



FIVE THINGS TO CONSIDER WHEN ADOPTING DRONES FOR YOUR BUSINESS

Drone Analyst
Insights for the Commercial Drone Industry

Presented by:

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Knowing the reasons you want to implement a new technology and ensuring it's achievable have a huge bearing on its success or failure. If business benefits are not realized, or budgets are busted, the project has failed. So if you are considering acquiring or incorporating an unmanned aircraft system (UAS) – also known as a drone – for your business, it pays to be prepared.

1. DEFINE THE MAIN MISSION

All too often, businesses get enamored with emerging technology or software, pay big money for it, and it ends up sitting on the shelf. Sometimes well-intentioned managers act first and ask questions later. No doubt you have many questions, like:

- How much do drones cost both to purchase and operate?
- What kind of aircraft is best for my needs? Fixed wing or multirotor?
- What about the sensor? Will I need to further process the data that the drone acquires and what do I need in order to do that?
- Should I lease or buy one, or should I just contract for the services?

No matter what your particular set of questions, it's best to have a plan. But plans are only as good as their objective, so make sure you define your mission first. By mission we mean, What is the particular application for which you want to use drones? Is it to inspect power lines or map your farm? You may be able to find a drone that does both, but that doesn't mean it will do either well. Drones are new technology and some manufacturers and vendors are prone to hype (or lack of focus).

2. DEFINE THE ENTERPRISE SOLUTION

Remember you are conceptualizing an enterprise solution – not just a departmental one. For example, if you want to determine how your business can use a UAS for a particular application like mapping and measuring, then you'll need to conceptualize the entire enterprise solution (not just the data capture part). You will need to hypothesize about

areas of cost savings or operational efficiencies. At a minimum you need to account for the business process, data engineering, testing, and training.

Here is an example of a typical business process for UAS use in photogrammetric mapping:

- 1) Customer demand - specifies area, flight time, resolution
- 2) Flight mission plan - site analysis, route and waypoints, weather check
- 3) Flight and data capture - map over X km², download images and telemetry file
- 4) Data processing - map or measurement creation
- 5) Customer delivery - send files FTP or via cloud app

The bottom line is you're going to have to evaluate how this business process (or any other UAS business use) fits into your overall enterprise process of sales and operations. In doing so, you need to decide if it's best to do all of the business process yourself or to outsource some or even all of it to a service provider.

As you're developing requirements, keep in mind when we say "unmanned aircraft systems" we really mean 'systems'. It's not just the aircraft. There are other things that are required to run a drone like the sensor / payload, ground control station, communication systems, and pilot and crew. And there are the operating considerations like safety, risk, data management, and security. All of these, of course, cost money and so you need to consider those costs as part of your enterprise plan.

3. PERFORM FINANCIAL ASSESSMENTS

After defining your enterprise solution, your next step is to develop a request for proposal (RFP) and financial assessments. Defining the set of requirements includes whether you want to build, buy, or lease a system.

The table on the right provides a guide to aircraft types, showing the differences between multirotor and fixed wing. They do come in various shapes and sizes and carrying capacities – and of course costs – so

CATEGORY	MULTIROTOR	FIXED WING
Types	Quadcopter, Hexacopter, Octocopter, Y-6, X-8	Small, Mid-size
Features	VTOL	Hand launch, ground launcher
Construction	Aluminum, carbon fiber, plastic	Wood, foam, carbon fiber, plastic, fiberglass
Propulsion	Electric	Electric, liquid fuel
Advantages	Portability	Range
Size	14 – 45"	30 – 106"
Weight (+ payload)	< 25 lbs.	< 15 lbs.
Cost range	RTF Model: \$1 – \$10K Enterprise: \$15K – \$60K	RTF Model: \$1.5 - \$5K Enterprise: \$12 - \$60K

you'll need to match them to your budget. Basically, there are advantages and disadvantages to each platform based on your mission (think payload and range). At the

low end of the price spectrum, there are RTFs, or ready to fly, drones and at the high end are turnkey enterprise systems that include all the software and sometimes even some basic services. Understand that each comes with a different maintenance cost, and that's not factored here. Neither is commercial liability insurance for UAS, so make sure you account for that.

4. DEPLOY AND MANAGE FEEDBACK

Using technology without any governance and stakeholder management is risky. Governance ensures a project will remain on track in terms of the objectives of the business case. Governance brings executive buy-in and visible participation across teams and divisions that are vital throughout the life of a project. This is the 'political' part of implementing new technology, and having the key stakeholders on board will ensure a smooth roll out.

You should anticipate problems. The implementation of UAS technology is complex and comes with lots of potential issues. Businesses need to be realistic, need to plan an approach to problems that's pragmatic and effective. The project team and governance board need to have an approach that focuses on resolutions.

5. MANAGE OPERATIONS AND THE ASSET LIFE-CYCLE

UAS technology is advancing rapidly; product life cycles are short. What was cutting edge yesterday is obsolete tomorrow. So draw up a solid business standard operating procedures program that accounts not only for the life cycle of your aircraft but also for the following:

- User adoption – Allow end users of the technology to be involved in the decision process. This will help ensure a transition to new systems.
- A review of best practices – When preparing to deploy a UAS, be sure to review the processes that feed into and out of the teams using the technology. Adopt best practices and plan reviews of best practices that you'll want to adopt post-implementation.
- Training – Initial and ongoing UAS technology training, along with thinking about how the training (and new practices) will be embedded, is crucial. Often, the training that drone vendors conduct uses a generic set of data. This can be useful for understanding how the features and functions work, but training on your actual solution with your customer data will make it all much more relevant and will help you better evaluate the technology.
- Maintenance and disposal – This is a set of disciplines driven by safety. One of the main activities in drone maintenance is replacing batteries and other parts that are damaged. UAS batteries have a very limited life span. If you want to make sure that

everything is in perfect shape, you have to schedule regular maintenance. It will help you avoid accidents caused by component failures. For this reason, UAS technicians must be highly skilled and demonstrate a keen attention to detail.

Last bit of advice: What's the best way to determine if your UAS adoption was successful? Make sure the business processes have metrics that are known, measured, and communicated throughout your organization.

ABOUT DRONE ANALYST

Drone Analyst is a research and consulting firm supporting all participants in the commercial UAS industry. We provide end-users, technology vendors, and service providers with research-based insights needed to make critical investment decisions with confidence.

Our focus is on the needs of three constituents:

- Buyers of UAS technology and services - to help inform their acquisition decisions
- Suppliers and service providers - who need research and insight into buyer needs
- Investors – who need to distinguish technical and market viability

This focus, plus research as a foundation and reach into a community of more than 80,000 business executives and innovators through social media and media partnerships, allows Drone Analyst to deliver a high-value, low-risk method for achieving optimal understanding.