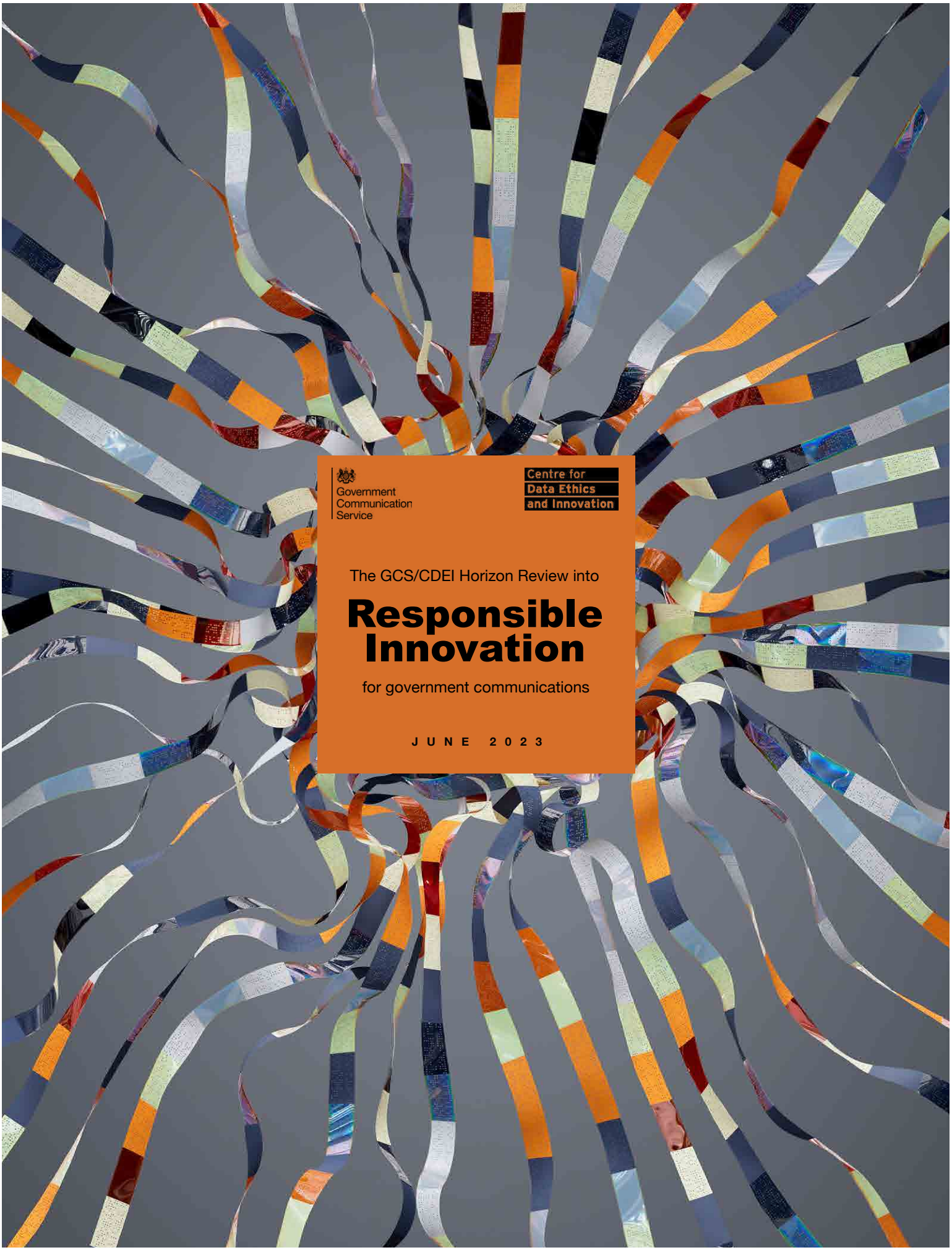


Government Communication Service

Centre for Data Ethics and Innovation

The GCS/CDEI Horizon Review into

Responsible Innovation

for government communications

JUNE 2023

“We are getting ready for the future”

Communication is changing fast. The landscape we operate in is volatile, with a high level of technological innovation, new players and fragile public trust. Every aspect of our work is subject to the transformative power of technology and this is creating new opportunities and expectations.

The central challenge for GCS is how to make sure that we are ready for the future and harness these changes for the public good. To continue to deliver for ministers and the public, we need to deliver more efficiently while driving a revolution in our data, insight, and digital communications skills. We need to be more confident in using data to improve outcomes and in equipping ourselves to listen to audiences and evaluate our impact.

The effective and responsible use of new technology and data, including generative AI, can help us to rapidly create more quality content, delivering more relevant, interesting and engaging communications which are responsive to citizens’ needs.

Our ability to responsibly use these technologies and data for the public good will be guided through the choices we make on their application. This is why we have partnered with the Centre for Data Ethics and Innovation to produce this report and inform our approach.

The implications of these changes are vast, and will affect all of our careers. It will create new jobs, change existing jobs and open up opportunities to learn new skills. I encourage all government communicators to read this report, absorb its findings, consider carefully what these changes mean for our roles, and how these can inform your Personal Development Plan (PDP).

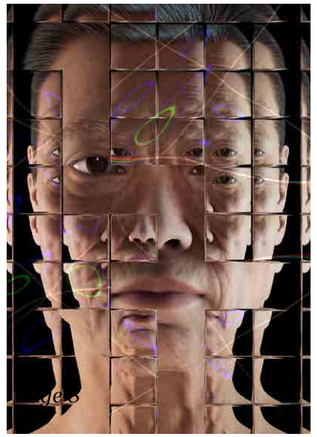
I also hope this report provides you with a clearer understanding of the emerging technologies shaping our environment, and the continued importance of creativity, curiosity, and the highest ethical standards throughout GCS, to deliver world-class communications, for the public good.

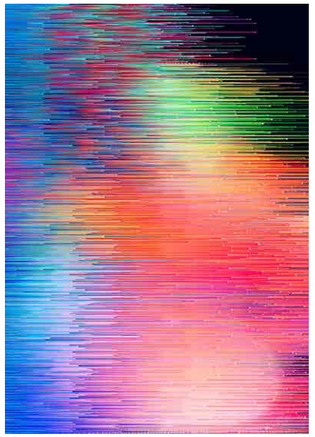
SIMON BAUGH

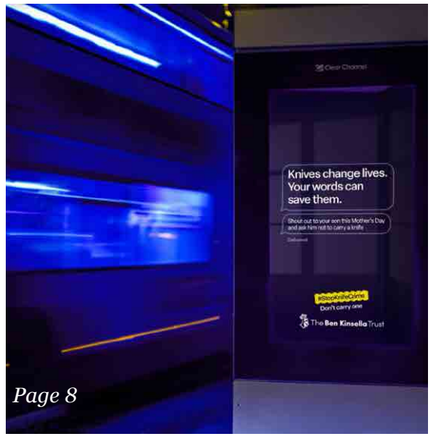
Chief Executive, Government Communication

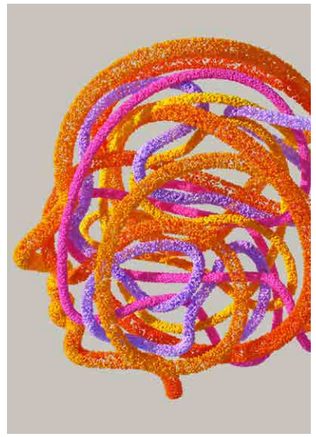
These images of Simon Baugh (used with his permission) took 30 minutes to create using Photoleap AI by Lightricks.

CONTENTS









Disclaimer

This report is not official policy of His Majesty's Government, and the views and opinions expressed in this report are solely those of the authors (the Government Communication Service at the Cabinet Office, and the Centre for Data Ethics and Innovation) and are intended to be used as an informative reference only.

01

Introduction

The global events of the last few years have radically accelerated the pace of transformation and propelled innovation in technology and the use of data, all while raising new ethical challenges around their application.

"The first step in this journey is to understand the changes"

In 2018, GCS published its '5 Trends in Leading Edge Communications' which highlighted the key themes which at that time were transforming marketing and communications. The pace of change has affected each of these areas.

For example, the continued rise in computing power globally, and the cost efficiencies this has led to, mean that the ability to generate convincing deep fakes using machine learning is now readily accessible to non-state actors. This has the potential to lead to a proliferation of misinformation, disinformation, and consumer fraud.

Furthermore, the COVID-19 pandemic fundamentally changed the way in which we regularly communicate with family and friends, and collaborate with colleagues. With remote working becoming mainstream, this has had a transformative impact on the technologies we use everyday, fuelled by significant investment from the technology industry.

Even the fundamental approaches and attitudes towards how we control our privacy online have shifted, driven by increased global regulation. This is leading to increasing interest in decentralised platforms harnessing novel approaches, compared to the traditional models of large social media and search companies.

These handful of examples illustrate the transition we are all living through, and which is creating tensions between new capabilities: like producing hyper-personalised synthetic communications in real time, the ethical challenges these bring, and what these mean for marketing and communication professionals.

As government communicators, our purpose is straightforward: deliver world-class communications that support government priorities, enable the effective and efficient operation of public services, and improve people's lives.

Up to now our ambition has been not merely to keep up with the pace of change, but to actively lead the way. However, the forces driving rapid change in technology and data use are increasingly global organisations with resources greater than those of a communications function. This is why the GCS Strategy 2022-25 placed ethical innovation at its heart, as this is an area in which GCS can lead the way.

Today, GCS is developing its Innovation & Data Strategy, to ensure government communications takes a systematic approach to encourage, identify, test and scale ethical innovation and data use for the public good.

An important first step in this journey is understanding the changes the marketing and communications industry as a whole is facing. This will allow us to identify what new opportunities this is creating for the delivery of impactful government communications, and understand the inherent ethical considerations they pose, so we can develop tools and guidance to support our members across government.

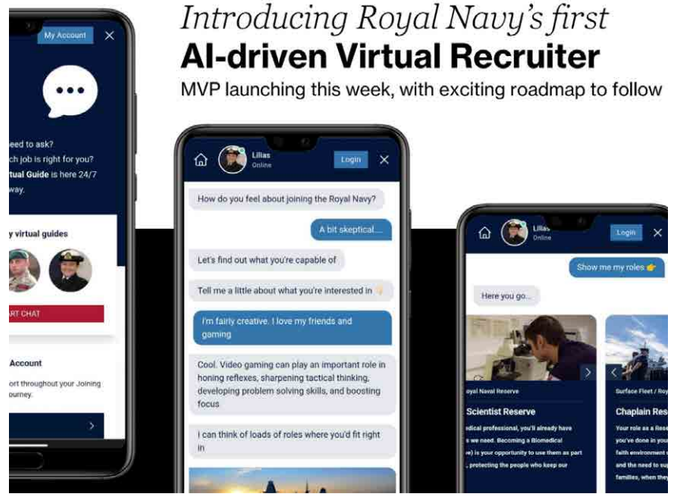
To achieve this, GCS partnered with the CDEI, and in January 2023 we jointly asked thought leaders from across industry, academia, investment, data ethics, and regulation, to contribute their views on these issues through a questionnaire.

This report summarises our key findings from this engagement (comprising responses from 17 separate organisations and teams, detailed in the appendix) and sets out recommendations for government communications to harness rapid technological changes for the public good, deliver a more efficient and effective GCS, and strengthen public trust in government communications.

It also highlights the exciting opportunities ahead for us to build new capabilities, work more creatively and impactfully with our agency partners, and engage increasingly effectively with the public over the next 2-5 years.

ROYAL NAVY VIRTUAL RECRUITER

Harnessing Natural Language Processing (NLP) and intent classification technology to provide potential recruits with personalised conversations during their recruitment journey.



OFFICE FOR HEALTH IMPROVEMENT AND DISPARITIES

Every Mind Matters campaign harnessed the power of Machine Learning (ML) and AI technology to identify specific cognitive traits from public social media posts.

Virtual Human by Alan Warburton
This image shows a portrait of a simulated woman. The scene is refracted in different ways by a fragmented glass grid. This grid is a visual metaphor for the way that artificial intelligence (AI) and machine learning technologies can be used to simulate and reflect the human experience in unexpected ways.

The purpose of the Horizon Review

This report summarises research undertaken by the Government Communication Service (GCS) and Centre for Data Ethics and Innovation (CDEI) into the key emerging technologies and applications of data for the marketing and communications industry.

It sets out recommendations for government communications to consider in our journey to find new ways to solve problems and improve people's lives, by seizing the full potential of data and technology through responsible innovation. In each section, we have identified the impact these technologies or approaches will have on the marketing and communications industry as a whole, as well as the specific opportunities and ethical challenges that these present for the delivery of impactful government communications.

Through the responses to our industry questionnaire, and review of other guidance and academic research, we have identified four categories of emergent technology that will have the biggest impact on our work, and the professions within our industry:

- **Generative Artificial Intelligence (AI)**
- **Growth of decentralised and federalised platforms**
- **Adoption of immersive technologies**
- **The growth in ambient data**

We also identified some of the technical and data ethics implications of these emerging technologies for the practice of government communications. Generative AI poses questions about how far we should automate elements of our work. Increased decentralisation and personalisation presents challenges for how we speak with a trusted voice and counter misinformation. Finally, increased use of linked datasets places higher demands on us in terms of security, transparency, and managing privacy.

In the conclusions section we have also set out strategic questions that have arisen through the course of this research which GCS can immediately begin considering through the GCS Innovation and Data Strategy:

- *How can we work with GDS and other departments to responsibly access citizen data and ensure that use of AI and digital technology is accurate, fair and measurable?*
- *How do we design and implement an effective approach towards AI governance and assurance across government communications?*
- *How do we adequately explain how we are responsibly applying new technologies and use of data, in ways that are increasingly accessible and easily understandable for the public, and which enhance the trustworthiness of our work?*

This report provides greater insight into the importance of each of these areas in helping government speak with one voice; harness rapid technological changes for the public good; deliver a more efficient and effective GCS; build public trust in government communications; and retain, attract and develop the best talent.

EXECUTIVE SUMMARY

KEY RECOMMENDATIONS

Great people will remain at the heart of our work

Roles within marketing and communication will change to harness the opportunities that emerging technology presents. GCS should continue to encourage and support communicators to be curious, to diversify their professional development through an enhanced learning and development offer.

Place applied data ethics at the heart of our approach to harnessing new technologies and use of data

We should define a clear set of values and ethical operating principles, to further guide our decision making on how we apply new technologies and use data.

GCS should shape the conversation about government use of generative AI for communications

We need to create partnerships with other government departments and functions, public bodies, regulators, industry, and academia. There will be hard decisions ahead that come with use of generative AI (e.g. do we use off the shelf models or train them on more relevant data?) and it will be difficult for GCS to answer these questions entirely on its own. We should therefore continue to work closely with others to address these questions.

GCS should align and integrate the use of first-party data across government communications

We should harness our collective comms data where it is appropriate and possible, through a consistent set of applied data standards and infrastructure, and partnering with the Government Digital Service on improved digital citizen experiences. This will enable us to harness the opportunities highlighted in this report, which can drive increased campaign effectiveness, efficiency, and personalisation.

02

#stopknifecrime dynamic OOH

Harnessing sound recognition to identify passing police sirens and cutting into the displayed ad with the anti-knife crime advert. Credit: The Ben Kinsella trust.

Emerging Technologies

03

The continued rapid pace of change in advertising technology is underpinned by huge investment from large technology, social media, and telecommunications companies in technologies which only five years ago would have been seen as decades away.

Our respondents identified a range of emerging technologies and novel applications, which we have grouped into four key themes as they apply to marketing and communications.

AI-generated self portrait from IBM Research
"AI and Human Creativity Go Hand in Hand" AI's self-portrait was published in The New York Times

Artificial Intelligence

Best understood as a family of technologies which includes the application of Large Language Models (LLMs), Natural Language Processing (NLP), other foundation models and Machine Learning (ML) techniques, to produce tools for specific tasks. Some refer to this as 'narrow' AI, which is distinct from 'general' AI which has not yet been developed.

Impact and opportunities for marketing and communications

When brought together, AI technologies can unlock a new era of hyper-personalisation within the marketing and communications industry, providing communicators with the ability to produce incredibly fine tailored communications and messages for individuals. The rapid analysis of high quality language datasets enables the automatic generation of individualised messaging, tailored recommendations, and dynamic synthetic content. In time, our respondents indicated that it may be possible for these systems to produce creative products using user data, designed and delivered via the most effective channels at rapid speed.

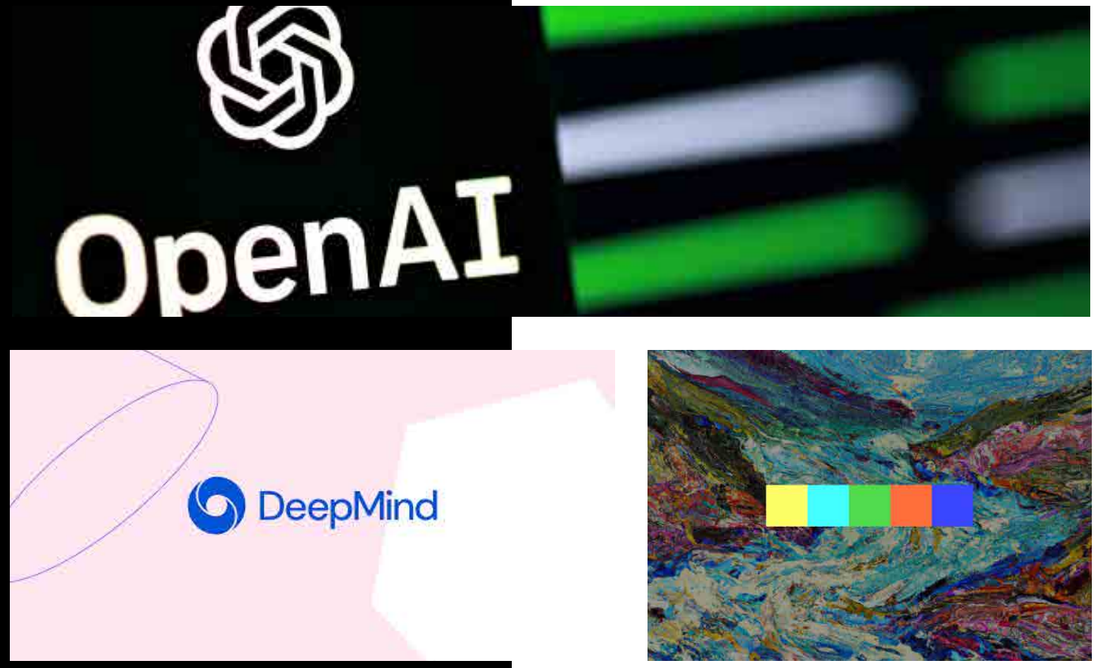
"Such innovations could enable communicators to speak across different cultures and languages at a scale which would have previously been cost prohibitive."

Such innovations could enable communicators to speak across different cultures and languages at a scale which would have previously been cost prohibitive. One respondent highlighted how AI-powered facial recognition technology could be used to tailor the content based on the mood of an individual in the moment, through harnessing increasingly accurate facial recognition data driven by the proliferation of computer vision technology.

However, the accuracy of such text generation tools is currently questionable, due to their tendency to produce incorrect or falsely confident outputs. Their application on more targeted datasets would pose significant ethical questions, as these tools would be potentially required to be trained on personal or sensitive data that isn't currently used in training data. There will be meaningful questions about privacy and security, as well as wider policy positions about how we could train LLMs on government data, which government communications will need to consider.

Such hyper-personalisation could lead to increasing volume of content and messaging towards individuals, further fuelling the fight for audiences' attention, and elevating the importance of new approaches towards measuring and optimising creative content and ad placements using attention metrics.

The rise in conversational search tools, driven by continual advances in natural language and speech processing, may lead to even further shifts in how audiences complete their online activities, and impact the traditional design of user interfaces, apps, websites, and end-to-end experiences.



Generative AI

Generative AI can create realistic, naturalistic and human-like text, images and increasingly art, music and videos. These include multi-function chatbots such as OpenAI's ChatGPT, and Google's Bard, in addition to image generation platforms such as DALL·E, Midjourney, and StabilityAI.

For example, audiences could be less likely to travel between platforms to complete their online activity if all of their needs can be met through a single conversational chatbot provided by a single platform. At the time of writing, the integration of ChatGPT into Microsoft's Bing search engine is clearly aimed at bringing about this single access point for information.

Importantly, this will likely have significant implications for the traditional ad-funded model of the internet in the long term, with as yet unknown implications on areas such as human generated online journalism, and wider implications for the economics of news media, as their business models will need to adapt to synthetic content generated by AI.

Our respondents also suggested that applied AI has the potential to revolutionise the general insights available to advertisers when planning a campaign, as well as generating predictive insights about campaign performance. This has implications for campaign budgeting, as AI unearths and surfaces new signals which can enable better campaign optimisation. This will bring significant opportunities for those working within the strategic communications profession in particular.

More immediately, generative AI can significantly speed up content creation. Within the next 18 months, it is realistic that marketing and communications professionals will increasingly collaborate with generative AI to do tasks such as creating first drafts of press releases, and creating content such as graphics and videos to support communications campaigns.

The primary use of AI tools in the near term will likely be as a productivity tool where communications professionals and AI work together. This is because of the inherent limitations of current AI technology, and the tendency for these to 'hallucinate' and create content which is either made up or not accurate. We explore this area in more detail in the following sections.

Visit Britain: spilling the tea

Visit Britain harnessed generative AI to create a unique British gentleman to be the face of their tourism campaign in Europe and Middle East.

Decentralisation and federalisation

Best described as the transition away from top-down models, where a single platform determines the experience of engaging with it, and instead placing the control over a user's data, and how it is used to shape their experience, in their hands.

The evolution of the advertising technology landscape to its current state has been largely directed by the growth of 'traditional' social media and search platforms. These have directed how audience data has been collected and used, informed regulations designed to combat

"This provides government communications with an opportunity to lead the industry in setting out its ethical values"

growing privacy and concerns over online harms, and the ability for advertisers and marketers to measure and understand audience behaviour and campaign performance. Each of these areas are dominated by a relatively small number of large technology companies, predominantly based in the United States.

The approaches of these large actors are beginning to change however, driven by the necessity of these companies to adapt to increasingly tight regulations like the General Data Protection Regulation (GDPR), developments such as Apple's moves to restrict data collection on its devices, and changing public attitudes towards the use of their data. This has led to platforms like Meta banning data brokers, and having to adapt through developing new advertising tools.

This changing environment is also driving innovation around how online social platforms are structured and the ownership of the data which powers them, for example the emergence of decentralised and federalised models.

A prime example is the emergence of federated platforms such as Mastodon, made up of a collection of federated 'instances' managed by individual users, and new technology solutions such as the 'Authenticated Transfer (AT) Protocol' still being developed by emerging social platforms like BlueSky.

The AT Protocol in particular is intended to enable users to own their own profile, transfer this and their data to each social media platform, and even choose and build their own algorithms to determine how their data will be used and shape their experience. It is intended this would lead to a marketplace of user-curated algorithms, rather than proprietary algorithms controlled by each platform. This will likely have radical implications for current regulation and online protections.

Although the level of adoption of these emerging platforms is growing, it is still at a relatively low level, and it remains to be seen whether they will be able to challenge the major platforms. Their emergence does highlight an opportunity for us to consider early the implications for government communications, and in particular the opportunities for the digital and media professions.

For example, in the future how will government communications be able to effectively ensure the highest standards of brand safety and suitability for its messaging, if there is no single head office or authority which sets and controls these standards across a platform? And, how could our approach towards planning, creating and publishing accessible social media campaigns adapt to the unique features of these emerging platforms?

Impact and opportunities for marketing and communications

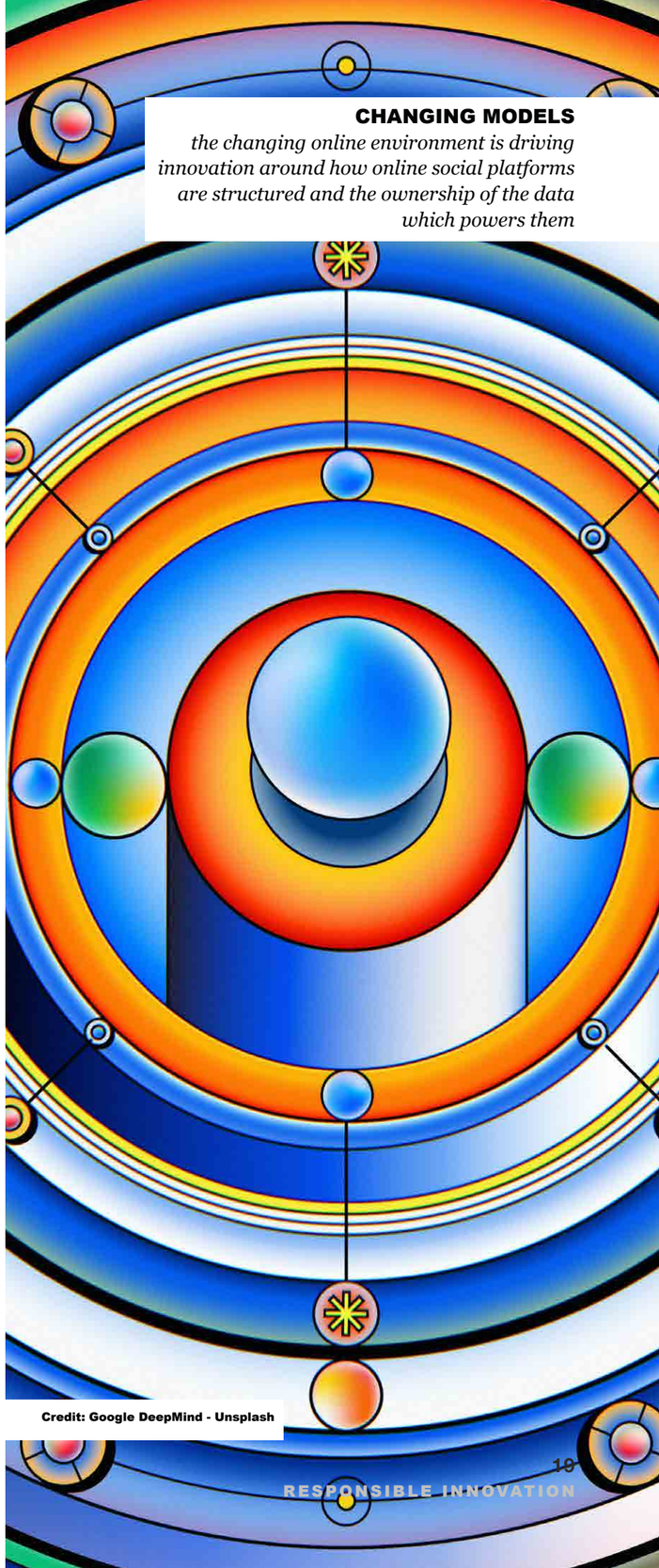
Growth in federated platforms has the potential to radically impact current approaches to regulation around privacy and online harms, as well as advertisers' approaches to brand safety and suitability standards. This creates challenges, and opportunities, for government communications to think about how its existing standards and frameworks (such as the GCS SAFE Framework) need to evolve to stay relevant and applicable.

As noted in the report presented by Sir Patrick Vallance on 'Pro-innovation Regulation of Technologies Review', it is likely that regulation in the area of emerging digital technology will lag behind innovation. This therefore provides government communications an opportunity to lead the industry in setting out its ethical values, and establish operating principles based on these, to guide our approach.

Respondents also highlighted the role of Privacy Enhancing Technologies (PETs) to facilitate the building of greater trust, by providing additional layers of privacy when processing data through distributed processing between parties. Examples include: Secure Multi-party Computation (SMC), Federated Learning (FL), and Federated Analytics (FA), with Google's 'Sandbox' of privacy enhancing solutions to address the depreciation of third-party cookies and tighter regulatory standards being a recent example of these approaches being explored at scale.

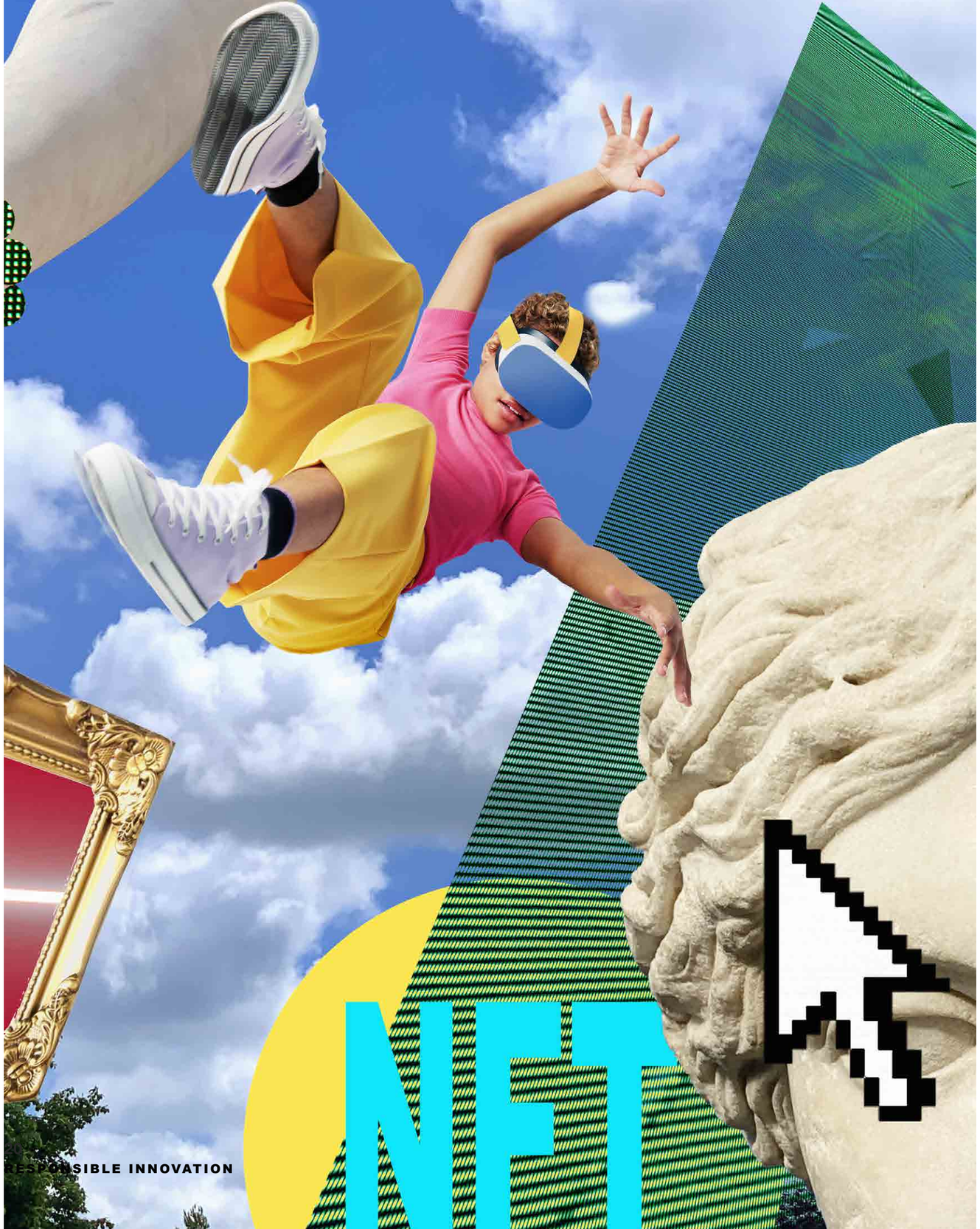
These approaches are important for government communications to consider if we choose to explore training Large Language Models using our first-party data, as they potentially offer routes to harness our collective data, whilst reducing the amount of data that is shared.

As noted by the CDEI and the Royal Society in their 2023 report into PET use in the public sector, the majority of public sector bodies are not currently focused on PETs, but on embedding good data practices and building confidence around traditional privacy preserving methods such as minimisation, anonymisation, pseudonymisation and encryption. They note the barriers to the adoption of PETs are significant (both human and financial resources associated with establishing the necessary infrastructure), however there are a number of ongoing initiatives within the wider public sector exploring practical applications, and GCS should continue to monitor their progress.



CHANGING MODELS
the changing online environment is driving innovation around how online social platforms are structured and the ownership of the data which powers them

Credit: Google DeepMind - Unsplash



Immersive Technologies

Immersive technologies use digital platforms to create realistic and interactive simulated experiences. Virtual reality replaces a user's real-world environment with a virtual one, whilst augmented, or mixed, reality overlays digital content onto the real world.

These offer unique ways for users to experience and engage with digital content. The most high profile example of this is the 'Metaverse', currently being heavily invested in and developed by Facebook's parent company Meta.

This has the potential to create vast new opportunities for personalised ad placements to reach specific audiences in new unique environments, and at greater scale. For example, increasing the availability of out-of-home placements within virtual spaces, which many advertisers are currently benefiting through Dynamic In-Game Advertising (DIGA).

Our respondents suggested that widespread adoption of these technologies could create opportunities for audiences to experience brands as real entities (as 'Digital Twins') which they interact with via AI driven chatbots in immersive environments. These conversations would become an additional channel for advertisers to strengthen the authenticity of their brand.

"This has the potential to create vast new opportunities for personalised ad placements to reach specific audiences in new unique environments, and at greater scale."

The aim of these immersive environments is to allow audiences to increasingly engage in cross-platform experiences, not limited by the specific consumer hardware they purchase, for example: Playstation VR, Meta Oculus Rift, HTC Vive, etc, or for a particular platform or ecosystem (console, PC, or standalone).

Impact and opportunities for marketing and communications

Closer integration of these platforms can enable the growth of persistent virtual spaces, alongside temporary spaces specifically developed for one-off events such as a music concert. Immersive technologies could enable a bigger terrain for advertising, with potential for more signals about how that advertising is performing.

The increased adoption and growth of immersive technologies could also spark new opportunities within the marketing and communications profession, requiring new skills and approaches towards creative design, and campaign measurement and evaluation, to stitch together increasingly immersive and joined-up cross-platform experiences.

Dynamic In-Game Advertising is one area government communications can immediately begin exploring in more depth. Developing greater skills and experience with this approach will put us in a stronger position to respond to future changes and the growth of increasingly immersive user experiences.

Ambient Tech

Best understood as a family of technologies which encompasses the Internet of Things (IoT), edge computing, and ever increasing connectivity (5G+)

Up until very recently, connected devices at home and in the environment around us, have largely developed within walled-gardens, often restricted by the unique communication standards and frameworks each manufacturer adopts. Examples include: Amazon Alexa, Apple Home, Google Home, Samsung SmartThings, etc.

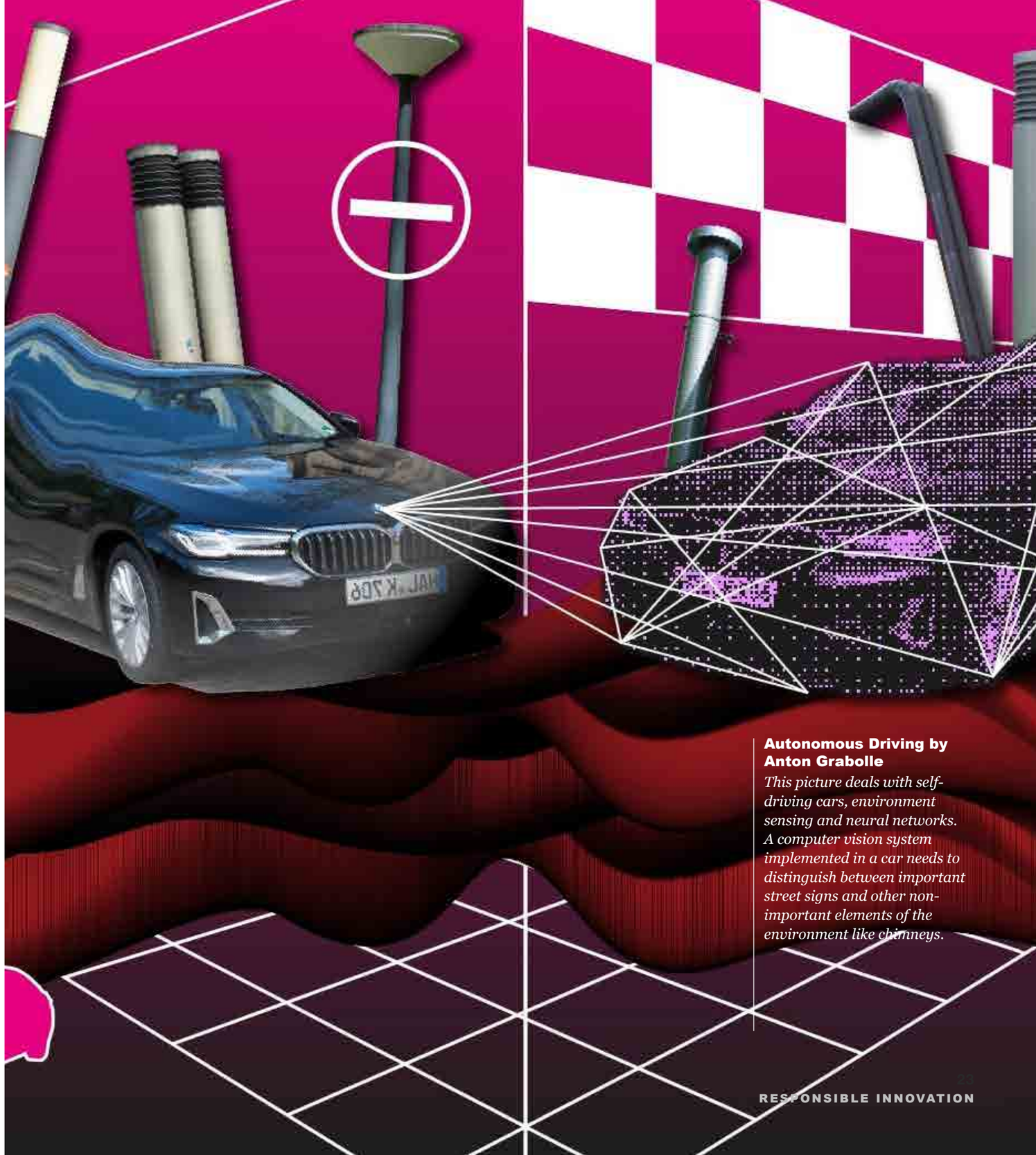
Respondents noted the recent industry collaboration around a common standard, called ‘Matter’, which combined with faster connectivity speeds such as 5G+, will likely break down these silos and further increase the availability of data about the world around us.

Impact and opportunities for marketing and communications

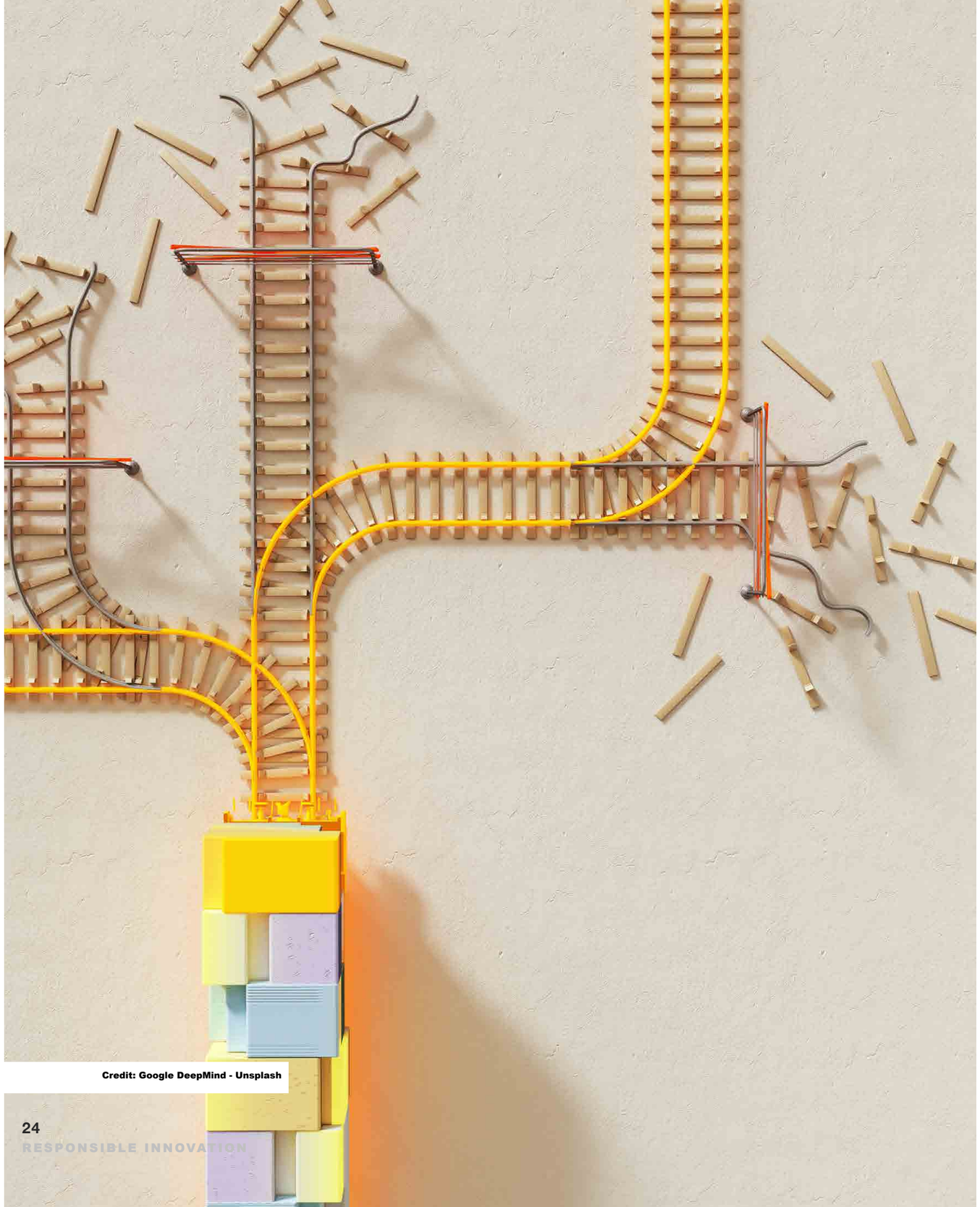
An increase in ambient data sources could create increasing demand for networked systems and solutions that can provide single streamlined data sources, of high quality and accurate real time data, for practical use by bodies such as researchers and advertisers. These future platforms and services may need to be included within our universe of suppliers available through government commercial frameworks.

The granularity and availability of data that these technologies enable may also allow advertisers to increasingly measure and understand the environmental impact of their campaigns, develop increasingly sustainable approaches in response, and include themes such as sustainability within the evaluation of a campaign’s performance. Furthermore, it may enable even greater tailoring of messages and where these can be delivered, as a greater range of contextual data sources becomes available for advertisers to harness.

The significant increase in data collected, and the availability of this data, will pose significant challenges for technology companies, regulators, and advertisers to manage opt-in user consent for the use of user-owned data. However, this also provides space for radical innovation in how user data is collected, stored, processed, and shared. Edge, or on device, computing is one example of how technology companies are addressing this challenge, to enable fewer transfers of sensitive data between different parties or countries.



Autonomous Driving by Anton Grabolle
This picture deals with self-driving cars, environment sensing and neural networks. A computer vision system implemented in a car needs to distinguish between important street signs and other non-important elements of the environment like chimneys.



Credit: Google DeepMind - Unsplash

Ethical Considerations

Technical limitations for emerging technologies

First, the technical limitations of some of these technologies pose challenges for us in using them responsibly for government communications. As some respondents identified, some AI systems are able to convey greater certainty in their outputs than actually exists. Large Language Models in particular can often provide information which is factually incorrect. Beyond this, many respondents mentioned that such tools are the product of their training data, so may reinforce existing bodies of knowledge regardless of their accuracy, an issue commonly described as 'garbage in, garbage out'. Despite this, even if these technical hurdles were to be overcome, there remains a series of ethical challenges for us to consider.

Automation in government communications

The potential for AI to greatly increase the efficiency of tasks offers us significant benefits. In particular, the potential for generative AI to create text and images on demand could revolutionise the way we produce communications. It is possible tasks such as writing press releases, video content scripts, document summaries and briefing notes could lean heavily on tools such as ChatGPT to cut down the time and resources required for communications work. The use of tools such as DALL-E could completely change the way we do design work.

These scenarios would raise some significant questions for us to consider when it comes to responsible and accurate use. While there are multiple ethical challenges with using AI, the most crucial debate we must have is over the level of automation that the government and the public would accept in creating communications products using AI, which is constantly shifting as these technologies begin to enter the mainstream and awareness grows.

Therefore, government communications should ensure they retain the appropriate level of human oversight to assure accuracy in our use of emerging technologies, and continue to stay across the latest insights in this area, using tools such as the CDEI's tracker survey to stay aware of the public's attitudes to data and AI.

It is likely that the level of acceptability of automation may vary according to the task, and the level of human involvement: collaborating with AI to draft alternative versions of an existing graphic is likely to be more acceptable than more sensitive tasks, or those which don't have human oversight.

Many of our respondents grappled with this core ethical challenge. One organisation highlighted the fact that, in the current state of the technology, generative AI is unable to understand whether the results it generates are objectively truthful, and LLMs have no concept of truth, they are simply producing human-like content based on statistical probability. Therefore, such tools can not always comply with the civil service code or GCS propriety guidance. This makes a strong case for the continued importance of a "human in the loop".

Others pointed to the dangers for communications of relying on AI systems which recreate existing knowledge, rather than genuinely creating new content, and reducing the amount of original or innovative thinking in communications.

The CDEI's model for responsible innovation requires the use of data-driven technologies to have clear lines of accountability, and operate with human-centred value to support beneficial outcomes for the public.

This would require a degree of human involvement in key communications decision-making - however the degree of this involvement may be situation specific.

Government's trusted voice

Another aspect of this issue is the impact of using AI tools on our ability to deliver communications that are trusted by the public. The use of generative AI may contribute to this: if the public does not believe that they are receiving communications that are written by a human, they may trust government messaging less. Similarly, the rise of AI-enabled technology such as deepfakes which are able to imitate or spoof government communications and individual messengers poses a key challenge for how we communicate in a trustworthy way.

Similarly, many of our respondents noted the potential for the efficiency of AI and generative AI tools to allow bad actors to create misinformation at a great scale, and target people with greater precision. Beyond this, some respondents argued that the ability for AI-enabled communications to be increasingly emotionally manipulative presents a challenge to the way we communicate in government. We must contend with the fact that AI will make the information space more cluttered, fragmented and difficult to communicate with authenticity and trust.

This presents a unique opportunity for the GCS to take a leading role in delivering public information campaign(s) that provide people and organisations with the tools and knowledge they need to identify and avoid the risks posed by deep fakes created using multimodal large language models. These can empower consumers and businesses to navigate the challenges posed by AI generated content and in ensuring that the benefits of these technologies are maximised while the risks are minimised. Beyond this, we must closely follow developments in these emerging technologies which allow for trusted authentication of actors and messages, as these will be crucial to trusted government communication in the future.

Algorithmic Bias

Another key ethical challenge around AI-enabled communications is the potential for algorithmic bias to affect the outputs of data-driven technologies. CDEI's Bias Review has more information on how this might affect public policy decisions.

As in all areas of AI use, algorithmic bias poses a challenge to the use of AI for communications purposes. The possibility that bias could lead to people being incorrectly targeted for government communications, or leading to communications which are not representative of certain groups (or non inclusive), could lead to bad outcomes in terms of public trust and confidence.

For instance, an algorithmically designed communications campaign which is designed to optimise reach might inadvertently deprioritise groups that are more difficult (and so more expensive) to reach. This would present an obvious risk to government communications: often the harder to reach segments of the population are those which it is most critical for government to be speaking to.

Mitigating this bias brings up a conflict with efforts to retain privacy: we often don't know what data large language models have been trained on, but they are unlikely to always be representative of UK citizens. We can get more accurate, less biassed results if we train, or enrich existing, foundation models using representative audience data that reflects UK citizens, or increasingly use government data, rather than solely relying on off the shelf tools - but this would require complex privacy and security measures to retain trust and consent.

"While there are multiple ethical challenges with using AI, the most crucial debate we must have is over the level of automation that the government and the public would accept in creating communications products using AI."

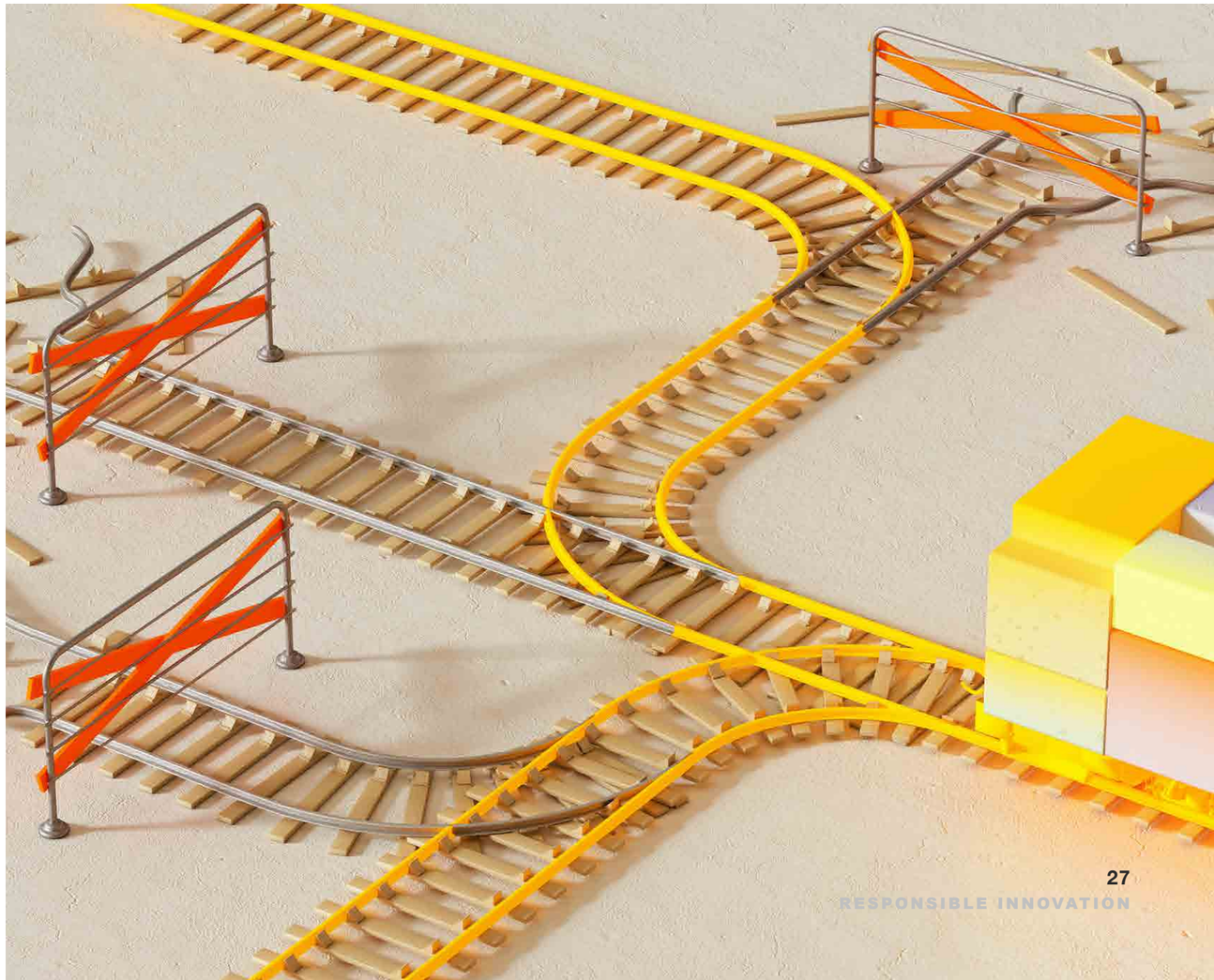
The Public Sector Equality Duty states public bodies should consider how their policies or decisions affect people who are protected under the UK Equality Act, and ensure they do not act in a way that disadvantages protected characteristics. Our approach to the use of emerging technologies and applications of data should be backed up by rigorous testing and transparency, to ensure we can understand, explain, and justify our use of these for the public good.

Ethics of AI development

Many respondents also noted the ethical challenges brought about in the development of AI itself. Whether this be the hidden human labour sometimes involved with developing AI systems, or the carbon footprint involved with the computing power required to run certain systems.

Respondents also raised the implications of using copyrighted content from human creators to power AI systems. Some highlighted that generative AI platforms have used images by human creators to train AI technologies to create similar art. Ensuring ethical treatment of creatives will be a key concern for us in the communications space.

Given that some AI companies do not provide satisfactory transparency into their internal processes and treatment of the workforce, how to enter a transparent and ethically satisfying relationship with AI providers will be a key issue in the future of government communications.



Credit: Google DeepMind - Unsplash

04

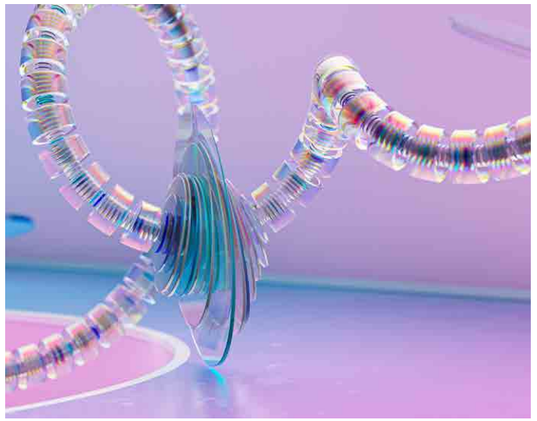
Data

Marketing data has evolved over time, from being used solely for basic demographic targeting to encompassing a wide range of consumer behaviour and preferences. Today, marketing data can be used for customer segmentation, predictive modelling, personalised messaging, and tracking customer journeys across various channels.

However, privacy regulations, such as the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA), have increasingly affected the use of marketing data.

Google DeepMind

Artificial General Intelligence: Shapes representing a network of AI agents and within them two shaller shapes indicating data. Artist: Wes Cockx.

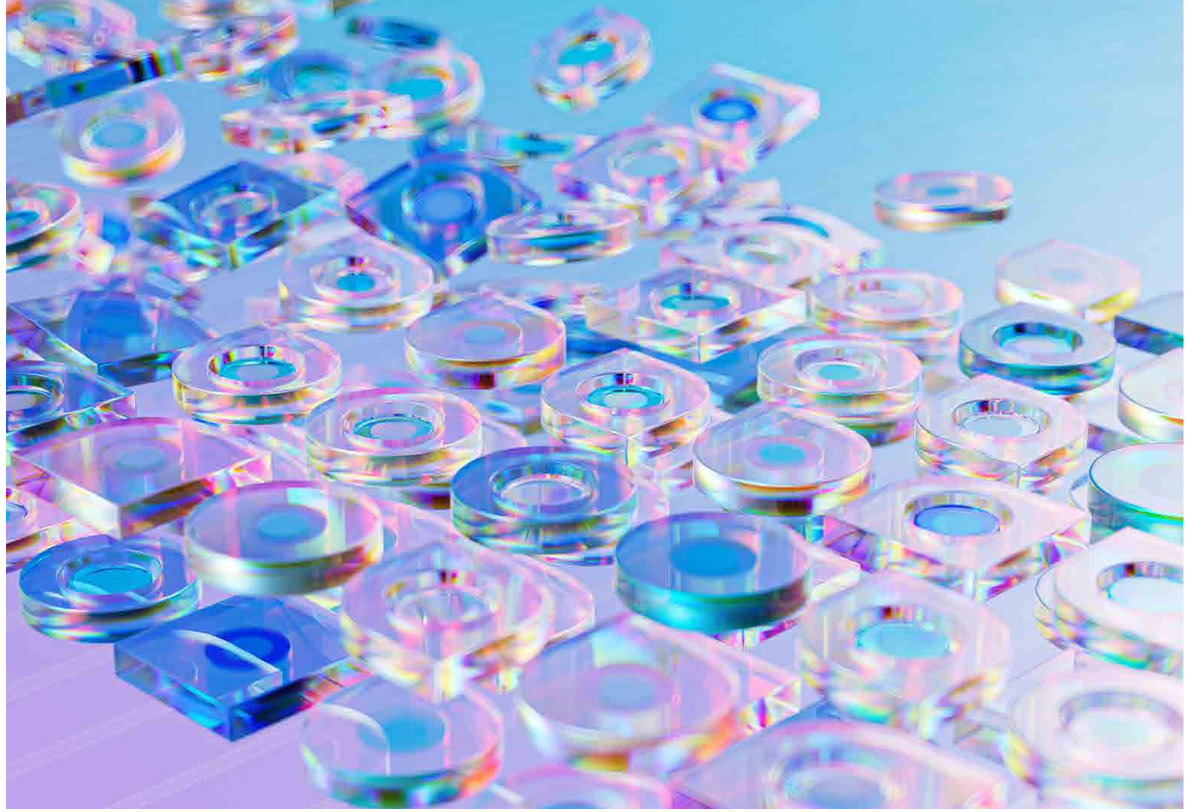


These regulations have increased the requirements for obtaining consent and transparency from individuals for their personal data collection and use. Advertisers and marketing technology companies must ensure that they have a lawful basis for collecting and processing personal data, and provide individuals with the ability to control their data. The imminent demise of third-party cookies is also elevating the importance of using alternative, emerging data sources.

Additionally, these regulations have increased the potential consequences for non-compliance, including significant fines and reputational damage. As well as acting compliantly, within a democratic society it is our responsibility to use data in a transparent way and with the consent of citizens, especially if we are to strengthen public trust in our work.

Government communications are rightly scrutinised more than other communications activity within the industry. This is why in recent years GCS has adopted an approach of 'least data by default' to guide our use of data only when it is necessary, and when it is justified to do so in order to provide public good.

As the role of data becomes ever more pivotal to delivering effective and efficient communications,



"it is our responsibility to use data in a transparent way"

there is more for us to do, such as ensuring we do not exacerbate other challenges such as accuracy and bias.

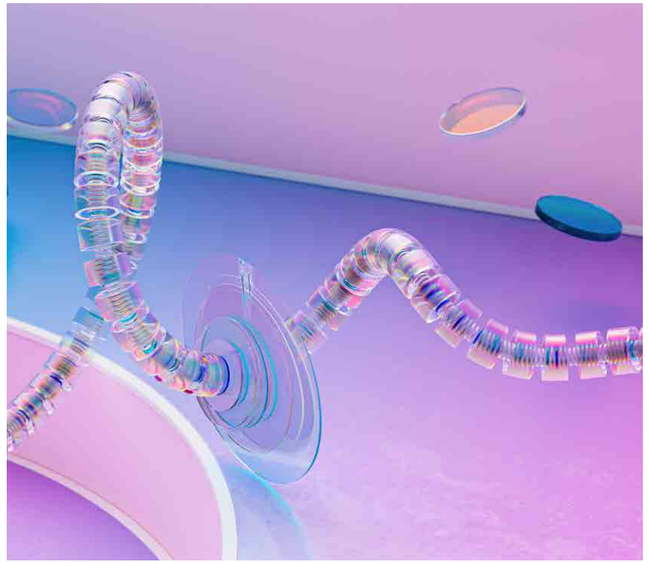
Our approach should therefore consider the growing need to ensure the data we use is representative of our audiences. We must continue to lead the way by prioritising data privacy and compliance in our approach, to maintain public trust, and satisfy justified regulatory scrutiny.

Emerging approaches and techniques

With the rise of artificial intelligence marketing data can increasingly be used to generate insights and make predictions that can help marketers anticipate our audiences' needs and tailor our communications accordingly. This can lead to more tailored, seamless, and relevant communications for citizens when they interact with government. A recent example is the Royal Navy's virtual recruitment chatbot, which supported applicants through the entire recruitment process.

New privacy-first approaches to sharing data are emerging in response to the rise of AI driven analysis, and we have identified several trends in the responses received through our engagement:

Data clean rooms: These are secure environments used for collaborative data analysis between parties who may be subject to legal and regulatory restrictions on sharing data. In a data clean room, the raw data is made anonymous and sanitised of any identifiable information, and the sanitised data is then made available for analysis in a secure, isolated environment. Participants in a data clean room are only given access to the data they need for their specific analysis, and any results are aggregated to further protect individual



privacy. This allows organisations to share data and collaborate on insights without compromising data privacy or intellectual property.

Predicting and forecasting of audiences or experiences to test and improve marketing effectiveness, efficiency, and outcome planning, before starting live activity. For example, a data model of an audience could be created by aggregating data from various touch points such as website interactions, social media engagement with our channels, and service uptake data. This can then be used to model and predict future behaviour, preferences, and needs, allowing communicators to tailor their messaging more effectively.

There will be huge opportunities within the data and digitally driven economy to build specialised services on top of the foundation data models which power AI. Companies are likely to use the large scale foundation models and tune them and create their own evolving models on top, with specialisations into key domains. Again, these organisations and future services will likely need to be included within our universe of suppliers available through government commercial frameworks.

Impact and opportunities for marketing and communications

The scale of data points that are now available underlines the need to produce through the GCS Innovation & Data Strategy a consistent set of standards guiding our collective collection, protection, and use of our first-party communications data - to drive campaign effectiveness, evaluation, and increased personalisation, across websites, mobile apps, and increasingly immersive user experiences.

Through better compliant sharing and join-up of our first-party data (for example, aligning data architectures across teams, and increased join up of our customer relationship management (CRM) systems in a complaint manner), government communications can benefit from its collective scale and leverage our communications data to provide more tailored and efficient interaction with citizens.

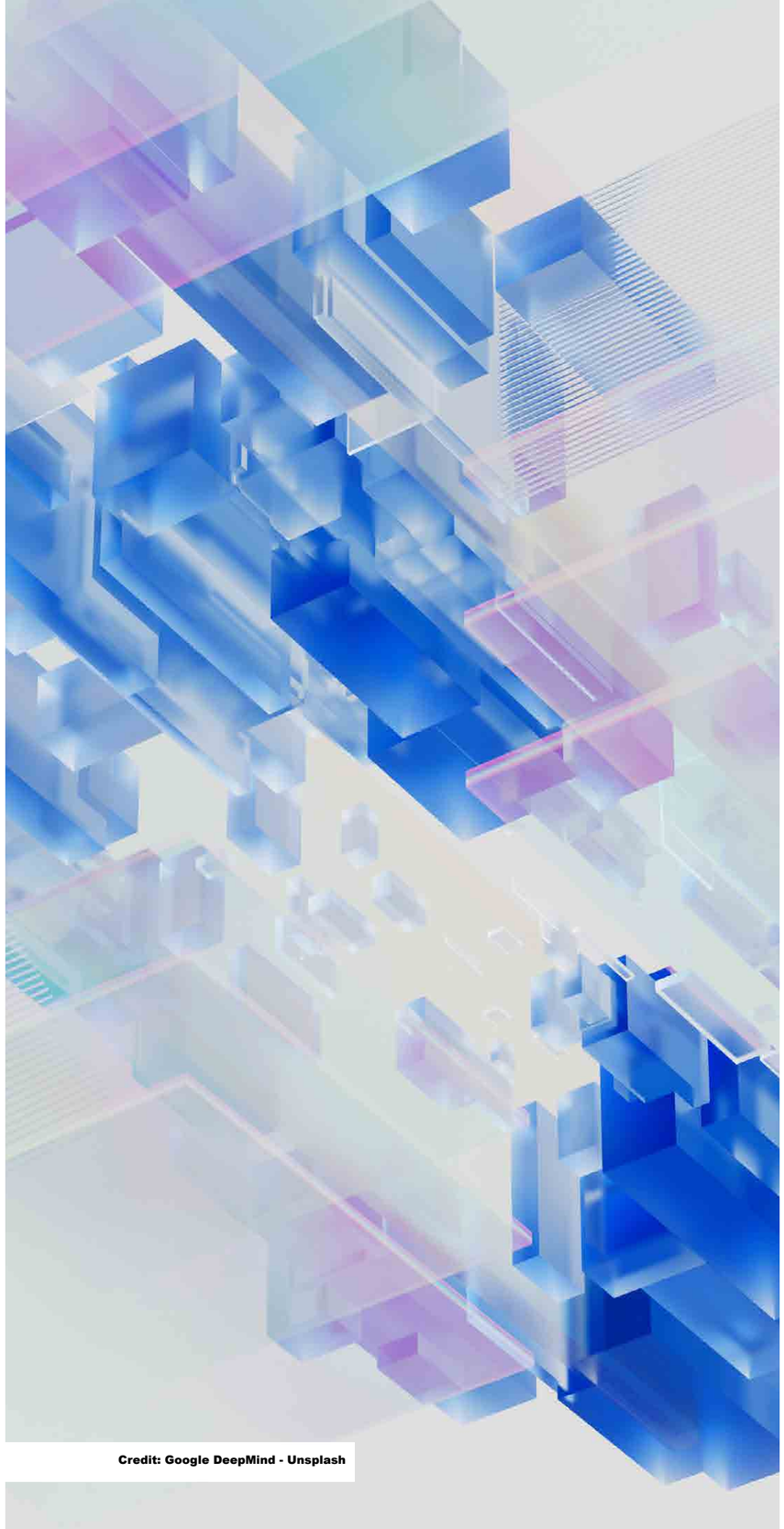
For example, this would reduce the need for citizens to provide the same data to government across multiple interactions. Promoting a “connect not collect” mindset can help develop a single-consumer-view, to truly drive increased personalisation and surface government support in a more tailored way. This can also enable communicators to better understand the audiences they need to reach, the outcomes we are driving, and provide greater efficiencies and cost savings.

Leveraging our first-party data better can also unlock use of advanced measurement and modelling solutions (such as optimisation, conversion, performance tools) which are increasingly available in the market and being powered by AI, and offering alternatives to existing third-party cookie-based solutions which are rapidly depreciating.

However, this does come with the risk of optimisation to only what we can observe, and missing specific audience groups in the process. This highlights the need for marketing and communications functions to consider the plurality of the data they are using.

It also raises the bar for effective evaluation of government communications. Proving the effectiveness of behaviour change campaigns and their link to longer term outcomes, already a key challenge for us, will be made more challenging by a more fragmented comms space. However, greater data sharing, if done at scale, does offer the potential to more accurately assess the impact that our campaigns are having.

Furthermore, we should carefully consider the confidentiality or sensitivity of data that is uploaded to advanced data driven tools, in case this information is resurfaced or reused elsewhere in breach of our security standards.



Credit: Google DeepMind - Unsplash

Ethical Considerations

Increased access to data in public sector communications itself raises a number of ethical considerations. The main issues identified by our respondents included the following.

Personalisation

Many respondents made the case that with greater access to data on audiences, there is potential for ever greater personalisation in how we target and create communications products. Respondents argued that this has key implications for ensuring government is trustworthy: if our message is fragmented and personalised for different audiences, it is a greater challenge to speak with one voice in an inclusive way.

Security, Transparency, Privacy, Consent

Another key consideration is the increased need for privacy and data protections as a result of greater access to data. If we were able to use larger and more detailed datasets, with linked data from multiple sources, it would be essential to build greater privacy protection, anonymisation and consent management tools in order to retain trust. With greater data sharing comes greater need for the hygiene factors around information management: data security, cybersecurity, and management of privacy and anonymisation.

Our approach to privacy must scale with new and emerging technologies: Internet of Things, VR and AR, and facial recognition tools offer their own challenges to privacy which we must contend with if we are to use these formats to communicate.

The opportunity to reap huge efficiency and efficacy gains from using predictive analytics tools on large, linked data sets is balanced against the need to carefully manage the consent for data subjects for their data to be used for these purposes. As above, the use of these tools must also be clearly transparent, with clear human involvement in important decisions which affect people’s lives.

Strategic Considerations

05

This research into emerging technologies and uses of data provides insights into the current and future applications of these within the marketing and communications industry, the impact these are having, and the inherent ethical considerations.

Through this research, four strategic themes have emerged for government communications to consider which cut-across each of these areas:

The future faces of government
Communications: our vision is for GCS to be recognised as a destination of choice for comms professionals.

Human involvement will remain essential within marketing and communications

This is particularly important when it comes to the application of AI technologies, given their "black box" nature. Text-based generative AI often appears more sophisticated than it is, due to the level of detail and sophistication of the language it can produce. While such tools can provide a shortcut to high-level thinking, it can be deceptive or misleading to someone who isn't a subject matter expert. A key example of this is the recent launch of Google's new generative AI 'Bard' which falsely answered a query about the James Webb Space telescope, wiping billions from the company's value.

Harnessing new technologies and our data, ethically

Ensuring the quality and plurality of data we use (across the range of applications) was another prominent factor quoted by several respondents. Data which is used to hyper-personalise messages to specific audiences will need to remain accurate and up-to-date, otherwise this may lead to potentially incorrect or misleading communications, undermining credibility and trust in government as a whole (both its messaging and ability to handle data correctly). This also applies to data that may be used to develop and inform algorithmic decision making and predictive modelling.

This highlights a growing need for greater standardisation in the collection, storage, sharing, processing, and governance of data across government communications. This will help facilitate GCS to extract greater value from its existing data, but also unlock the opportunities that the application of emerging data can have for future government marketing and communications. One respondent highlighted that to do this successfully at scale, organisations need to overcome the fear of sharing data, when it is done so compliantly.

Continuing to act with transparency over our current, and future, use of data to deliver communications was also highlighted. There is tremendous opportunity and space to explore innovative new approaches to doing so, which are accessible and easily understandable for the public, and which enhance the trustworthiness of our work.

Another key action respondents highlighted was evolving current approaches to the measurement and evaluation of communications to include themes such as sustainability and ethical impact, to understand whether our values and principles are being applied through our application of new technologies and data.

In order to do this, and be equipped to act in an appropriate and ethical manner in lieu of relevant legislation or regulation, government communication should consider defining a clear set of ethical values, and operating principles, to further guide ethical decision making. These should align with existing core values such as the Civil Service Code and GCS propriety guidance, as well as wider advertising standards and government guidance like the data ethics framework.

"This will lead to a need for greater diversification in the types of specialised skills required within our profession, and diversification of the 'core' skills traditionally held."

The emergence of all of these new technologies and uses of data, necessitate a greater need for qualities which only the professionals within the marketing and communications industry can bring: creativity, curiosity, and humanity based skills, experience, empathy, and judgement - which AI cannot replicate to the same level, or in a way which is in line with the Civil Service Code.

Respondents highlighted that advertisers will need to retain 'craft skills', which are core to any profession, and that responsible innovation builds upon these, with AI acting as a powerful tool to enhance already existing human expertise. In parallel, day-to-day roles within marketing and communication will change, as the need to collaborate with emerging technologies grows.

AI is a powerful tool to enhance human expertise, but human leadership will remain essential within the future of marketing and communications

Productivity, skills, and a greater focus on citizen experience

The increased prevalence and sophistication of automated and narrow AI-based tools can free us from many repetitive and time consuming tasks if harnessed appropriately. An existing example of this is automatic content versioning, which has saved time and freed creative professionals to focus on other areas.

Respondents highlighted that this trend could lead to an increased transfer of roles within and across supply chains, away from tasks such as data processing, data transcription, coding, and similar tasks. Greater diversity of skills may become the norm, as some core tasks are phased out. This will lead to a need for greater diversification in the types of specialised skills required within our profession, and diversification of the 'core' skills traditionally held.

This emphasises the importance of GCS's ongoing work to strengthen career pathways for government communicators across the UK. Our vision is for GCS to be recognised as a destination of choice for comms professionals and a place where people want to work. Enhancing our learning and development offer and supporting greater diversification in the types of specialised skills we hold is an important part of this. This will be vital for us to attract, recruit and retain talented communicators.

As the advertising and marketing supply chain evolves to provide a greater number of increasingly sophisticated tools, platforms, and data driven solutions, this will place a greater emphasis on understanding how these tools work to apply them properly. For example, a greater base-level understanding of machine learning and large language models, and their inherent privacy and ethical considerations.

This has already begun, with regulators such as the Information Commissioner's Office (ICO) increasingly scrutinising advertisers' use of existing complex technologies, such as programmatic Real-Time-Bidding (RTB), requiring marketing professionals to become far more familiar with the inherent data processing and privacy considerations of its use. This is a trend which will grow with tincreasingly sophisticated advertising technologies.

Similarly, respondents also highlighted the trend for practitioners within marketing and communications possessing an increasingly diversified skill set - not just specialising in specific disciplines such as digital, but holding a base-level understanding of other disciplines such as behavioural insight, evaluation, and advanced data and technology, including the general mechanics of AI.

These will become increasingly underpinned by the skills required to continuously enable the delivery of social value through marketing and communications activity.

The adoption of immersive technologies will likely create the need for skills in managing greater proliferation, balancing the needs of many more audiences which we'll be able to reach, and personalise towards, across many more specialist channels. This will be fundamental to master in order to build better end-to-end experiences for interacting with government. Therefore, communication functions should invest not just in future skills, but in the ability to cascade knowledge and facilitate the cultural change required to make those skills count.

Respondents also highlighted the evolving role of leadership within the profession, with the rising need in governance and compliance capabilities at the C-Suite level, with clear lines of accountability across decision makers. Respondents noted that areas such as ethics, and AI governance and standards, are increasingly joining cybersecurity and compliance as a board-level topic that will impact technology infrastructure decisions, risk mitigation oversight, and necessitate a designated senior lead.

One respondent highlighted the important role of leadership in building a culture that encourages curiosity – to encourage professional learning and development in the aforementioned areas, but also empower their teams to ask critical questions about the ethics of a particular approach or application of a new technology.

How might these changes affect my role?

Whilst the maturity and adoption of the technologies and their applications outlined in this report are currently at a relatively low level, their development, and the speed of their adoption, is rapidly increasing and already impacting roles within our profession. In the medium-to-long term, these emerging technologies and uses of data could create entirely new roles, with others significantly changing.

For example, it is possible that copywriting roles could increasingly be supplanted by generative AI tools within the private sector in the medium term. Nevertheless, these changes are opening up opportunities for us all to develop new skills, and a greater number of career paths within marketing and communications.

The following is a forward look at the potential impact these emerging technologies and uses of data could have on roles and activities across our profession. This is not intended to be an exhaustive breakdown, and the timings are only indicative.

This table should not be taken as a statement of the UK government's intent with regards to how these technologies could be used. The table merely shows how different roles within communications and marketing could potentially be shifted by the technologies discussed in this report.

It is likely that the actual pace of change will be affected by the risk appetite of organisations, and the public, in the use of emerging technologies and applications of data.

How might these changes affect my role?

PROFESSION	2023	SHORT TERM	LONG TERM
Media	Target media lists generated based on qualitative assessment and experience. Press notices written by media teams, informed by policy and audience data.	Target media lists informed by advanced automated quantitative analysis (e.g. assessments of the potential reach of outlets for particular target audiences at a granular level, or potential interest of individual journalists). First draft of press notices generated by AI based on prompts, with text possibly informed by a training data set of GCS press materials, which is then reviewed and edited by comms and policy teams.	The media landscape itself is likely to be changed considerably and we'll need to understand how to influence AI generated media content. For example, harnessing AI to drive increasingly advanced audience segmentations and serve content to people most interested in a story. Evaluating reach and engagement on announcements and using machine learning to make recommendations about future content and channels.
Marketing	Briefing media agencies, and reviewing delivery plans or creative proposals. Copywriting for display, video, and radio ads.	Leveraging internal guides and ethical decision making frameworks to ensure agency and industry partners are harnessing emerging technologies and data responsibly in order to deliver government communications. Collaborating with generative-AI to produce first drafts of ad copy, with text, images, and sound possibly informed by a training data set of GCS creative content, which are then reviewed and enhanced by GCS professionals.	Working with media and creative agencies, as well as industry partners, to create seamless end-to-end citizen experiences spanning immersive platforms and traditional formats. Working with AI tools, and Data & Insight professionals, to analyse physical as well as online campaign data, to understand the environmental impact of a particular campaign, or the end-to-end experience engaging with government, and including these learnings within evaluations and future plans.
Digital	Content created using first-party content (e.g. videos of ministers), stock imagery, editing software.	Increasingly collaborating with generative AI to support content creation, based on human prompts (e.g. music generation, graphic creation, video editing). New tools to predict content performance on social media.	Collaborating with generative-AI tools to create content tailored to increasingly specific audience profiles, and across multiple languages, in real-time.
Data & Insight	Optimising campaign performance and outcomes through manually stitching together data from across the citizen experience interacting with government. Generating longlists of barriers to action, unintended consequences, and system impacts, to help identify potential risks to delivery and system-level interactions. Summarising, synthesising, categorising, and analysing multiple sources of insight.	Collaborating with AI tools to review multiple sources of insight at greater pace and scale, and creating first drafts of reports for GCS professionals to enhance and enrich. Leveraging internal guides and ethical decision making frameworks to harness emerging technologies and data responsibly. Using privacy-first data analysis approaches to understand and optimise the complete end-to-end view of citizens' interaction with government - across all campaign touchpoints, and onward services (such as recruitment processes).	Harnessing federated data sharing and analysis techniques to unearth new audience insights from cross-government CRM databases, to generate predictive insights into the needs of audiences throughout the UK, informing tailored communications. Supporting campaign planning and spend controls processes to forecast campaign effectiveness before running live activity, through collaborating with AI data analysis tools to create predictive models of campaign performance and links to outcomes.

This table should not be taken as a statement of the UK government's intent with regards to how these technologies should be used.

How might these changes affect my role?

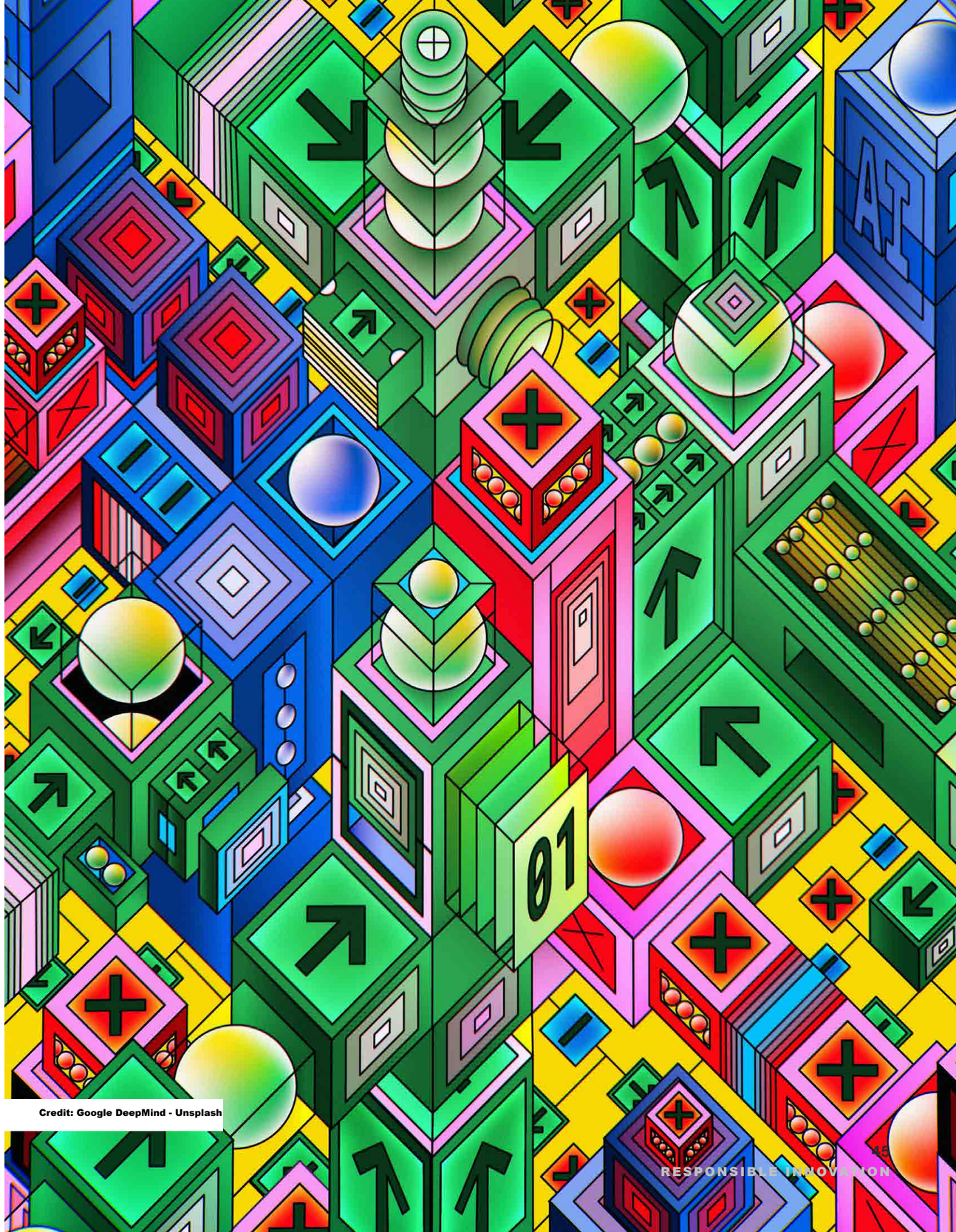
PROFESSION	2023	SHORT TERM	LONG TERM
Strategic Communications	Conducting primary and desk-based research to inform campaign planning and audience insights. Managing manual cross-government gridding processes, and producing reports.	Collaborating with AI to create first drafts of communications strategies using the OASIS framework. Generate suggestions for evaluation metrics using the GCS evaluation framework and implementation plans. Summarising and simplifying policy documents, consultations, consultation responses. Harnessing automation and connecting first-party data sources from across government to access the latest information, produce automated reports, and unearth new insights through automated analysis. GCS professionals are more free to focus on evaluation, learnings, and play-forward actions.	Simulated audience testing, through increasingly collaboration with AI-driven analysis, to generate predictive insights about how target audiences are likely to respond to a campaign before activity is run. Harnessing high-quality ambient data and signals to understand the environmental impact of a particular campaign approach, and including these learnings within evaluation models and frameworks.
Internal Communications	Identifying and using the most effective internal channels, such as newsletters, websites, and events. Copywriting articles and resources. Transforming communications products for different audiences (for example, turning annual reports into blog posts, bulletins, ministerial briefings).	Collaborating with generative AI (possibly LLMs bespoke to GCS) to produce first drafts of articles and resources, with text informed by a training data set of GCS internal content, which are then reviewed and enhanced by GCS professionals. Leveraging this technology and data to create personalised content relevant to local audiences and activities in a given location.	Collaborating with generative-AI tools to create synthetic content tailored to colleagues across government, and in multiple languages, in real time. Using increasingly immersive technologies, such as AR & VR, that compliment existing channels, to create engaging and seamless experiences.
External Affairs	Maintaining business engagement and CRM databases to improve government interactions with businesses. Dialogue with influential individuals and organisations, and disseminating messages through stakeholder channels.	Unearthing and accessing a greater range of cross-government business intelligence data as well as smaller businesses, through use of automated pipelines and APIs to rapidly and securely share data. Collaborating with generative-AI to produce first drafts of guidance and messages for influential individuals and organisations.	Collaborating with AI-driven analysis of connected first-party data from across government, to generate predictive insights into the needs of businesses throughout the UK. Producing hyper-tailored communications to deliver media moments, or signpost government support or guidance, to influential stakeholders across the UK, and in multiple languages in real-time.

This table should not be taken as a statement of the UK government's intent with regards to how these technologies should be used.

Beyond Communications: Key Questions

Finally, this research has surfaced questions which are difficult for government communications to answer alone and that cut-across key areas such as skills, ethics, and accountability, which the emergence of these new technologies and applications of data bring. The following are particularly relevant for government communications to consider:

- *How can we responsibly harness citizen data held by government, and ensure that our use of AI and digital technology is accurate, fair and measurable? Will this require us to develop new proprietary data assets, or form partnerships with other bodies such as the Office for National Statistics (ONS)? How can GCS work with departments and other functions to responsibly access more granular data, for example in partnership with the Government Digital Service and GOV.UK?*
- *When is it appropriate to use off-the-shelf generative AI tools or models, and when should we focus instead on partnering with others to train Large Language Models that may be more suitable for government communications?*
- *Is it appropriate to train AI only on the subset of users who have provided consent, or would this lead to inevitable bias in decisions?*
- *How do we design and implement an effective approach towards AI assurance across government communications? How do we adequately explain how the outputs of AI powered tools were arrived at, when the very nature of AI systems is that the decision making often happens inside a black box constructed from training rather than rules?*
- *Where a decision may be made by an AI powered system in the future, for example deciding which public services to surface and recommend to an individual within tailored communications, a human will need to have meaningful input into the decision that is made, as that is currently required by ICO guidance on use of algorithms in decision making. What is deemed sufficient human input in these unique cases? Is it at the training stage rather than the decision stage?*
- *Should government marketing and communications actively support human generated content in areas such as journalism? And would this even be possible or practical in a media landscape that may be dominated by AI driven platforms?*
- *The Government Communications Service will not be able to answer these questions entirely on its own, and it should continue to work closely with other government departments and functions, wider public sector bodies, regulators, industry, and academia, to guide its approach and learn from the responsible work of others.*



Credit: Google DeepMind - Unsplash

06 Conclusions

Credit: Google DeepMind - Unsplash

In this report we have presented an overview of the emerging technologies and applications of data which are impacting the marketing and communications industry.

This review of our external environment will be followed by a programme of internal engagement, as part of our work to develop the GCS Innovation & Data Strategy throughout 2023.

That programme will explore the internal challenges for government communications to harness new technologies and data, and identify the best behaviours and conditions to strengthen our culture of responsible innovation, with input from colleagues from across government communications.

There are, however, opportunities and suggestions that have arisen through the course of this research which GCS can immediately begin considering through its ongoing work.

How we can support people in GCS to adapt to these changes throughout 2023:

- Encourage and support all communicators to diversify their professional development to include a base-level understanding of other disciplines and areas, such as behavioural insight, evaluation, and advanced data and technology, including the general mechanics of AI, through the yearly objectives process and GCS's enhanced learning and development offer.
- Identify the barriers, and opportunities, to encourage curiosity as part of strengthening our culture of responsible innovation. This should be not only to encourage professional learning and development, but also in asking critical questions about the ethics of a particular approach, or application of a new technology or use of data. This will be a crucial ingredient in our approach to identifying, testing and scaling innovation across GCS - from finding the most promising opportunities, testing these centrally, and sharing best practice on what works and what doesn't.
- Define a clear set of ethical values, operating principles, and decision making tools to support communicators across government with ethical use of new technologies and uses of data. These should align with existing core values such as the Civil Service Code and GCS propriety guidance, as well as wider advertising standards.
- Put in place processes and standards which enable better use of our first-party data, so that government communications can benefit from its collective scale and leverage our communications data to provide more

tailored and efficient interaction with citizens. Key areas to consider include aligning data architectures across teams and organisations, increased join-up of our customer relationship management (CRM) systems in a compliant manner, and partnering with the Government Digital Service on improved digital citizen experiences.

- Bring together our Data & Insight and Strategic Communications professionals to explore innovative new approaches to communicating our current and future use of technology and data, in a manner that is increasingly accessible and easily understandable for the public. Continuing to think carefully about practices and tools which allow us to communicate with a verified, trustworthy voice, and which enhance the trustworthiness of our work.
- Encourage our Marketing, Digital, and Insight communities to explore in more depth the use of Dynamic In-Game Advertising for government communications, as developing greater skills and experience with this approach will put us in a stronger position to respond to future changes and the growth of increasingly immersive user experiences.

Within the next 2-5 years:

- Review how our existing standards and frameworks (such as the GCS SAFE Framework, and 'Least Data by Default' approach) need to evolve to stay relevant and applicable, harnessing the work of bodies such as UK AI Standards Hub, Institute of Electrical and Electronics Engineers Standards Association (IEEE), and the CDEI's roadmap to an effective AI assurance ecosystem.
- Deliver public information campaign(s) that provide people and organisations with the tools and knowledge they need to identify and avoid the risks posed by an increasingly complex and AI-driven information space, including the potential wide scale use of deep fakes. Empowering consumers and businesses to navigate the challenges posed by AI generated content and in ensuring that the benefits of these technologies are maximised while the risks are minimised.
- Strengthen the perception of UK Government branded communications as an indicator of trustworthy and accurate information, in a global environment increasingly impacted by the use of AI generated imagery and misinformation. This can include developing an increasingly robust approach to policing misuse of the UKG brand and royal crest, to ensure it is not used to spread misinformation or disinformation. This should also involve closely following technical developments in authentication and verification, to understand how government communications can be proven verifiably legitimate.
- Contribute to ongoing discussions over the appropriate use of generative AI tools within and outside government, given their potential impact on our work.
- Continue to consider how government communications fits within a more dense and fragmented communications environment, and our role in countering misinformation.
- Elevate areas such as ethics, AI governance and assurance as board-level topics, with designated senior lead(s).
- Monitor and engage with other public sector initiatives exploring the appropriate application of Privacy Enhancing Technologies.
- Continue working closely with Crown Commercial Services, and other procurement and commercial functions, to ensure our future technology and data needs are reflected within the universe of suppliers available through government commercial frameworks.
- Continue investing not just in the future skills we will all need as communicators, but in the ability to cascade knowledge and facilitate the cultural change required to make those skills count.

Appendix

Many of the responses that have informed this report were gathered using an eight question questionnaire.

This was submitted to over 100 organisations across multiple industries, including: advertising, media and creative agencies, advertising and public relations trade bodies, online social media and search platforms, leaders in developing AI powered tools, market research agencies, investors, and analysts. This was in addition to stakeholders from academia with an understanding of thematic ethical challenges, including civil society, and legislative and regulatory leaders in the UK.

GCS produced a preliminary list of stakeholders, with support of Crown Commercial Services (CCS), as a starting point which was then iterated upon by the CDEI, who drew upon its network to identify any additional relevant stakeholders.

GCS also reviewed the latest guidance from the Government Social Research network to ensure this was followed as closely as possible throughout the process.

The eight questions asked were:

1. What will be the most impactful applications of emerging technologies within marketing and communications over the next 2-5 years?
2. What are the most important ethical considerations for these potential applications?
3. How might these applications change the role of marketing and communications professionals?
4. How could increased access to data - including greater public sector data sharing, access to third party data, or new technical approaches to analyse data - improve the effectiveness of marketing and communications over the next 2-5 years? Are there ways that improved access and analysis of data could enable better or more personalised services?
5. What are the most important ethical considerations for increased access to data in public sector marketing and communications?
6. What conditions or tools would be most valuable in order to use emerging technologies and data ethically?
7. What workforce capabilities should communications functions invest in to drive responsible innovation?
8. What will be the greatest barriers to legal or regulatory compliance in the use of emerging technology and data within marketing and communications?

Acknowledgements

We would like to thank all those who responded to our questionnaire, which included 17 separate organisations and teams providing over 136 responses:

23Red, Freud Communications, M&C Saatchi (UK), VMLY&R (a division of WPP Brands (UK)), Mindshare Media (UK), WPP (UK), GroupM, Posterscope (part of the Dentsu Aegis Network), OmniGOV (currently HMG's appointed media buying agency, under the RM6123 Media Services framework), The7Stars, MediaSense, House337, Market Research Society, Google, YouGov, Britain Thinks

This is in addition to reports, guidance and thought pieces freely available, such as:

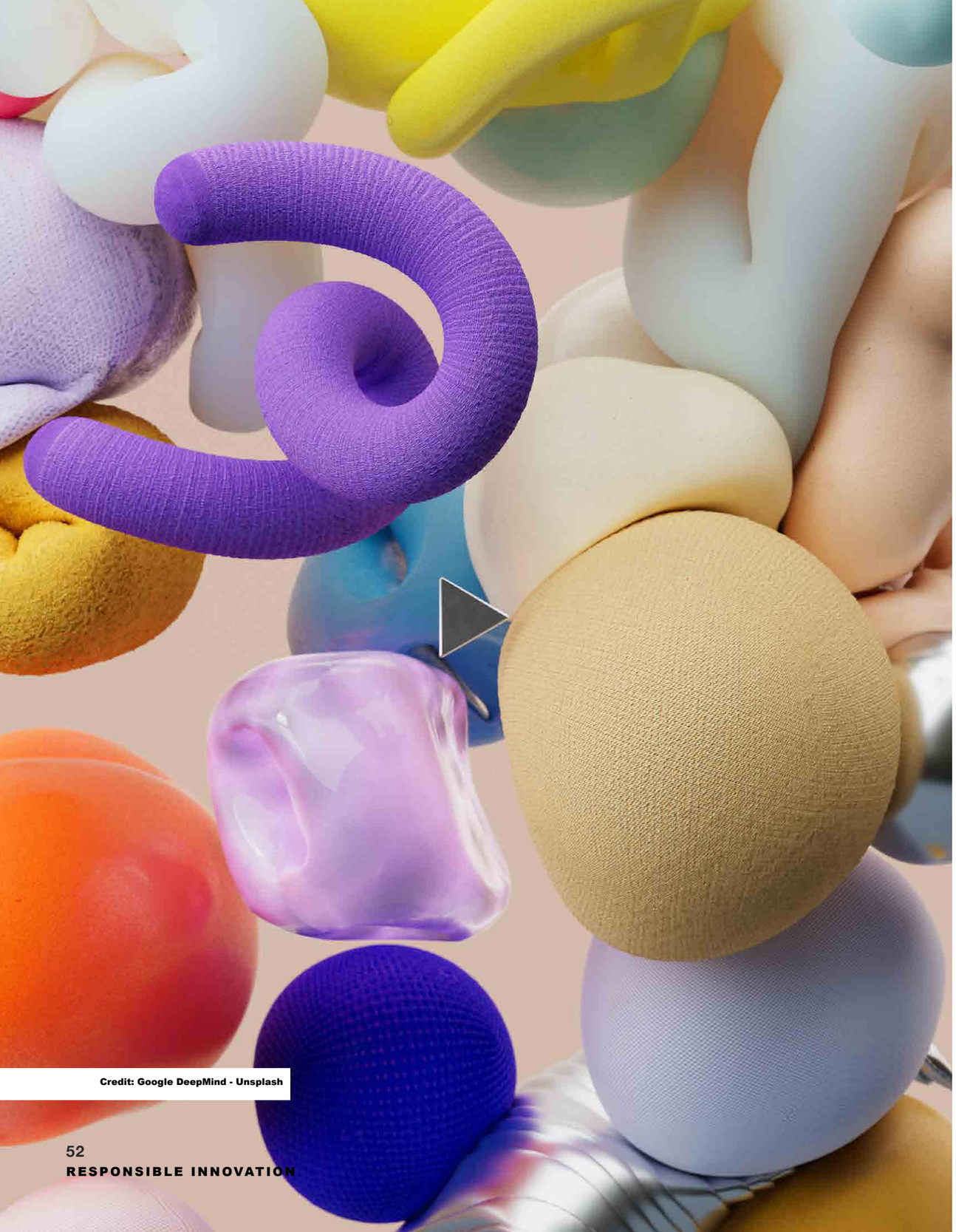
- *Pro-innovation Regulation of Technologies Review: Digital Technologies report*
- *The CDEI and The Royal Society: Privacy Enhancing Technologies: Market Readiness, Enabling and Limiting Factors in the UK public sector*
- *ICO Blog: Addressing concerns on the use of AI by local authorities*

The report was written by Robin Attwood (GCS Data and Innovation Standards Lead), and Ben Kelly (CDEI), with design by Ethen Carlin (GCS Strategy and Campaigns team).

Finally, we would like to thank all of the volunteers from across GCS who contributed their time to review much of the material which informed this report, including:

- *Michelle Alexander, Strategic Communications Manager, Education and Skills Funding Agency*
- *Philip McAllister, Senior Manager, Strategic Communications, Ofqual*
- *Sara Turner (DipCIPR), Head of Internal Communications – Prison Resourcing, Ministry of Justice*
- *Oliver Lamb, Strategic Communication and Marketing Lead, Department for Education*
- *Lisa Naylor, Content Writer, Local Land Charges Programme, HM Land Registry*
- *Anna Jakimova, British Council*
- *Lyndsay Cecil, Communications Manager, HM Revenue and Customs*
- *Monika Reichelt, Internal Campaigns Lead, HM Revenue and Customs*
- *Claire Cyprien, GCS Inspire Alumni, HM Revenue and Customs*
- *Kerry Sheehan (Chart.PR), Head of Service Development and Innovation, Department for Environment, Food and Rural Affairs*
- *Jessica Barlow, Digital Engagement Manager, Department for Work and Pensions*
- *Matthew Hunter, Head of Asylum and IRC Communications, The Home Office*
- *Sally Li, Strategic Communications, Medicines and Healthcare products Regulatory Agency*
- *Leah Matthews, Senior Communications Manager – Channels and Partnerships, Department for Work and Pensions*
- *Phil Hodgson, Head of Communication and Digital, Office of the Sentencing Council*

Credit: Google DeepMind - Unsplash



Credit: Google DeepMind - Unsplash

Glossary

AI	Artificial Intelligence: computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages. Generative AI is a type of AI system capable of generating text, images, or other media in response to prompts.
ML	Machine Learning: computer models that 'learn' through the use of data and algorithms, producing systems that can perform specific tasks or inform decision making. Often seen as a subfield of AI.
NLP	Natural Language Processing: the application of computational techniques to analyse and synthesise natural language and speech. Natural language processing often uses theoretical, statistical and computational tools and methods from ML and AI, together with the knowledge from the field of linguistics.
LLM(s)	Large Language Models: a type of machine learning model that can perform a variety of natural language processing (NLP) tasks, including generating and classifying text, answering questions in a conversational manner and translating text from one language to another. What sets these models apart is the vast scale of data that has been used to train them.
PET(s)	Privacy Enhancing Technologies: technical methods that protect the privacy or confidentiality of sensitive information, through encrypting or de-identifying data, or by creating specific environments and systems which enhance privacy.
SMC	Secure Multi-party Computation: a subfield of cryptography with the goal of creating methods for parties to jointly compute a function from their inputs while keeping those inputs private.
FL	Federated Learning: a machine learning technique that trains an algorithm across multiple decentralised edge devices or servers holding local data samples, without exchanging them.
FA	Federated Analytics: an approach to analyse user website or application engagement data, which combines information from distributed datasets without gathering it in one central location.
CRM	Customer Relationship Management: a process in which an organisation manages its interactions with customers, and then typically use first-party data analysis to improve business relationships and outcomes.
1PD	First-party data: information an organisation owns directly, and which typically has been collected directly from its customers.
2PD	Second-party data: first-party data that two or more organisations decide to share on a "private" basis for mutual benefit.
3PD	Third-party data: data that from an outside source that are not the original collectors of that data. Often this data is collected and aggregated from various sources by third-party aggregators, who don't have direct relationships with the customers.
VR/AR	Immersive technologies: including virtual reality (VR), mixed/augmented reality (AR) experiences, and the rise of persistent virtual spaces, for example the Metaverse.
IoT	The Internet of Things: physical objects with sensors, processing ability, software and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks.

Government Communication Service

Centre for Data Ethics and Innovation