Introduction

Just two years ago, most U.S. companies weren’t allowed to fly drones commercially. In August 2016, the FAA passed Part 107 of the Federal Aviation Regulations, legalizing commercial drone operations. Since then we’ve seen the market for commercial drone services grow as businesses adopt the technology at increasing rates. Today, Skyward customers include some of the biggest companies in the world as well as highly specialized aerial data providers.

Midsize enterprises (defined in the U.S. as businesses with $50 million – $1 billion in annual revenue) and large companies ($1 billion+ in annual revenue) are adopting and innovating with drones at increasing rates. It’s been fascinating to watch Skyward’s earliest customers grow their programs into sophisticated operations and to see all the ways companies are using drones to increase efficiency, worker safety, and access to data.

As an executive in a rapidly emerging industry, I wanted to see data on those medium and large companies, both to guide Skyward’s business strategy and because most analyst reports tend to focus on individual drone pilots or on the market for hardware. Those types of data are valuable, but for our purposes we wanted to understand how medium and large companies use drone technology today and how they plan to put it to work in the near future. How many companies are using drones? Which industries have had the greatest adoption? And what do their drone programs look like? What are the barriers to getting started and to growing the program? **Most importantly: Are companies seeing a return on their drone investment?**

Skyward partnered with a third-party firm, Blue Research®, to obtain unbiased data from medium and large companies in the U.S. Their team sampled 1,736 individuals working for a random mix of U.S. companies with $50 million or more in revenue to understand the incidence of drone use. 100 of those respondents qualified to complete the entire survey and provide valid data. An additional series of one-on-one executive interviews were conducted with commercial drone users.
Each section of this report digs into the findings, but here are a few key takeaways.

» One in 10 of surveyed companies use drones—across all industries.

» 88% of companies saw positive benefit in one year or less.

» Of those that use drones, over nine in 10 report that drones help their company capture more information, be more efficient, and save time.

» About half report their company’s bottom line would suffer if their company did not use drones.

» More than four in five expect drone flights to increase year over year.

» Three in four expect to increase spending on their drone program over the next 12 months.

» Drone adoption is expected to double; nearly one in five use or expect to use drones in the future.

Given feedback from our customer advisory board, I wasn’t surprised that companies identified “staying up to date with laws and regulations” and “ensuring internal policies are followed” as their top drone-related challenges.

No matter what our roles or industries, business leaders want to avoid flying blind, so I asked my team to create this report in order to share the results of our commissioned Blue Research® study. Whether you’re leading the drone effort at your company or you’re a drone industry leader, I hope you find the insights here as instructive as I have.

Mariah Scott
President
Methodology
To obtain these data, Blue Research® created a custom-designed quantitative survey, a carefully programmed tool that included quality control metrics, several trap questions, logic, and skip patterns designed to ensure reliable data and avoid bias.

Blue Research® did not disclose to respondents the sponsor (Skyward), nor the subject matter when potential respondents entered the survey.

The questionnaire was designed from scratch by Blue Research® to address the research objectives. A representative mix of U.S. industries and respondents were invited to participate in this study.

**How Blue Research® screened respondents:**

» Individuals working in research, advertising, or drone hardware or software were excluded.

» Several “traps” were used to avoid sampling bias. For example, respondents were asked if they currently use “cryptophrenology”—a term that Blue Research® invented specifically for this survey (330 said yes; they were disqualified).

» To qualify, entities needed to have generated at least $50 million in revenue in 2017.

Only respondents that met the screening criteria were asked about their company’s drone use. Those who reported their company currently or plans to use drones and reported being knowledgeable about their company’s drone use qualified to complete all questions in the survey.

» In total, 1,736 respondents were asked whether or not their company currently or plans to use drones.

» 100 validated respondents completed the survey in its entirety.

» The median time to complete the survey was nine minutes.
Market Overview
Blue Research® sampled 1,736 individuals working for a random mix of U.S. companies with $50 million or more in revenue. One in 10 companies with revenue of $50 million and over use drones, with the highest adoption in construction and engineering. In fact, more than a third of surveyed construction and engineering firms use drones today.

Please specify your company’s use of each of the following. Drones defined as: unmanned aircraft flown either by a remote pilot or autonomously through a software-controlled flight plan.

**DRONE ADOPTION BY INDUSTRY**

<table>
<thead>
<tr>
<th>Industry</th>
<th>Use Drones (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction &amp; Engineering</td>
<td>35%</td>
</tr>
<tr>
<td>Government</td>
<td>24%</td>
</tr>
<tr>
<td>Transportation &amp; Warehousing</td>
<td>13%</td>
</tr>
<tr>
<td>Insurance</td>
<td>12%</td>
</tr>
<tr>
<td>Education</td>
<td>11%</td>
</tr>
<tr>
<td>Technology</td>
<td>11%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>6%</td>
</tr>
</tbody>
</table>

Construction & engineering have the strongest adoption.
The study found that one in 10 $50 million+ companies are using drones.

Please specify your company’s use of each of the following. Drones defined as: unmanned aircraft flown either by a remote pilot or autonomously through a software-controlled flight plan.

DRONE ADOPTION AMONG COMPANIES WITH 50M+ REVENUE

According to the data, by the end of 2018, drone use could reach 12% among $50 million+ companies. In total, 19% of the surveyed professionals report that their company either uses or expects to use drones in the future.
Currently, nearly two in five companies report using first person view and over one in five report using LiDAR with drones; most companies not currently using these capabilities are at least interested in doing so. Over a third are currently or plan to use drones to increase automation. On the other hand, close to half of respondents say their companies aren’t planning on using drones to deliver payloads.

Q

Please indicate whether your company currently has that capability, is planning to implement, is interested in implementing, or is not interested in implementing that capability by clicking on one of the boxes below.

CURRENT AND FUTURE DRONE CAPABILITIES

<table>
<thead>
<tr>
<th>Capability</th>
<th>Current</th>
<th>Plan</th>
<th>Interested</th>
<th>Not Interested</th>
<th>Do Not Know/Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Person View (FPV)</td>
<td>39%</td>
<td>16%</td>
<td>36%</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Light Detection &amp; Ranging (LiDAR)</td>
<td>21%</td>
<td>22%</td>
<td>39%</td>
<td>13%</td>
<td>5%</td>
</tr>
<tr>
<td>Automation</td>
<td>19%</td>
<td>17%</td>
<td>41%</td>
<td>14%</td>
<td>9%</td>
</tr>
<tr>
<td>Delivery of Payload</td>
<td>14%</td>
<td>10%</td>
<td>22%</td>
<td>45%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Wide majority either currently plan or are interested in FPV; close to half report their company is not interested in delivery of payload.
By the end of 2018, drone use could reach 12% in this market (up from 10% today). In total, 19% of this market either uses or expects to use drones in the future.

Please specify your company’s use of each of the following. Drones defined as: unmanned aircraft flown either by a remote pilot or autonomously through a software-controlled flight plan. Random survey across industries completed by 1,736 respondents. 95% confidence interval margin of error is +/- 2.4%.

DRONE USE IS EXPECTED TO DOUBLE WITH NEARLY 1 IN 5 USING DRONES

10% Currently use
2% Begin using by end of 2018
7% Future plans to use
Of those who do not currently or plan to use drones, the vast majority report never having used drones before.

Which of the following best describes your company’s past use of drones?

- 88% My company has never used drones
- 11% Do not know if my company has never used drones
- 1% My company used drones in the past, but we discontinued the drone program
How many years has your company been using drones?

**NUMBER OF YEARS USING DRONES**

<table>
<thead>
<tr>
<th>Years</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year or less</td>
<td>25%</td>
</tr>
<tr>
<td>2 years</td>
<td>29%</td>
</tr>
<tr>
<td>3 years</td>
<td>21%</td>
</tr>
<tr>
<td>4+ years</td>
<td>25%</td>
</tr>
</tbody>
</table>

**Good news**
Achieving corporate buy-in for drones has not been a significant challenge.

Drones are new technology that operate under strict regulations. Before the study, we hypothesized that these factors would create reluctance on the part of executives to adopt the technology. This turned out not to be the case. In general, those companies that are using drones now didn’t struggle to achieve internal buy-in.

Over half of this market has used drones for less than three years.
Which of the following best describes your company’s overall sentiment when the idea of using drones at your company was first introduced?

**INITIAL COMPANY REACTION TO USING DRONES**

- **51%**  
  My company was excited and eager; it was no trouble to gain company “buy-in.”

- **47%**  
  Reactions were mixed; it was somewhat of a challenge to gain company “buy-in.”

- **2%**  
  My company was apprehensive; it was a challenge to gain company “buy-in.”

That’s not to say that companies aren’t experiencing challenges with their drone programs. As we expected, the changing regulatory environment and lack of consistent processes are the two biggest challenges faced by companies with active drone programs.
“Staying up to date on laws and regulations” and “ensuring internal processes are followed” are common challenges.

Which of the following, if any, are challenges your company faces or expects to face using drones?

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staying up to date on laws/regulations</td>
<td>49%</td>
</tr>
<tr>
<td>Ensuring internal policies/procedures are followed</td>
<td>43%</td>
</tr>
<tr>
<td>Obtaining access to controlled air space quickly</td>
<td>34%</td>
</tr>
<tr>
<td>Having the most current info about where drones can fly</td>
<td>34%</td>
</tr>
<tr>
<td>Minimizing the amount of pre-planning</td>
<td>29%</td>
</tr>
<tr>
<td>Finding qualified contract pilots</td>
<td>21%</td>
</tr>
<tr>
<td>Proving positive ROI</td>
<td>20%</td>
</tr>
<tr>
<td>Relying on manual processes to manage operations</td>
<td>18%</td>
</tr>
<tr>
<td>Logging/tracking pilot hours, flight times, maintenance</td>
<td>17%</td>
</tr>
<tr>
<td>No challenges</td>
<td>8%</td>
</tr>
</tbody>
</table>
“Staying current on laws and regulations” is often one of the biggest challenges executives say they face with their drone programs.

The following quotes are based on blind one-on-one in-depth executive interviews conducted by Blue Research®

**CHALLENGES USING DRONES**

“If it’s in a class B, C, or D airspace, you have to file for an FAA waiver or authorization. They can say your request for a waiver to fly in this airspace is denied, too close to the airport or approved under these conditions.”

“In Houston we flew a couple of routes, but then we were told ‘The FAA has listed as a no-drone fly zone right now. If you’re caught it’s a $20,000 fine!’ We didn’t get fined, but the word had already been sent out and we did not know it before we did our flight.”

“Flying anywhere in the city is pretty difficult, legally. We have a Navy base, right next to an airport, right next to a baseball stadium, busy city streets. There is just all sorts of reasons they don’t want you flying drones.”

**49%**

Staying up to date on laws/regulations
The following quotes are based on blind one-on-one in-depth executive interviews conducted by Blue Research®

**CHALLENGES USING DRONES**

“Biggest challenge is getting everyone synched up. We’ve got a dozen pilots scattered across the U.S. It’s not like we’re in the same office. I want to get it to be more consistent and automatic so they (pilots/operators) don’t have to think about it.”

“There is too much manual intervention. Files need to be converted to a standard format (in IT dept.), then cataloged in (document repository) and associated with a claim or multiple claims.”

“We have 20 pilots and we use an Excel file with one tab for each pilot. <If you had a magic wand?> I’d want an all-in-one shop that allows you to have your checklist, warnings of future expired licensing, be able to control the drone and manage the video, FAA notifications, flight times and patterns and geo locations with touch of a button.”

Not having an “internal process” that is simple, automated, and consistently followed is another vocal concern raised by executives.

43% Ensuring internal policies/procedures are followed
Does Drone Adoption Differ From Other New Tech?

According to Everett Rogers’ well-known innovation adoption lifecycle, there are five phases of technology adoption: 1. innovators; 2. early adopters; 3. the early majority; 4. the late majority; and 5. laggards (Rogers, 1962). According to Rogers’ bell curve, medium and large companies that have adopted drones are well within the innovator and early adopter categories as of early 2018.

However, more recent analysis suggests that the technological adoption habits of companies have changed — drastically — in the 21st century. In The Innovator’s Imperative: Rapid Technology Adoption for Digital Transformation, five years of research
at Villanova School of Business seems to indicate that most companies no longer take a phased approach to technological adoption. Instead, the Villanova research shows that companies tend to adopt emerging and disruptive technologies as quickly as possible—even before a business case for the technology is apparent—in an effort to stay competitive:

...companies have abandoned their obsession with requirements and have endorsed a technology-first/requirements-second approach to technology adoption.... Companies focused on digital transformation often adopt emerging technologies immediately.

The authors attribute this to the accelerated pace of technology; the cumulative impact of expanding integrated technology solutions; the ease of deployment of new technologies; lower costs; and a better awareness that technology is directly tied to competitiveness.

However, we haven’t seen immediate, widespread adoption of drones across medium and large enterprises. It could be that the regulatory hurdles and perceived safety risks are causing the majority of companies to take a more conservative approach to adoption. It could also be that the business value of drones isn’t yet obvious to these companies. And of course, it could be a combination of these and other factors.
We found that drone programs vary widely in scope and size. The most frequent configuration indicates relatively small program size, with fewer than five drones and between one and four employees. However, results show wide distribution of both employees involved in a program and drones owned. 27% of respondents reported that their companies own 25 or more drones, and 39% reported that at least 25 employees are involved in the drone program.

The range of drone programs varies, with some companies investing in 25+ drones and involving 100+ staff.
Similarly, flights per month were spread out, with 51% conducting between one and nine flights per month, and 41% reporting ten flights or more per month.

Two in five deployed 10 or more flights per month last year.
Overwhelmingly, respondents project that flights per month will increase in the near term, with more than half forecasting ten or more flights per month by the end of this year.

By the end of 2018, how many drone flights will your company make in total?

**NUMBER OF DRONE FLIGHTS PER MONTH: 2017 VS 2018**

- Less than 1 flight: 8% (2017) vs. 2% (2018)
- 1-3 flights: 25% (2017) vs. 20% (2018)
- 4-9 flights: 26% (2017) vs. 24% (2018)
- 10+ flights: 54% (2017) vs. 41% (2018)

Over half plan to have 10+ flights per month by the end of 2018, a 13% increase from 2017.
Likewise, respondents say they expect drone flights to increase year over year.

Q | By the end of 2018, how many drone flights will your company make in total?

FLIGHT INCREASE

84% % expecting an increase in total flights (2018 vs. 2017)

Over four in five expect their drone flights to increase year over year.
We see that companies most often choose to handle their own flights, data processing, and data analysis, though there continues to be a market for outsourced services. 63% of respondents say their companies don’t outsource any aspect of their drone programs.

About one in three outsource some aspect of their drone program.
CORPORATE DRONE PROGRAMS: Investment and ROI
As with employee involvement and owned drones, corporate investment in drones is spread out, with 39% of respondents reporting a spend of more than $50,000 in 2017. However, in the same time period 29% spent less than $10,000.

Over two in three invested $10K + in their drone program last year.
A majority of respondents expect spends to increase in the coming year.

Over three in four expect to invest $10K or more in their drone program over the next year.
In general, do you believe the benefit you’ve obtained from using drones exceeds the cost your company made to invest in them? How many months did it take your company to see a positive return on its investment in drones?

**AMOUNT OF TIME TO SEE POSITIVE ROI ON DRONES**

- 14% reporting drone benefit exceeds cost in less than 1 month.
- 32% reporting drone benefit exceeds cost in less than 6 months.
- 66% reporting drone benefit exceeds cost in less than 1 year.
- 88% reporting drone benefit exceeds cost in 1 year or less.
- 13% reporting drone benefit exceeds cost in more than 1 year.

Encouragingly, a wide majority realize positive return on investment in drones in one year or less.
When we dig into the value that companies say drones provide, most respondents identified capturing more information, greater efficiency, and saved time. More than 70% also identified worker safety, saved money, and competitive advantage.

Just 37% of companies say that drones have helped them to create new revenue streams.

**PERCEIVED VALUE OF DRONES**

- Capture more information: 97%
- Be more efficient: 92%
- Save time: 91%
- Increase worker safety: 75%
- Save money: 73%
- Gain a competitive advantage: 71%
- Create new revenue streams: 37%

Over nine in 10 report drones help their company capture more information, be more efficient, save time.
Please rate the extent to which you agree with the following statement.

**DRONE USE IS INTEGRAL TO OUR COMPANY’S OPERATION; IF WE DID NOT USE DRONES OUR BOTTOM LINE WOULD SUFFER.**

- Agree (5-7): 46%
- Neither Agree nor Disagree (4): 15%
- Disagree (1-3): 38%

That’s especially interesting when compared to half of respondents who said their companies’ bottom lines would suffer if they did not use drones.

About half report their company’s bottom line would suffer if their company did not use drones.
Key Takeaways
Online research sampled 1,736 individuals working for U.S. companies with $50M or more in revenue to understand the incidence of drone use.²

Results demonstrate:

» 1 in 10 of these companies use drones; few report it was a challenge to gain company “buy-in” for drone use.

» Drones are considered valuable, integral to business operations, and deliver a positive ROI.

» Over 9 in 10 report drones help their company capture more information, be more efficient and save time.

» About half report their company’s bottom line would suffer if their company did not use drones.

» A wide majority realize a positive ROI on their drone investment in one year or less.

» Drone use, investment, and adoption are all expected to show positive growth in this market.

» Over 4 in 5 expect their drone flights to increase year over year.

» 3 in 4 expect to increase spending on their drone program over the next 12 months.

» Drone adoption is expected to double; nearly 1 in 5 use or expect to use drones in the future.

» “Staying up to date with laws and regulations” and “ensuring internal policies are followed” are common challenges.
The research suggests that drone use and investment will continue to grow across and within medium and large U.S. enterprises.

Sources


2 Random mix of US industries. 100 respondents qualified to complete the entire survey and provided valid data. 22 one-on-one interviews, averaging 50 minutes in length, were conducted with decision-making executives.
About Blue Research®

Over the past 15 years, Blue Research® has become the preferred research partner and trusted advisor for some of the most well-known brands in the technology sector. Using a mix of proprietary qualitative and quantitative techniques, Blue provides executives the clarity they need to make effective, insight-driven decisions, without taxing internal resources or needing a degree in market research. With backgrounds in marketing, management, strategy and research, product management, and analysis, Blue’s staff has been “in its clients’ shoes.” Blue works with clients to align their internal and external project stakeholders in a non-political context and ultimately delivers reports that drive action throughout the organization.

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When you can’t afford to be wrong®

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About Skyward, A Verizon Company

Skyward’s drone ops management software and consulting helps companies stand up and oversee teams, equipment, projects, and flights and gives them the ability to fly in more ways and more places. Skyward is also focused on the near future of networked fleet deployments through a combination of industry-leading expertise, digital airspace access, regulatory advocacy, and LTE connectivity.

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