Challenges of BIM implementation

Dr Reyhaneh Shojaei

Homes UK 2020
Technical inhibitors to BIM implementation

- Time
- Cost
- Usability and applicability
- Ease of use
- Digital literacy
- Complexity and interoperability
Non-technical inhibitors - people

- Resistance to change
- Inappropriate leadership
- Negative perceptions
- Lack of knowledge of benefits of digital innovation
- Lack of training and skills
Non-technical inhibitors - culture

- Lack of collaboration
- Risk aversion
- Technology-centric mindset
- Lack of organisational resources and support
- Lack of clarity in current roles regarding digital responsibility
Non-technical inhibitors – process and procedure

- Challenges in designing digital strategy
- Lack of communication and collaboration
- Coordination issues
- Involvement with supply chain at different level of competency
- Difficulties keeping employees on board during the digital journey
Non-technical inhibitors – goals

Focus on reducing cost

Focus on maximising profit
Interview results

Number of interviewees mentioning each inhibitor
I think this is an interesting psychological piece about how some people are very much about emotion and have a strong gut instinct... others are about lists and checklists, and want to see the figures on the table.
Lack of management support

A manager’s desire to introduce new technologies to their organisation is dependent on their realising the benefits of using digital technologies.

Successful BIM implementation needs a supportive, motivated manager.

The BIM journey started with one person who had a feeling that this was a good idea. I know many individuals and companies who start these changes. They saw this was a good idea and they had kind of a vision for making change.
Employees’ lack of knowledge about the benefits of BIM can be a critical obstacle in the digital transformation journey.

Employees are not clearly informed about the positive impacts that digital technologies can have on their role and day to day performance.
Lack of skills and expertise

Lack of expertise and skills at inter- and intra-organisational levels is an issue.

SOFT SKILLS
- Leadership
- Flexible mindset
- Creativity
- Communication
- Critical thinking
- Curiosity
- Problem-solving
- Cultural agility
- Emotional intelligence
- Collaborative skills
- Entrepreneurship
- Active life-long learning

HARD SKILLS
- Data science/analytics
- Programming skills
- STEM background
- Understanding how to collect, store, use and share data
- Understanding IT tools and data

Thinking through complex problems
- Systems thinking
- Data-driven decision making
Lack of communication and collaboration

Leaders with a human-centric vision of BIM are more successful in bringing change to their organisation.

Efficient collaboration (inter- or intra-organisational) relies on effective communication of information throughout a project. In project delivery, BIM implementation relies on data provided by multiple actors during the project development process.
Coordination issues

Head of technology

We find that a lot of coordination errors shouldn't happen because we expect the model to detect a clash, and in my opinion, people get lazy because they rely on computers.... Architects are unable to produce enough information to give to a subcontractor and structural engineer. We need to ask them to rework, and it requires time and cost.

Coordination between architects, developers and people on site, establishing quality control procedures to ensure the accuracy of models and data sets are challenging but necessary.

One of the crucial inhibitors to the uptake of BIM is a lack of coordination between the developer and the design team, leading to clashes on site.
I think the big problem within construction generally is, if you talk to any main contractor…. we're all fighting for 2 or 3% profit each year, if we're lucky, and therefore there isn't enough in the pot to invest heavily in digital…. we're trying to find smart ways of doing it.

Head of procurement and supply chain

Organisational goals

Focusing solely on maximising profit or reducing costs can hinder the adoption of BIM.
This research forms part of the Centre for Digital Built Britain’s (CDBB) work at the University of Cambridge within the Construction Innovation Hub (CIH) which brings together world-class expertise from the Manufacturing Technology Centre (MTC), BRE and CDBB to transform the UK construction sector.

The Construction Innovation Hub is funded by UK Research and Innovation through the Industrial Strategy Fund.