Forecasting and Emerging Markets – Looking in the Crystal Ball
Forecasting and Emerging Markets – Looking in the Crystal Ball

Nan Shellabarger, FAA  
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Ed Waggoner, NASA
Model UAS Fleet-Preliminary Results

When will growth rates level off?
Distribution of Model Registrations

Model UAS registrations match population patterns
Non-Model UAS Fleet-Preliminary Results

How will business use drive demand?

Preliminary results

2017 2018 2019 2020 2021 2022

#UAS2018
Distribution of Non-Model Registrations

Where are the areas of opportunity?

#UAS2018
Small UAS operations can create jobs

1.5 UAS per Remote Pilot
Consumer Demand for UAS

Jack Cutts
Director, Industry and Business Intelligence

FAA UAS Symposium
March 6, 2018
## CTA Forecast: Drones over 250g

### U.S. Consumer Channels

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Units (thousands)</td>
<td>825</td>
<td>1,221</td>
<td>1,538</td>
<td>1,754</td>
<td>1,912</td>
<td>1,988</td>
</tr>
<tr>
<td>Average Wholesale Price (USD)</td>
<td>$835</td>
<td>$760</td>
<td>$707</td>
<td>$664</td>
<td>$631</td>
<td>$599</td>
</tr>
<tr>
<td>Revenue (millions USD)</td>
<td>$689</td>
<td>$928</td>
<td>$1,087</td>
<td>$1,164</td>
<td>$1,206</td>
<td>$1,191</td>
</tr>
</tbody>
</table>

Source: CTA U.S. Consumer Technology Sales & Forecasts (January 2018)
Cause for Optimism in Consumer Drone Market

• Better tech is bubbling up...
  – First-person view
  – Single-purpose drones
  – More attention to software UX

• ...and trickling down...
  – Better cameras and image stabilization
  – Better obstacle avoidance
Household Ownership Rates, 2011-2017
Future Purchase Intent

Purchase channels for drones are mixed between purchasing in a physical store versus online. Similar to the purchase channel profile of other consumer technology products, there is an even split between using physical store and online purchase.

Drone purchase intent

- Recreational Use: 96% (24% intent)
- Commercial Use: 42% (15% intent)

Purchase channel

<table>
<thead>
<tr>
<th>Channel</th>
<th>Commercial Use</th>
<th>Recreational Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drone specialist</td>
<td>27%</td>
<td>32%</td>
</tr>
<tr>
<td>Manufacturing company</td>
<td>26%</td>
<td>23%</td>
</tr>
<tr>
<td>Mass merchant</td>
<td>18%</td>
<td>15%</td>
</tr>
<tr>
<td>Photo retailer</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Electronics retailer</td>
<td>13%</td>
<td>9%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Future Purchase Intent

- 24% purchase intent
- 96% recreational use
- 42% commercial use

CTA.tech
Consumer Use

Have you ever seen a drone flying?  
- No: 40%
- Yes, just once: 25%
- Yes, multiple times: 35%

Have you personally flown a drone?  
- Yes: 20%  
  - Recreational: 90%
  - Commercial: 40%
  - Local Law Enforcement: 30%
Photography and General Purpose Flying Most Desired Potential Uses for Individuals

<table>
<thead>
<tr>
<th>Photography / videography</th>
<th>For commercial use*</th>
<th>For racing</th>
<th>For general flying</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Professional</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Amateur</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Commercial</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41%</td>
<td></td>
<td>25%</td>
<td>32%</td>
</tr>
<tr>
<td><strong>Recreational</strong></td>
<td>15%</td>
<td>17%</td>
<td>61%</td>
</tr>
<tr>
<td>27%</td>
<td>56%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Consumer Awareness

Among all consumers:

- 31%: Have heard of KBYF campaign
- 85%: On average, % of consumers who find Know Before You Fly campaign guidelines very important or important (All were exposed to the definition of KBYF campaign)

Resources consulted before flying a drone

Among current drone owners (n=393)

<table>
<thead>
<tr>
<th>Resource</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>State and local regulations</td>
<td>30%</td>
</tr>
<tr>
<td>Federal regulations</td>
<td>29%</td>
</tr>
<tr>
<td>Operational instructions/directions provided when purchasing/using the device</td>
<td>28%</td>
</tr>
<tr>
<td>KNOW BEFORE YOU FLY Campaign safety guidelines for recreational use</td>
<td>21%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
</tr>
</tbody>
</table>

- 68% Consulted any prior to flying a drone (Net)
- 75% Aware of any available resources
- 25% I was not aware of any available resources, and therefore did not read them prior to flying a drone
- 6% I was aware of the above resources but did not read them prior to flying a drone
- 4% Other
Consumer Awareness

Sources where consumers came across Know Before You Fly campaign guidelines
(*Among those who purchased a drone and are very familiar or familiar with campaign guidelines)

- Drone manufacturer's website: 50%
- Printed in the drone user manual: 40%
- An insert in the drone package I purchased: 40%
- Online key word search such as drone safety, flying a drone for the first time, etc.: 36%
- Printed on the drone packaging box: 26%
- Other: 2%