



Opportunities and challenges for ethical AI

Greater Manchester SME perspectives
on current practices and future regulation

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Accelerated by the coronavirus pandemic, growth in the development and adoption of artificial intelligence (AI) and data-driven technology is reaching unprecedented levels. According to the AI Activity in UK Businesses Report (Capital Economics and DCMS, January 2022), 68% of large companies and 34% of medium sized companies have already adopted at least one AI technology and adoption rates continue to rise.

Without doubt, we will all be affected by decisions underpinned by AI systems. From loan decisions to targeted advertisement campaigns, medical diagnoses to accounting systems, AI and big data analytics will have an increasing role to play.

Given this technology's capacity to influence decision-making, since 2018 we have engaged in research and discourse around the topic of "ethical AI". We have explored how data-driven technologies must address ethical principles such as bias, fairness, diversity, inclusivity, algorithmic transparency, explainability, accountability, data privacy, safety and sustainability.

Numerous informal frameworks and principles have now been established around the globe. Hundreds of toolkits exist to help organisations implement good practice. And now work is underway to formalise some of this work through standards and regulation.

We welcome these developments and the UK's ambition, through the National UK AI Strategy, to become a global AI superpower within ethical parameters that create responsible AI solutions and build public trust. Regulation and standards can underpin more public trust in innovative products and services; people want to know that the risks, opportunities and outcomes from use of AI or advanced data science have been properly assessed in rigorous ways.

AI and data-intensive systems may affect individuals, society, and the environment in profound – and potentially unexpected – ways.

This booklet presents a series of real-world case studies which highlight that SMEs are prepared to adopt ethical and responsible approaches to AI development and deployment in Greater Manchester. They also want the voice of SMEs to be heard and contribute to regulatory development.

Greater Manchester's digital sector is second only to London in terms of scale; it has significant strength in AI and data science. Moreover, the Greater Manchester

Combined Authority has set out an ambition to become a UK and European leader for responsible and ethical tech. Initiatives such as the Greater Manchester AI Foundry and the Responsible Tech Collective are contributing to this goal, placing ethical practice at the heart of AI innovation and research.

These case studies give the city-region's leading technopreneurs a voice. They are eager to engage with researchers and policy-makers and to shape future standards and regulation. Small- and medium-sized enterprises (SMEs) call for rules that are robust but not restrictive, enforceable but not burdensome, and that mainstream responsible and ethical tech.

With funding from UK Research and Innovation, we held a round table in March 2022 with SME representatives and our partners Policy Connect and the GM AI Foundry to discuss how SMEs create and use AI. We explored their current appetite for ethical practices and their individual and organisational readiness for standards and regulation. Follow-up interviews with SME leaders dug deeper into some of the successes and challenges brought to light.

Our work reveals that SMEs must be front and centre of future policy development. Business leaders want to do the right thing, but they struggle with implementation. Few SMEs employ dedicated technology ethicists to navigate them through tricky design and development processes!

You can read about the many challenges they face. But above all, we find their stories offer hope. SME leaders understand that ethical tech is an imperative for success.

We hope these stories will inspire other businesses in Greater Manchester and beyond on their own ethical data and AI journeys.

Acknowledgements

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Special thanks to Katharine McNamara, founder and director of Konductor, who conducted the interviews and drafted the case studies.

The Greater Manchester AI Foundry

The Greater Manchester (GM) AI Foundry applies the AI research strengths of four universities with business innovation support to promote adoption of AI among SMEs in Greater Manchester to increase growth and productivity. Manchester Metropolitan University leads the project, working in partnership with Lancaster University, University of Manchester and the University of Salford. The GM AI Foundry is funded by an ERDF Priority Axis 1 Promoting Research and Innovation Grant of £5,964,530, which includes 50% matched funding provided by the four universities. The project started in 2020 and will end in 2023.

The preliminary stage of the project engages SMEs to increase their understanding of the benefits of AI adoption, for example through talks at SME events. The two main phases of the Foundry innovation model are business assistance and technical assistance. In the business assist, SMEs are supported to become innovation ready by taking part in workshops which include information on AI research trends followed by 1:1 meetings with a business development manager to create an AI-focused business growth plan. SMEs with high value growth plans are selected for a technical assist. In this phase, the SMEs work with the GM AI Foundry technical team to develop a new proof of concept product, grounded in an AI technology, under the supervision of a researcher from one of the partner universities. The project therefore gives GM SMEs access to a range of cutting-edge AI research including data science, deep learning, image processing, machine learning, natural language processing and text analytics. A further area of expertise is ethical AI and data privacy, and the project incorporates robust ethical review processes which ensure the development of products and services which minimise bias and increase trust. The GM AI Foundry adopts the Government's Smart Specialisation approach, which is seen as the optimal strategy for transferring research into industry. The project works with SMEs at mid to late technology readiness levels (TRLs 3 – 9), when companies are looking to scale.

A major impact of the project is the collaboration between the four partner universities which has led to further joint research/KE activity including the creation of the NW Partnership for Security and Trust with GCHQ. It has contributed to the GM digital ecosystem by both raising awareness of AI technologies and delivering novel AI products and services. The GM AI Foundry anticipated some of the objectives of the National AI Strategy, published in September. It is already generating investment in the AI ecosystem and is supporting regional AI growth.

The project is on track to achieve its outcomes with over 100 companies already supported through phase one and there are currently 30 projects in progress to deliver new-to-market and new-to-firm products and services, delivering significant economic growth through the transfer of AI research expertise to GM SMEs. As GM Mayor Andy Burnham stated, "Initiatives such as the AI Foundry are a great example of how our universities and combined authority can work together to help deliver prosperity for our people. Multi-university collaboration of this kind is a vital platform for innovation."

**Keith Miller**

Academic Director
GM AI Foundry
Manchester Metropolitan
University.

Responsible Tech Collective



The Responsible Tech Collective is an informal collective of cross-sector organisations and community representatives with a vision of co-creating a more **equitable, inclusive and sustainable tech** industry.

Greater Manchester has a burgeoning tech industry, progressive social history and diverse people, providing the Responsible Tech Collective with a rich base from which to deliver its mission of **bringing home the humanity to tech**. Initiated and led by social impact agency Noisy Cricket, supported by Paper Frogs and funded by the Co-op Foundation and Luminate, the Responsible Tech Collective formed in 2019.

Driven by organisations ranging from Barclays and GMCA to Open Data Manchester and Salford CVS, the Responsible Tech Collective is exploring what tech can achieve when people come first, in response to ebbing consumer trust and employee backlash against ethical quandaries around the creation of technology.

Also keen to mitigate the costs of addressing ethical issues and explore the potential for improved performance and enhanced innovation, the Responsible Tech Collective first established its purpose and values, before collaboratively shaping its understanding of responsible tech by scoping out relevant disciplines.

The members seek to look beyond an organisation's immediate users or customers to how internal efforts can impact people, communities, society and the environment more widely, with a focus on actions to enhance their **data ethics** (e.g. open data) and design ethics (e.g. consequence scanning) practice.

They have also explored how to behave responsibly when it comes to people too, prioritising action around **diversity and inclusion** (e.g. ethnicity) and **digital exclusion** (e.g. accessibility). Four current demonstrator projects prioritise action over discussion:

- An **Ethnic Equality in Tech** project with Barclays and Diverse & Equal explores how we might empower businesses to ensure people of colour feel safe in the workplace.
- A **Citizen-Led Security Standards project** with GMCA and The University of Manchester is developing ways to help mitigate data vulnerability and build community trust.
- A **People-Powered Smart City** project with Manchester City Council and Open Data Manchester investigates how we might centre community needs in the design of smart city solutions.
- A **Responsible Tech Diagnostic Tool** with Co-op and Hyper Island is creating a tool to help businesses prioritise responsibility in a practical and relevant way.

Mindful of the need to effect internal change within their organisations too, the Responsible Tech Collective is also shaping solutions that will enable shared learning, community engagement in decision making, demonstrating its value to decision-makers and establishing collectively agreed standards that can be embedded in practice, processes and policies.



Lauren Coulman
Founder & Convenor
Responsible Tech Collective

Policy Connect

policy connect

The tech, data and AI industries are accelerating rapidly. At the same time, the policy and regulation of the sector struggles to keep pace. We risk slowing AI development if we wait to establish a comprehensive policy stance, threatening our position as a world-leading data economy.

The Government has an ambitious ten-year plan to make the UK a global AI superpower. It has released multiple strategies in this arena, including, for example, the Government Cyber Security strategy. The government has also announced a new initiative to shape global standards for AI.

The All-Party Parliamentary Group for Data Analytics (APGDA) has taken an active role in the development of the National Data Strategy (NDS). The group is now looking to build an even more comprehensive picture of UK data policy. It wishes to explore the implications of AI development in the UK.

A new APGDA inquiry will now address the need for government to align regulation and policy to realise their ambitions. It will enable businesses and practitioners to feed real-world evidence and experience into the process.



Eve Lugg
Data Policy Manager
Policy Connect

All-Party Parliamentary Group on
dataanalytics

Connect and the APGDA

Policy Connect is a cross-party think tank. We support parliamentary groups, forums, and commissions by delivering effective policy research and event programmes. Our programmes connect parliamentarians and government with academia, business and civil society. We aim to improve people's lives by promoting better informed public policy.

We focus on five policy areas: Education & Skills; Industry, Technology & Innovation (ITI); Sustainability; Health; and Assistive & Accessible Technology.

The All-Party Parliamentary Group on Data Analytics (APGDA) is a cross-party group established by Daniel Zeichner MP. Policy Connect's ITI team provides the secretariat for the APGDA. The group aims to promote better informed policy on big data and data analytics. We are committed to ensuring our actions and funding are entirely transparent.

AT A GLANCE

INEVITABLE

Company: INEVITABLE

Profile: Technical AI development and AI strategy consultancy

Location: Greater Manchester

Ethical AI challenge: Educating the world that all AI should be ethical

Ethical AI themes: Ethical AI

Website: www.INEVITABLEinnovations.com



Sean O'Mahoney
Co-Founder

Ben Grubert
Co-Founder

Best Practice

By default, INEVITABLE assumes that all its AI projects would result in biased and unethical AI, until it's proven otherwise through analysis. The company also provides full transparency throughout its projects; from project team decisions to final outputs, every step is captured, made visible and explained or justified. These steps are published alongside the equally transparent AI systems designed.

The company has set itself incredibly high standards. INEVITABLE performs a full end-to-end ethical assessment prior to ever agreeing to undertake development works. If they identify any ethical misalignments which are insurmountable within the project, the team declines the work.

For INEVITABLE, embedding strong ethics into AI development processes makes business sense: it futureproofs the technology, lowers risk and increases valuations. Technology is always ahead of regulation and legislation, Ben explains, so the only way to be certain that your technology will be legal in the future is to ensure that it is ethical today.

For more information, please contact
ai.ethics@mmu.ac.uk

INEVITABLE is a technical AI development and technology strategy consultancy that works with start-ups, SMEs and the public sector.

INEVITABLE is "application agnostic", working with businesses and investors from multiple sectors throughout their AI R&D and deployment journey. Some clients seek advice around investment, others want support developing AI systems. The majority, however, seek guidance and assistance with the development of their technology strategy, particularly trying to understand how AI is best applied to their business case or sector.

If a start-up wants to build AI into its product offering, or if an organisation wants to integrate AI into its operations, INEVITABLE has experts on the use of AI/tech as a strategic business tool, and where AI technology can be used to deliver impact. The consultancy also supports the AI design and specification processes, including advising on boundaries regarding data, legal and ethical development practices. Having an understanding of the costs involved helps companies through their funding journey.

At the technical end of its offering, INEVITABLE develops artificial intelligence systems, provides expertise in data science and data analytics, as well as conducting due diligence to assess the capability, scalability and ethics of products and services on behalf of clients.

Due to its capability and strong ethical positioning, INEVITABLE typically works on what are deemed high risk projects – and often investors or businesses won't know when theirs is a high risk system.

As an example, as part of a due diligence process, investors could ask INEVITABLE to look at a technology that's being proposed or technological offering a business is about to invest in. The team will assess its compliance with current regulations, standards and the law, but also assess potential for future scalability and any ethical AI issues that may be posed in the future.

Use of data

Ben and Sean are co-founders of INEVITABLE. They are proud that their company has ethics at its very core. Ben says he has never sold or used unethically obtained data; to the contrary, the company helps its clients create ethical datasets by adapting their business model. INEVITABLE provides its clients with a data acquisition roadmap that maps out the alternatives first, including the availability of open data and how they can use this data to achieve set business objectives.

Understanding of frameworks and regulations

Ben believes that the only way to be certain that technology will be legal in the future, is to ensure that it's ethical now.

In light of this, INEVITABLE has created its own ethical roadmap, which goes far beyond existing or proposed regulations and legislation. One element of the roadmap helps clients to mitigate bias and address the risk of obsolescence from the very start of an AI project right through to deployment and beyond.

INEVITABLE knows, in exact detail, the territory it must navigate now and what may be ahead: Ben and the team has been involved in the earlier stages of policy consultation and has provided advice to government departments and other public bodies.

Barriers to AI adoption and trust

"If you ask most people online what artificial intelligence is, they will start talking about evil systems from movies such as Skynet. They will start talking about the type of evil AI that is depicted in movies. Not realising that the predictive text they're using is a form of AI. They don't realise what ethical AI is. And that's your barrier," says Ben.

Unlike the dystopian and dangerous AI systems depicted in media and popular culture, AI is already at work and affecting our lives every day, but usually behind the scenes. Ethical AI can be responsible for fair, transparent and repeatable decision-making as well as equitable and democratised services. It is open to all, growing economies rather than supplanting jobs.

Sean adds: "Many businesses don't understand how accessible AI is and how inexpensive it can be to speak to an AI expert and get advice on ethical approaches. A short conversation could show what data they require, where their data is, how they could store it and how it can positively impact their organisation. It can show where there's scalability and actually identify the business case for AI."

He argues that there still remains a huge need for education on the ethical ramifications of AI implementation, for example if you do not pro-actively take steps and make decisions to mitigate bias. One of the biggest hindrances is the lack of awareness and understanding around unconscious biases in human decision-making. Education and training is the only way for the risks and outcomes from bias to be more closely scrutinised and addressed, he explains.

Future impact of AI regulation

Delays in regulation in development and use of AI have allowed substandard developers to cut corners. As a result, it is companies with "black box" AI systems/models (without explainable decision-making) who are most at risk; it would take a lot more work to bring them up to ethical/legal standards causing cost and upheaval.

Ben suggests that new rules may have a significant impact on providers who have not implemented explicit risk mitigation strategies. Some key questions remain unanswered during this period of uncertainty, not least how specific rules within any regulation would be interpreted and enforced.

He says INEVITABLE, however, is sitting comfortably. They are ahead of the curve, having already adopted practices that anticipate future regulation, thus future-proofing their AI.

AT A GLANCE

Company: CDD Services

Profile: An ethical, multi-jurisdiction compliance and data safeguarding company

Location: Greater Manchester

Ethical AI challenge: Gaining and rebuilding trust around data sharing, and how AI can contribute to an ethical ecosystem

Ethical AI themes: Compliance | Fraud | Data

Website: <https://cdd.services/>

Paul Sandelands
Commercial Director



Best Practice

CDD has sifted through and adapted all its policies to comply with existing data regulations. Its ethos is to understand and absorb regulations into company practices and go beyond them whenever it can.

They work closely with the Government Digital Trust Framework, participated in the ICO regulatory sandbox, and adhere to the Good Practice Guide for Identity (GPG 45) and GPG 44 for access management controls.

In addition, the business has invested in a team from a diverse range of people-focused backgrounds, helping ensure individuals remain at the forefront of thinking. The team includes Paul, with over 20 years in identity fraud prevention; board members with strength in people and HR; and experts in business psychology and culture change.

Originally a consulting company supporting major banks with regulatory challenges and tackling financial crime, CDD has now developed an operating model that supports multi-jurisdiction regulatory compliance – with ethics at its core.

The CDD technology platform has its own machine learning capabilities and its compliance engine means clients can develop a personalised approach for customer-focused operations. This could involve customer management and onboarding, utilising ID technology such as facial recognition, biometric identification and passport validation, as well as safeguarding or any other regulatory compliance checks.

The company understood that analysis of personal data was central to its customer proposition, so committed to empowering individuals to manage and control their data, utilising the main CDD compliance platform, as well as through its new customer offering for safe personal data exchange, SafeGuarden.

Use of data

CDD's systems mostly collect data – biometric data, passport details, driving licence and proof of address, for example – directly from the data subject, often as part of their engagement with businesses that provide regulated services. Other data collection comes via third-party providers who draw from reliable corporate data sources.

Working with the Government's DCMS initiative, the Digital Identity & Attribute Trust Framework (DIATF) and by participating in the Information Commissioners Office (ICO) regulatory sandbox, the CDD service captures the data with consent and empowers individuals to safely share it using a digital wallet or digital identity.

Relationship with AI

CDD's ethics lie in its approach to inclusivity, accessibility, and using AI to help safeguard sensitive personal data for large numbers of people, including vulnerable communities, through its SafeGuarden platform. The company wants to encourage positive social change and generate benefit for society – from helping cancer research to local government data analysis. It believes that the wider the datasets that individuals consent to share, the more AI can help.

For more information, please contact
ai.ethics@mmu.ac.uk

C|D|D SERVICES

SafeGuarden

In the case of compliance checks, AI can spot crucial identifiers that successfully differentiate between a victim of modern slavery and a gang-affiliated member committing identity fraud. On paper, the data looks very similar, whereas in reality one individual is a victim, the other a law breaker. AI can pick out the nuances.

Paul Sandelands is Commercial Director at CDD and Co-Founder of SafeGuarden. He wants to see AI go further.

He says that AI for data safeguarding and compliance could more readily serve voluntary communities and charities – disconnected sectors that often need it the most but can rarely afford the price tag.

Understanding of frameworks and regulations

CDD has a good background in existing compliance and regulation, identity fraud prevention and data sharing.

Working closely with the ICO and the Government Digital Service's Trust Framework, CDD understands the benefits and the pitfalls of existing frameworks and data regulations.

"Data sharing initiatives have been on the borders of policy, but regulators struggled here," comments Paul. This is where his SafeGuarden comes in. He says that the technology is an all-in-one trust framework scheme: an identity service provider, an attribute service provider and an orchestration service provider that securely connects all with individuals, organisations and communities.

Barriers to AI adoption and trust

Paul says the most prominent barrier to AI is the huge erosion of trust that all tech companies must overcome. But good ethical practices could help to remove this resistance. He notes that where previously users were more than happy to share their data with Google, Facebook and even the NHS, most are now deeply mistrustful of these organisations due to constant news of data breaches and data abuse.

The black box nature of AI is also problematic. Users are more reluctant when they don't understand the purpose of a system, how it works or the rationale behind automated data-driven decisions.

But any new rules must find the right balance between total freedom and the rigours of regulation. While stringent controls may instil trust, too much red tape may constrain capabilities and innovation.

Paul thinks the secret is to empower the user and be transparent. By trusting AI, users will enjoy more benefits by sharing their data, but only with their full consent and control.

Future impact of AI regulation

While appreciating the importance of a compliance badge, Paul sees that punitive AI audits will only add layers of bureaucracy. He argues this heavy-handed approach will either put off AI adoption or make the process of adoption and monitoring lengthy and confusing, thereby causing more non-compliance.

AI regulation needs to be finely targeted at key areas of risk and affordable to implement, so as not to stifle the positive social change it can achieve, he says.

AT A GLANCE

COSMIENT

Company: Cosmient

Profile: An AI-driven interactive product for e-commerce and media

Location: Greater Manchester

Ethical AI challenge: Third-party tools | Lack of Expertise | No firm guidance

Ethical AI themes: Marketing | Branding | Experiential

Website: <https://cosmient.ai>

Allan Gray
CEO and
Co Founder



Best Practice

Being a startup with fewer than five staff, Cosmient can be reactive, agile and more easily embed new practices into everyday routine. However, it is hard for the team when their opinions, attitudes and rationale for decision-making are continuously challenged at every step to ensure ethical AI prevails. Although the team has no formal ethical methods in place, Allan says that regular sense checking of decisions has always been there. "We can at least explain how things are done here," he says.

For more information, please contact ai.ethics@mmu.ac.uk

Originally starting as an R&D tech business, Cosmient officially started operating in 2017 as a venture builder and is now a tech AI startup. The company has worked with a vast array of businesses and projects, from placing live streaming cameras onto satellites to the recovery of a treasure ship. But now Cosmient focuses on one particular area of innovation: AI-driven product interaction.

The big idea is to create a new way for customers to build a relationship with brands. Through the power of AI, customers can talk directly to products and ask all the questions they have – as if speaking to another person. Questions could include "What do you do?" or "How much do you cost?" and the product itself may ask "May I suggest a product that matches well with me?"

Release of Cosmient's first-to-market Shopify plugin is imminent.

Use of data

Cosmient uses the popular Open AI neural network machine learning model, GPT3, and its own proprietary technology to power this product interactivity. As GPT3 was trained on large uncensored datasets such as Reddit, the business had to implement its own content and safety filters to ensure potentially harmful content was excluded from conversations.

Other input data will also come from a film script repository, built by the Cosmient team. After each Meta Being's inception, they will collect customer interaction data, which will provide fresh, real-world, first-party data and insights that gradually replace the third-party data that has long been relied upon by brands.

Relationship with AI

With tech development underway, in collaboration with the GM AI Foundry the next stage is to introduce film scripts and books. From these sources, interactive characters will be automatically generated, eliminating the need to program them into existence. Allan Gray, founder of Cosmient, and his team of three are eyeing

up many opportunities. They believe that their “talking product” concept will fit with the introduction of the metaverse for a truly experiential marketing method.

Whether for books and films or for e-commerce products, AI can scan and learn from existing databases to generate true-to-life interactivity with customers.

Understanding of frameworks and regulations

Allan is aware of GDPR overall because of his industry background, however he's still in the early stages of learning the nuances around Article 22. He readily admits that he only became conscious of nationwide efforts regarding ethical AI practices and proposed regulations quite recently, thanks to GM AI Foundry workshops. Specific ethical practices have not been the top priority during prototype development, but Allan says that he and the team intend to build explicit ethical approaches into their design and development as they progress.

Barriers to AI adoption and trust

For Allan, one of the biggest barriers to the adoption of ethical AI practices in his business is the need to consider ethics right from the conceptual stage of a project. At its root, ethical AI requires reasoning and deliberation from the very outset to ensure the AI – and its developers – behave in ethical ways; but to even initiate these discussions, you need to systematise external engagement, checks and balances, so ethical approaches require extra effort and time investments.

“If you're going to program in explainability, it's much easier to do it from the ground up than retrofit it later,” Allan comments. In turn, this means a longer time to market and the need for more funding.

Cosmient has a second challenge because it uses the third-party GPT3; the company has no control of how GPT3 works, so can't provide any explanation of how it makes decisions. This problem is true for most SMEs in the AI sector – very few decide to build their own AI from the ground up. The use of such third-party tools means that currently, Cosmient can only explain around 25% of the decisions that its technology makes, although it expects that to increase as it builds out the remainder of its proprietary technology.

Allan highlights that ethical AI as a domain is still in its infancy and constantly in flux which hinders him gaining expertise in ethical AI practices. His concerns range from unintentionally introducing ethical approaches that result in unhelpful or irrelevant outcomes to unknowingly missing out on huge benefits. He'd like to overcome these challenges, but he says the support he needs to acquire expertise to embed good AI ethics into the business is limited.

Future impact of AI regulation

Having looked at what is being implemented in China and the US, Allan observes varying impacts of AI regulation. On the one hand, by focusing on broad ethical principles, it is easier to take action and comply, but there is also greater risk of misinterpretation that could still pose serious risk. On the other hand, tightly specified regulation may capture fewer use cases, narrowing the scope of AI-based products and services to which regulations can be applied.

Allan also worries that AI regulation could stifle innovation and put the UK behind other countries. He suggests that a bottom-up approach, with good representation from SMEs, would help to establish clear and easy-to-implement rules and guidance for organisations of all sizes.

AT A GLANCE

Company: Digital Oracles

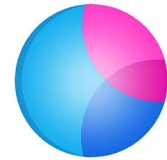
Profile: Tokenising and monetising the growth process of hyper-performing businesses, supporting them through their path to success

Location: Greater Manchester

Ethical AI challenge: Vendor transparency and the democratisation of decision-making

Ethical AI themes: Data | Trust

Website: www.digitaloracles.com/



Digital Oracles

Sara Simeone
CEO and
Co-Founder



Best Practice

While many founders are what Sara refers to as 'technical founders' (subject matter experts), others come from a more commercial background. And she places herself in the latter category. She therefore knows she needs to ensure her key stakeholders can support her organisations' relationship with data and ethical AI.

While her knowledge of AI and ethical frameworks is growing, Sara has surrounded herself with a team that is well-placed to be ahead of the curve. Sara has created a board of advisors, including a legal commercial lawyer specialising in new tech, and a specialist in blockchain. These people keep her always thinking ahead.

Sara makes sure she has a clear and transparent relationship and communication channel with the CTO, that everyone talks a common language, and isn't left behind by jargon.

For more information, please contact
ai.ethics@mmu.ac.uk

Digital Oracles is a platform that tokenises and monetises the growth process of hyper-performing businesses, supporting them to meet their business goals and reach success.

Founded by CEO Sara Simeone, Digital Oracles aims to transform businesses' growth progress and achievements into liquid and tradable assets, through non-fungible tokens (NFTs), a unit of data stored on a digital ledger that can be sold and traded.

In a career spanning 20 years, encompassing research on blockchain and machine learning, Sara discovered the biggest problem for start-ups was access to funding. Many businesses didn't have connections or the ability to find or attract investors.

Digital Oracles gives early-stage investors a platform to identify and select the most promising companies in their pipeline, by monitoring, evaluating and rewarding their performance over time.

Use of data

Itself a start-up, Digital Oracles is acquiring data from users of its platform as it grows – and it's important the business understands the taxonomy of that data.

Data collection starts at user registration which helps to identify, segment and differentiate businesses. Digital Oracles then looks into the tech stack, gaining insight from the start-up's acquisition and retention of customers. Minimal, anonymised information is stored on the blockchain, a decision that balances privacy and costs.

Relationship with AI

There are over 352 million entrepreneurs across the globe who are working relentlessly to grow their businesses.

In order to develop their products and services they often seek external funding; however, this is often a lengthy and inefficient process, especially for early stage businesses, first-time founders and overlooked founders.

Small VC firms with limited teams and micro-to-small funds often reach out to their peer network in order to source the best deal flow, but this process is also marred with inefficiencies and bias.

Digital Oracles collaborated with the GM AI Foundry and through this work then received funding from blockchain investors Brink and Animica Brands.

Digital Oracles developed an algorithm to create a dynamic and trustworthy leaderboard of companies within its ecosystem. The algorithm uses metrics on how each business uses the platform to rank their performance and facilitate the presentation of company information to potential users, investors, members and much more.

Understanding of frameworks and regulations

Sara admits that if it wasn't for the GM AI Foundry her awareness of 'ethical AI' would have been very limited. It gave her insights that weren't readily available and she wants to know more.

"I am a CEO," she says, "and that means a 'chief everything officer'. I also know that as soon as we begin to trade with big volumes we will be a target for cyber attacks. So my first priority is to understand this key risk, and then address the legal and regulatory aspect."

Barriers to AI adoption and trust

Sara says increasing her knowledge around 'ethical AI' has empowered her to challenge AI vendors on this subject. "There are a number of AI vendors in the marketplace, but none talk about ethical AI. There is still too much talk about black boxes. I believe we need to start from a position of transparency in the algorithms, showing clients how they work. The interpretation of data is so subjective.

"We can all look at data but come to different conclusions. I'm a really strong supporter of academia coming into the picture and helping provide the guidance to allow ethical AI to be adopted."

Future impact of AI regulation

There's a view that while you cannot regulate a technology, you can regulate the process around how the technology is used.

And Sara welcomes a streamlined approach.

"Vendors of AI, tools and software should be the first to worry and make sure they comply," she says. "It would be great if there was certification available for some of these businesses. It would provide increased transparency from a buyers' point of view and would tell me if I can trust an organisation. As a buyer of the service, I'd welcome this.

"If we decide to hire a data scientist and create our own algorithms in house, I'd be more happy to have a set of rules around ethical AI and I would champion that as a unique selling point."

Sara also suggests that the development of any new regulations should be democratised. "If we always have the usual suspects in key decision-making rooms, then we're never going to have consensus on this. We should democratise the whole process of making decisions and include stakeholders in the conversation. More or less like peer review in the academic world."

AT A GLANCE

Company: HACE: Data Changing Child Labour

Profile: A data start-up, creating data-driven insights to address the root causes of child labour

Location: Greater Manchester

Ethical AI challenge: Ensuring positive impact through AI when tackling child labour in global supply chains

Ethical AI themes: Diversity | Inclusion | Data

Website: www.thisishace.com



Eleanor Harry
CEO



Best Practice

HACE is vigilant with its data and is aware of the impacts – intended or unintended – its work may have on a community. The focus is always to think through which insights will help to maximise the positive impact of any intervention, whether led by a public authority or private business. HACE social scientists work hand-in-hand with data scientists to ensure all projects have subject matter ‘domain’ experts involved in the input process, supporting data identification, data cleaning and key decisions.

This collaborative approach is essential to build trust in the data and modelling processes. That means not blindly choosing one data source because it may make a model look good or eliminating or cleaning data without good reason. Data scientists, analysts, and statisticians can’t exclude data points based on what they like.

For more information, please contact
ai.ethics@mmu.ac.uk

There are estimated to be 160 million children in child labour, globally. That’s two and half times the population size of the UK and to some, it’s an underestimation. Eradication of child labour is one of the UN’s Sustainable Development Goals with a target to end all forms of child labour by 2025.

HACE has put itself at the heart of helping tackle this large and complex area. A data start-up, it is generating data-driven analysis on factors affecting child labour across the world. HACE builds ‘community data sets’ that provide a holistic view of how people live in supply chain communities so companies can have greater visibility and in turn, optimise their existing environmental, social and governance (ESG) and community spend.

Established by CEO Eleanor Harry in 2020, the business uses a unique and innovative mix of data science, social science, and AI to provide analyses for both public and private sector clients sourcing a variety of raw agricultural commodities.

Use of data

HACE uses data and analyses to drive sustainable and impactful change for child labourers internationally. Thanks to HACE’s insights, decision-makers can implement targeted policies and effectively allocate crucial resources to prevent the negative impact of child labour on children, families, national economies and companies.

Due to the vast but intangible value of brand reputation, many private sector organisations want to ensure that their reputation is intact. Discovering unethical practices within their supply chain could cause huge economic damage, so businesses are just as keen to act as governments and NGOs.

Relationship with AI

The old adage goes, *if you can’t see it, you can’t measure it*. For clients with a large portion of ESG spend, insight is key: robust data science reveals how child labour is impacting their supplier communities. This intelligence ensures they’re spending on the right resources for affected communities.

HACE draws on an extensive range of existing data relating to a given community, creating a holistic view on how people live. Its data is taken from public, open sources, from multiple datasets, spanning multiple years.

The data tends to reside in non-uniform assets, ranging from hand-written documents to JPEG to PDF, and comprises many different languages. It must be aggregated, cleaned, and standardised, with a strong lens on quality assurance. HACE has embarked on an AI project with the University of Salford to build a Data Extraction and Aggregation Tool which uses a unique combination of state-of-the-art technologies that balance intelligent automation with human judgement, to speed up data extraction and processing.

The next stage in HACE's AI journey will be to create a visualisation platform for data, taking satellite and geospatial data and using machine learning and data science to create a more robust picture of communities. They are also building a Child Labour Index which will use AI, for example in sentiment analysis.

Understanding of frameworks and regulations

Eleanor Harry keeps close to existing legislation around data protection. While the company doesn't work with sensitive data on supply chains – all its data is already public and open – they're aware that GDPR comes into the work they do with clients.

She's also aware of ICO guidance on AI and the EU framing of AI ethics and future regulation – although how all this is applied to her business is still rather fuzzy.

Her awareness of the AI ethics landscape has been helped by regional initiatives such as the GM AI Foundry, in which the business took part.

Barriers to AI adoption and trust

The HACE team cites two major factors as barriers to ethical practice.

The first is data, whether that's trust in data, access to data or those handling the data. Eleanor points to an industry dominated by tech giants, in which it is difficult to source data freely and for a greater good. SMEs cannot compete with the big salaries needed to attract data and AI experts to smaller organisations where they might actually have a much bigger impact.

Second, Eleanor highlights the challenge of promoting diversity in the development of AI. It goes beyond gender and ethnicity, it's about representation of many viewpoints, opinions, and roles, she argues. It's about data scientists, their clients and the communities who may be impacted by the AI systems all being equally gripped with the input and development process as much as the output.

Eleanor questions whether most AI developers have sufficient and diverse representation when building their algorithms and models. Also crucial is whether there is diversity across data science teams. Her worry? *If you've only got one viewpoint coming in, then you'll only have one viewpoint going out.*

Eleanor believes that any future regulatory framework for AI must include a diversity element – and it needs “teeth” to be enforced.

Future impact of AI regulation

Eleanor believes SMEs will struggle with impending regulation due to three factors: talent, required funds, and lack of representation in current legislation.

She says: “We don't have power, and by that, I mean the monetary power or the legal power. Multinationals with data officers will be able to absorb time and resource through dedicated heads, but it's another overhead for small businesses.”

She adds: “Huge corporations hold massive amounts of data that sit, unused, in data lakes. There's no kind of democracy whatsoever about data, even though it's not a competition.

“That's why we explore alternative data sources. Existing technology is there and can be used in so many different ways, but it rounds back to money and incentive. Alongside this is the crippling cost of employing a CTO or data scientist if you're an SME.”

AT A GLANCE

Company: Hilltop Digital Labs (HD Labs)

Profile: Healthcare-focused AI company focusing on population health and personalising the citizen experience of accessing public services

Location: Greater Manchester

Ethical AI challenge: Explainable AI | Digital exclusion | Interoperability

Ethical AI themes: Open Data Models | Automation | Data orchestration

Website: www.hd-labs.co.uk

Paul Davies
CEO



Best Practice

HD Labs has set up its own ethics framework based on an assessment for trustworthy AI involving an expert working group. The framework has integrated evidence-based techniques such as TrustScapes to explore concerns and mitigate risks to promote true co-production. The process involves roundtable meetings that include app developers, data processors and clinicians. Through dialogue, the group develops a consensus model of what a trusted system landscape would look like, taking into consideration everything from appropriate statistical modelling to bias monitoring and the involvement of impacted communities. HD Labs endeavours to maintain conversations with diverse stakeholders, including those who share the same core goals, but crucially, those who may have diverging views and approaches.

HD Labs is firmly wedded to a holistic and ethics-centric approach, including its responsible development and deployment of AI. Its ambitions and actions consistently demonstrate best practice in compassion and respect, an approach that is firmly embedded in the company's five-year business plan and company values.

For more information, please contact
ai.ethics@mmu.ac.uk



HD Labs

HD Labs' mission is to understand how digital and data-driven technologies can be used to improve people's lives, with a specific focus on healthcare and access to public services.

The team at HD Labs has extensive experience of digital technologies and population health. They have witnessed the stumbling blocks and contradictions of a digitised NHS, such as the lack of personalisation that can arise from automation and standardisation of decision-making.

HD Labs believes that understanding the full context of decisions in the public sector is key to meaningful quality service improvement, identifying those aspects of peoples lives that really matter when improving their experience of services. This in turn can drive a reduction in waste and unwarranted variation in care services and go beyond the so-called 'triple aim' of healthcare, avoiding clinical burnout and improving health equity.

Use of data

HD Labs uses mostly structured data but is branching out to integrate new sources that include natural language datasets and digital conversations. It is developing multi-modal models that reflect the full context of the patient; this includes individuals' preferences and motivations, their activation and readiness to change, and identifying what really matters to them.

HD Labs uses data to build open-source systems that increase trust and transparency. Its decision to make all its data models and associated intellectual property to be truly open and available to all is brave.

There are many benefits to such openness, such as building strong and trusted partnerships with clients. This approach makes it easier to self-test and monitor the performance outcomes from its systems as well as encourage scrutiny and testing from external third parties. For HD Labs, transparency is the essence of responsible research and innovation.

Benefits of AI

With its AI, HD Labs provides new insights from its data that add context to automate and augment decision-making. For example, signals or patterns can be identified that indicate how a patient is feeling about the treatment or care they are receiving. By predicting likely outcomes from decisions, the HD Labs technology helps to optimise decisions and to reduce wasted time and resource within the healthcare system.

The NHS is focused on integrated care across traditional boundaries of delivery such as hospitalisation for acute conditions, as well as community, primary and social care. Patient centricity is core to this approach and HD Labs helps health and social care providers to run more efficiently and effectively around each individual patient's needs and nuanced preferences.

A recent project involved process discovery for the North-West Ambulance Service (NWAS), analysing end-to-end business processes from stakeholder subject matter experts' perspectives, and scenario modelling. This analysis helped NWAS identify additional data that adds value to improve patient care, and in some cases save lives. It also highlighted areas of opportunity, for example development of interoperability in its urgent and emergency care (UEC) service.

Understanding of frameworks and regulations

HD Labs is aware of GDPR Article 22, although it does not control its datasets which are supplied by public service providers. The company's primary concern is to ensure that regulation is implemented successfully and consistently across the public sector. Nevertheless, the company is bringing many clients up to speed on the ethics of data-driven technologies and their role in automation, and helping them to prepare for the possible implications of future regulation in this space.

Paul Davies, CEO of HD Labs, argues that AI regulation is too high level to drive much practical application. "If somebody wanted to see the implications of an automated decision, and how that decision was made, what would the explanation look like?" he asks.

Other key frameworks Paul cites as key to driving good practice are ISO 27001, Cyber Essentials and Cyber Essentials Plus.

Barriers to AI adoption and trust

Paul cites lack of trust as one the largest barriers to AI adoption. Patients and clinicians alike point to their concerns around autonomy, risks of harm, the lack of responsibility for automated decisions and the tricky balance between automation and human judgement informed by AI systems. Adoption of ethical practices as standard would help to alleviate some of these concerns.

But even with the best ethics in place, practice can fall short over data. Access to commercial data is incredibly hard to acquire, but without real patient data, any model may lack the quality of relevance and accuracy required by the healthcare sector.

Future impact of AI regulation

HD Labs is already well aware of the need for ethical AI, but it argues that existing ethics frameworks are too high level. They provide little in terms of implementable actions. Instead, the company has published its own Code of Practice. As CEO, Paul is aware that some regulations could come in and "blindsided" them, but he hopes their plan for an Ethics Advisory Board will help minimise this impact should it arise. He hopes his decision to build open models will also mitigate business risks by being open to scrutiny and being held to account.

The key element for regulatory development is that governments and authorities adopt a bottom-up, transparent and pragmatic approach, he says.

AT A GLANCE



Company: The Insights Family

Profile: A global market research business focused on children, parents and families

Location: Greater Manchester

Ethical AI challenge: Absence of ethical AI may stifle innovation

Ethical AI themes: Data | Speed and accuracy of insights

Website: www.theinsightsfamily.com/



Richard Wainwright
Principal Data Scientist



Dan Lucas
Chief Technology Officer

Best Practice

As Richard highlights, The Insights Family is transparent about how its data is used within its modelling.

His team shares in-depth information sheets with the company's commercial and research teams. This prepares each team to answer accurately any questions about the data or AI they are asked. An FAQ is available with answers on every aspect of the business or particular tools.

"We try and be as transparent as possible without giving everything away," says Dan, "that's an extension of our research methodology. We have a research methodology around how we gather samples. As we get more sophisticated as a business, we add chapters to that playbook."

Richard explains "Our aim is to make inference and predications. But trust is really important. People want to know what goes into our models. People want to know where the information comes from. We're not dealing with data scientists, we're often dealing with people in other disciplines, so we need to relate to them."

For more information, please contact ai.ethics@mmu.ac.uk

Founded in 2017, The Insights Family has expanded its reach to 22 countries and is recognised as a leader in child, parent and family market research and intelligence.

With changes in legislation aimed at providing greater privacy and data protection for these target groups, marketers were left without access to real-time, independent consumer data on which to make informed business decisions.

Today The Insights Family provides the analytical tools that marketers and decision-makers need to give kids, parents and families a voice. The company updates its insights portal with more than 50 million data points every month. Its two core products are Kids Insights™ and Parents Insights™; they help clients analyse, understand, and predict the purchase preferences, trends and behaviours of children, parents and families across the globe.

Use of data

Chief Technology Officer Dan Lucas says that someone completes one of the company's online surveys roughly every 55 seconds. The frequency and wide-ranging location-based interaction with its research means its insights are up-to-date, relevant and consistent.

Through its proprietary software – access to which is sold on a subscription basis – companies are able to analyse and interrogate anonymous data, to understand attitudes, behaviours and consumption patterns of kids, parents and families.

"Our surveys are live 365 days a year," says Dan. "That means responses are constantly being added into the database. Most market intelligence output can be out-of-date before they're ever fully established and acted on. We wanted to make insights into this area more relevant, consistent, and we can deliver them faster."

As its surveys are completely anonymous, The Insights Family also helps companies confidently navigate the data privacy laws around advertising and talking to children.

Through a robust methodology, The Insights Family ensures the data being captured is accurate, compliant, and consistent. Working in partnership with its client base, The Insights Family aims to be the go-to research partner for kids, parents and families, ensuring parents and children are given a voice through their insights."

The Insights Family also carries out more tailored research, for example around brand repositioning or launches, using its subject matter expertise to help shape content and campaigns.

Relationship with AI

As well as using its proprietary data, the company also uses data science and machine learning algorithms to reveal global, regional and local trends in the data.

Principal Data Scientist Richard Wainwright explains how the team has worked with academia to build what it calls “actionable personas”, utilising data that has been categorised and clustered using novel algorithms.

“We want to use AI to better understand the kids’ landscape and get insights on who they are on a psychological level. What motivates them based on time, interest or exposure to certain advertising – for example going to the cinema? We want to see and understand the patterns behind their decision-making process.”

Understanding of frameworks and regulations

The team keeps up-to-date with regulations and is familiar with GDPR Article 22 and the rules around automated decision-making and machine learning. It adheres to data protection principles to collect data compliantly and ethically, however is keen to know more about what good practice looks like.

Richard says: “I’m always looking at ways in which we can be more ethical in the way we work. I think we’re transparent about how we collect our data and how it isn’t identifiable. But I’m always keen to know more.”

Barriers to AI adoption and trust

The team says that the AI sector lacks good role models for ethical AI. There is also a general skills gap in this space. Technology often moves quicker than regulation, and that makes reference points of best practice hard to come by.

In addition, they say it is important to have people in the sector who can talk confidently on the topic, and help dispel the mistrust that often exists. They point to high profile media coverage of AI having a negative impact, such as the A-Levels predicted grades algorithm during the pandemic, which undermined confidence in the technology.

Future impact of AI regulation

Dan and Richard both hope future regulation isn’t dictated by bigger corporations that have already developed and implemented their own ethical frameworks. The Insights Family wants a seat at the table to ensure the entire SME AI community has representation at all stages of the development process for new regulations or standards. It is critical that smaller businesses aren’t negatively impacted by future rules.

Richard says: “I read about AI ethics online. Google have got their own frameworks, Amazon have got their own way of working, as have Microsoft. But it feels like everyone needs to have a say so it’s not just the established brands setting the levels.”

He also wonders what future regulation may look like, as The Insights Family may already be complying with all the requirements that policy-makers may come to expect. Conversely, difficult regulatory hurdles may draw greater resource and attention to new areas, and substantial investment in auditing and compliance monitoring. “This could fundamentally slow down business progress and stifle innovation,” says Dan.

AT A GLANCE

Company: Nairmuri

Profile: An early stage data science company

Location: Greater Manchester

Ethical AI challenge: Demographic bias |
Lack of framework visibility | Data limitations

Ethical AI themes: Data | Machine Learning |
Evidence-based approaches

Website: <https://naimuri.com/>

naimuri

A QINETIQ company

James Ramsden
Head of Data Science
Capability



Best Practice

James argues that best practice in ethical AI stems from sound data science and machine learning engineering. He says that solid data science helps to ensure repeatability, automation (with quality gates and dashboarding), and good visualisation of regression, degradation, and bias.

James says that automation adds extra assurance because human judgement is inconsistent. However, the company never removes the human from the loop, so final decisions are always made by humans. Nairmuri helps to augment the decision-making process, but leaves space for alternative approaches too.

Nairmuri conducts security, demographic and data validation tests as standard. They design machine learning solutions to allow retraining from the same sample data to mitigate overfitting, and resampling at regular intervals to mitigate data drift.

Lastly, explainability is a necessary ethical consideration. Probing the neural networks and assessing inferences allows James and his team to understand the processes going on within the AI system and how it provides particular answers. James says that explainable AI is a prerequisite to any assurance to customers on the reliability of what a system delivers.

For more information, please contact
ai.ethics@mmu.ac.uk

Launched with a large government contract seven years ago, Nairmuri is now part of a much larger organisation having been acquired by QinetiQ two years ago.

While the employee numbers have changed, its core clients and contracts have remained within the UK Government sector.

Today, the company works primarily on data science projects or software delivery projects with data science as a major component. The company has expertise in complex data tasks such as semantic searches and synonym matching.

James Ramsden, Chief Data Science Officer and Head of Data Science Capability, is leading the creation of a development capability roadmap for the next few years. He says that the scientific method and ethics are at its heart.

Use of data

Typically, Nairmuri deals with either representative test data used in a test environment, or real data. However, as clearance for sharing and use of real data is difficult for the sectors in which they work, Nairmuri is increasingly working with synthetic data.

Synthesising data often requires several rounds of refinement because there is no validation model available built from existing data. Nairmuri is therefore developing pioneering expertise and capability in model fitting which helps them to translate models to different environments, including the customer's environment.

Nairmuri also uses obfuscated data. This is real data in which the meaning of sensitive information is changed, making it useless in the event of a data breach.

Understanding of frameworks and regulations

When it comes to GDPR, James and the rest of the Nairmuri team receive a double dose of formal training: once from the business, then supplemented by project-specific training provided by the client. But the team is now becoming aware of other frameworks and standards for ethical AI; they are working to identify which approaches are relevant and applicable to their work.

Barriers to AI adoption and trust

James remarks that the scale, diversity and complexity of implementing ethical practices can make the task overwhelming. He argues that clear, practical guidance on implementation would benefit organisations like Naimuri, not least to define who should be responsible within the business to develop, implement and monitor outcomes from an explicitly ethical stance.

Most organisations in Naimuri's sector proactively want to use AI and realise its benefits. However, some customers struggle; they discover that building and implementing the technology in a secure environment without a dedicated team and big budget is a serious challenge. In these circumstances, projects often fall behind schedule.

While James doesn't cite this as a firm barrier to adoption, he does observe inherent paranoia around the risks of demographic bias within AI due to the data held by Naimuri's customers. They are conscious that the data is already skewed by human bias and they worry about how this may affect outputs from the AI system. Increased awareness of risks related to bias have made customers more cautious than previously.

Future impact of AI regulation

Given that any future regulation is still in its infancy, James says any impact on Naimuri is hard to predict at this stage. But he hopes that the company's current attention to bias monitoring and explainability will put it in a good position should new regulation be enforced.

AT A GLANCE

Company: Synectics Solutions

Profile: Fraud prevention through a syndicated database

Location: Staffordshire

Ethical AI challenge: Balanced Representation of AI

Ethical AI themes: Data | Client use of data

Website: <https://www.synectics-solutions.com/>



Luke Abberley
Senior Data
Scientist



Robert Bevington
Precision Product
& Data Science
Manager

Best Practice

Synectics provides its clients with full information about the features of all its data models and the rationale behind the modelling process. These explanations allow clients to understand how the algorithms work and provide context behind analytical results. In addition, when clients conduct inquiries using the Precision tool, the results are accompanied with a list of the top six influencing factors behind the results.

Synectics frequently recalibrates its models to ensure they reflect the latest trends and stay up-to-date with the latest data. The calibration process also includes some human-in-the-loop sense checking, which sees experts probe a sample of high-risk cases.

For more information, please contact
ai.ethics@mmu.ac.uk

Synectics Solutions designs, integrates, controls, and manages advanced software systems for environments where security is operationally critical.

The company started life as a database and software development company working within the National Fraud Initiative. In 2003 it launched SIRA, a syndicated intelligence solution for risk avoidance, leveraging 170 of its financial services clients' data to better protect clients and consumers.

In 2016, Synectics launched its predictive software Precision, which is utilised by more than 20 clients who use its AI-based predictive models to power advanced fraud analytics.

Use of data

Synectics holds the UK's largest syndicated fraud database, which allows the company to analyse financial application fraud trends across a whole spectrum of organisations. Its data-driven insights and predictions help companies to protect their clients within a sector from being defrauded and also fast-track good customers.

AI-based modelling makes it possible to incorporate diverse data sources into the analysis. In the words of Rob Bevington, Precision Product & Data Science Manager, when it comes to AI robustness "there's strength in the pack".

Synectics' clients must agree to share their data with the rest of the National SIRA community; they must also follow strict auditing guidelines to ensure the system works effectively for everyone; for example, an inquiry into fraud must provide sufficient burden of proof to be able to stand up in court and comply with internal policies.

As an anti-fraud organisation, Synectics uses actual fraud data to ensure models perform well in the real-world. The company analyses data on a granular level, and takes care to check continuously that its datasets are truly representative of customer groups or populations. Models are checked to ensure performance is not biased against key variables.

Relationship with AI

The AI-based Precision system is trained for fraud prevention using client data that has been annotated as fraudulent. Once trained and validated, the system can process previously unseen data and detect indicators of fraudulent activity based on similar characteristics. The advanced algorithm helps companies to be proactive in fraud prevention based on AI predictions.

The AI can also assist clients in other use cases, such as the process of claims reserving, predicting the propensity of renewals in car financing or cash flow forecasting for utility companies. For example, in the insurance sector, when a customer makes a claim, the AI can predict the likelihood that the claim will jump to a higher value within a given period of time.

Understanding of frameworks and regulations

Synectics is one of just a few companies with SAFO status (Specified Anti-fraud Organisation) in the UK, which is defined under the Serious Crime Act of 2007.

Under GDPR, Synectics acts as a data processor for Precision on behalf of its clients. Clients have full control over the data items that are used in the final production models.

Luke Abberley, Senior Data Scientist, says the team is well aware of GDPR Article 22, but the Precision system does not trigger any automated decisions or actions. Rather, it provides analytics and novel insights, thus enabling clients to make more informed choices about where to prioritise fraud prevention or forensic investigations.

“Precision does not say whether a transaction is high risk or fraudulent,” he explains. “We just indicate which items

have a degree of similarity with cases that have been fraudulent in the past. Our clients have their own expert internal investigators that make the final decisions based on the information.”

Barriers to AI adoption and trust

Luke believes that AI is the victim of bad press. He says that negative stories prevail in the news and popular culture while positive stories about AI saving lives and preventing crime are ignored. This reporting bias poses a challenge to adoption due to widespread mistrust.

One reason for this wariness is the lack of clear visualisation and explanations of how AI systems work. Straightforward explanations would make it easier for people to understand how and why their data is being used, and the rationale behind AI models.

Luke also suggests that limited access to private sector data is effectively a barrier to more ethical AI. When it comes to building new models – for example, a vulnerability model looking at those more likely to be victims of fraud – the legal constraints on accessing and using data from private sources make it prohibitively difficult to gain the necessary permissions. In these cases, current data regulations actually hinder accurate and fair modelling, hence people are worse off because data security regulation prevents the development of full and adequate modelling.

Future impact of AI regulation

Synectics believes that due to the nature of their work in the highly regulated financial sector, it is essential to stay “ahead of the game” when it comes to regulation.

The business continues to keep up to date with regulation and ethical AI in order for it to stay front of mind. However, Rob does worry that if regulation goes too far and common sense is lost, consumers will be worse off.

Luke argues that existing data regulations need more clarity on the use and purpose of data; future regulation therefore has the opportunity to offer more concise and clear reasoning in this domain. Although data privacy and security concerns make it difficult to leave models fully open to outside scrutiny, he agrees there is room for robust monitoring to ensure compliance and accountability.

Thank you

Our SME partners involved in developing these case studies.

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HD Labs

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FIND OUT MORE

For more information about this booklet and our work in ethical AI at Manchester Metropolitan University, please email ai.ethics@mmu.ac.uk

Find out more about our partners:

Greater Manchester AI Foundry: <https://gmaifoundry.ac.uk>

Responsible Tech Collective: <https://medium.com/responsible-tech-collective>

Policy Connect: <https://www.policyconnect.org.uk>

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