Inventing Smart Property Inspections with AI and Drones

Bees360, Inc.

October 2019

Background: Severe Weather Is More Frequent & Causes More Losses
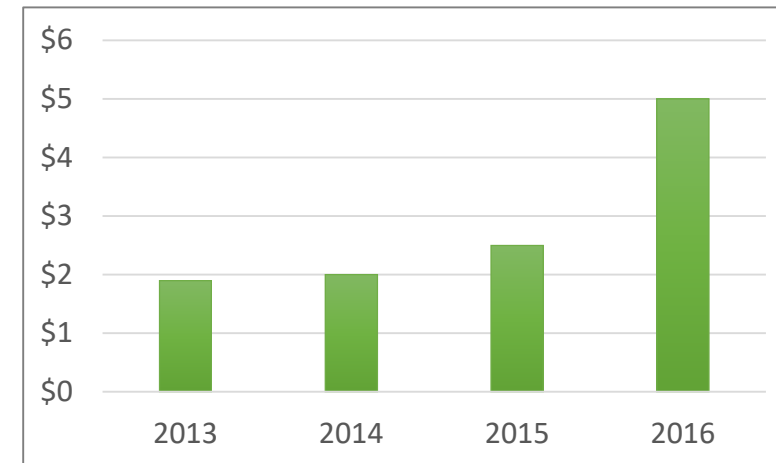
September 2017, Hurricane Irma
Total Losses: $50 Billion[1]

April 2016, Hailstorm, San Antonio, TX
Total Losses: $1.4 Billion[2]

$306.2 Billion[1]

2017, US

The cumulative cost of the 16 separate billion-dollar weather events in the U.S. in 2017 was $306.2 billion, breaking the previous cost record of $214.8 billion (2005).

Texas Residential Wind and Hail Losses[2]
($Billion)

Target Problem: Current Property Inspection Workflow

Claims Inspection

To see if storm damage is present and to determine if it will warrant an indemnity payment

Underwriting Inspection

To identify "hazards", or conditions which increase the risk of a loss

Claims Inspection
Climb ladder, walk on roof, chalk roof, visually find damages
Organize and assemble images manually to generate image report
Draw roof diagram and write the estimate report manually

Underwriting Inspection
Climb ladder or use camera pole to capture roof imageries
Manually organize images and generate image report No damage assessment

Pain Points: Costly, Inefficient, Inconsistent, Low Quality Imageries

Claims Inspection

Human subjectivity and error creates inconsistent findings, high risk of accidents when adjusters access the roof

Underwriting Inspection

Lack of complete assessment of risk that are present due to not accessing the roof

Claims Inspection	
High Cost	$600~$1200/claim
Low Efficiency	2~4 inspections/day
Long Cycle Times	7+ days
Inconsistent Results	Subjective Assessment

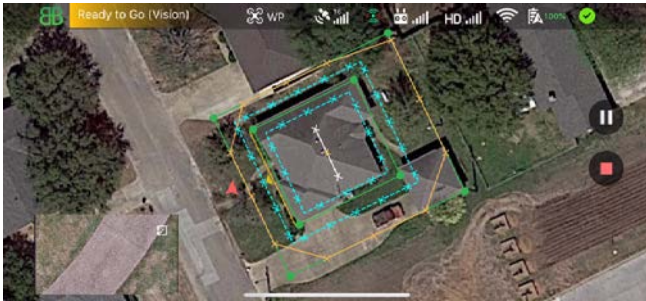| Underwriting Inspection	
Less Roof Imageries	10
Poor Image Angles	Oblique
Incomplete Coverage	Part of roof and property
Inconsistent Report	No consistent format

Addressable Market Size

Residential and Commercial Property Insurance

Property Type	Industry	Total # Properties	Volume	Inspection/Unit	Revenue
Residential	Underwriting	90 Million	45 Million[1,2]	$30	$1.35 Billion
	Claims (Hail/Wind)		2.25 Million	$800	$1.8 Billion
Commercial	Underwriting	5.6 Million[3]	2 Million	$200	$0.4 Billion
	Claims (Hail/Wind)		0.15 Million	$2,600	$0.4 Billion

Appraisal and Mortgage

House Type	Total # Transactions	Inspection/Unit	Revenue
Existing Home	5.34 Million[4]	$550	$2.9 Billion
New Construction	0.67 Million[4]	$550	$0.4 Billion

Our Solution: AutoFly Drone + AI + Unbeatable Pricing Model

Pricing Model	
Drone App	Free
Premium Damage Assessment	$40
Underwriting (including Pilot)	$25~$75

1. Autonomous Drone Flight

Minimal requirement for pilot's skillset

Standardize image acquisition

Make drone operation as easy as possible

Significantly increase inspection efficiency

Replace Ladder & Enable Any Pilot

2. Artificial Intelligence

Consistent damage assessment

Automated report generation process

No chalk inspection needed

Dramatically reduce roof climbing

Absorb Adjuster's Experience

3. Unbeatable Pricing Model

Dramatically reduce carrier's cost

Easier to penetrate the market

No one is able to offer our price, not even close

Remove biggest barrier to adopt drones

Remove Entry Barrier

Our Solution: Benefits

Category	Others	Bees360
Claims Inspection Efficiency	2~4 inspections/day, including report	8-12 inspections/day, including report
Claims Turnaround Time	7 days	On-site ~ 24 hours
Claims Processing Cost	$600~$1200/claim	Less than $100
Result Consistency	No consistency	Consistency guaranteed
Underwriting Inspection Quality	Limited imagery information	More complete imagery information
Underwriting Drone Inspection	$150~$400/inspection	$25~$75/inspection

Uniqueness: Most Accurate Damage Assessment AI in the US

Bees360: Automated Damage Detection AI (85%+ Accuracy)

Others: Poor Quality (<30% Accuracy)

10ft x10ft test square

Detection results

Cropped detailed damages

Close-up image projection on rooftop

Uniqueness: Unbeatable Pricing Model

Bees360:

$25~$75/underwriting inspection, including pilot fee

Other competitors:

$150~$400/underwriting inspection, including pilot fee

Client Comment:

"We all want to use drones for underwriting, but only Bees360's price is close to our current pricing model. They are our only choice. On top of that, their technology is the best we have ever seen."

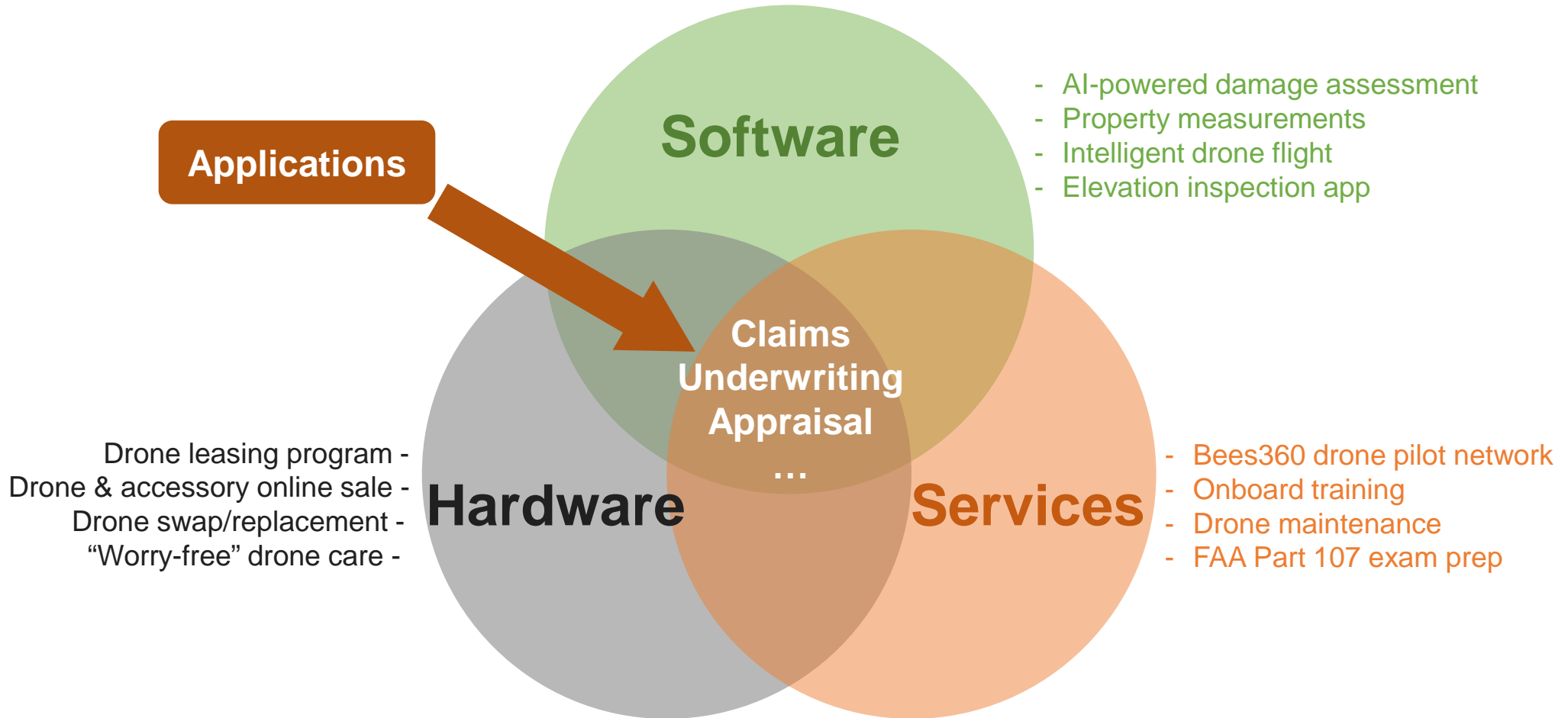- Bill Crawford, CEO of Associated Services Inspections

Marketing Strategy

Most Desired Technology

+

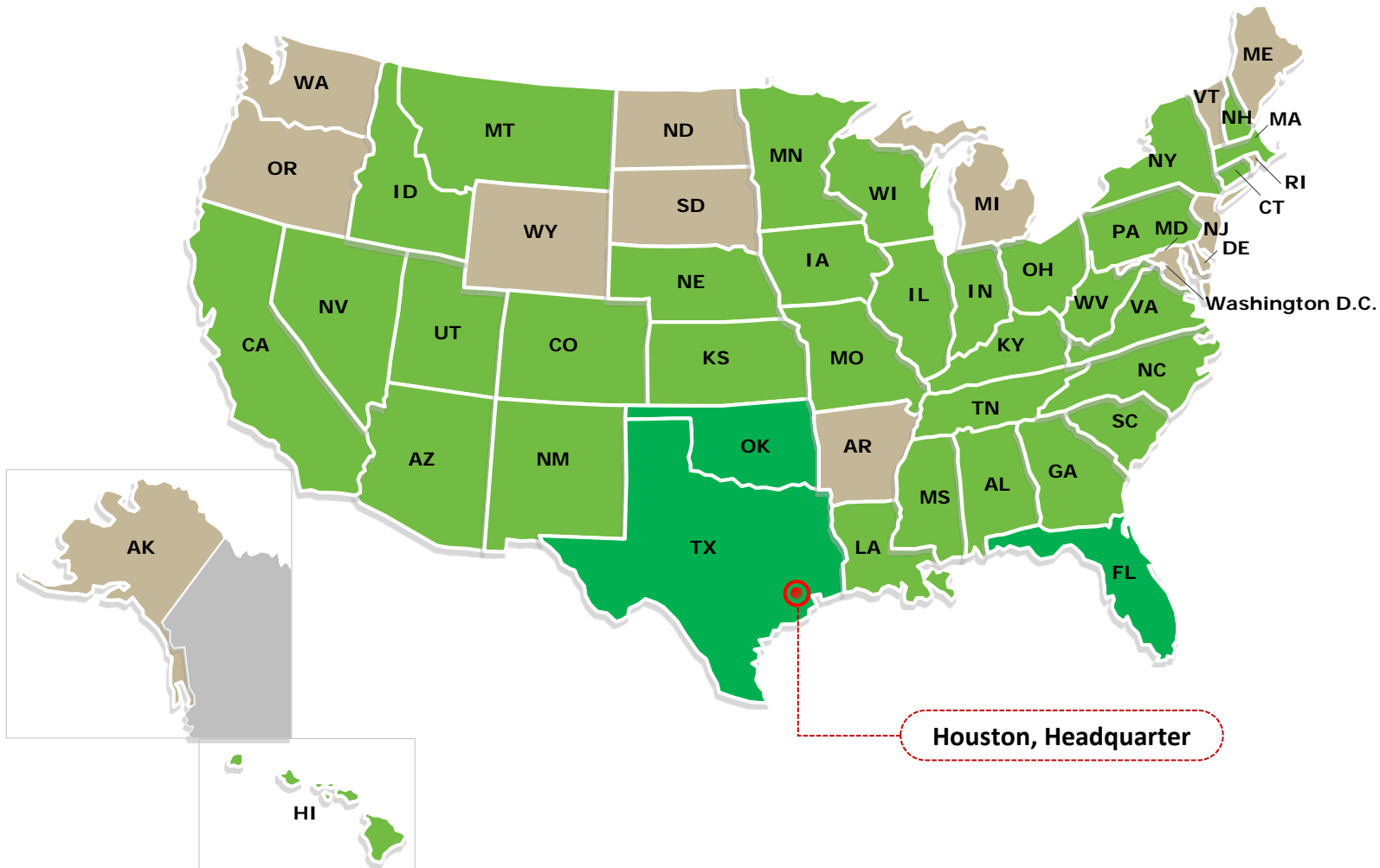**Unbeatable Price**

=

Market Dominance

Three Success Factors for To B Technology:

- ***Significantly*** increase efficiency
- ***Significantly*** lower cost
- ***Significantly*** improve customer experience

Business Model

Applications

Software
- AI-powered damage assessment
- Property measurements
- Intelligent drone flight
- Elevation inspection app

Services
- Bees360 drone pilot network
- Onboard training
- Drone maintenance
- FAA Part 107 exam prep

Hardware
- Drone leasing program
- Drone & accessory online sale
- Drone swap/replacement
- "Worry-free" drone care

Claims
Underwriting
Appraisal
…

Current Operation: Cover 36 States, Nationwide Pilot Coverage

Houston, Headquarter

Item	Number
States (in green)	36
Top Three States	TX, OK, FL
# total jobs	~24,000
# images	~3,000,000
# registered pilots	~600
Pilot coverage	Nationwide

Bees360

Thank you!

Federal Update

- **H.R. 4753 (Crenshaw R-TX) -** Drone Origin Security Enhancement Act
  - To prohibit the Secretary of Homeland Security from operating or procuring foreign-made unmanned aircraft systems, and for other purposes
  - Passed Homeland Security Committee with bipartisan support (10/23)
  - If approved, the bill would block the Department of Homeland Security from purchasing or operating unmanned aircraft from China's DJI Technologies
- **S. 2502 (Scott R-FL) -** American Security Drone Act of 2019
  - A bill to ban the Federal procurement of certain drones and other unmanned aircraft systems, and for other purposes
  - Introduced
- **H.R. 2500 (Smith D- WA) -** National Defense Authorization Act for Fiscal Year
  - Passed House

Texas Update

- Lawsuit filed on behalf of "visual journalists" in U.S. District Court to challenge Government Code 423
  - The plaintiffs' pending lawsuit challenges aspects of Government Code 423
  - The plaintiffs are challenging the application of "capture" as it pertains to Government Code 423
    - Currently, it is unlawful to conduct surveillance with an unmanned aircraft
    - However, "surveillance" is not defined
    - "Unmanned aircraft" also is not defined

UAS Legislative Working Group Meeting

- Objective of the Working Group:
  - To review existing laws affecting the safe operation of unmanned aircraft
- Recommend proposed legislation or proposed changes that support the safe operations of unmanned aircraft.
- Items discussed:
  - National Airspace Rights
  - Critical Infrastructure
  - Power Grid as defined in Government Code 423

Questions and Comments

Contacts

Amanda Wilson
Program Manager
(817) 695-9284
awilson@nctcog.org

Rebekah Hernandez
Communications Supervisor
(682) 433-0477
rhernandez@nctcog.org

Nick Allen
Communications Coordinator
(817) 704-5699
nallen@nctcog.org

Kyle Roy
Communications Coordinator
(817) 704-5610
kroy@nctcog.org

www.nctcog.org/legislative

NCTCOG Incident Management Equipment Purchase

➢ Purpose: To Assist Partner Agencies in Purchasing Equipment and Technology that Aid in Quick Incident Clearance and Mitigation

➢ Supports Current Incident Management Training Recommendation to Use Best Practice Equipment and Technology

➢ Emphasizes Importance of Implementing Incident Management Strategies and Training

2

Funding Availability/Requirements

➢ **$1.5 Million Available**

➢ Funding Split:

66% Eastern Sub-Region = $990,000

34% Western Sub-Region = $510,000

o *Local Match – TDCs*

➢ FHWA Buy America Compliance Requirements for Equipment Made with Steel or Iron - *100% of Steel or Iron Should be Made in America*

➢ Where Appropriate, NCTCOG Proposes to Lead Procurement Activities in an Effort to Eliminate Risk of Buy America Non-Compliance

Proposed Eligible Recipients and Activities

Eligible Recipients
- Public Sector Partner Agencies within the NCTCOG 10-County Nonattainment Area Actively Involved in Incident Management
  - Police, Fire/EMS, Courtesy Patrol, Etc.
- Completion of Sub-recipient Risk Assessment

Eligible Activities
- Purchase of Equipment and Technology Used in Mitigating Crashes
  - Examples include: traffic barriers, cones, flares, protective clothing, signs, cameras, lighting, crash reconstruction technology, etc.

Possible Pilot Project
- NCTCOG May Consider Requests to Purchase Equipment Used to Provide Blockage During Incident Response (e.g. Crash Barriers, Attenuators, etc.)
  - Special Pilot Project Would be Funded Using a Different Funding Category

Ineligible Activities/Purchases
- Personnel and Staffing Charges
- Vehicle Purchases (Due to Lack of FHWA Buy America Exemptions for Vehicles)

4

Eligible Equipment/Technology Examples

	Eligible Equipment/Technology - Examples
1	Incident Detection and Notification Equipment (Dynamic Message Boards, Radios, TMC Equipment, Thermal Imager, etc.)
2	Traffic Control and Scene Management Equipment (Cones, Flares, Signs, Lighting, Safety Gear, Vehicles, Opticom Emitters, Push Bumpers, and Transit Clusters, etc.)
3	Accident Investigation/Reconstruction Technology

Proposed Scoring Criteria

Scoring Component	Available Points
TIM Training Attendance - NCTCOG or In-house *(Since August 2013)*	15
Crash Data in Jurisdiction	10
Adoption of Incident Management Resolution	10
Incident Management Goals/Targets in Place	5
Completion of Incident Management Commitment Level Survey	5
Adoption/Implementation of Regional Performance Measure Standard Definitions	5
Explanation of How Equipment will be Used to Mitigate Crashes	50
Total Score	**100**

Proposed Schedule

DATE	ACTION
~~September 2018~~	~~STTC (Action Item) – Request Approval to Conduct CFP~~
~~October 2018~~	~~RTC (Action Item) – Request Approval to Conduct CFP~~
~~October 2019~~	~~TIM Funding Agreement Approved~~
~~October 2019~~	~~STTC (Action Item) – Request Approval to Conduct CFP~~
November 2019	RTC (Action Item) – Request Approval to Conduct CFP
December 2019	Open Call for Projects (60 days)
January 2020	Close Call for Projects
Feb. 2020 – March 2020	Evaluate Submitted Projects
March/April 2020	RSAC and Public Meeting (Info) – Present Proposed Selected Projects
April 2020	STTC (Action) – Approval of Selected Projects
May 2020	RTC (Action) – Approval of Selected Projects
June 2020	Executive Board Meeting

Partner Agency Input

Incident Management Commitment Level Survey

➢ Seeking New Project Ideas for Crash Reconstruction Software/Technology

  o **https://www.surveymonkey.com/r/VPPVNDX**

20. Are There Any Hardware, Software, Training or Other Needs to Assist Your Agency In Responding To and Clearing Incidents More Safely and Efficiently?*

If Yes, Please Provide Examples of What is Needed in the Comment Box Below.

◯ Yes

◯ No

Examples:

8

Contact Information

Camille Fountain
Transportation Planner
cfountain@nctcog.org
(817) 704-2521

Sonya Jackson Landrum
Program Manager
slandrum@nctcog.org
(817) 695-9273

Natalie Bettger
Senior Program Manager
(817) 695-9280
nbettger@nctcg.org