BRANZ

Enabling Digital Transformation in the Building Consent Sector

Forge

About BRANZ

BRANZ is an independent research organisation providing impartial, evidence-based advice on critical issues in building and construction in New Zealand, to industry and government. A few years ago, BRANZ championed the Industry Transformation Agenda (ITA) with an ambitious goal to transform the building and construction industry – to create better futures for everyone the industry touches. The development of the Artisan technology initially began as a separate initiative aimed at improving the New Zealand Building System, but it has since become a flag ship initiative supporting the ITA.

## An opportunity to optimise the building consent process

In 2017, BRANZ and Auckland Council saw an opportunity to improve the building consent process in New Zealand. As anyone who has ever been involved in a residential building project knows, there are many aspects of a build that need consent. These aspects require 'as-built' confirmation of compliance to the building code and conditions of the building consent by law. Auckland Council completes 650 to 800 inspections per day, accounting for more than 30% of New Zealand's annual residential builds.

The traditional consent process would see an inspector travel out to the construction site for each individual inspection as many as 18 times per site during over an average of 90 days of construction.

This inspector demand often results in long wait times and delays, which add thousands of dollars per day to the cost of the builds. It also results in particularly problematic resource and logistical ripples for time-sensitive inspections.

BRANZ and Auckland Council saw an opportunity to optimise this process leveraging modern digital solutions. BRANZ set out to develop Artisan, a state-of-the-art mobile phone app and web solution, designed to conduct inspections remotely during the workflow of the building process – optimising both the building QA and consent compliance inspection processes.
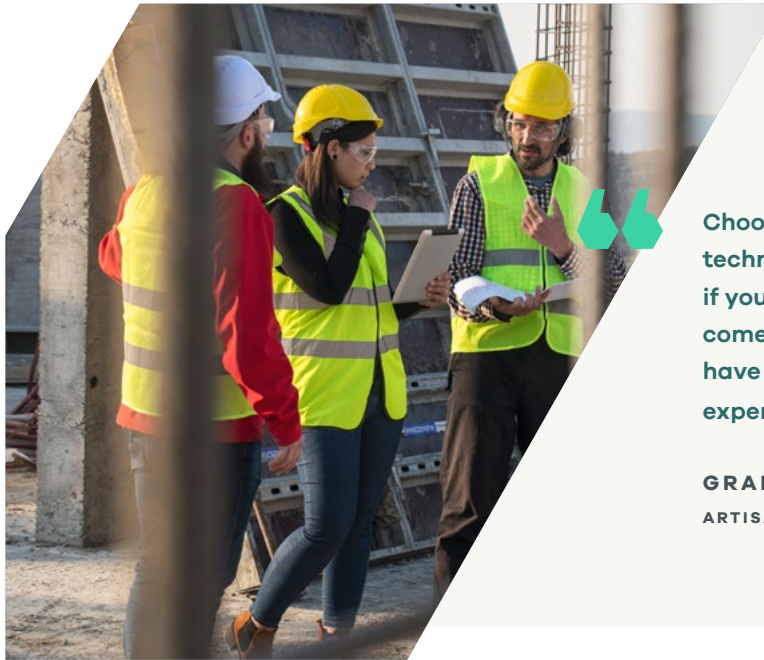
From idea to finished product – via a detour

While the idea seemed simple, making it happen wasn't always. After BRANZ parted ways with the initial vendors, the Forge team within the Certus group were approached to help make their digital ambition happen.

"We were attempting to change a process that had seen little to no improvement for more than sixteen years in an industry that had archaic technology and no love for it. We had learned we didn't need a software vendor. We needed a practical, agile, innovative technology partner, for who 'how else could you do it' was an opportunity to shine, not a challenge or affront. We found them in Forge." – Grant Ford, Artisan Product Director at BRANZ

The goal was clear: To develop a mobile phone app and web solution that building site managers can use to document evidence of those aspects of the build that require confirmation of compliance to consent. The solution needed to offer the ability to upload photos and comments, share those with the Building Consent Authority (BCA) in real-time who could review them and determine a pass of an inspection without leaving the office.

A solution like this is a game-changer for the industry. It removes the waste, rework and inherent time delay of two out of sync processes by leveraging state-of-the-art technology and devices.

It evolves roles and responsibilities along modern manufacturing process lines by empowering the builder to take more control of their own quality, lifting productivity, and reducing costs. Builders are being incentivised to build better quality homes through increasing their knowledge of the requirements of the building code and giving them time and saving them money to do so.

With it being such a transformational product, the Forge team knew that it needed to be extremely user-friendly, intuitive – for both the builders and the BCA – and robust. Otherwise, uptake would likely be low. In addition, it needed to be able to grow and evolve with the industry as requirements and technologies change. Michael Paenga, Senior Project Manager at Forge, explains;

> We know how busy builders and BCAs are, so we understood the importance of making sure it's easy to use the applications. There is also a critical legal element here, so we needed to make sure data is stored and shared securely and reliably.

Forge was able to deliver all this and more by leveraging extensive experience and skills around cloud technology, intelligent interfaces and digital transformation.

Smart technology that delivers results

A scalable and cost-effective serverless AWS ecosystem ensures the Artisan solution maintains a secure and auditable record of all inspection activity and artefacts. The microservices oriented API layer allows incremental enhancements to be introduced, allowing new functions to be progressively added to the system with no disruption to the inspection activities. Real-time alerting and monitoring through the CloudWatch service allows system administrators and custodians to monitor application usage for any anomalies and respond to them quickly. Overarching multi-zone deployment across all application layers ensures a high degree of failover and redundancy.

The front-end architecture, based on latest React Native and Expo technology enables fast development cycles, whilst allowing rich, consistent and accessible user interfaces, and a high degree of code reusability across different types of mobile devices and form factors —¬ such as iOS and Android tablets and smartphones.

The application extends further into the mobile app usage analytics and monitoring through Sentry, and upcoming advanced data analytics capability through Power BI and user analytics data. This will not only give valuable insight into the Artisan usage, but will drive continuous improvements in how building participants and consenters engage with the system and with each other.

Faster building consents just one of the positive outcomes

Since launch in August 2019, Artisan has delivered on its goal to optimise the building consent process by enabling BCAs to sign off on elements of the build remotely. Auckland Council indicated that Artisan enables them to double the number of consent audits processed in one day, which is invaluable at a time where authorities are struggling to keep up with the demand for consents.

Users of the apps have realised further benefits, including the fact the builders learn more about the consent processes, enabling them to get it right faster, as well as the health and safety gains that come with the reduced need for BCAs to travel and visit sites in person.

As Chelydra Percy, BRANZ CEO, explains; "Artisan provides a lift in quality assurance for residential buildings, higher levels of workmanship and a permanent record of evidence associated with each build. It also reduces the time to build by improving build teams' understanding of what BCAs are looking for, speeding up inspections and reducing rework, which all results in real productivity gains for the industry."

More to come

While Artisan is out there and being used, the work is never done. BRANZ and Forge are now working together to expand the capabilities of the apps to include things like real-time video streaming and advanced analytics reporting.

Making digital happen for your business

Unlock "the possible" with digital enablement from Forge. Designed to give form to your digital ambitions across cloud, connectivity and intelligent interfaces. Forge works with you, to leverage industry-leading technology stacks, intelligent digital platforms, and best-in-class capability. All as part of industry and digital business ecosystems, to make your digital transformation a tangible reality.

Forge is part of the Certus ecosystem, which for the last two decades, has been the trusted partner for the delivery of digital transformation, for more than 500 enterprises and public sector clients across Australasia. This means you can be be assured of first time, best-in-class business outcomes for your endeavour.

We turn digital ambition into reality

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