

Editor: **Mark A. Heller**

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CAN TECHNOLOGY DEFEAT "LOW-TECH" TERRORISM?

Uzi Eilam

Jaffee Center for Strategic Studies

The recent bombings in Turkey, the recurrent car-bombs in Iraq and the persistent suicide-bombings in Israel prove that terrorism is not a passing phenomenon. The nature of terror activities, the loose way in which terrorism is organized, the spread of terror cells around the world, and the progress that terror organizations have made both in tactics and in technical capabilities all oblige the world to respond to these threats with more innovative thinking.

The challenge is one of asymmetric confrontation. On the one hand, terror organizations are operating successfully with relatively simple means. On the other hand, states are failing to protect themselves even with superior military force and advanced technology. Is there a different role for technology that could change this equation? Is it possible to use the technological edge that the advanced countries have to contain the threat of terrorism?

Terrorists have an intrinsic advantage due to the fact that they can afford to fail several times and still make strategic gains through isolated successes. To achieve these successes, they normally rely on comparatively primitive technology, such as guns or the conventional

explosives used by suicide bombers. This arsenal is occasionally "upgraded" through the acquisition of a standoff capability, in the form of personal hand-held ground-to-air missiles, personal anti-tank missiles, and ground-to-ground rockets.

By contrast, the "defenders" can normally succeed in foiling operations but still fail strategically because they find it difficult to protect a large number of targets against a variety of tactics and techniques. To overcome this disadvantage, they have no choice but to seek a force multiplier in advanced technology. Even this cannot promise total immunity against attacks. But it can reduce vulnerabilities by making it possible to concentrate on the most menacing threats, identify the options for countering them, and specify the needed technological effort that will furnish efficient means for defense.

There is no single technology, no single group of people, and no single line of defense that will supply a comprehensive answer to the threat of terrorism. Instead, it is necessary to construct "layers of defense." Layers of defense around air travel, for example, will include biometrics to

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confirm the identity of travelers and means of fortifying the cockpits and arming the pilots. They will also address the threat to civil aviation of shoulder-fired missiles and will develop new technologies and systems for perimeter defense for the airports.

The defense of naval ports and waterways dictates an extension of the security zone. Security measures should begin thousands of miles away from the ports, i.e., before a container is loaded on a ship. This line of defense naturally calls for advanced sensing capabilities as well as close international cooperation and full real-time sharing of intelligence data.

Defense on land is even more complicated, since there are thousands of kilometers of borders that cannot be hermetically sealed. Moreover, terrorist organizations have a proven ability to take their time in building dormant networks inside the targeted countries. Database Technology, a part of Information Technology, is one of the promising approaches for dealing with this threat. When fully developed, data mining can be used to detect automatically unusual patterns in the movement of terrorists through different countries and in the movement of funds through chains of banks across countries. Multimedia technology, such as face recognition or image matching, may supply invaluable input to the system.

Explosives sensing should be given highest priority in the effort to find an answer to one of the most menacing challenges: suicide attacks. This key capability needs to be embedded in a variety of measures against threats for which an appropriate answer does not yet exist. Remote sensing (from a distance of up to 100m) may sound highly ambitious, but it is crucial to achieve a reliable counter-measure. The wider the range of the sensor, the better the chances are of developing an efficient defense against the

complex threat of explosives. Years of experience in developing weapon systems show that in this specific area, the optimal response involves both multiple-sensor systems and multi-layered measures. This is why it will be necessary to develop different technologies that could substitute for or complement each other when embedded in a group of systems that will form the counter-explosive measures.

Cyber terrorism is another threat that needs the support of advanced technology. The ability to identify the cyber-attackers, to locate them, and to respond immediately is vital.

There has been growing concern over the last decade about the threat of "super-terrorism," i.e., terrorism involving weapons of mass destruction. The prevailing assessment is that nuclear terrorism demands the development and production capabilities of a state. Consequently, the ability of a terrorist organization to develop nuclear warheads is believed to be very limited. But the threat of bio-terrorism is much more menacing. The case of the anthrax envelopes in the US in the wake of September 11, although not related to deliberate acts of terrorism, has persuaded American authorities of the need to mobilize biotechnology in order to prepare better defenses against biological attacks. The most important counter-measure against bio-terror is a thorough immunization system, including measures to be administered after a biological attack.

All in all, technology can play an important role in the construction of a comprehensive defense against the threat of terror. But international cooperation in this area – in the form of an integrated, coordinated worldwide effort – is crucial. Such an effort, if successful, may make a significant contribution to the struggle to change the imbalance of terror.