

Halving analysis time increases conviction rates on Humberside



The Humberside Police Service covers the districts of North-East Lincolnshire, North Lincolnshire, and the East Riding of Yorkshire, along with the urban area of Kingston-upon-Hull. Humberside Police employs 2,270 Police Officers, 1,429 staff, 144 Community Support Officers, 323 Special Constables and 122 volunteers.

The Humberside Police Technical Support Unit (TSU), based at its divisional headquarters in Hull was established 11-years ago, to handle the analysis of all CCTV and photographic evidence. Today, the busy unit, which operates seven days a week, has a permanent staff of 12, who look after Humberside's four Basic Command Units or Regional Police Divisions.

The TSU handles CCTV footage from 'volume level' crimes as well as 'level-two higher criminality' – video evidence from covert surveillance operations that target major criminals. In addition, two divisions are now equipping Police Officers with body worn video. The amount of potential evidence to review and analyse is staggering – thousands of hours every month.

Responsible for the analysis, tagging and management of video and photographic evidence is Gary Woolston, Manager of the Technical Support Unit. In order to deal with the sheer volume of footage, Woolston and his team have turned to the latest video recording and analysis technology which is paying handsome dividends and earning Humberside a reputation as a ground-breaking Police Service.



The Challenges

- Need to maximise budget and manpower
- Reduce time analysing video evidence and presenting it in court

The Solution

- **DARC 50** ensures only suspicious incidents are recorded
- **DEMON analyse** automates analysis of video
- Easy-to-use **DEMON edit** highlights individuals credible evidence

The Benefits

- Increase targeted surveillance footprint
- Time spent reviewing video slashed by a minimum of 50%
- Less time spent in court
- More convictions; 40 football hooligans convicted in Operation Trapper



Humberside Police Technical Support Unit supports four business divisions. It transformed the effectiveness of its ability to record, analyse and present video and photographic evidence with DEMON analyse.

The Challenges

Finite Resources

With finite officers, it is impossible for Humberside's Police to keep watch on every suspect or known area targeted for crime.

Even when cameras are set to record evidence of criminal behaviour, hours and hours of video footage still need to be analysed and tagged as evidence. Before, all the footage used to be sent physically to the TSU for conversion and analysis.

Valuable time could be lost and a suspect freed on bail, only to abscond, in the time it took to physically receive the tape, read it and sift through the hours of video to find a particular piece of evidence.

Needle in a Haystack

Also, like all Police Forces in the UK, Humberside suffered from the proliferation of different standards for analogue CCTV and video tape.

"There are 40 different formats in the UK alone," explained Woolston. This hurdle was overcome by the development of a multiplexer with 40 codecs that can read any tape and convert it to a digital format. The next task is to analyse the footage – the arduous task of pin-pointing the relevant scene which, at times, is akin to finding a needle in a haystack.

"Typically it takes up to 5 working days to analyse 24-hours worth of tape, tag, burn and annotate the evidence for use in court," explained Mike Wilks, Chief Executive of Scyron.

The Solution

Intelligent, Incident-Based Surveillance

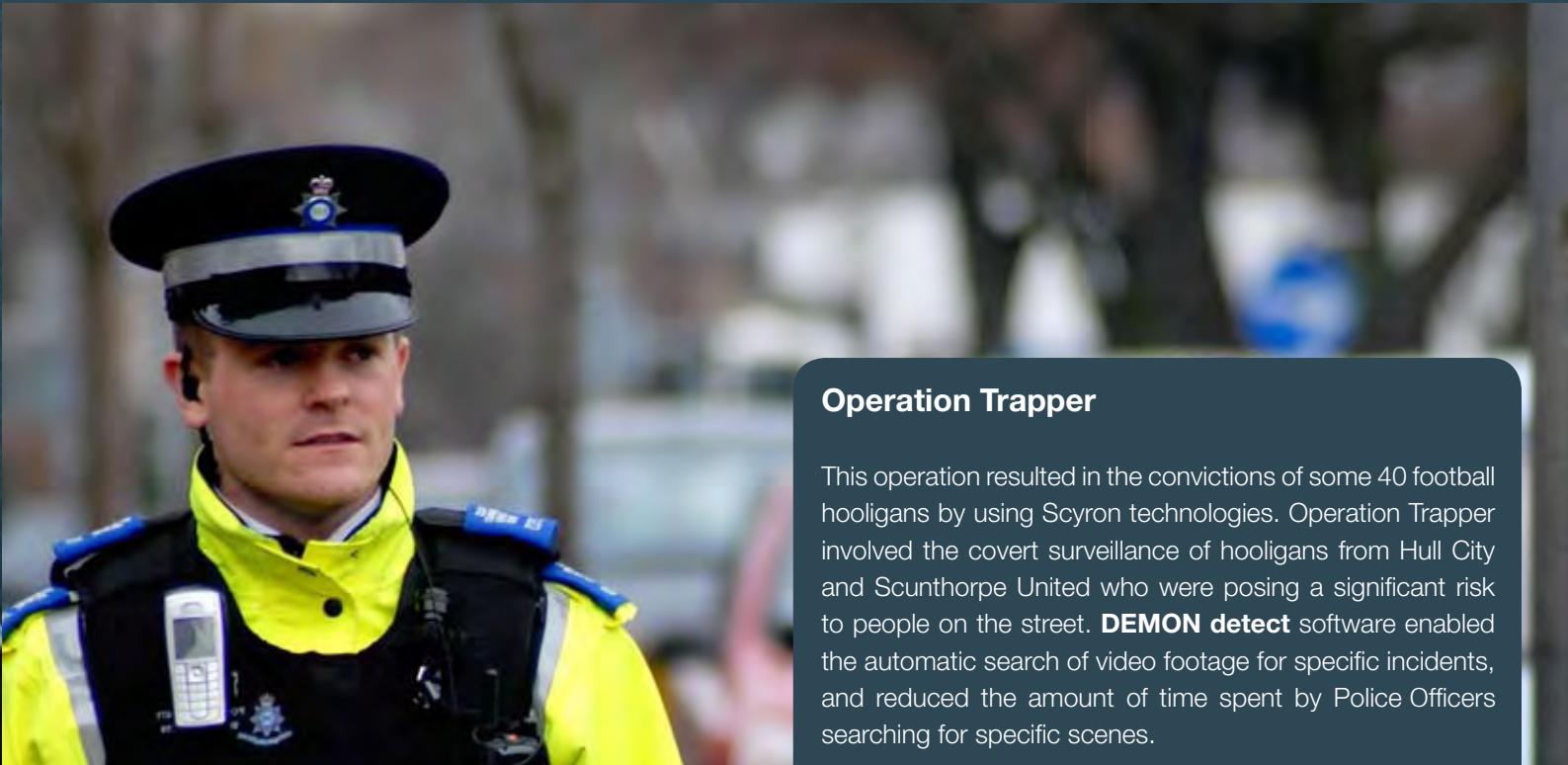
The Humberside TSU has readily embraced technology to help it tackle crime and secure convictions. To get the most out of the resources available, the force turned to Scyron's **DARC 50** surveillance technology. It is a remote-controlled digital recording system for covert surveillance, linked to a standard video camera, that only records specific defined incidents. Consequently this eliminates time and money wasted analysing irrelevant information.

DARC 50 records to a hard disk and the digital video may be downloaded remotely, by secure wireless transmission within a radius of a kilometre, to a laptop or by 3G to any web-enabled computer. The system even sends alerts to notify users a scene is ready to be retrieved. Humberside helped pioneer and perfect the technology.

"We used **DARC 50** to watch a school where bicycle theft was taking place," explained Woolston, "we kept watch on a small entry gate and set the parameters to only record people leaving with bikes. We were looking for people who entered without a bike but then came out with one. On a surveillance programme lasting several months it has the potential to save many hundred of hours, by only recording scenes of interest."

Intelligent Analysis and Presentation

in the same way that **DARC 50** enabled Humberside Police Service to widen its footprint without doubling the number of officers on the beat, Scyron's **DEMON detect** and **DEMON edit** technologies have slashed an estimated minimum of 50 percent off the time spent by officers analysing video tapes.



The Benefits

By embracing technology, Humberside has maximised its resources and managed to save thousands of hours of time – equating to a sizeable portion of its budget. This enabled optimal use of taxpayer's money and freed up officers to tackle other serious issues.

Time and Money Saved in Reviewing Tapes

“Before **DEMON analyse** we used to have officers all day, every day reviewing tapes and disks,” said Woolston, “We have reduced the time spent reviewing tapes by a minimum of 50 percent. Unnecessary time spent analysing video may have helped criminals escape through the net by minimising the window of the opportunity for officers to act in a timely fashion. “Now we can undertake a week's worth of pattern analysis in an hour,” said Woolston.

Catching All the Evidence

Another benefit of automating the process is that there is less chance that vital evidence will be missed. According to Wilks, “Research reveals that viewer fatigue can set in as little as 22 minutes into a studying a video, particularly when it is watched at speed – meaning that vital information may be overlooked.” “Through automation there is far less risk of losing evidence than with a human looking at things,” added Woolston.

Securing Convictions with Less Time in Court

Another major benefit is the fact that it is far rarer for video evidence to be challenged in court. This translates to officers spending less time in court and more time on the beat.

Operation Trapper

This operation resulted in the convictions of some 40 football hooligans by using Scyron technologies. Operation Trapper involved the covert surveillance of hooligans from Hull City and Scunthorpe United who were posing a significant risk to people on the street. **DEMON detect** software enabled the automatic search of video footage for specific incidents, and reduced the amount of time spent by Police Officers searching for specific scenes.

DEMON detect is able to analyse up to four pre-recorded video feeds and 32 live video feeds at a time and up to 10 zones of interest per video source.

“One of the problems with Operation Trapper was the large number of hooligans identified; we had to find a way to easily and efficiently present the evidence in court,” said Woolston. The TSU worked closely with Martin Steedman, Evidence Review Officer with Humberside Police, who made extensive use of **DEMON edit's** ability to mask or highlight objects, background or speech with ease, label and track people or objects of interest. In this case, Steedman ringed individual hooligans and tracked their actions and presented this as evidence in court.

In the past, the TSU relied on an expensive professional video-editing suite which required special training to use. **DEMON edit** proved the opposite. “When we used Scyron software for this process we found it relatively easy to use after a little practise,” said Steedman.

The Police concede that without **DEMON edit** it would have been difficult and time-consuming to present the evidence in court. “Prior to trials, we were able to present to individual defence teams the evidence we intended to present to a court and jury. This included a video of each suspect with the suspect ringed, highlighting their actions, such as bottle throwing,” said Steedman.

Faced with the power of the evidence, only two suspects elected for trial at Crown Court – one was convicted. A total of 40 convictions were secured. “Without the ringed evidence we would, I'm sure, have had a lot of ‘Not Guilty’ trials,” said Steedman.

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Gary Woolston
Technical Support Unit Manager

Looking to the future

Woolston believes the days of videotape are nearly over and points to the increased use of hard disks and servers for storing evidence. Again, Humberside is pioneering the way.

“Rather than having officers physically bring every CCTV tape or disk to us, we now have remote units where the data can be read and transmitted to the TSU,” said Woolston. “So an Officer 35 miles away in Grimsby can make an arrest and while their suspect is in questioning, the video evidence is transmitted immediately to Hull. We can do the analysis and return the evidence before the suspect even leaves questioning. When confronted with it, more often than not this results in an admission of guilt or a reduced likelihood of bail being granted. This is the way forward.”

Humberside TSU is very much at the sharp-end of using technology to tackle crime and what they do today many Police Services will do tomorrow.

“It is good to know that there are forward-looking Forces such as Humberside,” said Scyron’s Wilks, “their feedback has helped us improve the design of our solutions and is testament to innovation, not only in technology, but in the application of modern policing.”

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