



How Are Process, Power & Utility Professionals Using Drones in 2017?

By Jeremiah Karpowicz

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PROCESS, POWER AND UTILITY professionals that are focused on inspection tools for assets like pipelines, cell towers and transmission lines view drone technology in a very different light than professionals in most other industries. For most professionals who are looking to adopt drones for commercial purposes, regulation is the top priority, which is why many viewed Part 107 as a watershed moment for the industry as a whole. However, many professionals that are working in industries like oil & gas as well as renewable energy see regulation in a very different way.

Logistics and scalability are of far greater concern for organizations in this industry because of the massive infrastructures they're tasked to inspect and maintain. These organizations are concerned with figuring out the best way to monitor and repair thousands of miles of infrastructure, which means the efficiencies that drones can create need to be able to apply to more than a single project. They need to scale across an entire ecosystem, and that challenge is typically much greater than sorting through regulatory issues.

That position is something that Linda Rhodes, a key member of Commonwealth Edison's (ComEd) Operational Strategy and Business Intelligence Department, was able to confirm. She has been researching robotic technologies for application to improve safety and increase reliability, and as such she's been intimately involved in the company's efforts and challenges around how to best leverage drone technology.

"With the exception of some of the more restrictive regulatory requirements, I do not believe regulations were a barrier to widespread adoption," said Rhodes. "For most of us, the largest barrier was our learning curve. We needed to first understand and comply with regulations and our safety and other protocols; we had to increase our collective UAS IQs related to the platforms themselves, the use cases and the value proposition. We had (and still have) grand ideas, but we simply were not ready for widespread adoption."

How Part 107 will impact widespread adoption in this industry is an open question, and some have even seen the new rule create issues. With a lower barrier to entry, some organizations

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have reconsidered what it will mean for them to create an internal drone program versus using service providers. There is no single answer around adoption, since organizations need to establish where and how the technology can work best for them. A number of factors will need to be considered in their efforts to do so in 2017 and beyond.

Establishing the Value

FOR MOST PROFESSIONALS, figuring out exactly how using a drone can and will impact the bottom line is imperative. When and where drones are going to create a positive return on investment (ROI) are questions that many stakeholders want to know as soon as possible, but for utility companies that don't compete, questions around value often need to be approached in a different way. That's not to say ROI is a non-issue, and being able to establish the value around the kind of efficiencies drones can create is critical.

Eric Hare is the Chief Operating Officer at Talon Aerolytics, a company that utilizes UAVs to capture high-resolution imaging data for the cellular, industrial, commercial, and agriculture industries. He's connected with stakeholders in various organizations to discuss these questions around value, and much of it comes back to how these companies can and want to approach the technology.

“It was hard for many of these organizations to see the true value that UAVs can bring because we had a lot of people conducting demonstrations while failing to talk about the effects on ROI,” said Hare. “Most utilities are stuck on beyond visual line of sight (BVLOS) as the answer. I still think the majority of inspections will require visual line of sight (VLOS) to get effective and actionable data. We also know that properly trained UAS teams will get way more actionable data than current methods. The true value is a team that is a hybrid.”

This hybrid model speaks to the need to establish clear directives in terms of how drone technology can and should be leveraged by an organization. What works for some might not work for others, and logistics like whether or not drones are actually being used by an internal team or service providers is just a part of that conversation. Bigger questions around exactly how ROI is and will be looked at in relation to what drones are doing for the organization



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“If something under the FAA’s blanket commercial drone regulation goes wrong everyone is going to look to them for answers. That’s why I think it’s incumbent on industry to generate a body of data through testing and evaluation. You’ve got to prove with a certain degree of confidence that these technologies and operations are legitimate, reliable, dependable.”

need to be answered at the beginning of the process.

“Utility companies are experts at developing effective ROIs,” Rhodes continued. “The approach to ROIs specific to UAS use varies depending upon each utility’s UAS mission and strategy and how that aligns with their overall missions and strategies. As with any other new tool and/or approach to conducting work, the ROIs include comparing UAS vs no-UAS data points for key use cases and quantifying the financial and non-financial benefits.”

Few professionals in this industry or any other will claim that they’ve mastered this process, which speaks to the challenges that relate to a focus some might have on BVLOS operation or inaccurate comparisons of the sort Rhodes hinted at. Nonetheless, utility companies of all different types and sizes have been able to create and establish the value drones can generate, even when doing so is an involved process.

The Real Opportunity for Drone Technology?

WHILE REGULATION MIGHT NOT be the primary concern for many professionals in this space, that’s mostly a result of the fact that things like BVLOS operations, night-time flying and operating over non-participants were never set to be included in Part 107. The thousands of miles of infrastructure that some utility organizations are dealing with has many of them looking even further down the road with regulation. Getting there is going to be a process, which is something Sean Murphy, Sr. Engineer - Emerging Devices & Technologies at T-Mobile, realizes and understands.

“The FAA appears to be taking a measured approach to regulating UAS with the goal of maintaining utmost safety,” said Murphy. “We believe this is a reasonable approach because safety is critically important and with any airborne operation there is inherent risk. T-Mobile believes that cellular technologies can play a fundamental role in contributing to safe operations. To that end, we must generate a body of data through testing and evaluation to help inform the regulatory process. Our goal is to enable safe operations as this industry evolves and grows.”

More research needs to be conducted to further define the safety implications of things like BVLOS



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“For the most part, this isn’t going to be about replacing what you were doing with a helicopter with a drone. Take power lines for example. It’s not like we’re currently using helicopters to inspect towers. We’ve got a human climbing, and while drones won’t completely replace that activity, it will reduce the number of unnecessary climbs.”

operation and night-time flying, but the effects of that process are already being considered. Some have even claimed that these types of operation are where the true opportunities with UAV technology reside. However, the notion that efficiencies will only be created when BVLOS and night-time operations open up is one that has been challenged and disproven.

“The desire to operate BVLOS may cause companies to sit and wait for that change instead of acting now and developing a better inspection program operating within the current rules,” said Hare. “For example, if you want 100 miles inspected each day and you are paying a per structure or per mile price, I will put the number of teams required to do that work in the same time but at the same or lower cost with much better actionable data.”

Where, when and how operations like BVLOS and night-time flying will change is a separate issue from the increases to efficiency and safety that drones can create right now. Understanding how to effectively leverage drone technology is a process, and it’s one that can and should begin today so that future opportunities have something to build upon.

A Roadmap for Creating Strong UAS Programs

THE SPECIFICS OF HOW UAVs might be able to impact an organization vary depending on the specifics of what an organization is looking to do, but there are still some aspects of an approach that are borderline universal. There are an unlimited number of ways drone technology can be leveraged, but it’s important to establish the right expectations.

“For the most part, this isn’t going to be about replacing what you are doing in a helicopter with a drone,” said Murphy. “I think many drone applications are going to be about enhancing other services. Take tower inspection for example. There are humans climbing towers for any number of reasons, and while drones won’t completely replace that activity, they will reduce the number of climbs and remove unnecessary risk. Drones will be another tool in the toolbox, one that will provide greater efficiencies, reduced human exposure to harm, and reduced cost structure across a broad and diverse set of industries.”

The kind of difference that drones can create around safety cannot be overstated, since the risks professionals deal with in this industry are and continue to be very real. The implications



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go deeper than simply preventing someone from having to do a dangerous task though, as UAVs can be sent to places and areas that were previously impossible to inspect. Doing so will enable preventative measures that would have been impossible to instill otherwise.

The concept of sending drones to areas and locations in place of a human has some concerned around what that means for the people involved in these procedures, but the tasks and responsibilities in this industry aren’t going to go away. They will evolve and change with the technology, which highlights the importance of establishing what’s going to work best in 2017 and beyond.

“This year, I’m looking forward to seeing an alignment and strengthening of the strategies designed to provide a roadmap to those seeking foundationally-strong UAS programs,” Rhodes said. “Many entities are doing great work toward a promising future with UASs (the FAA, AUVSI, EEI, EPRI, NASA, NEETRAC, many universities, many businesses, etc.). However, there’s an opportunity to better align ourselves in a way that doesn’t hinder valid UAS uses and that considers safety always.”

UAVs are giving utility companies the ability to reconsider their approach around the setup, monitoring and fixing of their infrastructures. The decisions that are made as a result of that process will vary, but the efficiencies that can be created are very real in 2017, and they’ll be the base upon which further improvements are built. ■



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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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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