Cloud computing the most critical area for construction investment - survey

A survey conducted by RIB CCS in Q4 2021 identified cloud computing as the most critical area for construction industry investment. This was followed by building information modelling (BIM), mobile technology, and integrated technology platforms.

RIB CCS vice president Peter Damhuis

RIB CCS vice president Peter Damhuis says the construction industry is notorious for being one of the least digitised industries in the world. “Cloud computing is central to the solution. It’s the foundation of the industry's digital revolution. It underpins all the most powerful software solutions and enables the industry to take advantage of the latest technological developments.”

Damhuis notes that each time a construction company moves onto a new site, it has to set up some form of infrastructure for employees and support teams. “The complexity of the infrastructure differs from site to site, from relatively basic setups at smaller sites to more complex arrangements at large sites.

“Before cloud computing was widely adopted by the industry, people on site would require an IT infrastructure, printers and, in some instances, a dedicated server room to facilitate the exchange of data between teams. During the setup phase, a team of IT specialists would arrive on site and go from one container to the next, installing equipment and running software.”

Modern tech solves connectivity issues

Cloud computing has changed this scenario significantly. “When everything is in the cloud, there is no need for major infrastructure on site. Construction companies need only connect their sites to the internet. While this can be challenging when a site is in a remote area, modern technology such as satellite phones, 4G and 5G can help to solve connectivity issues,” adds Damhuis.

Less infrastructure also means fewer security concerns. “When construction companies work in remote areas, they often have to guard against theft. When there is less equipment and infrastructure on-site, there is less to worry about,” says Damhuis.

In addition, cloud computing promotes greater efficiency when it comes to construction projects. “For example, programmes such as BuildSmart can be accessed from wherever the various team members are located and provide one source of information for everyone. All of the manual processes of seeking information, submitting requisitions and creating orders can now be completed in the cloud, in real time, improving the outcomes for everyone involved.

How 3D printing in construction will benefit the local industry

29 Apr 2022

Progress not happening fast enough

“The segregation of information, which saw each site have its own little hub of data, which was maintained on desktop

computers and laptops, is fast becoming a thing of the past with the move to cloud computing. And, if someone loses a laptop, it's not a major issue because all the information is readily available in the cloud," says Damhuis.

He says while construction companies have begun to move to the cloud, the process is not happening fast enough. "There is a perceived cost element involved that construction companies cite as a hindrance. I say 'perceived' because if these businesses conducted a cost value exercise, they would realise that the costs saved on infrastructure, people efficiencies, and other peripheral issues far outweigh the cost of introducing cloud computing."

Another challenge is trust. "While most people will happily conduct all of their financial transactions on their mobile phones, construction companies are loathe to put confidential information in the cloud, even with the stringent security measures in place to keep their data secure."

Damhuis says when he started conducting conversations about moving to the cloud with his clients a few years ago, there was little interest in doing so. "Those same clients are now asking us to help them make the transition. I believe the Covid-19 pandemic, Microsoft, and other players in the industry are major drivers behind this."

Construction technology can help to mitigate natural disasters
Bongani Dladla 28 Apr 2022

Damhuis offers the construction industry further reasons to expedite the move to cloud.

Ability to store unlimited data

The most obvious benefit of cloud computing is the ability to store masses of data relating to each project in a secure environment. Cloud storage protects data from the threat of physical loss or damage and makes it accessible from anywhere, anytime. Most cloud operators offer duplicity (a replica of your information in another data centre), which is added protection from data loss and continuity of service.

Potent data processing at hand

In the past, the processing of 3D models required laptops with massive engines, video cards, and high processing speeds. With cloud computing, model optimisation and file format translation can be conducted in the cloud centres equipped with top-of-the-range equipment, and limitless processing power. As a result, working on a 3D model now requires looking at the optimised data in the cloud, rather than having to use a desktop computer to create it.

Another compelling reason for choosing the cloud is the concept of generative design, an iterative design process that uses the full power of the cloud to compute design alternatives. "For example, if the construction team were building a complex arch, a generative design would calculate the optimum span, shape and load," explains Damhuis.

Collaboration with multiple stakeholders - a bird's eye view of all operations

For a long time, the segregation of information on job sites has not been conducive to working in an integrated way.

Damhuis says each job has its own information, but once construction companies start compiling information over numerous job sites, they are able to track trends on projects and make better executive decisions.

Notably, the capturing of information by drones or videos streaming from site also allows for the real-time tracking of the events on site, allowing people at the support office to follow progress and creating a connection between people in the support office and people on site.