

Pre-emptive Testing to Increase Productivity in Construction

In construction, many things can go wrong, from calculation errors to a minor miscommunication; but however small the error is, the mitigation process can significantly affect profit margins. In many cases, project planners underestimate the value of information. The McKinsey Global Institute report on Infrastructure Productivity underlines the importance of reliable data during the delivery chain to increase productivity. They also state, that in the last 20 years, labour productivity in industrialized nations has remained practically stagnant.

The Golden Age of Infrastructure

A prosperous Canadian economy after WWII allowed for generous spending on public works. The Trans-Canada Highway, centennial buildings, and city-wide skyscrapers are visible reminders of the wide-scale building and innovation carried out during the 1950s and 60s. The magnitude of infrastructural development in those decades are the reason why they were coined Golden Age of infrastructure. Unfortunately, the success of the Golden Age was not sustained due to economic busts.



Lost Productivity in Construction

The construction industry recently experienced a drastic decline after the 2008-2009 recession. The decrease in labour demand and investment created a stigma particularly for young workers. Many became averse to pursuing a career in the construction industry due to market volatility. This conclusively led to increased costs for contracting services and extended competition deadlines.

In addition to a decline in skilled labour, there is still an overarching challenge of conservatism that permeates the construction industry. Reason being, the rate of standardizing new practices falls decades behind the quick pace of technological advancement. In other words, the construction industry is stuck with the technology from the Golden Ages, minus the level of productivity.

A Need for Change

Moving away from conventional testing measures in construction such as cylinder break tests can optimize labour productivity and add value to the building process. Traditional testing methods require more time and can present unnecessary delays and unreliable data. Not to mention they often require destructive methods of gathering data which will later require repairs. By using new technologies such as wireless concrete sensors, contractors are able to cut days or weeks off of a particular project. Delays associated with traditional testing methods can cost contractors upwards of \$15,000 a day, talk about savings.

Using Technology to Increase Productivity

Rather than transporting concrete samples and outsourcing testing measures, non-destructive testing (NDT) methods featuring IoT technology can greatly override processes and delays. For example, [SmartRock™](#) sensors are fully embedded in the concrete at the time of pouring for real-time data transmission. This technology allows contractors or workers to gather and share live updates on concrete maturity with their smartphone or tablet, enabling project managers to make quick and informed decisions about when to initiate the next phase of the building process. Although the maturity method has existed for a number of years, technology has only recently seen advancements grand enough to measure and utilize maturity data in an easy and efficient manner.

Making the Connections

Construction is a collaborative process from planning to implementation. The chain of communication between the contractors, engineers, and managers has to be robust and reliable. Dependable communication in the form of live progress updates and easily accessible data at the touch of a handheld device greatly assists with project delivery, resulting in gained productivity. In a new era of concrete construction, smart solutions for new and old structures maximizes time and profits.

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