Guide to Building and Implementing an Enterprise Drone Program

White Paper by Lauren Elmore

Introduction

As many industries are adopting drone technology across their entire organizations, it is important to learn from our collective successes, mistakes, and key findings. Regardless of your industry, there are many similarities in implementing a drone program across your organization. In this guide, we will discuss some of the keys to successfully building and implementing your enterprise drone program. We will draw on our experience of setting up Enterprise Programs for our clients.

The major components include:

Part 1: Building a Drone Program

section 1: Start with Why
section 2: Understand Your Options
section 3: Creating Structure

Start with Why

The first step in building an Enterprise Drone Program is understanding why you want one in the first place. Drones are cool, they are becoming a popular tool, and they can certainly help companies improve operational efficiencies, but they are also complex and come with many risks. You don't want to build a drone program that isn't useful, safe, or adopted. The first step to being successful in building your drone program is to know why you want to build one.

How do you find your why? First think about what benefits you see from the use of drones initially. What parts of your operations can they positively impact? How will the information you gather from the drones change the way you do business? If you're working with a service provider to build your drone program, they can help you find the answers to these questions.

Takeaway

"Whatever success looks like for you, make sure you understand what it is. It is imperative to building the right program."

The next part of seeking to understand revolves around how your individual organization works. Both you and your provider need to understand how your organization is structured. Will you need to set up a new group? Will there be one person in charge? Does this fit in a certain department? Understanding the key stakeholders, key influencers, and who the operators will be early in the process is important to successful implementation.

Next, understand the key risks for your organization. What will cause this program to fail? What does your legal or risk department think about drone technology? Understanding where the key risks are for your specific organization enables you to build a program that minimizes those risks and drives adoption.

Finally, think about what success looks like. This is the culmination of the analysis you just went through. Think about and define what success will look like in one, three, or five years. Maybe success is every one of your operations getting monthly topos for mine planning or weekly inventories; maybe success is seamless billing; or maybe it is progress monitoring on a weekly basis at all of your construction sites across the country. Whatever success looks like for you, make sure you understand what it is. It is imperative to building the right program.

Understand Your Options

Types of Deliverables and Related Insights

What's really important to your program is not the technology used to collect the data. It's not the data itself. It is the insights that you get from all that data that you are then able to use to increase your level of business intelligence and make better decisions. Most companies don't want to implement an enterprise drone program simply to get more data. In today's world, you already have a lot of data. What you really need is information that improves your understanding of your business and enables you to make better decisions.

Therefore, you need to make sure you are getting the information from your deliverables that you need in order to build your business intelligence. Discuss options with your provider. Think through what types of information will help you make better decisions or better understand your operations. Ask your provider to help develop the deliverables that coincide with the insights that you are looking for.

The Technology:

At Firmatek, we believe in using the right tool for the right job. It is important to evaluate the technology and its capabilities before making a decision on which drone to use. There are a few key questions to ask when determining which drone will be best for your program.

1. What size area are you planning to fly regularly?
2. What level of accuracy do you need?
3. What types of analysis are you looking for?

We have found that our clients are very successful in flying areas under 300 acres. At these sizes, clients can typically fly the entire area that is needed with one or two batteries. For an area this size and basic volumetric deliverables, we recommend DJI's Phantom 4 Pro (P4P) or Phantom 4 RTK (P4R). Given the level of accuracy that most of our clients require, we recommend that if you go with the P4P you also use ground control points. For this reason, most of our clients are choosing the P4R, which has 3-5cm accuracy without ground control.

Understand Your Options continued

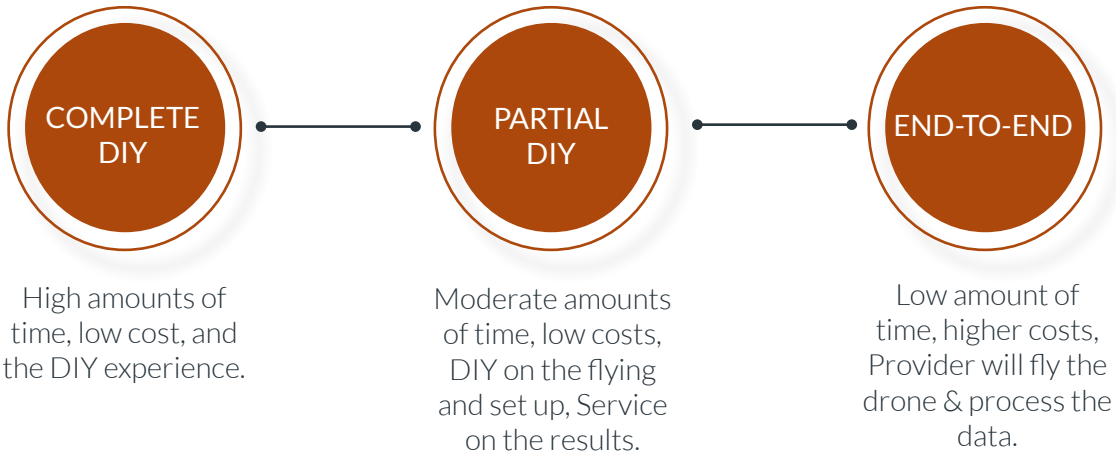
If you will consistently be flying large areas, over 300 acres, we recommend a fixed wing or vertical take off and landing (VTOL) option. The two drones that we recommend in this area are the eBee RTK or Plus and the FireFLY6 by BirdsEyeView. The choice here will depend on a number of things including price point, landing areas available, and what other sensors you may want to use.

The Service:

An Enterprise Drone Program doesn't mean one thing for every company. There is a spectrum of offerings in the marketplace. You can get everything from a complete end-to-end solution to a complete "Do-It-Yourself" (DIY) solution and just about everything in between.

It is important to evaluate options across the spectrum and determine what will work best for you. For some organizations, the complete DIY solution where you buy a drone and just start flying is sufficient. Though, we suggest this isn't a best practice for most enterprise drone programs. As we will get into in the section on implementing the program, it is helpful to have experts during that phase.

Solution Spectrum



Understand Your Options continued

Some questions to ask yourself when deciding what model will work for you include:

1. What does your personnel capacity look like?
   - Are there people that have capacity to add flying the drone to their list of responsibilities at the necessary frequency?
   - Are there people with the skills and capacity to process and analyze the data?
   - Will you hire someone internally to do these things? Or is it better to outsource one or both of these pieces?
2. Do you need independent 3rd party verification? If you do, then the DIY models where you fly and analyze your own data won't work. You will need to outsource at least the analysis piece.
3. What are your budget constraints? While a complete end-to-end solution may be your top choice, these programs can be more expensive. Does this fit your budget? Would it be more cost effective and efficient to implement a hybrid model where you fly and a service provider does the data processing and analysis?
4. Do you need to standardize one model across the entire company or can your provider deliver multiple options based on needs?
5. How do these models fit with your definition of success? Which one or combination will best allow you to reach your goals?

In the end, it's a value choice. Each option could be a viable solution for the right user. Don't fool yourself into thinking that there is a one-size-fits-all solution. This is true across the industry and even within one enterprise program. You need to evaluate your needs, expectations, capabilities, adoption, and of course always keep an eye on what a successfully implemented program will look like.

Summary

These three pieces go hand in hand and are extremely inter-related. For example, the type of deliverable and insight that you need will inform the drone that you need, which may inform the type of service you choose. Discussing the options on all these fronts will help you build the program that makes the most sense for your organization.

Creating Structure

Takeaway

"You will need to think through what this should look like for your organization, but there are common features that are important to include. Firmatek will work with you to customize your program.

After you know what you want to build and what success looks like, you need to create the structure that is required to implement the program. We have found that there a couple of things that can help make the process easier, and we include them all in our comprehensive plan document.

In the plan document, we create approval processes, custom forms, on-boarding processes, training programs, risk management documentation, and anything else that we determine is important for operationalizing the Enterprise Drone Program in your organization. You will need to think through what this should look like for your organization, but there are common features that are important to include. For example, the approval process is a common feature, as many organizations need to have some sort of approval process in place for who can order and fly the drone. Similarly, the on-boarding and training piece is key to successful implementation.

The created structure for your program is one of the things that will allow you to implement the program successfully and drive adoption across your organization.

Part 2: Implementing a Drone Program

section 1: Training
section 2: Adoption
section 3: Learn and Iterate

Training

If, in your Enterprise Drone Program, you are taking on any of the responsibility for data capture or data processing, training is key. It is very important that you are equipped to capture good data because good data is the starting point. It is very true in the case of drones that garbage in gets you garbage out.

Takeaway

A strong training program is a key piece of the implementation plan for your enterprise program.

While there are massive amounts of technical documents online for most drones, including information about obtaining your licenses and understanding the legal aspects of operating drones, we have found that a training and on-boarding program is important to successfully implement your drone program. There are a number of high-quality training organizations that can help your team get up and running quickly. UAV Coach is one example of a program that can get your team ready for their Part 107 exams. In addition, we have found that some in-person training is helpful for a lot of our clients. While the drones are often fairly simple to use once you learn how, it is often helpful to have an experienced user show you how to fly it the first time. You get hands-on training before you fly a mission that is critical for your operation.

At Firmatek, we have found that group sessions where we combine both the part 107 training and the hands-on drone training can be an effective way to get a team ready for implementation. It allows the team to get ready for their Part 107 exam, and it also allows them to get familiar with the work flows that they will be using while they have us there to ask questions.

These training programs can include everything from safety to flight planning to uploading or analyzing data. The requirements of your program will determine your exact training needs, but some pieces, like safety, are a must have.

A strong training program is a key piece of the implementation plan for your enterprise program. It makes it possible for your team to get their drones in the air to collect good data as quickly and safely as possible.

Adoption

One of the worst outcomes for an Enterprise Drone Program is to put all of the effort into creating it and then not have anyone use it. Ideally, when you thought about building your program, you built it in such a way that adoption will be easy. However, even when you do that, you may be missing a few key things that will help drive adoption.

First, make a communication plan. Start early and make sure people know what you are working on. One client actually brought us into their annual meetings to explain our capabilities, our services, and what they would be getting from the enterprise program. While that isn't the right solution for everyone, communicating to your team is critical to driving adoption. Whether you use email campaigns, conference calls, or presentations, make sure your team understands the value of what you are building and how it will make their jobs easier.

Second, make the process easy. The easier the requesting, training, and on-boarding process is, the more likely people will be to adopt it. Additionally, make sure that when you're building your program – the types of drones, services, and deliverables – that you are building something that people can use and easily adopt.

Finally, identify and use your key influencers. Find your advocates and super users (maybe they were part of your test program) and use them to help you drive adoption across the organization. Highlight the things these individuals are doing and the benefits they are receiving from the program.

Learn and Iterate

You can come up with a great plan and execute well on implementation and there still will be things you can improve upon. Mistakes will be made. That's ok, and it is to be expected.

Make sure you learn. After any issue, get the right people in the room and discuss what happened, what you thought was going to happen, and what you can do differently next time. Then implement those changes. Keep learning and iterating throughout the program.

Similarly, don't stop iterating and learning simply because everything is working well. Keep thinking about what else you could be doing with drones. What new technology or sensors are available that could improve your business operations? What are your industry colleagues using drones for? Keep testing the boundaries and giving your business more information that they can use to make decisions.

Concluding Thoughts

At Firmatek, we believe that your ever-changing environment can make decision-making difficult, and that it has a dramatic impact on your operational success. We believe Enterprise Drone Programs can help you turn your site data into insights that you can use to improve your operational efficiencies.

Building an Enterprise Drone Program requires first seeking to understand why you want it, what success looks like, and how you want to build it.

Then you need to discuss and evaluate your options – the drones, services, deliverables, and insights. Finally, you need to create the structure that will be key to your implementation. Implementing your program successfully requires that you continue to learn and improve your program over time.

Building a successful Enterprise Drone Program is a large task. But when done well, the impact on your business can be significant. You will gain the business intelligence that you need to make your operations more efficient.

About Firmatek

Our clients in the mining, construction, solid waste, and other industries are the companies that build the world we live in. They rely on the insights and data that Firmatek provides to make many key operational decisions.

We continue to invest in and remain at the forefront of the technology used to measure stockpiles and map the world. Whether you need third party measurement of your stockpile assets, a revealing laser scan of your mine in 3D, or a density calculation for your land ll, giving you supreme confidence is our mission.

We strive to offer our clients the absolute best in data collection, data processing, and data analysis. We provide our clients with the most accurate measurements and work with them to ensure that they understand their site data. This allows our clients to improve site production, manage their inventory, execute mine planning, and overall improve operational efficiencies.