

TOPTECH

32 *The 2021 Top Construction Technology Firms:™* Pushing the Industry Toward a Data-Driven Culture

54 Corporate Profiles from Leaders in Construction Technology

80 Executive Insights

82 Diving Deeper During Tech and Software Evaluations

84 How to Use AI in Construction—and How Not to Use It

86 Integrated Tech Stacks Can Supercharge Growth for Construction

90 Wearables: Driving Jobsite Productivity and Profitability



FIELDWIRE

ALL GRIT

Field management software for
the toughest people on earth.

fieldwire.com



The 2021 Top Construction Technology Firms™

Pushing the Industry Toward a Data-Driven Culture

BY CYBELE TAMULONIS

No other sector has been more influential on construction industry productivity and profitability during the past two decades than technology. As cloud computing has evolved, empowering workers and management with access to real-time data for the first time, construction technologists have spent 20 years building the foundation for businesses to streamline workflows, automate routine tasks and make informed, data-driven business decisions.

COVID-19 put cloud technology to its greatest test as construction companies accelerated adoption of remote project management and collaboration solutions out of sheer necessity. This giant leap forward has been the pandemic's silver lining for an industry facing formidable supply-chain issues in addition to a critical shortage of skilled workers.

It is technology that has provided the bridge from yesterday's anachronistic and often redundant workflows to today's hard-won reality of how things get done efficiently and effectively. With an army of remote employees and field workers using an arsenal of smart devices connected to real-time project data, the industry is poised for a true technological revolution.

For its inaugural list of *The Top Construction Technology Firms*,™ *Construction Executive* reached out to the top technology companies that are continually innovating to make construction the transparent and collaborative enterprise it deserves to be.

Construction tech startups raised close to **\$1.4 BILLION** in 2020.

- CB Insights

TECH ACQUISITIONS HEAT UP

Contractors are not the only companies facing competition in today's market. Established technology providers face growing competition from a dizzying number of startups as more private equity investment firms place well-considered bets on the market potential for niche software solutions in the trillion-dollar construction industry. According to CB Insights, construction tech startups raised close to \$1.4 billion in 2020, and 2021 is on track to surpass that. Construction-focused tech firms Built and Briq, for example, raised \$88 million in Series

C and \$30 million in Series B funding respectively this year.

In an environment where announcements of mergers, acquisitions and new rounds of funding are daily fare, no tech firm can afford to stand still. Executives are acutely aware of the need to continually evolve their offerings to adapt to ever-changing industry needs and the newest technology trends.

Trimble, Autodesk, Bentley Systems and Procore are four examples of publicly traded technology companies that have evolved far beyond their early beginnings through a series of strategic acquisitions.

After its 20th anniversary in 2010, Trimble made a string of acquisitions that took it far beyond its roots in surveying and GPS solutions, purchasing Tekla, Sketchup and Viewpoint, among others. Mark Sawyer, Trimble's director of construction industry strategy, says the company's key areas of development "include embedded collaboration features in our applications and open platforms, purpose-built to work across software from multiple vendors." Regarding Trimble's future development efforts, Sawyer says, "We are focused on helping our customers build more resilient and sustainable businesses. We believe that these goals are very attainable by establishing dataflows that include open, scalable platforms, analytics insights and point tools that enable a constructible process and a connected construction approach. This will continue to be our emphasis as we build out our roadmap."

Autodesk is another tech behemoth that has grown by acquisition over the past two decades. After purchasing Revit in 2002, it went on to acquire PlanGrid, BuildingConnected, Pype and others. Bentley Systems has acquired multiple global tech firms this year alone, including New Zealand-based Seequent in March for roughly \$1 billion.

In May, Procore Technologies acquired INDUS.AI and launched its IPO, giving it a market valuation of nearly \$11 billion. This followed a string of acquisitions by Procore, including Honest Buildings in



We are focused on helping our customers build more resilient and sustainable businesses.

MARK SAWYER

Director, Construction Industry Strategy, Trimble Inc.



Now subcontractors and general contractors can have documentation notarized online, particularly compliance documentation, without having to leave their home offices.

MIKE MILLIGAN

Head of Global Marketing
GCPay



Increasing contractors' ability to remotely access data across all platforms is something we continue to move forward with.

MIKE ODE

CEO
Foundation Software Inc.

ACCOUNTING AND JOB COSTING

			USER PROFILE		Pricing Model	CUSTOMER BASE		
Company Information			Firm Type	Firm Size		Users	Projects	Firms
Deltek	deltek.com	Deltek + ComputerEase	GC,SC,D	S,M		10K	-	6K
Est. 1983	Private	1,001-5,000 Employees	Proactive job costing and construction-focused flexible solution for increased profitability.					
Extracker	extracker.com	Extracker	GC,SC,D	M,L		8K	15K	3K
Est. 2018	Private	11-50 Employees	Web/phone apps for change order management and request logs, time/materials, tags, notifications, real-time document markup and collaboration.					
Foundation Software	foundationsoft.com	FOUNDATION	GC,SC,D	S,M,L		20K	-	-
Est. 1985	Private	201-500 Employees	Construction accounting software provides the tools contractors need to run a successful business.					
Intuit QuickBooks	intuit.com	QuickBooks Enterprise	GC,SC,A,E,D	M		155K	-	35K
Est. 1983	Public	10,001+ Employees	All-in-one customizable solution to manage a business and its bottom line in a flexible, efficient platform.					
		QuickBooks Online Advanced	SC,A,E,D	S,M,L		90K	-	17K
		Built to help growing industry firms get paid faster, monitor job costs and stay profitable.						
Procore	procore.com	Financial Management	GC,SC,A,E,D	M,L		1M	1M	10K
Est. 2002	Public	1,001-5,000 Employees	Project cost management solution offers real-time insight into financial health via centralized data connecting all stakeholders.					
Sage	sage.com	Sage 100 Contractor	GC,SC,D	S		-	-	-
Est. 1981	Public	10,001+ Employees	Efficient, integrated construction and field service management solution for small to mid-sized contractors.					
		Sage 300 Construction and Real Estate	GC,SC,D	S,M,L		-	-	-
		Full project or property portfolio financial management solution helps to improve visibility and reduce risk.						
		Sage Intacct Construction	GC,SC,D	S,M,L		-	-	-
		Native-cloud construction accounting solution built on the Sage Intacct platform for the specific needs of contractors.						

KEY			
Firm Type: GC: General Contractor SC: Subcontractor E: Engineer A: Architect O: Owner	Pricing Model: Per Seat/Per User Site License/Per Company Per Project/Job Other. For more information, please visit the company's website.	Firm Size: S: 1-100 Employees/Up to \$25M M: 101-500 Employees/\$25M-100M L: 500-1000+ Employees/\$100M+ ABC Tech Alliance Member	Notes: Active users may be rounded. Product descriptions have been edited for length and style. For more complete information, visit topconstructiontechnologyfirms.com .

Methodology for The Top Construction Technology Firms: The Standout Tech Companies of 2021™
<p>CE developed <i>The Top Construction Technology Firms: The Standout Tech Companies of 2021™</i> list by asking hundreds of firms that provide technology and software solutions for the construction industry to complete a nomination form. The information collected included: 1) the firm's product offerings specific to the AEC Industry; 2) the user profile for each product (type and size of firm for which the product is recommended); 3) how each product is sold (by seat, user, license, project, etc.); and 4) the number of active users within the past twelve months by individual users and/or companies. There was no fee to participate, and not every firm that completed the nomination form made this curated list. After carefully scrutinizing the data collected, CE developed its <i>2021 Top Construction Technology Firms</i> list. For more information, contact surveys@magazineexperts.com. Note: Some technology firms that did not submit the nomination form by the deadline were included by the editors for the sake of completeness.</p> <p>ABC's Tech Alliance is a hand-selected group of 13 construction technology companies that add value for ABC members through improved utilization of technology.</p> <p>Enterprise Resource Planning (ERP) software typically handles many of the functions listed under categories such as accounting and job costing, asset management, document management, project management and collaboration and many others. Due to space limitations, each product could only be included in one primary category. For more complete breakouts, see the full article on constructionexec.com.</p>

BUILD A STRONGER FINANCIAL FOUNDATION

Built on Sage Intacct’s native cloud financial management platform, Sage Intacct Construction is designed to meet the unique needs of the construction industry. Now you can access real-time data in the cloud to make critical financial decisions and track performance across the entire business. If you are looking for flexibility, collaboration and productivity then look no further than Sage Intacct Construction.

sage Intacct Construction

Visit sage.com/intacctconstruction or call 1-888-760-0947



The new, younger workforce in construction is demanding modern solutions that allow for data access anywhere, anytime and on any device.

AJOY KRISHNAMOORTHY
EVP, Products and Chief Strategy Officer, Acumatica



Connecting the back office with project stakeholders, including subcontractors, makes for a more efficient project execution in addition to the field technology they are already using.

BEN CONRY
Co-Founder & Head of Customer Success, Flashtact



Early on in the pandemic, we made the decision to focus our development team on the creation of new mobile apps and enhancements designed to aid our customers in complying with COVID-19 guidelines and to help keep their staff members safe.

JOHN ROSCH
Regional Sales Manager Explorer Software Inc.

hunt for investment opportunities in the construction tech space. After selling Deltek in 2016 for \$2.8 billion to Roper Technologies, Thoma Bravo purchased a majority interest in Foundation Software in 2020. In turn, Foundation was able to leverage that investment by acquiring McCormick Systems.

“McCormick is a great family company, and we’re lucky to work with another team that has similar values to ours,” says Mike Ode, CEO of Foundation. “We’ve always focused on developing products that address needs within the construction industry. We retain a heavy emphasis on increasing efficiency within and among the different teams that keep a construction company in business.”

The impact of continued investments in construction technology (aka contech) firms will ultimately drive further adoption across the board. Smaller construction firms and subcontractors will gain access to platforms that were previously out of reach.

TRIAL BY FIRE

As COVID-19 cases rise once again, collaboration technology is no longer viewed as something that would be nice to have; it’s an essential capability for contractors to remain viable in a highly competitive market.

Limited access to in-person appointments has inspired many companies to embrace electronic compliance processes, which make the idea of going back to the pre-pandemic chore of chasing down a notary seem downright archaic. GCPay introduced a remote online digital notarization tool, valid in all 50 states. “We created that in the product itself so that it’s a seamless workflow that doesn’t disrupt automation,” says Mike Milligan, head of global marketing for GCPay. “Now subcontractors and general contractors can have documentation notarized online, particularly compliance documentation, without having to leave their home offices.”

Further, surveys during the past two years have confirmed that the majority of U.S. workers who transitioned to working from home during the pandemic

not only prefer to stay remote, but would seek employment elsewhere if office attendance became mandatory. “Remote accessibility is not only here to stay but will be critical moving forward,” Ode says, adding that remote accessibility between Foundation’s accounting software and its Payroll4Construction service allowed workers to keep processes flowing even when they weren’t in their usual office space. “Increasing contractors’ ability to remotely access data across all platforms is something we continue to move forward with.”

Ajoy Krishnamoorthy, chief strategy officer for Acumatica, agrees. “The new, younger workforce in construction is demanding modern solutions that allow for data access anywhere, anytime and on any device. We expect this trend to continue as more mundane tasks are automated.”

For many firms, the pandemic illustrated how much their administrative personnel relied upon in-person communication to get things done. “Before COVID-19, there was a lot of tech growing from a field-to-office communication perspective, but now our users are demanding more tools for their accounting and administrative teams,” says Ben Conry, co-founder and head of customer success at Flashtact. “They want to use less paper and communicate in real time with all project stakeholders regardless of whether they are in the office. Connecting the back office with project stakeholders, including subcontractors, makes for a more efficient project execution in addition to the field technology they are already using.”







During the pandemic, preventing the spread of COVID-19 throughout a company’s workforce became essential. More than a few tech companies rose to the occasion to ensure construction clients could easily share information as workers were screened for signs of illness. Daily tracking and notification of employee wellness became increasingly important for managing jobsites, especially for essential workers in charge of maintaining electrical grids, telecommunications, hospitals and other critical infrastructure assets.

“One of our customers had a need to track employee wellness daily and be

ASSET MANAGEMENT
TOOL, EQUIPMENT AND MATERIALS TRACKING/MANAGEMENT

Company Information			Product	Firm Type	Firm Size	Model	Users	Projects	Firms
A1A Software, LLC		a1asoftware.com	iCraneTrax	GC,SC,D	S,M,L		-	-	-
Est. 2008	Private	11-50 Employees	Business info and reporting for crane owners: CRM, job schedules, dispatch, equipment maintenance and fleet utilization.						
B2W Software		b2wsoftware.com	B2W Maintain	GC,SC	S,M,L		500	-	-
Est. 1993	Private	51-200 Employees	Streamlines heavy construction equipment maintenance processes to prevent issues before they can impact uptime.						
GoCodes		gocodes.com	GoCodes	GC,SC	S,M,L		-	-	-
Est. 2012	Private	2-10 Employees	Solution includes tough metal QR code tags, software and phone scanner apps to track tools and equipment.						
OpenAsset		openasset.com	OpenAsset	GC,A,E,D	S,M,L		30K	-	-
Est. 2003	Private	11-50 Employees	Digital asset management system for AEC firms to store, find, use and share digital assets.						
Tenna, LLC		tenna.com	Tenna	GC,SC	S,M,L		2K	-	104
Est. 2015	Private	51-200 Employees	One-platform solution provides accurate and reliable equipment data and tracking.						
ToolWatch		toolwatch.com	ToolWatch Enterprise	GC,SC	S,M,L		-	-	4K
Est. 1991	Private	11-50 Employees	Manage tools and equipment efficiently across branch offices, warehouses, tool cribs, jobsites and trucks.						
Versatile		versatile.ai	CraneView	GC,SC,D	M,L		-	-	-
Est. 2016	Private	51-200 Employees	Mount under the hook of any crane for data insights into picks, materials, redundancies, progress and crane utilization.						
ViZZ Technologies		manufacton.com	Manufacton	GC,SC,D	M,L		2K	1K	288
Est. 2016	Private	11-50 Employees	Materials and inventory management of off-site production and on-site installation of components.						

BUILDING INFORMATION MODELING (BIM)

Company Information			Product	User Profile		Pricing Model	Customer Base		
				Firm Type	Firm Size		Users	Projects	Firms
Autodesk 		construction.autodesk.com	Autodesk BIM Collaborate	GC,SC,A,E,D	S,M,L	  	-	-	-
Est. 1982	Public	10,001+ Employees	Enables teams to align and execute on design intent by managing the entire design collaboration and coordination workflow.						
Bluebeam, Inc.		bluebeam.com	Revu	GC,SC,A,E	S,M,L		2M	-	-
Est. 2002	Public	201-500 Employees	Create, annotate and share project documents, including submittals, drawings, takeoff and punch lists.						
Trimble		trimble.com	Sketchup	GC,SC,A,E	S,M,L		-	-	-
Est. 1978	Public	10,001+ Employees	3D modeling software that makes it easy for contractors, architects and designers to create, visualize and share project designs.						

notified of potential health risks, enabling them to proactively provide assistance when appropriate. So, we created a survey tool that integrated into the Acumatica platform,” Krishnamoorthy says.

“Early on in the pandemic, we made the decision to focus our development team on the creation of new mobile apps and enhancements designed to aid our customers in complying with COVID-19 guidelines and to help keep their staff members safe,” says John Rosch, regional sales manager for Explorer Software. “One of the first things we created was an employee time portal app, with the goal of minimizing physical contact. Field workers could easily submit data for approval from anywhere without compromising social distancing

requirements by handing paper to a supervisor.”

Woody Chamberlain, president of e-Mars, says the tracking of vaccinated and unvaccinated workers alike should be taken seriously, and implemented the capabilities to do just that in its certified payroll compliance software. “The government may force contractors to know who has been vaccinated to be allowed on a jobsite. We can store a vaccine document and even prevent filing of payroll if all people on the job are not vaccinated. We are also able to create a notice that an employee is not vaccinated.”

Constantly changing state and federal mandates continue to plague the industry, and many tech providers have stepped in to help keep clients working with minimal interruptions. This proved



The government may force contractors to know who has been vaccinated to be allowed on a jobsite. We can store a vaccine document and even prevent filing of payroll if all people on the job are not vaccinated.

WOODY CHAMBERLAIN
President, eMars

BUSINESS INTELLIGENCE, REPORTING AND ANALYTICS

BUSINESS INTELLIGENCE, REPORTING AND ANALYTICS					USER PROFILE		Pricing Model	CUSTOMER BASE		
Company Information			Product	Firm Type	Firm Size	Users		Projects	Firms	
Briq		br.iq	Forecast Workbooks	GC,SC	S,M,L	🏠	-	-	-	
Est. 2018	Private	51-200 Employees	Enables construction & facilities management firms to improve forecast accuracy, save time, improve efficiency and collaborate effectively.							
Eos Group, Inc.		eosgroup.com	Eos Cortex	GC,SC,E,D	M,L	👥	-	-	-	
Est. 1995	Private	11-50 Employees	Uses historical cost data with big data and predictive analytics to provide deeper business insights.							
Prophix Software		prophix.com	Prophix Corporate Performance Management (CPM) Software	GC,SC	M,L	👥	1K	-	-	
Est. 1987	Private	201-500 Employees	Automated budgets, forecasts and reports to maximize profitability, minimize risk and uncover new business opportunities.							
Toric		toric.com	Toric	GC,SC,A,E,D	S,M,L	👥	-	-	-	
Est. 2019	Private	11-50 Employees	Uses building engineering data to provide instantaneous insights and visualizations that enhance data-driven decisions.							



We helped [our users] streamline the practical aspect of managing COVID-19 through the digitization of safety workflows and an extensive library of templates, including many regional and industry-specific safety meeting and inspection templates.

PETER GRANT
CEO, Safesite



Getting access to capital is the lifeblood of any construction business, and we've done a lot of work getting capital in the hands of businesses so that they can continue to win in the marketplace.

BOBBY MORRISON
Chief Sales Officer, Intuit

to be a lifeline for small and mid-sized contractors that did not have a dedicated safety staff to create electronic inspection and safety forms for compliance.

“There was a strong need among users for help with the practical implementation of public health guidance,” says Peter Grant, CEO of Safesite. “We helped them streamline the practical aspect of managing COVID-19 through the digitization of safety workflows and an extensive library of templates, including many regional and industry-specific safety meeting and inspection templates.”

Construction firms continue to dig through a backlog of work from projects delayed by the pandemic even as they prepare to analyze the opportunities in the \$1.2 trillion bipartisan infrastructure bill. Having access to capital is essential for contractors that are planning to bid on potential infrastructure projects even before a contract is signed.

“Everyone’s business has evolved since COVID-19, and our technology solutions are no stranger to that,” says Bobby Morrison, chief sales officer for Intuit. “In particular, we’ve put a lot of emphasis into our online ecosystem—having remote cloud access with security, all operationally available in the palm of your hand. We’ve also seen a tremendous need for access to capital. Getting access to capital is the lifeblood of any construction business, and we’ve done a lot of work getting capital in the hands of businesses so that they can continue to win in the marketplace.”

DATA ACCESS AND TRANSPARENCY

Interoperability is crucial for an industry that depends on many different parties to come together seamlessly to make a project work. Transparency and access to information are ways technology has driven success and profitability, but can only be achieved when all parties involved work from a single source of truth.

Originally founded as Computer Methods International Corporation, CMiC has been building enterprise software since 1974. “Our software has been fully web-based since 2000,” says Bill Gustaw, team leader for CMiC’s solutions group. “Since 2015, most customers have deployed their software in a multi-tenant cloud environment. As a result of our web-based roots, SaaS and PaaS deployment models, as well as a growing portfolio of mobile apps, our users didn’t miss a beat when it came to switching to a work-from-home model.”

“A project management solution is at its best when it unites teams in a single collaborative environment, providing all participants with the tools and integrations to collectively move the project forward,” Courtemanche says.

Jan Tore Grindheim, founder and CEO of Fonn, agrees. “Most management software tools and their pricing structures are, by nature, exclusive. For a tool to be truly effective, everyone on-site needs access to current information. The only constant is change, and that change can be detrimental to schedules and budgets

Build Better. Grow Faster.

Connect with financials, job costs, projects, and payroll anytime, anywhere.











Acumatica’s true cloud software gives an unlimited number of field and office teams one view of the truth.

Isn’t it time your business made better decisions, smoother projects, and higher profits?



acumatica.com/construction
888-228-8300



DOCUMENT MANAGEMENT/DOCUMENT IMAGING

DOCUMENT MANAGEMENT/DOCUMENT IMAGING				USER PROFILE		Pricing Model	CUSTOMER BASE		
Company Information			Product	Firm Type	Firm Size		Users	Projects	Firms
Autodesk 		construction.autodesk.com	Autodesk Docs	GC,SC,A,E,D	S,M,L	  	-	-	-
Est. 1982	Public	10,001+ Employees	Organize and share files across the project life cycle with a single platform and common data environment.						
Bentley Systems, Inc.		bentley.com	BCDE	E,D	S,M,L	  	26K	-	-
Est. 1983	Public	1,001-5,000 Employees	Secure common data environment for document and information management of projects and built assets.						
GoFormz		goformz.com	GoFormz Mobile Forms	GC,SC,A,E,D	S,M,L		70K	3K	3K
Est. 2012	Private	11-50 Employees	Eliminate paper forms and streamline project management and approvals between office and field.						
SunRay Construction Solutions		sunraynotice.com	SunRay App	GC,SC,A,E,D	S	 	2K	74K	1K
Est. 2012	Private	11-50 Employees	Construction documents service automating preliminary notices, liens and bond claim filings.						

DRONES AND SURVEYING

Drones and Surveying				User Profile		Pricing Model	Customer Base		
Company Information			Product	Firm Type	Firm Size		Users	Projects	Firms
DroneDeploy		dronedeploy.com	DroneDeploy	GC,SC,A,E,D	S,M,L		-	-	-
Est. 2014	Private	201-500 Employees	Capture interior, exterior, ground and aerial data for surveys, inspections, 3D models and jobsite documentation.						
HCSS		hcss.com	HCSS Aerial	GC,SC,A,E,D	S,M,L		-	-	-
Est. 1986	Private	201-500 Employees	Drone-based data analytics platform.						
Nearmap		nearmap.com	Nearmap Aerial Imagery	GC,SC,A,E,D	S,M,L		10K	-	679
Est. 2008	Public	201-500 Employees	High-resolution aerial imagery and artificial intelligence insights help companies make smart decisions.						



A project management solution is at its best when it unites teams in a single collaborative environment, providing all participants with the tools and integrations to collectively move the project forward.

TOOEY COURTEMANCHE
Founder, President and CEO
Procure



We believe communication should take place in the same location as jobsite milestone tracking and document storage.

JAN TORE GRINDHEIM
Founder and CEO, Fonn Construction

if all parties are not in communication. We believe communication should take place in the same location as jobsite milestone tracking and document storage,” Grindheim says.

Contractors spend a great deal of time hunting down information and catching errors in multiple systems on projects that often undergo multiple changes. Cutting wasteful tasks is a key indicator of successful tech implementation, which can eliminate the daily frustration of hide-and-seek information and processes.

Finding that uniformity in management software can cure many issues that slow a project down, such as double entry, responding to change orders and, as Varsha Bhave, president and chief technology officer of Systemates says, scheduling. “Many times, different divisions of a project will each have their own preferred construction scheduling software, which doesn’t do project managers or owners any good. It’s essential to have a central location where all schedules are stored in a standard format to provide that at-a-glance view to spot potential problems.”

“It’s crucial for a project foreperson to keep the job moving in order to get the materials they need to keep the project on schedule,”













says Matt Wagoner, CEO and co-founder of PeerAssist. “Users can digitize text messages, voicemails and emails to create a digital record, which allows material requisitions to flow seamlessly to the purchasing agent. We want to eliminate re-keying and duplicate entry and capture approvals without the process becoming bottlenecked.”

FOLLOWING THE MONEY














Tech solutions have long been available to allow contractors to capture labor costs automatically in real time. Making that data transparent to all project stakeholders helps detect problems quickly and prevent profit fade. When labor costs are recorded manually by multiple people, the potential for human error increases, leading to duplicate entry and costly mistakes. Maintaining accurate labor costs is the linchpin of effective job cost reporting.

“Being able to record time once in the field and automatically route it to relevant staff for review and approval speeds up the process, reduces errors and results in labor being posted on a daily basis,” Gustaw says. “Project staff always have a current view of labor costs and can use this information to ensure the timely completion and profitability of a project.”






ENTERPRISE RESOURCE PLANNING (ERP)

Company Information				Product	USER PROFILE		Pricing Model	CUSTOMER BASE		
					Firm Type	Firm Size		Users	Projects	Firms
Acumatica		acumatica.com	Acumatica Cloud ERP for Construction	GC,SC,A,E,D	S,M,L		2K	-	550	
Est. 2008	Private	201-500 Employees	Robust financials, job cost accounting, project management, payroll, inventory, service management, CRM and mobile app.							
CMiC		cmicglobal.com	CMiC Enterprise Resource Planning	GC,SC,D	S,M,L		20K	10K	400	
Est. 1974	Private	201-500 Employees	Delivers a complete set of unified capabilities to run a firm's full back office on a Single Database Platform.™							
COINS		coins-global.com	COINS Construction Cloud	GC,SC	M,L		10K	-	-	
Est. 1986	Private	201-500 Employees	Suite of solutions for building, contracting, civil engineering, heavy/highway, MEP and service management.							
Computer Guidance Corporation		computerguidance.com	eCMS	GC,SC,A,E	S,M,L		75K	-	-	
Est. 1981	Private	51-200 Employees	Cloud-based ERP helps commercial contractors manage financials and projects with real-time data and automated workflows.							
Explorer Software		explorer-software.com	Eclipse	GC,SC,D	S,M,L		-	-	-	
Est. 1984	Private	51-200 Employees	Integrated solution to manage jobs, maintain equipment, dispatch technicians, manage documents and track workforce.							
IFS		ifs.com	IFS Cloud	GC,SC,E	L		148K	30K	260	
Est. 1983	Private	1,001-5,000 Employees	Integrated business software suite to manage projects and assets from design-build through maintenance and operations.							
Jonas Construction Software		jonasconstruction.com	Jonas Enterprise	GC,SC,D	S,M,L		14K	-	1K	
Est. 1990	Public	51-200 Employees	Connects back office to the field to increase productivity and manage cash flow, WIP reporting and service contracts.							
Penta Technologies		penta.com	PENTA ERP	GC,SC,E	M,L		-	-	-	
Est. 1969	Private	11-50 Employees	Enterprise solution for construction, engineering and service firms to manage accounting, project management and field service.							
TRUE Ltd.		constructtrue.com	TRUE Contractor	SC	S,M		1K	-	150	
Est. 2012	Private	11-50 Employees	Web-based, all-inclusive construction management and ERP software solution designed for subcontractors.							
Viewpoint, Inc.		viewpoint.com	Spectrum	GC,SC	M,L		-	-	-	
Est. 1975	Public	501-1,000 Employees	Web-based ERP solution with tools for accounting, project management, human resources, payroll and more.							
			ViewpointOne	GC,SC	M,L		-	-	-	
			Construction management suite simplifies managing projects, processes and people, bringing data together for analysis and reporting.							
			Vista	GC,SC	L		-	-	-	
			Configurable and fully integrated ERP system with job costing, equipment management, human resources and payroll management.							






ESTIMATING AND TAKEOFF

ESTIMATING AND TAKEOFF				USER PROFILE		Pricing Model	CUSTOMER BASE		
Company Information			Product	Firm Type	Firm Size		Users	Projects	Firms
Autodesk 		construction.autodesk.com	Autodesk Takeoff	GC,SC,A,E,D	S,M,L	  	-	-	-
Est. 1982	Public	10,001+ Employees	Allows estimators to perform 2D takeoffs and generate automated quantities from 3D models within a single takeoff solution.						
Beck Technology		beck-technology.com	DESTINI Estimator	GC,SC	S,M,L		-	-	-
Est. 1996	Public	51-200 Employees	Cloud-hosted estimating software provides insight into the preconstruction data life cycle.						
Eos Group, Inc.		eosgroup.com	Eos Navigator	GC,SC,E,D	M,L		-	-	-
Est. 1995	Private	11-50 Employees	Estimating management system designed to work with Sage Estimating SQL and Eos Cortex.						
Foundation Software		foundationsoft.com	McCormick Systems	SC,D	S,M,L		5K	-	-
Est. 1985	Private	201-500 Employees	Estimating software for electrical contractors combines takeoff and design in one program.						
HCSS		hcss.com	HCSS HeavyBid	GC,SC,E	S,M,L	 	50K	25K	4K
Est. 1986	Private	201-500 Employees	Estimating software for crew-based infrastructure construction.						
On Center		oncenter.com	On-Screen Takeoff	GC,SC,D	S,M,L	 	-	-	-
Est. 1988	Public	51-200 Employees	Solution to help create accurate takeoffs in less time for project bidding.						
ProEst 		proest.com	ProEst	GC,SC	S,M,L		15K	10K	2K
Est. 1992	Private	51-200 Employees	Streamline estimating and preconstruction tasks to win more work. Integrations with major ERP, accounting and project management solutions.						

FIELD REPORTING/DAILY REPORTING

FIELD REPORTING/DAILY REPORTING				USER PROFILE		Pricing Model	CUSTOMER BASE		
Company Information			Product	Firm Type	Firm Size		Users	Projects	Firms
AI Clearing		aiclearing.com	AI HEART	GC,D	M,L		65	13	12
Est. 2018	Private	11-50 Employees	Artificial intelligence-powered progress tracking and monitoring platform provides users with deeper jobsite insights.						
Bluebeam, Inc		bluebeam.com	Project Rover	GC,SC,A,E	S,M,L		-	-	-
Est. 2002	Public	201-500 Employees	Keep office and field in sync with a reliable, single source of data.						
StructionSite		structionsite.com	Site Documentation	GC,SC,D	S,M,L		50K	16K	1K
Est. 2016	Private	51-200 Employees	Field-first workflows capture jobsite progress through the use of 360° photos and videos.						
			SmartTrack®	SC	S,M,L		980	115	55
			360° videos automatically quantify visual scopes of work for tracking progress against schedule, budget and labor.						
Trimble		trimble.com	Trimble X7 3D Laser Scanner With Trimble Field Link	GC,SC,E	S,M,L		-	-	-
Est. 1978	Public	10,001+ Employees	Construction-ready 3D laser scanner with construction layout and scanning software for increased productivity and accuracy.						

FIELD SERVICE MANAGEMENT

FIELD SERVICE MANAGEMENT				USER PROFILE		Pricing Model	CUSTOMER BASE		
Company Information		Product	Firm Type	Firm Size	Users		Projects	Firms	
BuildOps 		buildops.com	BuildOps	SC	S,M,L		-	-	-
Est. 2018	Private	51-200 Employees	Built specifically for commercial MEP contractors, all-in-one management software for field service and projects.						
Fieldwire		fieldwire.com	Fieldwire	GC,SC,A,E,D	S,M,L	  	155K	120K	4K
Est. 2013	Private	51-200 Employees	Mobile and web-based jobsite management software connects field and office teams.						



It's essential to have a central location where all schedules are stored in a standard format to provide that at-a-glance view to spot potential problems.

VARSHA BHAVE
President and CTO
Projectmates by Systemates Inc.



We want to eliminate re-keying and duplicate entry and capture approvals without the process becoming bottlenecked.

MATT WAGONER
CEO / Co-Founder, PeerAssist

A more recent development has been business intelligence technology solutions that use artificial intelligence to provide even deeper business insights. “Pre-pandemic, most of our construction industry clients had their finance and accounting teams focused on rearview reporting of what had taken place in the business over prior periods with traditional financial and work-in-progress reports,” says Ibrahim Seif, director of sales for Prophix Software’s construction and real estate division. “During the pandemic, contractors faced a lot of pressure to closely monitor cash, profitability, costs and risk to stay agile in the changing situation. We saw a major shift in focus for these firms and a demand to leverage their data to provide more insight into forward-looking projections, scenario planning and agile forecasting. This function of the finance team isn’t going away.”

Being business-flush and cash-poor isn’t uncommon in the industry as a result of the traditional construction payable ecosystem. Contractors often start work on a job expecting not to get paid for 90 days while taking loans to cover the costs for materials, equipment and labor.

Chase Gilbert, CEO of Built Technologies, believes the process can be improved with digitization. “We wanted to fix construction lending,” Gilbert says. “Now we want to follow the money downstream and fix construction spending. With good connectivity, you could eliminate a lot of that need to borrow. The payable cycles within the industry are ridiculous, and if we digitize more of this, we can introduce new payment methods among parties to help them either pay or get paid faster.”

A common headache for contractors is the approval process for change orders. A poor system can lead to payments for unauthorized work. “When a change order from a subcontractor is submitted into an accounting system, you want to be able to track that in your payment processing system, too,” GCPay’s Milligan says. “Our users can monitor, track and act on change orders with updates reflected in both their payment and accounting systems.”

WORKFORCE MANAGEMENT

Despite a construction job growth outlook of 5% through 2029, higher than any other industry, getting boots on the

jobsite has been a long-standing concern. The latest U.S. Bureau of Labor Statistics Current Employment Statistics Report saw little movement in July due to weak spending in June and a slowing in residential building permits. These factors are driving demand for data intelligence that can inform contractors if they are using their workforce in the most efficient manner.

“The pandemic saw nearly a million people leave the industry in the few months before construction was deemed an essential service. Most of that workforce has

since returned to work, but with so much uncertainty and so many team members choosing to work remotely, we’ve seen the demand for collaborative tools explode. Contractors now need to keep multiple departments up to speed regarding their workforce availability to help inform their own work,” says Mallorie Brodie, CEO and co-founder of Bridgit.

The pandemic’s impact on employment and a shrinking skilled workforce has left many contractors shuffling people from one project to another to fill gaps; however,









Project staff always have a current view of labor costs and can use this information to ensure the timely completion and profitability of a project.

BILL GUSTAW
Team Leader, Solutions Group, CMiC









FINANCIAL TECHNOLOGY

INVOICE PAYMENT AND AUTOMATION, SALES TAX, ETC.

FINANCIAL TECHNOLOGY				INVOICE PAYMENT AND AUTOMATION, SALES TAX, ETC.		USER PROFILE		Pricing Model	CUSTOMER BASE		
Company Information				Product	Firm Type	Firm Size	Users		Projects	Firms	
Briq		br.iq		BriqCash	GC,SC	S,M,L		-	-	-	
Est. 2018	Private	51-200 Employees		Enables contractors to automate accounts payable workflow from procurement to payment and earn cash-back rewards.							
Built Technologies		getbuilt.com		Built Construction Lending Suite	GC,SC,D	S,M,L		-	-	-	
Est. 2014	Private	201-500 Employees		Borrowing portal streamlines the construction draw process. Request and manage drawings and report on job statuses.							
				Built Financial Toolkit	GC,SC,D	S,M,L		-	-	-	
				Digitally manage compliance documents and payments from one central dashboard.							
Flashtract 		flashtract.com		Flashtract	GC,SC	S,M,L		-	-	-	
Est. 2018	Private	11-50 Employees		Flashtract is a simple, cloud-based construction billing tool built for contractors, streamlining pay apps like never before.							
GCPay		gcpay.com		GCPay	GC	M,L		20K	100K	200	
Est. 2003	Private	51-200 Employees		Cloud collaboration solution streamlines payment application process and integrates with construction accounting systems.							

JOBSITE MONITORING

WEBCAMS, SECURITY AND SURVEILLANCE

JOBSITE MONITORING			USER PROFILE		Pricing Model	CUSTOMER BASE			
Company Information			Product	Firm Type		Firm Size	Users	Projects	Firms
EarthCam		earthcam.net	61 MegapixelCam Robotic	GC,SC,D	M,L		-	-	-
Est. 1996	Private	51-200 Employees	Document milestones with ultra-high resolution, 61MP panoramic imagery, precise heavy-duty pan-tilt camera.						
			Solstice Cam	GC,SC,D	S,M		-	-	-
			Wireless, battery-powered security camera for affordable indoor/outdoor jobsite security.						
			Work Zone Cam	GC,SC,D	S,M,L		-	-	-
			Plug-and-play professional time-lapse camera with 24MP photography, live video burst and 4K time-lapse.						
OxBlue		oxblue.com	Cobalt Camera Series	GC,D	S,M,L		-	-	-
Est. 2001	Private	51-200 Employees	Six 60MP fixed-position cameras offer wide-angle options, instant pan and zoom, high-definition images and video on demand.						
			OxBlue User Interface	GC,D	S,M,L		-	-	-
			Real-time project analysis dashboard. Weather, safety, site activity intelligence, software integration tools and more.						
			Sapphire Camera Series	GC,D	S,M,L		-	-	-
			1080p live stream video, time-lapse, 360° panoramic images, optical pan-tilt-zoom, motion detection and video recording.						
Sensera Systems		senserasystems.com	SiteCloud Software and Camera Solution	GC,SC,A,E,D	S,M,L		179K	5K	2K
Est. 2015	Private	11-50 Employees	Real-time site intelligence using integrated compact solar/wireless cameras, sensors and software.						
TrueLook		truelook.com	TrueLook Construction Cameras	GC,SC,A,E,D	S,M,L		-	-	-
Est. 2010	Private	11-50 Employees	Cameras provide total jobsite visibility with live viewing, custom time-lapsing and 24/7 intelligent security.						

PAYROLL

				USER PROFILE		Pricing Model	CUSTOMER BASE		
Company Information			Product	Firm Type	Firm Size		Users	Projects	Firms
eBacon			eBacon	GC,SC	S,M	🏢	30K	-	750
Est. 2003	Private	51-200 Employees	Software simplifies certified payroll and prevailing wage compliance with reporting and workforce management tools.						
eMars			Compliant Client	GC,SC	S,M,L	📄	-	-	42K
Est. 1993	Private	2-10 Employees	Certified payroll online compliance software.						
Foundation Software			Payroll4Construction	GC,SC,D	S,M,L	📄	2K	-	-
Est. 1985	Private	201-500 Employees	Processes complex construction payrolls including tax filing and free reporting services.						
LCPtracker, Inc.			LCPcertified	SC	S	🏢📄	-	-	-
Est. 2001	Private	51-200 Employees	Cloud-based certified payroll reporting solution for compliance with prevailing wage requirements.						
			LCPtracker Professional	GC,D	S,M,L	🏢	-	-	-
			Cloud-based prevailing wage and workforce compliance management solution to monitor contractors and subcontractors on a project.						



Filling gaps isn't just about hiring more people. In a lot of cases, gaps can be filled by leveling up the current team—but doing it effectively will require greater information sharing.

MALLORIE BRODIE
CEO and Co-Founder
Bridgit



Contractors should look for asset tracking and management system providers whose sole focus is on the construction industry with a single, fully integrated platform.

AUSTIN CONTI
Co-Founder, CEO
Tenna

as Brodie says, “Filling gaps isn’t just about hiring more people. In a lot of cases, gaps can be filled by leveling up the current team—but doing it effectively will require greater information sharing.” Ben Schultz, a fourth-generation electrical contractor and CEO of LaborChart, says, “Workforce management is the most neglected piece of every contractor’s business. If we can identify the people and their roles and responsibilities, then we can identify what processes they take to execute them and what resources they need to accomplish what they are trying to do. We are always looking at what is working well and what needs improvement within the industry.”

ASSET MANAGEMENT

According to the Q2 2021 U.S. Chamber of Commerce Commercial Construction Index, 44% of contractors plan to spend more on tools and equipment by the end of the year, putting pressure on equipment managers to ensure that they have the right procedures in place to track and deploy these assets efficiently. “Asset management and tracking needs to keep pace with other technologies and advancements within the industry. For contractors to get to the next level of equipment management maturity over the next decade, their tech needs to incorporate the latest business intelligence tools that can manage new asset types such as robotics, autonomous vehicles and assistive

devices,” says Austin Conti, co-founder and CEO of Tenna LLC. The infrastructure spending bill will spur purchases of new equipment, along with an increase in theft. According to the National Insurance Crime Bureau, the construction industry loses nearly \$1 billion to equipment theft per year. There were more incidents of theft during the pandemic, largely as a result of unmonitored jobsites and an absence of tracking technology. “Contractors should look for asset tracking and management system providers whose sole focus is on the construction industry with a single, fully integrated platform. They need a partner that will provide hands-on, first-class implementation and training to ensure proper set up and ongoing customer support for long-term success,” Conti says.

There are **348,769** registered commercial drones in the U.S.
- F.A.A.

REAL-TIME SNAPSHOTS

Use of unmanned aerial vehicles, or drones, increased during the pandemic, and investors are paying attention. DroneDeploy raised \$50 million in Series E financing earlier this year, bringing its

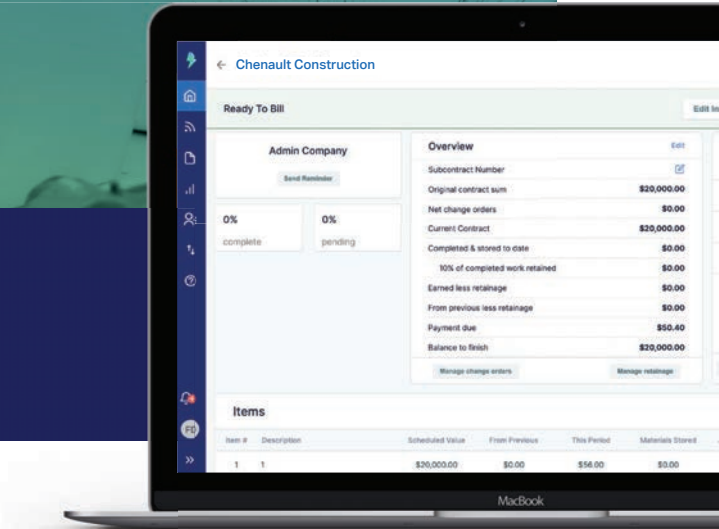
Still managing sub pay apps over email?

You're not alone. 53% of sub pay app submissions have a mistake.

✗ MATH ERRORS ✗ MISSING LIEN WAIVERS ✗ UNAPPROVED CHANGE ORDERS




















Supercharge your team and eliminate emails, spreadsheets, and piles of paper so you can focus on building, not billing.



PRECONSTRUCTION

BIDDING, SUBCONTRACTOR PREQUALIFICATION, PERMITTING, ETC.

Company Information			USER PROFILE		Pricing Model	CUSTOMER BASE		
			Firm Type	Firm Size		Users	Projects	Firms
Autodesk 	construction.autodesk.com	BuildingConnected	GC,SC,A,E,D	S,M,L	  	-	-	-
Est. 1982	Public	10,001+ Employees	Real-time construction network connects owners and builders to streamline bidding and risk management.					
On Center	oncenter.com	Quick Bid	GC	S,M,L	 	-	-	-
Est. 1988	Public	51-200 Employees	Software that promises to help accelerate the bid estimation process.					
PipelineSuite	pipelinesuite.com	PipelineRFQ - Bid Solicitation	GC,D	S,M,L	 	-	-	-
Est. 2002	Private	11-50 Employees	Facilitates sending invitation-to-bid emails to subcontractors.					
			PipelinePrequal - Prequalify Your Subs	GC,D	S,M,L		-	-
			Form builder primarily used for prequalification of subcontractors.					
			PipelineTab - Bid Tabulation/ Bid Leveling	GC	S,M,L	 	-	-
			Creates itemized bid tabulation sheets for side-by-side comparison to identify scope discrepancies.					
PlanHub	planhub.com	PlanHub	GC,SC	S,M		153K	3K	120K
Est. 2008	Private	51-200 Employees	Preconstruction bidding software as a service for general contractors, subcontractors and suppliers.					
Procore 	procore.com	Preconstruction	GC,SC,A,E,D	S,M,L		1M	1M	10K
Est. 2002	Public	1,001-5,000 Employees	Connect design, estimate, bids and budget on one integrated platform to make construction more predictable and profitable.					
STACK Construction Technologies	stackct.com	STACK	GC,SC	S,M,L		-	-	-
Est. 2012	Private	51-200 Employees	Preconstruction software: plan management, takeoff and estimating, proposal customization and real-time collaboration.					
StratusVue	stratusvue.com	BidVue	GC,SC	S,M,L		30K	18K	10
Est. 2006	Private	11-50 Employees	Platform to send, review and report on invitations to bid.					
SubScreener	subscreener.com	SubScreener	GC	S,M,L		-	-	-
Est. 2018	Private	11-50 Employees	Searches public and proprietary databases for information that a subcontractor chooses to leave out of a questionnaire.					



We’ve been investing in AI for several years now, and over the course of the pandemic, we’ve seen significant, tangible results with enhanced AI and machine learning capabilities in our software.

IBRAHIM SEIF
Director, Sales - North American Construction & Real Estate
Prophix Software Inc.

total funding to \$142 million, more than any other drone company to date.

According to the Federal Aviation Administration, there are 348,769 commercial drones registered in the United States. An affordable way to manage jobsites, drones are used to manage safety protocols, ensure social distancing and capture images from high-risk areas. Drone imaging can be combined on a BIM platform to generate 3D models that can be updated, modified and shared with all the stakeholders on a project. Drones can be used to capture interior, exterior, ground and aerial data for surveys, inspections and jobsite documentation.

Traditional cameras, primarily used to monitor jobsites for security measures, are being used for a variety of other applications. Real-time imagery from cameras and drones with date and time stamps can dispel disputes between contractors and owners when questions arise regarding project delays or documentation of work completed.

DATA-DRIVEN SUCCESS

The artificial intelligence market is anticipated to grow exponentially within the next few years, largely due to the pandemic—and this is good news for the industry. Using pattern recognition and machine learning, AI can stave off scheduling conflicts, prevent delays and mitigate risk.

“We’re connecting AI across our platform. This helps eliminate errors and allows you to make better decisions on the go. We’ve made a tremendous investment in that over the last few years, and you’ll continue to see us invest as we go forward,” Intuit’s Morrison says.

AI can combine large amounts of data with fast, frequent processing that allows it to learn from algorithms. Once these are learned, AI can be used to advise on projects, scheduling and more.

“We’ve been investing in AI for several years now, and over the course of the pandemic, we’ve seen significant, tangible

results with enhanced AI and machine learning capabilities in our software. This evolution now gives our customers not only the ability to streamline and automate their planning, budgeting, forecasting and reporting processes but also leverage an AI engine to derive insights that enhance decision-making,” Prophix Software’s Seif says.

“We’re not trying to just expose data, we want to use it to help people make better decisions,” Built Technologies’ Gilbert says. “Whether it’s the identification of new opportunities, managing risk or how fast payments are getting in and out the door, what people want now is to supplement what we already provide with other sources.

One of the underlying issues that the pandemic exposed more clearly has been the cost of siloed data. When information isn’t flowing freely between all branches of a construction project, cost overruns are usually not far behind.

“We’ve taken a data-first approach and, as such, we help companies bring their own technology and processes into a central data environment where they gain full visibility

and enable continued innovation and adoption,” says Chris Peters, senior vice president, North America for Asite. “This has never been more critical than today, as we settle into the new normal. Our goal is to make it easier for organizations to collaborate across the entire project lifecycle in an open and transparent way.”

Unpredictability, economic uncertainty and risk allocated to others in the construction chain have been pain points that the tech industry sees being solved—at least in some part—by using data, not just collecting it. According to FMI’s Big Data Report, 95.5% of all data captured goes unused in the engineering and construction industry.

Schultz gives this example of a typical missed information opportunity. “If you’re an electrical contractor with 100,000 labor hours on a two-year project, there is plenty of information out there that you can reference to see how this project should be staffed to create labor plans. Oftentimes, a contractor does not know if they’re going to make money, or lose money, until the



We’re not trying to just expose data, we want to use it to help people make better decisions.





















CHASE GILBERT
CEO, Built Technologies, Inc.





























Our goal is to make it easier for organizations to collaborate across the entire project lifecycle in an open and transparent way.

CHRIS PETERS
SVP North America
Asite

PROJECT MANAGEMENT, COLLABORATION AND SCHEDULING

PROJECT MANAGEMENT, COLLABORATION AND SCHEDULING				USER PROFILE		Pricing Model	CUSTOMER BASE		
				Firm Type	Firm Size		Users	Projects	Firms
Company Information			Product						
ALICE Technologies		alicetechnologies.com	ALICE	GC,SC,D	L		-	-	-
Est. 2013	Private	11-50 Employees	Artificial intelligence-powered construction simulation platform creates schedules that reduce risk while cutting costs.						
Asite		asite.com	Asite Adoddle	GC,SC,D	M,L	  	325K	56K	78K
Est. 2001	Private	201-500 Employees	Connects field and office teams to build better with access to contracts and project financials.						
Assignar		assignar.com	Assignar	GC,SC	S,M,L		12K	20K	422
Est. 2014	Private	51-200 Employees	Crew and equipment management, scheduling, GPS tracking, field data, timesheets, analytics and more.						
Autodesk 		construction.autodesk.com	Autodesk Build	GC,SC,D	S,M,L	  	-	9K	-
Est. 1982	Public	10,001+ Employees	Project management and field solution connects teams, workflows and data to deliver projects on time and within budget.						
B2W Software		b2wsoftware.com	B2W Schedule	GC,SC	S,M,L		500	-	-
Est. 1993	Private	51-200 Employees	Schedule and dispatch employees, equipment, materials and trucking with increased visibility and resource coordination.						
			ONE Platform	GC,SC	S,M,L		15K	-	-
			Unified applications for estimating, scheduling, field tracking, maintenance and electronic forms.						
Bentley Systems, Inc.		bentley.com	ProjectWise	E,D	S,M,L	  	336K	102K	3K
Est. 1983	Public	1,001-5,000 Employees	Design, work-in-progress and collaboration solution for engineering infrastructure projects.						
			SYNCHRO	GC,SC,E,D	S,M,L	  	1K	600	250
			4D planning, project and field management solution to optimize decision-making, resources and profitability.						
Civalgo		civalgo.com	Civalgo Operational Platform	SC	S,M,L		2K	7K	150
Est. 2017	Private	11-50 Employees	Project management solution for effective planning, field execution and project controls.						
CMiC		cmicglobal.com	CMiC FIELD	GC,SC,D	S,M,L	 	100K	10K	350
Est. 1974	Private	201-500 Employees	Manage all aspects of project delivery operations: collaboration, drawings and documents, changes, subcontractors and bidding.						

PROJECT MANAGEMENT, COLLABORATION AND SCHEDULING
(CONTINUED)

Company Information			User Profile		Pricing Model	Customer Base		
			Firm Type	Firm Size		Users	Projects	Firms
Contractor Foreman	contractorforeman.com	Contractor Foreman	GC,SC	S		13K	162K	2K
Est. 2016	Private	2-10 Employees	Construction management system for small and medium-sized businesses.					
Digital Construction Works, Inc (DCW)	digitalconstructionworks.com	DCW Integrations Platform With Insights	GC,SC,A,E,D	M,L		-	-	-
Est. 2019	Private	11-50 Employees	A joint venture of Bentley Systems and Topcon, DCW is a product-agnostic technology integration and services company.					
Elecosoft	elecosoft.com	Powerproject	GC,SC,D	S,M,L	 	-	-	-
Est. 1895	Public	201-500 Employees	Powerproject makes managing projects easy. It has intuitive scheduling capability, 4D BIM integration, a mobile app and resource management features.					
Fonn	fonn.com	Fonn	GC,SC,A,E,D	S,M,L		17K	30K	300
Est. 2016	Private	11-50 Employees	Store key documents, communicate in real time and efficiently monitor projects off-site on one platform.					
HCSS	hcss.com	HCSS HeavyJob	GC,SC,E	S,M,L	 	100K	184K	1K
Est. 1986	Private	201-500 Employees	Project management software streamlines operations between field and office. Digital time cards reduce paper waste.					
IMAJION	imajion.com	IMAJION	GC,SC,A,E,D	L		752	24	22
Est. 2020	Private	2-10 Employees	Connect remote and on-site workers using augmented reality markup, file sharing and video conferencing.					
InEight	ineight.com	InEight Software	GC,SC,E,D	L		300K	-	750
Est. 2014	Private	501-1,000 Employees	Capital project software provides insights to minimize risks, improve operational efficiency and control projects costs.					
Microdesk	microdesk.com	BIMrx	GC,SC,A,E,D	S,M,L		450	100	100
Est. 1994	Private	201-500 Employees	Tailored for streamlining Autodesk workflows, BIMrx improves project setup, data/model management and documentation.					
Newforma	newforma.com	Newforma Project Center	GC,A,E	S,M,L		150K	-	1K
Est. 2004	Private	51-200 Employees	Connect everyone on the project to the information they need, from emails to document sets, RFIs, submittals and more.					
Procore 	procore.com	Project Management	GC,SC,A,E,D	M,L		1M	1M	10K
Est. 2002	Public	1,001-5,000 Employees	Customizable project management platform provides a single source of organized project information and data for all users.					
ProjectTeam, Inc.	projectteam.com	ProjectTeam.com	GC,E,D	S,M		-	-	-
Est. 2016	Private	11-50 Employees	Create and share requests for information, drawings, submittals, punch lists, field reports, contracts, change orders, payment apps and budgets.					
Raken	rakenapp.com	Raken App	GC,SC	S,M,L		17K	193K	-
Est. 2014	Private	51-200 Employees	Real-time field-to-office communication with daily reports, time cards, production tracking, checklists and more.					
Reconstruct	reconstructinc.com	Reconstruct's Visual Command Center	GC,A,E,D	M,L		1K	500	100
Est. 2016	Private	51-200 Employees	Combines reality capture, design and schedule integration for full project visibility and a historical record of work.					
RedTeam Software	redteam.com	RedTeam Software	GC,SC	S,M,L	 	10K	2K	559
Est. 2005	Private	51-200 Employees	Robust construction project management software for commercial general contractors.					
StratusVue	stratusvue.com	BIMfx	GC,SC	S,M,L		30K	18K	10
Est. 2006	Private	11-50 Employees	Links BIM attributes to the construction process for facility management operations.					
		Plans and Specs	GC,SC,A,E,D	S,M,L		30K	18K	10
		Connects a contractor's ERP to the field with full cost, project and document management.						
SubHQ 	subhq.app	SubHQ	SC	S,M		50	300	-
Est. 2019	Public	2-10 Employees	Solution for field subcontractors to efficiently and effectively manage projects, from bidding to completion.					
Systemates, Inc.	projectmates.com	Projectmates	D	S,M,L		-	300K	-
Est. 1997	Private	11-50 Employees	Configurable collaborative solution to plan, execute, monitor, control and close projects while cutting costs and delays.					
Topcon Positioning Systems	topconpositioning.com	MAGNET	GC,SC,A,E,D	S,M,L	 	-	-	-
Est. 1994	Private	1,001-5,000 Employees	Integrated field, office and enterprise solution for project management, data collection and customized reporting.					
Trimble	trimble.com	Trimble ProjectSight	GC,SC	S,M,L		-	-	-
Est. 1978	Public	10,001+ Employees	Construction management software to help manage projects from a single source of collaboration and information.					



DELIVER WITH CONFIDENCE

Construction projects sometimes require you to do everything and do it well. But how can you know it all? Be everywhere? With Trimble Connected Construction, you can know what is happening in the office, in the field and in the future. Through decades of experience and deep domain knowledge, our solutions connect people, processes and data at every phase of the project, in real time.

CONSTRUCTION.TRIMBLE.COM

SAFETY MANAGEMENT AND REPORTING

Company Information				USER PROFILE		Pricing Model	CUSTOMER BASE		
Product				Firm Type	Firm Size		Users	Projects	Firms
A1A Software, LLC	a1asoftware.com	3D Lift Plan	GC,SC,A,E,D	S,M,L			2K	-	984
Est. 2008	Private	11-50 Employees	Simple and complex crane lift planning, crane selection and rigging design with access to thousands of crane load charts.						
HammerTech	hammertech.com	HammerTech	GC,SC,E,D	M,L			-	10K	250
Est. 2013	Private	11-50 Employees	Manage prequalification, training, daily reports, work hours, online enrollments, equipment, permits and more.						
HCSS	hcss.com	HCSS Safety	GC,SC,E,D	S,M,L			20K	425	425
Est. 1986	Private	201-500 Employees	Solution that eliminates paper from safety programs and reduces administrative tasks.						
Safesite	safesitehq.com	Safesite	GC,SC	S,M,L			-	-	-
Est. 2012	Private	11-50 Employees	Safety management solution that touts a proven track record of cutting incident rates in half.						
Safe Site Check In	safesitecheckin.com	Safe Site Check In	GC,SC,A,E,D	S,M,L			100K	200	100
Est. 2020	Private	2-10 Employees	Customizable and private digital screening app to ensure the safety of employees and visitors onsite.						
Safety-Reports.com, Inc.	safety-reports.com	Safety-Reports.com	GC,SC,A,E,D	S,M,L			-	-	-
Est. 2011	Private	11-50 Employees	Suite of environment, health and safety software tools to streamline safety processes and centralize data in one easy-to-use platform.						
Smartvid.io	smartvid.io	Newmetrix	GC,SC,D	M,L			-	-	31
Est. 2015	Private	11-50 Employees	Reduce risk with artificial intelligence-powered predictive analytics, safety observations and safety monitoring.						



If you are creating labor plans and using your data, you will be able to know when you go off course.

BEN SCHULTZ
Founder and CEO
LaborChart



We believe in empowering construction businesses to use the best mix of solutions that address their unique needs.

DUSTIN STEPHENS
Vice President
Sage Construction and Real Estate

last 10% of a project. At that point, it's too late to make any corrections. If you are creating labor plans and using your data, you will be able to know when you go off course," Schultz says.

Solving tech and labor issues means appealing to the younger generation entering the workforce, which expects modern solutions and constant connectivity. Pew Research reports that millennials now make up the largest part of the workforce, and they have no patience for contacting multiple people separately by phone or email when a task can get done more efficiently by collaborating on one platform.

"As younger, tech-savvy people enter the workforce and the use of machine learning, artificial intelligence, "Internet of Things" and automation continues, construction companies will drive profitable and successful projects," Krishnamoorthy says. "Modern cloud accounting systems offer access to data while connecting with other systems that are important for different users within the organization."

THE FUTURE OF CONSTRUCTION TECH

As tech giants invest millions in smaller, successful companies to close integration gaps without reinventing the wheel, the industry is a step closer to full integration and allowing contractors more freedom of

Millennials (age 23-38) number **72.1 MILLION**, making them the largest living adult generation.

- Pew Research Center

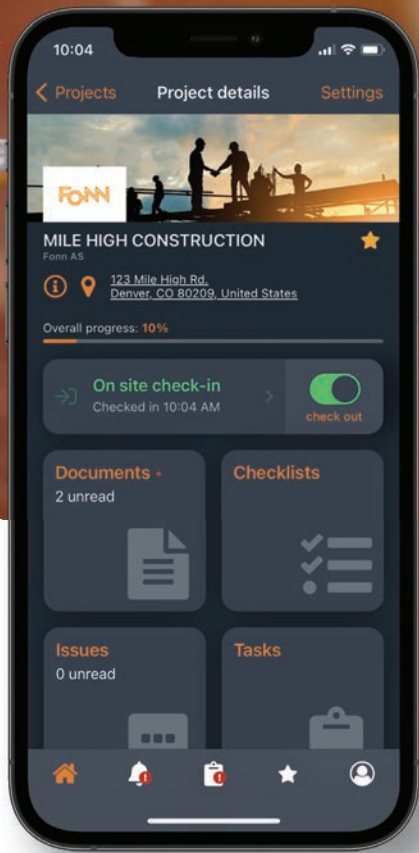
choice. These investments shed a positive light on the next 10 years for construction, giving the industry the ability to work efficiently, stem potential disruptions and even guide other industries in the future of work. Transparent and standardized solutions not only allow contractors to gain operational efficiencies, but prepare them for potential disruptions and inform them for future projects.

"We believe in empowering construction businesses to use the best mix of solutions that address their unique needs," says Dustin Stephens, vice president of Sage Construction and Real Estate. "This means having the flexibility to choose from our solutions as well as those of other best-in-class technology providers. We recognize that it benefits our customers when we can integrate our solutions with other solutions

Get the
job **right.**



Right on plan.
Right on schedule.
Right on budget.

















User-friendly project management software for construction teams.

Fonn is construction management software that increases productivity through streamlined collaboration. A web application in the office, and a mobile app on site, Fonn is for construction projects of all sizes. Projects are done on time, on budget.

FONN.COM

1-888-418-1995 | hello@fonn.com

WORKFORCE AND LABOR MANAGEMENT

Workforce and Labor Management				User Profile		Pricing Model	Customer Base		
Company Information			Product	Firm Type	Firm Size		Users	Projects	Firms
Arcoro		arcoro.com	Arcoro HR Management Solution	GC,SC,A,E,D	S,M,L		300K	-	-
Est. 1999	Private	51-200 Employees	Cloud-based human resources management solution for recruiting, onboarding, benefits, learning, performance management and more.						
			ExakTime	GC,SC,A,E,D	S,M,L		400K	-	-
			Attendance solution to streamline payroll and manage employees via mobile app or on-site rugged timeclock.						
Austin Lane Technologies, Inc.		austinlane.com	ALMobile	GC,SC	M,L		25K	1M	-
Est. 1999	Private	11-50 Employees	Employee time entry and attendance tracking organizes field data, integrating with accounting and payroll solutions.						
Bridgit		gobridgit.com	Bridgit Bench	GC,SC	M,L		1K	9K	135
Est. 2014	Private	51-200 Employees	Workforce intelligence for construction designed to maximize profits and reduce risk by taking a people-first approach.						
LaborChart		laborchart.com	LaborChart	GC,SC,E,D	S,M,L		7K	-	258
Est. 2014	Private	11-50 Employees	Workforce management solution includes planning, scheduling, forecasting, analytics and communication.						
myComply		mycomply.net	Projects Pro	GC,SC,D	S,M,L	 	70K	1K	5K
Est. 2015	Private	11-50 Employees	Combines "Internet of Things" hardware with cloud-based software to ensure all workers on the jobsite are 100% qualified to be there.						
On Center		oncenter.com	Digital Production Control	GC	S,M,L	 	-	-	-
Est. 1988	Public	51-200 Employees	Combines on-screen takeoff and quick bid costs, as well as timelines to track labor production, hours and costs.						
PeerAssist		peerassist.com	PeerAssist	GC,SC,D	S,M,L	  	50K	10K	500
Est. 2006	Private	51-200 Employees	Streamlines time/materials tracking, purchasing, change order management and construction/safety/equipment e-forms.						
Penta Technologies		penta.com	STRUXI	GC,SC	S,M,L		3K	109	10
Est. 1969	Private	11-50 Employees	Labor productivity solution replaces manual data entry with software that updates every hour on labor performance.						
Syscon, Inc.		syscon-inc.com	Field Integrated Time System	GC,SC	S,M,L		2K	-	-
Est. 1986	Private	11-50 Employees	Enter job hours by job, cost code on Android or iOS devices for back office approval. Integrates with Sage 100 Contractor.						



Because construction is a key component of an economic resurgence, connected data, as well as the ability to gain valuable project insights and share those things across teams will play a key role in a post-pandemic world.

BRAD BARTH
Chief Product Officer
InEight

they are using, and we want to make it easier for technology vendors to work together.

“We want to be part of a revolution—one that takes construction from an industry that has been a challenge to evolve to one that’s leading the way in efficiency,” Grindheim says. “Thus far, we have taken a non-digitized industry and made it digital and mobile. In the next 10 years, we want our algorithms teaching users how to avoid costly mistakes before they happen.”

The pandemic changed the way the construction industry does business and forced it to scrutinize its technological capabilities and where it was letting valuable data fossilize. While the COVID-19 crisis accelerated digital transformation, the innovation that is sweeping the industry today will have to be closely aligned with product roadmaps that align with pathways to widespread adoption.

“Because construction is a key

component of an economic resurgence, connected data, as well as the ability to gain valuable project insights and share those things across teams will play a key role in a post-pandemic world—especially as our industry continues through its data revolution,” says Brad Barth, chief product officer for InEight.

Construction companies no longer lag other industries in the use of technology—at least, those firms that are making the required investments to improve the bottom line. Key players in technology will continue to innovate, leveraging data from connected back offices and web-connected field workers, to create the applications that will make the business of construction more predictable and more profitable in the future.

Cybele Tamulonis is a contributing editor for Construction Executive. For more information, email cybele@magazinexperts.com.

CE 2022 COMING IN
DECEMBER

HOT PRODUCTS

Join the Premiere Showcase for
Construction Industry Innovation

Reserve by: **Oct. 15** Materials due: **Oct. 22**

ce.magazinexperts.com/2022-hot-products

CORPORATE PROFILE: LEADERS IN CONSTRUCTION TECHNOLOGY



CMiC has been instrumental in supporting our growth—and has become a critical component of our corporate strategy.

Joe Mannarino, Co-Owner, Buffalo Construction Consultants



The CMiC multi-tenant cloud is the fully-integrated solution we were looking for. [...] We're excited about further evaluating how CMiC can positively impact our business.

Jason Switz, Chief Financial Officer
CHASSE Building Team

Set the Stage for Sustained Growth With CMiC's ERP Platform

With the accelerating pace and increasing complexity of business today, many organizations have incorporated robust tools into their technology stack to drive scalability. The construction industry is no different.

Learn how three U.S.-based construction companies—Affordable Solar, Buffalo Construction Consultants and CHASSE Building Team—implemented CMiC's ERP platform to address their business challenges and set the stage for accelerated growth.

HOW AFFORDABLE SOLAR MET ITS AGGRESSIVE GROWTH GOALS WITH CMiC'S CONSTRUCTION-FOCUSED ERP PLATFORM

In recent years, Affordable Solar, a New Mexico-based specialty contractor, found itself grappling with a rapidly growing number of projects that were also increasing in complexity. Despite this positive business outlook, what became clear was that the company didn't have the tools or processes in place to accommodate the anticipated growth. In essence, its dependence on legacy systems and limited integrations were unlikely to support the effective execution of future projects.

With the goal of driving automation and integration, Affordable Solar's approach was to deploy a fully unified, construction-focused solution. Designed to support the full construction project lifecycle, CMiC's purpose-built platform was exactly what it needed to scale its business.

The CMiC ERP platform enabled breakthrough business outcomes, including:

- Establishing automated procurement and invoicing processes.
- Developing accurate data flows across a wide array of business functions to drive higher margins.
- Automating the approval process with a seamless workflow that was fully integrated—from order placement through approval.
- Accurately tracking KPIs.

HOW DEPLOYING CMiC HELPED BUFFALO CONSTRUCTION CONSULTANTS REALIZE ITS DIGITAL TRANSFORMATION OBJECTIVES

Buffalo Construction Consultants, a full-service construction management firm based in upstate New York, was founded in 2017, but quickly catapulted to over \$40 million in annual revenue by 2019. To sustain this rate of growth, executives launched a digital transformation initiative to replace spreadsheets and QuickBooks with a proper ERP.

From a strategic perspective, implementing a robust accounting system and seamlessly migrating data from previous tools were at the top of the priority list. From a tactical perspective, deploying the new software would help to automate, streamline and integrate key tasks, including managing submittals, RFIs, subcontracts, change orders, accounts payable and time entry.

BCC's extensive research, leading to the selection of CMiC as its ERP platform, paid off. Key business results achieved include:

- With the change management module, it automated the organization of project costs by cost codes to stay on top of potential change orders.
- Real-time reporting (by subcontractor), allowed BCC to



communicate with clients in real time.

- Automating and standardizing the processes required to compile daily reports and timesheets reduced the time required from hours to seconds.
- Creating workflows automated the scanning and entry of invoices to the appropriate project manager for approval.

WHY CHASSE BUILDING TEAM CHOSE CMiC TO HELP BOOST EFFICIENCY AND DRIVE GROWTH

CHASSE Building Team is an Arizona-based general contractor focused on the education, multifamily and commercial building sectors. During a period of steady growth, CHASSE continued to implement various software modules to support the expanding needs of the business. However, the lack of integration between these systems meant that data could not be shared, impeding effective communication and collaboration across the various business units. A big obstacle was that key tools could not be accessed from remote jobsites.

Leaders at CHASSE decided that what they needed was a fully unified cloud-based solution. After a thorough software selection process, it became clear that CMiC's cloud offering would help them address the shortcomings of their legacy systems. To quickly streamline day-to-day accounting requirements, CHASSE identified key CMiC modules that would be deployed as part of the initial rollout: general ledger, accounts payable, accounts receivable, job costing and job billing.

Through CMiC, CHASSE has been able to realize key business benefits, including:

- Reducing the number of steps involved in issuing subcontracts by employing CMiC's Microsoft Integration Package.
- Simplifying the processes involved in opportunity management and project setup.
- Eliminating redundancies and double entry during data input.

Visit cmicglobal.com to learn how CMiC's suite of applications have helped a wide array of construction firms achieve operational excellence while supporting better informed decisions that are data-driven.

CMiC's innovative solution transforms how construction firms optimize productivity, minimize risk and drive growth by unifying their operations with a single database software platform.

PRODUCT HIGHLIGHTS

- 30+ of CMiC's customers have revenues of \$1B+
- 400+ SMB firms have deployed CMiC's cloud-based software since 2016
- \$100B of construction revenue is handled by CMiC every year

COMPANY CONTACT

CMiC
Toronto, Ontario
(416) 736-0123
sales@cmicglobal.com
cmicglobal.com

SPECIAL ADVERTISING SECTION

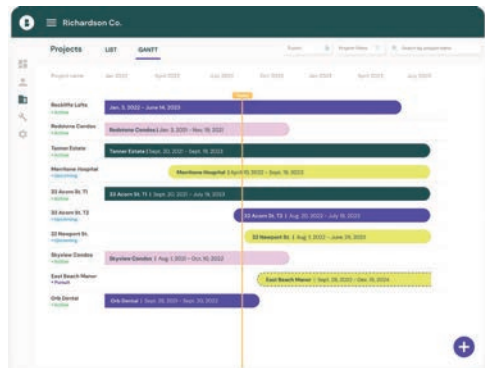


CORPORATE PROFILE:
**LEADERS IN
CONSTRUCTION
TECHNOLOGY**



*With Bridgit Bench, we
can filter for the individual
strengths and weaknesses
of our team and have total
team optimization.*

Leon Foster,
Chief Performance Officer, Lemoine



**Workforce Intelligence from
Bridgit transforms workforce
data into actionable insights
that help inform your
organization's strategic and
tactical business decisions.**

The New Dawn of Workforce Planning: Workforce Intelligence

Construction is a \$10 trillion industry that shows steady growth year after year, but labor productivity in the United States is lower than it was 50 years ago. When you combine lagging labor productivity with a labor shortage, there's no question why contractors are feeling rising pressures to get the most out of the workforce. Because of the dynamic nature of construction, projects are often won or lost in the planning stage. With labor accounting for 20-40% of a project's total cost, improving the effectiveness of a contractor's workforce planning is one of the best ways to protect margins.

HOW DOES WORKFORCE PLANNING LOOK NOW?

For the last 20 years, workforce planning has almost exclusively been managed by one member of the operations team using a series of spreadsheets. In some cases, basic point-solutions are also used to schedule project teams but, similar to spreadsheets, the shortcomings remain consistent:

- Lack of accessibility makes collaboration nearly impossible.
- Applications become highly personalized, making information hard to digest for the larger team.
- There is no insight into workforce utilization, leading to unnecessary overhead costs.
- Maintenance is tedious, leaving little time to plan ahead.
- Forecasting project demand can quickly become inaccurate, putting future projects at risk.

"We go into our staffing meetings with a spreadsheet and a wild guess," says a vice president at a Top 50 contracting company. If that sounds familiar, fear not. There is a positive takeaway for spreadsheet users: opportunity.

THE CURRENT APPROACH TO THE PROJECT JOURNEY

The journey a project takes through its lifecycle is lined with many challenges:

- Blind bidding: Without insight into workforce availability, skills, experience and client relationships, the bidding strategy often becomes "Bid more to win more."
- Workforce plans: After projects have been awarded, comes the challenge of forecasting the workforce demands and understanding the impact to the project pipeline. These challenges get amplified when projects start with late crew build-up, resulting in a 10% decrease in productivity.
- Project delivery: Challenges when ramping resources up and down and managing project teams when delays happen will eat away at a project's profitability.

THE STRATEGIC APPROACH

Bridgit has built the leading workforce intelligence platform exclusively for construction: Bridgit Bench. While workforce planning in construction is complex, Bridgit's goal is simple: Help contractors maximize profits and reduce risk by taking a people-first approach. By combining deeper insight into workforce availability with holistic views of their entire project



Founders Mallorie Brodie
and Lauren Lake

pipeline, Bridgit is helping contractors of all sizes by bringing their people to the forefront of strategic decisions—where they belong. Here's how it is reshaping the project journey:

- Workforce intelligence: Contractors are using people and project delivery data to inform future bids and team composition.
- Selective bidding: Contractors are able to forecast project demand, collaborate on pursuits and pursue the right projects for their teams more aggressively.
- Project delivery: Contractors are able to easily ramp resources up and down, and adapt their workforce strategy to maintain utilization.

The best part about this strategic approach is that it's cyclical. Every project helps inform future bids and project delivery.

PEOPLE ARE THE FOUNDATION OF EVERY TEAM'S SUCCESS

Collaborating on strategy is nearly impossible when contractors aren't using the right tool for the job. Bridgit recognizes that nearly every department's success is dependent on people and having access to the right information. It's helping to foster more meaningful discussions and enable cross-functional collaboration. While most Bridgit customers transitioned from a single-user approach to workforce planning, here's a glimpse at the teams now using workforce intelligence to inform their work:

Operations teams are using workforce data and analytics to build stronger project teams based on experience and skills and allocate resources more effectively with utilization oversight.

Executive teams now have a holistic view of their workforce strategy and project pipeline. They can identify any gaps in the pipeline. Tracking project pursuits means a better understanding of where they win or lose, as well as which projects are most profitable.

Preconstruction teams are planning roles and allocations for future projects. This benefits the estimating team with a better understanding of the available team members and their experience. This helps to put forward more enticing bids and avoid late crew build-up.

Human resources teams are looking at project demand and comparing it against their workforce capacities. By identifying pinch points where demand exceeds supply, HR teams can create informed recruitment strategies and avoid last-minute hiring.

WHY BRIDGIT?

- Informed bidding and staffing decisions
- Forecast project pipeline
- Labor scheduling and requesting
- People, project and pursuit tracking
- Customizable and secure integrations

COMPANY HIGHLIGHTS

- Founded in 2014
- Used by 140 general and specialty contractors
- Tracks 20,000+ projects

COMPANY CONTACT

Bridgit
Kitchener, Ontario
(800) 783-2127
info@gobridgit.com
gobridgit.it/ce

SPECIAL ADVERTISING SECTION

CORPORATE PROFILE: LEADERS IN CONSTRUCTION TECHNOLOGY



Projectmates allows us to effectively track, communicate and manage all changes that occur within a construction project.

Andrew C., Construction Manager
RJP Consulting

EQUIP YOUR TEAM TO:

- Manage entire project in one platform
- Minimize construction costs and delays
- Collaborate in real time, from anywhere
- Streamline processes
- Forecast and plan capital projects
- Create digital bid packages
- Report on entire construction program
- Produce clear and concise audit trail
- Integrate with existing software
- Increase speed-to-market

Projectmates Recognizes an Owner's Need for Real-Time Information

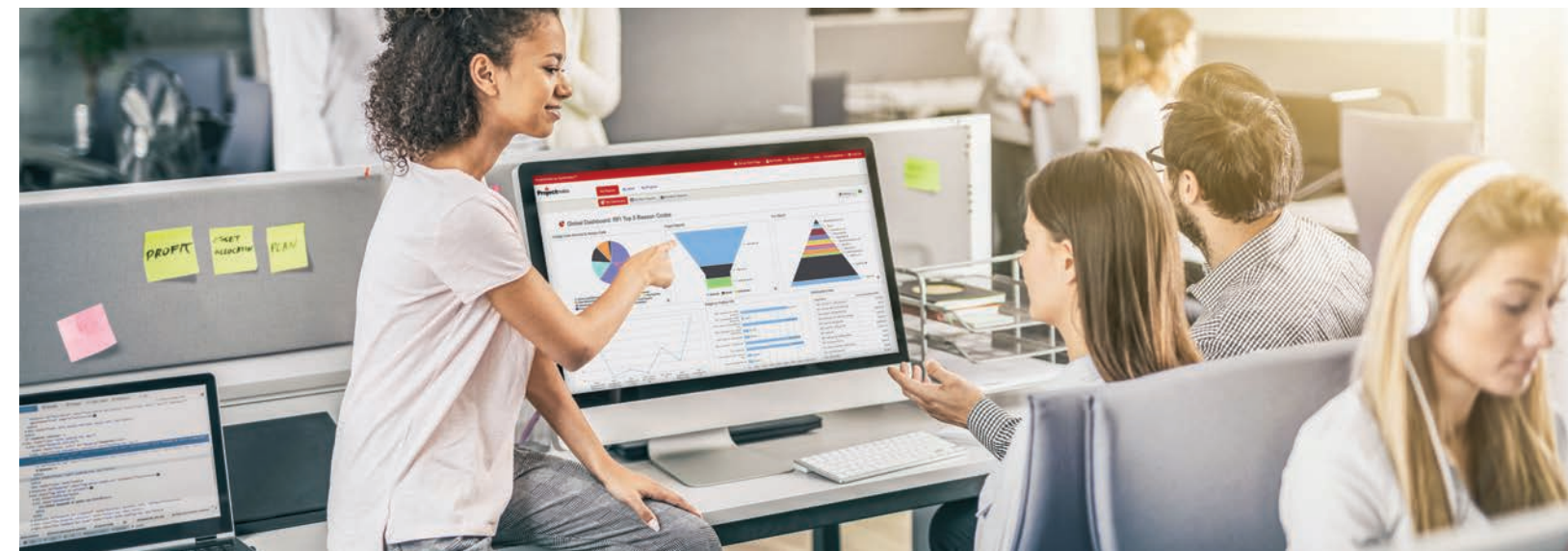
Projectmates has always been meant for owners. Its creator, Systemates of Richardson, Texas, developed the web-based construction management program to meet an urgent need by public and private “serial builders” for real-time project data. With Projectmates, all of that information seamlessly “rolls up” from dispersed project teams throughout a project’s lifecycle, from initial planning to project closeout. Owners can access anything they need to know at a moment’s notice, and from any device—including project challenges, outstanding change orders, schedule updates, vital budget information, etc. Projectmates even captures all of the communications related to a specific project, so project teams don’t have to dig through emails and text messages.

The collaborative platform provides real-time visibility across the entire construction program, so issues can be addressed before problems develop. As a result, the software dramatically improves project execution, cuts costs and delays, increases accountability and reduces risks. The proof is in the numbers. Projectmates’ unique approach has saved clients an average of \$32,900 by eliminating the need for paper bids and submittals, \$7,500 per project by switching to a digital bidding process and more than \$100,000 in annual “interest” savings for late invoice payments.

From faster scheduling to huge decreases in bid processing times, clients report four times more projects are completed by using Projectmates. And change orders are reviewed and approved within an average of six days, which is 4.75 fewer days than the industry standard. Reducing these timeframes keeps projects on schedule to avoid costly delays.

Projectmates is configurable, intuitive and easy-to-use. With features such as automated construction workflows, capital planning and cost tracking, the program solves many of the construction industry’s pressing problems. From eliminating the need for paper to increasing productivity, the platform gives owners the ability to automate their construction programs so they can always deliver on time and within budget. Additionally, Projectmates provides the data needed to make critical decisions—especially when it comes to being proactive and getting ahead of potential risks.

Systemates is not standing still, of course. The company is continuously adapting its Projectmates product in tandem with



client needs. The company put a lot of attention in completing a new application programming interfaces (API) with more than 1,000 endpoints, giving customers the ability to integrate the product with almost anything in the world. As a result, the latest version, released earlier this year, can work with any modern software to reduce task duplication and improve overall efficiency.

That means an owner doesn’t need to change any existing software. Projectmates works with them all. A modernized user interface will soon be launched, but don’t expect it before it’s ready. Since Systemates is a private company, it doesn’t feel the pressure to release too soon. As a result, there are virtually no bugs in the software once it hits the market. And if someone does have an issue, customer service is “best in class.”

PANDEMIC READY

Over the past year and a half, all market sectors have experienced unexpected changes and challenges, but few as much as the construction market. The industry has seen a historic rise in the price of materials due to a myriad of factors. International tariffs on trade and the pandemic have caused disruptions in the supply chain, and natural disasters and lockdowns have led to the depletion of standard building materials.

Between increasing demand for construction and an already limited supply of materials, those in charge of managing construction are left with the difficult task of keeping construction budgets under control.

In that regard, Projectmates has seamlessly “rolled with the punches.” It has even been awarded as a top product by a national publication for contributing to the success of the built environment in the face of a global crisis and for helping the construction industry meet the requirements of essential workers when it was most critical.

The publication commended Projectmates as a staple for many construction companies throughout the pandemic and for its commitment to continuous improvement. Winners of the award were selected based upon extensive feedback of both the editors and verified users based upon product usage, product integration, industry experience, ease of use, usability of technology and usefulness for long-term growth.

100/100 IN THE DUN & BRADSTREET OPEN RATINGS PERFORMANCE EVALUATION



Provides functionality to every aspect of construction projects, from preconstruction to post-construction and closeout.

Brooke B., Assistant Project Manager
Horizon Retail Construction, Inc.

COMPANY CONTACT

Systemates, Inc.
Richardson, Texas
(214) 217-4100
info@systemates.com
projectmates.com

SPECIAL ADVERTISING SECTION



CORPORATE PROFILE:
**LEADERS IN
CONSTRUCTION
TECHNOLOGY**



The construction industry in 2020 adopted in one year what would normally have taken three years.

Henry D'Esposito
Senior Analyst, JLL

Asite's open construction platform enables organizations working on capital projects to come together, plan, design and build with seamless information sharing across the entire supply chain.



COVID-19 Drives Digital Transformation for Construction Industry

If anything, the COVID-19 pandemic acted as a digital accelerator for the construction industry, causing organizations and individuals alike to embrace the digital age. Forced to roll up their collective sleeves, construction businesses had to send office workers home to work remotely and prioritized jobsite safety to keep projects moving forward.

Whether contractors worked from their kitchen tables or coordinated site work in the field, digital devices became essential for everyone in construction to keep projects moving forward. Ultimately, digital savvy meant digital survival as everyone around the globe began to connect virtually with all the players in the construction supply chain.

REMOTE WORK EXPOSED WEAK WORKFLOWS

As COVID-19 spread across the globe, many in construction still relied on workflows that were a mishmash of emails, spreadsheets and document management tools. Disjointed workflows were soon exposed as the construction industry embraced remote work.

As a result, there was a seismic shift during the pandemic in how all businesses—including those in the construction industry—kept projects on track and on budget. Workflows and models of working will likely never be the same in its wake.

This progress is exciting when considering the much-cited 2017 McKinsey & Co. report that declared construction as being the second-least digitized sector. It noted that if construction productivity were to catch up with the total economy, it could boost the sector's value by an estimated \$1.6 trillion.

INCREASED DIGITAL ADOPTION

According to commercial real estate firm JLL's "2020 State of Construction Tech," the construction industry in 2020 adopted in one year what would normally have taken three years—thanks to the pandemic.

Much of the technology adopted will likely endure beyond COVID-19, according to Henry D'Esposito, senior analyst for construction research at JLL. He believes what occurred in 2020 taught the construction industry how technology could create an advantage for those who are willing to invest and learn how to use it.

Echoing this sentiment is Niki Taylor, lead digital engineer at Laing O'Rourke Australia. She notes that the pandemic "forced the masses to use what we would generally use day to day." She also highlighted the increase in digital adoption as information has become more accessible. This is particularly true, she says, when it comes to construction as traditional barriers to digital transformation have fallen during COVID-19.

One of the toughest barriers with the construction industry to overcome has been mindset. No doubt, it is often hard to get veteran construction pros to give up their Excel spreadsheets, paper blueprints and colored pencils.

Previously, construction firms were held back by risk aversion and an overall lack of understanding of digital solutions and their benefits. The



pandemic and the need to maintain operational resilience quickly changed this mindset, removing these roadblocks.

On top of this, the pandemic exposed technology gaps, forcing organizations to swiftly adopt technologies that previously may have taken years to implement.

DIGITAL TRANSFORMATION BECOMES A PRIORITY

In a recent McKinsey survey, when asked why their organizations didn't implement these changes before the crisis, just over half said that it wasn't a top business priority.

According to IBM, in the wake of the pandemic, 62% of executives have assigned "high or very high priority" to digital transformation in 2022, compared to just 17% in 2018. It would seem a wide range of executives now recognize that digital solutions have evolved from being a luxury to a must-have.

Studies show that many now recognize technology's importance as a critical component of the construction business strategy.

While many in construction may have viewed this new emphasis on technology as a temporary fix, many are embracing digital transformation as the new normal. As economies recover from the pandemic, driving digital transformation strategies will play a prominent role in any construction business' productivity and profitability.

COVID AS A GAME-CHANGER

We can't deny that COVID-19 has forced firms to adapt, driving them to accelerate their digital transformation efforts. This process has been so profound that many of the changes introduced during the pandemic will remain. Technological changes are expected to continue, with migration to the cloud and hyperconnectivity remaining a dominant driver in construction.

No doubt, construction firms will look to build on their progress and continue to adopt new construction technology tools. Now is the time to build digital resilience so your business is in the best possible position to succeed in the new normal.

**56,975 PROJECTS DEPEND ON
ASITE TO CONNECT OWNERS,
BUILDERS AND OPERATORS**



COMPANY CONTACT

Asite
New York
(212) 201-0730
info@asite.com
asite.com

SPECIAL ADVERTISING SECTION



CORPORATE PROFILE:
**LEADERS IN
CONSTRUCTION
TECHNOLOGY**



Having one source of information where you can track your workforce and accurately forecast ahead is incredibly powerful.

Michael Williamson, Project Manager
Tharp Plumbing Systems, Inc.

WHY LABORCHART?

- Built by construction, for construction
- Real-time information
- Controlled transparency
- Field and office collaboration
- Accurate forecasting
- Save time and money
- Proactive communication
- Historical data you can learn from

COMPANY CONTACT

LaborChart
Overland Park, Kansas
(913) 276-0294
info@laborchart.com
laborchart.com

SPECIAL ADVERTISING SECTION

Know Your People, What They're Good at and How to Plan Ahead With a Workforce Management Platform

LaborChart is a customer-driven workforce management platform that serves contractors big, small, near and far. For the past several years, LaborChart has grown into a high-growth construction software company built with a unique blend of construction and software expertise. LaborChart helps contractors around the world manage their most important asset—their people. From general and specialty contractors to construction rosters of all sizes, LaborChart provides a secure and easy-to-navigate platform that can be accessed anytime, anywhere.

Whether it's skyscrapers or software, building takes research, commitment, passion, expertise and a solid team that understands the uphill battle ahead of them. LaborChart is the trendsetter, trailblazing the industry as WFM pioneers. It helps construction companies with their WFM approach, including resource management, planning and scheduling, forecasting, analytics and communication. With a digital workforce management platform, contractors are empowered with a holistic view, one true source of truth they can rely on and real-time information that keeps up with an ever-changing industry.

LaborChart allows construction companies to get rid of their spreadsheets, trash their static whiteboards and house all of their data in a reliable digital platform. From controlling who can see what and communicating scheduling updates to forecasting ahead and identifying workforce needs, LaborChart can be customized to fit your business and ensure your entire organization is set up for success.



THE CONSTRUCTION WORKFORCE MANAGEMENT PLATFORM



Workforce Scheduling and Dispatching



Labor Requesting



Certifications and Tagging



Labor Communication



Workforce Forecasting



Labor Allocation

LABORCHART.COM



PROCORE

VIRTUAL EVENT | OCTOBER 12-14, 2021

CORPORATE PROFILE:
**LEADERS IN
CONSTRUCTION
TECHNOLOGY**

Procore's Groundbreak: Better Margins, a Safer Jobsite and a Global Construction Community Reunion

“

*This conference focused not
only on the tools, but also
taught leadership and the
value of company culture!*

Stephanie Dash
Empire Office

That indescribable, network-expanding “construction conference” you’re drawn to this time each year? Here it comes again. And while Procore’s Groundbreak 2021, held October 12-14, will not be—technically speaking—a hardhat area, we do advise you to brace for the unexpected. If you’re a returning guest, we can’t wait to see you again and catch up, honestly. If you’re new to Procore’s Groundbreak, welcome.

Procore’s yearly Groundbreak gathering is many-sided. Jaw-dropping keynote speakers? You bet. Past speakers—from Peyton Manning to Apple co-founder Steve Wozniak—demonstrate Procore’s determination to shake the proceedings up with technicolor thought leadership. Construction content you can immediately leverage? Yep. 60+ engaging sessions of idea-planting construction brilliance will send your team back to the jobsite with actionable momentum. A detailed look at tomorrow’s margin-easing advances? Hey, that’s what Procore is all about—and you’re on the inside. Add to all that a networking opportunity you can literally build on.

GROUNDBREAK 2021: THE SINGLE SOURCE OF TRUTH

Procore’s vision—improving the lives of everyone in construction—begins and ends with the folks on the ground. Groundbreak is the blueprint—the one virtual meeting place where construction’s community members show up for each other and affirm a central truth: Construction is as much a calling as a career.

At Groundbreak, you’ll explore and advise on the evolving Procore platform, swap notes and laughter with friends new and old, and choose front-row seats to more than 60 sessions hosted by visionaries and construction experts—enlightened insiders who intimately know your daily struggle.

So, is this thing all furrowed brows and “learnings?” Nope. Groundbreak is like walking onto the most familiar and energizing jobsite you’ve ever known and finding your crew has decked the place out. Groundbreak is a construction conference like Toronto’s The One is an office tower. The description is correct, but powerfully insufficient.

For more information and to register, visit procore.com/groundbreak.



COMPANY CONTACT

Procore
Carpinteria, California
(866) 477-6267
sales@procore.com
procore.com

SPECIAL ADVERTISING SECTION



GROUNDBREAK

POWERED BY PROCORE

Get inspired to build new horizons.

Shape the future of building at construction’s global conference of the year.

DISCOVER

Gain an edge.

- + Dig in to 5 keynotes built to make you a better leader.
- + Join discussions on the topics that matter to you.
- + Exchange ideas and collaborate with leaders in the industry.

LEARN

Become an expert.

- + Explore 60+ sessions on safety, inclusion & diversity, industry insights, and more.
- + Hear about the latest industry solutions.
- + Get insider knowledge from experts who know construction.

INNOVATE

Shape the future.

- + Engage with Procore experts and get your questions answered.
- + Be first in line to see the newest releases.
- + Watch demos and see the latest industry solutions from around the world.

Register today at procore.com/groundbreak





CORPORATE PROFILE: LEADERS IN CONSTRUCTION TECHNOLOGY



100+ POSITIVE REVIEWS
ON CAPTERRA | 4.6 OUT OF
5 AVERAGE RATING



*Our processing time for
subcontractor accounting
has gone from five days a
month to less than a day.*

Desiree Albano
BNBuilders

COMPANY CONTACT

GCPay
Portland, Oregon
(877) 447-2584
marketing@gcpay.com
gcpay.com

SPECIAL ADVERTISING SECTION

Simplify Construction Payments With GCPay

One big theme in construction right now is the rise of technology to improve cost control, payment processes, scheduling and off-site construction. The “future” of work—technology—has become the “now.” And general contractors that are adopting new technology are reaping the benefits.

ESTABLISHED, YET AGILE

Since 2003, GCPay has offered a paperless alternative to construction billing, and its software mimics the process of traditional workflows for accounting, project management, contract administration and compliance departments—virtually cutting your AFP processing time in half (or more). What’s changed since then? A lot, actually.

Most recently, GCPay has expanded its services—significantly. Contractors can now easily manage and process ACH transactions, quickly sign documents electronically and notarize documents from anywhere, anytime. What hasn’t changed? GCPay’s world-class customer support. Staff will answer by the third ring and solve most issues within five minutes. Don’t believe it? Check out the Capterra reviews.

HASSLE-FREE INTEGRATION

Endless email threads, incomplete lien waivers, missing compliance documents, paper checks and outdated spreadsheets: Sound familiar? Those are all automated and integrated now. GCPay seamlessly integrates with major construction ERPs like Sage, Viewpoint and CMiC to solve this and help you eliminate double data entry.

When construction accounting software is well integrated, documents, data and payments pass seamlessly from one place to another. When software is not well integrated, well, you get the idea.

KISS, AND NO, NOT GENE SIMMONS

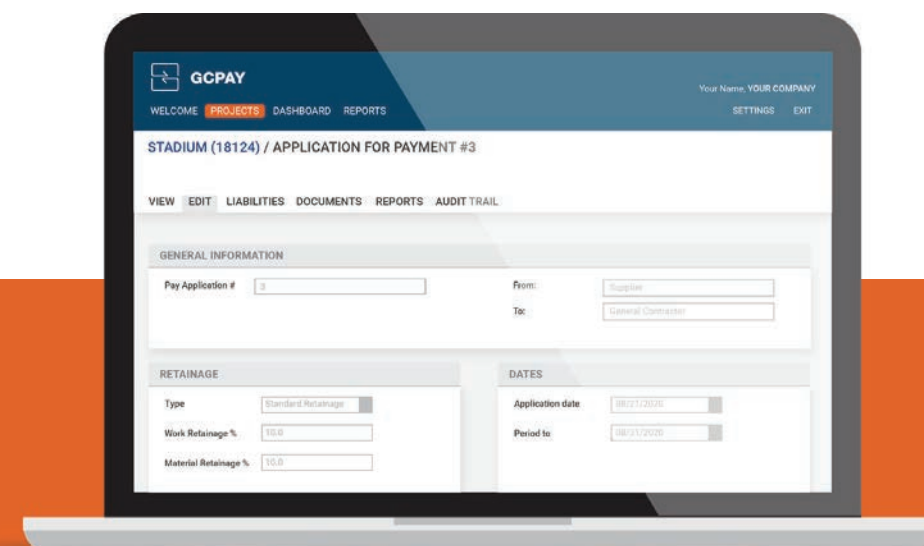
GCPay believes in the KISS (keep it simple, stupid) principle. That’s why it’s created a software platform to help your business grow and become more efficient every single day—without all the fluff. Everything is in one place, neatly organized and intuitively designed. And it just works.

GET STARTED

Construction payments are hard. They don’t have to be. Head over to info.gcpay.com/ce to learn how you can start simplifying your construction payment processes.

Projects	Number	Progress	Budget	Complete	%	New Project
Adobe Phase 2	1000	<div></div>	\$73,430.00	\$18,853.00	26%	
Century High	2001	<div></div>	\$65,570.00	\$39,263.00	60%	
Morning Star	2020	<div></div>	\$300,000	\$42,387.31	14%	
Ocean Lodges	1234	<div></div>	\$73,430.00	\$19,750.00	27%	

Time = Money. Keep both.



Keep everything in one place.

*“Our processing time for subcontractor accounting has
gone from five days a month to less than a day.”*

– BNBuilders

info.gcpay.com/CE

Construction payments, simplified.





FOUNDATION software

CORPORATE PROFILE: LEADERS IN CONSTRUCTION TECHNOLOGY

AMERICA'S #1 PROVIDER
OF CONSTRUCTION BACK-
OFFICE SOLUTIONS*

COMPANY HIGHLIGHTS

- Over 36 years of providing software and services for the construction industry
- Accounting, project management, estimating, mobile tools and payroll services
- Developed, sold and supported in house



COMPANY CONTACT

Foundation Software
Strongsville, Ohio
(800) 246-0800
info@foundationsoft.com
foundationsoft.com

Foundation Software, Building a Better Back Office



While Foundation Software is best known as the developers of FOUNDATION®, America's #1 construction accounting software*, that's only a part of what it offers. From accounting, project management and estimating to full-service payroll processing and mobile applications, Foundation provides the tools contractors need to take control of their back office.

FOUNDATION job cost accounting allows contractors to track financials, run payroll, pay invoices and report on critical construction-specific information—like retention, prevailing wage, AIAs and more.

Built for commercial, industrial and government contractors of all sizes, FOUNDATION is trusted by more than 25,000 construction professionals across the United States to be the financial-tracking backbone of their back offices. Complete with mobile timecards, field logs and service dispatch, contractors can access the data they need and reduce entry errors by automatically syncing data back to the office.

For contractors looking to simplify their payroll, Foundation has Payroll4Construction, the payroll service built just for the construction industry. With over 36 years of construction payroll experience, the experts at Payroll4Construction have seen, and solved, the toughest payrolls around, including union fringes, prevailing wage and multiple rates, trades and localities on a single timecard.

Featuring a mobile app that allows contractors to enter and sync timecards, Payroll4Construction makes it easy to move data from field to office. And once payroll is complete, staff can access dozens of free construction reports, including certified payroll, EEO and new hire reports—saving time at every step of the payroll process.

Now, contractors can get an even more complete back-office package with Foundation's latest offering, McCormick Systems estimating. The nation's leader in estimating and digital takeoff for the electrical, mechanical and plumbing industries, McCormick helps contractors get faster, more accurate estimates.

With McCormick's Design Estimating Pro, estimators can design-build directly on their digital blueprints and quickly share drawings with their team. Together with McCormick's integration with FOUNDATION, contractors have control at every step of every job, from estimate to job completion.

Get an inside look at how Foundation Software's products and services help contractors run the business side of construction by scheduling a personalized demo today.

*See why we're #1 at foundationsoft.com/claim.

**“ FOUNDATION PROVIDES
THE TOOLS CONTRACTORS
NEED TO BUILD A
BETTER BACK OFFICE. ”**



Preview our construction
software and other ways
we support your business.
foundationsoft.com/abc

FOUNDATION software

Job Cost Accounting | Project Management | Mobile | Estimating



CORPORATE PROFILE: LEADERS IN CONSTRUCTION TECHNOLOGY



1000+ 5 STAR PAYEE REVIEWS



Built has streamlined our payment and waiver collection process, and I would recommend this system to any contractor!

Whitney Goodwin, VP, Accounting
The Wolff Company

COMPANY CONTACT

Built Technologies
Nashville, Tennessee
(800) 655-8138
marketing@getbuilt.com
getbuilt.com

SPECIAL ADVERTISING SECTION

Built Revolutionizes Billing With Payment Management System

Powering smarter construction finance, Built Technologies offers innovative software solutions that simplify money management for lenders and builders. Borrowers can streamline communication with lenders, facilitating seamless information exchange and faster draws, while home builders and general contractors use Built to manage compliance documentation and expedite payments in conjunction with your current accounting system.

Throughout the industry boom of the last year, Built has engineered better software solutions and enhanced financial capabilities to specifically improve the jobs of contractors and builders. Having greatly enhanced its suite of construction-focused solutions, Built brings billing into focus for construction professionals across the country.

Built's payment management system, called the Built Financial Toolkit, includes the company's foundational products, Lien Waiver Management and Built Pay, plus additional benefits that make this tool even more enticing. Now including Compliance Tracking, Built Pay and Built Club, the Financial Toolkit makes sense of billing by centralizing finances in one easy-to-use platform and offering team-wide access to improve accountability and progress.

A system that manages legal documentation, Compliance Tracking includes Lien Waiver Management and then some: contractors and builders can manage all critical legal docs, such as certificates of insurance, W-9s, sworn statements, notice to owners, lien waivers and supplier lien waivers. Plus, the advanced search feature makes finding necessary documents a matter of a few clicks. Built Pay, which can work in tandem with Compliance Tracking, guarantees fast and easy payments. A tool critical to project progress, Built Pay supports nearly every form of payment: wire transfer, ACH transfer, credit and debit card payment, real-time payments and paper checks.

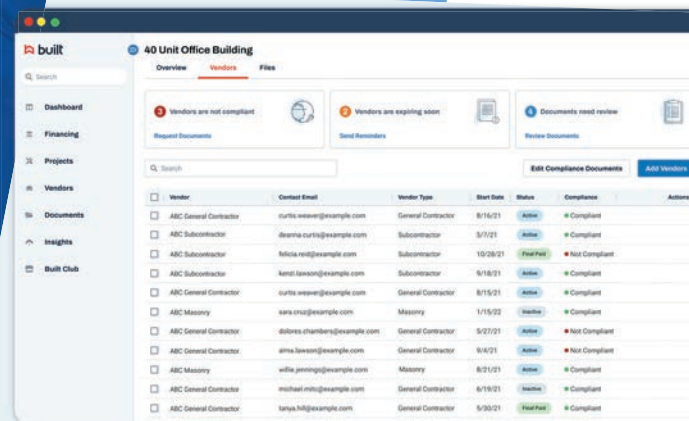
Offering greater flexibility for how and when construction pros pay their subcontractors, Built Pay improves efficiency via digitization and automation: general contractors can optionally mandate completed compliance documents before vendors and subcontractors are paid. Finally, Built Club offers Built users access to a marketplace of discounts from popular suppliers. Not only can Built users save by streamlining project documentation, expediting subcontractor and vendor payments, as well as simplifying bank draws, but they can save on the cost of project materials simply for being part of the Built family.



GAIN COMPLETE
VISIBILITY INTO
INVOICE AND PAYMENT
STATUS FOR ALL-TEAM
ACCOUNTABILITY

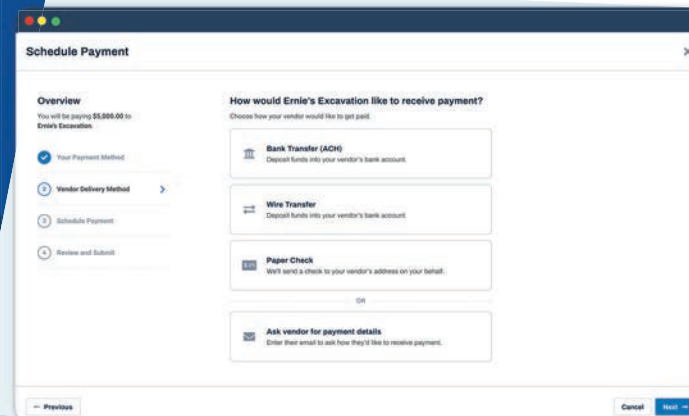
Built's Payment Management System Offers Smarter Financial Solutions

Sync with your current technology stack for full integration and seamless money management



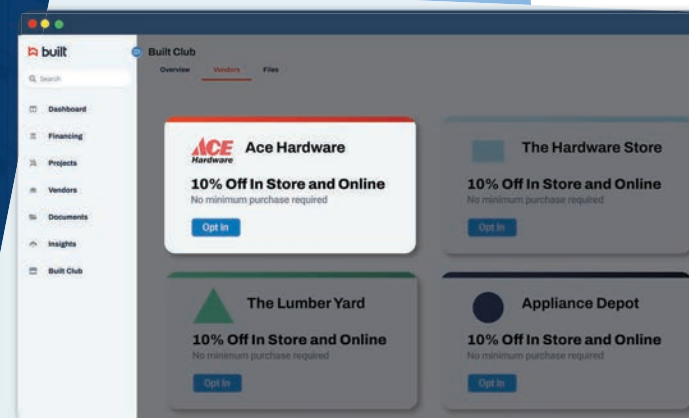
COMPLIANCE TRACKING

Digitally send, track, and manage important legal documents like certificates of insurance, lien waivers, W-9's and more from one central dashboard.



BUILT PAY

Pay vendors automatically with ACH, wire, credit/debit cards, real-time payments, or paper checks, and optionally require signed compliance documents before dollars are remitted.

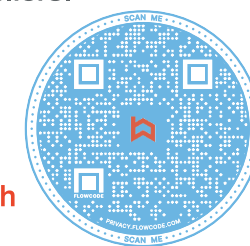


BUILT CLUB

As a Built user, you'll gain access to an exclusive marketplace featuring special discounts from popular suppliers.

Get Built, and get to building, faster.

www.go.getbuilt.com/ce/tech





CORPORATE PROFILE: LEADERS IN CONSTRUCTION TECHNOLOGY



It took under five minutes to link 70 assets to Tenna. [We] now have one platform that filters OEM data from multiple manufacturers into one spot for our users to access.

Pat L., Severino Trucking

Tenna Integrates With Your Business Ecosystems



Up to this point, contractors have struggled with seeing real gains and value using construction technology. Equipment management technology, however, makes this easier on contractors by providing key information about their high-value construction equipment and assets that integrates with other systems they are already using.

Equipment management information greatly contributes to construction finances, as equipment is a major cost center for a contractor, so ERP and accounting systems are a natural place for contractors to share their equipment data. This type of integration is becoming less of a nice-to-have and more of a must-have.

Because equipment plays a critical role in building projects, integrating equipment data with project management and operations programs is another natural and increasingly necessary integration opportunity.

Construction businesses spend a lot of money on the assets required to execute their projects and the systems required to run their businesses efficiently. An integrated construction technology ecosystem benefits contractors by maximizing the use of these systems for overall productivity and efficiencies, as well as accurate and complete data which, in the long run, significantly impacts finances and the bottom line.

Top contractors use integrations to give their teams the flexibility to connect their systems without creating data gaps for better reporting, clearer visibility and communication, and faster insights.

Is your equipment data integrated with the rest of your business and operational information? Contact Tenna to learn more about how to leverage construction technology to mature your equipment management processes and drive meaningful improvements in your business.

Tenna is the construction technology platform revolutionizing equipment fleet operations. We are the standard for the construction industry.

Know More, Control More, and Make More with Tenna Integrations



TENNA Integrations



COMPANY CONTACT

Tenna, LLC
Edison, New Jersey
(833) 50-TENNA
discover@tenna.com
tenna.com

SPECIAL ADVERTISING SECTION



Tenna's Equipment Management platform links to your entire business ecosystem

As Tenna continues to be the construction technology platform that revolutionizes equipment fleet operations, we look to also be an integral part of your business' technology ecosystem with an integrated construction equipment management solution. We are the standard for the construction industry. Built on over 100 years of construction experience, we speak your language.



www.tenna.com
833.50.TENNA



CORPORATE PROFILE: LEADERS IN CONSTRUCTION TECHNOLOGY



Line of sight on payables, receivables and inventory is critical for your business. The QuickBooks ecosystem has exactly what you need, when you need it.

Bobby Morrison, Chief Sales Officer, Intuit

WHY QUICKBOOKS?

- QuickBooks is the #1 tax and accounting software in the United States.*
- Businesses that use QuickBooks for labor costing report adding 11% more billable time to their invoices, on average.
- 90% of QuickBooks users are likely to recommend QuickBooks to other customers.

COMPANY CONTACT

Intuit
Mountain View, California
(844) 333-1844
quickbooks.com/constructionebook

QuickBooks: Built for Construction From the Ground Up

Intuit is making deep investments to continue to evolve their QuickBooks product ecosystem to meet the changing needs of growing construction businesses. Bobby Morrison, Intuit's chief sales officer, says, "It's the place where our products and services best meet the needs of the market. We're prioritizing partners and bringing features to life within our product and across our app marketplace to help construction companies power their prosperity."

Morrison says a common misunderstanding is that QuickBooks is just accounting software. "QuickBooks is much more than financial management software. We enable payroll. We get you access to capital, we'll help you get paid—and make payments—through our payments platform. We help you manage time, whether you're on-site or remote. The QuickBooks ecosystem is really the single source of truth for your business."

The construction industry has experienced vast changes in the past year. Workforce shortages, supply chain disruption and fluctuating building prices have all required more efficiencies.

"Mobile use of QuickBooks has become even more critical for businesses since the pandemic. It's become a must-have, not just a nice-to-have, as workforces have shifted from traditional offices into the field," Morrison says.

But secure cloud access is only part of how the QuickBooks ecosystem helps construction companies win in the marketplace. "The nature of work is shifting—and the ability to do real-time job costing gives construction companies a competitive edge," Morrison says. QuickBooks integrated solutions also help businesses decrease labor costs and increase profits through better time tracking. Businesses using QuickBooks services for labor costing report adding 11% more billable time to their invoices, on average.

Morrison reports that QuickBooks advisors and partners are constantly working with construction companies to learn what they need from the software. "We're doing a lot of work with system integrators and technology leaders in construction and making sure that we are creating those deep, rich API integrations so everything is seamless. At the end of the day, you can spend more time with your clients."

Morrison underscores that the QuickBooks ecosystem meets your business where you are. "Whether you're just getting started or you've been in business for years with over 100 employees, QuickBooks and the entire portfolio is built to scale with you, not ahead of you."

*#1 accounting software for small to midsize business based on PCMag, as of November 2019.



The easiest solution for managing mid-sized businesses¹

Built for the future. Ready for now.

Create a financial foundation for your construction business with QuickBooks.



Find out more:
quickbooks.com/constructionebook

1 Per G2 Crowd Winter 2021 Grid® Report for Accounting



CORPORATE PROFILE: LEADERS IN CONSTRUCTION TECHNOLOGY



InEight's background allows the company to understand our needs and offer us a construction solution rather than just software.

Tom Baskind, Technology Manager
Graycor

COMPANY HIGHLIGHTS

- Experience a 30% improvement in staff utilization using InEight construction software solutions.
- Over \$400 billion worth of construction projects around the world have relied on InEight's field-tested project management software.
- InEight software clients have experienced up to 10% in savings in software and technology costs.

COMPANY CONTACT

InEight
Scottsdale, Arizona
(866) 225-9570
projectcertainty@ineight.com
ineight.com

SPECIAL ADVERTISING SECTION

Leaders in Transforming the Construction Industry

With its roots dating back more than three decades, InEight's field-tested software is transforming the way contractors and owners manage capital construction projects. InEight's proven solutions span every phase of construction, from design to estimating and from field execution to turnover. The company helps stakeholders get the real-time insights needed to minimize risks, improve operational efficiency and control project costs.

BUILT FOR CAPITAL PROJECTS

InEight's integrated platform of software solutions was developed by construction professionals to meet the unique demands of large capital projects and to help them overcome their greatest project pain points. Whether in energy, infrastructure, mining, utilities, water or general building, more than 300,000 users and more than 750 customers worldwide rely on InEight to power more than \$400 billion in projects.

CONNECTED DATA DELIVERS HIGHER PROJECT CERTAINTY

Because InEight's integrated platform connects information over the entire project life cycle, owners and contractors have a better view of project progress and can spot risks before they happen. InEight software lets users store and manage project knowledge in a single source of truth. And with prescriptive dashboard views, every stakeholder sees critical data in real time. This higher level of visibility and accuracy helps users make critical project decisions that result in better outcomes.

ACCELERATE YOUR IMPLEMENTATION

InEight software is delivered ready and field tested, so implementation is faster. Plus, long-term costs are less because InEight's solutions require little to no customization. Prospective customers also have peace of mind knowing InEight's experts manage almost all implementations.



GUIDED BY A TEAM OF CHANGE EXPERTS

InEight's implementation experts are certified in organizational change management, so they understand the impacts of change and how it affects companies. These experts come from organizations that adopted InEight software and played a key role in its implementation.

COMMITTED TO INNOVATION

InEight is unmatched in its dedication to developing software that transforms capital projects. The company significantly invests in research and development and is continually advancing its products. With hundreds of software developers around the world working hand in hand with industry professionals, InEight is developing solutions that directly solve the needs of owners, contractors and engineers.

Software Made Easy

Explorer Software is a global provider of enterprise software solutions. Its flagship product, Eclipse, is an integrated job cost, accounting, equipment control, and project management solution. Eclipse was designed as cloud-based software to deliver powerful, real-time data to users wherever they are, whenever they need it.

Executive Decisions



Explorer's Eclipse software makes it simple to increase profits by quickly identifying potential risks through its combination of advanced accounting modules and powerful analytics tools. Eclipse's dashboards make it easy to understand, control and evaluate projects from beginning to end in one convenient place. Users can create powerful, dynamic custom construction reports in minutes while setting up multiple dashboards to track specific key performance indicators on projects or operations, so they don't have to waste time searching for critical information.

Eclipse is fully integrated so users can monitor jobs, maintain equipment, dispatch technicians, manage documents and track the workforce all in one place; along with drill-down capability right from financials. With over 30 modules, Eclipse bridges the gap between accounting and operations to provide users with all the features they need to succeed in the construction industry. Its focus on select vertical markets allows it to deliver deep domain expertise to the industries it serves, including heavy construction, general contractors, specialty contractors, sub-trades, architects and engineers. With over 50,000 users across six continents, Explorer Software has created a powerful solution that is helping the construction industry find success worldwide.



CORPORATE PROFILE: LEADERS IN CONSTRUCTION TECHNOLOGY

Eclipse is fully integrated so users can manage jobs, maintain equipment, dispatch technicians, manage documents and track the workforce all in one place.

PRODUCT HIGHLIGHTS

- Fully integrated browser-based solution
- Built by construction professionals for the construction industry
- User friendly, non-technical report writer
- Explorer will never end-of-life its products
- Choose from on-site or SaaS deployment options
- Privately owned family business for 36 years

COMPANY CONTACT

Explorer Software
North Vancouver,
British Columbia
(800) 665-8966
sales@explorer-software.com
explorer-software.com



CORPORATE PROFILE: LEADERS IN CONSTRUCTION TECHNOLOGY

PRODUCT HIGHLIGHTS

- Self-Service Job Cost and WIP Reporting
- Workflow for Collaborative Budgeting and Forecasting
- Detailed Analysis on Labor Performance
- Developing Scenarios to Model How Changes Affect Profitability
- Interactive Dashboards to Pinpoint Projects at Risk

Prophix Provides Real-Time Visibility Into Your Financial Data for Project Profitability

Prophix Software centralizes all of a contractor's financial information and ensures project job cost information is always in sync with accounting. With a single source of the truth, everyone—from the field to the office—is always working with the most up-to-date cost information, preventing cost overruns, reworks and project delays.

As the construction industry continues to move from offline to digital-based programs, the need for data and understanding its impact on a construction business is accelerated. Every day, contractors are challenged with new decisions that impact the future, and they need information to make those decisions, fast. Whether it's information about key business metrics or information about jobs, you need the right data right now.

What if there were a way to bring together all your data into a single, easy-to-use environment, where everyone is on the same page? Where you didn't need to rely on a consultant or IT to get answers?

Forecast cash, analyze bids, manage equipment rates and understand the impact of safety incidents—Prophix is truly a system to run your business on.

See Further. Know More. Make Better Decisions.

What you get with Prophix:

- ▶ Financial Reporting
- ▶ WIP Reporting
- ▶ Job Forecasting
- ▶ Cash Forecasting
- ▶ Budgeting
- ▶ Bid Analysis
- ▶ Project Planning

www.prophix.com | construction@prophix.com



Free Trial Now
Available



Safesite Users Save Eight Hours Every Week and Reduce Injury Rates by up to 57%

In 2014, Safesite Co-Founders Peter Grant (CEO), Leigh Appel (CTO) and David Fontain (COO) lost a mutual friend in a workplace accident. The incident sparked an interest in streamlining workplace safety everywhere and helping ensure all workers get home safe. Together, they developed an easy-to-use safety management app that formed the groundwork for Safesite.

Today, over 18,000 companies of all sizes and industries trust Safesite, a powerful, easy-to-use safety management solution proven to reduce injury rates by up to 57%.

Safesite's intuitive, out-of-the-box platform is used daily by safety pros and teams to complete safety actions in the field, ensure compliance, improve safety engagement and drive down incident rates. Members can access the platform on any device and streamline safety management processes, saving up to eight hours per week per employee.

With the highest number of free features on the market, including a custom inspection builder, hazard management, incident reporting and an advanced safety scorecard, Safesite reduces safety-related expenses by up to 20% annually. Additionally, Safesite enables 20 of the ABC STEP key components and streamlines safety actions required for STEP membership.

CORPORATE PROFILE: LEADERS IN CONSTRUCTION TECHNOLOGY



The weekly use of the Safesite app helps develop safety into our foremen's muscle memory for an overall safer jobsite.

Safety Director,
Residential Builder

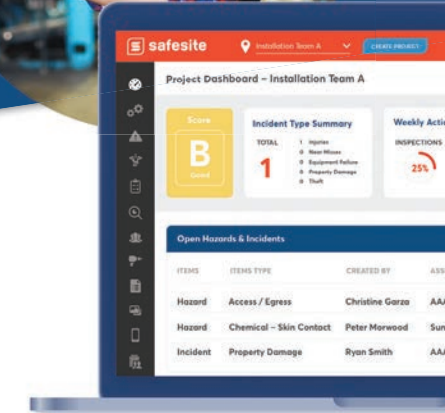


A powerful, easy-to-use digital safety program proven to reduce workplace incidents by up to 57%.



Exclusive offer for ABC members:
Receive 5 premium user accounts FREE (a \$1,200 annual value)

safesitehq.com/ce21/



EXECUTIVEINSIGHTS

How can contractors leverage technology to most efficiently manage their workforce?



End-to-end, employee-focused tech gives construction companies the edge. Contractors can't afford to lose out on talent because of their recruiting systems.

JOHN HERR
CHIEF EXECUTIVE OFFICER
Arcoro



When applications for estimating and operations are connected, or unified, contractors gain tremendous efficiencies.

PAUL MCKEON
FOUNDER AND CEO
B2W Software

What are the most important KPIs for construction firms to monitor and why?



Routinely measuring productivity across trades can provide key stakeholders the visibility to take action and reallocate resources to avoid delays or cost overruns.

MATT DALY
CEO AND CO-FOUNDER
StructionSite

What KPIs should construction businesses analyze to make critical business decisions?



Tracking and analyzing financial KPIs is typically performed by reviewing reports, such as cost estimates vs. actuals, under- or over-billing, and project cash flow.

NEIL ASHIZAWA
CHIEF PRODUCT OFFICER
Jonas Construction Software

What is the best approach construction firms should take when adopting new technology?



Scale will only lead to ROIs that are considered impossible in our industry. A year from now, there will be the ones that have the data and those that don't.

MEIRAV OREN
CEO AND CO-FOUNDER
Versatile

Why is it important to have interoperability in the construction industry?



Where it takes five minutes to locate, compile and upload data for one submittal, you are talking about thousands of submittals and document exchanges over a project.

SLATER LATOUR
CHIEF MARKETING AND
PRODUCT OFFICER
Newforma

What tech trends do you expect to become standard in a post-COVID world for construction?



A mobile-first approach has become even more vital, enabling a disparate workforce to maintain productivity and stay safely connected with teams.

YVES FRINAULT
CO-FOUNDER & CEO
Fieldwire

Read all the insights these leaders have to share at ConstructionExec.com/ExecutiveInsights



Easily Support Davis-Bacon Act and American Jobs Plan!

**Clients Report 80% Savings of Time and Money
5 Minute Friday Payroll • Encrypted, Internet-Based • 24-Hour Helpline
In Conjunction with United States Government**

Avoid Jail Time and Costly Fines • 56,000+ Construction Company Clients

Ph: 480-595-0466



eMarsinc.com

Diving Deeper During Tech and Software Evaluations

BY MICHEL RICHER

Construction technology and software adoption is on the rise as hundreds of new entrants are being added to the growing list of available options each year. This includes everything from point solutions for every process, to fully integrated platforms for project bidding, to workforce management.

It's undeniable, with the increase in construction tech and tech investments, recently reported on by Forbes, that contractors are being flooded with calls and emails from different technology companies every day. All are trying to address a specific pain point with the latest and greatest solutions. Repetitive sales and marketing emails can definitely be overwhelming, but it's a good indicator that the construction industry is finally getting the attention it deserves from the tech industry.

Here's how a typical software sales process goes:

- A member of the contractor's team is introduced to a solution and reaches out to the provider to learn more about its unique offering.
- That team member is then given a brief demonstration of the solution and the value it can bring to the company.

- If the team member likes what they see, a second demonstration is often done with a larger team.
- The team decides if there's a business case to adopt the solution and either move forward with implementation, or decides to keep looking at other options.

That's a very simplified version of the process. There can often be multiple demos involved, sandbox environments and free trial periods. However, it's when the larger leadership team gets involved that the questions really start rolling in, and rightfully so. Contractors want to make sure they're getting a good return on their investment and that the roadmap of the software or technology aligns with their organizational goals.

Information about a software solution or new technology often gets brought to light after, or during, implementation. This can be a pain in and of itself as this new information may have affected the decision to adopt.

Because there isn't a point-solution for evaluating point-solutions, here are three topics that often get overlooked, but should be considered when putting a new investment through its paces during evaluation.



Integration Roadmap, Method and Expectations

Integrated software will continue to be increasingly important as the industry undergoes a digital transformation, but the questions usually stop pretty quickly regarding integrations.

It's not until contracts are signed and implementation is under way that a contractor discovers that building the integration will require a development team working with complex APIs and might take months to get right. The cost and time of getting the new solution to where it needs to be increases, and the perceived return on investment decreases.

A fully integrated tech stack will eventually be the norm in construction, so don't hesitate to spend a little more time discussing how the software provider intends to fit its piece in the tech stack puzzle. Some questions to consider would be:

- What integrations are available today?
- What integrations are being worked on, and what does that roadmap look like?

- Who does the heavy lifting building an integration, the contractor or the software provider?
- Will a custom integration use an API and require ongoing maintenance, or is there a third-party automation platform being used?

Required 'Homework' During Implementation

Speed of implementation is important when deciding on a new software solution. Contractors want to get up and running quickly to keep the momentum going and maintain buy-in, which can be difficult when introducing new tech to the larger team.

"How long will it take to get up and running?"

This is when a contractor will get the "best case scenario timeline," which is rarely ever the case. A best-case scenario timeline usually means the time to implement after the contractor's data is shared. If a contractor were to ask for a guaranteed implementation date, it's almost guaranteed this timeline would suddenly have a few days, or even weeks, added to it.

Think of it this way—if a contractor is looking to import active, upcoming and historical projects into a new tool, how exactly does that work? Do they just send the data they have and let the software company sort it out, or will someone on the contractor's end need to organize and deliver that data?

It's not uncommon that this "homework" will exponentially increase the time to value, which is not the contractor's fault.

Contractors are typically working at capacity and don't have time to organize all the necessary information to get a new tool up and running. Sure, in the long-term contractors will benefit from taking the time to ensure their data is accurate and organized, but it's important to know what the expectations are on their end before moving forward. Some questions to consider are:

- How will data be imported into the tool, and who owns that?
- What is the lift required by the contractor?

Some tech companies will send a data template to help speed up the import process, but it still requires the contractor to transfer their data to the template. If that's the case, contractors should ask to see the template and the required information so they can understand the work that will go into implementation before the "best-case scenario timeline" even starts.

Development Methodology

A tech company will use a few different methodologies to develop and release new features. However, the most commonly used methodologies for software development are Waterfall and Agile. As a basic overview of each:


- Agile methodology is all about iterative development. Tech companies release new features quickly and frequently, and then get feedback from their customers and make incremental improvements at a rapid pace. This methodology allows them to adapt quickly and shift priorities to respond to customer demand.

- Waterfall methodology should be familiar to contractors. It follows strict and linear principles and takes a top-down approach like a waterfall. For example, a project starts in phase 1 and doesn't move on to phase 2 until phase 1 is complete. In the software world, this means less frequent feature releases, but bigger releases as all the planning is done before development begins.

Why Does This Matter?

As the end user, a contractor should consider if they want their software provider to be predictable, or adaptive to their needs. The development methodology will also impact a contractor's ability to offer input. With Agile, the conversation is ongoing, and changes can be made quickly. With Waterfall, there's a lot of planning involved, but it's nearly impossible to pivot once development is underway. Some questions to consider are:

- What development methodology is used?
- How and when can feedback be communicated?
- How frequently are features released?

The bottom line is: Don't hesitate to ask more questions. Software and technology companies should be comfortable getting into the specifics of their integration roadmap, development method and a realistic implementation timeline that includes the required lift on the contractor's end. 

Michel Richer is content marketing manager for Bridgit. For more information, visit bridgitsolutions.com.

How to Use AI in Construction—and How Not to Use It

BY ROHIT SINHA

Artificial intelligence—the building of an algorithm that can make decisions like a human brain does—is revolutionizing the construction industry. From technology innovations that reduce costs, delays and overruns to autonomous equipment that performs dangerous or difficult tasks for humans, AI helps construction companies operate better.

It has limitations, though, and the ineffective use of AI causes misperceptions to exist. Here's a look at how to get the most out of AI.

Developing AI

One of the common misconceptions about AI is that it can be built to immediately make decisions as effectively as a human does. However, humans are not capable of making decisions the instant they're born. As children (and their brains) grow, they learn from the experiences, situations and environments they are placed in. With AI, the process of teaching a system or algorithm how to make decisions based on correlations that it identifies after looking at hundreds

or thousands of examples is called machine learning.

As the algorithm sees increasingly more examples, it gets better at knowing what is or is not relevant to reach a conclusion, similar to how human brains develop. Humans learn over time, with their brains realizing that, given a certain set of actions and variables, a desired result will be achieved—and if those actions and variables are repeated, the same outcome should be attained. In machine learning, this is called supervised learning. In circumstances where the outcome may not be known, the brain can make an educated guess based on similar past experiences as to what some of the unknowns may be; this is called unsupervised learning.

Humans unknowingly learn from thousands of examples every day. A brain can make critical connections and understand that if it encounters similar circumstances again, it would know how to handle the situation and subsequent outcome. The human brain is an amazing organ, and it starts learning before a child is born and continues to learn until the individual dies.

Common Misconceptions

AI is often thought of as a magical black box that can solve any problem instantly. Theoretically, that may be the case. But, as it is with humans, baby steps must be taken along the way to achieve that result.

Leadership at most companies has complex problems in mind they would like to solve and believe the only way to solve these problems is to use AI. They start collecting vast amounts of data and data scientists without understanding how the data or people will be used. Yet throwing large amounts of people, money and data at a problem will not result in an effective solution. Just as children cannot solve complex problems until they learn the basics, AI has the same challenge. It must start with the basics and, as they are mastered, it can move on to the more complex problems at hand.

AI companies in construction often claim that they can immediately rid projects of all delays or overruns and ensure a project's success. However, frequently they have skipped the fundamental first step of cataloging their data and evaluating its validity. Since an AI system or algorithm relies on its




past experiences like a human does, if the data that is coming in is of low quality, the result will match.

Essentially, garbage in, garbage out. As construction projects experience delays and overruns, they become overly optimistic (compressed) and inaccurate, which in turn causes the AI predictions to

be overly optimistic and inaccurate. A company leveraging AI must first take a step back, look at all the data and establish milestones that will help determine what data is needed and what the expected outcome is. Once those parameters have been set, milestones can be tracked. Additionally, the AI solution or algorithm can be evaluated periodically and systematically so it's known early on whether AI will be the solution to the complex problem at hand.

Humans and AI

Undoubtedly, AI is here to stay and will continue to transform the construction industry. But before

trying to completely replace the human element, companies need to understand the data they have and utilize the real-world experiences of construction professionals to enhance and make sense of the data. Simply throwing a large volume of data at an algorithm will result in searching for a needle in a massive haystack, without even knowing what a needle looks like. To avoid such an ineffective and costly approach to AI, companies should take baby steps and build the AI system over time. 

Rohit Sinha is CTO of SmartPM Technologies. For more information, visit smartpmttech.com.



“Some people might like spreadsheets and integration headaches, but a **unified platform** is the way to go.”

KEITH BRUBACHER
BRUBACHER EXCAVATING

B2W
SOFTWARE

Break new ground, win more work and complete it more profitably with the unified ONE Platform for heavy construction estimating, operational workflows and business insight.

HEAR KEITH'S SUCCESS STORY AND MORE AT
B2WSOFTWARE.COM/KEITH

Integrated Tech Stacks Can Supercharge Growth for Construction

BY TOM STEMM

While the use of technology is certainly on the rise among construction businesses, the level of access that each employee has to such solutions is inconsistent at best and nonexistent at worst. According to research by Dropbox, 75% of construction businesses use some form of cloud-based document storage solution.

Despite this, paper still reigns supreme at many construction sites, with contractors preferring the tactile nature of paper forms over tablets or other software solutions. This ends up costing the business in lost forms, confusing processes and multiple versions of documents stored in different locations. To combat this, construction businesses can deploy integrated technology stacks, which can help ensure consistent access and usage across different business divisions.

What Are Integrated Technology Stacks?

Construction companies that wish to embark on a digital transformation journey can be bombarded by a barrage of software and hardware solutions vying for their business. Digital collaboration and mobility



solutions account for 60% of all investment in construction technology, according to McKinsey & Company. Business leaders must navigate a complex and saturated market to find the solution that works best for their organization.

The needs of each business department can vary greatly from one division to another, and software providers are providing increasingly targeted solutions for disparate use cases. Consequently, businesses often fall into the trap of signing up for multiple solutions that do not work with each other and consider that a technology stack.

It is estimated that approximately a quarter of construction businesses use applications that are not integrated with the rest of their business. To achieve

increased productivity and efficiency, an integrated solution should be implemented.

Why Integrated Tech Stacks Are Crucial for Any Growth-Oriented Construction Business

1. Integration Removes Inter-Departmental Barriers to Collaboration

Among contractors, subcontractors, suppliers and office staff, the construction business is inherently broken down into information silos. Before the digital revolution, communication among these stakeholders was limited to the sharing of essential files and forms via email or text. However, with integrated software, files that are required for compliance or administration can

Connecting & Building Your Business While You Build The World



Contractors work hard for their money and the work is tangible, something you can see and experience. It's impossible to hide the result!

When processes break down and contractors are losing time, money, and profit, as former contractors, we take exception to it. We seek to understand how we can improve the process to eliminate the waste and help our construction peers to connect their field operations and office teams in order to accomplish their goals with less strain and improved results.

PeerAssist has unveiled our new construction purchasing solution to help contractors to avoid the chaos of a process that is burdened by disconnected tools and decentralized communications that come in various forms.

Project teams become frustrated when they just need a simple thing - "material to be available onsite and ready for use when needed". When that process turns into chasing people, paper, texts, emails, and spreadsheets all flying down various paths, you know you have a breakdown in the process. The problem only gets compounded when you discover that you're paying too much for the materials that you're

acquiring, experiencing delays in getting the material you need in time, and always feeling the process is reactive vs. proactive.

PeerAssist allows construction firms to take back control of the process with a rapid, yet methodical and fully documented process that captures the material request in the field where the work is happening. Staff can select the material that is needed, have a log automatically populated, track the status from request to fulfillment, compare pricing from suppliers to ensure optimal pricing, and analyze the data to better understand how to improve.

Key Tangible Benefits:

- Avoid delays in purchasing process
- Capture with more accuracy
- Spend less time chasing people for answers
- Increase visibility and accountability
- Mitigate risk and cost overruns
- Fully maximize profit

Learn more about how PeerAssist can help your construction team, go to peerassist.com/ce21.



20 S. 3rd St., Suite 210
Columbus, OH 43215

peerassist.com

be maintained in a centralized space that is accessible to everyone who is working on a particular project.

Communication is also conducted on this integrated platform rather than separate text and email chains that provide limited contextual information. This makes it easier for individuals to provide feedback or contribute to ongoing discussions.

2. Improved Data Management Provides Better Insight for Decision-Making

Decision-making requires a significant amount of deliberation and research. However, a lack of

data can make this process little more than guesswork. Improved data collection and analysis using integrated technology stacks allows business leaders to gather operational and administrative information at a level that was not possible before digitalization.

To effectively employ decision analytics, managers need to be able to collect large amounts of data, extract actionable insight and present this information in a visual and easily understandable manner. Integration, when executed well, can combine data from different departments to give business leaders a holistic view of their entire

operation and ensure that each decision is informed by the latest available data.

3. Enable Higher Levels of Productivity and Efficiency With Standardized Processes

Construction companies often view projects as one-offs and unique. This creates the misconception that it is difficult to standardize processes across different projects. However, many individual tasks and compliance requirements are identical across most projects. Integrated software can help companies reduce the amount of time spent on repetitive tasks that

take up a significant chunk of an employee's day. With integrated productivity software, employees can recoup over five hours each week to spend on higher-value tasks rather than repetitive processes that can be automated or streamlined.


How Businesses Can Choose the Right Stacks for Specific Use Cases

Digital transformation in the construction industry will continue to grow. Construction companies must ensure their investments are suited to their unique business needs. As software offerings become increasingly

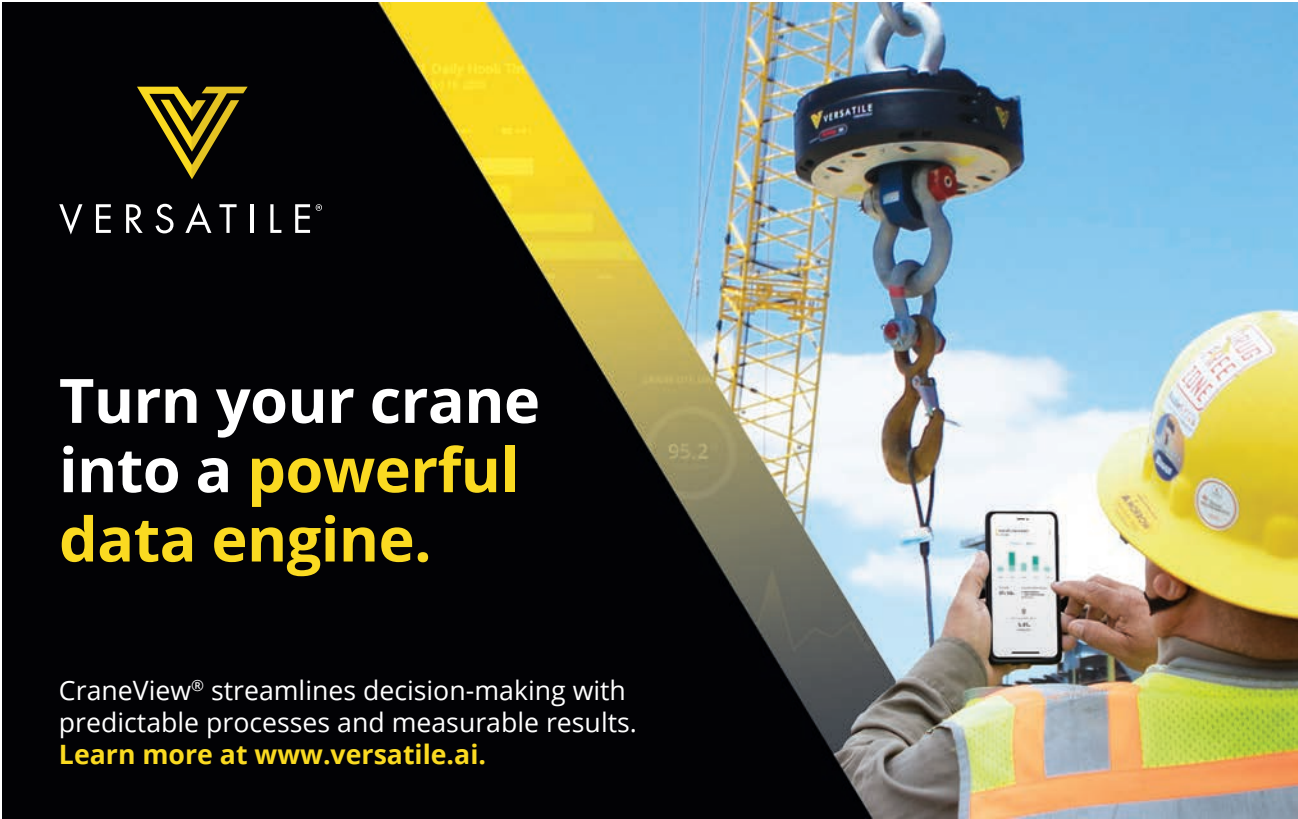
specialized and targeted, business leaders need to ensure that each component of their transformation adds value to their existing stack of solutions.

To ensure their tech stack consistently provides a high level of efficiency and effectiveness, business leaders should:

- Communicate with on-site, office and remote employees to gain insight into their specific needs;
- Ensure that each software or hardware inclusion is aligned with overall business objectives; and
- Minimize redundancy through regular evaluations of the technology stack.

Technology breaks barriers to communication, improves productivity and increases collaboration across business divisions. Integration allows these benefits to exist throughout the business rather than in individual departments that embrace these solutions. Construction companies can choose from a practically endless list of software solutions, and integration is the key to unlocking the true potential of these applications. 

Tom Stemm is the CEO and founder of Ryvit. For more information, visit ryvit.com.



VERSATILE®

Turn your crane into a powerful data engine.

CraneView® streamlines decision-making with predictable processes and measurable results.
Learn more at www.versatile.ai.



ARCORO

Leading End-to-End Construction HR Solution Provider

Delivering the best employee experience in the field and the office to over 8500 construction companies.

- Hire**
Streamline hiring & onboarding with tools accessible from anywhere
- Manage**
Automate HR & workforce management
- Grow**
Engage, develop and retain employees with learning & performance tools

Integrated with top tech:
PROCORE sage Acumatica VIEWPOINT
FOUNDATION software LABORCHART CLICKSAFETY

Scan or visit:
arcoro.com/cetech21



Wearables: Driving Jobsite Productivity and Profitability

BY BOB DOLAN

Productivity issues plague the construction industry's bottom line at a cost of billions of dollars each year, according to a 2020 study published in *Construction Engineering and Management*. Where labor can account for a significant percentage of project costs, and with much of the industry shifting toward the delivery method of integrated project delivery, significant effort will be focused on maximizing workforce productivity. Simply improving the efficiency of on-site labor during the execution phase can decrease the risk of

cost overruns and reduce delays, producing significant savings.

Fortunately, the industry can combat workforce inefficiency through innovative technologies, such as "internet of things" sensors, which help improve the communication, workflow, safety and overall productivity of the jobsite. Contractors are increasingly connecting these devices between workers and to equipment and key areas of the jobsite, generating critical information on how labor and resources are being utilized and how they are interacting with the environment. This enables

them to increase productivity and shorten project timeframes, which ultimately help improve the bottom line.

Innovative contractors are doing just that using wearables and other sensors to improve productivity.

Identifying and Eliminating Workflow Bottlenecks

Workers spend an enormous amount of time waiting around on jobsites—for supplies, tools, information and other subcontractors to complete tasks ahead of them. According to the U.S. Bureau of Labor Statistics, the U.S.

construction industry employs nearly 7.5 million workers at an average industry salary of \$32.16 per hour. Based on a 40-hour work week, that means each minute of each day accounts for more than \$1 billion of production value to the industry per year.

The attendance and worker location data collected by IoT wearables can help managers better understand workflow and determine if they have the right tradespeople in the right areas to complete the task on time. A single delay often triggers ripple effects across the entire project. For example, an understaffed HVAC crew could prevent a team of bricklayers from closing

off a wall encasing the duct work on time, slowing progress on each ensuing step. Connected worker solutions give project managers the insight to identify shortages of skilled labor in specific zones and distribute workforce accordingly.

As an example, one construction firm noticed there was a bottleneck around the hoist. It collected data from worker wearables and a sensor on the hoist to gain insight into the problem and figure out whether a second hoist was needed. The contractor was able to track how long workers waited for a hoist, and not only determined that it needed a second one, but also that it would be more efficient to dedicate one

hoist for heavy equipment and the other for workers.

Locating Equipment and Optimizing Utilization

Often multiple crews share equipment on large jobsites. Time spent tracking down a tool is a suboptimal use of skilled labor, and by using sensors to track equipment in real time, site supervisors can quickly and easily locate the equipment that is needed. Additionally, by tracking how often—and how far—workers have to go to get equipment, project managers can determine where to best place these tools to avoid wasted time and to maximize efficiency.





GET YOUR OPERATIONS AND ACCOUNTING IN ORDER!

Jonas provides **BUSINESS LEADERS** with **REAL-TIME METRICS** so they can **MAKE BETTER BUSINESS DECISIONS & MAXIMIZE PROFIT!**

Learn how at
jonasconstruction.com

“IoT wearables can help managers better understand workflow and determine if they have the right tradespeople in the right areas to complete the task on time.

Many jobsites require significant investment into rental equipment. Contractors can also determine how much time equipment and tools are actually being used, which is particularly useful to identify additional equipment needs for rental or purchase, or

conversely identify unnecessary or unused equipment.

Identifying and Addressing Safety Issues

It's impossible to overstate how crucial worker health and safety is and its impact on human lives.

In addition to those overarching concerns, safety and health issues also contribute directly to lost time, potential delays and worker compensation claims, which are among the highest of any industry, according to the Bureau of Labor Statistics.

Forward-thinking contractors are using wearables and other sensors to reduce safety incidents and exposure to health risks. Wearables provide real-time alerts to workers as they approach hazardous or restricted areas that have beacon-based sensors. Additionally, these connected jobsites allow workers to identify and report

safety issues in real time and enable managers to activate evacuations and other worker safety alerts.


Site supervisors also use the sensor data to keep workers safe. For example, by tracking the amount of time employees spend in hazardous areas, site supervisors can limit their exposure. Additionally, in the event someone tests positive for COVID-19, supervisors can use the sensor data tracking close interactions to quickly and accurately identify the specific individuals who may have been exposed, and avoid complete operational shutdowns, associated costs and delays.

Improving Cost Assessment for Future Bids

By analyzing the data on how long subcontractors spent in certain areas to complete tasks and how many workers were needed to accomplish specific tasks, contractors have a historical record that they could use to more accurately bid other jobs.

Using data that is automatically collected from wearables and other sensors not only enables contractors to gain insights into workforce productivity and equipment usage, but also to understand the interaction among workers,

the equipment and the jobsite environment. Armed with this information, they can identify inefficiencies and bottlenecks that they can fix, and respond with data-driven decisions, such as shifting on-site labor and tools to other zones or projects where they can be more productive.

This real-time knowledge on a jobsite, with so many moving parts, enables contractors to work smarter, streamline the workflow and positively impact the bottom line. 

Bob Dolan is vice president of construction for Triax Technologies. For more information, visit triax.com.



Focus on the creative,
not the administrative.





Learn More
newforma.com

PRODUCTIVITY
IS EVERYTHING.
CAPTURE IT. TRACK IT. CONTROL IT.

FROM CONSTRUCTION, FOR CONSTRUCTION

Built by construction veterans, StructionSite offers an easy-to-use 360-degree photo tool solution for documenting the jobsite process and beyond.

Our custom AI-powered vision engine automatically organizes your photos and videos by location, time, and date, giving you the context needed to spend your time moving critical work forward instead of photo hunting.

Keep a pulse on your project's progress with accurate data, and give your team the ability to save time, stay on schedule, and protect profits.



STRUCTIONSITE
StructionSite.com