RESEARCH BRIEF
Post-Project Report

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Unmanned Aircraft and the Human Element: Public Perceptions and First Responder Concerns

Project Team

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Introduction

Unmanned Aircraft Systems (UAS) are a relatively mature technology currently used for military and homeland security purposes that are quickly being developed for transition to public safety, first responder, and commercial applications in the United States. Although currently closely regulated by the Federal Aviation Administration (FAA), UAS are expected to be cleared for wider use in the continental United States (CONUS) following the congressional mandate that FAA establish guidelines for use within U.S. national airspace by 2015 (H. Rep. No. 112-381). Furthermore, economic forecasts predict that the UAS domestic market will have annual sales of 40,000 units by 2015 and sales are expected to grow to 160,000 units within 10 years (Jenkins & Vasigh, 2013).

RTI International began a research program in 2012 dedicated to understanding the social, behavioral, and policy factors associated with UAS technology. As part of this research program RTI conducted two pilot studies to inform our understanding of public perceptions and law enforcement concerns. The first pilot study was a nonrepresentative survey of police chiefs in Ohio. The second pilot was a public perception survey of the general population of the United States. The results of these studies are summarized below. More extensive analysis of these data will be presented in subsequent publications.

Methods

The first pilot was conducted in Ohio through support from the Institute for Homeland Security Solutions (IHSS) and the Ohio Association of Chiefs of Police (OACP). RTI worked with OACP to develop a set of questions about the level of awareness, potential applications, and concerns about the adoption of UAS in its law enforcement operations. These questions were programmed into an online survey instrument using SurveyGizmo and administered by OACP staff to its membership in an e-mail that included a cover letter from the OACP President. One nonresponse follow-up e-mail was sent to the membership list 10 days after the initial survey. A total of 748 surveys were distributed and 119 were completed in March 2013.

The second pilot was conducted as part of a RTI self-funded omnibus survey of a nationally representative sample of more than 2,000 respondents in the United States. The survey was conducted in March 2013 and included 14 questions about the public's perceptions of unmanned aircraft in the United States. Some of the questions were replicated from a previous study conducted by Monmouth University (2012). The survey was administered via web to a panel of respondents maintained by Knowledge Networks. Of the 3,623 panelists invited to participate, 2,119 responded to the survey.[1]

Results

The two pilot studies were designed to gauge the level of awareness and support for the use of UAS in U.S. airspace to better understand public and law enforcement concerns and perceived barriers to adoption. The general public reported a fairly low level of awareness, with a little less than half (44%) reporting that they knew *just a little* or *nothing at all* about UAS applications in U.S. airspace. When asked about their level of support for UAS applications,

[1] Information about Knowledge Networks and their panel survey design is at http://www.knowledgenetworks.com/.

well over half of the general public indicated support for any application (57%), and higher levels of support for applications in homeland security (67%), fighting crime (63%), search and rescue (88%), and commercial applications (61%). In contrast, the lowest level of support in the general public was for routine, everyday use (43%). Although the support was fairly high, most respondents reported high levels of concerns with the transition to the domestic airspace, noting that they were *somewhat concerned* or *very concerned* with the potential monitoring outside our homes and in public spaces (67%), safety issues (65%), and the ability of the government to regulate use (75%).

The law enforcement community reported a slightly lower level of awareness, with more than half (51%) reporting that they knew *just a little* or *nothing at all* about UAS applications in U.S. airspace. When asked about potential applications for their policing mission, the most frequently reported potential application was for search and rescue operations (93%), followed by photo flights for crime scene investigations (81%), drug location and interdiction (73%), investigations and criminal surveillance (72%), and emergency response (66%). The law enforcement respondents reported the lowest support for potential applications in traffic monitoring (26%). When asked about their concerns with adopting the technology, law enforcement respondents most frequently reported that they were *somewhat concerned* or *very concerned* with cost (79%), followed by applicability of current search and seizure laws (68%), pushback from privacy watchdog groups (65%), safety (58%), ability to train and recruit staff to operate UAS (31%), and FAA regulations (25%). Even with these concerns the interest in UAS remains high among law enforcement, with the majority reporting that the potential advantages of UAS outweigh the barriers (62%). See Figures 1–5.

Figure 1. Level of Awareness of Unmanned Aircraft

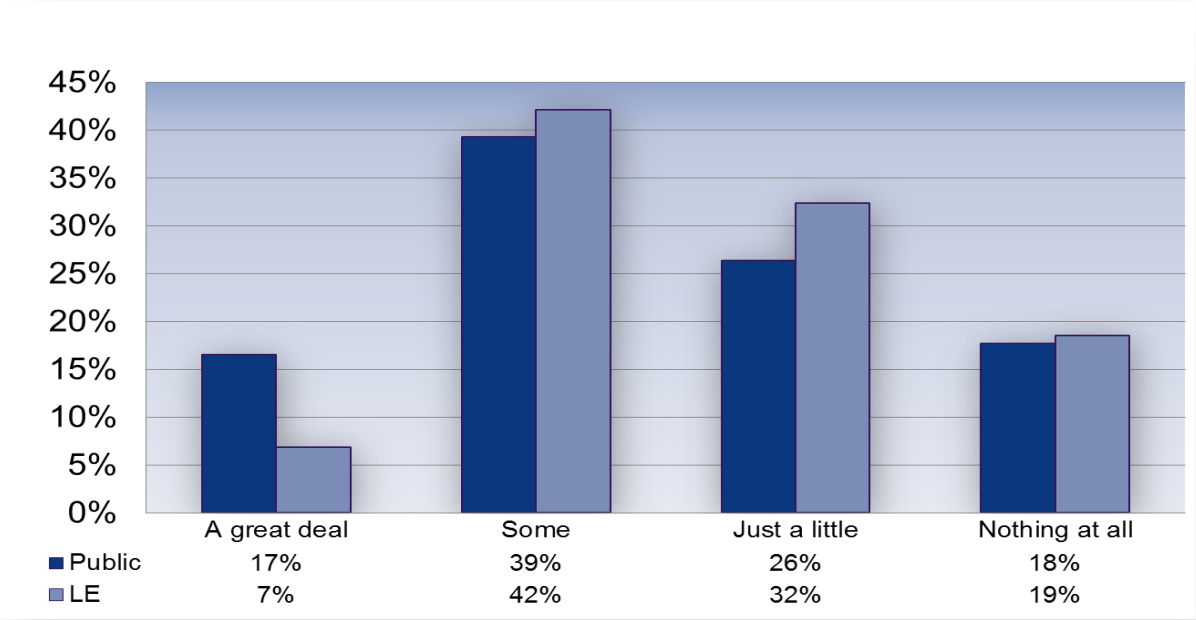


Figure 2. Public Support by Type of Use

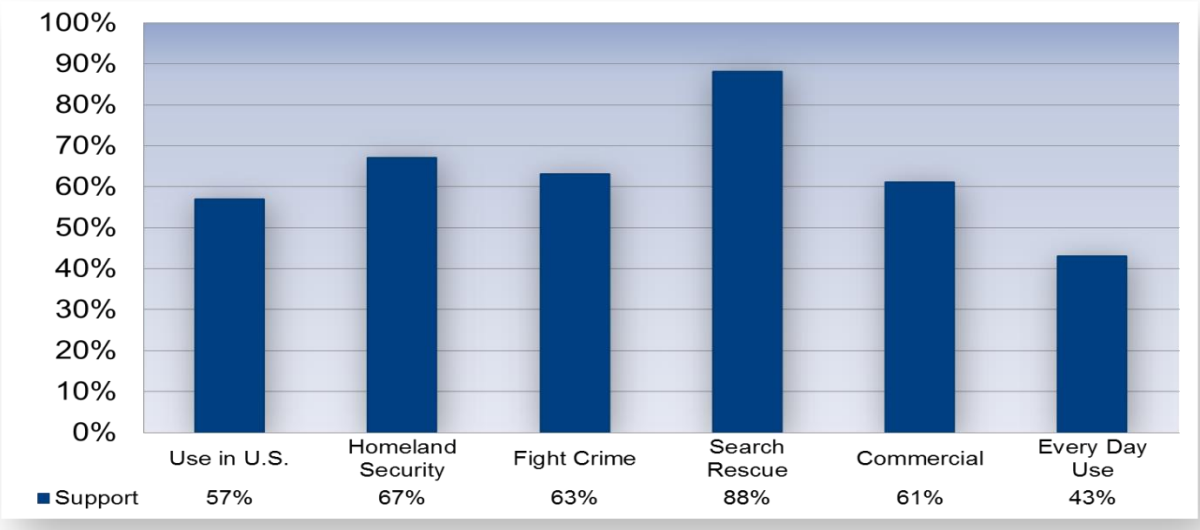


Figure 3. Public Concerns

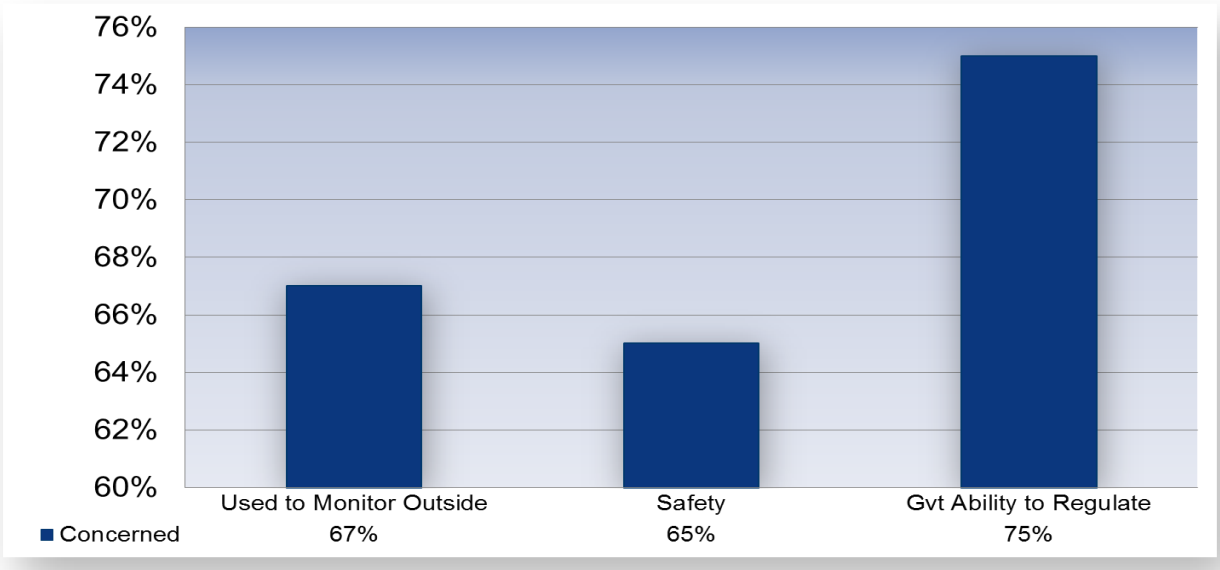


Figure 4. Possible Applications Reported by Law Enforcement

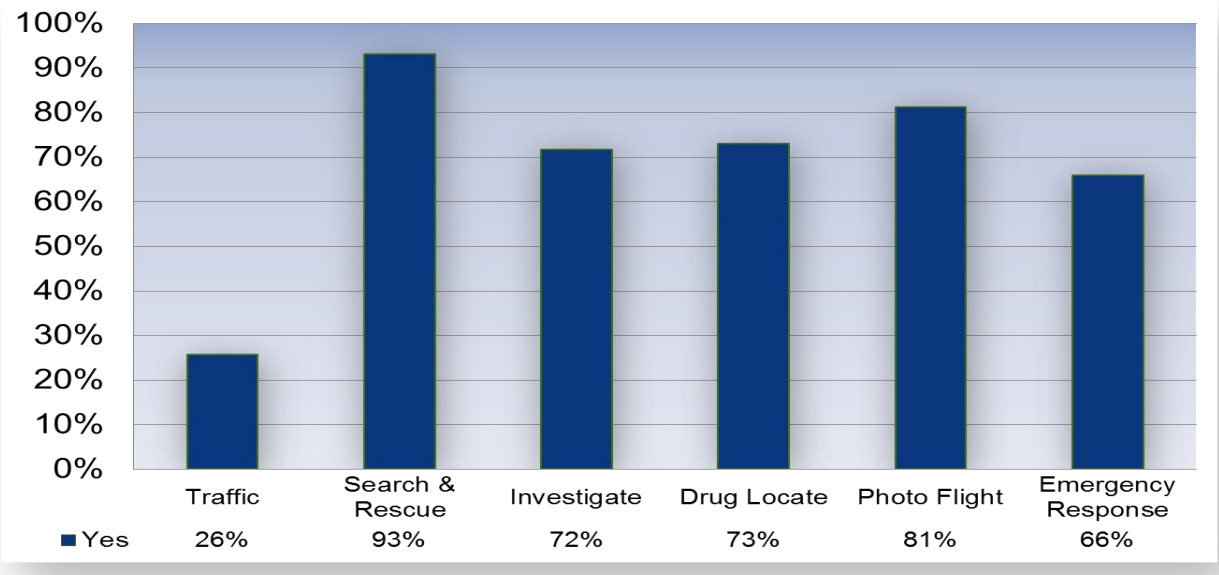
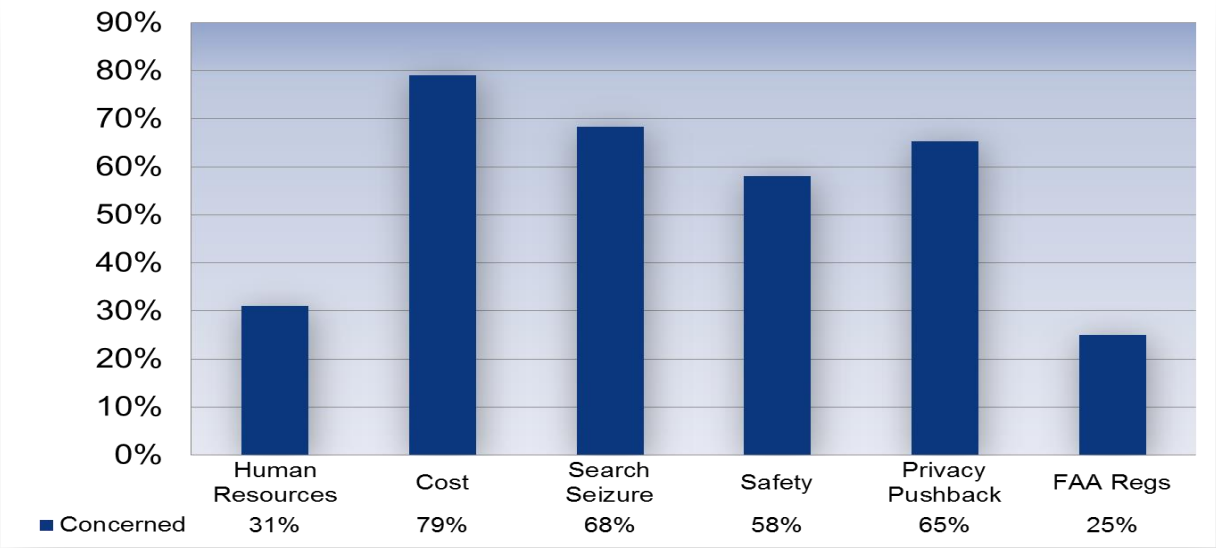


Figure 5. Law Enforcement Concerns



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Appendix

Law Enforcement Questions

How much do you know about robotic aircraft, drones, or unmanned aerial vehicles, including current regulations concerning their use by law enforcement agencies?

1. A great deal
2. Some
3. Just a little
4. Nothing at all

Below are some of the possible applications of robotic aircraft. Based on what you know right now, would you be interested in using robotic aircraft for the following purposes?

		Yes	No	Maybe	Don't Know
	Traffic patrol	☐	☐	☐	☐
	Search and rescue	☐	☐	☐	☐
	Investigations/Surveillance	☐	☐	☐	☐
	Drug location/interdiction	☐	☐	☐	☐
	Photo flights (for crime scene investigation, land layout prior to a raid, etc.)	☐	☐	☐	☐
	Emergency response	☐	☐	☐	☐
	Other [OPEN ENTRY]	☐	☐	☐	☐

Consider the following statements and indicate your level of concern about each issue related to law enforcement use of robotic aircraft.

	Very concerned	Somewhat concerned	Uncertain, I need to know more.	Not very concerned	Not concerned at all
The FAA currently requires a certificate of authorization (COA) for all public entities, including law enforcement agencies that wish to fly robotic aircraft. How concerned are you about meeting this requirement?	☐	☐	☐	☐	☐
How concerned are you about how the use of robotic aircraft may affect human resources at your agency (e.g., increased training requirements, need for fewer officers?)	☐	☐	☐	☐	☐
How concerned are you about your agency's ability to afford the purchase and maintenance of a robotic aircraft system?	☐	☐	☐	☐	☐
How concerned are you about robotic aircraft and search and seizure laws?	☐	☐	☐	☐	☐
How concerned are you about the safety of robotic aircraft?	☐	☐	☐	☐	☐
How concerned are you about potential pushback from privacy and watchdog groups over the use of robotic aircraft?	☐	☐	☐	☐	☐

General Public

How much have you read or heard about drones, or unmanned aerial vehicles? Would you say a great deal, some, just a little, or nothing at all?

1 A great deal
2 Some
3 Just a little
4 Nothing at all

In the United States, drones are now being considered for use in such areas as law enforcement, public safety, and emergency response. From what you know, do you support or oppose the use of drones in the United States?

1 Support
2 Oppose

Do you support or oppose the use of drones for domestic operations that support homeland security?

1 Support
2 Oppose

Do you support or oppose the use of drones to fight crime?

1 Support
2 Oppose

Do you support or oppose the use of drones to control illegal immigration on the nation's borders?

1 Support
2 Oppose

Do you support or oppose the use of drones for search and rescue operations?

1 Support
2 Oppose

Drones may also be used for commercial purposes, such as crop management and moving packages and goods between places. Do you support or oppose the use of drones for commercial purposes?

1 Support
2 Oppose

Finally, drones may one day be used for help with everyday living, such as picking up items at the grocery store, walking the dog, or monitoring homes while the occupants are away.

Do you support or oppose the use of drones for help with everyday living?

1 Support
2 Oppose

Some members of Congress and the public are concerned that drones might be used to monitor the actions of people in areas outside their homes, such as backyards and driveways, or at public gatherings such as sporting events. How concerned are you about drones being used in this way?

1 Very concerned
2 Somewhat concerned
3 Not very concerned
4 Not concerned at all

How concerned are you about the safety of unmanned aerial vehicles or drones?

1 Very concerned
2 Somewhat concerned
3 Not very concerned
4 Not concerned at all

How concerned are you about the government's ability to regulate drones so they are used for lawful purposes?

1 Very concerned
2 Somewhat concerned
3 Not very concerned
4 Not concerned at all