

PREVENTING TERRORIST ATTACKS ON PUBLIC TRANSPORT

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Much effort, in the last few decades, has been made throughout much of the world to proactively prevent terrorist attacks. Much effort has been put into securing targets such as nuclear reactors, military bases, major government buildings (e.g., the Congress, White House, and various parliament buildings around the world), and airports. For the latter especially, anyone that traveled prior to the September 11th attacks is acutely aware of the heightened security that now exists at airports.

It has, however, been much more difficult for security and intelligence services to enhance security at so-called soft targets. Examples of such targets would be large gatherings (e.g., the Boston Marathon is an example most readers would be familiar with) and public transport services such as rail stations and subways. These are high traffic areas that are not equipped for the sort of screenings that are used at airports as it would delay commuters too much; thus, security services must use technology to essentially detect attacks in real-time and to implement countermeasures that will still allow day-to-day business to continue.

One such project, sponsored by NATO's (North Atlantic Treaty Organization) Science for Peace and Security (SPS) initiative and headed by research organizations in Italy and Serbia will use laser spectroscopy to, in real-time, identify potential bombers by screening for explosive materials. Laser spectroscopy involves using a laser on a sample to generate a light source that can identify materials. The

project's goal is to develop a detection system that can find weapons and explosive materials in real-time and, subsequently, secure the area where the threat is occurring. The target areas are mass transit infrastructures. France, South Korea, and Ukraine are also developing, as part of the initiative, a microwave imaging system. The goal is to have it ready for a demonstration site by 2020.

The Surface Transportation Explosive Threat Detection (STETD) is another initiative – this time by the Department of Homeland Security in the United States (DHS) – to develop a screening system for mass commuter locations. To protect privacy, the screening technology will be used only to detect anomalies, and individual images would not be created. Effective screening without having to use checkpoints and, thereby, clog up traffic, is the goal of this initiative.

One of the main items in the DHS initiative is a millimeter wave imager. This technology uses a set of antennas to generate an image of the commuter traffic. Another team is working to develop algorithms to enable the images to be actionable.

Other items that are being developed and deployed as part of the STETD program are forensic video technologies called FOVEA or Forensic Video Exploitation & Analysis which quickly captures data about an item left behind to enable responses to such events to become routine, rather than emergency events. Also included is the Real-Time Threat Detection Agent or RTTDA. This is an algorithm that detects items left-behind during high-traffic rush hour periods. It tags the object that is left-behind and is able to associate and track individuals associated with the suspicious item. Other projects being

undertaken use specially trained K9s that can detect explosive materials that are being carried by individuals moving through an environment.

These projects, collectively, are part of concerted efforts by governments around the world to collaborate with research and development agencies to develop efficient technologies that enable people to continue to use efficiencies inherent in mass transit systems without having to sacrifice significant amounts of personal security to do so. Proactive detection systems, if effectively implemented, will not only allow suspicious incidents to be contained rapidly, but such systems will also act as a major deterrent.

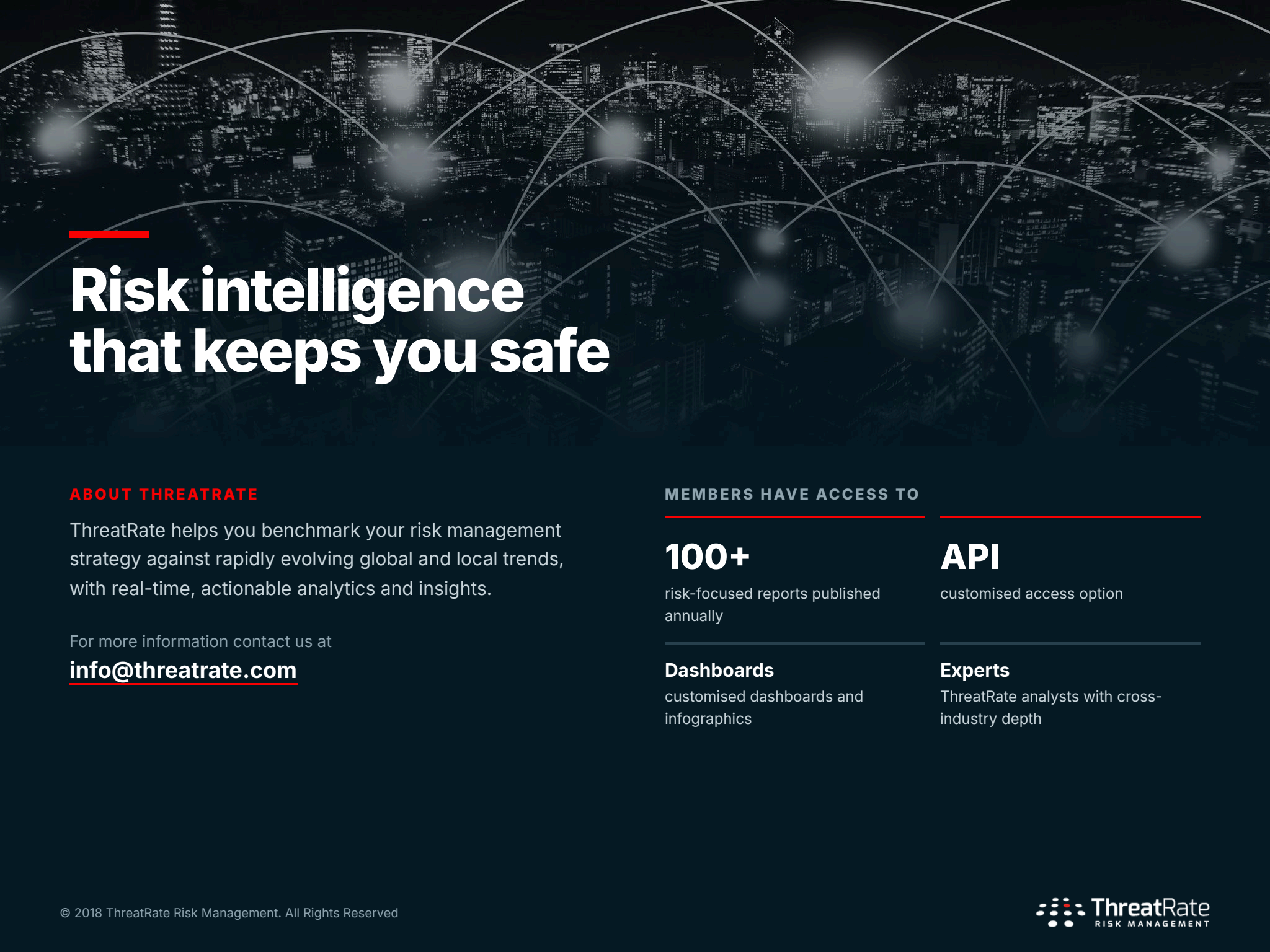
SOURCES

- 1 <https://hstoday.us/subject-matter-areas/counterterrorism/nato-initiative-focuses-on-transportation-explosives-detection/>
- 2 <https://science.howstuffworks.com/laser-analysis3.htm>
- 3 <https://dhs.gov/science-and-technology/Surface-Transportation>

Soundbite analytics

- Only 1 out of 100 dogs bred and trained for detection activities can perform vapor detections.
- The FOVEA system allowed 30-50% of suspicious packages to be removed without an emergency response.
- Homeland Security's Science and Technology Directorate was slated to receive nearly a half of a billion dollars under the 2018 OMNIBUS budget bill.
- In 2018, New York State received \$3.7 million for Explosive Detection Canine teams since fiscal year 2009.

- 4 <https://dhs.gov/science-and-technology/news/2018/01/17/snapshot-security-speed-life>
- 5 https://dhs.gov/sites/default/files/publications/STETD%202018Fact%20Sheet_508%20Final.pdf
- 6 <https://efficientgov.com/blog/2018/02/22/advancing-explosives-detection-mass-transit/>



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