



The Connected Job Site

5 Construction Technologies Reshaping the Future

Explore this eBook



Introduction: The Future is Now — Digitizing the Job Site



Technology is transforming construction sites as builders adapt to an increasingly data-driven economy. You've probably been using emerging technology in other areas of your life for years. Virtual reality, robots, and digital assistants are already commonplace for consumers. There may even have a Roomba zipping around your living room as you read this.

The rise of mobile devices, cloud computing, and big data has opened up a new frontier for the construction industry. Today, the digitization of the job site is well underway. In fact, one of the most promising technologies hit the construction site may be flying over your head right now. You guessed it: drones. Drones are one of the must-have tech tools for monitoring projects of all sizes. With the costs of drone hardware bottoming in the last few years, and the advent of easy-to-implement software, many companies see ROI the moment your digital bird completes its first flight.

But Drones are just one of the new technologies site managers, superintendents, and BIM coordinators now use to improve workflows, eliminate friction, and improve communications. Technology is helping transform workforce silos by facilitating better collaboration and efficiency between contractors and their customers. It also enables teams to move faster, work smarter, and keep clients in the loop every step of the way.

While the industry was slow to embrace new technology, contractors are now rapidly integrating everything from smartphones and tablets to virtual reality and AI into their daily workflows. If you're on the job site every day, you know how technology can help builders connect, collaborate, and make smarter decisions — faster, more efficiently and, yes, more cost-effectively.

In this eBook, we'll explore five of the top construction technologies taking the job site into the future:

- Smartphones & Tablets
- Cloud Computing
- Drones
- Artificial Intelligence (AI)
- Virtual Reality/Augmented Reality (VR/AR)

Let's get started.

01 Chapter 1: The Evolution of Construction Technology



As Charles Darwin famously observed, “It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change.”

Evolutionary pressure has helped fuel the implementation of new technology solutions on the job site. While the construction industry has been slow to change, today’s contractors are under pressure to address chronic problems, such as finishing jobs late and over-budget. The economic imperative to change has finally reached the tipping point. What’s more, the benefits of embracing new technology are clear. They include increased safety, lower costs, and, ultimately, more efficiency. It’s high time to say goodbye to paper and turn to the latest devices and software.

If you want proof the job site is evolving, look no farther than the sky. Drones are indicative of how the construction industry is changing. [A new era of automation is here](#), and drone technology underscores the importance of being able to quickly and efficiently capture and analyze large amounts of data. This data can help you communicate in real time, catch conflicts early, and even manage your subcontractors. But what do you do with all the data?

With more information to analyze, it might seem like a burden. Don’t worry, it doesn’t have to be. With software tools and a little help from artificial intelligence (AI) and cloud computing, analysis is quickly becoming automated—making it easier to manage data anywhere, on any mobile device.

In particular, the machine learning component of AI is facilitating our ability to process large data sets in real time. This means you’ll soon be able to make more informed decisions about everything from tracking your site to as-built design plans, to whether equipment is being operated safely.

If this sounds too good to be true, keep reading. We’ll break down exactly how the top five technologies have made all this possible. And in many cases already do this today for contractors around the country.

Chapter 2: Your Technology Toolbelt

There is a whole host of integrated tech solutions used on construction sites today. For example, your mobile device can be used to fly your drone, communicate with key stakeholders, access drawings in the cloud, and even analyze and measure the impact of your decisions.

As you no doubt have figured out, we think drone technology is mandatory in the modern construction company's equipment arsenal. But, drones are just one of five important technologies that we think you can't live without:



Smartphones and Tablets

These devices made the top of our list. Why? Look around next time you're on a job site. Everyone is using a smartphone or tablet to enhance their productivity. Whether it's personal or business, builders love smart devices. Architects check their designs. Engineers review material requirements. Crew leaders monitor when that load of material is due on site. Site managers watch the weather, review costs, assess progress, and a few hundred other tasks. And, oh yeah, drone operators use mobile devices to fly unmanned aerial vehicles (UAVs) over the site.

And construction software providers have taken notice. Project management tools like Procore, PlanGrid, and Fieldwire have emerged to meet demand as teams ditch paper and rely more on apps to tackle issues on site. You can do just about anything from your smartphone or tablet these days. So if your team hasn't transitioned yet, it's probably time to make the switch. Investing in a fleet of mobile devices will more than pay for the hardware over time by way of increased productivity.



2

Cloud Computing

“The cloud” is a term you hear a lot these days. And for good reason. Having access to files, photos, drawings, and plans on your mobile device wouldn’t be possible without a cloud-based infrastructure. This includes productivity apps that share and collect information as well as online cloud storage solutions, such as Dropbox, that make it easy for key stakeholders to share information about a project.

The world is quickly moving away from on-premises data solutions (think of those large database computers in the tech closet) and transitioning to the cloud. Why? Because we live in a day and age where we interact, communicate, and share more than ever—and the job site is no exception. Why deal with uploading files on a USB drive, or experience gaps in communication with stakeholders if you don’t have to? That sounds like a recipe for finishing projects late and catching mistakes after they have added to your budget. The real-time, connected nature of the cloud helps facilitate all the technology in this eBook. If you have shied away from using cloud-based tools in the past, it is time to reconsider.



Drones

3

Coming in at number three on our list is drones, but feel free to move them to the top if you prefer. We think they are the most powerful tools to hit the job site in decades. Over the past six years, drones have gone from experimental to essential for tasks such as monitoring site progress, generating accurate contour maps, and measuring stockpiles. In fact, our customers tell us drones have saved them thousands of dollars by unlocking big savings on surveys, catching grading errors before machinery has left the site, and even salvaged subcontractor relations.

Really, drones are just taking off (see what we did there?). The true potential of these flying robots has just started to make itself known. And they aren't just padding our wallets—they are also [making the job site safer](#) by eliminating the need to inspect dangerous areas such as roofs, or climb scaffolding to check a building envelope. Today's drones pack a punch and are here to stay. Don't believe us? Head over to our [blog](#) and listen to what our customers have to say. We bet you'll change your mind.



Artificial Intelligence

4

AI isn't just a buzzword. It's making big strides to help humans automate everything from the mundane to the marvelous. So much so that we expect it to jump to number one on this list in the near future. Count on it. [The future of decision-making](#) in the construction industry is in real time, and AI is making that happen. True AI-assisted solutions will automate workflows and provide massive amounts of data to help get jobs done faster, safer, and cheaper.

Picture this: you get to work on Monday and a drone-generated job site report is waiting for you on your iPad. While you were at home eating breakfast, your drone completed an automated site safety check, gathered data on your project's progress, and assessed the work you need to do to stay on track, and emailed it to your project manager and site superintendent. Sound too good to be true? It's not. Welcome to the [job site of the future](#), brought to you by automation and powered by AI.



5

Virtual Reality and Augmented Reality (VR/AR)

Virtual reality is the next big thing on the horizon for design, planning and managing job site safety—so get your VR safety goggles ready to go. In fact, detailed data from drones already facilitate [virtual walk-throughs](#) of job sites. And AR combined with BIM data makes it easier than ever to [provide context to your design plans](#).

Now, inspectors can do 360-degree inspections from virtually anywhere. VR provides a detailed review of potentially dangerous site conditions and makes it easy to focus on areas of concern. But VR isn't just an inspection tool. You'll be able to use this technology to conduct safety training for workers or to walk clients through construction work in progress.

Just ask Russel Byrd, a VDC coordinator at Brasfield & Gorrie, an Alabama-based General Contractor.

“Virtual reality provides us with the ability to seamlessly integrate new technologies with various construction operations, improve job site safety, and increase the information available to key stakeholders,” says Russel.

Recently, their virtual design and construction team gave hospital staff a virtual tour of a facility only weeks after construction started. This allowed staff to fully experience the space to a high degree of detail, ultimately resulting in greater feedback on issues such as location of medical gas outlets and equipment placement. Early input allowed Brasfield & Gorrie to make necessary changes that will ultimately create a better, and also safer, workplace.

We're just beginning to see what's possible with VR and AR. Keep your eye on this area of technology, because we expect more to come as adoption continues in the construction industry.

03 Get To Work on Your Digital Roadmap



You may already be using some of the latest and greatest technology available. But, as you know, technology changes faster than a hot knife slices through butter. That means it's probably time to update your technology roadmap. For larger companies, identifying and implementing new technology can't be done overnight. You need to start with a strategic roadmap and a timeline for adoption.

A good starting point for your roadmap are the top five construction technologies we already mentioned: Smart devices, cloud computing, drones, AI, and VR/AR. Plus, good news, there is a ton of software that can help you build a customized roadmap faster than you can say, "Alexa, give me a list of the most popular technology roadmap apps."

Just remember, a technology roadmap is a flexible planning tool that will support your strategic and long-range planning, and help you reach your goals with specific technology solutions. If you have hesitation, we recommend starting small with individual proof of concepts by using technology on a single project. This can give your team a good idea of how useful it is, and help prove value and ROI for the company without requiring significant investment.

We might be biased, but drone technology needs to be part of your roadmap in 2019 if it isn't already. The construction industry is now the leading commercial application for drone technology, and it's being used every day by project managers, technology managers, and job superintendents. It's also a great stepping stone—with immediate ROI—that can help integrate the others.

As you may have read in one of our recent [blog posts](#), "Drones do more than improve communication and help keep projects on track. They also increase safety, save time and resources, fast-track surveying, and deliver accurate measurements."

04

Putting Technology to Work



From drones to mobile apps, technology is making construction sites safer and more efficient. Our friends over at [ConstructionDive](#) have pointed out that many construction firms are putting technology to work by gradually implementing new solutions. Those insights came from McKinsey & Co. report that discusses how technology is impacting the construction sector.

“There’s a sense that the industry is on the verge of disruption, and industry players are actively working on new approaches,” notes the McKinsey report. “How organizations are preparing to deal with the disruption varies greatly – though most recognize that failure to adapt could result in being left behind.”

Putting technology to work ranges from incremental approaches to transformational overhauls. Some construction companies, according to McKinsey, are even radically restructuring their value chains or establish manufacturing-like systems of mass production.

Whatever path you take, the bottom line is you better be thinking strategically about technology.

"The pressure to act is rising," according to McKinsey. "Demand is soaring. The scale of players and projects is increasing, making a more productive system more viable. The price of productivity-enhancing technology is falling, making it more accessible. There is increasing transparency in the market, and disruptive entrants are bringing a new wave of competition and increasing the urgency of digitization."

Construction companies that want to be competitive in today's marketplace need to be using technology for everything from real-time site monitoring to mission-critical decision-making. That means you need to be thinking about how technology factors into your business ecosystem. Remember, it's all about survival of the fittest. Now is the time to make sure your company is among the fittest in the industry.



05 Conclusion

Want to learn how DroneDeploy can help your business? Visit www.dronedeploy.com to [start your free trial](#) or [request a consultation](#) with one of our team members.

The DroneDeploy mobile application is also available for free download on both iOS and Android devices.

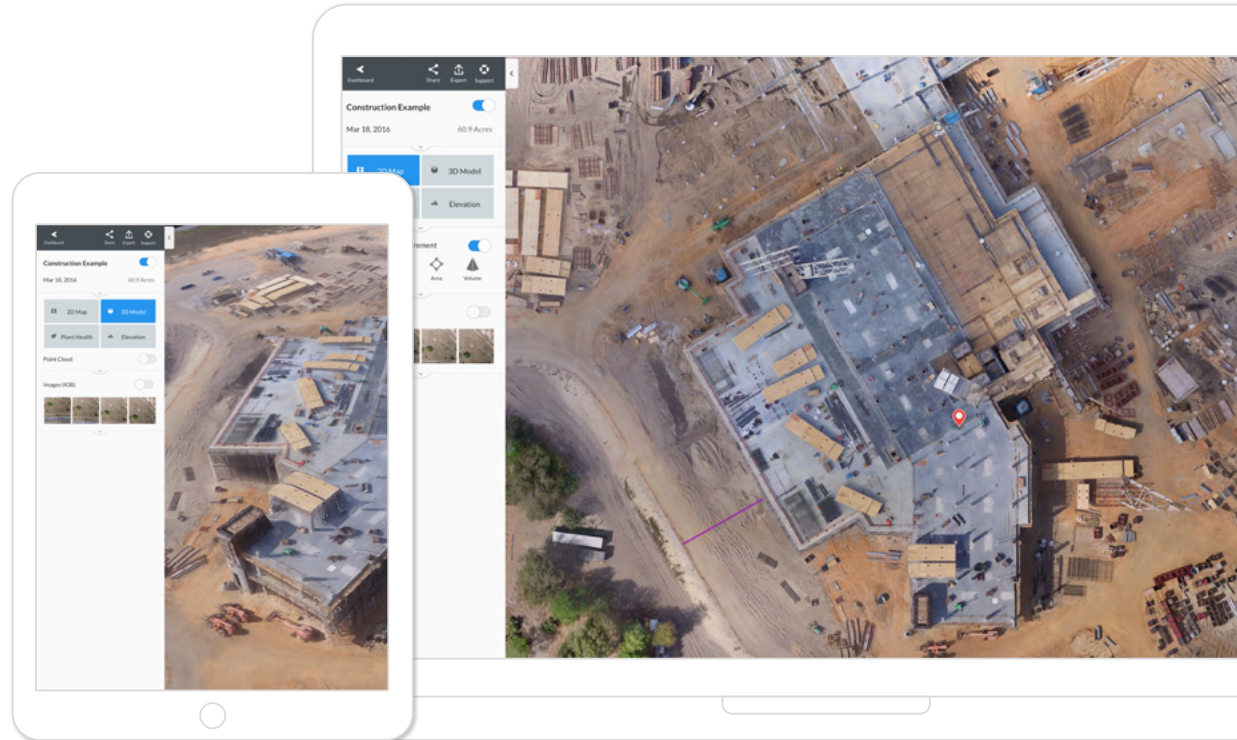
Where to Learn More

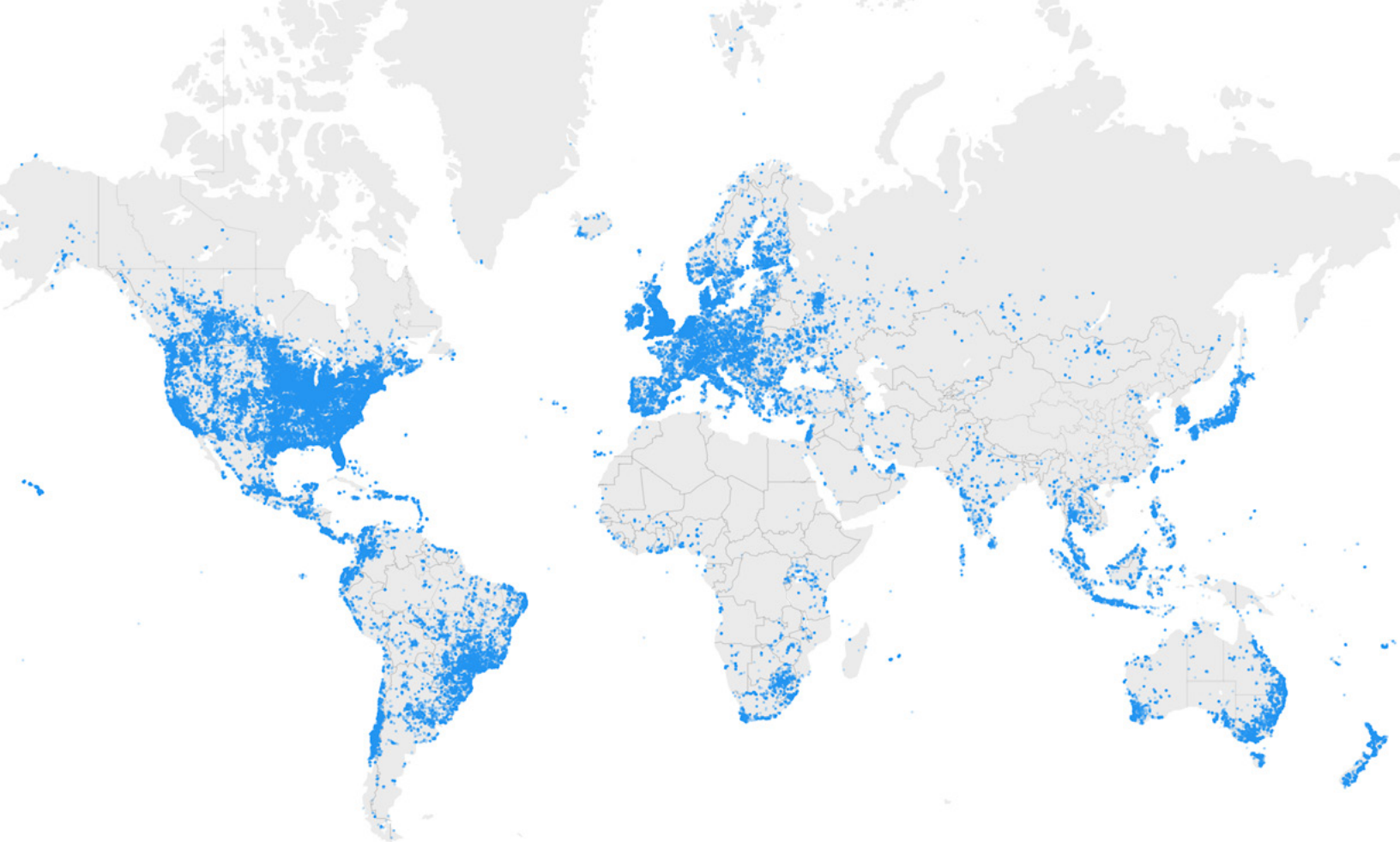
Interested in learning more about how drones can improve safety and efficiency on construction sites? Tune into our ongoing construction webinar series:

- [Improving Commercial Inspections and Job Site Safety with Drones](#)
- [Getting the Green Light for Your In-House Drone Program](#)
- [Managing Construction Projects with Drone Data](#)
- [Tracking and Communicating Site Progress with Drones](#)

Get more insights into how you can boost job site safety in our [new eBook](#)

Ready to bring drones to your job site? Read our [guide to starting a drone program](#).





Areas Mapped with DroneDeploy

7 Continents

180 Countries

30 Million Acres

About DroneDeploy

DroneDeploy is the leading cloud software platform for commercial drones, and is making the power of aerial data accessible and productive for everyone.

Trusted by leading brands globally, DroneDeploy is transforming the way businesses leverage drones and aerial data across industries, including agriculture, construction, mining, inspection and surveying. Simple by design, DroneDeploy enables professional-grade imagery and analysis, 3D modeling and more from any drone on any device.

DroneDeploy is located in the heart of San Francisco.

To learn more visit us online and join the conversation on Twitter.



 www.dronedeploy.com

 [@DroneDeploy](https://twitter.com/DroneDeploy)



Copyright 2018 DroneDeploy