

The missing link

Top international businesswoman, **Deborah Leary**, unveils new technology which is plugging gaps in anti-terror information by finding a needle in a thousand haystacks (additional reporting by **Jenny Thomas**)

The terrorist events of 9/11 sparked a global response to the dangers of organised crime and terrorism. This wake-up call was reinforced by the bombings in London and Madrid. One of the key enabling features of all these events was the use of technology, information and globalisation. The 21st Century has seen a massive upturn in the ability of people and organisations to communicate instantly, travel cheaply and develop social networks on a scale never previously imagined. Innocent devices like computers, mobile phones, a jet aircraft, power plants, energy and supply chains can all now be used as weapons in the terrorist arsenal in ways that were previously unthinkable. These devices, of course, usually have legitimate uses, but in the wrong hands are used by terrorists to instigate threats in ways that have been, until now, difficult to detect.

This has all highlighted the need for us to not only be in touch with the latest techniques to fight crime and terrorism, but also look beyond what is currently available, ensuring that invention and innovation are ever more important in the drive to stay a step ahead of potential threats.

Globalisation and the information age have changed the way we live and work in society. As the nature of our society has changed, so have the disciplines of forensic investigation and intelligence analysis. The nature of the threat we face is now more difficult than at any time in history. Terrorist organisations tend to be loosely structured networks of individuals who hide beneath apparently legitimate lifestyles, awaiting almost endless opportunities to create chaos and fear in our communities. Their methods change quickly and, therefore, so must our response to them. Public safety and effective law enforcement have to engage in the process of innovation to keep pace with the changing problems we face.

Information is quickly becoming the most sought after and valuable commodity in the world today. It is widely available, easily accessible, easily transmitted and can be converted into intelligence by terrorist groups with relative ease; for example, targets, victims and vulnerabilities in social systems and government. These groups are not constrained by moral, ethical, legal and even logistical barriers as are law enforcement and government agencies. They seek to use this information in the development of new targets and threats. This means that law enforcement and government agencies must stay “ahead of the curve” by using imaginative and innovative technologies in ways that ultimately control and frustrate the activities of these criminal groups. The battle is won by the side that has the

ability to apply imagination and intelligence and develop science and technological approaches that far outweigh the methods used by the other side.

Probably the most important area in which we must excel, is the imaginative and intelligent use of the information we possess. Until now, science and technology has enabled humans to collect huge amounts of data in almost routine ways. Unfortunately, this ability has not been matched by a corresponding capability to analyse and make sense of the information to maximise our defences and ability to operate and strike in target rich environments.

We have to ensure that as our ability to collect and store data improves, the ability to analyse and make sense of it also improves.

One of the major issues facing police and intelligence agencies is the effective and efficient analysis of portable devices such as mobile phones and other personal data carriers. It has been estimated that there are over 80 million in circulation and connected to networks in the UK alone and globally the figure is around three billion. The complexity this creates is beyond anything previously encountered. As a consequence, this presents an enormous challenge to law enforcement bodies as they have huge amounts of data to extract, process and analyse.

Mobile telephones are fast becoming not only a means to communicate verbally, but also a means to transfer data, pay bills, order products, plan journeys, book hotels, order food and socialise. This is where problems begin to emerge because the sheer volume of data makes analysis time-consuming and difficult. In fact, it cannot be done without the aid of sophisticated computing.

Having developed an innovative product to solve this problem, Forensic Pathways now provides the police with the capability to take data from multiple devices and map them into networks, thereby effectively analysing the “big picture”. An analyst can now monitor thousands of devices and communications at the same time. Using advanced and sophisticated techniques from the worlds of artificial intelligence and informatics, Forensic Pathways has developed a patent protected technology to automate this processing so as to speed up the ability of law enforcement to identify threats, plan interventions and monitor targets in fast time. This technology takes the analysis beyond the capabilities of the human brain, presenting associations that would otherwise have remained hidden.



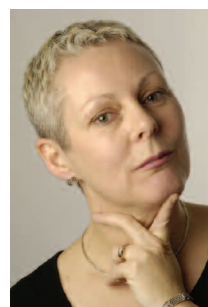
The London Eye – identified as a possible target for terrorists

Using this form of fast logic, the technology identifies tipping points where critical attention is needed and action may be called upon at short notice. Even without access to an individual's personal device, the technology can potentially identify the target's associates and communications. Links between virtual networks and people can also be identified.

The investigation into 9/11 revealed that there was no shortage of intelligence and certainly no shortage of information available to the authorities to frustrate the activities of the attackers. What was not available was the ability to connect critical pieces of information together to ultimately present the emerging story. Searching for information in large datasets is no longer problematic. The ability to undertake fast search, automated analytics and alerts creates the ability for imaginative and accurate situation awareness capability. Even changes in situations are monitored to identify new and emerging threats.

This technology now enables the police and security services to take data from a variety of sources and combine them, thereby enabling effective, fast time search at a speed and depth previously unavailable. This helps to overcome information islands sometimes referred to as "silos of data" and the debilitating effects of the inability to share, combine, contrast and compare datasets in an effort to find the missing link. This technology allows us to locate a needle from a thousand haystacks. The previous issues relating to siloed information can no longer be the reason for not engaging in a deep dive into data. Organisations need to be aware that the capability exists for these datasets to be combined and analysed, without upgrading hardware and without the need for systems integration projects. The technology is being used by a major police service to integrate over 15 datasets involving millions of identities, events, vehicles and devices without the need to disrupt day to day operational technology.

It is only through a commitment to innovation and taking a multi-disciplinary approach that we will be truly effective in the challenges that face us. Traditional forensics, and forensics within the arena of the new information age, must continue to evolve together to ensure that we are able to form the strongest barrier possible against those who seek to do harm. This evolution will ensure that information and data result in knowledge that is accessible and can be used productively to aid criminal and terrorist investigations and intelligence gathering.



Deborah Leary has been named International Woman Entrepreneur of the Year 2007/8 by the World Association of Women Entrepreneurs and is founder and CEO of Forensic Pathways, a leading international provider of forensic business intelligence services, products, training and consultancy. She is also Chair of the Midlands World Trade Forum and Deputy Chair of the United Nations UK Global Compact Network. **Jenny Thomas** is a forensic analyst at Forensic Pathways.