



# The Role of Construction Technology in COVID-19 Recovery

By Russ Young and Jay Snyder

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*How E&C firms can leverage technology to support their strategic and operational objectives.*

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COVID-19 opened the engineering and construction (E&C) industry's eyes to how technology can be fully leveraged and depended upon for business continuity and remote project execution. Many thought the pandemic would create radical change in how we work and invest in technology; but as we start to see some light at the end of the tunnel, the event has mostly served as an **accelerant** of existing construction technology trends. In fact, COVID-19 may have done more to propel the industry forward technology-wise than the massive influx of venture capital has over the last five years.

Startups and venture capital firms should expect this trend to accelerate technology spending in the short term. In fact, while technology spending and **willingness** to spend on technology will both surely increase, contractors will likely focus on core technology to benefit the company strategy versus "quick-point" solutions that benefit individual projects only (or at least, they should). For example, they should focus on optimizing their technology spending by assessing which

solutions are core to their businesses and commit to fully funding and adopting those solutions across the enterprise. They should also look for areas where their software solutions overlap, assess the tradeoff of choosing one or the other, and then trim their technology stacks to make them lighter, leaner and more resilient.

## Before the Pandemic

As we recap some of the pre-COVID construction technology trends, we saw ample venture capital, a proliferation of startup technology and a [heightened level of mergers and acquisitions](#). On the buyer side of this equation, we had more active contractor pilot projects, beta testing and research and development (R&D).

We also noticed a distinct lack of accountability and maturity for dollars spent on technology within E&C firms. In fact, many firms had undefined strategic goals for their technology and struggled to know if their applications and data management solutions were meeting their needs. Technology products purchased based on a

short-term need or success of a unique project often took precedence over a company's longer-term technology needs.

Much has changed since the buzzword "COVID-19" has become part of our everyday language. Going into a period of recovery, we now expect to see not only ample venture capital but also increased diligence. There will be a continued infusion of startups, but with the market focused less on "trusting the demo" and more on the proven use case and functionality.

Also expect to see more technology mergers and acquisitions (M&A) activity as startups seek stability and as mature technology vendors work to build out their platforms. There will be more emphasis on proven thought leadership and growing market needs, such as proven customer success at scale over the flashy technology. The Built Environment should hold technology companies responsible to prove the problems solved and not just emphasize the science or technology of solutions like artificial intelligence (AI) and blockchain. Plan to see a bigger focus on proven market penetration, return on investment and the problem solved for our industry—more steak and less sizzle.

## Applying Lessons Learned

As the recovery progresses, we expect to see increased accountability and scrutiny for technology spend, with a focus on optimizing technology budgets and incorporating more comprehensive planning processes to determine real technology needs. Technology companies should also expect more requests from contractors seeking better understanding of their current software agreements, price and packaging renegotiations, and more access to data.

This will also be a good time to examine success in construction technology in other countries and apply some of those lessons learned here in



North America. Successful E&C firms will adopt an agile tech strategy intended to employ a decision matrix, establish the role of tech in the business, and create two- to three-year road maps. In short, the role of technology will be held accountable to support the strategic and operational objectives of E&C.

## The New "Abnormal"

Companies looking to advance on the technology curve and build a leaner, more effective, resilient technology asset stack can use these strategies to make that happen:

- Freeze nonessential spending for two to three months and don't allow an overreaction to invest in tech "just in case" this happens again.
- Take inventory of your current technology stack and identify how each solution is used (see Exhibit 1 for a tech stack example).

## Exhibit 1. Example of a Tech Stack

	ACCOUNTING	DOCUMENT MANAGEMENT	PRE CONSTRUCTION	ANALYTICS	BIM
<b>PROCORE</b> The Largest Construction Tech Marketplace	sage COMPUTER GUIDANCE XEROX Boomi FileBound ORACLE JDEdwards quickbooks mi Spectrum Viewpoint PeopleSoft Acumatica Explorer Eclipse COMPUTER ComputerEase FITZGELB LEAD CONNECTIONS	DocuSign NEWFORMA Dropbox HingePoint BLUEBEAM EGNXTE Pype Ebix Tonic DM NOTE VAULT ape Bullclip BRICKCHAIN box HONEST BUILDINGS BUILDR goformz	BUILDINGCONNECTED SMARTBID Salesforce ProEst ONETEAM Majente TopBuilder solutions COSENTIAL GEMAIN uCOREM PANTERA GLOBAL TECHNOLOGY pipelineSite Cor360	+ableev DOJO Dynamics anterra PRONOVOS Power BI SQL Server PRO-LINK ACUITE Construction Excel	APP TALK assemble BIMiaco revizto VERITY
	SITE DATA COLLECTION	REALITY CAPTURE	RISK MANAGEMENT	SCHEDULING/RESOURCE PLANNING	QUALITY & SAFETY
Microsoft Azure NYETAI VOLANTI DISPLAYS voxer jamf NOW FieldChat M DeWALT okta Push-to-Talk zapier mobelisk IPlanTables.com	dromomy MULTISTAR DroneDeploy OPENSOURCE HANGAR matterport EarthCam HOLD BUILDER WORK ZONE CAM Ox Blue Botlink TRUELOOK SITEAWARE StructionSite SENSERA	@claimant LEVELSET lienwaivers.io PINS Advantage myCOI zlien	busybusy ORACLE Primavera P6 BOLT VOYAGE Manufacture TAESTLES Touchplan.io Asta Project ProjectControls smartsheet GRIT TRIVA Construction Services BOSCH TRIP	BAKER buildup SMARTVIDJO FIT360 GIATEC myComply SignOnSite INDUS.AI CARTEL	

- Identify overlaps and assess the need for any redundant solutions.
- If two solutions do the same thing, but if each does something “a little better” than the other, make the tradeoff. Simplicity pays off both in licensing costs and repeatability across your enterprise.
- Review your software agreements and benchmark your pricing.
- Schedule calls to renegotiate contracts with appropriate technology providers in your stack. Good technology partners will welcome the conversation to explain their value and support your initiative.
- Review contracts with your managed service providers (i.e., network administration, database administrator, help desk, cybersecurity and cloud hosting).
- Ask yourself where you can consolidate services and reduce potential service overlap or simply avoid paying multiple fees. For example, is there an opportunity to move into all-inclusive cloud providers for simplicity and longer-term cost savings?
- Provide transparency for feedback and ideas; use a series of questions to act as a filter so that employees understand the company’s technology approach.
- Establish feedback channels and form a committee to assess, vet and recommend actions that will improve your tech asset stack and/or maximize the use of current tech assets.



## Finding Strategic Value

Some technologies moved right to the front of the line to combat the immediate impacts of COVID-19. Take a hard look at these solutions to determine if and how they support your company's vision and strategy. Some may end up as temporary Band-Aids, but many will have longer-term impacts to your business—namely because this event has evolved as an accelerant of existing trends. For instance, before COVID-19, Amazon was taking business from shopping malls, and Zoom meetings were already growing; the global pandemic simply added rocket fuel to these growing business lines.

Similarly, in the E&C world, we were already seeing winners in digitization, remote work capabilities, collaboration and data management. The pandemic moved many of these from “nice to have” to “must have.” Here are three of them:

### ■ **Virtual Reality and Augmented**

**Reality:** These technologies provide remote project management, inspection, conflict resolution and approvals that help keep projects rolling while project managers, engineers, architects and inspectors couldn't safely get to the job site. Devon Copley, CEO of Imeve, had a similar situation that we all saw with Zoom. His web and phone traffic shot up 300% from construction companies trying to solve this immediate problem. As companies see the positive impact to project cost and project completion time, we would expect these technologies to become more commonplace on projects.

### ■ **Video, Devices and Artificial**

**Intelligence:** Josh Kanner of Smartvid.io also had his phone ringing off the hook as he was able to quickly modify and enable his AI technology to report on new social distancing requirements on the work site. It was amazing to see such a quick and effective partnership between construction and technology to solve an immediate and new problem. This specific use case may be a unique solution to the new realities of a pandemic, but as construction sites embrace video, devices and AI, there will be long-term positive impacts on safety, compliance and productivity.

### ■ **Default and Risk Management:** The financial health of the entire construction supply chain—owners, A&E, GCs, specialty trade contractors and building project managers—is coming under a new level of scrutiny. Michael Ho of Bespoke Metrics also had his phone ringing as GCs needed a more immediate and scalable solution for subcontractor verification in this new world. Data standardization and data collaboration to collectively price risk were not new needs, but they came to the forefront due to the effects of COVID-19.

## Getting Into the Tech Sandbox

E&C companies need to be aware of and track new technologies that could support the future vision and strategy of the company. We still see too many companies quickly putting these new offerings into a live project without prior diligence to build a proven plan for change management. Training, integrations, updated processes and workflow are a few of the most important items to consider. One proven approach is to create a dedicated technology “sandbox” for your company. This is a separate testing environment to use before implementing on a live project or the entire enterprise. Make sure your sandbox environment is contained and do not let test projects unintentionally become long-term, fully deployed solutions without a clear plan for change management.

COVID-19 poured gas on the fire for why technology is important in E&C. This alone will change technology in your company—and your life in general—during this recovery period. The companies that survive and thrive in the new normal must be both deliberate and purposeful with technology. They must also demand increased accountability for the performance and cost of their technology solutions and initiatives, and create lean, efficient, resilient technology asset stacks.



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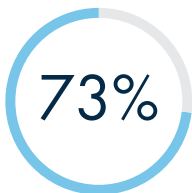
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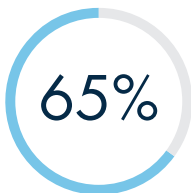
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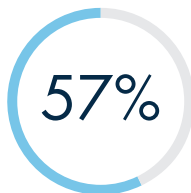
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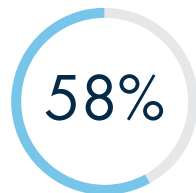
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