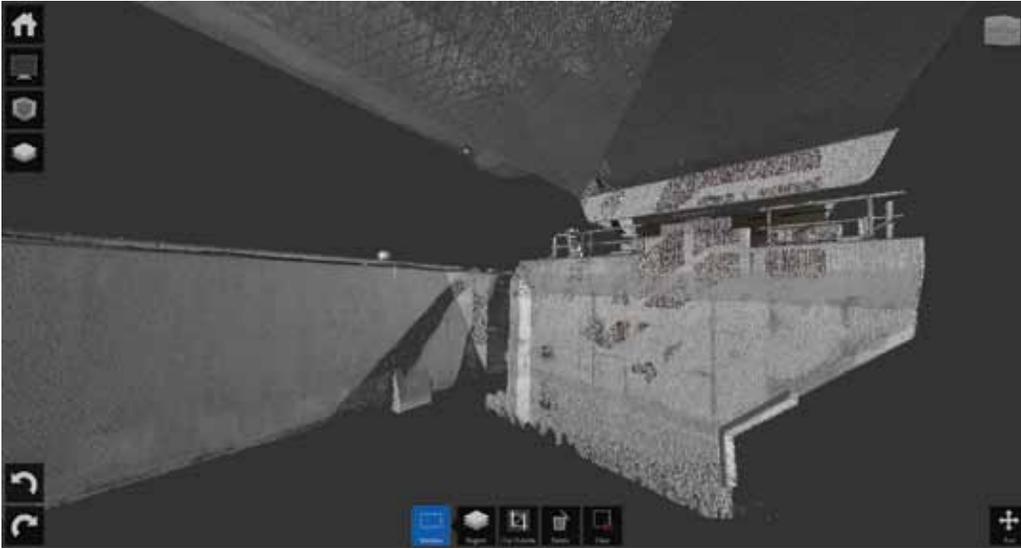
"Small" firm GeelinkBosch laser-scanned the Eastern Scheldt storm surge barrier

2. I also know of a company that is one of the large architectural firms, in Dutch proportions. The company specializes in consumer-based housing projects and each project they do is a single, unique residence designed by an architect and then taken to construction by an all-around engineer. They have 50 to 60 people in design development; however, due to the scale and nature of their projects, the firm acts as if it is as small as my firm.

When it comes to implementing BIM, size is not about how many people there are in a firm; size is about the complexity and magnitude of any single project done.

WHAT'S SPECIAL ABOUT SMALL FIRMS?

What are the differences in the approach to BIM among large and small firms? Good question, and the answer is, "not much." However, there may be a few pitfalls, which have more to do with expectations and prejudices then any of the usual things one might assume when pondering firm size and implementation needs.

Just as in big firms, implementing BIM in small firms mostly means getting people to adapt to a new work process, train them to work with new tools, and define new project strategies. So far, so good, one might say.

The differences (or pitfalls) lie within the following aspects of the implementation:

The Numbers
The I.T.
The Budget
The Commitment

PITFALL 1: BIM IS NOT ABOUT NUMBERS | BIM IS A PROCESS

Let's start with some of my "red flags." If you ever want to trigger a good "discussion" with me, use one of the following statements: "If you don't collaborate in project teams, you're not doing BIM." or "Small projects aren't suitable for BIM."

In my not-so-humble opinion, those two often heard statements are complete and utter BS (with the capitals intact). BIM is not, I repeat, NOT, defined by the number of people on your project team, nor is the size of your project's budget or square footage a determining factor for 'doing BIM.' BIM is about a work process. BIM is a coordinated, effective, wholistic process for AECO project realization.

In a similar manner, collaboration is about disciplines, not people. If your architect, building engineer, structural engineer, fire safety expert, MEP engineer, and everyone else on project are one and the same, then cool! That saves you from bouncing extraordinary numbers of emails, memos, and reports back and forth, but does not affect the BIM-ness of the project. As long as she or he is working in an integrated Building Model (or models), there is no difference with a project team where individual people play these roles individually or one individual plays all roles together.

BIM can be suitable from the smallest of projects.

Trust me; I have done it countless times, and why not? Small projects do not need coordination or revisions… There are never any ducts going through structural members on small projects either, right? Of course not...

One of the most challenging tasks I face when starting conversations about implementing BIM in a small firm is getting the prospective implementer to understand that BIM brings benefits (read as: added value) for any team, on any project, of any size! No matter how big or small, complex or simple, BIM is a process and not a bunch of numbers.

## PITFALL 2: I.T. | BIM IS NOT ABOUT I.T.

Let's face it: we love our gadgets, both software and hardware. If there is a new toy out there, we can hardly wait to get one and play with it. So we all get excited if there's a chance to implement an integrated set of BIM tools such as Vasari, Revit, Navisworks, Vault, Citrix servers for model access through your iPad, point cloud laser scanning, smart QR Codes on site, and so on…and on…and on. However, that is not a necessity for BIM.

Revit Architecture 2013

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When implementing BIM in small firms there is a golden rule: Do not get carried away. Small firms probably have no I.T. Manager. Usually it's the person that once, a few years ago, thought to give a jammed workstation a cold reboot, which cleared the 'problem.' Same with the CAD Manager—something somebody does on the side, when there is nothing more important to do, just because they know how to get a .ctb file modified in AutoCAD®.

BIM can be straightforward and very simple. Install your software and be done with the "Tools" part, *at least for now*. There is no absolute need for all the fancy I.T. stuff. Sure, it comes in handy sometimes—it might even help you to leverage BIM more effectively and get more value out of your investments, but for small firms the primary objective is staying down to earth. One of my clients quite eloquently put this in perspective when I got carried away. They said, "You're already on Mars while we just want to go to the moon."
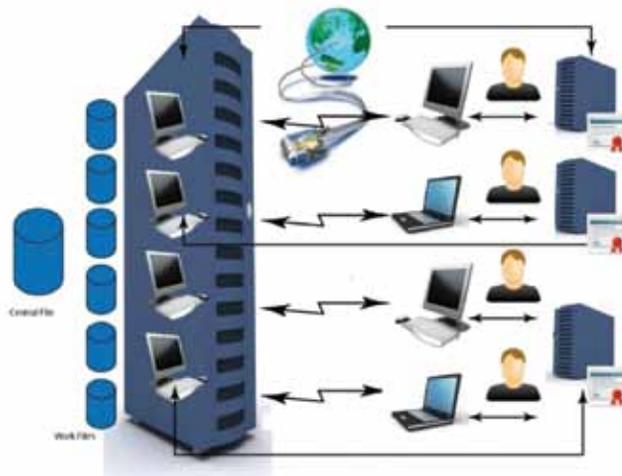
Probably a bit over the top for small firms

One way of finding the right balance is to talk to your clients about their wishes. What do they want? What do they need? What would be their ultimate goal in 5 or 10 years from now? Then apply the Pareto Principle. http://en.wikipedia.org/wiki/Pareto_principle. Get to 80 percent of the targets with 20 percent of the effort and you are on your way. Forget the rest for now, the other 20 percent will come once they are on board and have their own work processes in order.

PITFALL 3: BUDGET

The world is not fair. Implementing BIM is (debatably) more difficult for small firms then for larger firms. It can be thought there are two reasons for that:

3a) License Coverage

In large firms, not all team players may be working as an architect or engineer with the design software. Even when they are working projects and using the BIM software, if your design staff is of a certain size you can be assured that not all of them will be in the office doing design work at the same time.

Therefore, while a small firm needs a single license for every employee, in large firms these licenses are often shared, which means that when we calculate the direct software costs per employee, those numbers drop when the firm gets bigger.

3b) Phasing

In large firms BIM can be implemented in phases, which means direct costs (software and hardware) and indirect costs (training and lost productivity) can be spread out over a longer period of time. Moreover, there is always a part of the large company working at full speed, which means a lower impact on the company as a whole.

This is not the case for small firms. If there is just one designer, your entire team is gone when he or she is taking a course in the new BIM software. When that single designer is struggling, the revenues of the entire firm are affected.

This requires serious attention. I usually "solve" this by training the staff on-project. This way, they (sort of) stay productive. For "basic" training, I rely on them to self-study using YouTube, Autodesk® video instruction, and so on. Fortunately, I find people working in smaller firms are *usually* very flexible and proactive, so this works rather well.

3c) Standardization

Small firms struggle with creating their own workflow from scratch. You bought the software, invested in training, and now you also need to spend serious time and budget on getting it to work? Create a library, BIM execution plans, modeling agreements and definitions, and so on.

Small firms benefit from standardization. They have neither the manpower nor the budget to have somebody work on a company standard and template for a month. They want to buy something, put in their corporate identity (you know, have the section marker look like the boss wants it to look) and get cranking.

PITFALL 4: COMMITMENT

Usually in small companies there is an extremely high level of commitment. The decision to "go BIM" is applied firm wide (which is easy if your firm employs just a few people). Commitment is not as easy to achieve in larger firms, where a management decision is the defining adoption factor. In small firms, management usually IS the work floor, and vice versa.

While larger firms can deal with one or two (or ten) people not seeing the benefit or willing to go the extra mile, this is deadly for small firms. Let's say you are a party of five. Having one person not on board means 20 percent of the people in your firm do not agree with its current heading. Twenty percent is a lot to have "going rogue," especially because small firms do not have the ability to transfer the rest and push them against the wall. The team simply is too small.

For BIM—and specifically BIM implementation and adoption—to work in small firms you will need 100 percent commitment, nothing less. Large firms will ultimately need this same commitment, but can handle it in smaller phases of implementation and adoption.

IN CONCLUSION

As stated in the beginning; implementing BIM in a small firm is similar to adopting in a mid-sized or large firm. There are a few pitfalls, but if you are aware of them, manage them, or manage to avoid them altogether, you will be just fine!

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