MARKET SECTOR FORECAST FROM UAV INSIDER: WHICH ARE GROWING AND WHICH AREN’T PANNING OUT

For Commercial UAV Expo

November 2, 2016

Colin Snow
“It’s tough to make predictions, especially about the future.”

– attributed to Yogi Berra
Topics

*Forecasts: diversity, hype, rumor, and wonk*

*Investor sentiment*

*Outlook for sectors*
Forecasts: diversity, hype, rumor, and wonk

$2B - $127B
### Diversity

<table>
<thead>
<tr>
<th>AUVSI</th>
<th>Innova</th>
<th>TechNavio</th>
<th>PwC</th>
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<td>ABI Research</td>
<td>Sophic</td>
<td>Daedal Research</td>
<td>Valour Consultancy</td>
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<td>Business Insider</td>
<td>BBC Research</td>
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<td>Oliver Wyman</td>
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<td>MarketsandMarkets</td>
<td>Transparency</td>
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<td>Drone Industry Insights</td>
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<td>Stifel Nicolaus</td>
<td>QY Research</td>
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<td>IHS Markit</td>
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<td>Lux Capital</td>
<td>Hexa Research</td>
<td>Renewable Market Watch</td>
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<td>VisionGain</td>
<td>Grand View Research</td>
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<td>Skylogic Research</td>
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<td>Navigant</td>
<td>Mind Commerce</td>
<td>Gartner</td>
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<td>Teal Group</td>
<td>Global Industry Analysts, Inc. Transparency Market Research</td>
<td>NPD</td>
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<td>Piper Jaffray</td>
<td>Frost &amp; Sullivan</td>
<td>Mind Commerce LLC</td>
<td>Global Market Insights</td>
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<td>WinterGreen Research</td>
<td>CTA/CES</td>
<td>Research Corridor</td>
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<td>Tractica</td>
<td>Juniper Research</td>
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We are currently tracking **50 different forecasts!**

Most reports sell between **$2,000 and $6,000**
Most drone market forecasts overlook the largest commercial sector: Film/Photo/Video

Drone services market: $127 billion by 2020

Global drone services total available market in key industries ($B)

- **Infrastructure**: 45.2
- **Agriculture**: 32.4
- **Transportation**: 13
- **Security**: 10
- **Media & Entertainment**: 6.8
- **Insurance**: 6.8
- **Telecommunications**: 6.3
- **Mining**: 4.4

Global TAM=$127.3 billion

Source: Clarity from above, PwC Poised market assessment, May 2016

a TAM is not a forecast

Source: PwC Source: Goldman Sachs

- **Construction**: $11,164 M
- **Agriculture**: $5,922 M
- **Insurance Claims**: $1,418 M
- **Offshore Oil/Gas and Refining**: $1,110 M
- **Police (US)**: $885 M
- **Fire (US)**: $881 M
- **Coast Guard (US)**: $511 M
- **Journalism**: $480 M
- **Customs and Border Protection (US)**: $380 M
- **Real Estate**: $265 M
- **Utilities**: $93 M
- **Pipelines**: $41 M

Source: Goldman Sachs
Hype

“Precision agriculture and public safety will make up more than 90% of the market growth for unmanned aerial systems.”

The report confidently states, “…the commercial agriculture market is by far the largest segment, dwarfing all others.”
Q. What was the impact of FAA’s consumer drone registration on holiday sales?

A. NPD Group says some slippage at first, but in the end sales were up YoY

US Retail Drones Sales (Technology Drones)
Unit, Dollar Growth YoY

Source: The NPD Group / Omnibus Study Mar 2016

*Holiday period includes the 5 weeks between Black Friday week and Christmas week.

Note: Preliminary, pre-release data.
Qs. Where did you buy / where will you buy your next drone?

Past vs. Future:

- **Dedicated drone dealer/distributor**: 26% (Past), 38% (Future)
- **Directly from manufacturer**: 26% (Past), 24% (Future)
- **Amazon or eBay**: 19% (Past), 18% (Future)
- **General hobby store**: 7% (Past), 11% (Future)
- **Big Box electronics retailer**: 4% (Past), 5% (Future)
- **General camera / audio / video retailer**: 4% (Past), 2% (Future)
- **Vertical market reseller**: 2% (Past), 1% (Future)
- **General merchandise big box retailer**: 2% (Past), 1% (Future)
- **Action sports / outdoor retailer**: 1% (Past), 1% (Future)
- **Other (DIY, used, etc.)**: 5% (Past), 5% (Future)

NPD data misses most of this.
“On average, exemptions list two unmanned aircraft types that will be used in operations. The most popular unmanned aircraft maker is DJI, which accounts for two out of three drones listed across all exemptions.”


Many – including DJI – believe this affirms their “70% market share” claim.

But this is not unit market share. It is only what is listed on the application as what they “might use” - not what they actually own or even will use.
Commercial UAS aircraft (N-number)

See more here:
Most popular brands

insight

DJI’s overall market share in North America is about 50 percent—not 70 percent as popularly described.

SEVEN

Q. What was the brand of your last drone purchase?

Source: Skylogic Research

**DJI**

**3D Robotics**

**Yuneec**

**Blade**

**Parrot**

**Event 38**

**Hubsan**

**FreeFly Systems**

**Syma**

**Custom**

**Others (<2%)**

n = 647
Dear John Drone,

I’ve found somebody else.

Signed,

VC

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**Investor sentiment**

![Graph showing investor sentiment from 2010 to Q3 2016](image)

Source: CB Insights
Outlook for sectors
U.S. Drone Sales Revenue Forecast (in 000’s) – all price points

$2.9B in 2018

Source: Skylogic Research
Drone purchases – price points

Q. What was the price of your last drone purchase?

More than half of all buyers purchase drones costing between $1,000 and $4,000.

SEVEN
### Drone purchases - usage

#### Key insight

Most drones (85%) costing more than $2,000 are purchased for professional use.

#### Insight

"Prosumer" category is narrow. ASP = $1,400

#### FIVE

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Price Range</th>
<th>Hobby Use</th>
<th>Commercial or Government Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consumer</strong></td>
<td>Less than $500</td>
<td>73%</td>
<td>27%</td>
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<tr>
<td></td>
<td>$500 - $999</td>
<td>65%</td>
<td>35%</td>
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<tr>
<td><strong>Prosumer</strong></td>
<td>$1,000 - $1,999</td>
<td>39%</td>
<td>61%</td>
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<td><strong>Professional</strong></td>
<td>$2,000 - $3,999</td>
<td>11%</td>
<td>89%</td>
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<td></td>
<td>$4,000 - $7,499</td>
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<tr>
<td></td>
<td>More than $100,000</td>
<td>0%</td>
<td>100%</td>
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</table>

Source: Skylogic Research
**User survey**

**Q. What is the primary intended use of your drone purchase?**

*insight*

Film/Photo/Video accounts for 43% of intended commercial use and constitutes the largest commercial market sector.

**FOUR**

**Source:** Skylogic Research
Sector challenges

Current environment

- Photo / Video
- Sports
- Real Estate
- Construction
- Cinematography

VLOS

Structural Inspection
Surveying
Mapping
Precision Agriculture
First Responders

BVLOS

Search and Rescue
Package Delivery
Linear Inspection (rail, oil, power)
Fish and Game
Border Patrol

Uncertain future

Source: Gryphon Sensors and Skylogic Research
## Sector Scorecard

**OVERALL SECTOR OUTLOOK**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Precision Agriculture</th>
<th>Civil Infrastructure</th>
<th>Construction</th>
<th>Energy &amp; Utilities</th>
<th>Film / Photo / Video</th>
<th>Mining &amp; Aggregates</th>
<th>Public Safety &amp; 1st Responders</th>
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<td>Terrain and object height autonomy</td>
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**OUTLOOK = drone usage and micro-economic benefit**

Source: Skylogic Research
Find out more - articles and free research reports

Commercial UAV News

Skylogic Research
http://droneanalyst.com/research/
Questions?
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We help you make critical investment decisions with confidence by providing research-based insights on the commercial drone markets.

Our focus is on the needs of three constituents:

- Manufacturers, suppliers, and business service providers – who need research and insight into buyer needs
- Buyers of UAS technology and services – to help inform their acquisition decisions
- 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.

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