CASE STUDY:
STANTEC

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How a Multinational Professional Services Firm Avoided Risk When Scaling Their Drone Operations

Stantec

Headquartered in Edmonton, Alberta, Stantec is a top three multinational professional services firm specializing in design, architecture, and engineering. Early on, Stantec saw potential for drones in their work, especially as a tool for surveying and modeling. Drones enable Stantec to perform aerial imaging with a variety of sensors and gather data more frequently, efficiently, and at a lower cost.

Working within Canada's relatively advanced regulatory structure, Stantec was able to establish an in-house unmanned aerial services (UAS) program before commercial drones became widespread. They saw the opportunity to be early adopters, treating drones as just another tool in their arsenal for small-to-medium scale jobs. Today, Stantec uses drones for projects ranging from survey mapping to 3D modeling, and from inspections to detecting sites of potential anthropological or paleontological significance.

Kevin Grover, Unmanned Aerial Service Operations Manager, led the effort to incorporate drones into Stantec's workflows. But in a large firm with 23,000 employees spread over 400-plus offices across North America and overseas, implementing an ambitious and innovative program demanded a great deal of coordination across several departments, particularly legal and risk management teams.

Kevin needed to show that drones were a valuable opportunity Stantec couldn't afford to pass up and that the program could be scaled up without exposing the company to an unacceptable level of risk.

EFFICIENCY, SAFETY, AND VALUE ON THE JOB SITE

Creating a safe, compliant, and scalable drone program within a large risk-averse firm

Adding to Kevin's challenge was the fact that drone technology was then in its infancy, so he first needed to educate employees across the company about the potential applications of drones to their work. "[Scaling drones] is something that's a real struggle at our company, being so big and with so many different offices," said Kevin.

He wrote articles for the company blog and magazine to start a company-wide conversation about how drones could and should be used. He also spent a lot of time in the trenches, speaking face-to-face with coworkers regarding the technology, spreading general awareness and talking about the risks involved.

> **TIP** That process of education is ongoing, which is part and parcel of using a new and rapidly evolving technology. It's a vital component in making sure that drone operations are scalable.

How does education impact scalability? It enables individual offices to make decisions based on a strong knowledge base about what tools and vendors are best for the job. Knowledge also helps offices determine whether to employ a drone in the first place, and if so, whether to use Stantec's internal program or a subcontractor. It's important that this decision is made with full knowledge about what drones are capable of delivering and the restrictions on their use. If an office doesn't understand the limitations of the technology, or hires a cavalier contractor who shirks the rules, compliance is jeopardized and risk increases.

Develop optimized operating procedures and documentation processes to ensure uniform safety of operations

Stantec realized that if they were going to fly drones at a larger scale, they needed to develop a General Operating Manual and a robust, integrated system of record keeping. A General Operating Manual is a set of processes and checklists that must be followed before, during, and after every flight. This is a practice imported from standard aviation, and it's essential for Canadian regulatory compliance, internal risk mitigation, and insurance. A General Operating Manual ensures that an operation conducted by a crew in Saskatchewan follows the same set of procedures as one in Alberta.

Though the main goal is to build an in-house drone operation where Stantec can have as much control and oversight as possible, there are limits to the program's scope.

"We'd love to handle all our flights internally, but we know that's just not possible," said Kevin Grover. "Stantec has many different business units that could be using data gathered by drones, so it's not in the cards for us to do a full-scale drone program. We're starting with the smaller applications that fit in with our day-to-day professional services."

Stantec strategically uses well-qualified subcontractors to help scale up their drone program. "We're outsourcing in order to expand our geographic coverage and to partner with companies that have expertise with specific data methodologies."

By working with professional, well-established operators, Stantec lowers potential risk associated with giving up a certain degree of control over their drone operations. "We need to make sure that our subcontractors are compliant, operating safely, and will meet our insurance requirements," Kevin said. "We'll work with proper firms that have the specific experience we're looking for."

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Detailed logging of flight data such as the type of equipment used, hours flown, total distance, etc., is vital to maintain the accountability of all operations, and it creates a strong culture of safe work practices. Keeping records of flight data also helps maintain Stantec's fleet. Like any complex piece of equipment, drones are made of components that wear out and can malfunction, causing potential safety issues. Detailed flight records reduce the risk of operating a piece of equipment that has been under-maintained.

How Stantec Uses Skyward

"We partnered with Skyward…to build our operations manual, build our safe work practices, and we're in the process of evolving those over time," Kevin said.

Skyward makes a cloud-based drone operations management platform. Drawing on a strong background in traditional aviation, Skyward's flight experts helped Stantec build a thorough operations manual to establish a set of standard procedures for all flights conducted under their aegis. Stantec's manual is based on Skyward's Take Flight, a suite of customizable documents including multi-level training protocols, risk management procedures, standards for operating in remote or densely populated areas, job safety standards, and more. This gave Stantec the ability to disseminate these documents across the company and keep them updated centrally and paperlessly as policy and protocol evolve alongside the technology.

The Skyward platform offers several valuable features that make achieving regulatory compliance simple and straightforward for complex organizations with distributed teams. An interactive airspace map that shows airspace restrictions helps Stantec avoid legal issues and lengthy waiver application processes, while also providing an integrated platform to plan flights and track all data relating to those flights, including pilot hours, equipment hours, and total flight times. Having all the information relevant to drone compliance collected in one place provides transparency for managers and directors throughout the organization, and it increases efficiency while mitigating risk.

Best Practices From Stantec:

1 Create a committee with leadership from across your company to discuss drone technology and identify how it might be incorporated. Your drone program will never get off the ground if you don't get executive buy-in.

2 Engage and educate your workforce with blog posts, newsletter articles, and face-to-face discussions. You can have the best equipment in the world, but it won't provide value if your people don't know when or how to use it.

3 Establish safe operating procedures with a General Operating Manual. Skyward offers Take Flight, a suite of flight documents and checklists, including a customizable General Operating Manual. Visit go.skyward.io/takeflight to download a sample.

4 Subcontract when necessary to help scale. If it doesn't make sense to send your crew and equipment to a location, or the job requires specialized hardware, knowledge, or data handling, hiring the task out is a sound strategy.

5 Plan and visualize your flights against a map of airspace restrictions. Track flight time, pilot hours, battery cycles—everything about your operation, staff, and equipment—and collect it in a centralized app, like Skyward.