Innovation in UK policing

Digital Intelligence

BAE SYSTEMS

Introduction

Virtually all industries have undergone, or are currently undergoing, some kind of digital transformation – and policing is no different.

It's widely recognised by senior leaders across UK police forces that innovation in science and technology is critical. As such, digital innovation in UK policing is extremely varied, focusing on and aiming to tackle a large number of different areas. All of this is undertaken with the goal of enabling forces across the country to increase both efficiency and effectiveness when preventing crime and protecting the public.

In fact, the Office of the Police Chief Scientific Advisor's (OPCSA) Science and Technology Strategy uses seven 'Service Lines' to categorise this innovation across policing. These are:

Analytics | Crime Prevention | Personal Safety | Mobility | Indentification & Tracing | Surveillance & Sensing | Interconnectivity

Here, we provide insights into some of the innovation taking place across forces in England and Wales and delve into some examples of the work being delivered. Before this, however, it's important to provide context to the UK policing innovation landscape.

Pillars of police transformation

Today, virtually every crime has a digital element. Not only is technology becoming more ingrained across society, but criminals are also using technology themselves to evade detection. As such, police forces are under pressure to use digital tools in new ways and leverage modern ways of working.

Current innovation in policing covers a wide range of tactical and strategic themes – from improving overall response and enhancing capability, to saving time and enabling data insights. Along with front-line policing outcomes like crime reduction, there are also many less obvious areas more associated with the 'back-office' such as professional standards and data management.

Outside of these, we've seen one particular theme stand above the rest: improving process efficiency. The clearest example regularly seen across UK police forces is the use of robotic process automation (RPA), which is becoming more critical as forces collect larger amounts of data. Several forces have delivered exemplar methods of RPA across their organisation.

For example, one force implemented a tool that speeds up crime data input and delivers analytical reporting, ultimately saving over 200 hours a day by removing manual processing. Similarly, another force delivered an RPA solution across its incident management unit that enabled the clearing of a significant backlog, saving over 68 weeks of anticipated human effort.

Being able to automate the handling, processing and analysis of data is critical to force efficiency and effectiveness, freeing officers up from time-consuming manual tasks to focus their efforts on preventing crime. Given forces are often stretched for time and capacity, implementing as many time-saving innovations as possible – particularly those that can be easily replicated across forces – will help reduce this burden and demand on policing.

Further, time savings inevitably lead to cost savings, which is critical given the compressed budgets facing many police forces. Simple money-saving innovations will free up much needed funds to re-direct towards more critical policing requirements, while demonstrating the value of digital transformation to other forces. One force, for example, has implemented a simple chatbot on its homepage website that has delivered an annual saving of over £130,000 by removing laborious police staff time. Small differences such as this can create massive long-term benefits.

Bringing innovation to life

Analytics

OPSCA defines analytics as "the ability to synthesise information to draw insights that can lead to actionable decisions, often in combination with other information and at scale." This definition is similar to commercial approaches. However, enabling 'actionable decisions' takes on unique importance within the context of policing, where effective data exploitation can directly lead to crime prevention and enhanced public safety.

In some circumstances, decisions can mean life or death. It's therefore vital that decision makers have access to the best information in a timely manner, in order to take action – which is why data analytics has become increasingly critical to police operations across the UK and abroad.

For example, the National Policing Digital Strategy 2020-2030 highlights the need to ensure that digital adoption is expanding the availability of data. When we look across the innovation landscape in policing, the positive intent to be more data led and effectively utilise the mass of complex data being collected is clear to see.

Analytics has applications across many different themes and areas. These include:

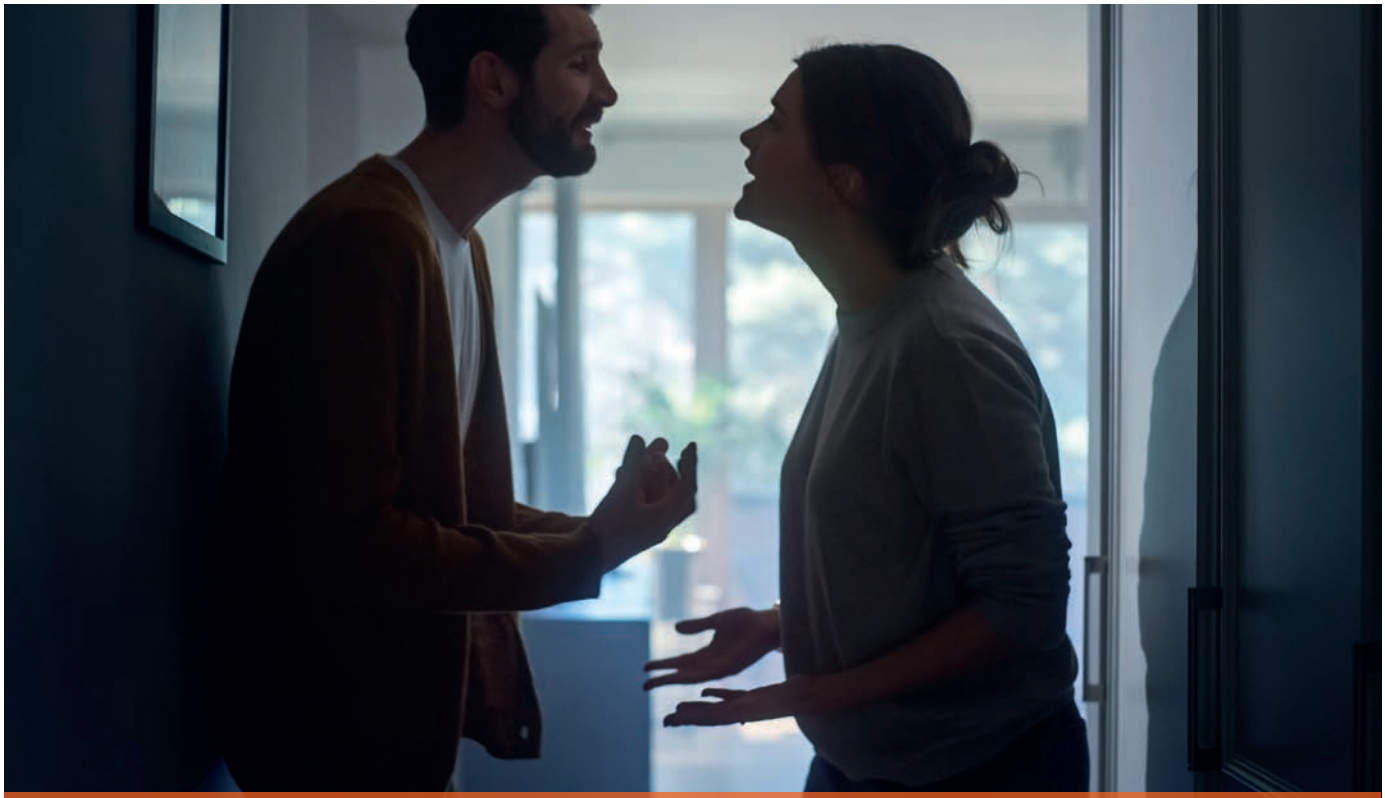
- Enabling crime reduction
- Saving force and officer time
- Empowering better and more strategic decision making
- Supporting the implementation of preventative measures
- Facilitating improved force response

One clear common thread throughout is the ability to deliver timely, actionable insights for the realisation of better policing outcomes. Forces can make better strategic decisions and more focused interventions when they have a comprehensive understanding of their data, ultimately providing more effective and positive impacts.

One police force developed a tool that provides intelligence insights and assessments of potential domestic abuse threats. These insights provide the basis for interventions and management plans for domestic abuse perpetrators, and have seen some perpetrators reduce their offenses by 100% in six months.

Another force implemented an online insights tool that pulled data from core policing systems into various intuitive dashboards accessible to officers to exploit as required. A victim contact dashboard within the tool led to a reduction in missed victim contact from 18% to just 5%, providing better results for the public and for victims specifically – a huge focus for forces across England and Wales.

Of course, this is all only possible with efficient data management. Whether we're talking about victim contact, domestic abuse, knife crime, or any other aspect of policing, data can't be adequately exploited if it isn't first managed in the right way. This highlights the need to connect citizen interactions and operational information across departments and forces, ensuring that the right information is in the right place to be accessed and leveraged by those who need it.



A Practical Force case study

In a programme designed to tackle violence against women and girls, with a specific focus on domestic abuse, Essex Police developed a new methodology for identifying high-risk perpetrators and enabling early intervention to help protect potential future victims. However, it hit a barrier in terms of the finite capacity of its staff to undertake this complex, multi- layered assessment. It could take two people up to a week to review all the available information for one perpetrator before action could be taken.

Our Intelligence Lead Assessment Service (ILAS) allowed the force to take the next step. Using inference and reasoning to replicate and operationalise expert human tradecraft, ILAS automated the work of analysts by applying confidence scoring and risk modelling in the same way that a person would. This resulted in a prioritised threat list that not only showed the people and relationships of most concern, but also those that had the potential to get worse – all at the click of a button. Practitioners can now spend more time taking action and less time on manual research.

Detective Superintendent Matt Cornish, Domestic Violence Lead for Essex Police, said: **"We were struggling because of the complexity of weightings, which was a huge barrier preventing us from moving forward. As well as examining the risk posed by the perpetrator, the system allows us to consider any additional risk, or potential mitigations within their current relationship, which hasn't been achieved before.**

"Finally, this is the truly preventative step: highlighting perpetrators with risk indicators (to allow for intervention and victim safeguarding) before they commit the serious offences that would put them into current cohorts. The time saved is a positive factor, but the real benefit is the ability to assess risk at machine speed to allow for early targeted intervention, and ultimately prevent serious harm."

Crime Prevention

Prevention is the ultimate goal for any police force. The more effective prevention measures are, the more resources can be saved and the safer society will be. Crime prevention directly connects to the three mission areas established in the OPCSA Science and Technology Strategy:

- To engage widely
- To evolve strategically
- To embed the best science and technology in a way that is trusted by the public

There is nothing that can be more effective in driving community engagement, enhancing strategic operations, and building public trust than proactively preventing crimes from taking place. But how can digital innovation directly or indirectly lead to greater success in reducing and preventing crime and harm? Or, as OPCSA puts it: "the ability to understand and respond to drivers and inhibitors of crime, including crowd management, public trust, mental health and wellbeing."

The challenge is understanding how technology can be used to deliver an advantage – getting ahead of potential criminal activity and understanding its underlying triggers. **It's all about enabling police forces to better tackle crime proactively rather than reactively. If issues can be understood at the start, there is a far greater chance that forces can stop them from happening in the future.**

There are some obvious applications of this approach – most notably around youth crime, domestic abuse, and violence against women and girls (VAWG). Indeed, a number of forces have developed models and predictive insights across these areas in an attempt to enhance preventative capability.

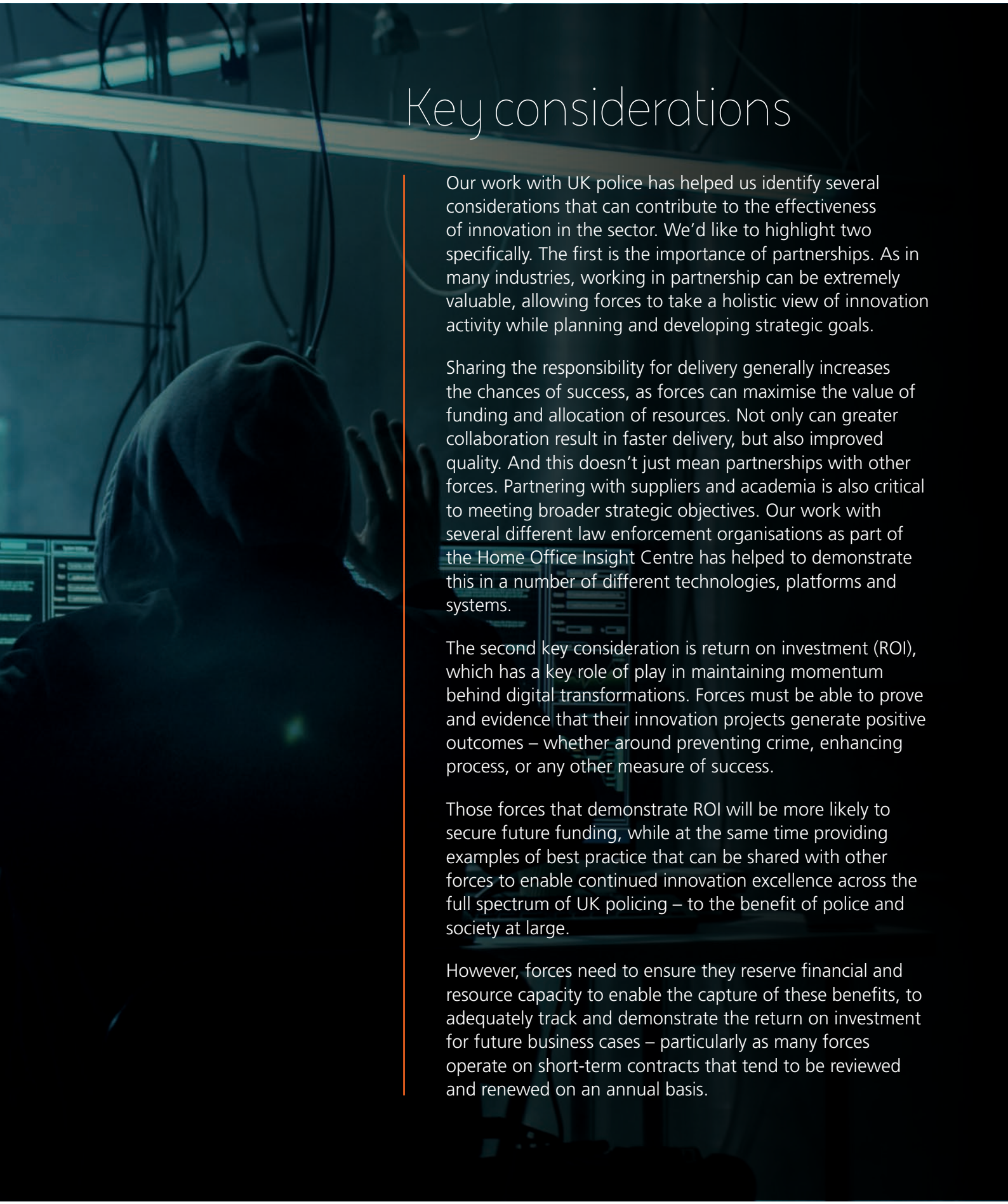
One notable example is a predictive knife crime model developed by a force in South East England. The model assesses 12 different risk factors and drivers that indicate an individual's risk and involvement in knife crime, helping the force to understand who and where to focus its attention. This guides officers with greater awareness and strategic intent.

Though models and predictive tooling are one avenue to prevent crime, forces are also looking at other innovations including behavioural science, greater and more granular understanding of force environments, and various forensic programmes. One force has developed a simple yet effective behavioural programme for perpetrators of domestic abuse crimes that helps these individuals understand their crimes and change their behaviours. More innovations such as these are critical in preventing crime across England and Wales.

Again, ILAS is an example of a specific technology that is having an impact in the area of crime prevention. In one specific use case, a male serving a prison sentence for drugs trafficking offences was due to move in with a mother and her 14-year-old son – who had previously been found in possession of cannabis – upon his imminent release. This link wasn't clear on the child's personal record, but ILAS was able to take a broader view of risk into account and infer a relationship between the adult and child that was not present in the records management system.

The system drew a connection between different contextual indicators and identified a valuable safeguarding opportunity that otherwise would have been missed. It recognised a potential threat and triggered an intervention that likely prevented future child exploitation and drugs-related crimes.

This is just one example of how crime and harm can be prevented using digital tools – enabling police forces across England and Wales to improve their responses, make more strategic decisions, and focus their resources and efforts more effectively.



Key considerations

Our work with UK police has helped us identify several considerations that can contribute to the effectiveness of innovation in the sector. We'd like to highlight two specifically. The first is the importance of partnerships. As in many industries, working in partnership can be extremely valuable, allowing forces to take a holistic view of innovation activity while planning and developing strategic goals.

Sharing the responsibility for delivery generally increases the chances of success, as forces can maximise the value of funding and allocation of resources. Not only can greater collaboration result in faster delivery, but also improved quality. And this doesn't just mean partnerships with other forces. Partnering with suppliers and academia is also critical to meeting broader strategic objectives. Our work with several different law enforcement organisations as part of the Home Office Insight Centre has helped to demonstrate this in a number of different technologies, platforms and systems.

The second key consideration is return on investment (ROI), which has a key role of play in maintaining momentum behind digital transformations. Forces must be able to prove and evidence that their innovation projects generate positive outcomes – whether around preventing crime, enhancing process, or any other measure of success.

Those forces that demonstrate ROI will be more likely to secure future funding, while at the same time providing examples of best practice that can be shared with other forces to enable continued innovation excellence across the full spectrum of UK policing – to the benefit of police and society at large.

However, forces need to ensure they reserve financial and resource capacity to enable the capture of these benefits, to adequately track and demonstrate the return on investment for future business cases – particularly as many forces operate on short-term contracts that tend to be reviewed and renewed on an annual basis.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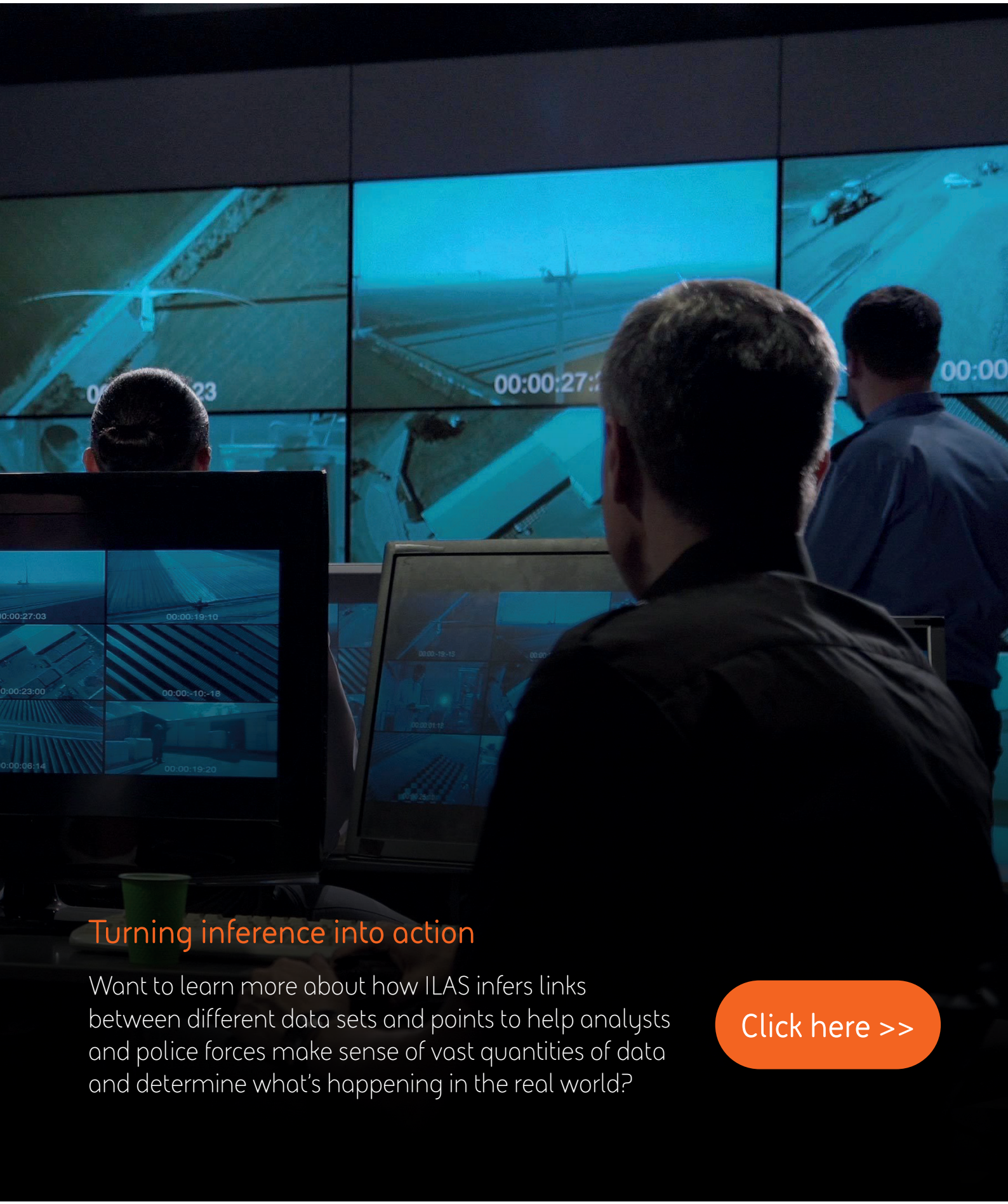

Turning inference into action

Want to learn more about how ILAS infers links between different data sets and points to help analysts and police forces make sense of vast quantities of data and determine what's happening in the real world?

Click here >>

We are Digital Intelligence

BAE Systems Digital Intelligence is home to 4,700 digital, cyber and intelligence experts. We work collaboratively across 16 countries to collect, connect and understand complex data, so that governments, nation states, armed forces and commercial businesses can unlock digital advantage in the most demanding environments. Launched in 2022, Digital Intelligence is part of BAE Systems, and has a rich heritage in helping to defend nations and businesses around the world from advanced threats.

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