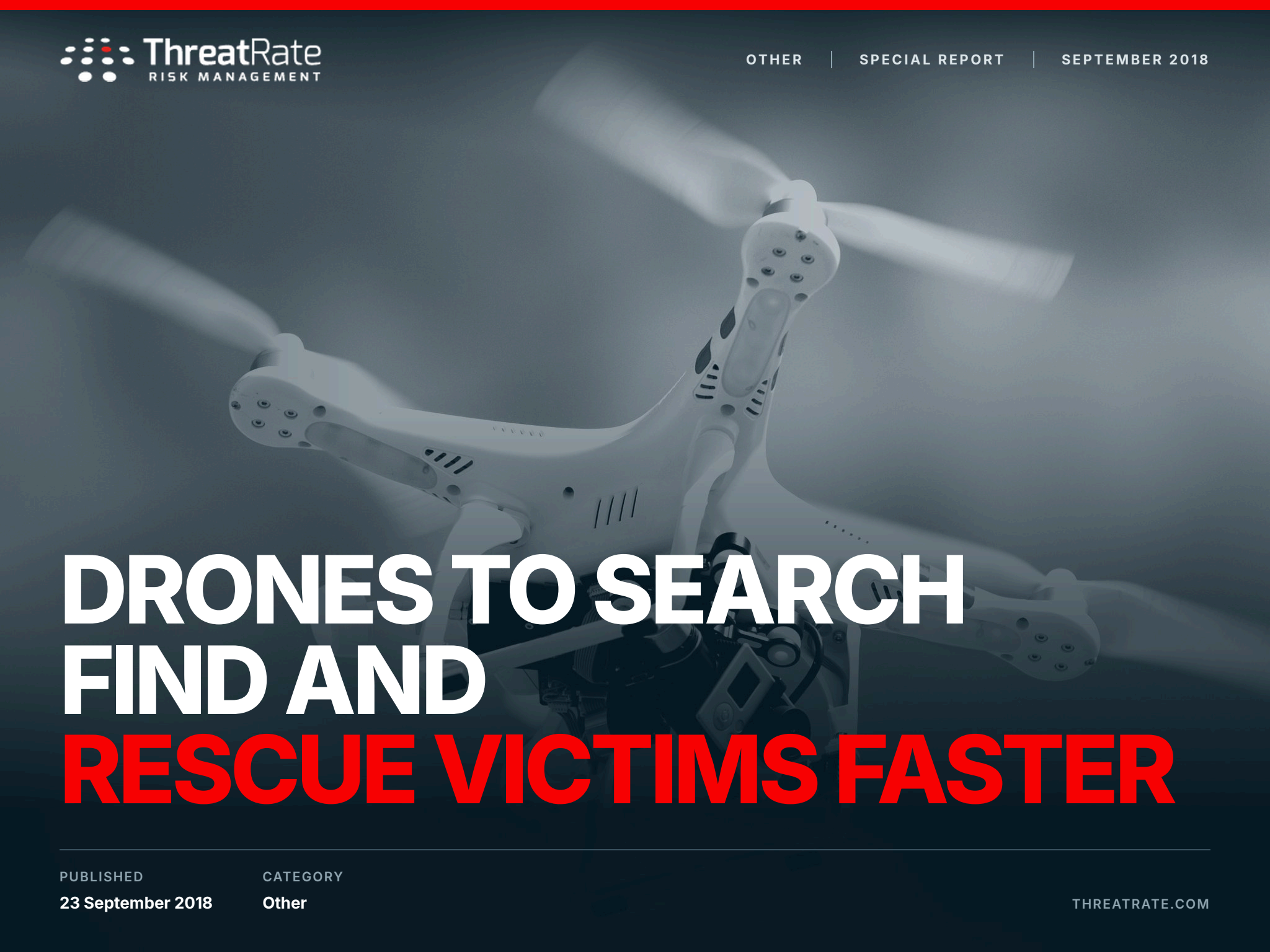


DRONES TO SEARCH FIND AND RESCUE VICTIMS FASTER

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Drones to Search Find and Rescue Victims Faster

Drones have been a big topic of discussion in the public sphere for the past few years. Some have concentrated on how drones are used by defense and intelligence forces to track and assassinate members of terrorist groups; others have concentrated on the use of drones by police authorities to conduct surveillance and the privacy implications of such activities; and others have concerned themselves with the economic impact of drones and their expected use by companies such as Amazon to disrupt the delivery market. One area that has shown significant promise for drone technology while not necessarily receiving a level of attention equal to the use cases described above is the area of search and rescue.

Search and rescue is an inherently dangerous endeavor. Often the situations where personnel – who have received training at significant cost to the public – are needed are extremely hazardous and thus not just dangerous for the person in need of assistance but also to the individuals or team assigned with extricating the individual from the situation. Examples would be flooded cities after a hurricane, earthquake sites with unstable buildings, or areas inundated by fires. Search and rescue personnel put themselves in extreme danger on a regular basis to perform their duties, and it is quite rational for leaders in the profession to be anxious to adopt any technology platform or tool that can both more efficiently save individuals in need and better protect highly trained search and rescue personnel.

One such technology that is continuing to show promise is the use of drones in search and rescue. At a high level, instead of initially physically having personnel search for someone, drones can be used to scout an area and then alert personnel to the exact whereabouts of a trapped or injured individual. In experiments conducted in the July of 2018, researchers found that while the one experiment group that did not use drones found their intended targets at a higher rate, the group that used drones found their targets significantly faster (on average 191 seconds faster). This initial result is extremely promising; however, it does indicate that drones do need significant improvements before they can become vital components of standard search and rescue teams let alone before they can be the first tool chosen from the profession's toolbox in a dangerous situation. For example, height and distance perception were often off and certain colors – yellow and black – were difficult to target by the drones.

Another issue inhibiting the growth of drones is that unlike ground-based vehicles, for aerial tools such as drones, most search and rescue organizations lack standard operating procedures that detail how to most efficiently use them in specific situations. Such a situation necessitates significant improvisation by field personnel which greatly increases the variance of errors when compared with more mature tools to boot performance. Persistent false positives and communication issues in variable terrain were also issues that require additional work prior to drones entering regular, productive use.

Drone technology – while still certainly a work in progress – in search and rescue will continue to advance towards more regular use as the

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issues are remediated. It is likely that soon, such devices will become standard issue and procedures will be developed to regularize their use.

DRONES USED BY THE SEARCH AND RESCUE TEAMS

Aircraft	Sensors	Search Software	Additional Hardware
DJI Mavic Pro DJI Phantom 4 DJI Inspire 1 DJI Inspire 2 DJI Matrice 600 Aeryon SkyRanger	Optical, visible light camera systems	Manual flights, no automated flight patterns	DJI Fully Immersed Goggles HDMI from radio to external monitor inside a SUV Pop-up tents to reduce glare

https://www.wetalkuav.com/study-shows-drones-help-search-and-rescue-teams-find-victims-faster/2/

Soundbite analytics

- Non-drone sites - 85% of the trials - found their targets in a UK study while the drone-enabled teams found the target in 77% of the trials.
- At least 133 people around the world have been rescued by drones.
- In one week, drones saved four people.

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- Some drone programs for search and rescue take $50,000 or more to get off the ground.

SOURCES

1 https://www.wetalkuav.com/study-shows-drones-help-search-and-rescue-teams-find-victims-faster/

2 https://www.wetalkuav.com/study-shows-drones-help-search-and-rescue-teams-find-victims-faster/

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