



UK Defence &
Security Exports

First Responders

An introduction to
UK capability



Part of



Department for
Business & Trade





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Ministerial Introductions

I am very pleased to introduce this brochure to you, which sets out how UK industry and our agencies can offer improvements to the policing and fire-fighting capabilities of countries around the world.

The Department for Business and Trade helps businesses to export, drives inward and outward investment, negotiates market access and trade deals, and champions free trade. We support productivity and our economy, providing our businesses with access to new markets. This drive to promote global prosperity, trade and international investment also contributes to global stability and security, as well as increasing the UK's influence across the world.

In the area of First Responders UK companies have a well-earned reputation, which is based on the knowledge and expertise drawn from many years of collaborating with our domestic police and fire services to deliver the effective and efficient solutions that they demand. Our industry designs, manufactures and sell products that are a byword for robustness, reliability and innovation and that take into account the growing challenges and threats that our societies face in the 21st century.

From expertly designed clothing and equipment that keeps police officers and fire fighters safe from harm, via sophisticated tools that can extract actionable intelligence from smartphones to ground-breaking electric firefighting vehicles, the UK can offer you comprehensive world-class solutions that cover every possible aspect of policing and firefighting. Whatever issue your organisation is seeking to address, the UK's companies and agencies have the answer.

I would strongly encourage you to reach out to our staff, both in the UK and in our Embassies and Consulates overseas. They can provide you with all of the information and support that you need as well as to connect you with our world-leading industry.

Lord Johnson of Lainston CBE
Minister of State
Department for Business & Trade



I welcome this brochure, which sets out how the UK can help our international partners to improve the effectiveness and efficiency of their domestic policing and fire organisations.

The UK's police service is widely admired internationally for its policing by consent approach, its efforts to reduce crime and its effectiveness in addressing illegal activity, from online fraud to organised crime. Equally, our firefighters are seen as the one of the most well-trained and competent services anywhere in the world.

These positive qualities are the result of robust practices informed by experience gained over nearly two hundred years, and today services are supported by a comprehensive regime of training and capacity building delivered by our domestic agencies, as well as by UK industry. Our police and firefighters are also able to rely on a broad range of robust, reliable and innovative tools and equipment to help them carry out their duties effectively in the face of growing threats to public safety.

Many of the elements that support our domestic police and fire services are available to our overseas partners, where they can help to reduce crime and make the lives of citizens safer.

I trust that you will find the contents of this brochure useful, and I encourage to explore how the UK can help.

**The Rt Hon Chris Philp MP
Minister of State (Minister for Crime,
Policing and Fire)
Home Office**





Executive Summary

In order to protect their citizens governments require that their police and fire & rescue services have capable and well-trained staff with access to all of the equipment, tools and resources they need to effectively carry out their duties.

The United Kingdom has had formal police and fire & rescue services since the early 19th century. Throughout the intervening years their services have improved as they have adopted new technologies, techniques and working methods to deal with preventable incidents and criminality, disturbances of the peace and reducing the threat to life from fire.

Today the police services are increasingly having to tackle organised crime, financial crime and the increasing threat of cybercrime, as well as the ever-present threat of terrorist attacks. Our domestic fire services have also been able to take advantage of developments in technology and new methodologies to make their firefighting more effective in order to reduce loss of life and lessen the negative economic impact that fire can have.

This brochure aims to introduce potential buyers to the world-leading equipment, capabilities and training that UK industry can offer to increase the effectiveness of your domestic services.

The range of capabilities the brochure covers are:

- Response – Command, control and communications systems and models that address the rapid and effective response of police and fire services.
- Equipment – The wide range of vehicles, on-board and deployable equipment that provides the capabilities that police and firefighters need in order to tackle incidents effectively.
- Protection – Addressing the need to ensure the physical safety of first responders through robust and reliable uniforms and innovative personal protective equipment.

- Observation, Investigation and Evidence Gathering – Tools and techniques that enable the police to intervene in developing criminal activity and for both firefighters and police to build evidence trails. This area also includes the interrogation of smartphones and computers to expose actionable intelligence.
- Specialist Proficiencies – Areas where the UK has particular niche capabilities including CBRNe response, victim and witness safeguarding and dealing with missing persons.
- Training & Capacity Building – Equipping police and firefighters with the broad depth and breadth of skills needed to tackle current and emerging threats.
- Consultancy – Drawing on the wealth of UK experience to support the transformation of domestic fire and police services to improve capacity and capability.

Each of these capabilities is accompanied by case studies that illustrate UK products and services that are in use today, and which in many cases have been deployed overseas.

At the end of the brochure you will find further information on how the Department for Business and Trade's UK Defence & Security Exports team can provide advice on how to access UK industry, including resources and contact details.



A Forward Look – The Policing Perspective

Andy Marsh is the CEO of the College of Policing, who offers his views on how technology, training and capacity-building support effective policing.

Throughout my 34 years in UK policing, I have seen thousands of examples of innovation, professionalism and leadership, many of which have been recognised nationally – and even globally.

Policing around the world is full of dedicated officers and staff who work selflessly to make a difference every day. The context in which these officers operate is made more challenging, and the world of 2040 will be very different to the world of today. Over the next 20 years, trends such as technological change, global warming and rising inequality will come together to increase the number and complexity of issues facing policing. This is something clearly set out in the College of Policing's research into future trends.

To meet the challenges and demands of the future, we need to prepare for them today. We'll need to get better at anticipating emerging issues, think more innovatively about the best policies and interventions for addressing them and act quickly to maximise our chances of success.

I have seen first-hand the impact new technology can have on better policing outcomes and public trust during my time as Chief Constable of Avon and Somerset Constabulary. Our introduction of body worn video across the whole force made a significant contribution in allowing our officers to do their job effectively and ultimately keep people safe.

While it certainly helps, preparing for the future shouldn't just mean investing in new technology. We also need to invest in our most important asset, our people and help them rise to these new challenges.

The success of policing largely depends on the culture that exists on the frontline. The solution to many of the challenges facing policing today lies in ensuring there is high-quality leadership, from those making the decisions that matter to the public. In the UK that means the constables, sergeants and inspectors who are responding to the public's call in the early hours of the morning. These are the people who ultimately create the culture for delivering policing of a standard rightly expected by the public



A Forward Look – The Fire and Rescue Perspective

Mark Hardingham, Chair of the National Fire Chiefs Council (NFCC) considers here how working closely with industry, as well as growing the capabilities of fire-fighters, protects the public at home and overseas.

The National Fire Chiefs Council is the professional voice of the UK fire and rescue service, which aims to 'to improve safety in communities by working collaboratively with fire and rescue services, promoting national approaches where they work best.'

Made up of a rich and varied membership from all UK fire and rescue services and individual members, NFCC has a unique role in representing fire and rescue services on the national stage, with one voice for maximum impact. This allows us to achieve more together, through harnessing knowledge and expertise, for the benefit of all.

The collective voice of NFCC means we can shape our reform agenda with our stakeholders and co-create the fire and rescue service needed for current and future generations. By working with fire and rescue services on issues affecting everyone, NFCC aims to achieve solutions efficiently and effectively.

The UK fire and rescue service has much to be proud of; our firefighters and people who work in fire services are well-regarded by the public and partners. Day-to-day 999 emergency response, community and building safety services, the recent work on humanitarian aid convoys to Ukraine and the response to the COVID pandemic is testament to this.

To reflect societal, environmental changes and risk in an ever-changing world, the role of the fire and rescue service always needs to evolve. It has extensive capabilities to serve the public during a crisis or when demand places extensive pressures on other parts of the public sector. Mindful of local risks and needs, we do this to save lives and protect local communities.

Our international work – coordinated by NFCC's National Resilience function – saw a team sent out to help fight wildfires in Greece and the coordination of three convoys to Ukraine, providing essential and much needed equipment to firefighters on the frontline. NFCC also provides National Operational Guidance for fire and rescue services which can be tailored to local needs. This is underpinned by our National Operation Learning function, allowing everyone to benefit from collective experiences – collaboration in action. This evidence base means all fire and rescue services benefit from targeted research, helping to inform the development of future national guidance.

NFCC has a range of core products providing valuable benefits to our membership and the wider sector. These include an established events programme, sponsorship packages and partnerships, available to all sector industry.

We strongly believe that working with industry is vital to provide solutions to the issues we face as a sector, improve firefighter safety and ultimately contributing to our aim of keeping our communities safe. Our custom-designed Executive Leadership Programme (ELP) is for aspiring strategic leaders, focusing on transformation through development to provide a stimulating and rewarding experience.

NFCC also has a dedicated protection and building safety team, set up in response to the Grenfell Tower tragedy and the independent review into building safety. By having a leading role in this area and influence its future direction and policy with government departments, ensuring the voice of the UK fire and rescue service is heard.

NFCC also supports the newly formed Fire Standards Board, which has now released more than ten national standards for fire and rescue services. This work oversees the identification, organisation, development and maintenance of professional standards, working towards a more joined up and standardised approach.

In addition to our strategic commitments to reduce community risk, work to develop and support people across fire and rescue services and drive transformation through digital and data solutions through our dedicated programme teams, NFCC has seven national committees, which focus on areas of vital importance to fire and rescue services.

The public across the world have great confidence and trust in firefighters and their fire and rescue services. There is a collective responsibility to build on this reputation and how the fire and rescue service is shaped for the future – with the needs and expectations of the public and communities at the forefront of our thinking.



First Responders

Consultancy

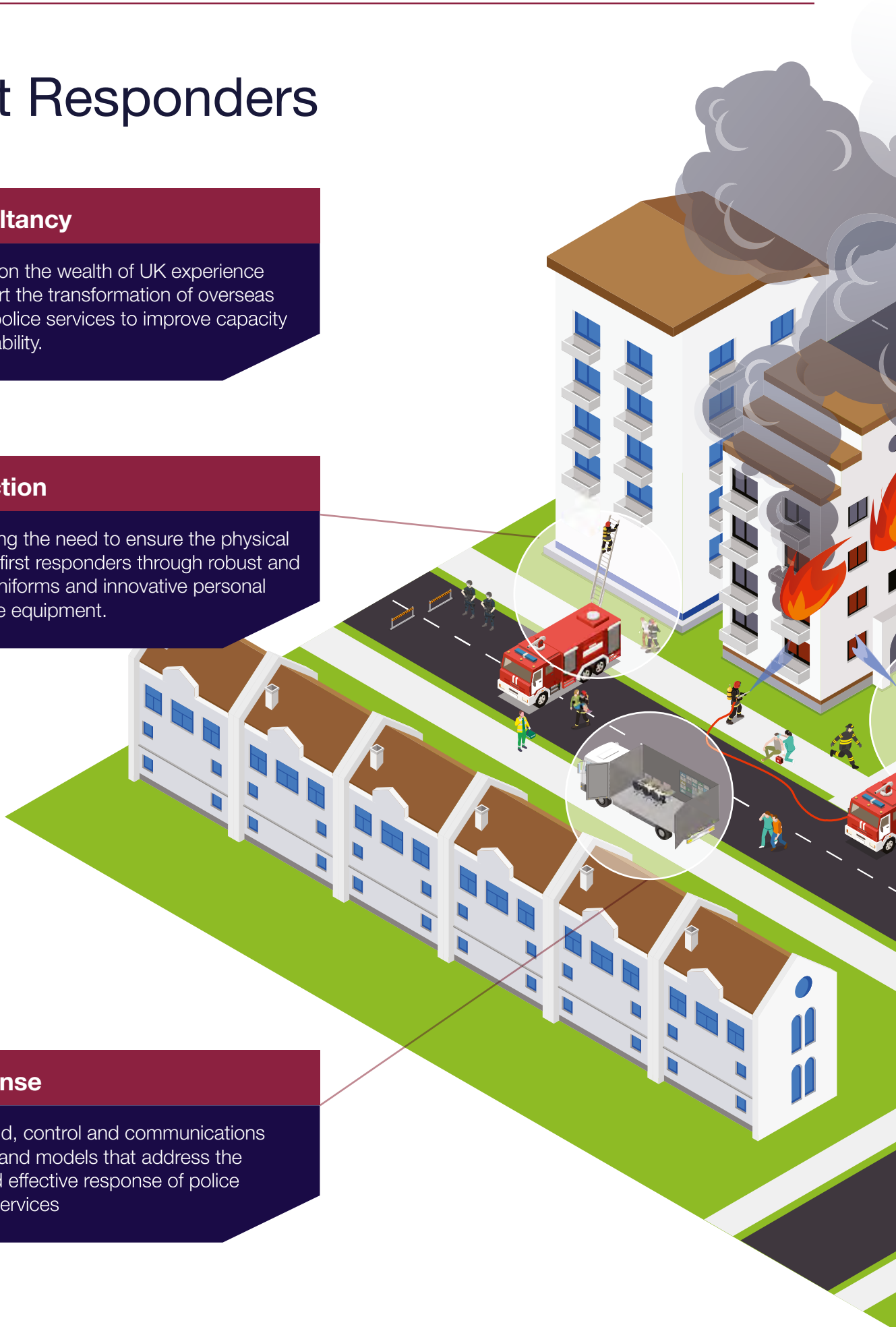
Drawing on the wealth of UK experience to support the transformation of overseas fire and police services to improve capacity and capability.

Protection

Addressing the need to ensure the physical safety of first responders through robust and reliable uniforms and innovative personal protective equipment.

Response

Command, control and communications systems and models that address the rapid and effective response of police and fire services





Specialist Proficiencies

Areas where the UK has particular niche capabilities including CBRNe response, victim and witness safeguarding and dealing with missing persons.

Training & Capacity Building

Equipping police officers and firefighters with the broad depth and breadth of skills needed to tackle current and emerging threats.

Equipment

The wide range of vehicles, on-board and deployable equipment that provides the capabilities that police and firefighters need in order to tackle incidents effectively.

Observation, Investigation and Evidence Gathering

Tools and techniques that enable the police to intervene in developing criminal activity and for both firefighters and police to build evidence trails. This area also includes the interrogation of smartphones and computers to expose actionable intelligence.”





Response

Response

In order to mount an effective response to risks to public safety, road traffic accidents, incidents of anti-social behaviour and to prevent loss of life and limit damage resulting from fires, it is important that police and fire services respond quickly. In the UK a call to the '999' emergency number is typically answered well within ten seconds.

This efficient response is supported by a wide range of products and services, many of which can be provided by UK industry, from robust communications equipment to sophisticated call-handling software. When first responders are dispatched command-and-control rooms are equipped with technology that can combine several sources of data to enhance situational awareness. This can include feeds from CCTV systems in the area and other sources, which can then be brought together in visualisation software to provide a coherent picture to police and firefighters heading to the scene, or to help senior staff make immediate and effective judgements on the level of risk present and to identify whether additional resources need to be deployed, particularly if it appears to be developing into a major incident. For policing, the National Decision Making Model is used for this purpose.

To further improve the effectiveness of the response, the UK is currently undertaking improvements to its existing communications infrastructure which will introduce high-speed mobile networks that can handle multiple streams of voice, video and data such as risk profiles and maps. Further innovative solutions are also being used in the UK which utilise existing technologies in a novel way. For example, a domestic company has developed a system which, with a witness's permission, allows access to their smart phone camera to supply a real-time video feed of an incident. This can overcome the challenges associated with poor recall by members of the public and the difficulty people have in giving an accurate description of an incident. Similar

advanced technologies are also now use which take feeds from body-worn cameras, a piece of equipment which is increasingly being introduced across police and fire services.

Fire and rescue services in particular use several strategies to ensure that incidents are dealt with efficiently. For example, the pre-determined attendance (PDA) methodology determines, based on the incident type, what resources should be deployed to respond to a particular incident compiled from previous experience. These PDAs define the requirements for vehicles and personnel, as well as identifying other resources that are required. For example, at a major incident that may take hours or days to get under control, requirements will develop and evolve, such as the need to offer welfare facilities, rest areas and relief crews. Our organisations can help overseas agencies to understand and evaluate their own requirements and help them to adopt the process-based operational procedures that represent UK best practice.

When dealing with major incidents that require the involvement of a number of different agencies, the UK has moved away from outdated siloed processes and static documents and today operates an interoperability model that can mobilise several agencies simultaneously. This Joint Emergency Services Interoperability Programme (JESIP) is based around a series of clear, simple principles, overseen at the national level by a board of senior officials from across the first responder community. It relies on the co-location of commanders, ready lines of communication and a shared understanding of risk and shared situational awareness. The JESIP model is supported and refined through evaluation processes post-event that promote continuous improvement and refinement of the response.

UK industry supports this way of working with products including sophisticated mobile command vehicles that have all the functionality of a typical control room in a fixed location as well as innovative communications solutions and software. Several organisations in the UK can also help overseas agencies to embed these effective and streamlined methodologies into their own national and regional response to major incidents, through a combination of classroom learning and training exercises in facilities specifically designed for this purpose.

The UK supports initiatives to address the challenges that the mobilisation of personnel, whether full-time, part-time or acting on a voluntary basis, poses. UK industry has developed dedicated software packages designed for the emergency services supported by capacity-building initiatives, thus ensuring that the speed of response is rapid and efficient and is proportionate to the incident at hand.

Interoperability Case Study

Terrestrial Trunk Radio (TETRA) is the current established means of critical communication employed across the globe. It has been a trusted service due to its resilience, reliability, and efficiency, allowing for voice, group calls and direct device-to-device calls. However, the system is lacking in many areas, especially regarding data sharing. In contrast, the Long Term Evolution (4G+) or LTE wireless broadband standard allows large amounts of data to be shared, while still encompassing the capability to communicate via voice. It can also be used to facilitate communication between services allowing fire brigades, police officers, and medical teams to all connect together.

Handsfree Group offers a novel solution that takes advantage of this new level of connectivity, the R5 Fixed Vehicle Device. This is a complete mission critical communication solution that utilises LTE to provide voice, Push-To-Talk (PTT), high-speed data and integrated video. Handsfree Group is one of two approved suppliers to deliver fixed vehicle technology and accessories for the deployment of the Emergency Services Network (ESN) contract across the UK, which will eventually fully replace the current existing TETRA Airwave System.

The device comprises a control unit, user interface, and associated accessories, including a telephone handset, speakers and antenna. The R5 is an Android 10 platform with Google applications installed, providing an easy-to-use interface that smartphone users will find very familiar. It is an all-in-one, reliable device that offers interoperability between users, with superior sound quality to ensure that vital communications are crystal clear. This technology is suitable for police cars and motorcycles, fire engines, ambulances and marine vessels, along with coast guard, mountain rescue and other mission critical users.

For the last 15 years, Handsfree Group have supplied and installed the latest market-leading vehicle technology innovations through their UK and USA operations. Their commitment to rigorous research and development has led to the R5 device being developed from initial concept to full certification in the space of two years. It is the first

Fixed Vehicle Device of its kind to receive Google Mobile Services (GMS) certification and has received commendations from the International Critical Communications Awards (ICCA) for its interoperability and application in public safety. Its features and benefits have been tested and approved by users in the field, with feedback from User Organisations being considered at every step.



Emergency Communications Case Study

Emergency agencies require reliable communication systems that work in challenging environments if they are to coordinate their activities effectively. For example, recent wildfires across the globe have seen widespread cell site failures and power outages which has disrupted emergency communications and posed public safety threats. These disruptions have led to Command and Control losing communication links with emergency personnel on the ground, resulting in a lack of co-ordination and interoperability between agencies and causing subsequent delays in recovery efforts.

Inmarsat's BGAN PTT+ solution delivers connectivity for remote workers by providing global real-time data transfer and Push To Talk (PTT) communications for public safety and emergency response vehicles and personnel. Integrating easily into existing radio networks, BGAN PTT+ allows operators to maintain connectivity on the move and beyond line of sight, with Inmarsat's BGAN Satellite Network acting as a disaster-proof radio repeater network in space. As a multi-bearer interoperable system, the BGAN PTT+ solution provides always-on connectivity in vehicles and command centres, allowing for on-scene personnel to roam seamlessly across multiple Government and Public safety networks.

Inmarsat has led the way in global mobile satellite communications for over 40 years, solving the toughest connectivity challenges of customers around the world. Working with their global network of partners, the company has all customer satellite communication needs covered, today and into the future.



Location Finding Case Study

'Where's the emergency?' is one of the first questions someone is asked when calling the emergency services, but describing exactly where help is needed can be challenging and stressful – particularly if it's in an unfamiliar or unaddressed area. Call handlers and dispatch teams can't receive dropped pins and often struggle to detect exact locations from callers.

what3words saves precious time by helping callers say the exact location of an incident. It's divided the world into a grid of 3m x 3m squares and given each one a unique address made of 3 random words. For example, ///kite.chats.dine is a precise spot in a field next to the River Ouse in York. what3words addresses can be shared easily over the phone, by text, radio or digitally. This minimises the room for error when incident locations are passed between teams on the ground and different agencies.

The what3words app, available for iOS and Android, and the online map at [what3words.com](https://www.what3words.com) are free to use. what3words is available offline, making it ideal for use in areas with a weak or unreliable data connection and contains built-in error prevention to immediately identify and correct input mistakes.

It has helped find many people in need of emergency assistance quickly and easily. Around the world, emergency call centres are embracing what3words at a rapid pace, with control rooms in the UK, US, Australia, France, Germany, Belgium, Austria, Singapore, Canada, India, and South Africa all utilising the innovative technology, and urging the public to download the app. Call

takers are always trained to collect as much location information as possible from callers, and what3words has proven to be a useful additional tool available when identifying exactly where to send help.

what3words is a simple way to talk about precise locations. what3words has a team of over 150 people, across offices in the UK, USA, Germany, India and Mongolia.







Equipment

Capability – Equipment

The risks associated with dealing with incidents are constantly evolving. In the UK, equipment manufacturers work closely with the first responder community to keep pace with this changing landscape, ensuring that problems that arise can be addressed with engineered technical solutions to keep first responders safe.

For example, new technologies and techniques are increasingly being used to reduce the risk to firefighters, by enabling them to fight fires from the exterior of buildings, reducing their exposure to heat and potentially dangerous environments. Thermal imaging technologies have evolved to be smaller and more cost-efficient, increasing their accessibility and ensuring that they are now a standard tool for any firefighter. Additionally, equipment that uses misting techniques for fighting fires are increasingly commonplace. These use less water and take advantage of the full surface area of the water droplets to cool the gasses. This means that there is less run off of potentially harmful by-products of combustion, and the impact of water damage is also limited. These techniques are being embraced with both high- and low-pressure misting systems which are being trialled in fires on open ground, vehicle fires, confined spaces and many more.

The UK also leads the way in producing fire-fighting vehicles equipped with an increasingly wide range of capabilities which enhance the effective response to incidents. Many are now capable of carrying a very wide range of equipment as their remit has expanded to include changes in building design. New office and residential developments are often taller and more complex, and the growth of electric vehicles also poses novel problems because of the potential for battery fires.

The flexibility required from crewing solutions also means that a wider range of vehicles need to be available. Having a variety of vehicles to deploy provides efficiencies as it balances the number of responders needed with the incident at hand, and can also increase the speed with which firefighters

can be deployed. For example, smaller vehicles are now being produced that still offer extensive first response capability despite their size, and these vehicles are also available at a lower cost than larger fire engines. Noting environmental concerns, full-size fully electric vehicles are also now available from the UK for the first time, a world first.

Similarly, police services require an increasingly wide range of vehicles with a variety of capabilities. UK industry can supply tailored equipment packages to meet every need, from simple decal, paint and lighting packages to the retrofitting of lightweight ballistic panels and complex communications suites. Industry can also offer solutions that fit out vehicles to make them suitable for deployment on motorways/highways, in support of major incidents and specialist capabilities including dog handling, for example. The UK also produces in-shore and coastal vessels that can be fitted with all of the equipment necessary for firefighting, rescue and policing activity on the water.

The use of drones is becoming increasingly common and provides additional capability to first responders. The UK is at the very forefront of technological development in this area, and the wide range of aerial vehicles and sophisticated sensor platforms available can address every use-case. This includes small hand-held units that can be carried and deployed from a backpack to large vehicles with extended dwell times capable of remaining in the air for hours at a time. Sensor platforms available include high-resolution camera systems that can provide real-time video feeds of a major incident to a mobile command centre. They also include thermal imaging systems capable of locating and tracking individuals in rough terrain or identifying seats of fire, as well as ground-breaking features such as autonomous firefighting capability.

Firefighting Vehicles Case Study #1



Successfully implementing improvements to fire and rescue services' vehicles and equipment fleets needs to go beyond 'buy-supply-forget' as threats evolve over time. Angloco has nearly 40 years of exporting experience designing, manufacturing, supplying and, crucially, supporting critical assets in over 70 countries to date.

All vehicle types and classes including marine solutions have been designed, supplied and supported globally both to individual fire services as well as national training schools. Vehicles can be supplied with or without equipment fitted, including new and used units. By collaborating with public and private sector partners and through its own extensive experience Angloco is well positioned to help customers shape the solution they need as much or as little as required.

As an example, to date the UK's largest project of its kind, the Defence Fire and Rescue Project (DFRP) is a major outsourcing of the UK's military fire and rescue capability. Angloco's primary role is to provide full in-service support to the existing legacy fleet while manufacturing a new fleet of over 80 multi-role vehicles. The bulk of both new and legacy fleets are supported by Angloco at a fixed cost to the customer until retired or for the life of the 12-year project. The new vehicles have been designed to significantly

reduce acquisition and whole life support costs while providing appropriate, and in many cases enhanced, capability. Simultaneously, Angloco has also transitioned the defence fleet to new fully biodegradable foam concentrates for firefighting which do not compromise response or training capabilities.

Angloco prides itself on being involved in the procurement process from an early stage so that the chosen solution is the best fit for the customer, whether this incorporates novel advanced solutions or tried-and-tested technology.

Firefighting Vehicles Case Study #2

Efficient, reliable and capable vehicles are at the core of a safe and efficient fire and rescue service.

Emergency One manufactures bespoke vehicles and involves customers throughout the design and build process so that the resulting solution is tailored to meet the buyers' specific requirements. The company can build on any chassis type in a wide range of configurations, from pumping appliances to specialist off-road vehicles.

The company offers a range of light appliances which are small, compact vehicles including truck-bed, van and off-road models that can be deployed in locations that are inaccessible to traditional firefighting appliances. The company's larger units, which are of a size typically deployed across the UK and in Europe, are all built to the exacting EN1846 British Standards or the equivalent NFPA standards required in the US. In addition to standard firefighting configurations, Emergency One can also build specialist vehicles including decontamination units, water bowsers, foam tenders and specialist rescue vehicles.

The company strongly believes in supporting a Low Carbon Economy, and now offers the world's first fully electric fire appliance to customers., the E1 EvoTM. This next generation solution has the typical characteristics of a standard vehicle, including a normal travel range and a combined water and foam capacity of 1850 litres, but also incorporates many innovative features which are designed to improve firefighter and public safety.

Another new addition to the company's range of vehicles is the E1 Scorpion. This appliance is equipped with a 16 or 20 meter high reach extendable turret system which is manufactured to meet the stringent requirements of the 1777 European Standard and NFPA 1901 US standard for vehicle-mounted hydraulic platforms. The vehicle can also be fitted with the novel 'Fire-Spike' piercing lance system which is used to extinguish fires in enclosed spaces rapidly.

E1 has also developed several in-vehicle technological solutions that can be supplied in new vehicles or retro-fitted to an organisation's existing fleet. These include the e1Fleet data-logging unit for fleet management that includes real-time location data, the ePumpControl which can fine-tune pumping operations such as pressure and valve operation and the eCleanCab, a HEPA filtration system which can be fitted into crew cabs and can remove at least 99.9% of airborne particulates.

Established in 1989, Emergency One Group employs 250 staff at its manufacturing facility in Cumnock Scotland. Incorporating Clan Tools and Plant Ltd, which supplies fire and rescue operation equipment, the group can offer vehicles and equipment to meet all of a customer's firefighting needs.



Fire Hoses & Couplings Case Study

There are obvious benefits to adopting the innovations that have been introduced to the essential equipment used by firefighters, as they help to suppress fires more quickly, limit their spread and reduce the damage to structures.

Delta Fire has been responsible for numerous innovations in fire suppression over the years and are best known for their market leading range of handheld fire nozzles which are now in service with multiple firefighting professionals worldwide, including some of the world's largest fire services. Manufactured to exacting quality standards (under an ISO9001:2015 quality management accreditation) these UK-manufactured components offer exceptional product performance. Every Delta fire nozzle is also backed up by a 10-year manufacturer's warranty, a testament to the quality of their products.

Specialising in single-source supply to the global fire & rescue and defence sectors the company is also active within numerous other critical-risk industry sectors such as oil and gas, petrochemical, nuclear, aviation and mining. Dynamic and client orientated, Delta Fire are able to react quickly to clients' needs and many years of design and development by Delta's industry experts has resulted in a range of firefighting equipment at the forefront of today's fire industry - used, trusted and recommended by professional firefighters around the world.

Delta Fire Ltd is a leading UK designer and manufacturer of world-class, front-line firefighting equipment currently supplying their products to around 75 countries around the world. Based in Norfolk their brand-new HQ and manufacturing facility is built to the highest possible environmental standards and aims to be operationally carbon neutral. The new facility will provide increased capacity for future expansion and on-going investment in R&D.



Delta Fire has been a key supplier to first responders for more than 35 years, and as a relatively small company of around 40 staff they have remained agile enough to react quickly to demand when critical incidents occur. A good example of this is the extensive wildfires the UK has suffered as a result of prolonged hot weather and only minimal rainfall. The company has been approached numerous times during this critical period by several services who have lost critical front-line equipment due to rapidly spreading field and forest fires. In this situation it is essential that these organisations are assisted in restoring their equipment capability as quickly as possible, which the company has succeeded in doing under extremely challenging circumstances.

Fire Suppression Case Study

Making every drop of water count is increasingly becoming essential and provides real operational advantages too. Mist-Tech designs and produces innovative, reduced water use, mist based firefighting branches, lances, systems and small vehicles.

Using water mist (tiny droplets smaller than 100 microns but possibly much smaller) for fire suppression, such as fixed installations in buildings for example, has been established for decades. Smaller drops are more efficient at fighting fires and can result in less water use, reduced water damage and open up possibilities for smaller, lighter equipment and vehicles. In recent years mist use for active firefighting has been increasing. However, almost all these systems rely on ultra-high pressures (100 bar or much more) to generate the mist. Uniquely, Mist-Tech products require only 15 – 20 bar and can often be used with existing fire vehicles without modification or small, low

energy pumps (which can be battery electric, compressed air, petrol or diesel driven). They require less energy and are very safe, simple and low cost to use and maintain.

Whilst wildfires are an obvious application for this new technology (and has been widely adopted by several UK fire services) fire services around the world are beginning to use Mist-Tech for other fire types. As an example, Barbados sometimes struggles for water availability for small dwelling, grass or car fires on some parts of the island. Waiting for a full-sized appliance with a water tanker to follow could result in the fire spreading. Mist-Tech equipped pickup trucks provide an efficient, rapid response with the ability to extinguish small or control medium fires – often safely from outside the building by using the Mist-Tech piercing lance.

Taking advantage of this new technology can be as simple as swapping a hose reel branch but could also allow the introduction of other new technology such as remote operated vehicles.



Firefighting Ladders Case Study

The use of a wide range of ladders to aid fire fighters with rescue, access and firefighting has long been recognised as a crucial part of the fire and rescue services capability to save lives and structures.

Supply Plus Limited, based near Cambridge, are the leading supplier of ladders to the UK fire and Rescue Services as well as many others around the world. The full range of ladders are all

designed and tested to EN1147 2010 European standard, and the company works with both the end user and vehicle builders to ensure that the best packages are offered for ladders, ladder stowage and also the type of hose reel used to ensure maximum performance along with minimum footprint.

The company has delivered bespoke solutions for large projects including the Defence Fire and Rescue Project (DFRP) with Angloco, the new London Fire Brigade fleet with Emergency One and Babcock as well as developing specific products for overseas markets such as the Wheeled Hose Reel (Devedoir Mobile) for the French fire market.

The company base their quality and standards upon adherence to our ISO 9001:2015 Quality Management, ISO 45001:2018 Health & Safety Management, ISO 14001:2015 Environmental Management and NF-337 AFNOR Materiels Sapeurs Pompiers along with specific standards such as BS EN1147:2010.

AS Fire traces its history to the innovative '464' ladder launched in 1968. Bayley, established in 1797, celebrated its 200th anniversary in 2017. Collins Youldon, founded in 1976, has been the leading manufacturer of a range of hose reels for firefighting and domestic fuel delivery applications around the world. Supply Plus Limited, based at the site where the British Army's famous Green Goddess fire trucks were manufactured, acquired the businesses in 2010.







Protection

Protection

Keeping first responders safe and protected from harm is essential. There is, however, a balance between ensuring safety and enabling first responders to carry out their roles effectively. For example, the UK follows the Firefighter Safety Maxim, which states:

“At every incident the greater the potential benefit of fire and rescue actions, the greater the risk that is accepted by commanders and firefighters. Activities that present a high risk to safety are limited to those that have the potential to save life or to prevent rapid and significant escalation of the incident.”

The UK leads the world in the provision of personal protective equipment which is of the highest quality and manufactured to the most exacting standards. Uniforms produced domestically are made from durable and hard-wearing fabrics, with several of our domestic manufacturers having supplied first responders for a century.

Fire fighters will typically be deployed with a helmet, fire-retardant coat or jacket, pants, gloves, hood, boots, and self-contained breathing apparatus while a police uniform might add ballistic body armour or a stab-proof vest, batons, various forms of restraints plus shields for use in public order situations. UK industry can provide this entire range of equipment for export, all of which is in extensive use by our domestic police and fire services. The companies who supply the sector also maintain a continuous dialogue with buyers in the community to ensure that they keep pace with new and emerging threats to the personal safety of first responders.

However, ensuring the physical safety of first responders is not always sufficient. The UK is also leading in the study of, and developing responses to, the impact of traumatic incidents on the mental health of first responders. Organisations in the UK employ several forms of trauma risk management, including the provision of training to mental health first aiders who can support staff or direct them to appropriate resources. Several of the organisations who offer services in this key area domestically can also be engaged to support the development of similar support systems by agencies overseas.

Police PPE Case Study



It is essential that police officers are able to rely on the durability and reliability of their uniforms and equipment as they go about their duties.

Civil Defence Supply is a leading designer and manufacturer of front-line operational police equipment, encompassing helmets, respirators,

clothing and other personal protective equipment. Their ARMADILLO Interlinking Riot Shield is now deployed in 32 countries, as are other products the company has developed including the CapTor chemical incapacitant.

The company's products are in use across the UK's domestic police forces, the prison service and the Ministry of Defence. Full training and support services are available to customers, with an emphasis on operational tactics that favour less lethal methodologies.

Civil Defence Supply was responsible for creating the BS 7971 Operational Personal Protective Equipment British Standard over 26 years ago, and this is now being incorporated into the new ASTM International Standards under development in the United States.

The company, which has operations in Lincolnshire in the UK and Maryland in the USA, is a member of British Standards, the International Association of Chiefs of Police, US National Tactical Officers Association (NTOA) and an active member of many other policing committees both at home and overseas. These continuing dialogues ensure that Civil Defence Supply's products meet both the current and future needs of police services around the world.

Firefighter Uniforms Case Study

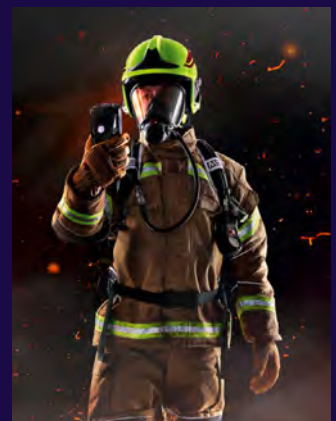
First responders across all disciplines can face hazardous situations and working conditions, so it is essential that they have access to high-quality protective clothing and equipment.

MSA Bristol has been a leading designer and manufacturer of protective clothing for the emergency services for over 60 years. Through continuous product development, and by working closely with leading international fibre and fabric manufacturers, the company brings the latest clothing technologies to emergency personnel and response teams around the world. In particular, the company has extensive expertise in supplying firefighters from a range of specialisms across the world, from municipal and civil defence units to those working in airports, in wildland firefighting teams, or in the marine and mining industries. Quality, bespoke, protective garments are also designed and supplied to specialist first responders such as Hazardous Area Response Teams, Special Operations Response Teams, and Urban Search and Rescue personnel.

In the UK, MSA Bristol supplies protective clothing to around two thirds of the country's fire and rescue services through a National Collaborative Personal Protective Equipment (PPE) Framework, equating to more than 30,000 firefighters. It also provides specialist airport firefighting teams across some of the UK's busiest airports.

Overseas, the MSA Bristol brand is firmly established in international markets with garments exported to more than 100 countries throughout the world, across five continents via a network of experienced channel partners.

All protective clothing supplied by MSA Bristol is independently tested and meets appropriate standards



set by a range of international bodies such as the International Standards Organisation (ISO), the European Committee for Standardisation (CEN), and the National Fire Protection Association (NFPA). Certified garments offer purchasers the reassurance that clothing meets the minimum levels of performance requirements, and is of good quality, fit for purpose and adequately protective.

MSA Bristol is part of MSA Safety, a global leader in the development, manufacture and supply of ground-breaking safety products and technology.

Breathing Apparatus Case Study

When deployed in scenarios where breathing apparatus is required, firefighters need to have systems that are capable and reliable but are not so bulky that they limit their movement, particularly as these environments typically contain debris and obstructions.

Manufactured in the UK, Dräger now offers the PSS AirBoss, the next generation in Self Contained Breathing Apparatus (SCBA) which includes a carrying mechanism with pneumatics, monitoring systems, masks and communication technology and numerous accessories. These include ultra-lightweight Type 4 Nano compressed air breathing cylinders, lung demand valves and fire escape hoods, and are offered in three models.

With the new Type 4 Nano cylinder providing a continued reduction in cylinder weight all new SCBA sets are significantly lighter than existing breathing apparatus, and its unlimited life can also reduce full lifecycle costs. Improved wearer comfort has also been achieved by shifting the centre of gravity and is also improved through a pivoting waist belt and three-step height adjustments, where the PSS AirBoss' weight is carried by the legs and pelvis rather than the back. This not only improves personal comfort, but also enhances mobility within confined spaces, while descending ladders and stairwells and in any situation which requires a high level of mobility.

On a practical level, the Dräger PSS AirBoss has also been designed to be 'snag-proof', ensuring that all attachments are neatly connected or

integrated to mitigate any risk of snagging or entanglement. Easy cylinder exchange has been achieved through the Quick Connect function and all key components are fitted with RFID tags for ease of asset management.

Also critical to the Dräger PSS AirBoss system is digitalisation. Dräger provides the only operationally-proven telemetry solution in the UK, delivering vital information which is automatically communicated between the wearer of the BA set and the Entry Control Point – without the need for either team to stop what they are doing to communicate. These signals include manual and automatic distress signals, team withdrawal and evacuation signals to and from the wearer, cylinder pressure, time to whistle and time of whistle. This system also provides comprehensive data regarding the firefighters' condition in relation to their SCBA, proving invaluable to those responsible for monitoring and directing BA crews. A new feature, unique to Dräger's PSS AirBoss, are 'Buddylights' fitted to the backplate, which use digital data from the set to provide immediate and highly visible signalling to firefighters of their team's cylinder pressures and physical condition.

Dräger is an international leader in the fields of medical and safety technology. Their products protect, support and save lives. Founded in 1889, Dräger generated revenues of almost €2.8 billion in 2019. The Dräger Group is currently present in over 190 countries and has more than 14,500 employees worldwide.









Observation, Investigation & Evidence Gathering

Observation, Investigation & Evidence Gathering

Preventable incidents, criminal deception, economic misconduct and crime - such as fraud, money laundering and corruption - threaten every country's security and prosperity. They can lead to devastating consequences for society, including the funding of domestic terrorism, the potential failure of critical national infrastructure or significant environmental damage.

Economic crime is borderless. It continues to challenge investigators through the use of crypto currencies, decentralised financial networks used for money laundering and acts of fraud perpetrated by bad actors operating outside a country's jurisdiction, for example. Tackling these issues can only be achieved through diligence and the collection of accurate data.

The UK has a significant number of professional capabilities that address economic crime as well as services to aid in the rapid recovery of economic assets. World-leading organisations in the UK support fraud loss prevention of over £1 billion per annum through a series of National Fraud Databases which are invaluable to any financial investigation, backed by training that covers the full range of economic crime.

When potentially fraudulent activity is detected, data can be uploaded to platforms operated by UK companies in the form of bank statements, Suspicious Activity Reports (SAR) and financial services information, which can be fed through automated cleansing rules and then applied to search algorithms to search for patterns in the movement of funds across multiple accounts. This gives investigators all the information that they need to assess the crime, follow the money and prevent further losses, protect the assets and further vulnerability of the victim or organisation and seek the prosecution of perpetrators.

Interrogating mobile devices and computer equipment suspected of holding evidence of

criminal activity is an increasingly important capability for the police and security services. Several UK companies can offer handheld and fixed devices that can review a person's mobile devices for evidence for exam, with some even offering the capability of extracting actionable data from smartphones which have been severely damaged. These systems also have the capability to access and store visual data from doorbell cameras and dash cams, location information from cell towers and so on to build a comprehensive picture of an incident.

Gathering robust physical forensic evidence is also key in ensuring that criminal activity is successfully prosecuted. UK industry is an innovator in the design and manufacture of forensic equipment across the entire range of capabilities that the police need, such as latent fingerprints, the detection of trace chemical residue, forged documents and currency. Rapid DNA detection services are also available to help identify victims where identifying documents are not present.

The UK is also a world-leader in arson investigation, with sophisticated tools available that can identify a range of combustion components, enabling investigators to track the source of a fire and the accelerant used more readily. Ground-breaking augmented reality solutions are now available which, when combined with remote sensing devices and robots, can enable investigators to work without having to enter an environment that might be physically dangerous or where toxic materials are present. These solutions can also be used to train staff in investigative techniques without having to go to the expense of constructing mock-ups of locations where a deliberate fire has been set.

In order to reduce the incidence of crime and terrorism, early detection of potential criminal, terror and abusive activity and preparedness for potential incidents is a key tool in the hands of UK law enforcement officers. Establishing large data sets of known materials, events and activities is crucial in this endeavour, from the pinpoint forensic identification of images, audio and imprints of devices and their data outputs, the ballistics of

spent ammunition to the mapping of potential flows of visitors to large venues. The UK is well-equipped to support these efforts and can supply solutions that have been successfully deployed by domestic organisations.

In locations where there is a high potential for criminal activity to occur, identifying individuals who are acting suspiciously or who might potentially pose a risk to people around them is an important tool in the effort to detect and prevent crime. In conjunction with academia, UK industry is developing solutions to address this problem, utilising machine-learning models tied to databases containing the biometric data of individuals involved in criminal activity or who are on terrorist watch lists. This software analyses real-time video feeds, flagging certain individuals for further study. This allows police officers, for example, to engage a suspicious person in a very large crowd and speak to them to ascertain their intentions and potentially prevent a situation from escalating.

More widely, tracking suspects or vehicles across the massive amount of video generated by CCTV and mobile camera systems following a crime is extremely challenging, requiring a large number of staff to work in tandem. Again, UK-developed machine learning tools that augment this raw video can identify a suspect using the colour of their clothing, height, gait and items they are carrying and then track their route, allowing officers to intercept them. In addition, these tools can also be programmed to continually analyse feeds from sensitive locations to spot suspicious behaviour and allow for rapid intervention.

Smartphone Forensics Case Study



Gloucestershire Constabulary, a county police service in England, sought a solution focussed on being victim centric, victim led and perpetrator pursued, delivering on the national requirement to remove the ‘digital strip search’ which had previously resulted in the victims & witnesses of crime having their smartphones and other devices taken away and held by the police in order to be searched for evidence. This has often been cited by victims and campaigners for victim support as a major failing of current police methodology.

Recognising, through its research, the dependency victims had on their mobile devices and the reluctance of victims & witnesses to give up their devices to the Police for evidential use, the Constabulary worked with Blue Lights Digital to devise a solution as a new behavioural and technology enhanced approach codenamed Odyssey that combines new technologies, softer skills and education.

The results of this partnership are the delivery and evolution of a bespoke solution, contained laptops with specialist software deployed across multiple teams in the local police force. Each of these bags contains all the cables and ancillary tools an officer requires for on-scene selective data downloads.

Suitable training for officers is essential to provide confidence in the tools and the associated cultural change required in the force. This capacity-building approach is delivering long lasting benefits with improvements in victim and witness experience. It includes:

- Transformational education on the use of technology in victim-centric ways demonstrating compassionate policing to the victim and witnesses
- Prioritisation of near event evidence, near event recollection and consent of private data recorded direct to a digital evidence pack
- Transparency & Proportionality of evidence extraction within reasonable parameters building trust with victims and witnesses whilst reducing collateral intrusion
- Time critical collection of evidence from encrypted apps such as Signal, WIKR, WhatsApp and Facebook Messenger that subsequently would have been unavailable.

Blue Lights Digital is a leading investigation and intelligence capacity-building company. They provide support for complex international investigations, assisting law enforcement, intelligence agencies and militaries to grow their digital investigation and intelligence capability.

With bespoke platforms, products and services. Providing world-class capacity-building expertise, they enable their clients to develop and strengthen skills, abilities, processes and resources that are required for them to survive, adapt and thrive.

They operate within the digital investigation, intelligence and communications arenas and routinely work with UK law enforcement and military partners as well as a growing number of international organisations. .

Aerial Observation Case Study

The quick capture of aerial imagery is an important tool in helping to control the spread of wildfires on open ground as well as fires in tall buildings, directing firefighters to the areas where their intervention will have the greatest impact and determining which assets should be deployed to tackle the blaze.



Digital Triage Case Study



Innovative company Flare Bright produces a simple, hand-sized drone with an imaging system that is very simple to operate and does not require the operator to be licensed. A first responder arriving on-scene equipped with this device can readily obtain aerial situational awareness without waiting for a dedicated helicopter or aircraft to overfly the area to ascertain the extent of a blaze. This 'nanodrone' is also equipped with sensors to provide valuable data on windspeed and direction at heights of up to 100 metres. The device features functionality including a 'return to base' function when in denied, jammed or spoofed areas and when very inclement weather closes in.

The company has a grant from InnovateUK, the United Kingdom's innovation agency, to develop this technology further following a trial at Cardiff Airport. Flarebright has also been supported by Government's Defence and Security Accelerator.

Flarebright has been in operation since 2015 and have won several awards including UK Springboard Octopus Investments Entrepreneur Award in 2021 and have been nominated for CogX's Best Innovation in Autonomous Vehicles Award in both 2021 and 2022.

The number of people crossing international borders increases year on year. Organised crime will continue to exploit vulnerable migrants seeking a safer life and as such the number of people will continue to increase and put Border Forces under greater pressure. Whilst the vast majority of those seeking refuge are genuine asylum seekers these routes are also being exploited by those with criminal intent. The ability to hide within a crowd is an attractive proposition for criminals.

Quickly identifying offenders, terrorist threats and illicit items is critical to protecting our borders. The most significant barriers to this identification are time and ease of use. Make the process too complicated and officers are reluctant to deploy such tactics. Cyacomb Forensics provides a range of tools that will allow rapid triage of the digital devices people possess when they attempt entry. The tools can detect digital contraband in seconds rather than hours which is the case for traditional digital triage methodology. Cyacomb Forensics' technology is simple to use, making it accessible to all officers, having adopted a straightforward plug and play approach that can be operated by simply plugging a Cyacomb dongle into the suspect device and pressing start. For mobile devices, these are plugged into one of the company's handsets and the device can be scanned directly.

Cyacomb's technology is currently deployed at London Heathrow, London Gatwick and The Port of Dover on counter terrorism operations

Search & Rescue Direction Finding Case Study

With limited resources available, today fire & rescue and police services do not typically have aircraft and helicopters that are configured for specific roles, such that a single aircraft has to be configured for multiple disciplines including search and rescue operations, surveillance duties or to act



between aircraft, so that an operator does not lose its search and rescue capability even during maintenance periods. Neither does this system compromise on performance or range, and it offers unrivalled flexibility and superb reliability.

Techtest Limited has over 30 years of experience in the design, development and manufacture of search & rescue systems and associated technologies, and understands the constraints of modern operations.

Secure Interviewing Case Study

Law enforcement continues to face a number of challenges including meeting increased demand, reductions in public funding, and an increasingly digital society. Traditional physical investigation processes, such as face-to-face victim and witness interviews, can pose additional challenges as they can be time-consuming and restricted by geographical barriers. So, having the ability to

conduct interviews online has not only become normalised following COVID-19, but saves valuable time and resources.

However, can we actually rely on video conferencing platforms in terms of security and integrity? Highly confidential meetings would be unlikely to take place in a public space, so why are we willing to undertake video meetings and interviews where the security and integrity of the video content cannot be guaranteed?

Through years of experience in delivering national policing digital transformation programmes, Issured Limited identified a way to address these concerns, developing Mea: Connexus, a secure, immutable video interview platform, designed to meet the needs of any investigation.

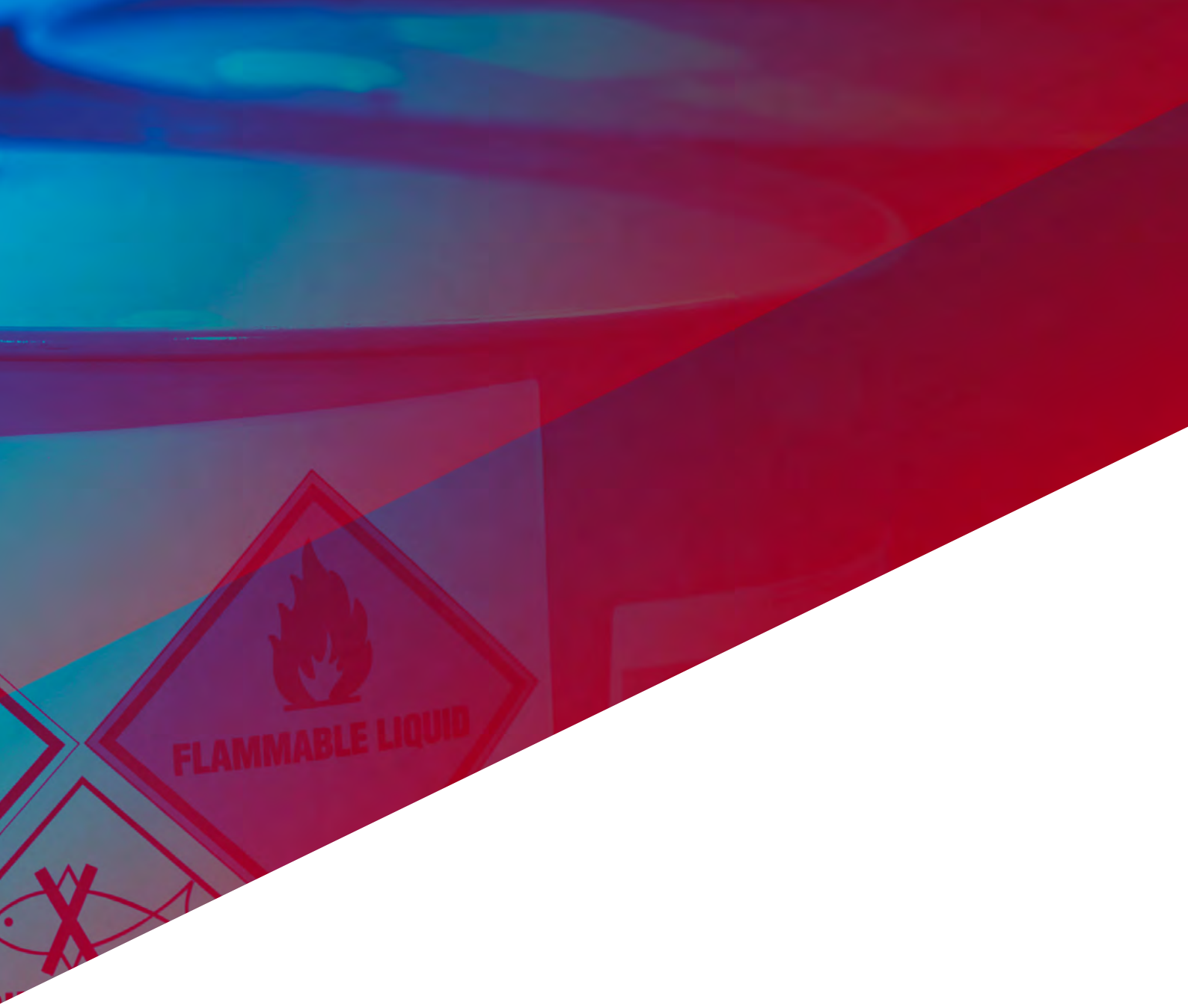
Using Blockchain and a digital fingerprint of data it ensures that all video interviews are immutable, meaning their content cannot be changed at a later date, and it can be used to support any scenario where an organisation relies on the evidential integrity of video interviews. It can be used for criminal, private, legal or financial investigations or any enquiries that require an immutable record of the interview and is used extensively in areas such as Major Fraud Investigation at Zurich UK.

Based in the UK, Issured Limited was founded in 2014, providing both consultancy services specialising in digital transformation and business change, and development of secure, Blockchain-enabled applications.









Specialist Skills

Specialist Skills

CBRN (Chemical Biological Radiological Nuclear) Response

The number of terrorist bombings have risen sharply around the world, as have criminal assaults involving toxic or corrosive substances. The threat from terrorism involving chemical, biological, radiological and other materials has also never been higher. First responders are typically the first on-scene at these events; they have an important role to play not just in administering first aid to reduce the severity of the attack and exposure to further injuries, but also to communicate the details of the incident and deal with the immediate impact on the local environment. The UK's National CBRN Centre also works internationally with certain countries to support the assessment of their capability and capacity to respond to CBRN events.

Victim and Witness Response

With most crime, terror, fraud and hate there is a perpetrator, a victim and witnesses. The victim statement corroborated with a witness statement is a pillar of the UK's legal system however this can often require victims and witnesses to relive a traumatic event, disclose intimate aspects of their private lives and to be subject to adversarial cross-examination.

The United Kingdom has expertise in compassionate policing relating to the prosecution of rape and sexual offences, violence against women and girls and child sexual exploitation and abuse. This is enabled by a joint approach between government and industry to transform the treatment of victims and witnesses that involves a combination of technological solutions, specifically trained officers, sensitive investigation techniques and tools for forensic triage at scene. In particular, forensic interview training has been developed that is appropriate, legally defensible, culturally sensitive in relation to victims, with continuity from forensic interviews being used for more expert analysis in labs when required.

Missing Persons

Locating missing persons is a growing concern for society and can generate levels of very high demand on police, fire and healthcare services.

Small unmanned aerial vehicles are an increasingly key asset in the first responder portfolio as they allow teams to look over a wider area than is possible with large teams of individuals on the ground, while also negating many of the issues faced by search teams in challenging geographical environments. Ground-tethered aerial platforms of cameras and sensors also provide extended coverage that can be maintained in position for as long as weather permits. Both fixed and mobile platforms are available with sensors for heat detection, ground penetration, chemical sensing and, with the aid of software, rapid real-time scanning of complex environments such as the site of a terrorist attack or a crowded area around an entertainment or sporting venue. Several UK companies offer breakthrough innovative solutions to tackle such scenarios.

Radiation Monitoring Case Study

Tracking the authorised movement of nuclear materials through countries or cities is a key concern for public safety. The detection of the illicit movement of radiation sources is also crucial, given that terrorist groups are finding new and inventive ways to smuggle sources into and out of countries.

Kromek develop and manufacture radiation detection equipment which provides a solution for the above problem. Their D3 and D5 range are handheld, or body worn, lightweight detectors. Known for their speed and accuracy of detection and identification, the D range is a fraction of the size of traditional detectors on the market. Keeping the user safe, as it detects sources from a greater distance away, they perform in any setting including shielded, heavily masked, and mixed source environments.

If there is a need to monitor larger areas the D range detectors can all be networked to create a regional or national warning and reporting system. Connected to a central control room, multiple detectors can be used to protect against radiological attacks or illicit movement of known, or unknown, nuclear materials. Networking can be by any communication mode ranging from mobile phones to static bespoke sealed and secure national infrastructure. Backed by an impressive array of support options such as self-calibration and internal reportable diagnostics, Kromek's aim is to support networked systems which provide highly specific and sensitive detection capability whether from a mobile or static platform.

Kromek detectors are currently being used by police forces around the world, including for high profile major sporting and entertainment events to keep everyone safe. They have exported their products to over 40 countries worldwide and are still growing. A UK business, Kromek are proud to be a British company with reach across the globe.







Training & Capacity Building

Training & Capacity Building

First responders in the UK are equipped with the skills to independently evaluate the environment surrounding an incident, measure the risk of harm and intent, administer essential protection and medical assistance, calm the situation, escalate for further support, as well as to interrogate and gather digital evidence of offences and criminal movements. This is achieved through continuous, rigorous and realistic training that equips police and fire officers with the skills they need to deal with both their routine work and in novel scenarios.

For example, at all levels of the regional fire services in the UK, fire fighters are trained to the National Occupational Standards, which set out the standards of performance that personnel are expected to achieve in the work, and the knowledge and skills that they need to be effective. Similarly, police officers are required to maintain very high professional standards and to comply with the national Code of Ethics. This is key, as effective policing often requires the cooperation of the public and if they do not have the confidence that police officers will be fair and act ethically they are less likely to assist the police in upholding the law.

A robust and adaptable framework ensures that the training of first responders is consistent, comprehensive and stays current, and the methodology for training across the UK's emergency services has been designed to capture learning and to follow national guidelines. For example, the operational guidance for the fire services is developed by officers who have practical experience of a range of scenarios that includes hazards, control measures and the impact of strategic and tactical responses to incidents, informed by new thinking from academia. This guidance also covers the multi-agency approach that is often required when dealing with major incidents.

UK companies can offer overseas agencies a very high quality of classroom teaching in all aspects of policing and fire and rescue, complemented by training in realistic environments that builds on that theoretical learning, and which is key to personnel retaining the knowledge and methods that are taught. This is delivered by companies who maintain world-class facilities capable of recreating a large range of challenging scenarios. In addition, UK providers have been leading the way in delivering lower cost virtual and augmented reality solutions, covering areas from arson investigation to firearms training.

Capacity building is also an essential requirement for first responders, and includes sharing best practice and techniques, trade craft and learning from recent incidents. A wide base of foundational knowledge is required, as well as specialist knowledge, in order to provide police and firefighters with the capability to deal with any situation or event. UK companies are again at the forefront of this area, and have a proven track record of providing support to our international partners in areas such as:

- Using secure cloud platforms to assess capability, measure maturity, behaviours against best practices and standards, and report on educational and skills development
- Build business cases for investment in skills and competency-based learning
- Provision of in house, virtual and learning management system-led certified education in first response
- Sharing and cross fertilisation of education and standards to promote interoperability, common standards and international cooperation
- Build capability and common approaches to cases involving digital at scenes and public & sporting events
- Synthetic and enhanced training through traditional blended learning mediums as well as virtual and augmented reality

UK organizations can also offer continuous professional development courses across a range of areas suitable for staff at all levels, including critical decision making, strategy and leadership for senior officers. Professional qualifications are also offered by several of our academic institutions at both undergraduate and post-graduate level in specialist areas such as forensic science, counter-terrorism, intelligence and cyber-crime.

Firefighter Training Case Study

In order to deal with the challenges posed by climate change, and in order to deal effectively with the impact of natural disasters, senior officers need to be equipped with the appropriate skills.

During 2020 and 2021 the Fire Service College collaborated with the Maldives National Defence Force, the World Bank, and the UK's Department for International Trade to participate in an Urban Development and Resilience Project to deliver a range of training to enhance resilient infrastructure and urban planning in selected cities in Maldives, strengthening the government's capacity to provide an effective response to disasters.

Fire Service College staff delivered a range of in-country training for senior officers which included high rise firefighting techniques and managing incidents, and specific courses tailored to the roles of fire department incident safety officer, fire inspector, plans examiner and fire investigator.

These courses included the opportunity for the fire officers to receive internationally recognised National Fire Protection Association (NFPA) qualifications. The Fire Service College became the first organisation outside North America to gain approval from The Pro Board, the fire service accreditation body, to deliver training in overseas territories to National Fire Protection Association (NFPA) Standards. This is a real achievement given that, typically, training centres are restricted to deliver services within the territory in which they operate. This approval will extend the Fire Service College's ability to deliver training to North American standards outside of the United Kingdom.

In addition to their work with the Maldives, the Fire Service College has also worked closely with the Qatar Armed Forces to develop a fire officer development programme that is closely matched to our domestic model and emphasises UK standards. The 78-week programme delivered to their military personnel will support the country's 2030 national vision, prepare them for the World Cup and other major events as well as creating a

route to a more sustainable emergency response model within the country.

The Fire Service College has a large facility at Moreton-in-Marsh in the English countryside which has been providing support to the emergency services for over 60 years. The site offers classrooms, accommodation and other facilities for trainees as well as outdoor and indoor environments which can simulate a variety of incidents, from multi-vehicle road traffic accidents and building fires to hostage-taking scenarios that require an armed police response.



Police Officer Training Case Study

The College of Policing is a professional body for everyone working across policing in the UK. It is an operationally independent arms-length body of the UK's Home Office and provides support across the UK's domestic police forces as well as overseas organisations.

Effective leadership is the bedrock to the success of any organisation, and the College of Policing worked with the Royal Oman Police, a progressive Police force, who had identified the need to increase the leadership capabilities of their officers. In 2012 they approached the College of Policing to assist them in creating a programme to support the development of their senior officers. This course has successfully improved their strategic thinking and delivered the tools they need to lead in a modern fast-moving policing environment.

This course also identified a requirement to deliver leadership training to more junior officers in order to prepare them before they reach the senior ranks, and as a consequence the College has now

formulated an emerging leadership course which will act as the first step on what will be a three-aspect training pathway, covering operational, tactical and strategic requirements.

All of the courses delivered by the College of Policing are regularly reviewed to ensure that they are founded in current thinking and backed by an evidence base of what actually works on the ground. Learning outcomes from each module are linked to a framework which incorporates both practical policing and academic research.

The training and development services provided by the College are delivered by a cadre of trainers who have held senior roles in UK policing and who are able to draw on professional training qualifications, as well as a wealth of expertise, in order to enhance the experience of delegates.



Search & Rescue Capacity Building Case Study

The UK has a proven track record as a world leader in effective rescue operations and disseminating these methods around the world can help to reduce loss of life following accidents as well as natural disasters and conflict.

The United Kingdom Rescue Organisation (UKRO) has run Advancing Professional Rescue and Care projects in Serbia and Ukraine which sought to deliver on these objectives. The projects called for specific elements including equipment provision, focused training across four specific training themes and enhanced coordination between responders in both response and operations.

In the case of equipment provision this was achieved directly through the project and in conjunction with the company's partners. An analysis of the existing provision was undertaken which identified gaps in standard and specialist rescue and medical equipment, which the project fulfilled in advance of project roll out. Focused training was based on training gaps

identified as part of the initial analysis and in country scoping. Primarily training included equipment familiarisation, safe system approach including procedures and techniques, challenge training and development which is a crucial factor for sustainable provision and multi responder integration in both response and operations functions.

Projects of this type typically operate for periods between 3 to 5 years and can be extended or shortened based on specific project requirements. As projects progress the integration train the trainer systems are expanded with emphasis moving from training to support of those trained and in-country driven development.

The delivery of effective, targeted and sustainable projects lies at the core of UKRO's international development work. To ensure these goals are achieved throughout the entire project, the UKRO appoints a project manager with previous experience of international development work and an expert in the particular field of technical rescue or trauma care, called upon by the project.

The organisation delivers training against UKRO, National Fire Chief's Council and Royal College standards and appropriate international guidance. In the case of the example noted above, this was also in support of the United Nations General Assembly Resolution 74/299.



Sustainability Case Study

Supporting overseas agencies through training and charitable giving which promotes the UK's world-leading fire-fighting practices and methodology supports export sales by UK companies across the fire sector.

Since 2014 FIRE AID has facilitated the donation of more than 295 fire appliances, 10 water rescue boats, 10 ambulances, 9 4x4 response vehicles, 2 Incident Response Units and over 10,000 sets of personal protective equipment (PPE) overseas.

Sustainability is an essential component of the FIRE AID model, who work with national fire

and rescue services alongside local in-country partners. All projects begin with a capacity review, followed by a tailored intervention strategy that is regularly evaluated and updated, and FIRE AID never delivers equipment without relevant training.

UK firefighters share our best practices through FIRE AID projects in over 50 countries. Training has ranged from fire and community safety in refugee camps, to high rise, water rescue and search and rescue. Each programme includes an element of 'train the trainer' and is tailored to the needs of the receiving country following international best practice.

This model has enabled FIRE AID to effectively respond to the State Emergency Services of Ukraine (SESU) request for support following the Russian invasion in February 2022. FIRE AID used the strong relationships it had built with SESU and government officials over 10 years of working together to quickly assess their needs and establish a safe and reliable route for equipment to be donated. Consequently, 60 fire and rescue vehicles and over 40,000 items of kit and equipment were delivered within 12 weeks of the start of the conflict

FIRE AID acts as a hub for its members to share equipment, expertise, and best practice. It hosts a database used by UK fire and rescue services and manufacturers to donate de-commissioned, but still perfectly usable, equipment which is then matched to countries needing it most. This serves a dual purpose of helping UK services and businesses dispose of redundant equipment ethically and responsibly, while enabling international fire services to respond to emergencies more effectively.

FIRE AID is a UK charity and umbrella organisation bringing together 35 member organisations to deliver humanitarian aid, life-saving equipment donations, and expert training to emergency services around the world.









Consultancy

Consultancy

The threat from criminal and terrorist activity, as well as the negative impact on the environment from climate change, are constantly evolving. UK companies can help overseas agencies to address any gaps in their knowledge, as well as supporting the transformation of local, regional and national police and fire services to make them fit for the 21st century.

Typically staffed by people who have had extensive careers in our domestic police and fire services, as well as in the legal profession, consultants from the UK can help your organisation to develop robust responses to areas as diverse as human trafficking, child exploitation, money laundering and victim support. Many companies who operate in this space also have a proven track record of helping overseas agencies to develop strategies for digital transformation, introducing innovative practices, managing risk, preparing for potential natural disasters and acts of terrorism and other key areas.

These organisations are also able to furnish overseas agencies with staff who can offer direct support to relief and recovery efforts on the ground following major incidents. Complementing the role of private organisations who provide consultancy, some of the UK Government agencies responsible for the future development and transformation of our domestic police and fire services are also able to provide direct support to overseas clients.

Several companies and academic institutions in the UK also make topical research papers and studies available that offer insights and actionable intelligence on a wide range of relevant topics, in areas such as cybercrime, people-trafficking and terrorism.

Fire & Rescue Service Transformation Case Study

Sharing best practice between leadership teams is an important element of developing a first-class firefighting service.

The Fire Knowledge Network is a comprehensive, integrated support network for senior fire professionals. Its network of fire specialists offers expert guidance across the full range of fire sector disciplines, from leadership and governance to cyber-security and risk management.

This executive-level leadership consultancy is designed to help fire and rescue services meet exacting performance demands, deliver a full range of services including pre- and post-inspection support, technical guidance and advice, executive leadership development, political leadership development and independent audit and review.

The Fire Knowledge Network is supported by a wider portfolio including FIRE magazine, events and webinars, books and online resources.

Fire Knowledge Ltd works with government departments, as well as public and private sector clients to provide a full range of public safety and emergency management-orientated consultancy support.

Through Greston Associates the company has worked in the United Arab Emirates and Kuwait plus are currently working in the Kingdom of Saudi Arabia (KSA) on behalf of the UK Government's Home Office. Their work in KSA involves reviewing the Civil Defense Fire and Rescue Service to support the delivery of a major transformation program leading to a more efficient and enhanced emergency service across the kingdom.



Strategy Development Case Study

The ability for Emergency Services and wider partners to work together effectively is key to ensuring that large-scale events run smoothly.

For example, Protect and Prepare Ltd were tasked by the Qatari Supreme Committee to improve the inter-operability between their Emergency Services in advance of the Qatar 2022 FIFA World Cup. The company knew, from being instrumental in the design of similar UK systems, that buy in from all agencies at all levels was key to success. Utilising their Police, Fire, Ambulance, Military and commercially experienced staff they engaged all of the Qatari partners and used workshops to draft a new national interoperability doctrine. To ensure the final solution was fit for purpose the company ran training courses and complex exercises involving hundreds of participants. These were based on local realistic risks that the events posed, and the locally designed product that has now been developed is now owned by the Qataris, who will use it to continually improve the effectiveness of their Emergency Services for the future.

Based on decades of experience working in the UK at Operational, Tactical and Strategic levels, Protect and Prepare Ltd utilise Police, Fire, Ambulance, Military and Commercial experience to design bespoke solutions for their clients. Whether working at a national level helping to write doctrine for UK organisations or designing complex exercises to test preparedness, such as the Qatar 2022 FIFA World Cup, or creating unique solutions for a small Caribbean Island, the company always seeks to meet the needs of the customer in terms of capability and budget.



About Us

As part of the Department for Business and Trade, UK Defence & Security Exports' role is to help the UK's defence and security companies to export, and to provide the specialist advice and practical help that overseas buyers need.

We do this by building close relationships with industry and with overseas governments as well as working closely with our own Government departments including the Home Office, the Ministry of Defence, the Foreign, Commonwealth and Development Office and others.

In addition to the military, security, fire and resilience specialists in the Department we also work through a network of over 3,000 trade staff based in our Embassies and Consulates around the world. We also support the major trade shows for the defence, security and cyber security sectors that take place in the UK and overseas.

Next Steps

This brochure, which focuses on UK industry's expertise in providing support for first responders in their roles, represents the combined expertise of companies from across the sector. It contains case studies that give a snapshot of the world-class solutions the UK can offer, but the list is not exhaustive.

If you are interested in any of the capabilities presented here, our security industry stands ready to help. The depth of knowledge and expertise that companies in the UK provide can help you to keep your next major event safe and secure from threats.

For further information, please contact the UK Defence & Security Exports staff in your local British Embassy or the team in London. We are ready to help.



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About Our Contributors

Chief Constable Andy Marsh QPM is the chief executive officer of the College of Policing, having been in post since September 2021.

Prior to taking up his current role, Andy was Chief Constable of Avon and Somerset Constabulary, a post he held from 2016 to 2021.

He first joined Avon and Somerset Constabulary as a new recruit in 1987, and later took on operational and detective roles. As a detective sergeant, he helped to reshape the force's approach to the way major crime was investigated. He was awarded the Queen's Police Medal in 2018.

Mark Hardingham QFSM is the Chair of the National Fire Chiefs Council (NFCC). He took over the role of the NFCC Chair in April 2021 having previously led the NFCC Protection and Building Safety work from 2017 to 2020.

Mark began his fire service career more than 30 years ago in Essex and served across many fire stations and in many roles. He was appointed as the Deputy Chief Fire Officer in Suffolk in 2010 and then Chief Fire Officer and County Council Director in 2013 through to 2020. Alongside his Chief Fire Officer role he held Director responsibilities in the Council for Highways, Passenger Transport, Emergency Planning, Trading Standards, Community Safety, Equality and Inclusion and Health & Safety.

The Department for Business and Trade would also like to thank the UK Security & Resilience Industry Suppliers Community (RISC), Angloco Ltd and Blue Lights Digital for their support in the production of this brochure.

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