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FOREWORD

Professor Jennifer Rubin
Chief Scientific Adviser and Home Office
Director General Science, Technology,
Analysis, Research and Strategy



Building on our heritage of world-class research and innovation will drive economic growth while helping deliver policies and services that improve people's lives.

A huge part of how we do that will be through continued investment in research and development. Creating the conditions for more and better science and technology is only part of the solution, though.

What we must also get right is the way we bring the very best innovation to bear on government priorities and challenges.

Procurement can hold some of the answers to that.

First, we need processes that reflect and support the speed, flexibility and agility of industry innovation.

We need to make it easier for all, including small companies and start-ups that push the boundaries of technology, to participate in addressing departments' challenges by removing barriers where we have the levers to do so. This includes sending out clear signals about our challenges and engaging a wide range of innovators early so that their expertise and capabilities can help shape problems and bring diversity of thought to nascent innovation.

Government procurement also has the potential to act as a catalyst in aligning research from across our universities, as they perform a significant proportion of the country's R&D activity.

Then there are cultural factors that affect approaches to innovation.

Success in science and technology is almost always the result of a process in which failure is an accepted aspect of progress. Advances come through experimentation. And so we must normalise in the public sector the acceptance of a level of failure that accompanies the informed risk involved with any true innovation.

The Accelerated Capability Environment is an example of an existing platform available to government that overcomes such obstacles.

It opens up government challenges to exciting and innovative organisations that wouldn't usually have such opportunity because of their size. The complementary benefit is to provide 'challenge owners' access to a range of companies, including smaller ones.

ACE does this at an early stage where there is great potential for innovation, and where failure is an integral part of experimentation and iteration and can de-risk later procurement.

The ACE model demonstrates the value of removing barriers to entry and streamlining commercial arrangements.

Bringing the full breadth and diversity of the UK innovation landscape into play will be an important part of further strengthening UK science and technology.



What we must also get right is the way we bring the very best innovation to bear on government priorities and challenges.



A MODEL FOR DELIVERING IMPACT THROUGH COLLABORATION

Richard Alcock CBE

Director Data, Information and Operations (DIO), Homeland Security Group (HSG), Home Office



In its five years since launching, the Accelerated Capability Environment (ACE) has gone from strength to strength, recognised across government and by industry as a highly effective platform for solving some of the most complex and pressing challenges.

ACE can convene the right people and organisations to bring the right perspectives at the right time, along with an agility and pace of mobilisation that drives rapid delivery.

A good example of this has been ACE's work supporting the government's drive to improve justice outcomes for victims of rape and serious sexual offences.

Following the publication of the End-to-End Rape Review, ACE quickly mobilised a broad, cross-sector set of stakeholders from private, public and third sectors, policymakers and frontline practitioners and provided them with an agnostic platform through which to share ideas and experience.

Having personally participated in some of the workshop activities I can attest to a hugely powerful body of work that has been quite affecting in the extent to which it galvanised the right perspectives in ways that should improve justice for victims.

These ideas and themes carried through to a ministerial briefing to industry and then, in ACE's most recent Impact Lab, they were brought to life in the exciting solutions proposed by industry participants, who also demonstrated a real commitment to deliver better outcomes in this important policy area not only through their technical capabilities but also a willingness for co-investment.

ACE's reach and pace was also critical during the Covid-19 pandemic, during which I was appointed UK Senior Responsible Owner (SRO) for Covid Vaccine Security and Resilience.

ACE played a pivotal role in the UK's response by mobilising the Joint Biosecurity Centre, supporting the development of technologies to better understand the spread of the virus, and providing a key enabling function in rapidly standing up the UK vaccine security and resilience effort.

The tremendous pace and agility with which ACE operates matched the fast-changing demands of what were very uncertain times in the early days of the pandemic. In such emergency situations, the enablers often don't get talked about but they are vitally important. It should be noted that ACE was instrumental in delivering real impact to what was the government's top priority.

As we look ahead, we can be certain that our fast-changing world will throw up new challenges that will require rapid, innovative responses.

ACE provides both a model and a platform for harnessing the right talent and expertise to address such challenges. I am very proud of both what ACE continues to achieve and how it continues to deliver for the UK.



MAXIMISING THE POWER OF PUBLIC PRIVATE PARTNERSHIP



Toby Jones
Head of ACE

ACE was conceived in 2017 to solve complex problems emerging from a fast-changing data and technology landscape and to do so at pace. The need to do that is as pressing today as it was then.

But in the five years since ACE launched, we have witnessed a significant shift in the wider context of how the public sector more generally meets the challenges it faces in fulfilling its ambitions.

The UK has challenged itself to stand stronger in the world and to forge its own path in matters such as security, public health, and economic direction.

Meanwhile, global factors create an ever-more demanding environment in which to deliver what the nation has set out to achieve.

Russia and the war in Ukraine, the pandemic and its aftershocks, the climate and environment are just some of the major issues we must deal with.

What has become very clear over the last five years is that a new approach is required to meet these challenges and those we will inevitably encounter in the years to come.

The traditional, transactional relationship between the public sector as customer and private sector as vendor can no longer deliver the best solutions.

The UK and its partners have recognised that there is a need for making the very best use of all the economic potential that exists across all sectors – private, public, academia and not-for-profit.

The question we must ask is this: How do we best bring together those government and public sector bodies that are responsible for driving improvements in prosperity, public health, national security and safety with the organisations that can help deliver these mission outcomes?

These are the companies – small and large – that deliver products and services; our financial institutions; academia; futurists; and specialists who advocate and inform through non-profit organisations.

The clear demand now is to address the challenges we face collaboratively, making use of the very best these different organisations have to offer, rather than spending public money purchasing point solutions from the private sector.

ACE is a platform that responds to that demand.

As we mark our five-year milestone, perhaps the most important achievement has been to validate an approach that creates the right environment and fosters the right behaviours to enable such collective endeavour.

ACE is a partnership that has brought together industry, academia, public sector and third sector organisations to work together on addressing a wide range of challenges.

It has demonstrated the value of genuine collaboration and a mission-led focus on outcomes.

And it has generated significant value through the contributions of the organisations and people that have worked with us to deliver them.

It is now our duty to scale the platform we have built over the last five years to achieve more in the next five years.

In doing so, we can better contribute to that wider shift in the public-private partnership dynamic that will be essential for a more secure, healthy and prosperous nation.

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ACHIEVE MORE IN
THE NEXT FIVE YEARS**

Toby Jones
Head of ACE



THE POWER OF COMMUNITY TO DELIVER MISSION IMPACT

Simon Christoforato

Vivace Chief Executive Officer



When the ACE journey began five years ago, we started with 26 organisations in our fledgling Vivace community and built that to 94 in the first year. Today we have 325 and counting.

So, reflecting on the past year is inevitably a story about growth, but first it's worth considering another significant aspect of our community – of those 94 first-year organisations, 72 of them are still with us.

It shows that what we have built really is a community. Those companies shared our early vision of what ACE could be and the potential for us to grow together. They shared a belief in the power of collaboration and public-private partnership to deliver mission impact.

And they continue to see the value of belonging to something that is greater than the sum of its parts.

For some companies, working with ACE as part of the Vivace community has been foundational in the development of their business models and their own growth. Many more have seized opportunities that otherwise wouldn't have existed or been available to them. And many business relationships – and personal friendships, too – have been forged along the way.

A key part of what we set out to do in launching ACE and Vivace was to create a new and different ecosystem to support national security. Over the past five years we have enjoyed considerable success towards achieving that.

And that takes us back to growth. The past year has seen the Vivace community deliver the greatest amount of impact for ACE to date.

Our wastewater-based epidemiology commission alone made an enormous contribution to the UK's health security resilience. It delivered new and faster ways to respond not only to Covid-19 but to other pathogens, strengthening the nation's capability to cope with future pandemics and other health emergencies. We saw

26 companies join Vivace, bringing new capabilities into the community to meet such challenges.

Our work for the NHS has spanned helping hospital managers harness artificial intelligence to reduce cases of patients unduly becoming 'long stayers', to developing tools to assist clinicians in assessing cancer scans. The impact of these and the many other varied commission we have delivered for the NHS can be measured in improved operating efficiencies and better patient outcomes.

For Counter Terrorism Policing we have helped capture the most pressing mission challenges and prioritise the development of solutions and experiments. And we have leveraged our academic network to bring true diversity of thinking and innovation to meeting these challenges.

There has been greater involvement of the third sector, particularly in our work on improving criminal justice outcomes in cases of rape and serious sexual offences.

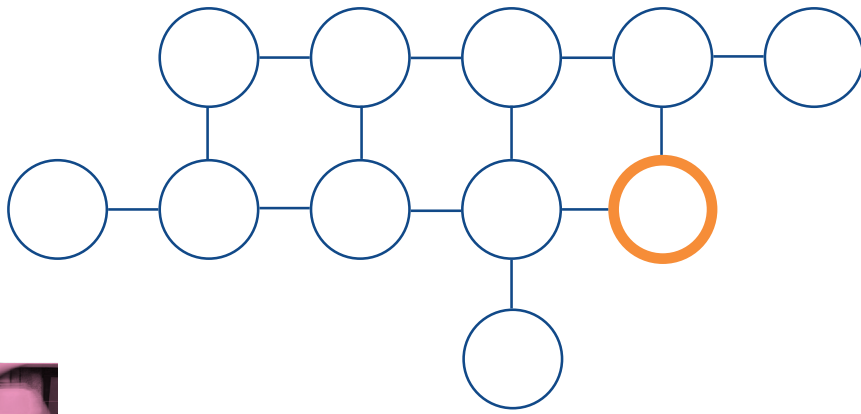
We have supported the Foreign, Commonwealth and Development Office and Department for International Trade in promoting UK cyber SMEs' capabilities into developing economies.

These are just some examples from the 89 commissions we delivered in the last financial year for an increasingly diverse range of customers.

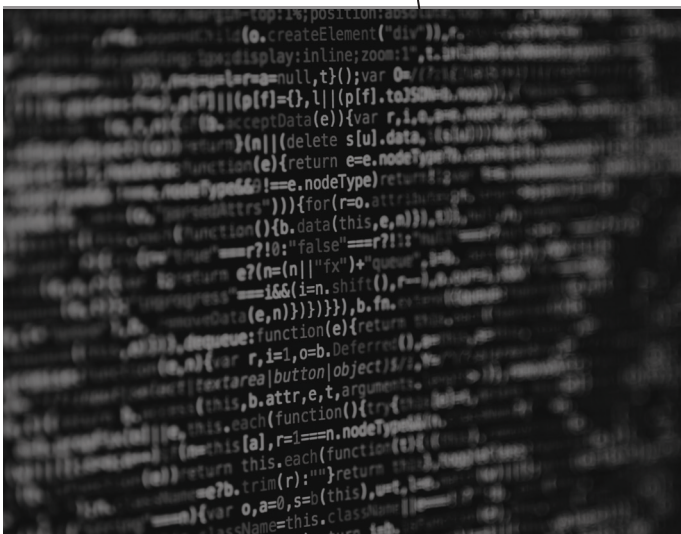
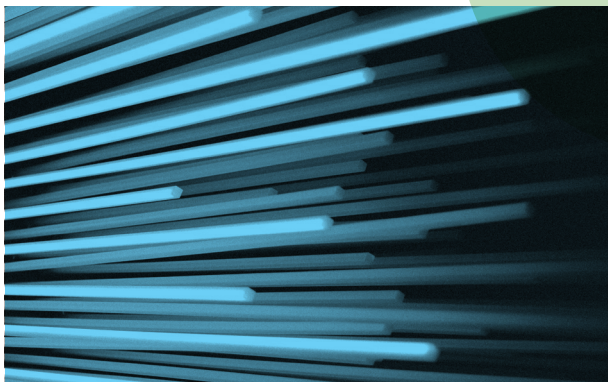
In every case, success has been the product of teams coming together in true collaboration to deliver capabilities at pace in response to pressing – often urgent – mission challenges.

The symbiotic relationship between ACE and Vivace has enabled and driven the growth of the past year and the years before that. It is what we mean by 'ACE powered by Vivace'.





CASE STUDIES



Helping build a more innovative and efficient NHS

The pandemic not only placed unprecedented pressure on an already overstretched NHS, but also firmly positioned maintaining the country's health as a critical national security concern for the first time.

Over the past financial year, ACE has continued to work with the NHS to explore and develop ways to streamline, refine and enhance clinical and administrative processes to help deliver impact to wide ranging challenges.

Working with frontline staff from across the health service on discrete projects, and collaborating with NHS bodies such as the AI Lab Skunkworks innovation hub, multiple Proof of Concept tools (PoCs) were developed which broadly fell into two areas:

- 1 Helping hospital systems and processes work smarter
- 2 Helping clinicians make more informed diagnosis decisions.

Making the best use of resources

One commission seeking greater efficiency and effectiveness in bed allocation explored how AI could be used to support staff to make the best decisions based on available options and working within critical constraints, such as keeping Covid and non-Covid patients separate.

In 14 weeks, Vivace member Faculty developed an AI-supported patient flow tool based on a virtual hospital environment which gave options based on the least, or least important, constraints broken and a low, medium or high 'penalty' score. The PoC not only generates bed suggestions, but explains its recommendations, building trust in the tool as well as the underlying AI.

Another PoC helped identify patients at risk of unnecessary long hospital stays which can lead to increased mortality rates, allowing clinicians to adjust treatment plans accordingly. ACE worked with Vivace member Polygeist to develop a long stay stratification tool (LSST), which used an AI model to identify those at risk of becoming long stayers from initial patient

data collection. The tool was developed in 12 weeks and detected 66 per cent of long stayers within the highest risk categories.

Enhancing diagnostic capabilities

On the clinical front, ACE worked with Vivace supplier Roke to design a PoC exploring how AI could be used to help radiologists quickly compare and assess consecutive CT scans, which was delivered in just 12 weeks. Radiologists perform dozens of scans each day, many related to cancer where comparison to a previous scan is necessary. Automation would enable slight changes in volume or new lesions to be detected more quickly, with a scan report guiding radiologists to review or further evaluate particular regions. Increased accuracy would improve patient safety and outcomes by allowing faster diagnoses, and successful automation would also save radiologist time.

Designing the future

ACE also undertook detailed deep discovery dives, working with academia to examine specific problem areas in detail and create landscape reports which could be used to inform next steps. One example demonstrated a PoC for NHS digital leaders that calculates their 'digital backlog' – the gap between where their digital capability is and where it should be – and identifies where the largest gaps are at a national level, as well as starting to look into the principles around privacy in unstructured data.

Looking ahead

A major commission series, initiated in early 2022 and due to conclude this autumn, will provide the technology that enables direct patient access to GP and hospital data systems, via an API, which could end up being used by every NHS patient in the country. It involves data science, artificial intelligence and large-scale data engineering and integration challenges. Another commission is working on a tool which can predict ambulance delays, allowing preventative action to be taken rather than hospitals having to react when problems occur.



ACE has continued to work with the NHS to explore and develop ways to streamline, refine and enhance clinical and administrative processes to help deliver impact to wide ranging challenges.

Exploring innovation opportunities for Counter Terrorism Policing

Counter Terrorism Policing's new Counter Terrorism Research Laboratory (CTRL) aims to put proactive research and innovation at the heart of its work, using cutting edge science and technology to accelerate operational capabilities.

CTP working with ACE has strengthened their ability to rapidly exploit and analyse large volumes of seized digital media. CTP continued to turn to ACE to help solve more fundamental challenges – defining the overarching strategy and ambition for CTRL, by exploring and scoping out the possibilities of what R&D, data science and analytics could enable.

Understanding the scale of CTP's operational challenges

ACE worked with Deloitte to gather an initial set of requirements covering behavioural, cultural and data-specific challenges and innovations, identifying key mission-critical challenges. Key highlights from this work include:

- Over 120 operational challenges and science and technology opportunities were gathered from 35 stakeholder interviews across CTP and 10 academic SMEs.
- An initial set of opportunities, covering areas such as enhancing data integration and fully leveraging capabilities, were then identified.
- A second phase of the project prioritised these opportunities, with ACE helping develop and agree scoring criteria.

This forms the basis of ACE's support to CTP, with three 'quick wins' identified:

- An academic study into using pattern recognition to enhance insights from travel data.
- Requirements for an automated case management system, including an assessment of where data is held and generated, to form the case for a full data science project.
- A Proof of Concept (PoC) that explores how technology can be used and exploited to strengthen the secure transit and use of intelligence information.



ACE has been instrumental in helping us access a real diversity of academia and also in helping us move at pace, being able to get project up and running within a week.

Professor Ajay Chakravarthy
Chief Scientific and Technical Officer
for CT Policing

Helping to shape long term strategic demands

In addition to the operational issues highlighted in CTRL's key challenges, CTP recognised ACE could help address strategic long-term issues, building more operationally aligned, responsive and proactive relationships with academic and industry partners.

The second piece, more tactically focused, looked to confirm an approach for an enhanced search capability across the current intelligence management system, and the delivery of a PoC showcasing CTP's future data science environment. The showcase and high-level design enabled CTP to procure the required hardware and services. CTP will now look to innovatively build at pace, utilising academic and industry expertise, their regional hybrid data science and analytic capabilities.

Enhancing CTP's working relationship with their academic partners

Finally, ACE established the University Innovation Concept for CTP, with the clear aim to widen the diversity of expertise to address its mission challenges, enabling greater access to state-of-the-art academic research and emerging technologies.

An inaugural event at Sheffield University brought together ten universities to showcase research and innovations that could be applied.

Demonstrations for 15 projects across nine key themes were showcased by ten universities.

They included a 'sniffer' robot that moves around a location scanning for device data, analysis of the accuracy of crossbows and how to counter them, use of vegetation planting for minimising explosion blast impact, video analytics and computer vision, and behavioural analytics.

Similar events are planned for the forthcoming year.



Tackling violence against women and girls

ACE has been supporting the Home Office and UK law enforcement in tackling violence against women and girls and addressing the urgent need to improve criminal justice outcomes in cases of Rape and Serious Sexual Offences (RASSO) following the publication of the Government's End-to-End Rape Review.

Commitments made on the review's findings include increasing the number of cases progressing to court, improving the investigative process to increase the number of early guilty pleas, better victim engagement, and more proportionate requests for information from victims, including reducing the time they are left without their phones.

ACE has focused on how industry, academia and the third sector can contribute to such improvements to the criminal justice system through policymaking and the application of data and digital technologies.

Towards a Safer World for Womankind

This work began in August of 2021 when ACE convened a roundtable event that brought industry and academic experts from our Vivace community together with senior government stakeholders, policymakers and representatives from charities and the third sector.

A session introducing participants to the End-to-End Rape Review was hosted by the Home Office, Ministry of Justice and the Police Digital Service (PDS), with a focus on the need for collaboration between industry and the criminal justice system.

The event placed the voice of the victim at the centre of the conversation, with a keynote from Victims' Commissioner Dame Vera Baird, along with representation from other victims' charities and advocacy organisations.

Ministerial briefing to industry

In December, ACE supported the Home Office and PDS in delivering a presentation on the technical challenges of investigating cases of rape and serious sexual offences at a ministerial briefing to industry, alongside the Ministry of Justice and Attorney General's Office.

The briefing was chaired by the then Home Secretary, Priti Patel and Avon and Somerset Police Chief Constable Sarah Crew, who is the NPCC National Lead for Rape and Serious Sexual Offences.

Bringing RASSO challenges to Impact Lab

Maintaining the momentum built through the August roundtable and the December ministerial briefing, ACE took forward its RASSO work into an Impact Lab, its event-driven platform for rapidly engaging industry and academia around complex law enforcement challenges.

This was the third Impact Lab – and the largest to date – bringing together 49 businesses and 76 senior stakeholders from government and law enforcement for the initial briefing event in March.

Avon and Somerset Police and North Wales Police presented two very different rape cases and shared investigative insights and challenges along with some of the operational data for Impact Lab participants to use in developing potential solutions.

The key challenge areas were: improving the victim's experience through the investigative process; identifying and extracting evidential information from mobile devices more effectively and proportionately; more efficient data analysis; improving how data is presented, for example, to the Crown Prosecution Service.

The best of these then went forward for selection at a later showcase event with both ACE and PDS looking to progress the most promising into paid commissions, in the form of proof of concepts.



We need fresh ideas in this space and we couldn't have engaged with industry in this way without ACE's expertise.

Bethan Page-Jones
Head of Capabilities Reform Unit, Home Office

Accelerating data-driven insights from wastewater

The onset of the Covid-19 pandemic spurred interest – and funding – in the potential of wastewater-based epidemiology (WBE) as an early warning system which could help the country and government stay ahead of new disease outbreaks. ACE worked extensively with the Joint Biosecurity Centre's Environmental Monitoring for Health Protection team, now part of the UK Health Security Agency (UKHSA), to develop and accelerate innovative solutions across the whole wastewater monitoring cycle.

The innovation was used to support design of an operating model for a post-pandemic, scalable and sustainable national wastewater capability which makes best use of WBE data for environmental monitoring, health protection and national security interests, forming a critical national infrastructure.

To underpin this target operating model ACE led an extensive and far-reaching commission, which involved 32 programmes, 84 discrete projects and 63 suppliers from our Vivace community, focused primarily on accelerating technology and research to increase the quality and range of collected data. The Scaled Agile approach provided an iterative mechanism for analysis of the end-to-end process to reduce the time taken to provide data results, and stimulated the Vivace community to think differently, identify synergies and enabling innovation that ultimately led to a proof of concept for end-to-end automation.

Industry collaborated in a 'system of systems' approach to solving issues, enabling ACE to piece together elements of the value chain to reduce the time taken to obtaining actionable data.

Working capabilities demonstrated included:

- The SewerSafe app, which could inform the sampling strategy for sentinel and upstream tracing. This uses sewer networks and hydraulic models to identify optimal sampling points. This was iteratively developed and subsequently enhanced through alpha to beta, incorporating viral behavioural modelling and surrogate tracking data to improve hydraulic model base data using analysis from practical tracing experiments.

- A Mobile Testing Unit which took laboratory equipment to the site of wastewater sampling to provide results in under four hours, a near twentyfold reduction on typical time taken to obtain results requiring chilled transportation. This was subsequently used to support sampling at the Covid hotels during the pandemic.
- The capability of post-pandemic sensors which will enable wider data analysis, and near-real-time detection included innovation such as harnessing quantum nano diamonds to increase the limits of detection using lateral flow type 'dip-sticks' which can potentially detect multiple pathogens from a wastewater sample.
- A no-chill transport solution using electronegative filter papers for viral load transportation, providing a cost-effective no-chill solution that has global exploitation potential.
- End-to-end automation, realised through development of an innovative robotic system based on a 3D printer with capabilities to provide onsite results when integrated with an auto sampling system which demonstrated how we could get near-real-time results, deployed at treatment works, providing the foundations for a critical national infrastructure.

ACE conducted several practical trials to assess commercial models and the ability to localise the source of an infection. Sentinel monitoring trials at universities and at a city level provided insights on upstream localisation to building level, with a major success at the care homes trial where Covid was identified in wastewater outside routine testing, leading to the early identification and isolation of those infected, reducing the spread and protecting elderly and vulnerable residents. This was developed as a commercial service, showing the ability to scale and regulate WBE operations in the private sector.

Overall, the WBE commission delivered £18million of innovation with savings and co-investment of £5million, and accelerated technology development for automating on-site detection by three to five years.



ACE's strength is its ability to rapidly mobilise industry towards addressing the WBE challenge and has, itself, learned how to adapt to the unique demands of including academia as key solution providers.

Dr Andrew Singer
EAG Chair & Senior Science Advisor

Combatting economic crime: an ACE initiative

ACE's Economic Crime campaign set out to take a holistic view of the threats and opportunities across the financial crime landscape. Over the past year we made significant progress in addressing some of the areas where data and technology offer opportunities for improvements at both short-term tactical and longer-term strategic levels.

ACE has principally acted as a facilitator for this essentially industry-led campaign, bringing together senior stakeholders and operational practitioners to test and validate solutions brought forward from participating members of ACE's Vivace community.

The Gold Group of senior stakeholders – consisting of representatives from government, law enforcement and industry – provided continued input to the direction, relevance and value of the work.

The campaign relies on ACE's ability to create a collaborative environment where practitioners and industry can work together to understand problems and provide creative solutions.

Over the last financial year, its focus has been on developing ideas in four key themes that were identified through a series of workshops at the end of the previous FY.

Digital Production Order: maximising the accessibility and usability of financial data

Investigators need to be able to access financial transaction data from multiple organisations under authority of a crown court judge in order to respond effectively to the report of a crime. However, existing methods are largely manual, time-consuming processes.

The concept of a Digital Production Order was developed to automate communication with courts and financial institutions through a managed process that ensures data is in a suitable format.

The 'Model Office'

A key development of the campaign was the creation of the 'Model Office', an environment for experimentation and sharing a problem area. It is driven by a narrative that provides a detailed 'case study' of a typical financial crime case in a way easily understood by industry. It also offers representative data against which Vivace suppliers can demonstrate the art of the possible.

For example, Clue and Chorus adapted existing products to add APIs that allowed Clue's case management platform to send data to Chorus's data analytics platform. Futr applied their chatbot-based product to the early information capture phase of investigation, adapting automated questions based on inputs to deliver a more accurate crime report. Esri's mapping technology used this better quality data to deliver improved location capabilities.

Financial crime app – pushing knowledge to the front line

Police officers have a vast amount of legislation to understand and apply in different circumstances. In the last 20 years new legal powers have been provided to help the fight against economic crime. The campaign identified the very tactical problem of front-line officers being able to quickly understand and apply this less frequently used legislation.

A phone application was launched in 2020 which puts cyber crime information into the pocket of police officers. The campaign was able to rapidly bring together the parties involved in managing the app and the information needed by officers to correctly use the Proceeds of Crime Act, resulting in an enhanced application.

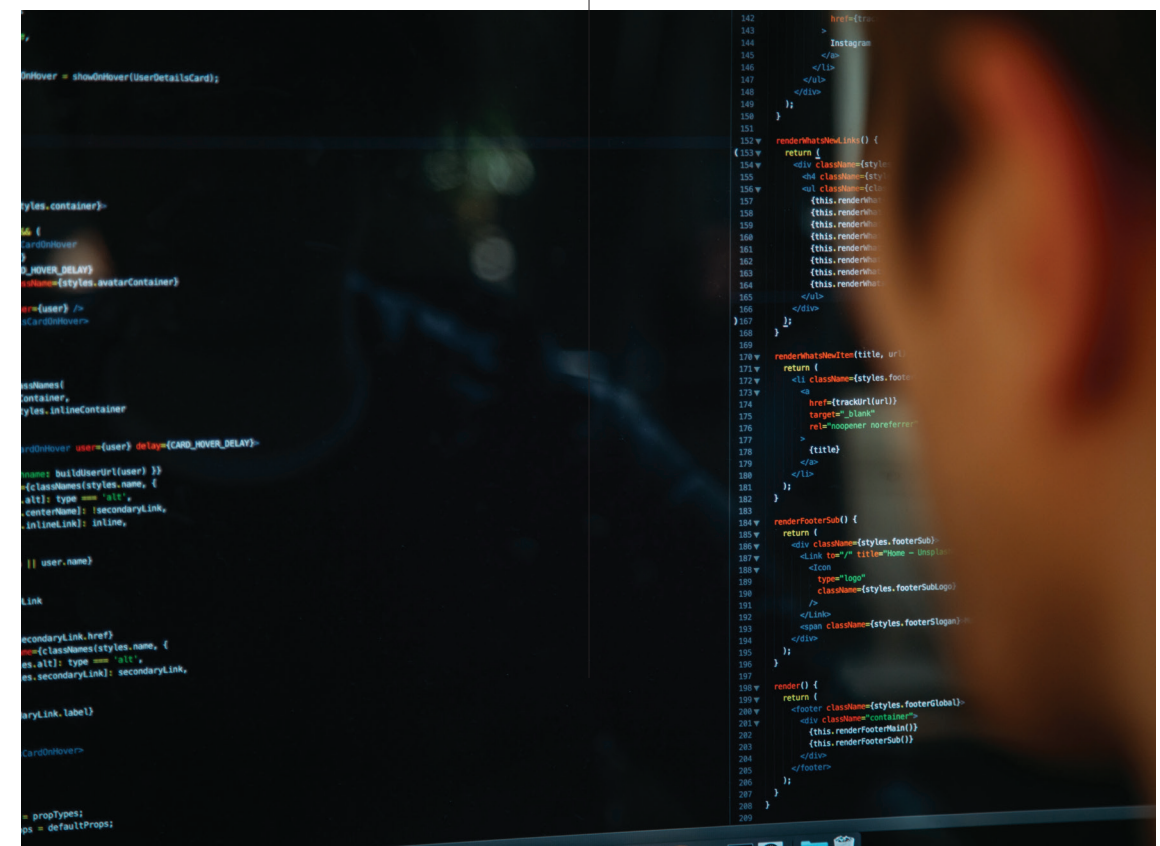
DCMS Digital Trust Framework

The stakeholder workshops identified identity and authentication as a key area exploited by criminality. The Department for Digital, Culture, Media & Sport (DCMS) is enabling widespread digital identity use in the UK through a framework of standards, governance and legislation, including the Digital Identity and Attributes Trust Framework ('the trust framework').

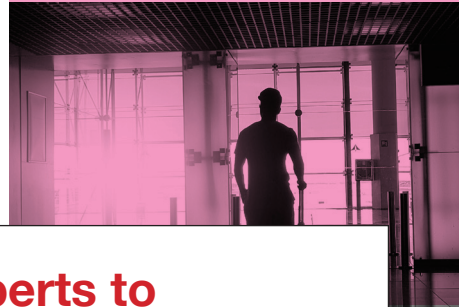
ACE arranged two workshops for DCMS (with Home Office stakeholders also in attendance) with senior specialists in fraud, financial crime and digital identity. Themes which will help inform policy and further investigation projects include the sophistication and constant change in exploitation of vulnerabilities in the systems to verify identity; the need to respond in kind, using all the information available to people assessing individuals; and that collaboration across government and industry is critical.



The campaign relies on ACE's ability to create a collaborative environment where practitioners and industry can work together to understand problems and provide creative solutions.



ACE ENABLERS



Futures & Insight: Using experts to explore and navigate change

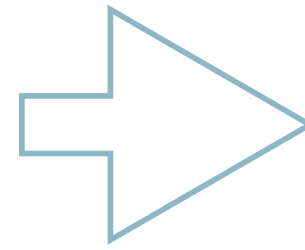
ACE's industry-leading Futures & Insight (F&I) capability helps government and law enforcement prepare for threats, anticipate opportunities and apply transformative perspectives to current challenges.

Our analyst-led foresight and market intelligence programmes continue to corral expertise from industry, academia and the third sector. More traditional digital delivery and discovery programmes were also supported by the research network within F&I, which sources and integrates specialist expertise.

A good example is work that ACE carried out to help law enforcement prepare for novel harms in the metaverse. Academic specialists in online criminality analysed future scenarios sourced from experts who advise blue-chip consumer brands on emerging marketing opportunities in extended reality environments. The results provided a solid basis for evaluating and addressing future capability gaps in the national response to online threats.

Similarly, F&I delivered market landscaping to support technology regulators by blending formal submissions from industry operators with insider knowledge from the Vivace community, supported by metrics and data from an external market intelligence specialist. This meant the team was able to scope out and produce in-depth reporting on the relevant markets, including how cost-effective delivery at pace could be achieved without compromising the extreme accuracy needed to inform regulatory decisions.

The F&I team also relaunched ACE's Insights breaking news email. A trusted resource packed with pithy insights, this fortnightly horizon-scanning bulletin is delivered to digital, data and foresight leaders across law enforcement and national security. Thanks to an increase in scanning resource, it now covers double the previous number of stories in each issue.



ACE's Research Network supporting government with foresight

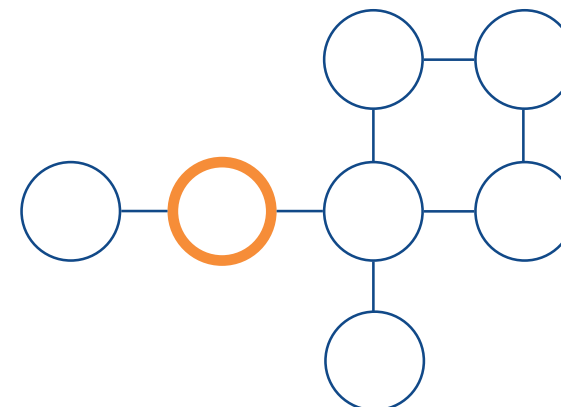
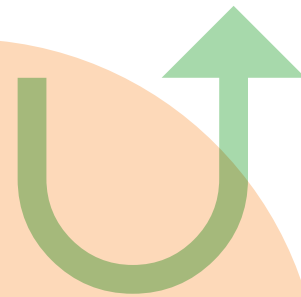
The past year has seen the ACE Research Network (ARN) grow in depth and reputation. Now with 24 universities as members, a further 72 receiving high-level communications and with 166 individual academics also signed up, its maturity is reflected in growing prominence. Increasingly, it is the preferred channel that government turns to for evidence-based research insights.

The breadth and depth of available academic specialism has resulted in an increase in commission work and new project wins, extending from collaborations with universities to entering into a fast-paced scientific research partnership designed to provide an evidence base for a niche capability deployed at the nation's borders. ARN has also become more closely integrated into the wider ACE commissions process, providing discovery insights to more communities which in turn assists frontline problem-solving.

ARN academics at the cutting-edge of materials and cryptographic research, meanwhile, have been asked to produce horizon scanning reports and forensic materials on emerging technologies (EmTec) for use by government, EmTec communities and industry. Through this, their expertise is turned into focused foresight which can support and inform government policymaking and future capabilities.

ARN – and wider ACE – success in this area over the past year is not only bringing expertise to bear on some of the most serious threats that are facing our nation and coming up with innovative ways to help tackle them but is also more widely improving responsiveness and flexibility of dialogue between government and academics.

Ultimately, this will accelerate discovery of how academic specialisms can be best developed and utilised to benefit the frontline.



ACE ENABLERS

Market Engagement

Ensuring that the Vivace community can meet the demands of both the increasing volume of work through ACE and the specific technical needs of that work has characterised the past year's engagement with our suppliers.

As well as the usual organic community growth, the last year has seen us reach out into new sectors and disciplines to support the increasingly broad range of customer challenges being brought to ACE.

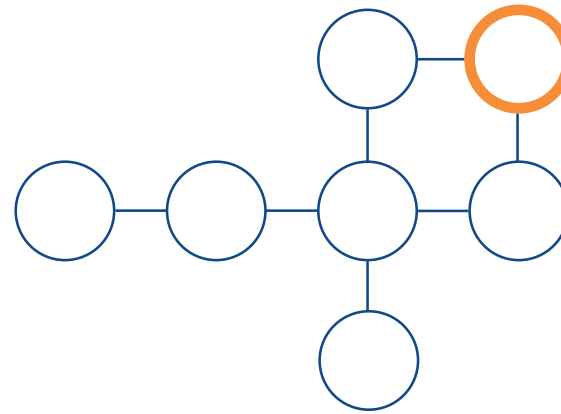
The standout example was in support of the wastewater-based epidemiology commission, for which we created something of a subset of the community in order to bring in new and diverse capabilities and perspectives from industry and academia.

Engaging with suppliers has also been significantly enhanced by the welcome return to face-to-face events following lockdown restrictions. Our Safer World

for Womankind event in August 2021 was the first time we had brought together significant numbers of our community and other stakeholders since the start of the pandemic and was testament to the value of in-person engagement.

That event paved the way for our biggest Impact Lab to date, which explored ways to improve investigations of rape and serious sexual offences through its usual events-based process. The scale of this endeavour has led to numerous industry trials with operational police and a commitment for ACE to continue on this journey.

We finished off the financial year with our regular community engagement events back on a welcome in-person footing and we aim to maintain that momentum into the next year.



Impact Lab

ACE delivered its second and third Impact Labs in the last financial year. The second, in partnership with Merseyside Police, centred on a successful operation to disrupt serious organised crime networks involving the large-scale importation and distribution of class A drugs.

Merseyside's Operation Aquarium was part of the wider Operation Venetic, which saw law enforcement agencies access Encrochat, an encrypted mobile phone network that criminals had thought to be completely secure.

Participating members of the Vivace community were challenged to address investigative problems including matching chat content, photos, and users' online aliases with other information about suspects' whereabouts and activities, using data to build cases while ensuring it met lawful evidential standards.

Proposals from three companies – Tibco, Cubica and Adappt – were selected with Tibco and Adappt's solution being taken forward following final pitches to senior

Merseyside officers and ACE judges. ACE have since been working with these suppliers and policing to test these tools in an operational setting.

The third Impact Lab focused on supporting the government's commitment to improving criminal justice outcomes in cases of rape and serious sexual offences (RASSO). Working with Police Digital Service and North Wales Police and Avon and Somerset Police, ACE sought solutions from Vivace participants to challenges around victim experience, extraction of data from devices, and its subsequent analysis and presentation to prosecutors.

This Impact Lab was part of a wider set of activities helping tackle violence against women and girls, and at the time of writing was at the stage of progressing 12 selected solutions into commissions for ACE and Police Digital Service. You can read more on pages 18 and 19.

Social Value

Over the past financial year, ACE has worked to formalise its approach to social value so that we can better embed, promote and measure good practice across our operations.

We have agreed and baselined six core pillars – equality & inclusion; apprenticeships; labour standards; academia; environmental performance; and UK growth – and established process review points to ensure consistent approach and delivery.

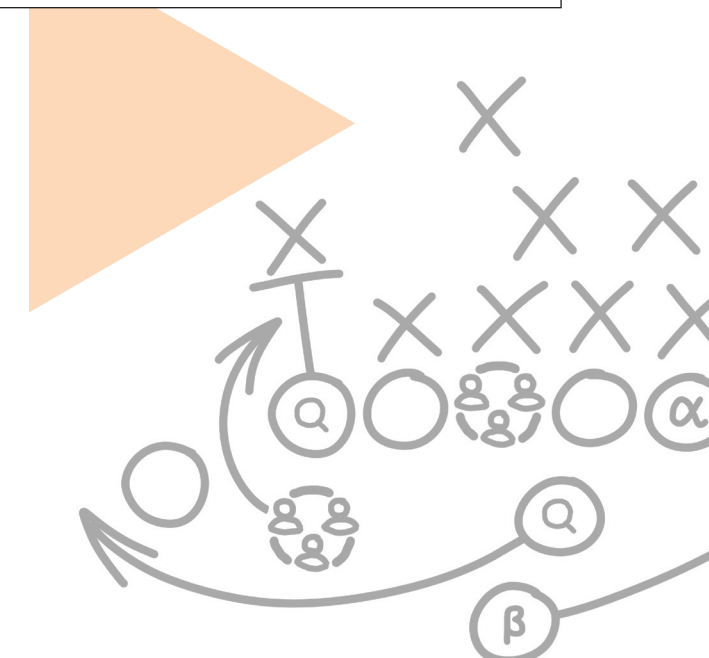
We have been working closely with two UK charities: Yes Futures and POLICE:NOW, chosen for the value they already provide to communities, and for the opportunity they create for ACE to deliver value to them.

Yes Futures is a charity that helps young people develop confidence, resilience

and key life skills through extra-curricular activities and work experience with organisations such as ACE. Over the last financial year, we have run three events for schoolchildren from disadvantaged backgrounds, providing them practical experiences and insights into the world of work.

POLICE:NOW is a social enterprise supported by the Home Office that helps recruit talented and diverse graduates into the police service, building trust in policing and reducing crime.

In the last financial year, ACE has hosted several frontline police officers on four-week placements to gain industry experience, new skills and a better understanding of the issues and challenges facing frontline policing.



ACE IN NUMBERS

98%

of customers would use ACE again

150+

academics receiving ARN communications

17

academic institutions working on commissions in 2022

24,495

emails sent

250

SMEs within the Vivace community

89

commissions delivered

£39.5m

order value of all commissions that started in FY22

325

organisations in Vivace Community

4,388

Teams meetings

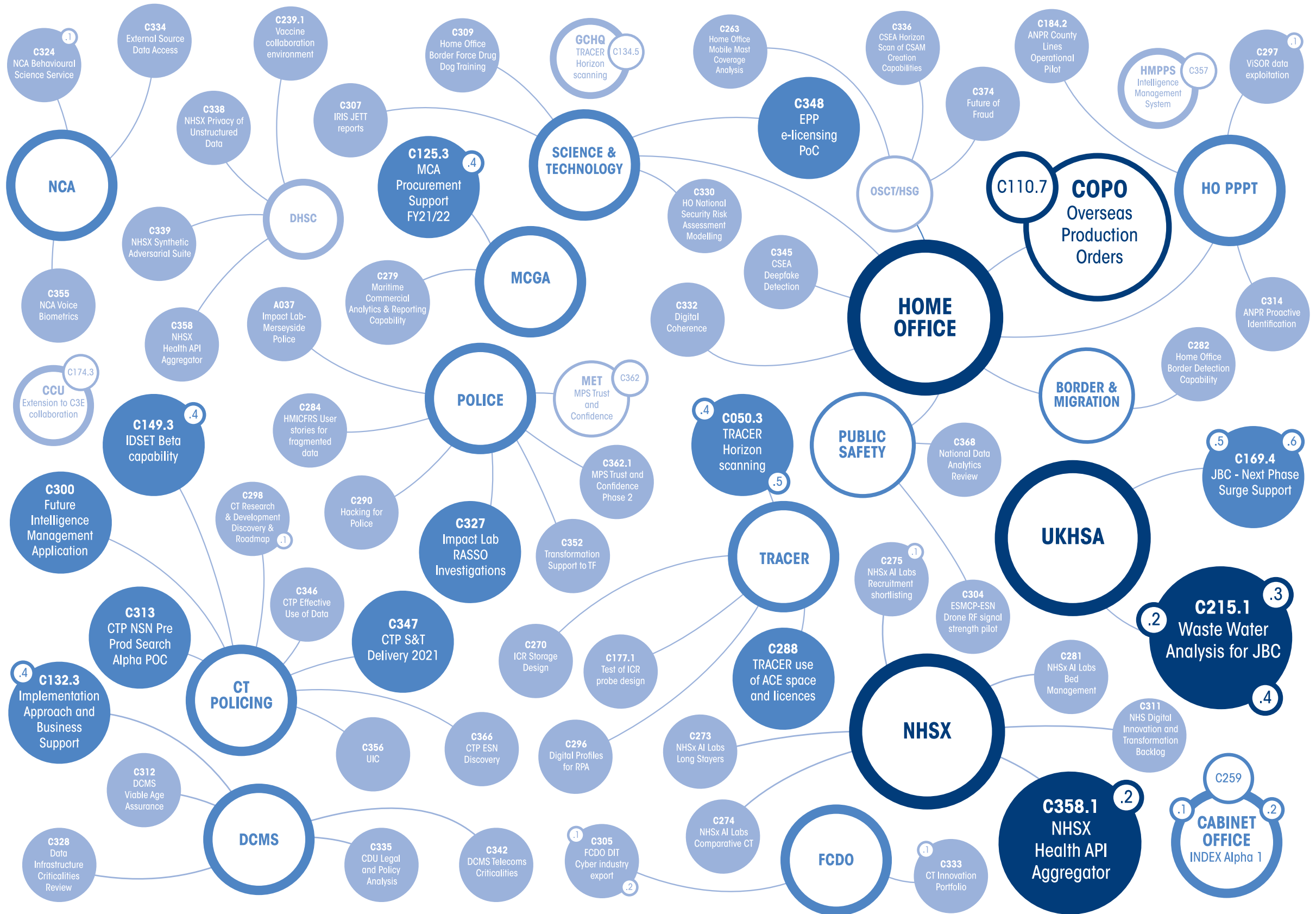
£5.73m

savings this financial year

1,325

people attending ACE events


ACE COMMISSIONS



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