THE SKYWARD GUIDE TO
STARTING A DRONE PROGRAM

Tips for commercial drone operations at major enterprises from the experts at Skyward, A Verizon company

Skyward®
A Verizon company

WELCOME

If you're reading this, you're probably starting a drone program at your company.

Maybe you're a public utility looking to reduce risks to personnel on the jobsite. Or you could be a media company building out a fleet of drones for the great perspectives they offer. From construction and energy to insurance and agriculture, enterprises of all types and sizes are obtaining critical business insights, reducing risk, saving time, and seeing dollar returns from the data captured by drones.

But you also may have realized that there's more to starting a drone program than purchasing an aircraft and some data processing software. You have to consider things like training and certification requirements, airspace rules, national and local regulations, company policies, risk management, and many other factors.

Skyward is here to help. This guide, compiled by our aviation experts, maps out the various aspects of your drone program and provides best practices for managing a commercial drone operation at a major enterprise.

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7 Steps to Setting Up a Drone Program

With a fledgling drone program, the goal is to arrive at a point where your operations are sustainable, deliver value consistently, and grow with your company over time. You want to have room to experiment and innovate with new use cases as the technology continues to develop.

But it takes a lot of steps to get there. No one can stand up an initiative like this overnight, and you have to lay solid groundwork before you can realize a return on investment.

So what are the steps you need to take?

IS A DRONE PROGRAM RIGHT FOR ME?

Here are a few questions you should ask yourself:

▶ Could drones give me a competitive advantage in my industry?

▶ Are my competitors already flying drones?

▶ Will drones be able to provide value to my company?

▶ Should I contract with a drone service provider, or should I create an internal program?

▶ Can I sustain long-term interest in the program among my coworkers?

▶ What jobs and use cases will I fly?

▶ Where will I find pilots?

▶ How will I manage all my personnel, flights, and assets?

STEP 1:
Pitch company stakeholders

To stand up your program the right way, you're going to need support from the top. Your first step is to pitch your program to your company's executives. You've got to win over stakeholders in your company's leadership — it's the only way to secure funding and benefit your company.

So what does it take to convince your company's leadership to buy into a drone program? Every company is a little different, but we've consistently found that stakeholders want to see these things:

▶ **Plan for ROI** - How will this benefit the company?

▶ **Proposed budget** - How much is this going to cost?

▶ **Specific goals** - What is this going to accomplish?

▶ **Risk assessment & safety case** - How will you mitigate potential risks?

▶ **Management plan** - Who will be responsible for daily operations?

We've found that programs with stakeholders from various teams across the company are the most successful. And don't forget to include aviation departments, health & safety teams, and legal teams. Each of these stakeholders carry a lot of executive weight. You want them as enablers of your program — not obstacles for you down the line.

PRO TIP:

For more advice on getting executive buy-in, download **Skyward's eBook: Adding Drones to the Enterprise**

STEP 2:
Policies, manuals, and standard operating procedures

The bedrock of every successful aviation program is thorough documentation including policies, manuals, standards, and reference materials for nearly every aspect of operations. Founded on traditional aviation principles, your drone program's standard operating procedures are a tried and true method for reducing risk, improving efficiency, enabling scalability, and increasing compliance.

You'll need to develop and codify policies for each of the following:

▶ Pilot training and proficiency

▶ Equipment handling

▶ Aircraft maintenance

▶ Insurance requirements

▶ Flight planning

▶ Regulatory compliance

▶ Data management

▶ Checklists

▶ Risk assessment and mitigation

▶ Incident response

You'll want to consolidate these policies into a general operating manual — a single source of reference for your entire program. You'll also want shorter manuals for use in the field and checklists for everyday compliance.

You should also add company policies to your standard operating procedures. Do you have corporate guidelines around environmental impact? Make sure your standard operating procedures reflect them. Do you have policies for client privacy? Make sure your pilots can find them.

STEP 3:
Pilot training, certification, and qualification

A drone program is only as good as its pilots. Your personnel will need to be knowledgeable about drone operations, familiar with company policies, compliant with program standards, and competent in the field. Aim to go above and beyond certification. Remember, a certified pilot is not the same as a qualified pilot.

Be sure every pilot is certified to fly drones under your country's regulations. In the United States, that means getting a Part 107 Remote Pilot Certificate from the FAA. To get certified, they will need to understand:

▶ Airspace classifications

▶ Drone operating limitations

▶ Weather and environmental factors

▶ Basic aeronautical charts

▶ Current regulatory developments

▶ Emergency procedures

Make sure everyone, even certified pilots, regularly receives refresher safety training.

So where can you find good drone pilots? We recommend looking to your coworkers. Typically, employees can learn to responsibly fly drones in a matter of weeks. Compared to traditional aviation, the certification process is far easier. Your standards still need to be set high, but Skyward has helped corporations train pilots and launch drone programs without hiring a single new employee.

STEP 4:
Choose the right aircraft, software, and equipment

Not all drones are created equal, which means the type of drone you need depends on your mission. If you intend to inspect towers hundreds of feet tall, you'll want a drone with a good camera and precise controls. If you plan to fly long-distance missions over fields or along roadways, you'll probably want to invest in a fixed-wing drone for better endurance. And if you want to live stream high-quality footage, you'll probably want a drone with a professional camera gimbal.

Choose your aircraft carefully. Fledgling programs don't usually have money to waste. You don't want to go a few weeks into your operations before realizing you bought the wrong drone. And you definitely don't want to invest tens of thousands of dollars into a fleet of aircraft only to find out they're not meeting your company's needs.

You'll also need to look into software solutions to help you process and store data, log flights, and manage your program. Today, dozens of companies offer software solutions for drones with widely varying pros and cons. It may be helpful to partner with a drone industry expert like Skyward to help you find software that meets your needs.

Besides your aircraft and software, you'll also need other essential equipment. You won't want to be caught in the field without it. This might include:

▶ Radios for crew communication

▶ High-visibility vests

▶ Safety gear

▶ Takeoff and landing pads

▶ Weather tools

▶ Extra batteries and chargers

STEP 5:
Select your first use case

There are countless ways to use drones — which is both good and bad. On the one hand, the possibilities are nearly limitless; on the other hand, focusing on too many use cases increases the equipment, stakeholders, and expertise required. If you try to do too much too early, it can cause you to lose focus and traction.

From the beginning, it's essential that your program focuses on returning value. If you rely on drones to stay around just because they're an exciting technology, you'll soon find that your execs lose interest and funding dries up.

Early in your program, choose just one or two rock-solid use cases. You'll want something that's simple, straightforward, and saves or makes money. Clearly track the cost, revenue, and safety improvement versus traditional methods. This will allow you to assess whether you're really obtaining value or not. Then, be sure to communicate the proven value of your drone program to stakeholders so they know their investment is worthwhile.

Your first use case will vary greatly depending on what industry you're in. Skyward's website has resources for several industry verticals, as well as with case studies from customers with successful drone programs. If you're looking for ideas, it's a great place to start.

PRO TIP:

Pick an initial use case that saves time, reduces costs, or improves safety.
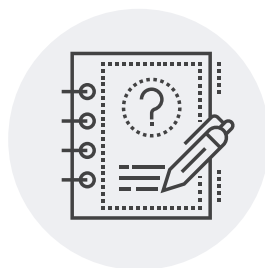
STEP 6:
Expand and innovate

If you've reached this step, it means you've set a good foundation of strong aviation practices and you're finding some early value. Now you're ready to move forward and really see where drone operations can take your company.

PILOTS **AIRCRAFT** **USE CASES**

You can expand your program in three ways: adding pilots, adding aircraft, and adding use cases. Each of these presents unique challenges. More pilots means additional training and higher program management demands. New aircraft may require updated data practices and extra instruction. And new use cases may involve higher risk while still requiring compliance with regulations and company policies.

And all of this costs more money, which means higher scrutiny from leadership teams. You'll need a system to track and manage thousands of dollars worth of assets across your program. Plus, as your program scales, your policies, manuals, standard operating procedures must scale with it.

Ultimately, your goal with any innovation is to maximize value while minimizing risk.

STEP 7:
Prepare for the future

The commercial drone industry is still very new. Regulations and technologies are evolving rapidly, and groundbreaking new possibilities are opening up all the time.

At Skyward, we're excited to see what this future holds, especially when drones are connected to wireless cellular networks. This should open up long distance drone operations far beyond the operator's line of sight. It may also enable regulatory authorities to manage air traffic of all kinds — crewed and uncrewed — and allow the next level of autonomy, speed, and real-time analysis.

In addition to connected drones, here are some other future possibilities:

▶ Horizontal infrastructure inspections

▶ Remote deployment of drones from the office

▶ Fully autonomous flights for surveillance or inspection

▶ Universal Traffic Management for aircraft

▶ Package delivery

▶ Remote aircraft deployments

▶ Simultaneous control of multiple drones

As you're looking toward the advanced use cases of the future, prepare by keeping up with technological advancements and upcoming regulatory changes. Be sure to partner with leaders in the industry to be prepared for the next big thing.

THREE APPROACHES TO DRONE PROGRAM MANAGEMENT

A drone program presents a lot of incredible possibilities. Yet the hurdles that stand in the way may seem overwhelming. How can one person or team account for all the factors that make a drone program successful?

Here's the good news: you have options.

Depending on your program's size and complexity, there are a few different ways to leverage internal and external assets and make your drone program a success.

OPTION 1:
Do it all yourself

Believe it or not, some drone programs begin this way. One passionate person takes on full responsibility for every aspect of the drone program. From hiring pilots to budgeting to managing flights and ensuring data is collected well, this individual wills the program into existence and holds it together.

While this approach might work initially, it leads pretty quickly to a burnout. One person can't manage every aspect of a drone program, especially as the program grows beyond two or three people. And with no established processes in place, the program falls apart if the program leader moves on to another role.

That's not to mention the issue of compliance. If every pilot only needs approval from one person (or if you're the only pilot), accountability will be low. With no executive insight into how pilots are operating, you risk breaking regulations or company policies — the fastest way to get your program shut down.

The DIY approach isn't recommended. And it's really not practical for any drone program larger than 1–3 people.

PRO TIP:

No matter how you operate, be sure to follow federal and local drone regulations. It's the law!

OPTION 2:
Use a variety of point solutions

Almost every drone program goes through this phase at some point. You've realized that one person can't do it, so you've distributed some responsibility to others in the program. To collaborate, you keep track of your operations in spreadsheets. You use a free airspace map to check airspace, and maybe a second app to plan your flights. You may even use a third app to capture the data or footage you need.

Pilots in the field juggle these apps and use paper checklists for flight ops. Results may be communicated just by word of mouth. And when it comes time to report to your executives, you have to scrape information together from all these different sources and port it into your company's internal systems.

This approach often works for a while, and it allows a drone program to get started inexpensively. But as your program starts to grow, its inefficiencies become more and more apparent. Tools like spreadsheets fail to capture the scope of your operations, and there's limited accountability for pilots in the field. And that's not to mention the logistical nightmare of pulling together reports.

To scale past this stage, your program needs a single system built for aviation operations. And maybe it could use a little bit of help from an expert consultant.

PRO TIP:

Not all airspace maps are created equal! Make sure the map you use is reliable and updated regularly.

OPTION 3:
Partner with an expert vendor

As a drone program manager, there are some things you just don't have the time or resources to do: You probably don't have the time to build your information systems from scratch. You can't customize your business policies for aviation. And the idea of consolidating a long data trail into one system seems intimidating at best. We get it.

That's why some software vendors offer solutions that are custom-built for managing drone programs. These solutions bring together functions like airspace intelligence, flight logs, personnel management, maintenance tracking, and program reporting. Some vendors also offer consulting services to help you overcome barriers, or even start your program from the ground up.

Program management solutions usually cost some money, but they can dramatically shorten the ramp time, simplify your workflow — and reduce a lot of headaches. Better, smoother operations mean you can focus on using drones to provide value to your company, versus just staying afloat. Best of all, they tend to be scalable, growing along with your program and providing continuity.

For any enterprise serious about large-scale drone operations, some kind of management system is a must. You'll want to partner with a reliable company who will be able to support your operations for years into the future.

TIPS FOR EVALUATING A DRONE MANAGEMENT VENDOR

1 Network with other companies who have drone programs. Ask who they partner with and what their experience has been.

2 Expect to meet with vendors multiple times before making a final choice. Remember, you're looking for a long-term partner.

3 Ask a prospective vendor for a demo. Even better, ask for a few demos in different scenarios.

4 Evaluate a vendor's offerings from multiple perspectives. What do your pilots want to see? Managers? Safety teams? IT?

5 Look at a vendor's customers. Does the vendor support other companies in your industry? Can you reach out to those customers?

6 Investigate scalability. As your program grows in size and complexity, can the vendor keep up?

THE SKYWARD SOLUTION

SERVICES AS WELL AS SOFTWARE

BACKED BY VERIZON

GUIDED BY EXPERIENCED MILITARY AND CIVILIAN AVIATORS

It starts with our expert drone consultants. We help you set up the operating procedures, training, certification, aircraft, software, and support you need to get started.

Then we equip you with Skyward's aviation management software platform. Whether you're in the office or the field, Skyward offers a single digital system for managing nearly every aspect of your drone program.

For mature drone programs, we continue to support you through industry leadership and innovation. Whether you need a regulatory waiver, you're interested in 5G connectivity, or you need to validate advanced use cases, Skyward's operational and regulatory experts can help you prepare for the future.

Let's take a closer look at what Skyward can offer you today.

THE SKYWARD SOLUTION:
Aviation Management Platform

Fleet managers in the office and pilots in the field rely on Skyward's airspace map, management tools, and flight insights for operational oversight of their drone programs. You can manage almost every aspect of your drone program through one cloud-based system. From checking airspace conditions and ground hazards to documenting flights and assessing risk, it all goes into Skyward.

Skyward's Aviation Management Platform features:

- ▶ Easy-to-understand airspace intelligence

- ▶ Essential ground intelligence, including over a million 3D vertical obstacles

- ▶ Flight planning and risk assessment tools

- ▶ Fast access to controlled airspace with LAANC

- ▶ Personnel, aircraft, and battery management tools

- ▶ Easy-to-access flight records, from a broad overview down to individual flights

- ▶ Live tracking of active flights
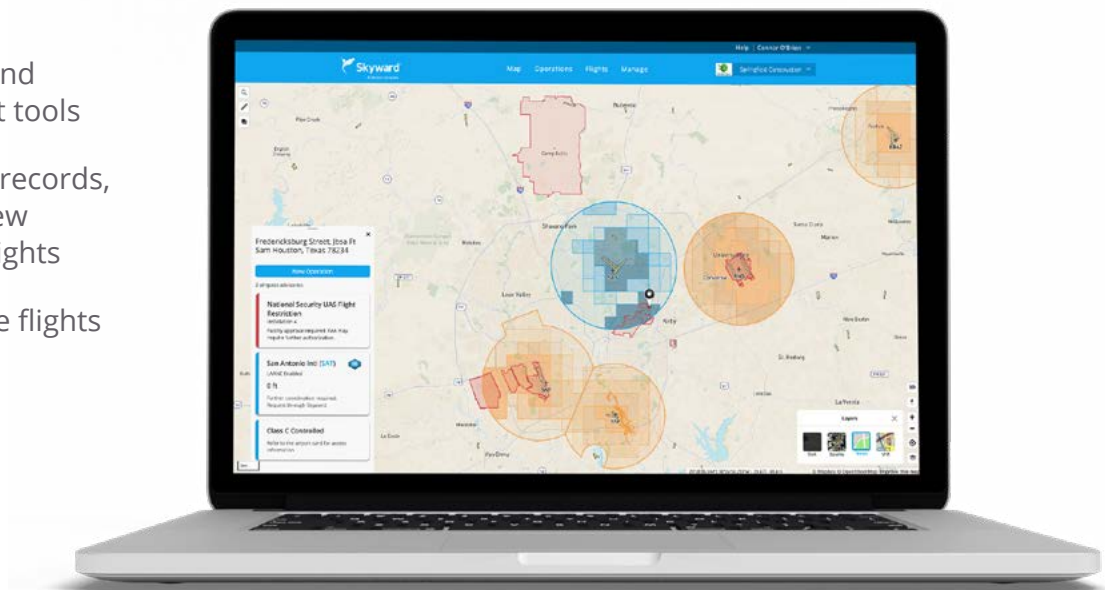
THE SKYWARD SOLUTION:
Aviation Management Platform

Pilots can bring the full power of Skyward into the field with InFlight, Skyward's ground control station mobile app. As part of a seamless experience from office to field, InFlight offers:

▶ The full power of Skyward's airspace and ground intelligence

▶ Flight areas planned from the office or created in the field

▶ LAANC access on the go

▶ Mobile ground control system for DJI drones

▶ Automatic flight logging for supported drones

▶ Custom checklists

Skyward's Aviation Management Platform also enables you to get deep insights into your program. Get a high-level view of overall operations, or dig down into individual aircraft, pilots, and flight logs.

And with API integrations available to connect Skyward to your business systems, it's a complete drone program management solution.

AVIATION MANAGEMENT PLATFORM FEATURES

This is not an exhaustive list of features. For more information and a detailed overview of Skyward's software, visit skyward.io/enterprise-solutions/

	FREE PILOT ACCOUNT	BUSINESS SUBSCRIPTION	ENTERPRISE SUBSCRIPTION
Airspace Intelligence	✓	✓	✓
Ground Intelligence	✓	✓	✓
LAANC Access	✓	✓	✓
Flight Planning	✓	✓	✓
Document Storage	✓	✓	✓
Aircraft management	✓	✓	✓
Flight Insights	✓	✓	✓
Customizable Checklists	Browser only	✓	✓
Risk Assessment Tool	Browser only	✓	✓+
InFlight *(Full-featured iOS app)*	✗	✓	✓
VFR Sectional	✗	✓	✓
Personnel Management	✗	✓	✓
Automatic Flight Logging	✗	✓	✓
LAANC on Mobile	✗	✓	✓
Live Flight Tracking	✗	✓	✓
Reporting Tools	✗	✓	✓+
Customer Success *(Purchase available)*	✗	✓	✓
Onboarding Support *(Purchase available)*	✗	✓	✓+
Tech Support	✗	✓	✓+
Multiple Teams	✗	✗	✓
API Integration	✗	✗	✓

Custom solutions are available for large enterprise teams. Custom solutions may include additional perks such as advanced use case consultations, co-marketing partnerships, and early beta testing. Contact sales@skyward.io to learn more.

THE SKYWARD SOLUTION:
Professional consulting & services

Skyward's aviation experts are available to help you find success no matter what stage your program is in. Skyward's professional services team of retired military aviators, civilian pilots, and experienced UAS operators offers a variety of consultation, hardware acquisition, and training services.

For drone programs just starting out, Skyward offers a one stop shop for all the services you need to get off the ground, including:

- ▶ Standard operating procedures (Take Flight package)
- ▶ Consulting and implementation support to help programs get started
- ▶ Online prep course for Part 107 certification
- ▶ Drone kits
- ▶ Accessories and equipment
- ▶ In-person classroom and flight training sessions
- ▶ Subscription to Skyward's Aviation Management platform

Skyward also offer these services to help programs of all sizes find greater success:

- ▶ Airspace authorization and waiver support
- ▶ Proof of concept
- ▶ Basic or advanced drone ops training
- ▶ Standard operating procedures consulting
- ▶ Program Manager Dashboard
- ▶ Hardware procurement for the latest drones, batteries, and accessories

THE SKYWARD SOLUTION:
# Professional consulting & services overview

This is not an exhaustive list of Skyward's services. Based on your hardware needs and program stage, we'll work with you to determine what you need. For more information, send us a message at contact@skyward.io or visit skyward.io/corporate-drone-consulting/

Hardware provision & general services
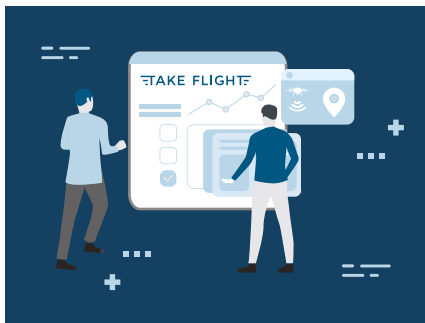
TAKE FLIGHT

- Standard operating procedures
- Compiled by aviation experts
- Regulatory, operational, technical, and reference materials
- Crew training guides
- Emergency response procedures
- Consultation and implementation with Skyward consultants
- Curate documents and procedures for company policies
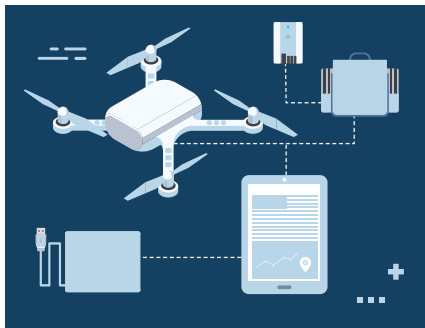
DRONE KIT

- Aircraft
- Tablet
- Spare batteries
- SD cards
- Controller with tablet mount
- Handheld weather meter
- Weighted landing pad
- Fly More Kit
- USB-C cable
- Custom kitting in hard case
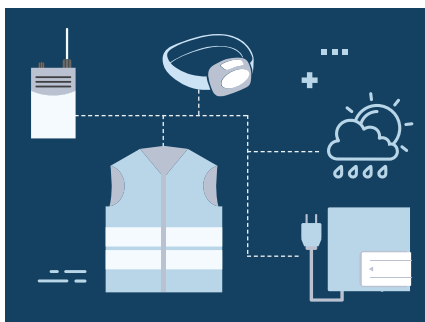
OPS KIT (COMING SOON)

- Headlamps
- Walkie talkie communication radios
- High-visibility vests
- SD cards and card reader
- SD card storage
- Handheld weather meter
- Multi-battery charger
- VHF aviation scanner
- Weighted landing pad
- Custom kitting in hard case

Quick Start Package

HARDWARE	**SOFTWARE**	**SERVICES**
• Drone kits	• Skyward software subscription	• Take Flight (standard operating procedures)
• Ops kits	• Skyward Ground School – online Part 107 training	• Onsite classroom and flight training

Scale & Specialize

PROGRAM CHECK & ACTION PLAN	• Program consultation with a Skyward consultant • Assess operations, program management, standards, risk, regulatory compliance, and more • Action plan with strengths, weaknesses, and practical insights
ADVANCED AIRCRAFT TRAINING	• Classroom and practical flight training sessions for advanced aircraft • DJI Matrice 200 Series • DJI Inspire 2 • More courses coming soon
REGULATORY SUPPORT	• Daylight waiver (Part 107.29) • Airspace authorization and waiver support • More courses coming soon
API INTEGRATION	• Connect Skyward to your business systems • Program Manager Dashboard with pre-built reports

THE SKYWARD SOLUTION:

Connectivity & innovation

Skyward drives the drone industry forward with industry leadership, regulatory advocacy, and groundbreaking innovation. We partner with advanced drone programs to test today's limits and enable tomorrow's success.

Skyward is testing cellular-connected drones over Verizon's wireless networks, including flights beyond visual line of sight over 4G LTE. We strongly believe this will open up advanced operations like long distance flights beyond visual line of sight, unlocking valuable use cases that aren't possible today.

Skyward and Verizon are building out two aviation development centers to conduct research and development for 4G LTE and 5G aviation connectivity. As a Verizon company, we're well-positioned to tap into the network more people rely on to power the connected drone operations and networked fleet deployments of the future.

Skyward also helps mature drone programs validate advanced use cases and apply for regulatory approval. Want to see your leading-edge use case become a reality? Let us know. We'd love to talk with you about making it happen.

Want to see if Skyward is right for your program?

Contact Skyward today at contact@skyward.io or visit go.skyward.io/Get-Started_Lets-talk for a free consultation.