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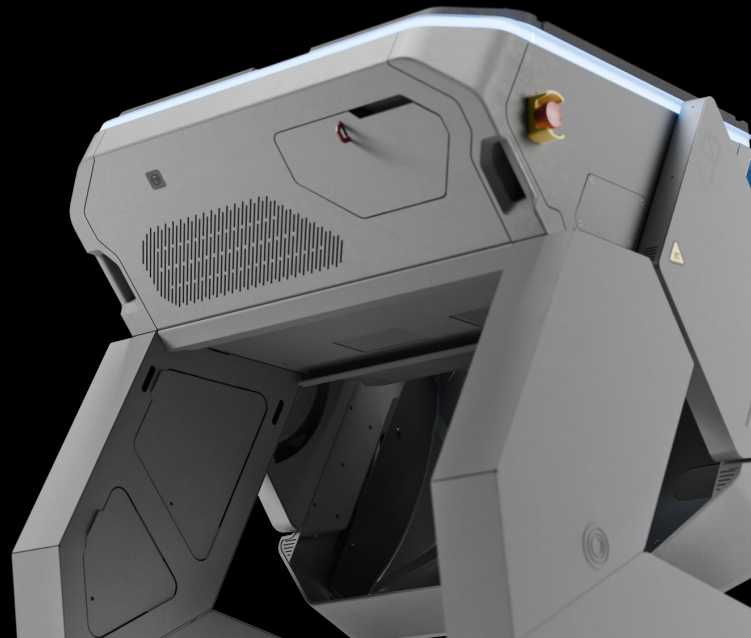
Designing for DFR Program Value



Katrina Armistead

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Session Objectives

Designing for DFR Program Value

1. Understand the importance of tracking ROI for your program
2. Identify relevant use cases & where to start
3. Adapt an example framework for your agency goals

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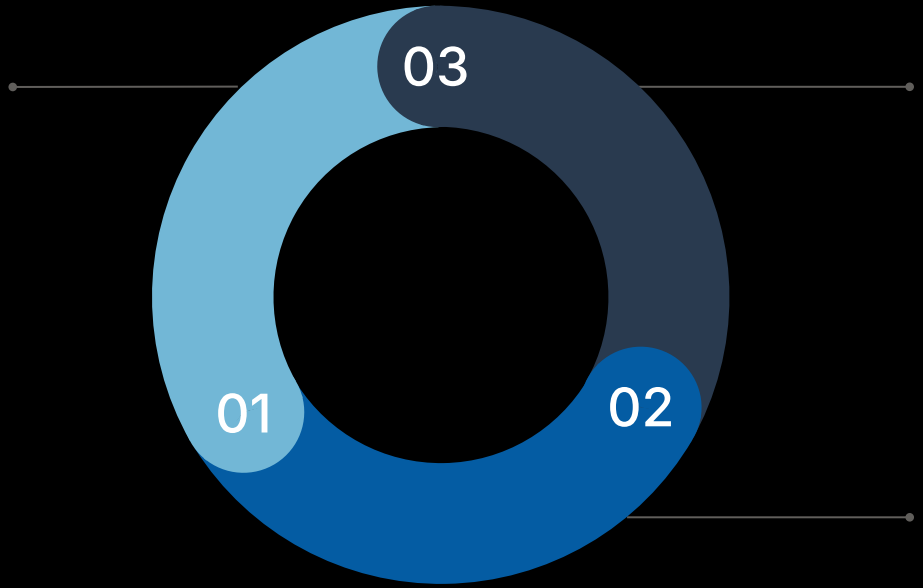
Why is understanding program value important?

Drone programs are expensive.

Hardware + Software
Infrastructure and Installation
Integration Work
Training
Staffing
Real-time Information Center / Remote Operations Center
Sustainment Cost



Evaluate results over time

Are you meeting the goals you set?

Communicate the benefits to critical stakeholders

How does the business case incorporate bigger organizational goals?

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What is your agency hoping to achieve?

Save lives & increase safety

Real-time situational information without sending officers blindly into danger

Improve response times

Arrive on scene in less than 2 minutes

Save money

Recover dispatch labor with greater call efficiency, minimize claims, avoid medical leave

Reduce use of force incidents

More information, faster allows for the time & distance needed to make better tactical decisions

Improve community relationships

Capture crime in progress, locating subjects and vehicles, resulting in higher solve rates

Address mental health and wellness

Loss of life is devastating, priceless, and irreplaceable

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The ROI Framework

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The ROI Framework

Identify discrete use cases

Where are you on the path to adoption?

What improvements are critically important to your agency?

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Types of DFR Operations

Crash Scene Reconstruction

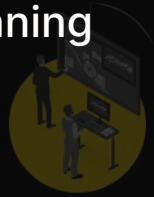
Crime Scene/Fire Investigation Reconstruction

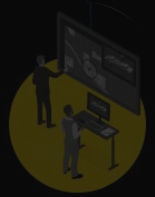
Search and Rescue

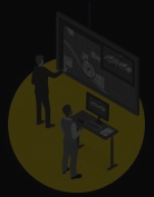
SWAT (barricaded subjects, high risk warrants)

Overwatch at Fire and Hazmat Incidents

Incident Pre-Planning







Specialized Units

Patrol-Led Deployment

Patrol-Led Drone as First Responder

Crew/Dock-Based Drone as First Responder (Piloted)

Dock-Based Drone as First Responder (Autonomous)

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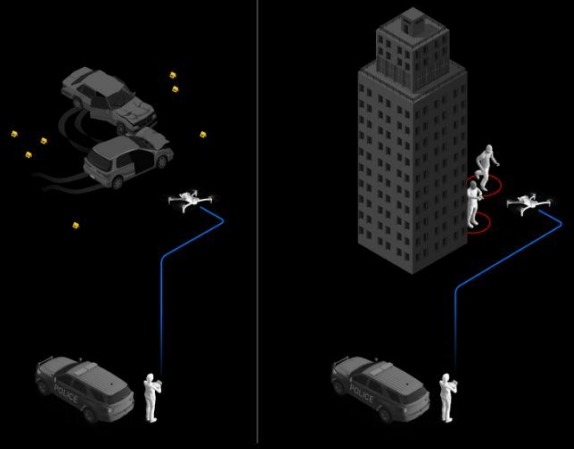
Types of DFR Operations



Specialized Units

Patrol-Led Deployment

- Crash Scene Reconstruction
- Crime Scene/Fire Investigation Reconstruction
- Search and Rescue
- SWAT (barricaded subjects, high risk warrants)
- Overwatch at Fire and Hazmat Incidents
- Incident Pre-Planning
- **Patrol Overwatch**

Patrol-Led Drone as First Responder

Crew/Dock-Based Drone as First Responder (Piloted)

Dock-Based Drone as First Responder (Autonomous)

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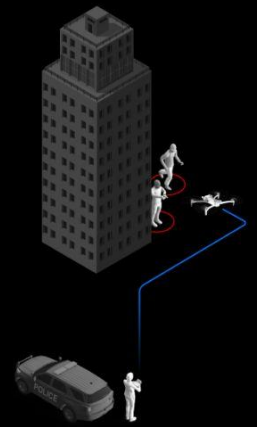
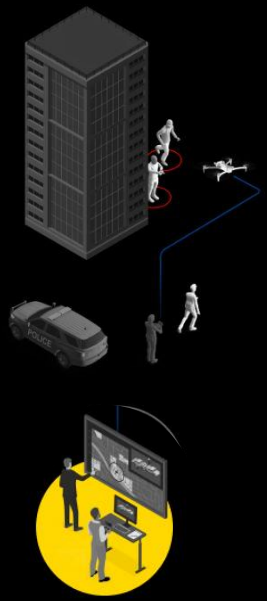
Types of DFR Operations

Specialized Units



Patrol-Led Deployment



Patrol-Led Drone as First Responder

- Crash Scene Reconstruction
- Crime Scene/Fire Investigation Reconstruction
- Search and Rescue
- SWAT (barricaded subjects, high risk warrants)
- Overwatch at Fire and Hazmat Incidents
- Incident Pre-Planning
- Patrol Overwatch

Crew/Dock-Based Drone as First Responder (Piloted)

Dock-Based Drone as First Responder (Autonomous)

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Types of DFR Operations

Crash Scene Reconstruction

Crime Scene/Fire Investigation Reconstruction

Search and Rescue

SWAT (barricaded subjects, high risk warrants)

Overwatch at Fire and Hazmat Incidents

Incident Pre-Planning

Patrol Overwatch

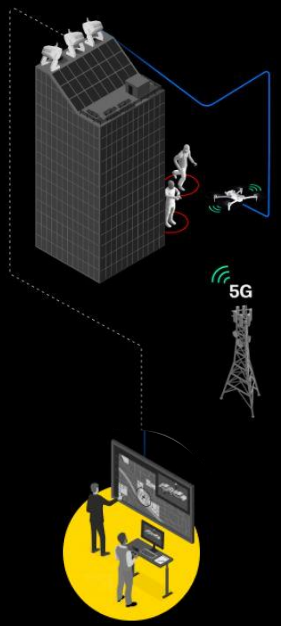
Call for Service Response

Auto Theft Prevention

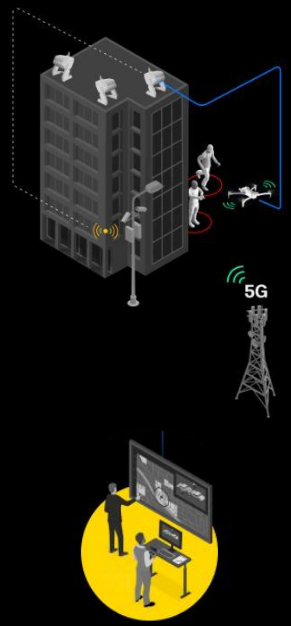
Specialized Units

Patrol-Led Deployment

Patrol-Led Drone as First Responder



Crew/Dock-Based Drone as First Responder (Piloted)



Dock-Based Drone as First Responder (Autonomous)

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The ROI Framework

Identify discrete use cases

Understand the current process

How long does it take?

How many people are involved?

What equipment is used?

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The ROI Framework

Identify discrete use cases

Understand the current process

Measure the difference

How do the processes change when drones are added to the workflow?

For dock-based DFR, use data-driven deployment

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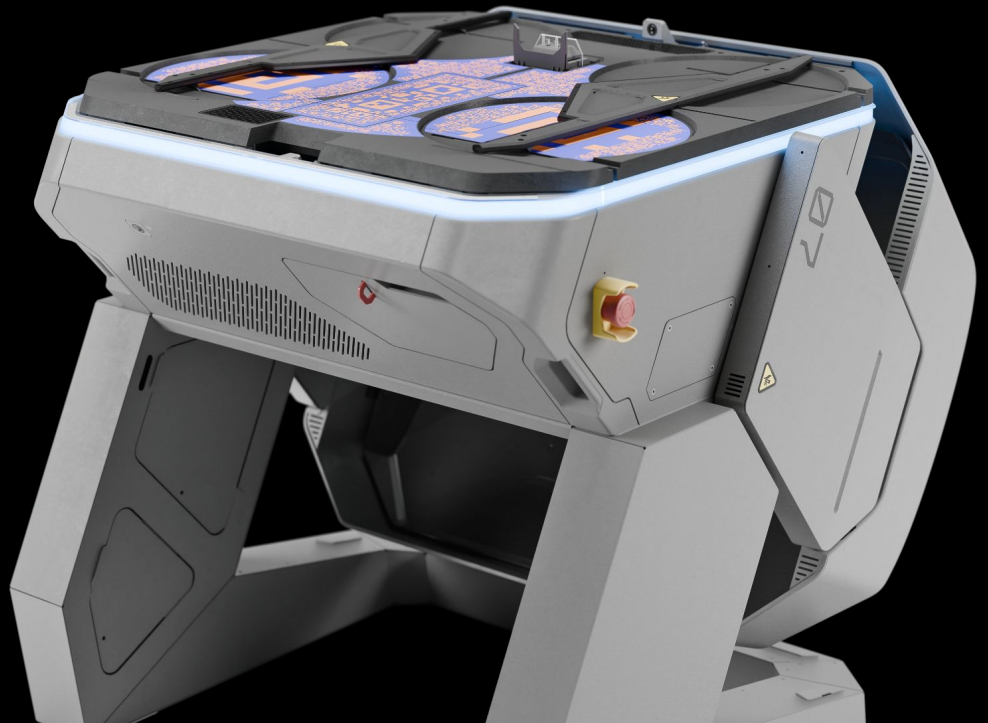
How many, where?



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Skydio's DFR Deployment Simulation takes the guesswork out of Dock deployment based on real agency data

Calls for Service

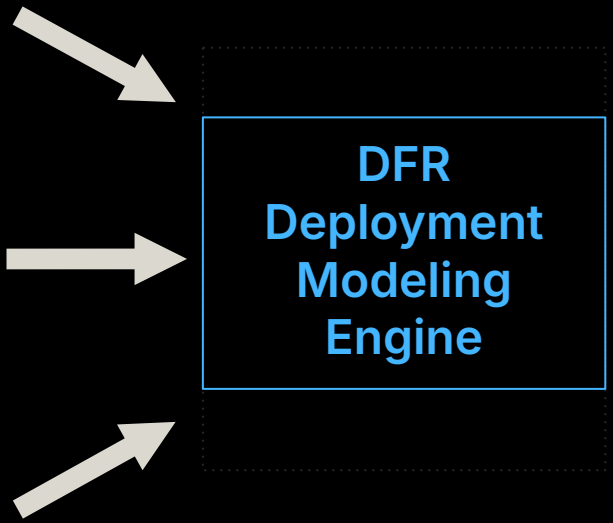
- What are the important call priority classifications for drone response?
- Is there a contingency for simultaneous calls?
- What is the average call duration?

Airspace

- How large is the coverage area?
- Where are the FAA's no fly zones?
- Are there waivers in place to enable BVLOS flight?

Vehicle Parameters

- What is the flight time?
- What is the average cruise speed?
- What is the expected battery life?
- What is the takeoff time?



All you need are call dates, times, and the location

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Menu

Back to overview

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Export

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A0000525	2C	94	DISCHARGING FIREARM	2025-01-01T00:03:08.487000	POINT(-90.12104322 29.969...
A0000625	1	107	SUSPICIOUS PERSON	2025-01-01T00:03:14.237000	POINT(-89.95688632 30.049...
A0000725	1A	94	DISCHARGING FIREARM	2025-01-01T00:03:36.930000	POINT(-90.05513893 30.019...
A0000825	1	94	DISCHARGING FIREARM	2025-01-01T00:03:48.550000	POINT(-90.0657235 29.9788...
A0000925	2D	24	MEDICAL	2025-01-01T00:05:07.610000	POINT(0 0)
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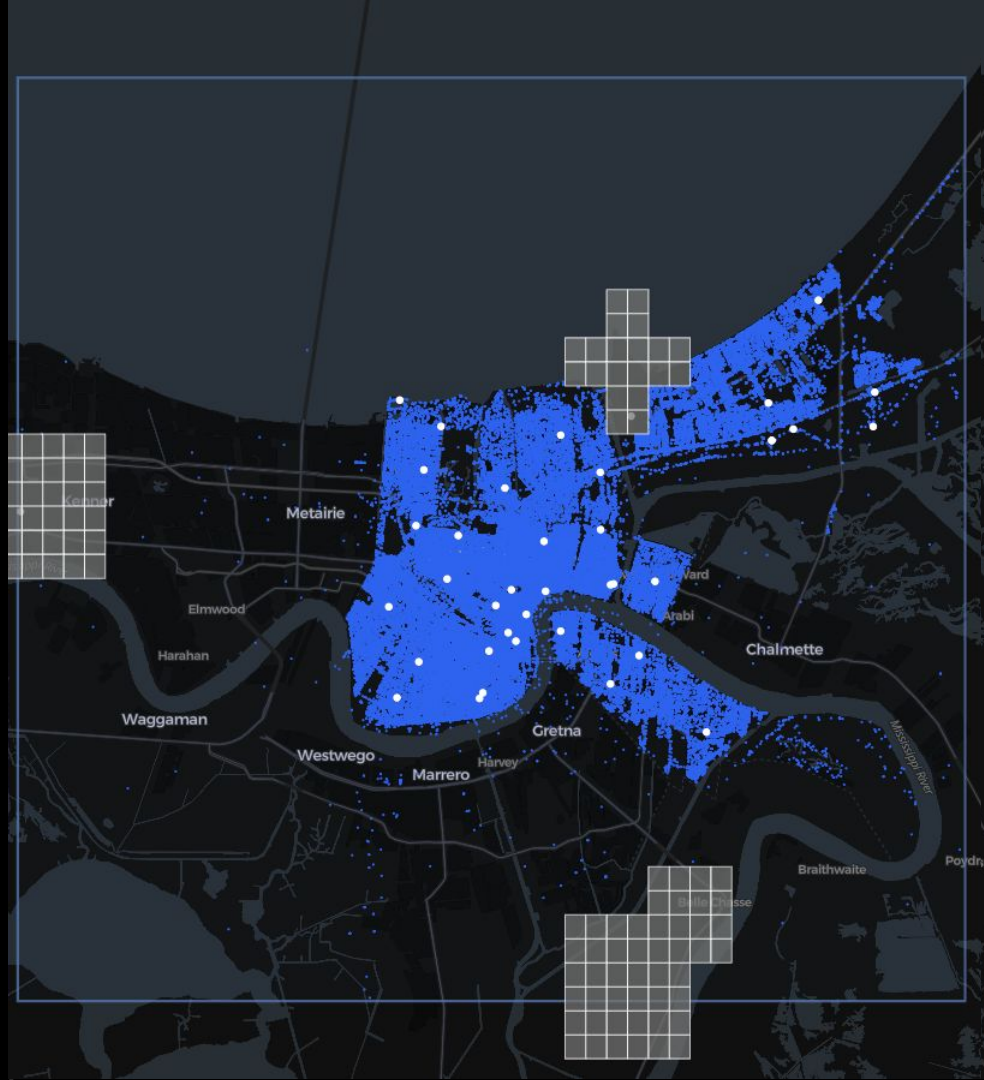
New Orleans gets ~300K calls for service annually.

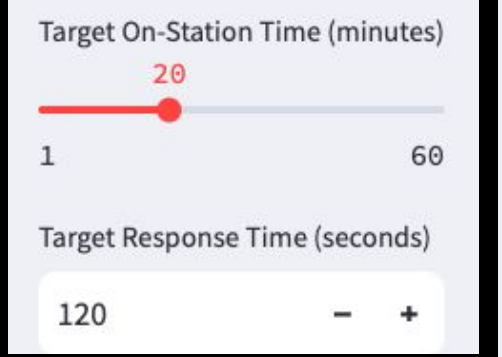
All Priorities

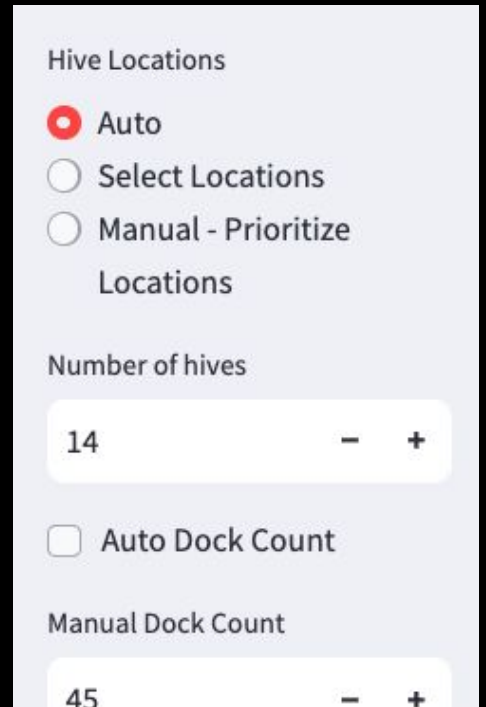
Avoid 0′ and 50′ Ceilings

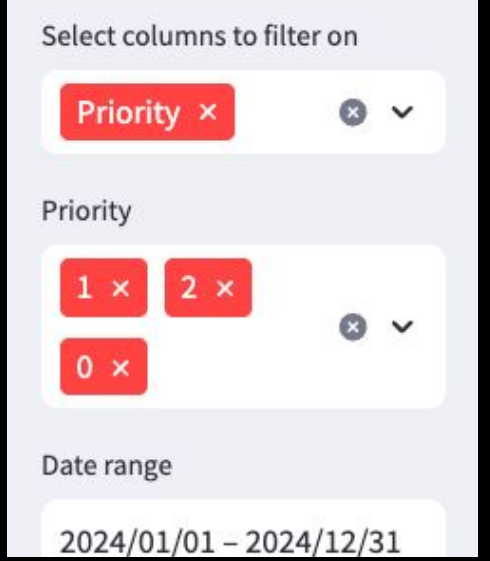
X10 with NightSense

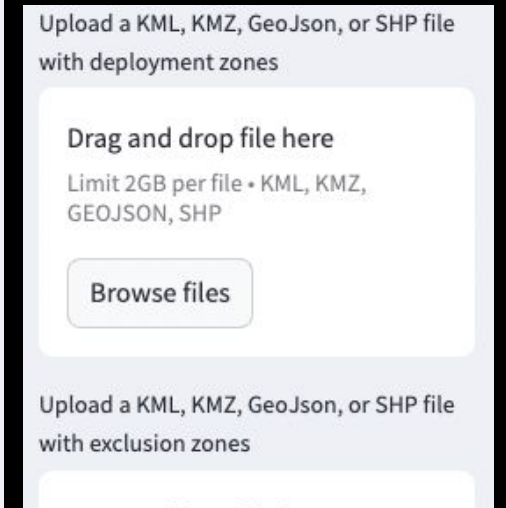


Drive to desired outcomes with different response parameters



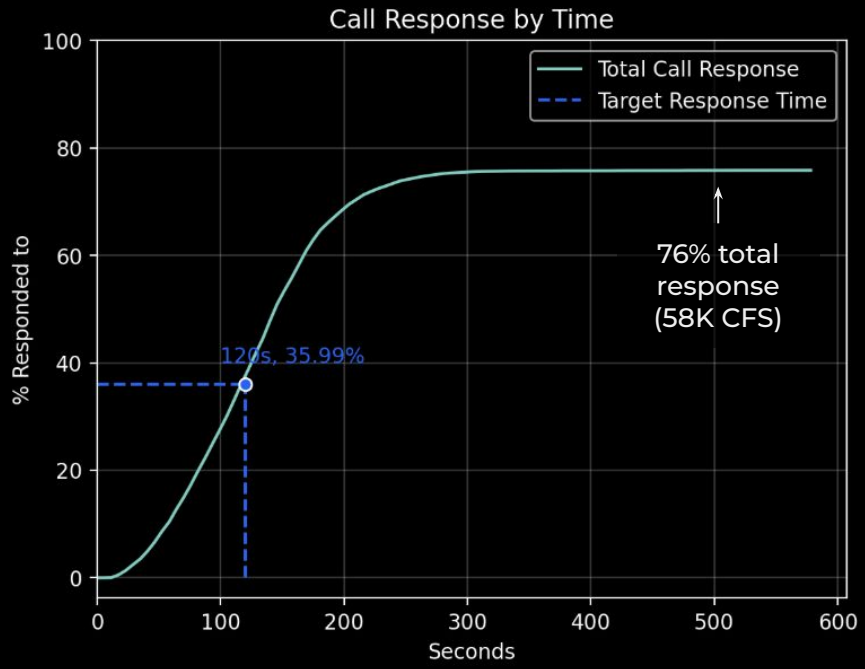




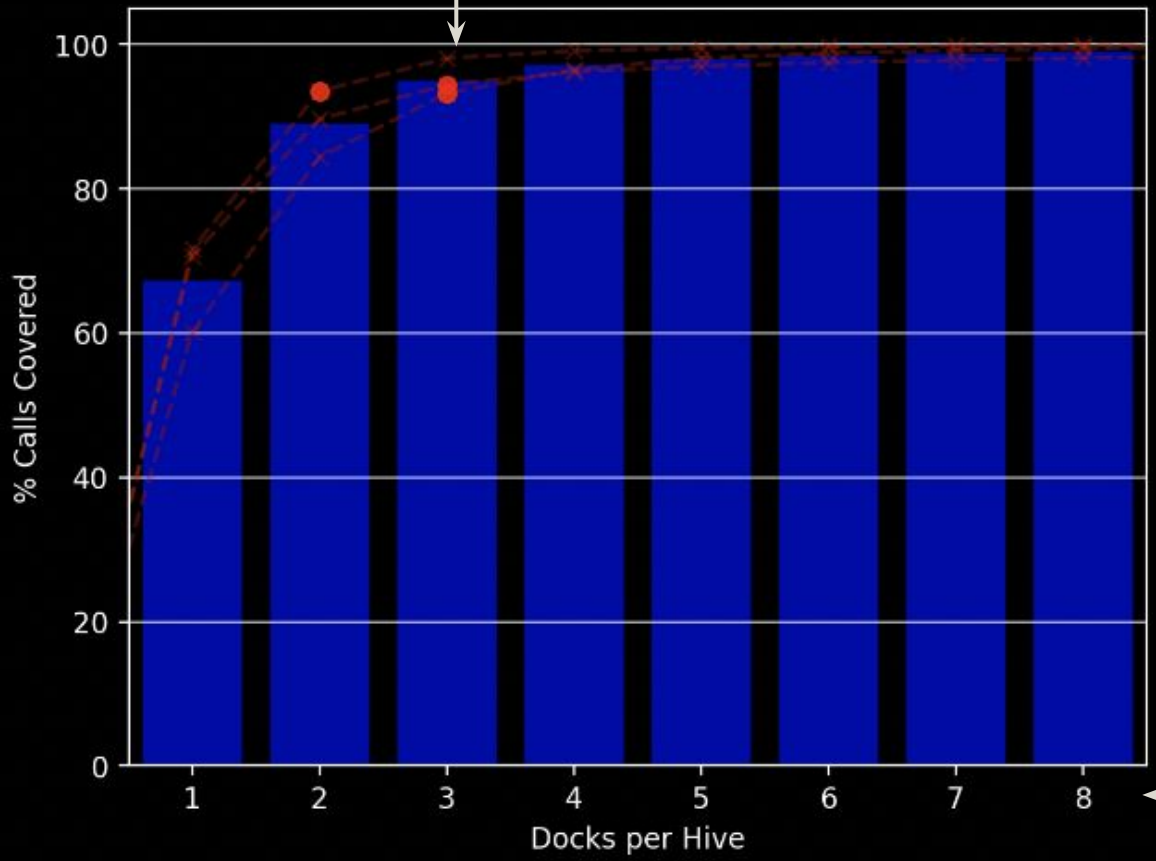


Recommended Initial Deployment

22 Docks in 7 Hives could respond to 27K calls under 120 seconds, which is 36% of P0-2 CFS.



Deployment is scalable; different levels of investment will yield different results.

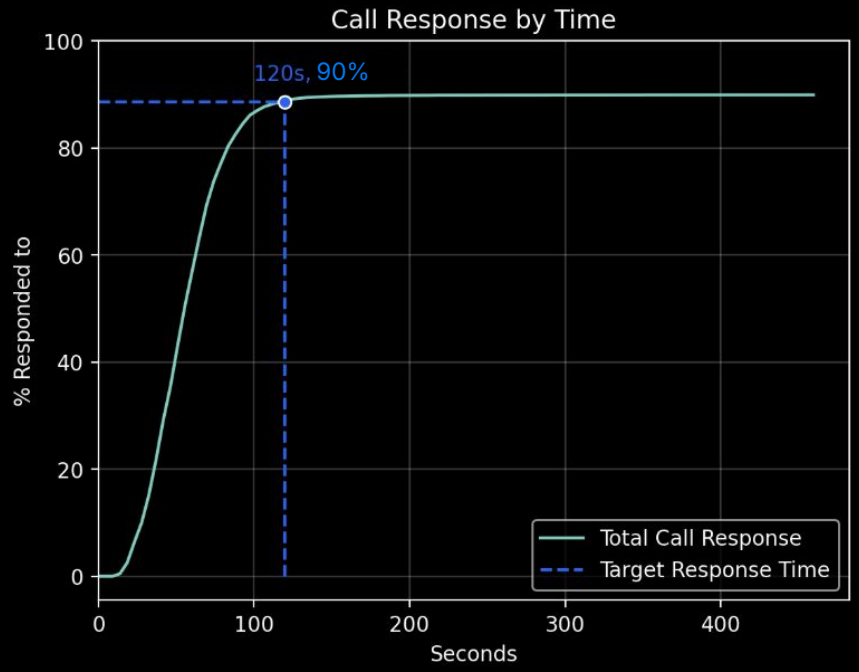


Simulation optimizes to give the best coverage without leaving you with idle docks

Increasing dock count decreases response times and increases coverage.

Full Deployment

115 Docks in 35 Hives could respond to 275K calls under 120 seconds, which is 90% of all CFS.



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Using public data & industry benchmarks, we can calculate the expected annual program value.

21%

Of calls can be resolved without sending a patrol officer

50%

UoF Reduction with real-time overwatch information

2x

Area coverage for SAR

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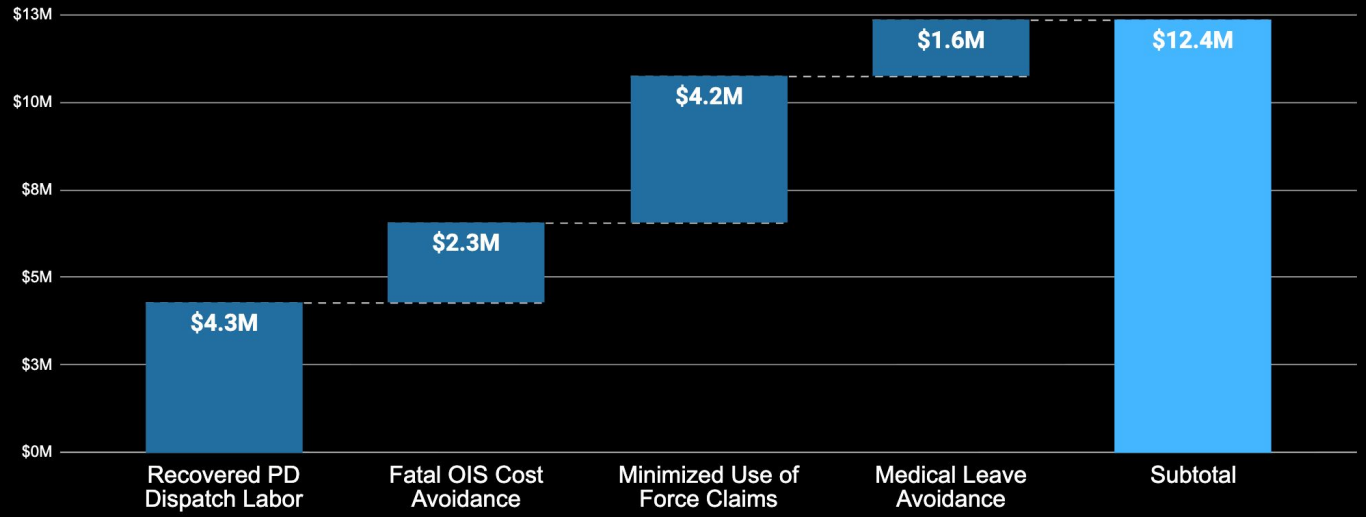
Full scale DFR deployment could reduce operating costs by $12.4M annually



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The ROI Framework

Identify discrete use cases

Understand the current process

Measure the difference

Evaluate program costs

What needs to get done to support your program?

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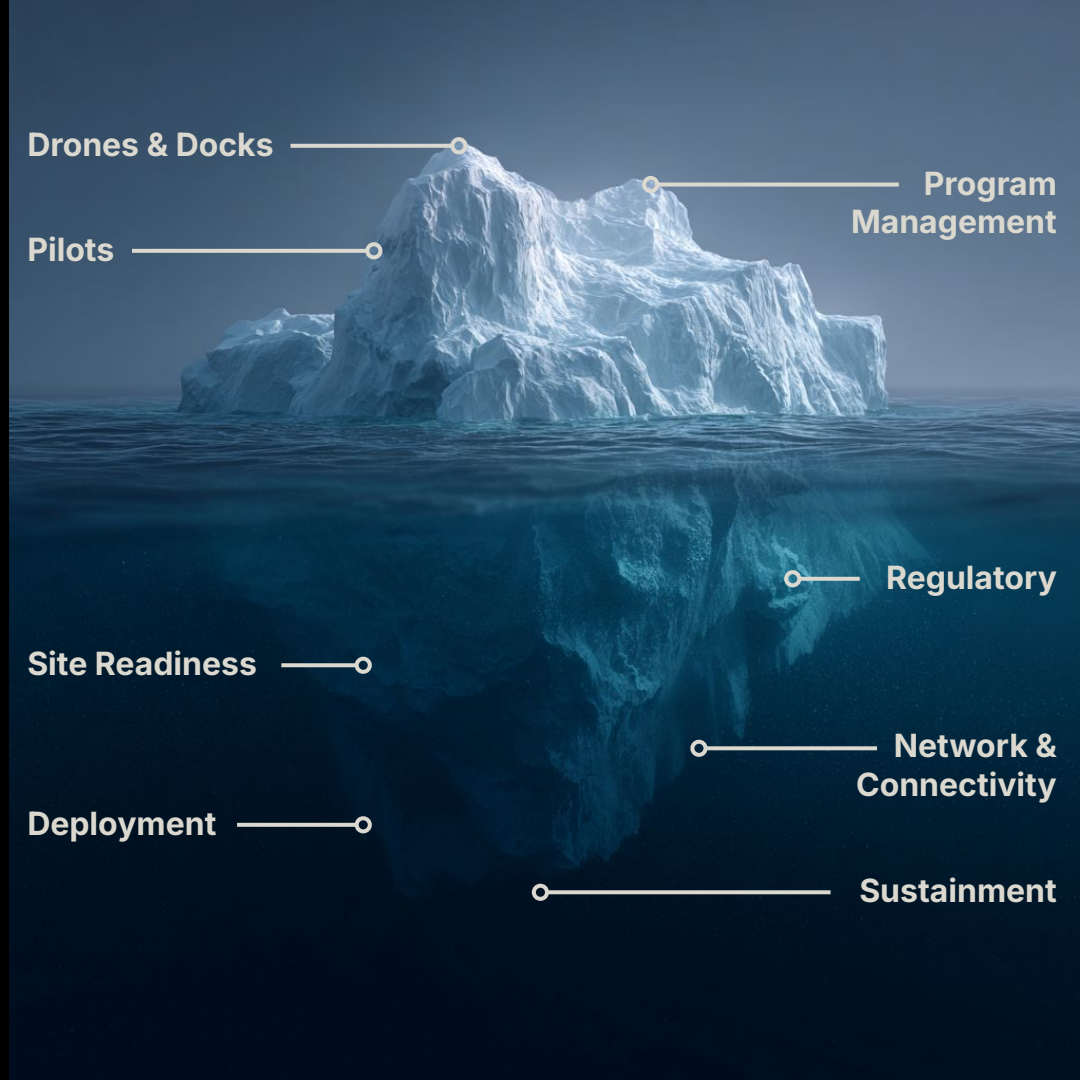
Buying drones is just the tip of the iceberg

Understanding ongoing operating costs upfront is critical for program success



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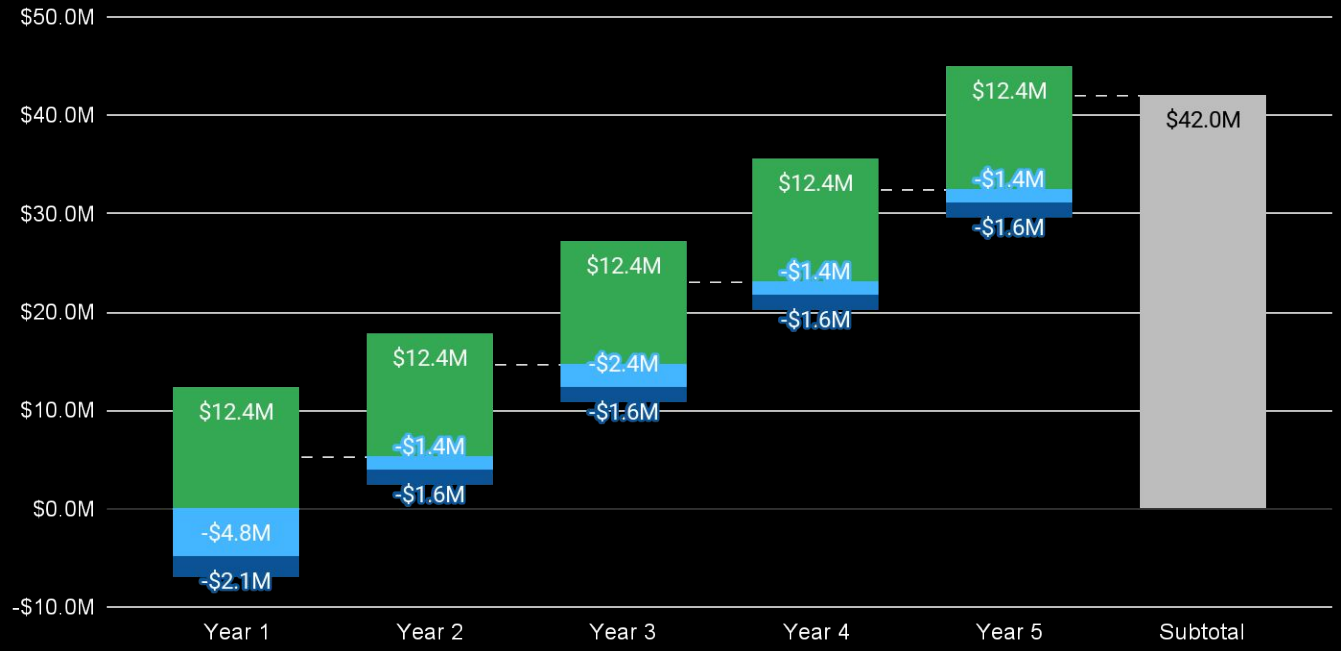
Calculating the programmatic ROI allows for strategic planning



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The ROI Framework

Identify discrete use cases

Understand the current process

Measure the difference

Evaluate program costs

Explain the value

What story do the numbers tell?

How will you measure success?

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Explain the numbers as they relate to program goals

Save lives & increase safety

officer injuries avoided

Improve response times

Average minutes to arrival

Save money

Redistributed officer hours, UoF claims avoided

Reduce use of force incidents

OIS over time

Improve community relationships

Arrests made, cases closed

Address mental health and wellness

Reduced officer churn

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Track KPI’s for ongoing program calibration

SAN FRANCISCO POLICE DEPT

42% reduction in auto theft
500+ arrests
30% drop in overall crime

REDMOND POLICE DEPT

88 sec average response time
48% faster than officers on P1
25% of CFS cleared without patrol

LAKEWOOD POLICE DEPT

590 flights in 11 weeks
47% of CFS received DFR
38% of CFS cleared without patrol

OKLAHOMA CITY POLICE DEPT

40% flights for fire-related calls

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