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ISSUE #1

IMPACT LAB

Operation Doubrava

Unique event brings police and industry together to innovate on human trafficking case

ACE Accelerated Capability Environment

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Peter Goodman
Chief Constable
Derbyshire Police

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Chief Constable, Derbyshire Police
NPCC Lead for Serious and Organised Crime and Cyber Crime

There was a palpable sense of energy and pace as Impact Lab launched – the first event of its kind to bring together frontline police officers and industry innovators to use actual data from a major investigation for mission solutions.

The venue – a series of cavernous arches beneath London’s Waterloo railway station – provided an atmospheric setting. The inaugural Impact Lab centres around Operation Doubrava – a human trafficking and modern slavery case successfully investigated by Derbyshire Police, which saw nine gang members jailed and 28 victims identified.

Derbyshire Chief Constable Peter Goodman – NPCC Lead for Serious and Organised Crime & Cyber Crime – gave an opening speech introducing the operation and his team. He was supported by NPCC Chair Martin Hewitt, City of London Police Commissioner Ian Dyson (NPCC Lead for Economic Crime, Business Crime and IT in Policing) and Sussex Chief Constable Giles York (NPCC Lead for Digital Policing and Intellectual Property Crime) who set the importance of Impact Lab within a national policing context.

The Operation Doubrava team then gave a briefing on the investigation, explaining in detail how they followed trails to Latvia, worked with local law enforcement there, and handled a huge amount of information and data while dealing with several languages. As the officers described the cruelty and human suffering they had uncovered, the emotional impact the case had had on them was clear, as was their desire to be able to act faster to find and protect vulnerable people.

Attendees – from ACE’s Vivace industry and academia community – then visited breakout challenge zones to learn more from Operation Doubrava officers about the areas where they need help developing new and better solutions to time-critical problems.

Speaking later, Mr Goodman said: “This is innovating in a way that we’ve never innovated before in policing. This doesn’t just give us an opportunity to look at an individual case and understand how partners in industry could help us solve it better, faster and cheaper – it also opens the door to how the tech sector can help policing develop techniques, so that over a broad range of investigations and operations, we can make better use of innovation and technology.

“I’m 100 per cent committed to Impact Lab that’s why I’ve made my officers available, made our data available, and shared the whole operation. We think there’s going to be some real learning from this, not just learning for Derbyshire Constabulary, but learnings for how we investigate serious and organised crime, and how we go after really complex, difficult offenders in a data-rich environment.

"It means that we will be more efficient, more effective and will bring offenders to justice more quickly, catch offenders we weren't able to before and get better sentences. The public will be safer, and the public purse will be better off so it's a win-win-win for us."

Sara Boltman, Director of Vivace member Butterfly Data, said: "I'm a data scientist by background and I have worked for banks and telecoms companies, and my heart sank when I saw the amount of effort that the police have to go through to get the structured entity information like bank account numbers, credit card numbers, national insurance details from scanned PDFs."

Commenting on the emotional impact the case had clearly had on the Operation Doubrava officers, she added: "For me, everything is a data point but when you see someone talking about a person they have rescued from slavery, it's not just a data point any more, it's a human being and you see the human cost."

Having access to the investigating team and to the actual data from the case was among the key highlights of Impact Lab for Vivace members.

David Balson, Intelligence Director at Ripjar, said: "This sort of engagement doesn't normally happen. Getting to talk to experienced officers and how they find challenges in data and data science is unprecedented."

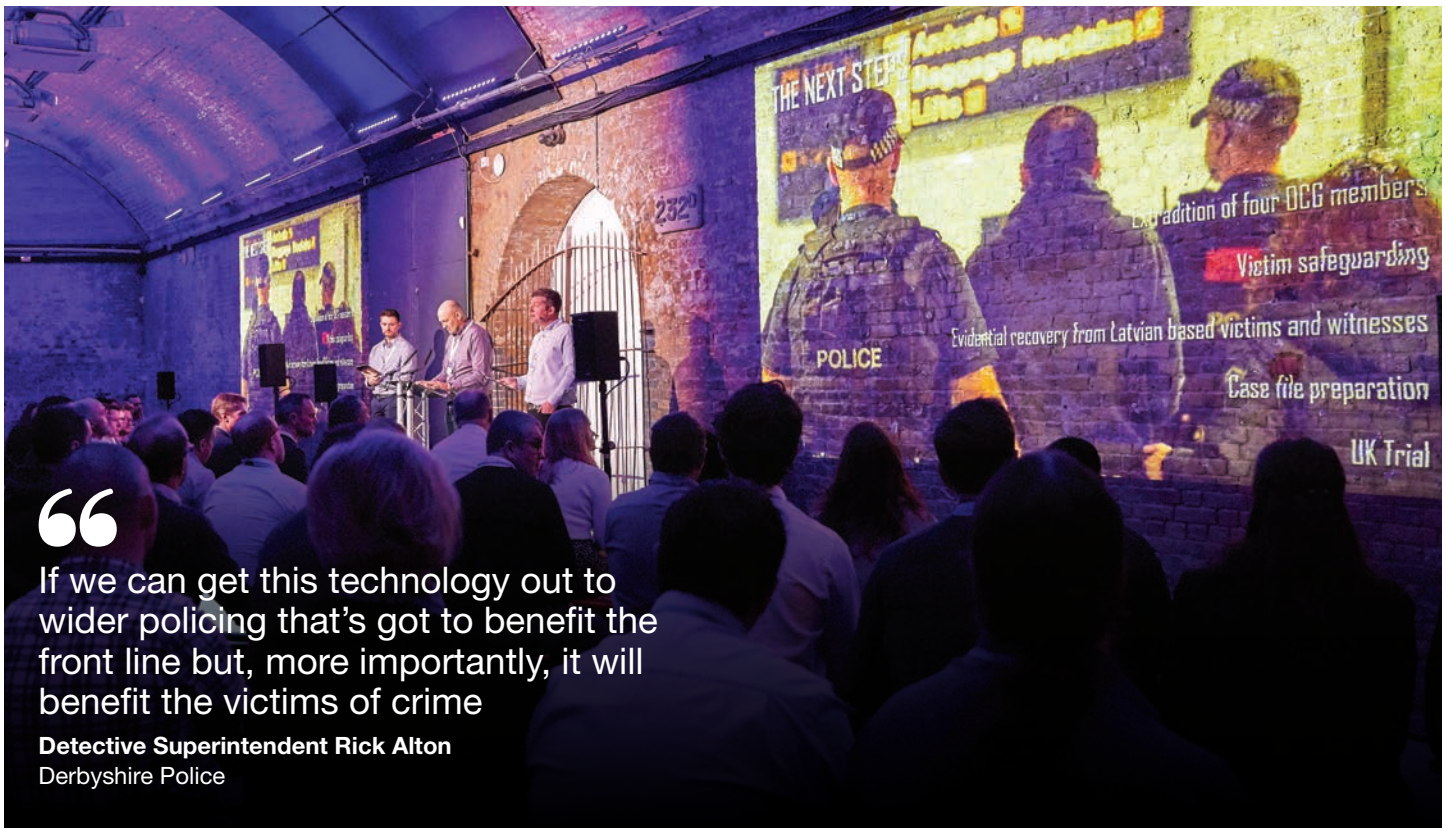
Michael O'Sullivan, Principal Data Scientist at Northrop Grumman, said: "With artificial data, you know what's going to happen but real data brings realism, and within the secure environment we can really do some analysis on it." National Police Chiefs' Council Chair Martin Hewitt said: "I think this is unusual and it'll be fascinating see how it plays out but it's got to be the way we go, because we've got to work in partnership with industry and we have got to be able to move fast in a way that we perhaps haven't been able to previously."

Deputy Head of ACE Jen Wallace, who leads on Impact Lab, said: "I'm really pleased with this fantastic start to Impact Lab. I'd like to thank Derbyshire Police for sharing our vision for how working like this can unlock the very best innovation and accelerate the latest technological solutions into the hands of frontline policing.

"Yes, this is about using technology to drive mission impact. But, more importantly, it's about changing the dynamic between policing and the private sector by immersing industry in the real operational problems and complexities that officers on the front line face every day. Only with that level of collaboration can we enable the kind of innovation that makes policing more effective, safeguards the vulnerable and saves lives.

"The ACE team has done an amazing job to make this happen and to navigate some difficult challenges to allow operational data to be opened up to industry in this way.

"We're looking forward to seeing the solutions presented at the next event and are already in discussions about the next case for Impact Lab to work on."



"If we can get this technology out to wider policing that's got to benefit the front line but, more importantly, it will benefit the victims of crime

Detective Superintendent Rick Alton
Derbyshire Police

Bringing Operation Doubrava to Impact Lab

The Home Office's Accelerated Capability Environment – ACE – created Impact Lab in response to real police need. Technology opens up new opportunities for criminals, requiring constantly evolving responses from law enforcement.

It also makes possible new sources of evidence and fresh investigative techniques, significantly speeding up and automating processes otherwise requiring manual, repetitive and time-consuming work.

Rapid innovation is essential to enable police to keep pace with technology-enabled criminals and to provide the tools to make investigations faster, smarter and more cost effective.

Operation Doubrava was the perfect case to bring to the inaugural Impact Lab. This was a Derbyshire Police investigation into a Latvian organised crime group that trafficked vulnerable victims from Latvia to Derby for the purpose of labour exploitation.

It was a complex, international investigation that presented a range of challenges, including extracting data from documents in different formats, accessing financial information, and exploiting location and communications data. All of this had to be done across several languages, and in partnership with the police in Latvia.

By opening up the inner workings of this challenging case, Derbyshire Police wanted to explore how close collaboration with the private sector could lead to the development of new tools, techniques and approaches that would accelerate future investigations and help them better safeguard vulnerable people.

The opportunity for participants of Impact Lab was to have unprecedented access to the investigating officers and, crucially, to the actual data from the case, enabling them to innovate and experiment in ways never before possible.

To make that possible, ACE went to great lengths to ensure the investigation data was handled securely by the participants, all of whom had already been vetted as members of the Vivace industry and academia community.

ACE reinforced its already robust contractual and data protection procedures before participants could begin working on the data within secure development environment PodDev, itself enhanced to provide additional data handling safeguards. Detective Superintendent Rick Alton, Senior Investigating Officer for Operation Doubrava, said: "Our work with ACE and Impact Lab is not just about Derbyshire, it's about policing the UK. If we can get some of the tools and technology from this out to wider policing that's got to benefit the front line but, more importantly, it will benefit the victims of crime and help us prevent people becoming victims."

Operation Doubrava began in February 2017 and concluded in November 2018 with the guilty pleas of nine members of the organised crime group who were jailed for a combined total of 33 years.

Crunching data for more effective crime fighting

Impact Lab Finalists present tech solutions

Technology that could radically speed up suspect interviews for police in complex criminal investigations emerged as the most promising solution for further development through Impact Lab.

The ARGA system uses automated analysis of large amounts of unstructured data and offers real-time mark-up of salient information, such as people, objects, locations, events and items of interest, and also allows investigators to create external links to other documents, so that the same people and organisations mentioned in different documents can be linked across the whole data set. This data can then be used to create visualisations.

By doing this in real time, it dramatically reduces the human effort and man hours it usually takes to follow up information from interviews or other aspects of an investigation. This is especially crucial in complex cases with officers working against the clock before having to release an arrested suspect.

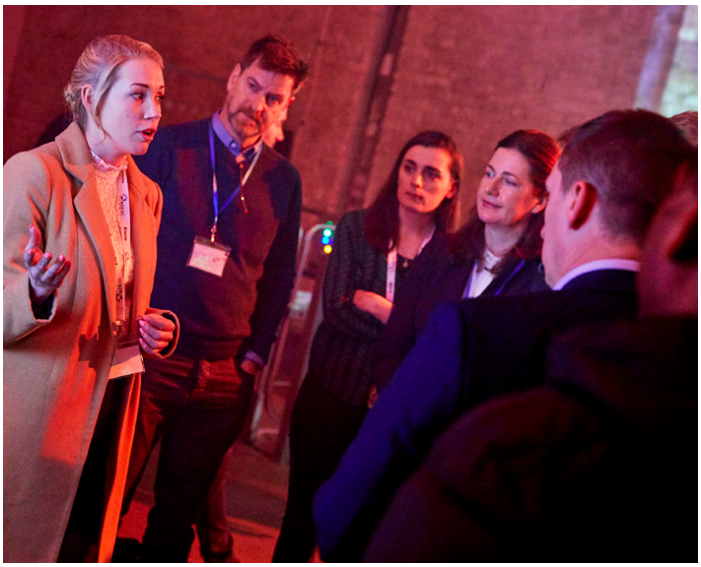
ARGA was one of five outstanding solutions pitched to a panel of senior police chiefs and ACE experts at the concluding Impact Lab event, held remotely due to Covid-19 lockdown restrictions.

The other companies were Telesoft, Butterfly Data, Ripjar and Esri, all of whom presented ideas and capabilities that impressed the panel and offered novel ways to think about mission challenges.

Telesoft's powerful case management platform was particularly relevant to problems faced by the team working on Operation Doubrava – the Derbyshire Police case that was the basis of this Impact Lab – and ACE is exploring options for further developing this solution to complement the ARGA technology.

ACE's secure development environment and collaboration tools meant there was little impact on participants' ability to work with the real data and police intelligence from Operation Doubrava which they had been introduced to at the first event in London. Between them, the companies spent over 47 days exploring, experimenting and innovating with this data.

Twelve companies took part in the kick-off briefing in February, with nine going on to actively develop solutions pitched to a panel of ACE judges in mid-April. The five deemed to have the most potential to solve key operational challenges for frontline policing were selected to go forward to the final event.



Spokesman Dominic Cassidy said: "ARGA makes sense of the data, and can solve the problem investigating teams have when they're trying to collate different sources of information from different documents, and the main difference will be in the time that could be saved. The access to real data was very useful and gave us real insight which helped us tailor our solution."

The judging panel was made up of some of the UK's most senior police officers, alongside members of the Derbyshire Operation Doubrava investigation team.

Derbyshire Chief Constable Peter Goodman, who is also NPCC Lead for Serious and Organised Crime & Cyber Crime, said the pitches had all been "really impressive".

He said: "They'd listened really clearly to what the case was, and all addressed ways of making it better, cheaper, faster, working in ways that we hadn't thought of before. The world we're working in works in second and minutes not months and years, so increasingly we need to partner with people who can work in that kind of way.

"The future of modern policing has to be about collaboration in the first instance, but more sustained, strategic partnership with all kinds of industry, but particularly tech and data-led industry."

City of London Police Commissioner Ian Dyson, who is also national lead for Economic Crime, Business Crime and IT in Policing, agreed, said: "Policing is changing, and the modern face of policing is a far more complex world, a world where criminality is operating online, where criminals are using the latest technology to steal, to threaten, to intimidate, and we in policing need to absolutely be up there with them, looking at the latest technology to assist in tackling these serious crime threats. So what we desperately need is that opportunity to take the best that the world outside policing has to offer around technology and really work in detail to say 'how can these things practically apply to policing'?"

NPCC chair Martin Hewitt said: "There is no way of going forward that doesn't involve us working in a way that perhaps we've not been so open to in the past, in terms of working with industry, private sector, with academia, I think that is the only place that we can go. I know there is a commitment in policing to do that, and Impact Lab is a very good example of how you can make this work and come out with a tangible outcome."

Sussex Chief Constable Giles York, NPCC Lead for Digital Policing and Intellectual Property Crime, said: "Impact Lab is about delivering a safe space where we can take risks in order to be able to do things really differently in the future."

Jen Wallace, Deputy Head of ACE, said: "All five solutions pitched to the panel were incredibly impressive. The AGRA proposition is a potential game-changer in terms of helping officers piece together crucial information and evidence from what can be a mountain of seemingly unrelated data.

"The Operation Doubrava team was really excited by what this could mean for similarly complex cases in the future. Innovation like this has obvious benefits to wider policing as well.

"All of the companies taking part will have gained a huge amount from having such unprecedented access to real investigation insight and data. All participants now have a much deeper understanding of the problems facing modern policing and can shape their business offerings to meet them."

Impact Lab – the pitches

ARGA

Using automated document trawling to search for, identify and tag key entities, plus live mark-up of text as it is entered in intelligence reports or writing up transcripts, for example. Human trafficking, employment and financial exploitation investigations all require named entities, such as people, objects, locations and events, to be identified. Extracting and identifying these from investigation documents saves significant time in pinpointing key evidence and leads, as well as helping to build up summary portraits of people involved and linkages between them.

Butterfly Data

Getting the most relevant data for an investigation, faster, through a better understanding of which information within scanned or printed documents is most important. Investigators on human trafficking, employment and financial exploitation cases spend a great deal of time sifting through documents to extract relevant information. This proposal is designed to make clearer requests for the data needed, as well as enabling it to be provided in a more usable format. It is illustrated by a tool built on open source technology which efficiently reviews and analyses communications data provided in a standard, machine-readable format, saving significant time and effort.

Esri

Clear and efficient presentation of geographical information for the CPS or courts as well as the ability to generate early intelligence on where criminal activity might be taking place. Understanding what has happened where is key to human trafficking, employment and financial exploitation operational challenges, and this visualisation tool would significantly improve clarity when explaining the case to the CPS or juries. An additional proposal explores how working with partner agencies such as DWP could identify suspicious location patterns, leading to early intelligence, more focused investigations and associated reduction in victim suffering.

Ripjar

Enhancing decision making through process automation, using data intelligence to manage, present and visualise knowledge about subjects of interest in an investigation. Human trafficking, employment, financial exploitation and translation investigations lead to a large amount of documents which need to be read and analysed for relevant evidence. Automating this step significantly reduces the amount of time needed to both build an evidential case and identify gaps in knowledge around each individual.

Telesoft

Increasing investigation efficiency by using agile project management techniques and tools to track gaps in knowledge, tasking and evidence collected as well as measure progress. Case management was highlighted as a fundamental challenge in the investigation. This solution can increase efficiency by helping track known information, tasking additional information gathering and analysing progress by assessing whether new information progresses the case.

To discuss bringing a case to Impact Lab email **ace@homeoffice.gov.uk**