Anthony Tucker-Jones talks to Neil Fretwell of Intelligent Software Solutions Global about the growing use of predictive software in counter terrorism

PREDICTING

ATJ: Is it fair to say that prediction software or predictive policing is now a key tool in the cyber battle against organised crime and terrorism?

NF: Predictive software is still in its infancy, but is fast becoming a key tool in the battle. It has been recognised by law enforcement, the intelligence agencies and the military that when historic data is utilised, together with current data sources, a pattern of predictive behaviours can be identified. These patterns can then be utilised to deploy key assets at the right time, and in the right place.

ATJ: Do you feel that it is a potential game changer?

NF: I would say that prediction software definitely has the potential to be a game changer. In the current climate of economic change, agencies are always looking at better ways of deploying their key assets. Predictive software can give better indications of where and when assets should be deployed, therefore giving a better chance of deterring attacks or catching the perpetrators. The key word here is indication, as experience is still required to analyse predictive findings to put them in context. In future, as software matures, the reliance on the experienced analyst will diminish.

ATJ: Is it true that one of the major challenges always facing law enforcement and intelligence agencies around the world is simply coping with the data deluge?

NF: With the advent of 'big data' it is true that new challenges are being faced by intelligence agencies. These challenges can be overcome by new technologies that can sit above disparate sources of data and analyse from above. In the past, various data sets had to be imported into software tools in order to be analysed and this was a very time-consuming process as it had to be done dataset by dataset. Today's technology allows many datasets to be analysed at the same time.

ATJ: Do you think the emergence of predictive software is partly a result of governments simply being unable to keep up with emerging technologies?

NF: In the main, governments have always been 'behind the trend' and have found it difficult to keep abreast of current and emerging technologies. There was a tendency to try to deal with problems by the creation of 'in-house' technologies in the misbelief that these would be cheaper and more agile to change. This was not always the case, but it has taken some time for organisations to turn to companies like ISS Global to provide tools to better enable them to perform their roles. There are still small pockets of resistance to change, but fortunately these are becoming fewer as the technology evolves.

ATJ: Intelligence agencies have always analysed trends and attempted to be predictive – at what point did the private sector enter the counter terrorism fray with tailored software?

NF: Unfortunately, sometimes it takes a catastrophic incident to force the hand of the intelligence agencies. It is fair to say that in the event of a major terrorist incident, in the aftermath funds become available and agencies turn to the private sector to affect change quickly and are more likely to turn to commercial off-the-self or 'COTS' products rather than start to develop their own. This is not a new phenomenon and ISS Global has seen a steady rise in sales in these areas since the turn of the century.

ATJ: You have a counter terror background can you tell our readers a little about how you got into predictive software and comparative data analysis.

NF: Whilst working for the Counter Terrorism Command within New Scotland Yard as a bomb scene examiner

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Analysing methods of attack like the ones that took place in Paris last year can help second guess where future attacks might take place

TERROR

and latterly within the UK National Bomb Data Centre, it became apparent that a large amount of data was being gathered and stored, but wasn't being utilised in an efficient way. A new way of storing and utilising this data was required.

We approached ISS Global to write software for us that would not only allow for ease of use to store, retrieve, link and analyse data, but for easy exchange with other agencies. The first software produced was a collaboration of ISS Global with the UK Police and the ATF [Bureau of Alcohol, Tobacco, Firearms and Explosives] in the USA. This was highly innovative and allowed for easy exchange of encrypted data between the two agencies.

ATJ: Your work for Scotland Yard's Bomb Data Centre must have given you valuable insight into the problem of identifying trends and acting on them.

NF: The software provided proved invaluable in the fight against terrorism both in the UK and overseas. Analysing IED components and identifying distribution chains, allowed us to solve many previous unsolved attacks. Methods of operandi allows agencies to identify terrorist organisations responsible and act accordingly.

ATJ: Intelligent Software Solutions' Dfuze Intelligence Management Suite is incredibly successful can you briefly explain how it works and how it copes with the data deluge?

NF: The software utilises a number of databases within, which allows easy categorisation. Any form of data can be attached, which is particularly useful in the aftermath of a terrorist attack. Information is easily downloadable in an encrypted format to aid dissemination to partner agencies.

ATJ: How do the Dfuze Data Integration, Data Analysis & Visualization and Incident Response compliment each other?

NF: Fast-time information is the best intelligence. Dfuze mobile products allow information to be in the hands of decision makers within seconds. With the advent of drone technology, advances have been made to allow live video streaming from scenes via our Over C2 technology to allow for better decisions to be made.

ATJ: As 40 countries now deploy it, what makes IMS so appealing to users?

NF: The ability to easily exchange data is one of its biggest appeals. An incident can happen in the UK or elsewhere and within minutes questions can be asked of datasets sitting worldwide on similar databases. This is done in an encrypted format, which gives the users confidence in data exchange.

ATJ: In terms of data handling presumably Dfuze can be adapted to filter both classified and open-source information streams?

NF: Dfuze Software is configured to be able to act as a standalone system, be part of a "closed" network or be attached to other users utilising the internet. This enables the systems to be able to utilise data from Unclassified through to Top Secret, depending on the user requirement.

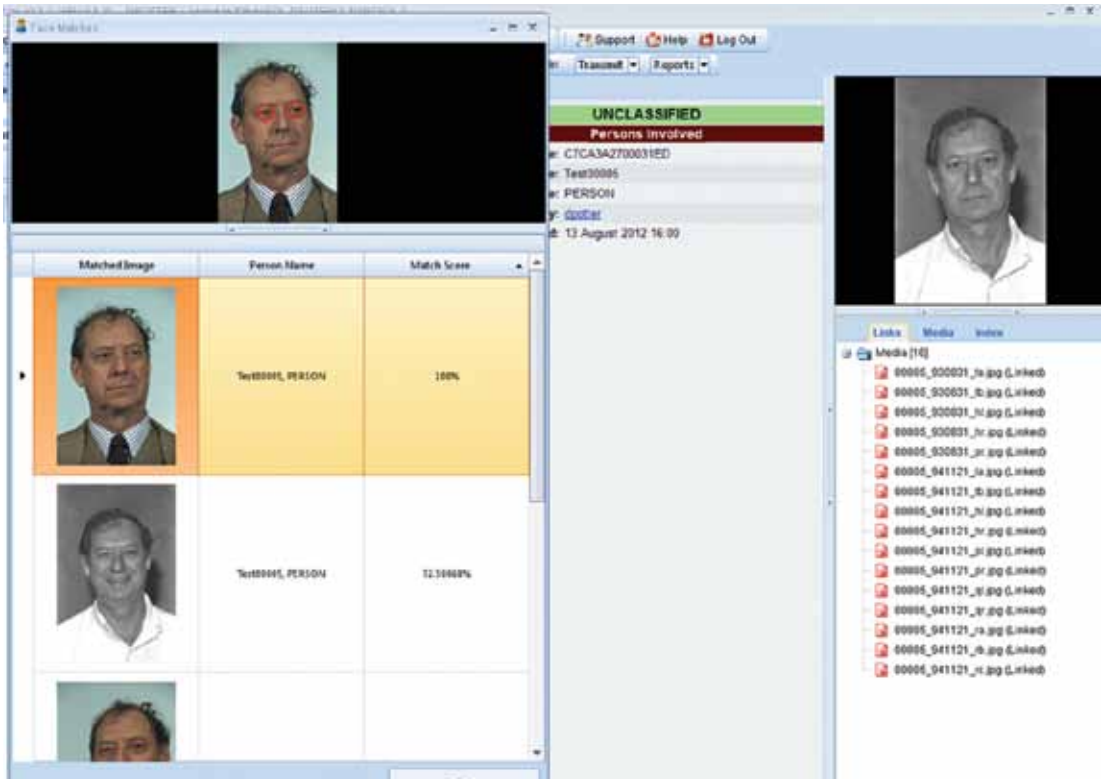
ATJ: Does this present firewall problems?

NF: Dfuze data that is being exchanged over the internet is encrypted by the sender and then decrypted prior to entering the recipient's system. If the information is received via a public network and is intended for a secret system it is 'air-gapped' before decryption.

ATJ: What lessons or trends can be gained from, say, the Boston, Paris and Brussels bombings?

NF: By analysing methodology of attacks together with the mass of other data that is available, it allows us to 'best guess' where and when future attacks may take place, which allows for target hardening and other forms

PREDICTING TERROR



Dfuze using facial recognition technology

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of mitigation to take place.

ATJ: Exactly how does predictive software utilise social media as an information source – filtering the clutter must be an enormous challenge?

NF: Filtering is key – many data sources can be utilised like travel, weather, insurance *etc.* but these need to be broken down into key information points and this is where filtering comes into its own.

ATJ: In particular organised crime and terrorists are increasingly sophisticated at using social media. How does predictive software utilise such traffic and flag it up?

NF: Utilising key words, social media traffic of a criminal nature can be identified and actioned.

ATJ: What trends would one expect to emerge from the online presence of say Islamic State or Daesh?

NF: These organisations utilise an online presence particularly in terms of recruitment and propaganda. The security services are very good at shutting down sites used so trends are difficult to identify.

ATJ: Ultimately can predictive software actually predict terrorist attacks or does it simply help mitigate against the risk of an attack?

NF: As mentioned previously, I would say at this stage it is a 'best guess', but getting better.

ATJ: Clearly the protection of public spaces is now paramount. In the case of, say, the London Olympics can you expand a little on this.

NF: This is a difficult area to elaborate on due to constraints, but I can say that historical data on previous incidents was utilised to identify potential sites for aerial attacks.

ATJ: Conflict Armament Research utilises Dfuze. How exactly does it inform their particular line of work?

NF: Conflict Armament track the illicit supply routes of arms through mapping way points. Their operators work 'in the field' and utilise the Dfuze platform to send information direct to their database.

ATJ: Will software like Dfuze's Intelligence Management Suite ever completely replace the role of the intelligence analyst?

NF: With the rapid advances in technology taking place it is feasible that it could. Never say never!

ATJ: Is it a case of predictive software algorithms being only as good as the programme writers and this is where experience comes in?

NF: Yes and no. A good software programmer is as important as the Subject Matter Expert advising them.

ATJ: Cross-agency data and information sharing needs constantly improving – the recriminations after the Brussels attack clearly show a lack of co-operation. Do you think governments fail to learn from their mistakes?

NF: With my diplomatic head on I think it is fair to say that information sharing does need to be improved, although it is getting better.

ATJ: Do you feel the creation of the European Counter-Terrorism Centre is cause for optimism if it improves intelligence sharing?

NF: As long as data is shared, then yes. Unfortunately, some countries still believe that knowledge is power and this barrier needs to be broken down.

ATJ: Finally, will the role of prediction software continue to expand and what new innovations can we expect to see on the market?

NF: Yes, undoubtedly prediction software will continue to expand. With the advent and advancement of mobile technologies I see software becoming more agile and fast-paced in the future to allow for near real-time analysis.

Neil Fretwell is Operations Director and subject matter expert at ISS Global, a subsidiary of ISS. He is a former British Police Officer who worked at Scotland Yard's Bomb Data Centre, which forms part of the UK's Counter Terrorism Command.

Anthony Tucker-Jones is *intersec's* Terrorism and Security Correspondent. He is a former defence intelligence officer and is now a widely published defence commentator specialising in regional conflicts and counter terrorism.