

Making the Most of
Infrastructure Dollars with
Collaborative Teams and
Technology

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Facing Infrastructure Challenges as Co-Collaborators

While the infrastructure that supports global commerce continues to decline and degrade daily, policy makers around the world are struggling to fund refurbishment and replacement projects at the required rate. When projects are finally awarded, contractors are faced with tight budgets and short timeframes. And government owners are required to manage billions of dollars worth of work at the same time.

These circumstances are certainly not unusual, but the difficulty in managing them is compounded by the global economic environment. As a result, project teams are tasked with stretching project dollars further by relying on even smaller teams and fewer resources. Within these constraints, the risk of costly errors and waste is great: especially when 66 percent of construction problems are caused by inadequate communication or poor information quality.¹

All infrastructure projects utilize some sort of collaborative approach, as the very nature of large-scale construction and engineering work requires it. But clearly there's an opportunity to improve if nearly 2/3 of construction problems can be eliminated with better communication and information. Collaboration means multiple parties and multiple project stakeholders sharing information and integrating and optimizing their processes to gain efficiencies, accelerate time-to-completion, and reduce risk.

With this in mind, many leading engineering firms, project management firms and contractors are looking beyond their own organizations to establish smart collaborative processes and quality control measures that can be applied across the many firms on the project team—and with the project owner. These firms seek a more trusting relationship with other parties, and they recognize that working more closely together can cause a ripple effect of improved efficiencies and quality control across the project they've been assembled to deliver. But this cross-project collaboration faces its own challenges. Each firm, investor and owner has its own internal standards and goals, which must be put aside (or, at least, co-exist) for the sake of building new standards and goals that together benefit the project's outcome..



Support a Team Environment with Team Technology

Multi-party project teams must address three main challenges to devise the best collaborative approach to infrastructure projects:

- **Strict Transparency and Accountability Requirements** – Public scrutiny of government- funded projects, requirements for public access to project information, providing information to various government parties for audit, and following industry standards for data creation, storage and maintenance all require project teams to demonstrate unprecedented levels of transparency and accountability. If not approached correctly, this can mean costly layers of people, processes, and systems dedicated to ensuring that all project information – the “whole story”—is captured and managed in compliance with these requirements.
- **Complex Team Structures and Funding Schemes** – Team structures and funding schemes, such as joint ventures and public-private partnerships, also complicate project reporting and documentation processes. In addition, most parties in these complex relationships don't want their proprietary information stored behind another organization's firewall, often limiting how information can be efficiently shared. Both issues create additional layers of information management costs that eat away at infrastructure budgets.
- **Information Deluge** – Today, every infrastructure project is quickly buried in documents, BIM models, formal correspondence and other information created by the many parties involved, often reaching tens of thousands of pieces of documentation (and terabytes of data) per month. The workflows for editing, approving and quality control of project information among project participants can be complex and nonlinear, and the number of participants typically grows and shrinks over time as players arrive, provide services, and then leave the project

Fortunately, the combination of people willing to collaborate and multi-party project control technology can help teams reduce costs while also meeting the challenges inherent in large-scale infrastructure projects. In fact, a savings of 4-8% of overall construction costs can be saved with a stronger team environment and collaborative technology to support it.²

While the tools each party has implemented to manage project information internally often work well within their various environments, they are unfortunately not designed to capture information and support intense collaboration among dozens of organizations and hundreds of participants. At this level, co-collaborators and the technology used to work together (a collaboration platform) must be able to handle mission- critical information, support complex decision-making processes, offer a complete audit trail, and meet strict legal and regulatory requirements. As a result, many firms seek a project-focused collaborative technology platform to support them in overcoming today's most pressing large-scale infrastructure challenges.

Make Information an Asset

When supported by the right technology, a truly collaborative environment makes all participants equal players and makes the controlled sharing of information advantageous, rather than a potential risk or liability. This makes project teams and their processes more transparent and accountable, and can make it dramatically easier to satisfy the demands of government and public oversight.

For example, the US\$3.2 billion Panama Canal Third Set of Locks Project is at the heart of the larger goal of doubling the shipping capacity of the Panama Canal by 2025. The Panama Canal Expansion Team (composed of organizations from Italy, Spain, Belgium, the Netherlands, Argentina, the U.S. and Panama) chose a neutral collaboration platform (as opposed to one that sits behind one organization's firewall) to eliminate communication delays or workflow gaps across its many members. Team members can easily, routinely and securely distribute, store and manage what will amount to hundreds of thousands of documents and correspondence pieces over the life of the project— keeping them up to date and accountable without unnecessary layers of administration and technology. An essential capability of the collaboration platform is the inclusion of key government entities in the workflows so they can quickly access information needed for compliance initiatives.



Don't Make Complex Projects More Complicated

The Panama Canal expansion also serves as an example of how collaboration helps meet the challenges of complex funding and team structures. Despite the number and types of organizations involved in setting up and managing funding, the real-time access to the latest information—made possible by the collaboration technology—keeps every stakeholder informed of progress and events, significantly reducing the risk of confusion and disputes. Technology cost overruns have been eliminated because the Panama Canal's team uses one platform to store and share information – with an unlimited user, data storage and training model. From one month into the project, when fewer than 100 participants were active, to month 3, when 300 participants were active, no additional or unplanned costs were incurred.

For Canadian firm Graham Construction and Engineering, the expansion of the Kelowna and Vernon Hospitals, among British Columbia's largest public-private partnership hospital developments, presented significant risk because of the large number of stakeholders, the volumes of documentation, strict regulations, and financial penalties related to delays and compliance violations. The construction company implemented a collaboration platform that enabled it to control the flow of documents and, most importantly, drive the appropriate actions to achieve compliance with how money was to be spent and tracked. The team was able to perform regular project health checks to ensure all the stakeholders were using the system, and the health checks revealed potential compliance issues that the project director was able to resolve before they escalated. This was key to developing trust in the system and encouraging user adoption, as well as to complying with regulations related to information privacy.

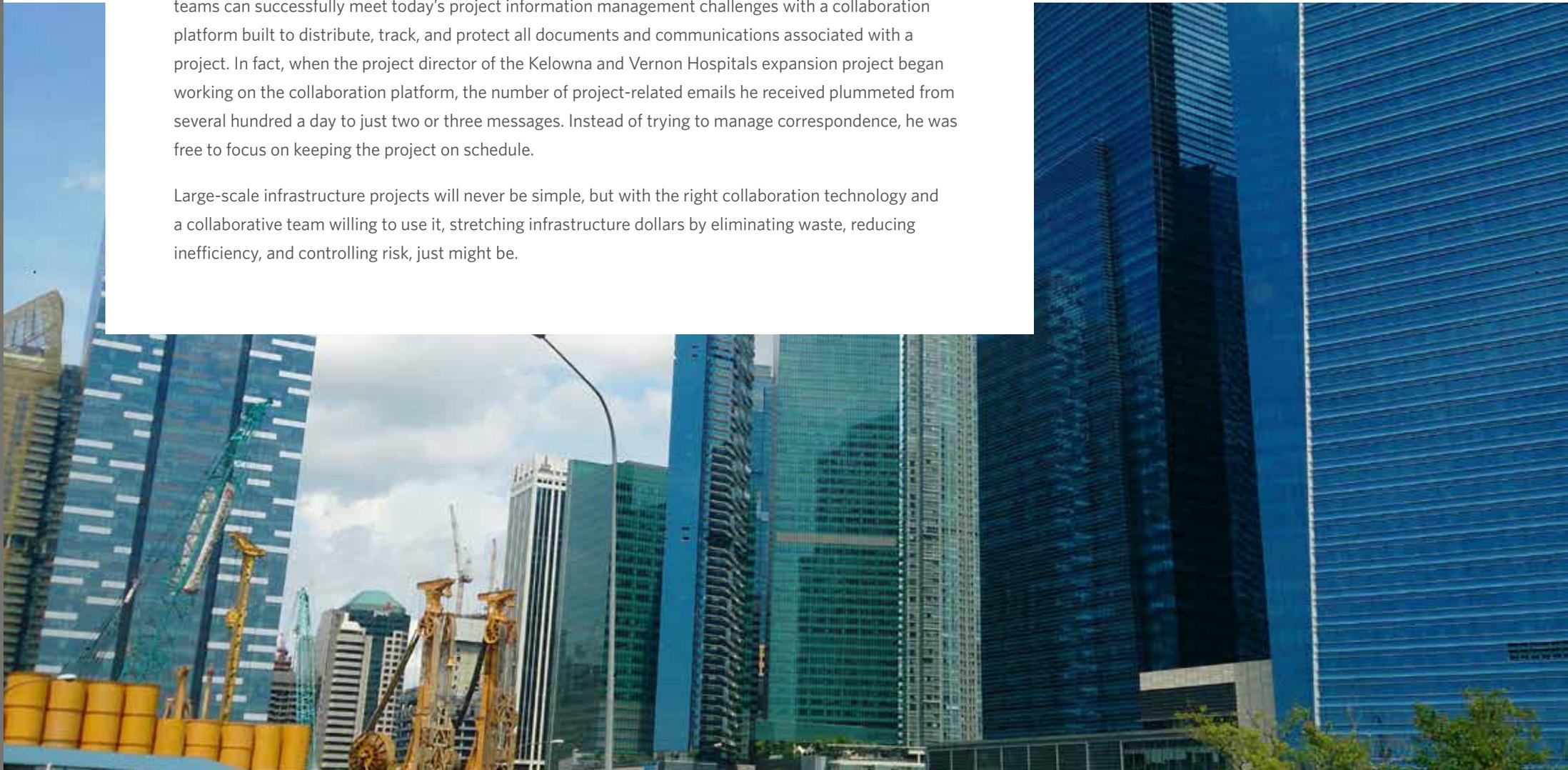


Break the Information Levee

The information deluge, which affects every large organization in every industry, is particularly painful for major infrastructure projects and the organizations managing them. Another way to stretch infrastructure dollars is to eliminate administrative and technology investments that block the flow of “Big Data”, now so common on big infrastructure projects.

Whether the problem is the massive size of files or the overwhelming amount of communication, project teams can successfully meet today's project information management challenges with a collaboration platform built to distribute, track, and protect all documents and communications associated with a project. In fact, when the project director of the Kelowna and Vernon Hospitals expansion project began working on the collaboration platform, the number of project-related emails he received plummeted from several hundred a day to just two or three messages. Instead of trying to manage correspondence, he was free to focus on keeping the project on schedule.

Large-scale infrastructure projects will never be simple, but with the right collaboration technology and a collaborative team willing to use it, stretching infrastructure dollars by eliminating waste, reducing inefficiency, and controlling risk, just might be.



About Aconex

Aconex provides the #1 cloud solution to manage information and processes for the world's largest construction and engineering projects. Aconex gives owners and contractors project-wide visibility and control between the many different organizations collaborating across their projects.

With more than 500,000 users and over US\$1 trillion of project value delivered in 70 countries, Aconex is the industry's most widely adopted and trusted platform. The company's global customer base includes nine of the top ten engineering, procurement and construction (EPC/EPCM) firms, 23 of the 25 largest global design firms, and nearly all Fortune 500 construction and engineering companies.

Founded in 2000, Aconex has 40 offices throughout the world, including headquarters in Melbourne, Australia and San Francisco, California.

Our clients have recognized that the Aconex solution is rich in features that support industry processes and that it meets or exceeds their internal security and data management standards. This is backed by unmatched client service that ultimately drives user adoption, maximizes return, mitigates risk and promotes project success.

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