UK Research and Innovation

Next Generation Services Challenge

Acknowledgments

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The Next Generation Services Challenge supports the greater use of artificial intelligence (AI) and associated data technologies in the UK's legal, accounting and insurance sectors. Technologies such as AI and data analytics can help these sectors, which are of vital social and economic importance to the UK, to become more efficient, productive and globally competitive.

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Foreword

Introducing the Next Generation Services Challenge

The Next Generation Services Challenge is helping the UK's legal, accounting and insurance sectors make the most of artificial intelligence (AI) and associated data technologies. Its £20m fund has supported a wide range of projects that have developed new technologies, products and services to make these sectors more effective. Not only has it identified barriers to using these technologies, but it is also helping them to overcome those barriers, so that technology can be used in new ways.

The importance of professional and financial services

Professional and financial services, including the legal, accounting and insurance sectors, are critical to the UK. They account for more than 14% of the UK economy, are worth over £190bn to the UK annually, and employ some 5.5 million people.

The legal, accounting and insurance sectors also have much wider economic and social impact. They support the rest of the economy: most types of commerce require legal cover, insurance and accounting. Then in terms of society, these are sectors that people turn to, to plan for their future or in their hour of need – for financial support, wills or conveyancing. They underpin much of what we do, whether it is economic or personal.

Looking further afield, these sectors are also vital for the UK's international trade. Professional and financial services account for £124bn of UK exports. Around 40% of global trade uses English and Welsh law.

Then, these sectors are widely distributed across the country: 73% of the jobs which they support are outside of London. There are key centres in Edinburgh, Belfast, South Wales, Manchester, Birmingham and Leeds. And they play an important role in helping young people to enter working life – 20% of all graduate entry jobs are in these sectors.

In the UK, we need these sectors to remain strong in the future.

The impact of AI and related data technologies

Technologies such as AI and data analytics are having a profound impact on the legal, accounting and insurance sectors, leading to a 'next generation' of services. A combination of increasing computer power, unprecedented quantities of available data and rapidly evolving machine learning is transforming the way that professional services firms do business, and disrupting many long-established practices.

Automating activities with the use of AI and related technologies enables them to be done much more efficiently and effectively. But this is only a small portion of the opportunity. By combining technology with service innovation, new markets and services will be unlocked.

A report from PwC estimates that widespread adoption of AI in the legal, accounting and insurance sectors could lead to a 10% increase in their contribution to GDP globally by 2030.[1]

Data technologies represent a huge opportunity for these sectors. But with competitors around the world already capitalising on AI's potential, there is also an urgent need for UK firms to move with the times, to ensure that they continue to provide world-leading professional services.

The Next Generation Services Challenge – aims

The Next Generation Services Challenge is part of the Industrial Strategy Challenge Fund. Delivered jointly by InnovateUK (IUK) and the Economic and Social Research Council (ESRC) on behalf of UK Research and Innovation (UKRI), it has brought researchers, technology specialists and businesses together to develop the next generation of services for the accountancy, insurance and legal industries. Its aim is to ensure that these industries are AI-ready: primed for the future and the changes that are coming, and able to make best use of data technologies.

At the same time, the Challenge has examined and addressed the ethical aspects of using data technologies in these industries – with a key goal of ensuring that consumers remain protected, and that data is used responsibly.

Real-world impact

The Next Generation Services Challenge supported activities in four main areas: collaborative R&D projects on particular developments and applications of AI and related technologies in law, accounting and insurance; projects specifically focused on data access (on which AI and related technologies depend); research projects led by academic partners on the broader issues involved in adopting data technologies more widely, and the development of a new AI for Services Network and community of practice.

Across all of these areas, the emphasis was on ensuring that the Challenge has real impact and makes a difference to businesses.

At the heart of the Challenge was co-production of knowledge – businesses with businesses and businesses with researchers, with researchers working closely with industry. A two-way exchange, in which researchers

1. www.pwc.co.uk/economic-services/assets/macroeconomic-impact-of-ai-technical-report-feb-18.pdf

helped businesses to improve their ways of working, but in which engagement with businesses also helped to inform research activity, ensuring that the right questions were being asked and the insights shared broadly. By engaging with and across these sectors, the researchers were better able to understand them, and better able to work with them and support them.

The AI for Services network, which was set up as part of the Next Generation Services Challenge, has been particularly important in this. It has brought together AI and data technology specialists, academics and law, accountancy and insurance professionals. It has encouraged a sense of connection and collaboration among those who were involved with the Challenge, while also linking to people outside of it. It has been a vehicle for disseminating ideas out to the wider sectors, while also providing a way for researchers to listen to those sectors.

A pioneering programme

The Next Generation Services Challenge has been a pioneer in this respect. Think of the sectors that undertake research and development and it is natural to think of pharmaceuticals, manufacturing or engineering: not the legal, accounting and insurance sectors. These are not sectors that UKRI, and IUK and ESRC in particular, have traditionally been involved with. But these are sectors that have much to gain from R&D, and the Next Generation Services Challenge has been a first step in engaging with them.

Also pioneering has been the close involvement in the Challenge of both ESRC and IUK. Supporting the wider use of AI and data analytics is much more than just a question of technology: it involves the complex question of how firms need to change their business models, of how professionals in traditionally quite conservative sectors can be helped to see the potential in AI, and not to fear it or ignore it but use it to improve their business. The next generation of services will be driven by human attitudes and behaviours as much as by technology itself.

The Next Generation Services Challenge – benefits

The benefits of investing in research and innovation can take several years to materialise fully, but the Challenge is already seeing clear and compelling signs of impact across a broad range of areas.

The £20m of public funding has already led to the creation and retention of over 360 jobs, with over 1,000 more predicted in the next five years. Project participants have raised over £100m in private investment, and their technologies are already in use by leading organisations across the UK and overseas.

One of the objectives of the programme was to help these sectors build their capability to engage with R&D: participants have increased their expenditure on R&D by more than 500%. The AI for Services network now has more than 1,400 members, and the CR&D competitions were four times over-subscribed. 80% of business participants in the Challenge are new to IUK.

There have also been changes in the way that legal firms are training their staff, with materials that have been developed through the research projects. The Challenge has led to an opening-up of access to judicial datasets for AI, for the first time, and it has worked with regulators and policymakers, to inform governance principles for ethical and trustworthy AI.

Where next?

The Next Generation Services Challenge has been a £20m pioneer fund. By itself it would be unreasonable to expect that it could fundamentally change such large and important sectors as law, accounting and insurance. But it has demonstrated the value of engaging in innovation for these sectors.

There remain many opportunities, including in reaching excluded communities that have not been served by these sectors very well. More can also be done to overcome barriers to innovation that remain in these sectors, including entrenched structures and business cultures that are resistant to change.

The pioneering Challenge has shown that, while a job remains to be done to drive forward the adoption of AI and related technologies in some of the UK's most important industries, a programme focused in these areas is able to elicit real changes in these sectors.

Research programmes

- Insuring the future
- AI for Law
- Better service by design

Insuring the future

Do AI and similar technologies represent a threat to UK insurers, or an opportunity for them? A major research project, funded through the Next Generation Services Challenge, is helping the UK stay ahead in the global insurance sector, while better serving consumers.

Is the insurance industry facing a 'Kodak moment,' in which the major players are swept aside by new technology? Maybe nothing so extreme, but there are likely to be substantial changes in the way that insurance businesses are run, with the growing use of artificial intelligence and other data technologies.

Machine learning, automated processing and big data analytics mean that key aspects of what insurers traditionally do – from gauging risk to processing claims – can be done much quicker and more accurately.

Helping major UK insurance firms – and the wider sector – to understand the implications of this change is the TECHNGI (Technology Driven Next Generation Insurance) project, supported by ESRC through the Next Generation Services Challenge. An inter-disciplinary team, led by Loughborough University, has been investigating both the opportunities that the UK insurance industry has and the challenges it faces, in adapting to these technologies. It shows how business processes and business models are changing within the industry: how some insurers are already using AI, and what is holding others back.

Insurance firms have already been learning from the concrete examples that the project has provided, of how UK insurers are currently using AI to transform their products and business processes. For Professor Chris Holland of Loughborough University's School of Business and Economics, the project has been distinctive in its level of engagement with industry: 'the research we've been doing isn't about sitting in an office or lab. By co-producing our research with our industry partners, we've made it directly relevant to the insurance sector. We've provided practical insights that senior managers are using, to develop effective strategies that exploit AI and big data technologies.'

The project has been engaging not just with some of the main incumbents in the insurance sector (including Lloyd's, bgl Group, IBM and Willis Towers Watson, all involved as project partners) but also with start-ups, through the Lloyd's Lab incubator for InsureTech (insurance technology). And it has contributed to novel analysis published by Willis Towers Watson, mapping the insurance ecosystem, showing both start-ups and incumbents and the interactions between them. Research carried out for the project shows that around 80% of start-ups in InsureTech are co-operating with incumbents: what it shows both the new entrants and the big players in UK insurance is the potential of working together.

One of the project's important insights, which UK insurance firms are already acting on, is that effective use of AI is about much more than just technology. 'The technology itself is relatively advanced,' says Chris Holland. 'What we've shown is the critical importance of embedding technology in business models. AI can lead to impressive efficiency gains and strategic benefits. However, ensuring successful implementation of AI systems, to meet the needs of different stakeholders, is a more complex problem.'

"We've provided practical insights that senior managers are using, to develop effective strategies that exploit AI and big data technologies."

The project has also shown insurance firms how important it is to standardise the routine data that is held inside their operating systems, to enable it to be used. Fellow Principal Investigator on the project, Professor Alistair Milne of Loughborough University, explains: 'until firms get their own data in order, they cannot properly exploit the opportunities of AI. But AI and data technologies can also help them to get their data in order: to ensure that it is accessible and standardised, that ownership is understood, and that regulations such as GDPR are complied with.' With the TECHNGI project nearing completion, the Loughborough team has secured follow-on funding to develop new mechanisms to help improve data-sharing between insurance firms.

Outputs from the project are also being used by regulators and policymakers. The TECHNGI project has made recommendations for regulating the use of AI in insurance, in a way which both supports the UK insurance ecosystem and protects insurance customers. TECHNGI has also fed-in to a report by the European Insurance and Occupational Pensions Authority (EIOPA), on the ethical use of artificial intelligence and the development of a framework of standards in this area.

Ultimately this all helps the UK to maintain its leading position in the insurance sector, a vital contributor to the economy, while better serving consumers.

AI for Law

Research is showing law firms, legislators and regulators how artificial intelligence is changing legal services, and how the UK can make best use of it.

It's been described as 'the bane of junior lawyers.' The due diligence involved when one firm acquires another can mean someone – usually a junior member of a legal firm – having to go through all of the contracts that the company being bought is signed-up to. It's very labour-intensive. But what if artificial intelligence could take out the grunt work?

Or what if AI could help with contract review – for a large organisation that enters into a lot of contracts, making sure that it's not signing up to terms that it doesn't want? A legal team can do this, but AI can be trained to do it much more efficiently, working quickly through large volumes of contracts and identifying any potential red-flag clauses.

And what will be the cumulative effect of changes like these, on the UK's legal sector? A sector which is so important to the country economically (KPMG estimated that legal services added more than £60 billion GVA to the UK economy in 2018, and directly employed 358,000 people). And a sector which does so much more – enabling people to exercise their legal rights, and providing much of the UK's broader social and economic framework?

A project funded by ESRC through the Next Generation Services Challenge has been showing law firms, legislators and regulators how legal technology ('LawTech'), and specifically LawTech that uses AI, is transforming legal services. It shows law firms how adopting AI can generate efficiencies that can lower costs, enabling them to work quicker and more accurately. It shows firms how they can overcome the constraints that may be impeding them, in applying these technologies. And it shows legislators and regulators how AI can best be used, for the benefit both of the UK legal sector and of consumers.

The project, Unlocking the Potential of AI for English Law, has brought together members of the University of Oxford's law faculty and its economics, computer science and education departments, as well as the Said Business School. It began with a survey of solicitors in England and Wales, showing that around half are now routinely using at least one type of AI-assisted LawTech, and showing legal firms how they may have to adapt, to remain competitive.

For Principal Investigator John Armour, Professor of Law and Finance at Oxford University, 'what really struck us, from the survey, was the importance of the legal sector working in a multi-disciplinary way, in adopting AI effectively. Consistently, the people who are deploying AI spoke about the need for multi-disciplinary teams, with lawyers working with non-lawyers. We're seeing a shift, from legal firms where everyone has the same professional qualification, to ones where there is a mix of expertise.'

Already the project has responded to these research findings, about the need for a new focus on multi-disciplinary professional training: it has led to Oxford University offering a radical new LawTech Education programme, adapted both for students and professionals. 'Our training courses bring law and computer science together,' says John Armour, 'not just so that lawyers can understand the potential of digital technology, but so that computer scientists can be trained to work with lawyers.' A version of the course has been created for private and public-sector partners to use. Responding to demand from the sector, three modules of training content specifically for legal professionals have now also been created.

Law firms are also using research from the project to understand some of the wider impacts of AI-assisted LawTech: the implications of using this technology, in terms of their business models and organisational structure. How these developments sit with traditional ideas of career progression in law firms, for example, and how they might affect their decisions around recruiting.

> **"Law firms are using research from the project to understand some of the wider impacts of AI-assisted LawTech."**

Finally, legislators and regulators have been using insights from the project, especially around the use of client data to train AI models. There are important legal, ethical and procedural questions involved in access to data, including issues of data ownership and data compatibility. How can data be made available in a way that meets legal and ethical requirements, while also making sure that bias is not built-in to AI models? The project has provided insights to legislators on the legal parameters that are needed for data-sharing, as well as advice to the Solicitors Regulation Authority and the Law Society in this area.

For John Armour 'the stakes for effectively using AI in UK legal services are high. Get it right, and we can help the UK legal sector to remain globally competitive, while also improving access to justice.'

Better services by design

How 'design thinking' is helping law and accountancy firms to make the most of AI.

You're in a mid-size law or accountancy firm. You probably know in broad terms that artificial intelligence and related technologies are shaking up your industry, carrying out many of the routine, time-consuming and repetitive data-intensive tasks, and allowing professionals to focus on other, more value-adding activities. Maybe you know of firms that are already using AI to automate jobs such as contract review, time keeping or billing.

But what exactly might AI mean for you? Is it something you could use, to work more efficiently and effectively? And if so, what does your firm need to do to be AI-ready?

Many firms in this position are now benefitting from a project funded through the Next Generation Services Challenge. Entitled Innovating Next Generation Services through Collaborative Design, it has brought researchers with a wide range of expertise – in business models, operations management, organisation studies and innovation studies – together with specialists in design thinking. Outputs from the project are now helping mid-size legal and accountancy businesses to get ready for AI.

Why mid-size? Project leader Tim Vorley, who is Pro Vice Chancellor and Dean of Oxford Brookes University and Professor of Industry, Enterprise and Innovation, explains: 'the Big Four and Magic Circle firms already understand the huge transformative potential of AI, and are investing significantly in it. Our focus is on the next tier down, in terms of size: businesses that are still hugely important in terms of their contribution to the UK economy, but that may be more uncertain about the changes that are coming.'

Helping these firms to get AI-ready means more than just enabling them to understand the technology involved: it means considering the likely effect of AI on their people, their business processes and their structures.

The project has produced something very practical, that many firms are now using: an AI Readiness Toolkit (available for free as a download, and as a book). Step by step, the Toolkit guides firms through a series of carefully designed activities to identify where AI can add value for them, no matter what stage of AI-readiness they are at.

Over 140 firms have now asked to be sent copies of the Toolkit. And as well as using the Toolkit, many law and accountancy firms also take part in design sprints and scenario-mapping workshops, which are run by the project team. 'There's something very satisfying,' says Tim Vorley, 'in having a room full of professionals building physical models of their work, and thinking about how they can do their jobs differently. The archetypal lawyer or accountant in an office might not seem like the most creative of individuals, but we help them think creatively about what data technology could do for them.'

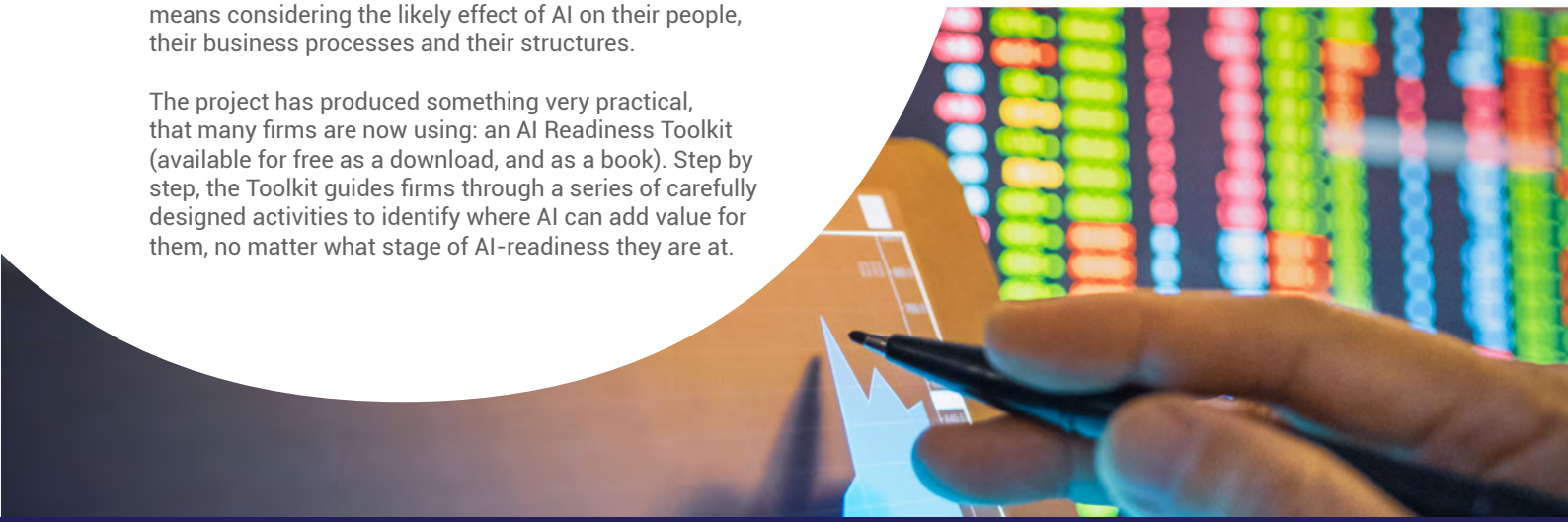
The emphasis throughout is on 'design thinking' – focusing on specific challenges, and ways that AI can help with them. Ultimately for Tim Vorley, the process is about empowering mid-size firms: 'with AI you can buy things off the shelf, but they may not be the best solution for you.

The project has produced something very practical, that many firms are now using: an AI Readiness Toolkit."

The big firms can customise their own, but those in the middle tier – we're helping them to think about where they are, and what they need. We're not expecting a lawyer or accountant themselves to become a technological whizz: just that they can talk to a coder with understanding, and convey exactly what they need.'

Finally, for Tim Vorley, 'there is a natural human tendency to shy away from the kind of disruption that AI is bringing, and lawyers and accountants can be particularly risk-averse. Our project is about overcoming this kind of resistance: the professions that don't or won't change. We're helping them to see that technology can augment their expertise, not undermine it: freeing them to focus on the less mundane things.'

'And the methodology that we've developed, with funding from ESRC, isn't confined to the legal and accountancy sectors – it is being applied to other professions.'



Data theme

Keys to the data goldmine

Keys to the data goldmine

To use AI effectively, businesses need access to large amounts of standardised data. A project funded through the Next Generation Services Challenge is helping with that.

Data is key for Next Generation Services. AI and associated technologies are great at seeing subtle patterns in data. But to be effective, they need access to large amounts of data, and that data needs to be standardised. Train an AI model with data that it can't compare, or with not enough data, and it is as fallible as any human.

As an important part of the Next Generation Services Challenge, AI and data analytics specialists Engine B have been leading a project that aims to transform professional services, by ensuring that all firms, of whatever size, have access to the standardised data that they need for AI.

Engine B's Co-founder and CEO, Shamus Rae, explains: 'businesses around the world, big and small, hold huge amounts of data. But if you want to drill down and understand what data is available to you as a company, both within your company and outside, you're faced with a mass of data in different formats. You don't know the quality of the data, you don't know how to get it, and you don't know how to get it into a format you can use.'

'How do we solve that problem? How do we create a bridge from a spaghetti of data, so that it can go into professional services – into audit, tax and legal? Until now, only the very large organisations could afford to create systems which would talk to all those different types of data in a way which is easy to digitise.'

Starting with audit services, a consortium of audit and legal firms and researchers led by Engine B has developed an open data platform, which enables firms of all sizes to have access to corporate data, and standardises that data so that it can be used in AI and similar technologies.

'You've got all of those different types of data formats and you need to connect them all,' says Shamus Rae.

'With our core platform we bring massive amounts of data together, making it understandable and easy to access.'

Having created the core platform, work is now under way to develop use cases, showing exactly how it can help firms to access and use data more effectively.

For Shamus Rae, the project ultimately leads to a more innovative and competitive audit marketplace, in which smaller companies especially can compete, and in which AI is increasingly used to improve the quality of services.

> **"An open data platform enables firms of all sizes to have access to corporate data, and standardises that data so that it can be used in AI and similar technologies."**

'I was in KPMG, looking at how to digitise our services. But rather than solving that problem just within one firm, we decided to do it across the whole industry. And by doing that, it increases competition: it allows data technology to be used by lots of different people. So we get increased innovation, increased use of technology, and improved quality of services.'

'This is going to be a global wave – if we get this right in the UK, we can create a set of technology companies in the UK which can win on a global basis.'

CR & D projects

- Bewica
- And justice for all
- Battling bias in assessing driver risk
- Shining a light on cyber risk
- Winning the war of words
- LegalBeagles
- Orbital Witness
- Orpheus Cyber
- Xavier Analytics

Bewica

New technology is helping small businesses and organisations protect themselves from cyber attacks, and insurance companies to provide tailored cover for when hackers do break through.

As recent attacks on the computer systems of UK schools and hospitals have demonstrated, cybercrime not only poses a threat to the economy but infrastructure as well. It is a multi-billion pound problem and one that is growing. However, the ever-changing nature of digital threats, coupled with limited data on the risks posed, means knowing which protection measures to prioritise is challenging, particularly for smaller organisations. Consequently, it is also difficult for insurance companies to assess the cyber risk, leaving these organisations without vital financial support for when all else fails.

Cyber-security firm Bewica has developed software that assesses an organisation's risk of a successful digital attack – providing a prioritisation of security improvements and practical help to implement while also providing insurance companies with tools to support the provision of tailored and affordable insurance policies.

"We tend to read in the media about the cyber attacks on big corporations but the risk is relevant to organisations of all sizes," says CEO of Bewica Eva Berg-Winters. "What's more, it's estimated 80% of attacks are preventable with simple measures, but smaller organisations are often unaware which ones these are and how to implement them."

Using a £140,000 UKRI grant through the Next Generation Services challenge, Bewica created a self-learning cyber risk engine. Software analyses an organisation's security posture and creates a report highlighting vulnerabilities while also helping with simple and practical measures that can be implemented to increase protection.

The analysis also provides a 'credit-score' style assessment to quantify an organisation's cyber risk. This information can be used by insurers, helping them decide what prices and covers are suitable for specific clients, as well as serving as valuable input for their underwriting models.

"We have developed tools, such as email phishing training, which help employees learn how to spot suspicious emails or fake invoices, but also allow us to collect data for instance on how likely the staff of a particular organisation are to fall prey to that sort of activity. This data then feeds into the risk assessment," explains Bewica Chief Technology Officer Jean-Martin Zarate.

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>
> CEO of Bewica Eva Berg-Winters

Bewica is currently working with a number of insurance providers and has entered into partnership with the UK Police Digital Security Centre (PDSC). "Using our product means a company can be issued with a PDSC 'Digitally Aware' certificate, which reassures customers and business partners that the organisation takes cyber security seriously," says Eva.

The COVID-19 pandemic has seen a sharp rise in insurance claims for cyber attacks and Eva predicts the problem will continue to grow, fueled by the continued digitalisation of businesses, including employees now used to working from home. "Cyber criminals are looking for weak spots which they can leverage to compromise services, information and finances," says Eva. "By putting in place technical safeguards and by training people to spot suspicious activity, an organisation can help protect itself, its employees and even society against cyber crime."

And justice for all

Research funded through the Next Generation Services Challenge is joining the dots in the legal aid system.

The principle of universal access to justice is seen as fundamental to British citizenship. In practice, however, many individuals face significant barriers in attempting to access the British justice system, when they cannot afford to pay for legal advice and representation.

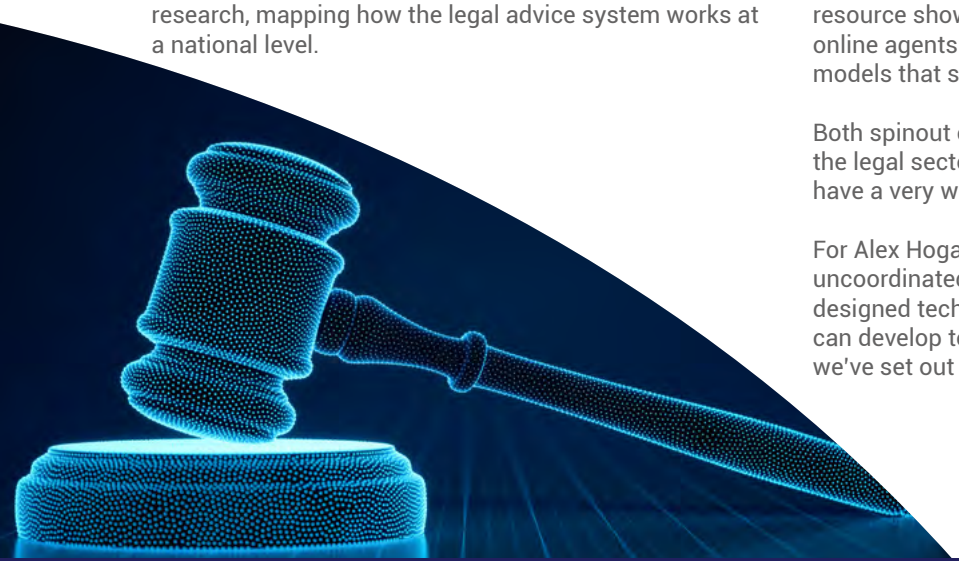
The legal aid system includes many different charities that offer free legal advice and representation to those in need. But the legal aid landscape is complex, with bodies of different sizes offering varying levels of advice and support on a range of legal issues.

It's difficult to navigate. There are many different advisers with different kinds of expertise, operating with little awareness of each other, of where an individual may have been to for advice previously (and whether they've acted on that advice, successfully or otherwise), or where else they could refer clients to for advice and help.

The Affordable Legal Advice project, supported as part of the Next Generation Services Challenge, has been looking at how technology can offer a solution, connecting up this disparate landscape, and supporting affordable access to legal advice. It shows how data management, artificial intelligence and associated technologies can help providers of legal advice to work together in a more co-ordinated way.

Alex Hogan is Managing Partner at Etic Lab, a research and design consultancy working around AI and data analytics, which led the project. For him 'the support from Innovate UK gave us an opportunity to do something that almost never happens when technology is given to charities – working with them first to find out what they need. People often turn up with technology developed already and want to use charities as a proving ground. Not surprisingly, often that doesn't work out.'

The project was in three phases. First it involved fieldwork, researching the sector and the many different kinds of legal advice that are available. Then from this research, mapping how the legal advice system works at a national level.



The project culminated in the publication of a report, Digital Technologies in the Access to Justice Sector, which recommends candidate technologies that could be used to bring this system together. Helping providers of advice to be more aware of each other, and reducing duplication of effort between them. Ultimately, improving access to the complete range of support in the sector. Etic Lab has launched two spin-out companies to take some of these technologies forward.

First, since data-sharing between charities is key to so much of this attempt to co-ordinate the sector, the issue of confidentiality becomes paramount. Spin-out company Kuva works to ensure that sensitive data is protected from any possible online surveillance, which is something that people who receive legal advice are increasingly concerned about (especially since, post-COVID, much of that advice is provided online).

> **"Both spinout companies now have customers both from the legal sector and beyond."**

Kuva has now received support from the Welsh Development Bank to take its confidential data-sharing platform forward. Kuva enables individual practitioners to act more as a collective, while protecting the confidentiality of their clients: allowing aggregate data to be collated so that better decisions can be made (showing the success rates of certain interventions, say), without the risk of data being traced back to individuals.

Network Praxis, meanwhile, shows how artificial intelligence can help to navigate a legal aid sector in which there is no central collection of data, no central resource showing you where to find information. It uses online agents that seek out sources of advice, and AI models that sift the results for relevance.

Both spinout companies now have customers both from the legal sector and beyond it: the technologies they use have a very wide range of applications.

For Alex Hogan 'the charitable legal advice sector is uncoordinated. We can't solve that alone, but we've designed technology interventions that help. Others too can develop technologies from what we found, which we've set out in our report.'

Battling bias in assessing driver risk

Research on subtle distortions in using data is leading to fairer assessments in motor insurance.

Traditionally, motor insurers have used proxies including age, occupation and education level, to assess the risk that drivers represent. But these proxies often say little about the likelihood of an individual having an accident and making a claim.

It's now possible to gain a much more fine-grained understanding of risk, through the use of telematics. Huge amounts of data are collected and transmitted as vehicles drive along, from speed and acceleration to whether battery warnings are flashing. Combined with time signatures and GPS position, as well as contextual information about weather, traffic and roads, this data can be distilled and interpreted to give an idea of an individual's driving behaviour, which insurers can use to help set their premiums.

Complex statistical data approaches are great at doing this job. But the danger is that, for all their potential in crunching big numbers to highlight patterns, these approaches may be subtly biased. Your drive to work, for example, might take you mostly through an industrial area: the speed limit on the road may be the same as for a housing estate, but people tend to drive faster in industrial areas, with fewer hazards around. This can make you look like a riskier driver than is in fact the case. Even the phone you have can have an effect: they differ in the way they send back data about your driving.

Supported through the Next Generation Services challenge, the UPLIFT project (Utilising Processing to expLore Insurance Fairness using Telematics) has been looking into these and many other possible biases. Bringing together an interdisciplinary group of experts in data science, driver psychology and insurance risk estimation, it shows how complex evidential data systems can be better used, to make fairer and more accurate assessments of driving risk.

Sam Chapman is Co-founder and Director of predictive analytics experts the Floow, which has been leading the project. 'It's fine for insurers to be biased against bad driving,' he says. 'But it's unfair if drivers are penalised because of the type of phone they have, or the areas they drive through. Our project has involved looking at the many potential biases that can go into algorithms, and finding ways of addressing them.'

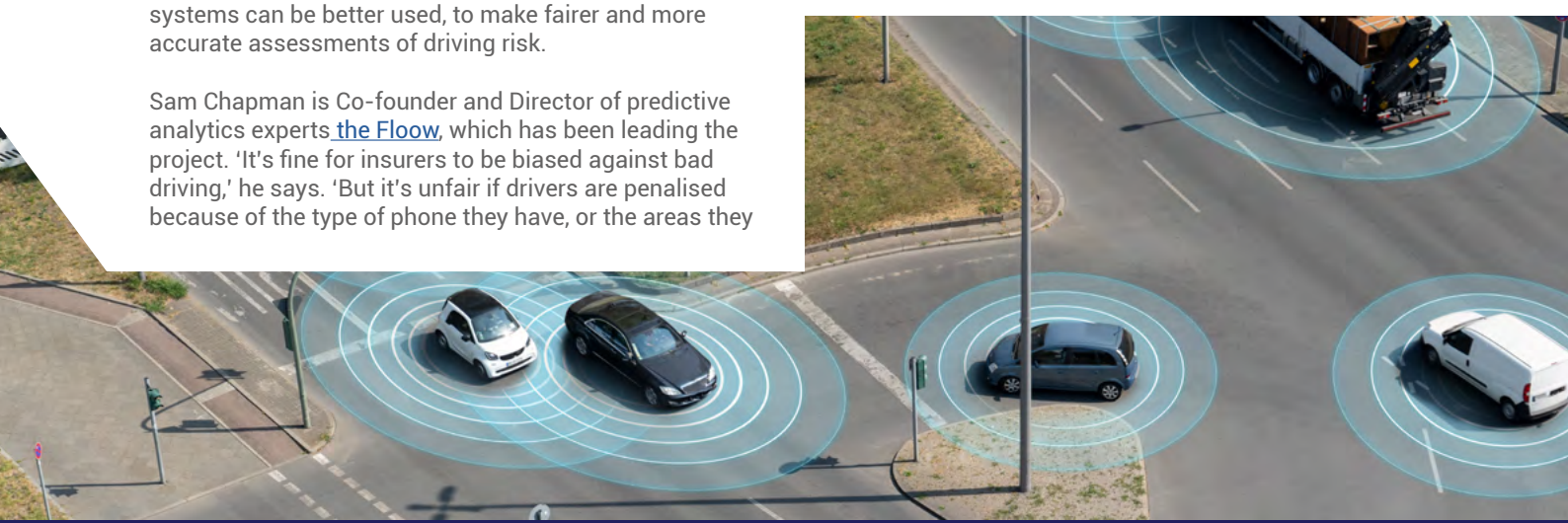
Insights from the project – about the distorting effect of slight differences in GPS accuracy, for example – are now being used in algorithms, to give a better idea of whether someone really is an insurance risk.

The project has also led to new systems for automating the detection of vehicle crashes using mobile phone data: not just showing when, where and how a crash happened, but even who may be driving or just passengers at the time. The new approaches are being rolled out in the UK and US: helping insurers to combat fraud, while also increasing our understanding of accidents and the safety of particular roads. Since July 2020 data on road user behaviours has been shared with Local Authorities, to help improve safety: it's now used in 40% of UK core cities, and a third of London Boroughs.

"Insights from the project are now being used in algorithms, to give a better idea of whether someone really is an insurance risk."

For Sam Chapman, 'the big lesson of UPLIFT is that if you build an algorithm to improve services, harnessing the power of complex data, you need to be aware of subtle biases that you might be baking into it. That's the only way to ensure that it's fair – that it does exactly what consumers expect.'

'Our project strengthens the UK's position in the motor insurance sector, with more individualised premiums, based on a more accurate assessment of risk. That in turn rewards and encourages safer driving. But it takes something like the Next Generation Services challenge to do this: market forces alone wouldn't have produced this kind of wider analysis, leading to fairer insurance products for everyone.'



Shining a light on cyber risk

A new AI-based system, developed through the Next Generation Services Challenge, is helping both SMEs and insurers to keep on top of cyber security.

Cyber-attacks are a major risk for SMEs. The Federation of Small Businesses estimates that, between them, the UK's 5.4 million small businesses are attacked over seven million times a year, at a cost of over £5bn. When they're targeted, many SMEs go under.

Insurers can help small businesses protect themselves against cyber-attacks: the global market in cyber insurance is currently $7.8bn and growing. But cyber insurance is different from other parts of the insurance market, in that it is very difficult for underwriters to price policies accurately. This isn't like insuring driving or health, say: this isn't about chance events, but deliberate attacks. Cyber criminals are constantly innovating and exploiting opportunities, meaning that the risk to an SME can suddenly increase dramatically. At the same time, what an SME stands to lose in a cyber-attack can vary hugely over time: all it takes is for an employee to download sensitive customer information onto a vulnerable laptop, say, and suddenly the risk to the business has grown enormously.

A project supported through the Next Generation Services Challenge brings clarity to this situation. The new system that it developed uses artificial intelligence to provide real-time data on cyber risk, helping SMEs both to understand their vulnerabilities and know what might be at risk. At the same time it enables insurers to price premiums more accurately, and reward good cyber security management through reductions in insurance premiums.

John Clarke is Chief Innovation Officer at SME cyber security specialists InsurTechnix, which led the project. He explains: 'we wanted to find an easy way for small businesses to manage their cyber hygiene. To be aware of threats and vulnerabilities, and to know where their data is and what its value is. We wanted to make this available to small businesses which don't have specialist expertise in-house.'

'We also wanted to help with cyber insurance. There's an army of brokers out there selling it: if they can measure risk more precisely they can price policies in a more bespoke way (based on an individual's risk profile), rewarding good behaviour and lowering premiums overall.'

Like a black box in a car, software runs unobtrusively on an SME's devices, recording what is happening day to day in terms of vulnerability. It gives a real-time picture of how protected data is, and what the cost would be if there were a security breach. It identifies exactly the software that a machine is running (which is more difficult than it sounds: there are currently 57,000 different software products in its database). And it monitors the vulnerabilities that have been identified, and the threats that are out there. This is where AI really shines: reading through huge amounts of reports from threat intelligence, software vendors' notes and government databases of vulnerabilities, at much greater speed and scale than humans could do.

Since the end of the project proof of concept has been established for the new system, showing in practice how it can support small enterprises. InsurTechnix are now on the verge of bringing it to market.

> **"Proof of concept has been established for the new system, showing in practice how it can support small enterprises."**

For InsurTechnix co-founder and CEO Fiona Kinghorn, 'the Next Generation Services challenge has helped us develop a technology that gives UK cyber insurers an edge in the fast-growing global cyber insurance market, as well as helping UK Plc by protecting our small businesses. Without the funding we received, we wouldn't have been here.'

Winning the war of words

New speech analysis software, developed through the Next Generation Services Challenge, is helping to identify insurance fraud.

Insurance fraud is big business. It includes both first-party fraud (lying about your own health condition, say, or making false claims about losses that you say have happened to you) and third-party (stealing someone else's identity and making false claims on their behalf). And it's expensive: it cost UK insurers £3 billion in 2017, adding an extra £50 onto the cost of the average policy.

Contact centres are seen by fraudsters as the weak link in the claims pipeline. The people who staff them get tired and lose focus. And they have emotions, which fraudsters can exploit (they've been known to have recordings of crying babies in the background when they call to make false claims, to elicit sympathy – just one of the ways in which attacks are becoming increasingly sophisticated).

Software exists to tackle insurance fraud, but it can only do so much. Biometric analysis, for example, is good for establishing a person's identity – recognising when a voice matches that of a known fraudster. But the vast majority of callers aren't in the database for fraud. Similarly, existing software can pick up on stress in the tone and pitch of people's voices, but being stressed doesn't necessarily mean that they're trying to deceive – they may just be nervous.

Artificial intelligence offers new ways of tackling this problem. Software designed by speech analytics specialists Intelligent Voice Ltd and the University of East London, through the Next Generation Services Challenge (part of the Industrial Strategy Challenge Fund, delivered by UKRI), combines AI and voice recognition technology to pick up on possible signs that someone making a claim may not be telling the truth, even among callers who aren't already known to be fraudsters.

Intelligent Voice's Head of Research, Neil Glackin, explains: 'this isn't a lie detector – the software simply indicates which cases might be worth further investigation. Insurers can't investigate every claim, but our software shows them where they can best focus their time and resources.'

> **"The new software is now being used in contact centres, helping UK insurers be more competitive."**

The software evolved from some of the techniques of statement analysis that are used by the police. Police officers are trained to listen carefully to the statements that someone gives: where they pause, how they say things, how long they take to answer certain kinds of question. Pause too long, for example, and it may be a sign that a caller is making a claim up on the spot. But answer too quickly, and it might be that they're working from a fraudulent script.

For Neil Glackin 'it can be surprising what gives someone away – the "leakage" in their statements.' Sometimes fraudsters leave personal pronouns (especially 'I') out of sentences, as if trying to distance themselves from what they're describing. Others 'over-sell' their story by providing too much unnecessary information, or are unaccountably unable to remember things that would normally be very clear in people's memories.

It can take hours for a human to analyse a statement, but using AI makes faster-than-real-time speech analysis possible. AI is also very good at spotting subtle patterns, that show when a claim is fraudulent. The software simultaneously looks for 42 particular markers in a person's speech: a few isolated markers here and there probably don't mean much, but certain groups of markers occurring together may be a sign that a claim needs further attention.

The new software, called LexiQal, is now being used in contact centres. It helps UK insurers be more competitive. And for law-abiding customers it means lower premiums, and a quicker response when they call with legitimate claims.

LegalBeagles

Helping reduce the access-to-justice gap in the UK with AI that works alongside human volunteers to answer questions on employment law, free of charge – developed with support from the Next Generation Services Challenge.

Engaging the services of lawyers can be cost-prohibitive for many: legal costs cannot be claimed in the small claims track and awards in employment tribunals can often be smaller than the legal fees involved. In recent years, this has led to increasing numbers of people turning to the internet to find answers to legal matters.

It's a trend recognised by LegalBeagles, an online legal support community offering access to a range of advice, products and services that help users deal with legal issues they are facing, including court claims, parking tickets, employment and family law.

Its popular legal advice forum currently relies on a group of dedicated volunteers to provide free legal support to consumers. To help deal with the increasing volume and complexity of legal questions being posted, the company has developed a bot, initially for use in the employment area, that uses AI to answer common questions faster and more efficiently.

"Since its formation in 2007, LegalBeagles has seen a huge increase in traffic – we have in the region of 3 million unique visits to the site each year and estimate we're providing advice to around a quarter of all court claims going through the system," said Pam Austen, COO of LegalBeagles. "An AI chat bot will help meet this growing demand by locating legal knowledge faster, identifying new patterns and trends, while helping consumers with their legal issues by predicting the best routes to find solutions. By answering some of the more common questions, it also frees up the time of our volunteers to deal with more complex legal issues."

Using £260,000 funding from the Industrial Strategy Challenge Fund's Next Generation Services Challenge, designed to help the service industry take advantage of new technologies, LegalBeagles used its employment forum data and worked with technology company Garbott to map out the numerous ways in which consumers ask essentially the same question. This mapping, together with other legal research documentation, legal case law and employment legislation, was inputted to an AI algorithm and then tested by using past threads from the forum.

The bot, known as 'Lexie', is estimated to answer up to 50% of questions without the need for further human intervention. However, said Pam Austen, the technology does not replace the human volunteers but works alongside. "Currently, a lot of time is lost waiting for information to be passed between our users and volunteer experts. Lexie is able to answer many of the common legal questions instantaneously, but even in the more complex issues that require input from a volunteer, Lexie is able to obtain the information required more efficiently," she said.

"In our tests, Lexie obtained enough information for the volunteer to be able to provide an answer without having to ask further questions in around 90% of the cases."

The project has also developed a mobile app to provide 'unbundled' legal services, such as document checking or a 'buddy' to help guide through the process of an employment tribunal or court claim.

"Currently, a lot of time is lost waiting for information to be passed between our users and volunteer experts. Lexie is able to answer many of the common legal questions instantaneously."

Both the app and AI chat bot are ready to be deployed. In future, the company aims to extend Lexie's offering across its other legal advice areas and, with more than a quarter of countries using the English Common Law system, this model has the potential to be scaled for use in these new markets, too.

Austen predicts the technology could have an even greater impact in the third sector, however. Citizens Advice, for example, has lots of information on its website, but it's a static site. It can be difficult for people – especially if they are vulnerable or English is not their first language – to relate that information to their specific circumstances, so they pick up the phone instead," she said. "Lexie is able to provide a more interactive experience, ease the burden on overstretched resources and, ultimately, reduce the access-to-justice gap."

Orbital Witness

New technology spots key legal issues in real estate transactions.

Anyone who has ever bought a house will know the time and expense involved with legal checks. It's a system that is complicated for individual homeowners and further amplified when it comes to complex commercial real estate transactions.

Now a team at London-based, legal-tech firm Orbital Witness has developed AI-powered software to make the process more efficient and transparent, with a long-term aim of creating a 'one-click' legal risk rating similar to those used to instantly assess credit ratings.

"The process of recording and registering property rights hasn't really changed in over 100 years. Property lawyers still have to collect and read through information on numerous issues, such as rights of way, planning constraints and boundary walls. It's laborious and unprofitable for legal teams, and costly and frustrating for clients," said Will Pearce, who co-founded Orbital Witness in September 2018 with Ed Boulle.

Using £384,080 in Innovate UK funding via the Industrial Challenge Strategy Fund's Next Generation Services challenge, Orbital Witness began working with Stuart Middleton of University of Southampton, an expert in Natural Language Processing, a sub-field of AI. Their aim was to "bring due diligence into the 21st Century" and develop algorithms that could extract and analyse legal rights and obligations from HM Land Registry documents (a project sponsor).

"The technology trawls through the information and is able to flag potential risks, which the lawyer can then investigate without having to follow the breadcrumbs themselves through multiple documents. It takes away time-consuming due diligence and means legal teams can focus on advisory work," said Pearce. "It also decreases the risk of tired eyes missing key pieces of information."

The project was supported by leading London law firm Mishcon de Reya and insurance broker Lockton Companies who helped provide input on commercialisation within the legal and insurance industries. The technology is currently being used on around 2000 properties a day with a focus on commercial real estate investment and development. The company has raised £3.3 million in seed funding and is now working with all five of the prestigious 'magic circle' law firms.

"The technology trawls through information and is able to flag potential risks, which the lawyer can then investigate."

Future plans include analysis of a broader range of data – including non-legal and geographic information, such as flood risk – to provide a comprehensive risk-rating tool for the real estate and insurance sectors. "Real estate is the world's largest asset class but there is very little transparency," said Pearce. "Our aim is to make it possible to transact real estate far more quickly, and for anyone to understand the potential legal constraints surrounding a property with a click of the button."

Orpheus Cyber

With funding from the Industrial Strategy Challenge Fund, Orpheus Cyber has developed machine learning which can predict cyber risks with impressive accuracy, helping safeguard companies from attack whether their employees are working from home or the office.

A cyber threat intelligence company that received £140,000 from UK Research and Innovation (UKRI) through the Industrial Strategy Challenge Fund's next generation services challenge to further develop its machine learning capabilities can now predict specific cyber risks to clients with over 90% accuracy.

Orpheus Cyber has more than doubled its revenue each year since being founded in 2016 and provides cyber security for organisations in the public and private sectors. Its technologies help the NHS to protect its supply chain and the company is one of a handful to be accredited by both the Financial Conduct Authority and the Bank of England to deliver cyber resilience testing to critical infrastructure organisations.

Less than three months after the company completed its project under the next generation services challenge, the COVID-19 pandemic arrived, prompting a rush to remote working across the public and private sector.

This resulted in a significant increase in opportunities for hackers to break into companies. The remote access technologies many organisations put in place so that staff could reach critical systems and information were poorly secured and opened up new weaknesses.

The holes in companies' defences are often due to the many thousands of common vulnerabilities and exposures (CVEs) discovered in software every year. These are ripe for exploitation unless patched or remediated, but the problem is knowing which ones to prioritise as it is impossible to focus on them all.

CEO and founder Oliver Church said: "In addition to using threat intelligence to know which attack methods are already being exploited by hackers, so that those can be prevented, organisations also need to understand which vulnerabilities will be exploited in the near future. That means they can move faster than the adversaries they face and stop cyber risks before they happen.

"What we've developed, in part through our involvement with UKRI, is machine learning which will predict with 90% accuracy which CVEs will be exploited by hackers in the future."

Orpheus Cyber has also benefited from Innovate UK's Innovation Continuity Loan, allowing the company to enhance its existing capabilities and combine them into a full-spectrum, cyber risk management platform.

Orpheus Cyber's approach is sophisticated. Its machine learning algorithms learn from large datasets taken from the dark web, criminal forums and marketplaces, and hacker chatrooms to find references to vulnerabilities and other attack methods being discussed by criminals. It also looks at a variety of other features to assess the risk of a vulnerability being exploited and its attractiveness to hackers.

Extensive testing, including using its machine learning to risk-score historic vulnerabilities and then cross-referencing its predictions against those that were eventually used by adversaries, showed it could deliver a 90% match. This predictive percentage is improving as the system gets better.

Oliver added: "We look at an organisation from a hacker's perspective. By providing clients with a detailed understanding of both their 'attack surface' and the threats they face depending on their individual characteristics as an organisation, they can act to prioritise their defences on what really matters to them."

Xavier Analytics

A company supported by the Industrial Strategy Challenge Fund is helping SMEs take accounting beyond taxation and use financial reporting to drive their businesses forward.

Many small companies see accountancy as a simple tool to help them pay their taxes and keep on the right side of HMRC.

But a UK Research and Innovation-backed firm, Xavier Analytics, has developed an innovative app-based accountancy review system that not only makes basic financial data error identification and clean-up straightforward, it also helps provide meaningful, data-driven business insights.

"Getting real clarity of your financial situation can be a massive asset when it comes to making strategic business decisions," says Richard Nicolson, one of Xavier's founding team and head of operations.

To achieve this Xavier provides a comprehensive toolkit of intelligent bookkeeping and compliance tools that use AI-assisted analysis to identify problems such as mis-codings, as well as track key liabilities, detect payment anomalies and quickly spot unwanted changes to historical data.

"The idea was to help reduce small business failure rates through greater preparation and understanding."

Customer Aaron Sutton, cloud systems and integration advisor at Garbutt & Elliot said that using Xavier had helped speed up processes that would have previously taken a lot of time, such as the multi-coded contacts feature which highlights account and tax rate mis-coding.

Another customer claims Xavier enabled him to spot £39,000 of missed VAT claims over a 20-month period.

Richard Nicolson said:"Normally, these kinds of insights are only available to large companies with big accountancy teams. But our software helps small firms get the same kind of meaningful financial clarity. We help save them time and reduce errors on a daily basis."

Xavier is the result of a partnership between accounting agency FD Works and web development agency Hatch Apps (now incorporated into Xavier Analytics).

Xavier won second-place prize for Best New App (EMEA) in the 2018 Xero hackathon, and was soon after accepted into SETsquared Bristol, an incubator for high-tech, high-growth startups based in Bristol.

In 2019 the company was granted £380,000 of funding from the Industrial Strategy Challenge Fund's Next Generation Services challenge for a feasibility project exploring the use of AI in accounting to create a comprehensive benchmarking dataset and insights for SMEs.

"The idea was to help reduce small business failure rates through greater preparation and understanding," said Nicolson.

In June 2020, Xavier was acquired by leading digital accounting platform Receipt Bank, to become part of the Receipt Bank product portfolio, although the founding team have remained working on the project in Bristol.

Richard Nicolson said: "It's a really cool story, a real journey. We've come a long way in a short time and had a big impact. We couldn't have done it without UKRI."

Short stories

Pozibot

This project, led by InsurTech company Altelium Ltd, developed a new type of dynamic insured battery warranty that utilises AI and data analytics in real time so that insurers can price their warranties more competitively, based on a more accurate understanding of risk. This helps provide cover for first- and second-life batteries, as well as innovative next-generation batteries too young for traditional history-based risk calculations, which will play a crucial role in combating climate change.

Genie AI

Among the greatest obstacles to the adoption of AI in UK services is the acquisition of confidential data and explainable AI. This project, led by machine learning start-up Genie AI, has researched, developed and deployed state-of-the-art algorithms into an intelligent contract drafting platform. The platform continuously improves its contract drafting recommendations through the analysis of thousands of anonymised documents, combined with explainable recommendations to augment the drafting process for lawyers, and enables affordable access to legal knowledge for businesses.

Fluidly

Accounting software company Fluidly have developed a funding recommendation system that enables accountants to identify SME clients in need and provide tailored funding recommendations for them when they need it most, helping to break down the barriers of access to finance for SMEs. Since launching their service, Fluidly have been acquired by Oak North who provide banking services and business loans to SMEs.

Moorcrofts LLP

This project, led by legal firm Moorcrofts, developed ContrAI, a contract drafting, negotiation and management suite that combines AI and design thinking to make contract management smarter, helping to bringing about a dramatic reduction in the time it takes to review, negotiate and manage contracts.

Oasis Hub

Oasis Hub is a data-sharing community that provides aggregated information on extreme weather and environmental events. This project involved the development of Oasis-CAIMAN, insurance software that utilises AI to analyse and review visual images taken from drones, to assess loss and damage after extreme events with a high degree of accuracy, speeding up the claims settlement process so that policyholders receive financial support exactly when it's needed.

Legal Beagles Group

The Legal Beagles forum provides free legal advice on a range of issues: until now it has relied on a group of dedicated volunteers. This project developed AI that can provide consumers with easy access to legal answers, as well as directing them to good sources of support and advice. In so doing it is able to meet a growing demand for legal advice, and provide quality legal support in a cost-effective manner, to a global population.

MatterLab

This project, led by Frontier Labs in partnership with Weightmans LLP, combined human-centred design and AI to create a system that helps lawyers and insurers to forecast the costs of legal cases and claims more accurately. Following a successful pilot of the system that delivered a 71% improvement in reserving accuracy, Weightmans acquired the IP for MatterLab to add it to their data and analytics capability PREDiCT, that seeks to transform claims handling and help clients manage their financial liabilities whilst driving down indemnity spend.

Capitalise

AccountancyTech specialists Capitalise.com have developed AI that can perform a benchmark analysis of SMEs' financial health across accountants' portfolios, helping them to engage in meaningful dialogue with their clients about their performance. Their service is being used across the UK to help accountants provide SMEs with tailored advice to improve their cashflow position and grow their business. Capitalise have raised £10m from investors including Experian to expand their platform with a suite of credit protection and risk management services for SMEs.

distriBind

This project, led by automation specialists distriBind, developed a Bordereaux-Free Delegated Authority platform that enables the automated exchange of risk, premium and claims data between insurers, brokers and managing general agents, removing the need for manual reprocessing whilst improving the data quality and providing actionable insights to enable a deep understanding of risk, claim and insurance portfolios.

Recap

This project, led by Recap Technologies, has developed a cryptocurrency accounting platform. The platform ingests large amounts of data from a range of sources, combined with automated analysis and reporting, to provide accountants, consumers and businesses with a simple, intuitive and anonymous way of managing cryptocurrency finances and tax reporting.

SmartPolicy

This project, led by Kennedys Law LLP, has developed machine learning and text analytics techniques to read insurance policies and examine them for unintended exposure to risk. This enables insurers to automatically identify where policies might require updating, without having to rely on manual reviews by lawyers, so that insurers can reduce their exposure and reduce the costs of insurance provision for policyholders.

Solomonic

Solomonic, a litigation intelligence platform, led the development of machine-learning algorithms to augment the analysis of thousands of court cases based on a large number of criteria, to provide insights at speed and greater scale to litigation researchers and organisations that get into disputes. These data-driven insights can be used to provide better outcome predictions for cases and data to support advice to clients.

Tapoly

This project, led by InsurTech specialists Tapoly, developed an advanced risk calculation engine and chatbot to enable the development and provision of highly tailored insurance offerings that better suit the needs of under-served freelancers and self-employed workers.

Thirdfort

A project led by risk management specialists Thirdfort has led to the creation of an AI-driven algorithm that can be used by property lawyers to detect fraudulent property transactions in real time, protecting property buyers, sellers and lawyers themselves. Thirdfort is now used by over 500 UK law firms, and solicitors who use their service are being offered reduced insurance indemnity premiums in recognition of the role of Thirdfort's technology in reducing solicitors and their clients' exposure to fraud risk.

Beale & Co Solicitors

Reviewing collateral warranties (construction industry contracts) is an important part of commercial risk management, but can be legally complicated and under-resourced. This project, led by Beale and Company Solicitors, has harnessed the power of machine learning to analyse the content of collateral warranties in detail. Designed by lawyers for lawyers, their project enables them to better serve their clients at pace, without compromising on quality.

Thank Intelligence

Conversational intelligence start-up Alchemy Machines led a project to research and develop a platform that transcribes, analyses and summarises legal-specific meetings, to provide enhanced efficiency and to gain client insights from voice and text data.

Transparently

Legal communication specialists Transparently investigated the use of AI techniques to augment the role of legal professionals during negotiations and dispute resolution. Focusing initially on family law, they demonstrated how AI could be used to help identify coercive and controlling behaviours, to provide a machine-supported 'second opinion' to legal professionals during emotional and difficult negotiations.

INNOVACC

Innovation consultants Inventya led a project to develop and demonstrate a platform that centralises the management of innovation and R&D accounting for companies. INNOVACC utilises AI to help SMEs better plan, budget and report on R&D spend, and identify funding opportunities from a wide range of sources, so that SMEs can secure finance to innovate and contribute to the growth of the UK economy.

Phlo Systems

FinTech and international trade specialists Phlo Systems have led the development of a platform that reduces the legal costs for SMEs when securing trade finance. AI is used to draft contracts and complete due diligence checks throughout the process, helping to open up the market for affordable export finance to smaller companies and unlock their international growth.

StructureFlow

This project, led by professional services and data modelling specialists StructureFlow, explored the use of artificial intelligence and data analytics to develop a system that enables the intelligent visualisation of corporate structures and transactions. Their system helps to optimise efficiency, whilst improving analysis and decisions when dealing with complex corporate structures in a transaction. Their platform launched in 2020 and has been adopted by leading law firms in the UK and overseas.

Legatics

A project led by Legaltech specialists Legatics undertook behavioural research to investigate and develop adoptable AI microservices for their transaction management platform. By addressing barriers up front their approach enables AI adoption by design, so that lawyers can reap the benefit of efficiency and user-experience enhancements and optimise the services that they deliver for their clients. Their platform and microservices are now used by leading law firms in the UK and internationally.

Contingent

Current anti-money laundering (AML) compliance processes for verification of ownership are challenging: they are labour-intensive, repetitive and data-intensive tasks, which are vulnerable to human error. This project, led by data analytics specialists Contingent AI, has created an online electronic identity verification service that reports in real time on structures of company ownership to help ensure compliance and reduce economic crime. Their platform is now used by hundreds of procurement and supply chain teams.

Digital Fineprint

InsurTech company Digital Fineprint (DFP) have built an online data management and oversights tool, using open data and AI to provide a more detailed and real-time view of risks that SMEs face, to increase the precision of Insurance underwriting at scale. DFP has now been acquired by challenger insurance broker Hubb to enhance its capabilities, provide valuable risk insight to quoting insurers, and unlock the potential of fairer, usage-based broking.

AUTTO

Software specialists Autto have created an innovative and accessible no-code workflow automation platform for legal departments, law firms and professional services. Using AI, the solution increases workflow efficiency, freeing professionals to concentrate on advising clients.

Lawli

Led by software company Lawli, this project developed a legal document processing service to reduce the time and cost of legal services for SMEs and consumers. Their service includes a legal document summariser alongside legal document drafting services for UK, US and Canadian jurisdictions.

Icebreaker One

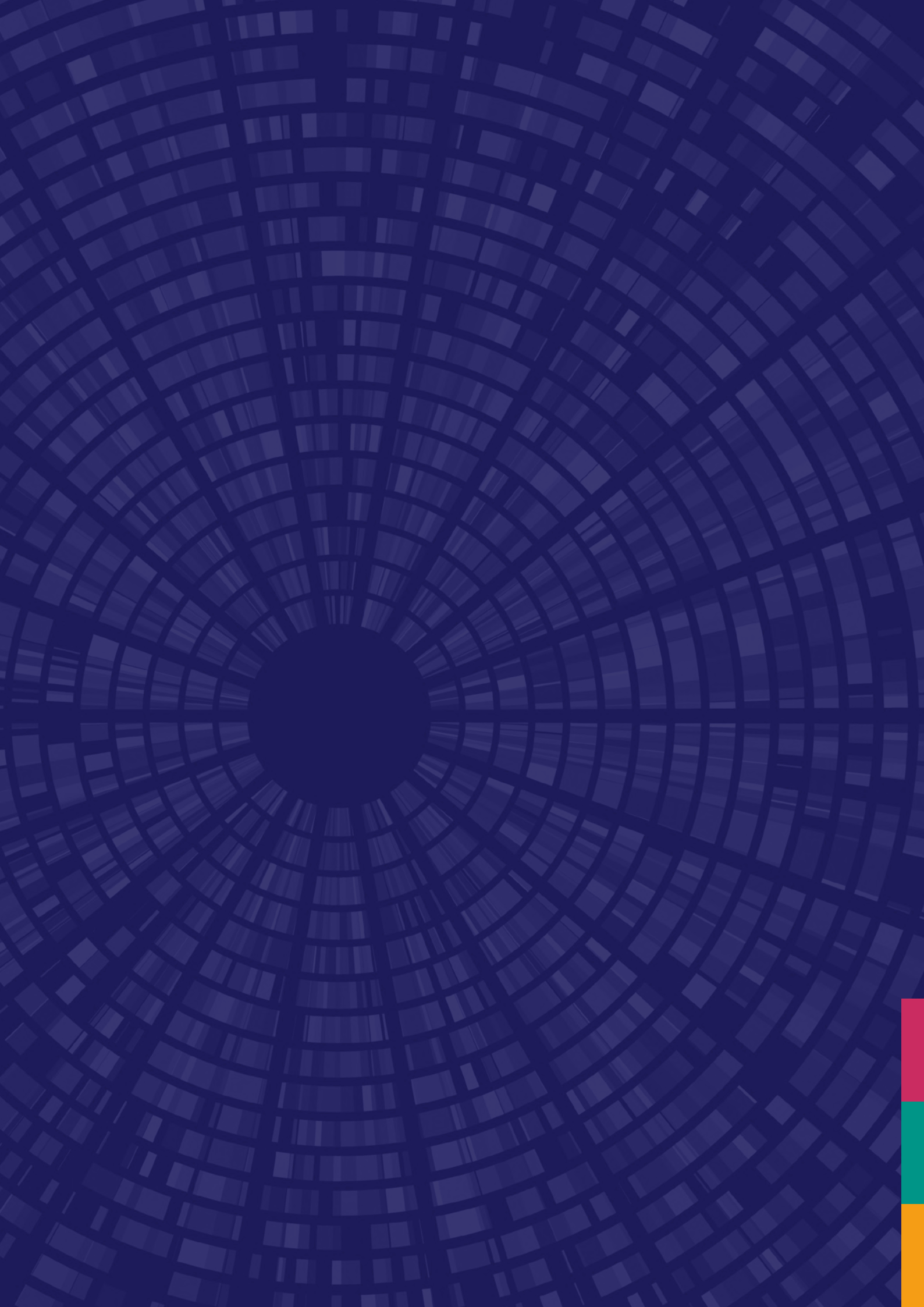
Open data and sustainability specialists Icebreaker One Ltd have led a project to develop a new Standard for Environment, Risk and Insurance (SERI). SERI includes a shared data governance approach that enables collaboration and data-sharing within the insurance sector on climate risks and innovative products. They developed their 'Icebreaking approach' to identify market use cases across thematic clusters, and demonstrated the potential of a Climate-Ready Building Passport to unlock net-zero opportunities. Icebreaker One's work and its potential to unlock climate risk innovation has been recognised by the Climate Financial Risk Forum.

RegulAItion

AIRtech, developed by knowledge tech company RegulAItion, is a platform that uses federated analytics to create a secure, privacy-preserving data access and data collaboration platform for regulated sectors. With automated data governance the platform allows large organisations such as law firms to collaborate with external data scientists without having to transfer their data, and pool insights across other firms, unlocking the potential of new AI solutions without compromising on privacy.

KnowRisk

Sweetbridge EMEA led the KnowRisk consortium to develop and demonstrate a proactive supply chain risk management platform that combines data from industry, accounting, insurance and law, to create digital twins of risk across entire supply chains. Their solution will enable organisations to better identify, monitor and manage risk across their supply chains so that they can proactively prevent disruption and purchase bespoke insurance for previously unknown supply chain risks.



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