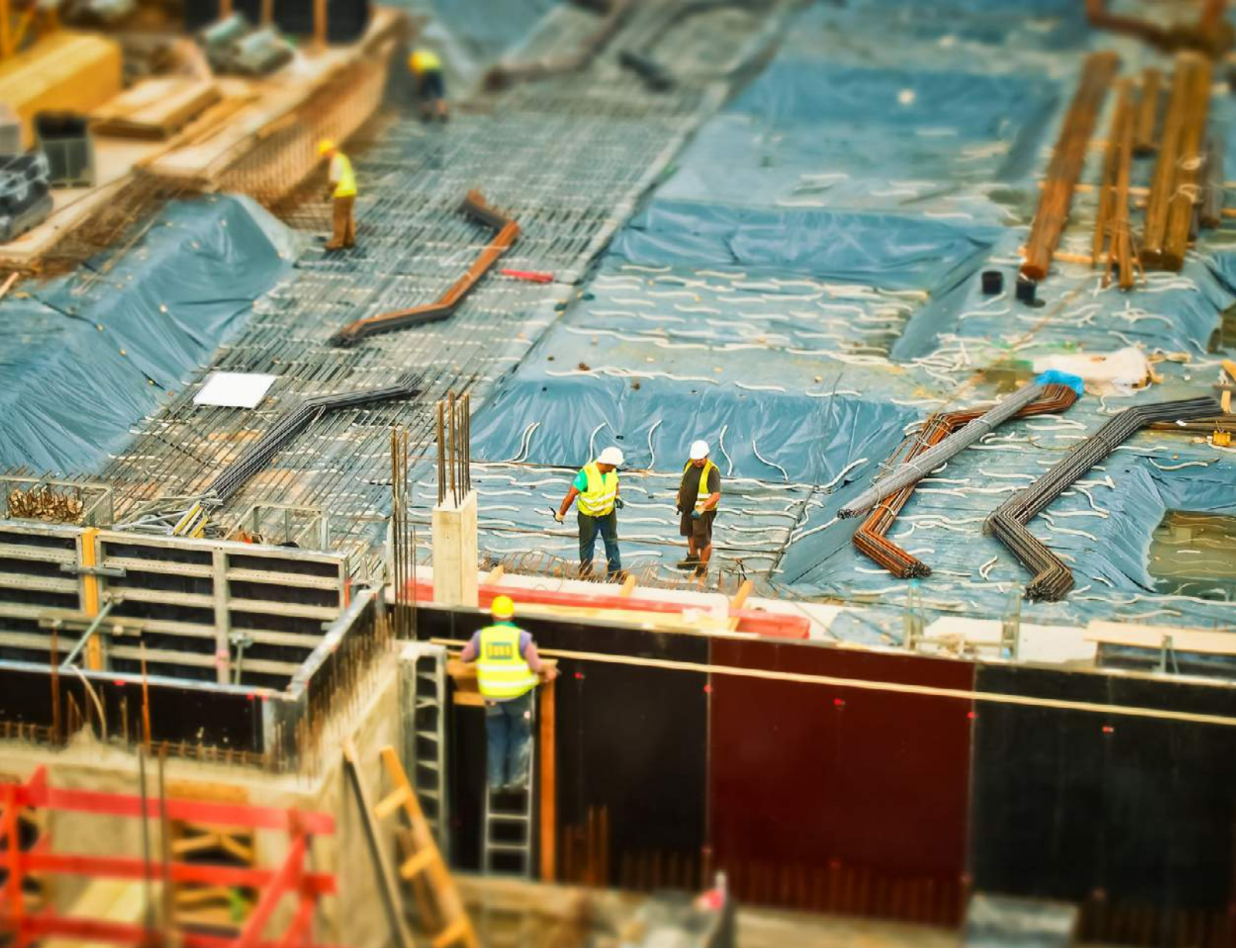

How are Construction Professionals Using Drones in 2017?

By Jeremiah Karpowicz


Photo coutesy of Identified Technologies

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MANY CONSTRUCTION PROFESSIONALS realize that UAVs can do beneficial things like enable better visualizations and more effective collaboration. These tools can gather much more information in a much shorter amount of time, all while keeping people out of dangerous situations. That means something when the alternative is to send a person up and into a structure that has not been fully built.

Despite that recognition, budgets on construction projects of all types have very little leeway, and introducing new tools and technology can represent an unknown or significant cost, which means the return on investment (ROI) for that kind of expense needs to be quantified. Unfortunately, it's hard to put an ROI on a system that isn't already in place. Many professionals have been approaching issues like change detection in a certain way for a long while now, so why do they need to use a drone if what they've been doing has been working well enough?

Putting a dollar value on efficiency can be difficult, but the potential savings and value are there for anyone who takes more than a cursory glance at the details. Aerials that can be gathered and used for project planning provide those planners with information that allows them to put something together which likely will not require as much change or revision once the project gets moving. The information gathered by a drone is something various departments can effectively collaborate on because various stakeholders want and need the information UAVs can easily collect. These kinds of benefits are separate from any uses that impact safety, where the advantages are already obvious.

Exactly how a project or organization quantifies ROI is something stakeholders on a project or within an organization need to work through, but until very recently, the regulatory environment in the United States gave many a reason or perhaps even an excuse to avoid doing so. Recently though, the FAA has opened up the sky with new regulation, which means construction professionals now have every reason to sort through how these tools can make an impact on their current projects and open up opportunities for even greater efficiency on future ones.

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Adoption and Integration Under Part 107

PART 107 HAS CREATED set guidelines around what it means to operate a drone for commercial purposes, and also lowered the barrier to entry around doing so which existed under Section 333 Exemptions. Under Part 107, once the decision has been made to move forward with the technology, implementation can happen significantly faster. However, the decision to actually move forward with the technology is one that many still struggle with.

It's something Ian Smith has seen as the manager of Platform Integrations & Partnerships at DroneDeploy as well as the host of the Commercial Drones FM podcast. In both roles he's been able to connect with construction professionals to specifically talk and work through the issues they're encountering with drone adoption, many of which have changed since Part 107 went into effect.

"We're still in the infancy of the commercial drone market,"said Ian Smith."Part 107 has enabled nearly any construction employee to commercially operate drones, but we have not yet reached the elbow of the adoption curve which will compel that many more people to fully explore and leverage the technology. Integration and consolidation of data sources will further shed light on the value of drone data and within a few years, not having a drone on a construction site will seem perplexing."

The adoption curve is an issue of significant importance, and it's clear that various individuals and organizations are at different places on that curve. Regulation has played a big role in that process, but it's also impacted the specific approach that can be taken in terms of utilizing a service provider or building a drone program.

Brian Smith (no relation to Ian) is the Director of Technology at IMCO General Construction, and he's one of the professionals that has not allowed regulation or anything else to get in the way of his efforts to utilize UAV technology. Doing so has given him key insight around why and how these challenges arise.

"A lot of the bigger companies didn't want to go through the process of getting a Section 333 because they didn't want to be legally liable, so they sub-contracted it out," Brian Smith mentioned. "The problem is that many didn't realize it's not flying the UAV that's the true value, and that's all some of these contractors can do. Is that sub-contractor just looking for glamour

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shots? What is that construction company specifically going to do with this info? All of that goes back into making a drone into a more useful tool."

Under Part 107, construction companies have more reason that ever to determine how, where and when they want to utilize drone technology, but as Brian Smith mentioned, the drone itself is not the essential consideration in that process. Of far more importance is what data the drone is gathering, and what's going to be done with all of it.

Data Challenges

DRONES ARE JUST PART of the technology renaissance that the construction industry is experiencing. New software and hardware are being developed which are set to revolutionize the approach that can be taken on various types of projects. Amidst all of these changes, the principles that have guided the industry remain in place.

One of those principles is associated with the importance of the schedule, as accurately forecasting construction jobs is absolutely critical. It can mean the difference between being under or over your budget, and drones have proven what kind of an impact they can have in this regard. However, that can only happen when the data they collect is turned into something useful.

The transition between data and an answer that means something on a given project is something that Dick Zhang has seen professionals encounter in numerous ways. As the founder and CEO at Identified Technologies, he's seen construction and industry professionals capture massive amounts of data, but then struggle because they don't know what to do with all of it.

"We don't care about data, we care about answers," said Zhang. "Those answers impact what has or will come together on a schedule or with what we've planned out on the project. Those answers can specifically tell us how things are going, and it's info we need because we don't care when things go the same and according to plan.

Challenges when it comes to transitioning data into useful information is nothing new, and it's not even something that only impacts the construction industry. This transition is about more than drones, because it's a process that needs to effectively utilize other tools as well as

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consider the needs of a given project.

"The biggest challenge right now is integration of all of the drone data," said Ian Smith. "The data needs to seamlessly sync with the tools that construction companies already use—the software for managing projects, the hardware on the job site and in the office, and also fitting in with the harsh environments that exist at construction sites. Construction companies must remain aware of what the future holds and plan out how future adoption of software suites can affect the integration of their data."

These issues all come down to questions that stakeholders are or are not asking before a drone should even be part of the conversation, much less getting it off the ground. Being able to ask and answer the right questions can mean the difference between creating value with tools like UAVs and incurring an expense that never delivers any kind of return.

"A lot of people still aren't able to ask the right questions going into a project," Brain Smith mentioned. "What are they actually looking for? What do they actually want? How are they going to utilize that data? Many don't factor in the proper amount of time it takes to clean that data, which means they can't recognize the value of the rich data set a drone can easily gather. It means they're not getting the maximum potential out of the UAV."

Enabling and Creating Efficiencies

ONE OF THE REASONS there's been so much hype associated with drone technology is because of the sheer fun and joy associated with taking a UAV into the sky. In some cases, that sensation was enough to get professionals interested, but in order to maintain and build on that interest, drones need to have a real impact on the issues that all construction professionals deal with in one way or another.

"There are really two things that matter for a construction business," Zhang explained. "One is to win new business, and the other is to efficiently and productively manage the business you win to maximize the margin you're able to make on a project. We've spent a lot of time working with our customers to help put them in more competitive bids on account of the efficiencies we're able to create for them. That can have a major impact on both winning a bid and effectively managing it."

Drone technology is enabling and creating efficiencies today, and those efficiencies can be found regardless of where the initial interest came from. How that process unfolds for users is important to consider, as UAVs are just part of the technology that will revolutionize the industry. Drones can serve as an important introduction to tools that will create even more opportunities.

"I'm bullish on augmented reality (AR) wearables in construction," Ian Smith said. "Companies like Epson with the Moverio smart glasses and RealWear's HMT-1 wearables are going to enable incredible gains in efficiency when combined with drone data. Once the superintendent and other workers are fully connected with these wearables, filing RFIs from the field, making voice notes, capturing imagery, and even digitally overlaying the latest volumetric calculations from the morning's drone flight onto the physical world will truly take construction to the next level. Drones will be a critical component of sourcing that data but software APIs and AR wearables will be key for implementation."

Drones are already beginning to play a large role in the creation of an Internet of Things (IoT) infrastructure, and tools like the ones Ian Smith mentioned will further define efficiencies and opportunities for construction professionals. Where and how these tools are adopted and integrated is something that needs to be an active consideration for construction organizations of all types and sizes.

About the Author:

Jeremiah Karpowicz is the Executive Editor for Commercial UAV News. He has created articles, videos, newsletters, ebooks and plenty more for various communities as a contributor and editor. He is also the author of a number of industry specific reports that feature exclusive insights and information around how drones are being used in various markets. You can read all of those reports ***here****.*

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About Commercial UAV Expo

Commercial UAV Expo is a conference and exhibition exclusively focused on the commercial drone market. Launched to great success in the US in 2015, the organizers are bringing their winning formula to Brussels with a European-centric event.

In the conference program, UAV industry experts share key insights into the issues large enterprise asset owners face when implementing UAS, including systems selection and integration; developing enterprise workflows, guidelines and policies; data management and integration; and legal, safety and regulatory considerations. Plenary sessions and panels cover topics of interest to all end-users regardless of industry while breakout sessions focus on UAV technology, applications and opportunities in the vertical markets listed above.

The international Exhibition includes airframe manufacturers, component suppliers, software suppliers and service companies.

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