PARADIGM SHIFT

5G

About

GOOD FUTURES

Introducing Good Futures, the **new subscription from Good Innovation** designed to help charities get to the ‘so what’ behind trends and frame the current & future perspective.

What's included in your subscription?

Good Futures Fortnightly
Fortnightly perspective on what's happening now and what's next, delivered to your inbox

The Paradigm Shift Report
Bi-monthly deep dive report into a macro trend

Inspiration Safari
One-day safari designed to unpack and explore the Shift with experts and business leaders

Content Archive
Access to all editions of Fortnightly, Paradigm Shift reports and videos of previous Inspiration Safaris

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Foreword

Welcome to the first Paradigm Shift report! (And wow, did we pick a whopper of a topic for our first report!) Good Futures has now been live for four weeks and I wanted to share with you some of the lessons we've learned researching and writing the first Shift.

There's lots more lessons I could share, and a lot of builds for future reports. We've come a long way in four weeks, and we have big ambitions for how we want Good Futures to grow. In the meantime I'd recommend taking an hour, sitting back and diving into the future of 5G.

It's going to change everything.

Daisy O'Reilly-Weinstock
Director of Big Bets

1 Make it Digestible

Our goal for Good Futures is to give you digestible and actionable trends that get to the 'so what' for the charity sector. This report is *slightly longer* than we'd originally envisaged. Due largely to the fact that, when we started to unpack 5G and its implications, there was so much we wanted to cover. We could probably have written a whole year of reports just on this topic. We promise the next one will be shorter.

2 Make it Useful

We want this report to be the start point for innovation. To get you as inspired, excited and energised about what's next as we are. We've included hyperlinks to source material so you can dive deeper into topics, and we created a canvas to help you unpack the 'so what's for your organisation. If you want a hand exploring the implications further, give us a shout (we have a sprint designed specifically for this).

3 Make it Honest

We don't have a crystal ball. There are a lot of influencing factors at play. We've tried to extrapolate from current trends to consider where the shift *could* go. In some cases we've taken it to a potential (and currently unlikely) extreme (see Purpose & Meaning on page 63). Use this as an opportunity to start asking questions of your organisation, your operations, your mission and yourself so you're prepared for whatever comes next.

Welcome to

PARADIGM SHIFT

The Paradigm Shift is an opportunity to travel deeper down the rabbit hole to focus on a **single macro trend**.

In each report we take a look back to look forward to see how the paradigm *might* change and **what that means for you and your organisation, and your supporters.** All framed within the lens of income and impact.

The **Paradigm Shift** Methodology

Combining rigorous analysis of a wealth of secondary data, deep client sector insight and imaginative thinking, we unpack the **macro trend** in detail, and develop a series of potential, plausible future societal shifts. We then outline what these might mean for the third sector.

Evidence based

Built on evidence-based secondary research and available case studies.

Multiple lenses

Using a range of lenses to consider each piece of research and understand the potential implications, including STEEPLE (Societal, Technological, Economic, Environmental, Political, Legal, and Ethical).

Imaginative but level-headed

Drawing on trend and foresight expertise to develop a series of hypotheses around future societal shifts and scenarios. We're imaginative but also pragmatic.

Bespoke for the sector

Developed for the sector, not from the sector - uniting an expert view on the world outside, and a firm grasp of the challenges faced within. Our team combines foresight and trends experts with charity sector specialists.

Gets to the 'so what'

Considers the implications and opportunities from each shift for the sector articulating a clear '**so what**' to get your thinking started.

How to *use* this report

We're not oracles, and we're not here to give you a firm and concrete prediction of the future.

The goal of the **Paradigm Shift** report is to consider the potential impact of emergent trends and their associated technologies (assuming they are taken up) on society and people, and empower you to start asking questions now to prepare for what's next.

The goal of the report is to stimulate thinking and act as a springboard for ideation. At the end of the report you'll find the **Good Futures Trend Exploration Canvas** - a framework designed to help you unpack each of the '**so what**'s and act as stimulus for thinking and ideation.

We've also split the report into two parts...

1 Technologies that 5G will supercharge

There are lots of technologies that will be impacted by 5G or will, by the adjacent societal changes, see growth and expansion. We've focused on the three key technologies we believe 5G will supercharge and, as a result, create new opportunities for the third sector.

Just like our Good Futures Fortnightly trends we've broken each technology down into four sections:

1. **What is it?**
2. **Why is it important?**
3. **Reasons to believe:** Future-facing case studies that put people at the heart of the technology
4. **So what?:** Thought starter questions regarding the potential opportunities presented by each technology

2 The Societal Shifts

We've looked at these technologies through a range of lenses to develop five societal shifts likely to emerge as a result of current trends and cultural intelligence. These shifts are focused on the changes that could occur in society if the full potential of these technologies are realised.

We've structured each shift to explore:

1. **Technological Shift:** What behaviour is the technology enabling/creating?
2. **Connected Implications:** What emerges more directly out of this change? How will we feel as a result of this change? What questions are we likely to begin to ask?
3. **Societal Shift:** What could happen as a result at a broad societal level?
4. **Reasons to believe:** Current available evidence of these changes
5. **So what?:** What questions do you need to start asking now in order to be ready for what's next?

Contents

1

Introducing 5G

Image courtesy of SCREEN POST on Unsplash

What *is* **5G**?

5G is technically the 5th generation of cellular networks.

It runs on the same radio frequencies that are currently being used for your smartphone but utilises higher frequencies to transfer exponentially more data over the air for faster speeds, reduced congestion and lower latency.

The rollout of 5G will do a lot more than just improve your network connection. 5G is core to the 4th Industrial Revolution - the blurring of boundaries between the physical, digital, and biological worlds.

Imagine billions of connected devices gathering and sharing information in real time to predict or prevent road accidents, power early warning systems for natural disasters or deliver sensory experiences, like touch, through digital devices. Imagine a world where augmented reality will become truly ubiquitous. Where patients get treated at home with the help of VR, AR, and mixed reality.

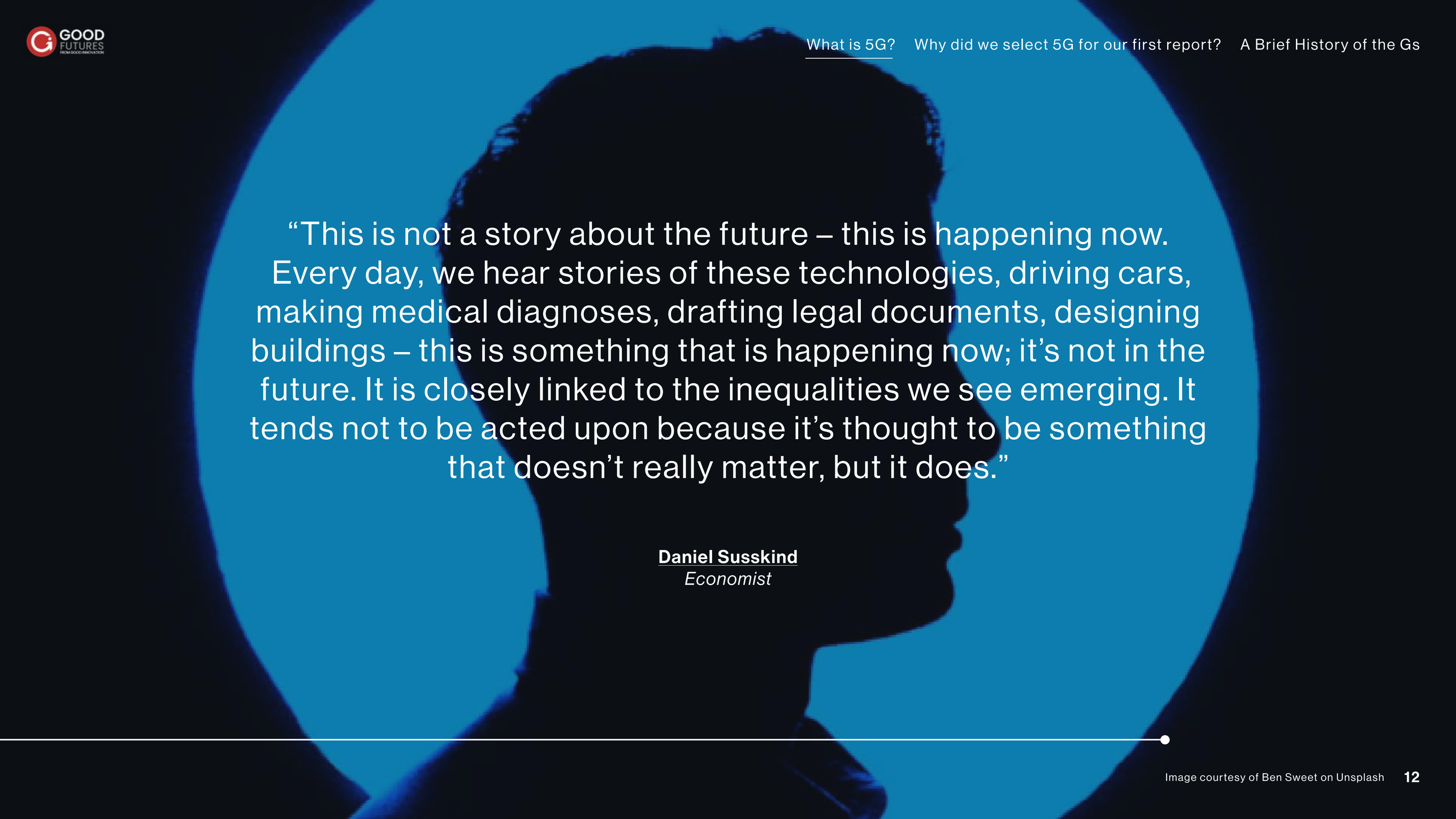
With big potential comes big risks.

Surveillance and data capture pose risks to privacy. And in this new technological era, when things fail--and they will--they could fail spectacularly. Imagine petabytes of sensitive data being siphoned off by hackers in an instant. In the world of IoT it's one thing to hack someone's doorbell, but another to hack into an autonomous vehicle or a hospital's medical devices.

It may take a couple of years for 5G to blanket our country, but when it does, **data will flow freely between more people, more places, and more devices** at speeds and volumes we've not seen before. 5G will unleash a new wave of entrepreneurs and innovators.

5G doesn't just create new opportunities for connecting with people. 5G fundamentally - directly or indirectly - will shift our behaviours, attitudes, values and expectations.

Welcome to the Paradigm Shift.



"This is not a story about the future – this is happening now. Every day, we hear stories of these technologies, driving cars, making medical diagnoses, drafting legal documents, designing buildings – this is something that is happening now; it's not in the future. It is closely linked to the inequalities we see emerging. It tends not to be acted upon because it's thought to be something that doesn't really matter, but it does."

Daniel Susskind
Economist

Image courtesy of Ben Sweet on Unsplash

Why did we select **5G** for our first report?

1 We're at a critical moment

5G is on the precipice of becoming a reality for a wider audience, and it's transformative societal impact - across those with and without access to it, will grow exponentially. **The pandemic has expedited this shift.** *"The disruption to our everyday lives brought about by the Covid-19 pandemic has created a 'watershed moment in the awareness of how important connectivity is to our culture', according to Mark Melling, head of Verizon Media's Ryot Studio EMEA."* (Contagious)

2 That impact of 5G is set to be fundamental and far-reaching

The impact of 5G will not be limited to enhanced connectivity. In providing the genuinely "game-changing" supporting infrastructure of emergent technologies like AI, XR and IoT (amongst others), 5G is the platform that will, quite literally, "change everything".

3 Increasing digital exclusion

As with all technological revolutions, the future will not be evenly and equally distributed. **5G could widen the bridge between the connected and the disconnected.** Those who can't, won't or don't connect. We believe there's a role for the third sector to not only bridge the divide but tackle the factors that influence digital exclusion.

4 We need to make meaningful sense of it

To thrive in the future, organisations need to be proactive, rather than responsive to change. That requires an informed perspective on the future. But we're not oracles. The future impact of something like 5G cannot be predicted with 100% accuracy, but hyperbolic proclamations are no use to anyone. There's a lot of technology that 5G will supercharge, but **we've selected the three that we believe will offer the greatest opportunity (and potentially the greatest risk)** to the third sector. This report aims to provide intelligent speculation to deliver a broad perspective on what plausible potential future scenarios might emerge and what they mean for the sector, your mission and your supporters.

"There are an estimated 20 billion connected devices in the world today. If there were to be a fundamental shift in the tech that connects these devices we would also see a shift in the way that we as humans live, work and play, and therefore a massive impact on our culture."

Mark Melling
Head of Verizon Media's Ryot Studio EMEA (Contagious)

Image courtesy of Tyler Delgado on Unsplash

A Brief History of the Gs

1G

Brick Phone

Year: 1979

New Capabilities:
- Calls

Think: *doing bicep curls with your £1700 Motorola to impress your power-suited colleagues*

2G

Burner Phone

Year: 1991

New Capabilities:
- Dial-up Internet
- Text Messaging
- Picture Messaging

Think: *playing snake on your Nokia instead of filling in your Excel spreadsheet*

3G

Smart Phone

Year: 2001

New Capabilities:
- Mobile Internet
- Video Calling

Think: *tapping out e-mails to an ex on the tiny keys of your Blackberry*

4G

iPhone

Year: 2009

New Capabilities:
- Mobile TV and Gaming
- HQ Video Conferencing

Think: *in an Uber back from the club, blasting the Spotify playlist on your iPhone*

5G

Future Phone

Year: 2020-2030

New Capabilities:
- Remote Control
- Extended Realities

Think: *using your Huawei to track the drone delivering your takeaway*

Images courtesy of Gadget Hacks, and Rayson Tan, David Lindahl, Tron Le and Zana Latif Unsplash

2

5G Technologies

Image courtesy of UNIBOA on Unsplash

Internet of Things (IoT)

What *is* **IoT?**

Our devices are now talking to each other. The **Internet of Things**, aka **IoT**, is the sum total of all the devices that are connected together by the Internet.

Often referred to as ‘Smart Objects’, these devices use the Internet to communicate with each other - and with us. Our homes are increasingly populated by these Smart Objects, from Smart speakers to Smart thermostats.

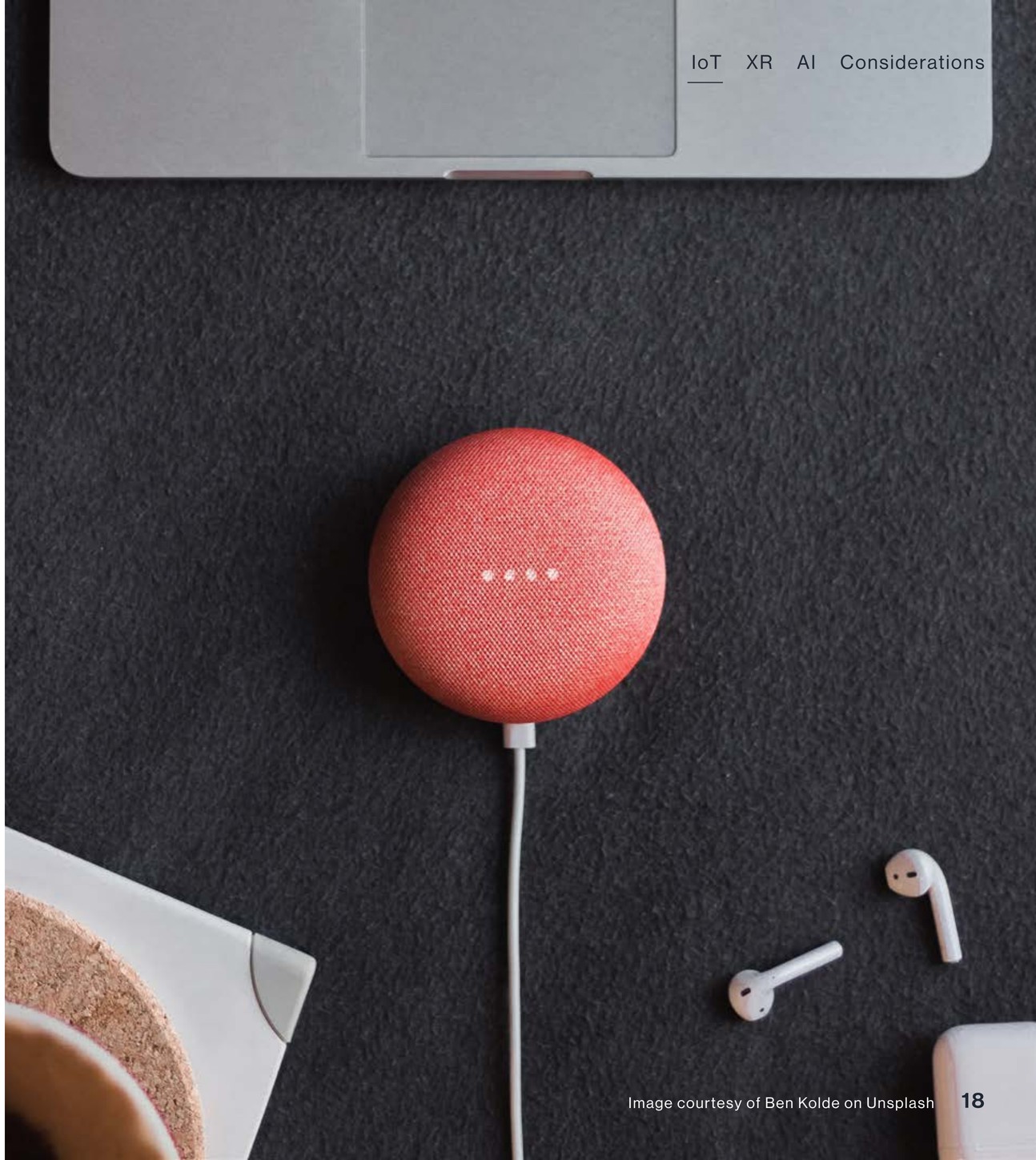


Image courtesy of Ben Kolde on Unsplash

A Brief History of IoT

Image courtesy of Stéphan Valentin on Unsplash

1980s

The concept of adding sensors and intelligence to physical objects is first discussed, when some university students decide to modify a Coca-Cola vending machine to track its contents remotely. The technology is bulky and progress is limited

1999

The term 'Internet of Things' is coined by the computer scientist Kevin Ashton. While working at Procter & Gamble, Ashton proposes putting radio-frequency identification (RFID) chips on products to track them through a supply chain

2000

LG announces the first smart refrigerator

2007

First iPhone launches

Image courtesy of Konsepta Studio on Unsplash

2008

Number of connected devices exceeds the number of people on the planet

2009

Google starts to test driverless cars

Image courtesy of Dan LeFebvre on Unsplash

2011

Google's Nest smart thermostat hits the market, allowing remote control of central heating

2020

One out of three company decision-makers decide to further invest in IoT adoption within the organization (DataProt)

2023

According to Deloitte, the number of cellular IoT connections is expected to surpass 3.5 billion (DataProt)

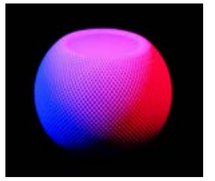


Image courtesy of Ben Kolde on Unsplash

Why does it **matter**?

Geographical distance will no longer be a barrier to connection or action

5G's ultra low latency and hyperconnectivity allows for the emergence of phenomena like the tactile internet, where humans can use connected tech to complete physical tasks remotely yet as effectively as if they were in the room. If 3G facilitated advice over the phone, and 4G enabled guidance via video-stream, 5G enables remote task completion.

We don't think we can be in two places at once - embrace our family from another country, or perform heart surgery outside of the operating theatre. Thanks to IoT, this no longer seems so impossible. We'll be able to construct buildings without having to be on-site, with a 5G-connected device there to seamlessly mirror our every movement.

More data = great insight but amplified security focus

The IDC predicts data generated by IoT devices will reach 73.1 ZB by 2025, which equals 422% of the 2019 output. (DataProt). In supercharging IoT, 5G will help us gather and analyse more data, delivering smarter insight, and enabling more precise decision-making - across infrastructure and our own devices.

With more and more Smart devices connected to the internet and 'talking' to one another, the security of this digital space becomes a greater concern. Between 2018 and 2019 Cyberattacks on IoT devices skyrocketed a staggering 300%, growing from 813 million in 2018 to 2.9 billion the following year. (DataProt). IoT search engines such as Shodan and Thingful are already able to 'discover' internet-connected devices. Though incredibly rich resources, they point to the vulnerability of our personal data captured by these IoT-connected Smart devices. A breach to our technology becomes more and more of a threat to ourselves.

Case Studies

1

Evrything

Evrythng's grand ambition to manage the data across the *"entire journey of every product item in the world"* indicates their supreme confidence in the transformative potential of IoT platform technology. To both business and consumer, Evrythng's service assigns and makes fully transparent a comprehensive digital identity for physical objects under their remit.

Their service allows users to access the *"necessary information across their sourcing and supply networks, and organise that information effectively to make it useful, meaningful and trustable for the consumer"*. By giving every physical product a *"cloud half"* or digital 'alter ego', it offers business owners a means to ensure quality through tracking products across the supply chain.

2

CyLab Security and Privacy Institute

Carnegie Mellon University's CyLab Security and Privacy institute is in the business of putting the consumer in control. They recently developed a prototype privacy label designed for electronic products. Built with IoT device-makers, standards bodies and others in mind, it aims to give consumers insight into the device's security mechanisms, and the four mechanisms that could be used for tracking. This information would be visible on packaging or websites where the product is featured.

In December of last year, the team also pioneered an IoT Assistant app that enhances user awareness of data collection. The app aims to reveal the countless - and often hidden - IoT devices capturing personal data, the many types of data they collect, and any controls we, the consumer, might have such as opting in or out of their data collection and use practices. Their efforts respond to growing concerns around IoT's privacy threat. According to a recent Economic Intelligence Unit survey, **74% of consumers worry that they will lose their civil (privacy) rights because of IoT** whilst 92% want to control the type of automatically connected info.

"Our app and infrastructure paves the way towards compliance, allowing people to take control of their privacy... (and) we want to make it very easy for people who deploy IoT technologies to publicise the presence of their resources and their data"

Norman Sadeh
Computer Science Professor at the Institute for Software Research (ISR) and Principal Investigator of the Personalized Privacy Assistant Project, Carnegie Mellon University's CyLab

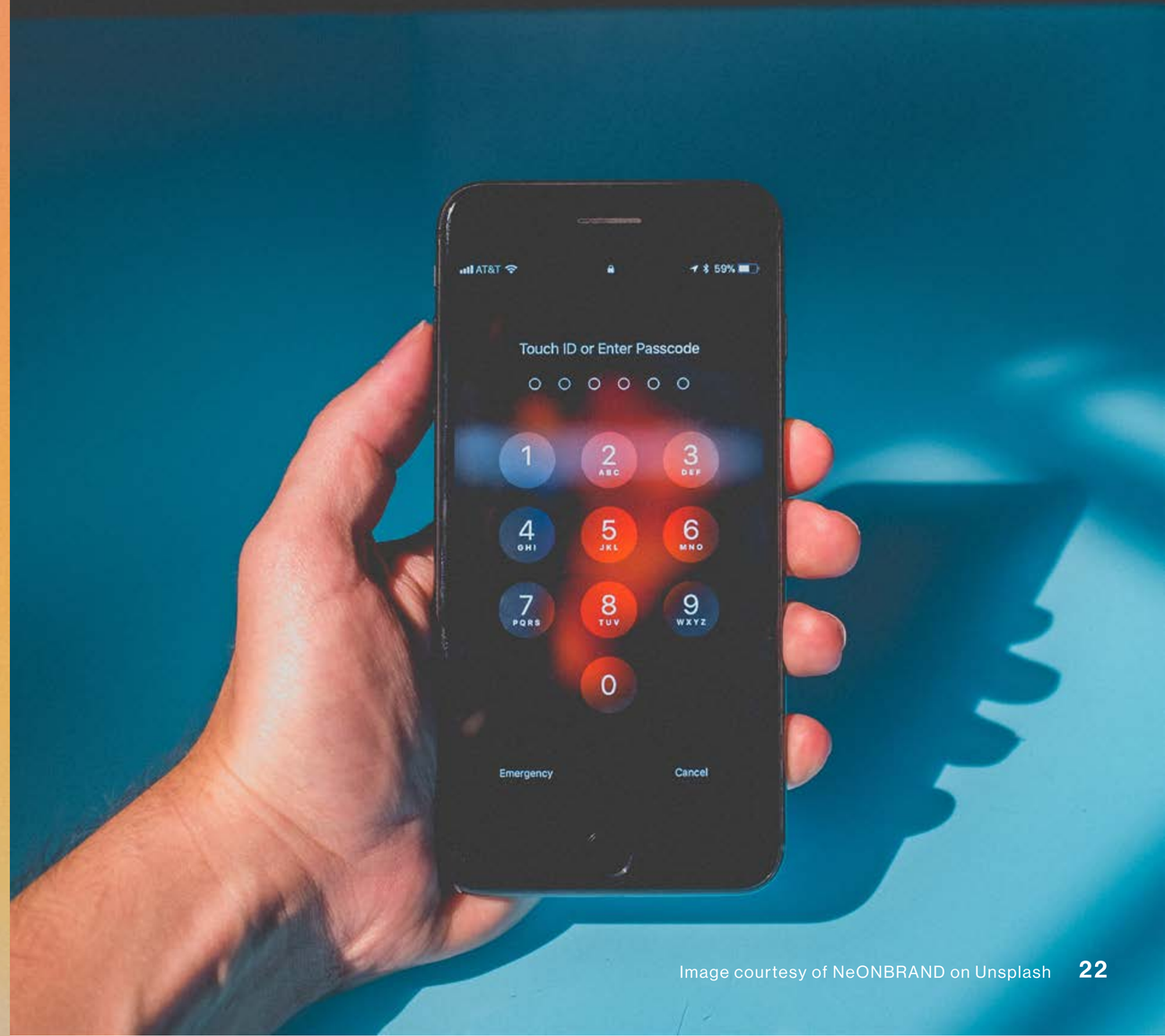


Image courtesy of NeONBRAND on Unsplash

So **what?**

(This isn't a definitive list, but some starters for thinking)

1

When geography is no longer a limitation, how can you exploit borderlessness?

- When geography and man power is no longer the limitation to impact, how can IoT devices enable 24/7 service delivery, leveraging experts in any location at any time?
- If IoT connects the world and borders are no longer a boundary to service and connection, what opportunities does this provide around internationalising UK charities?

2

How can you be ready to exploit the Sharing Economy 2.0?

- How can you use IoT to gather data to support medical research / diagnosis / care / lifestyle interventions?
- What opportunities does this offer around supply chains?
- Given the logistics effort that sits behind how many charities deliver their mission, what can this provide to simplify / lower costs?
- Can data provide better partnerships?
- How can you reconsider your existing idle assets and data to leverage the opportunity to add value or drive income?

3

How could massive amounts of data radically transform or grow your fundraising and income generation?

- What opportunities does more data provide around tracking impact and quantifying theories of change?
- And then what new opportunities could this provide around funding models?
- With so much data in the hands of consumers, what are the implications for supporter choice to analyse impact? How will this impact lifetime value and trust?
- How can you build deeper relationships?

4

What's your role in guiding where society goes? How can charities act as the guardians and gatekeepers?

- What are the implications of an always on, always connected, always watched society?
- What's your role in supporting/ guarding/caring for wellbeing?
- There will be significant tech innovation opportunities that startups will embrace. What's the sector's role in supporting / guiding / setting standards / endorsing / steering / pushing back on what's likely to be a new wave of tech startups pushing the boundaries?

Extended Realities (XR)

What *is* **XR?**

Before the advent of **Extended Reality** (**XR**) technology, our reality was largely singular and limited to our primary, physical world. Today, XR's myriad, rapidly-evolving constituent strands of Augmented (**AR**), Virtual (**VR**), and Mixed (**MR**) have ushered in a new era of experience; more "real" and 'total" immersion into new worlds, as well as augmented, modified versions of our existing, primary reality.

Supercharged by 5G, the possibility for XR to shape communication, and collaboration are profound. With it, we'll see abundant opportunities and considerations for **how we build and tell stories, how we learn and make sense of the world**, and so too, for how we connect to and even collaborate with one another. With that, we'll see new behaviours shape expectations, forcing organisations to stay in tow.

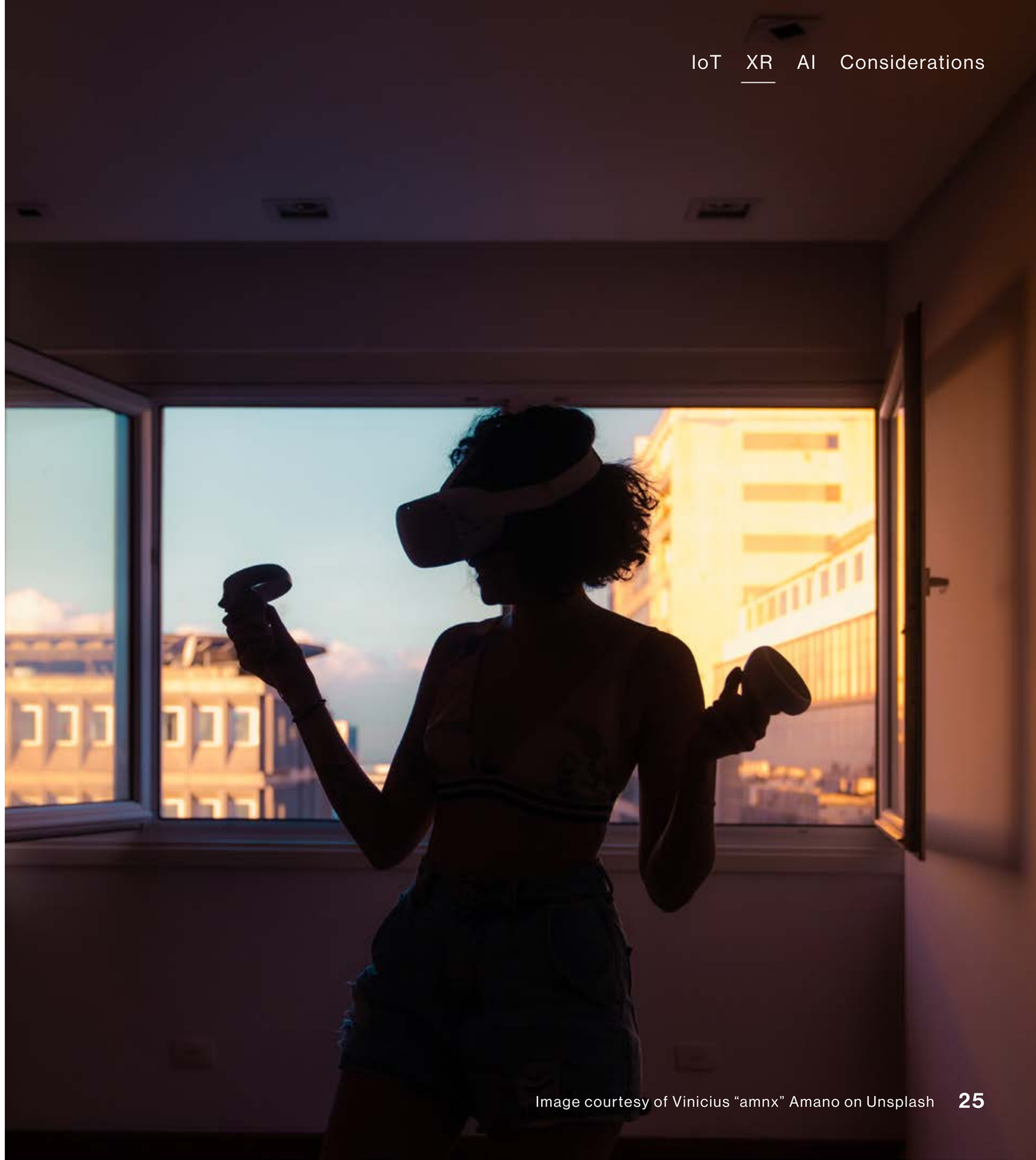


Image courtesy of Vinicius "amnx" Amano on Unsplash

A Brief History of **XR**

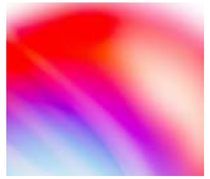


Image courtesy of mymind on Unsplash

1935

Science fiction writer Stanley G. Weinbaum may be the first to envision “extended reality” when he writes “Pygmalion’s Spectacles,” a story in which a professor invents a pair of goggles that allow moviegoers to taste, smell and touch imaginary things, talk to fictional characters and immerse themselves in a story that happens around them, instead of on a screen

1962

A cinematographer named Morton Heilig patents Sensorama, in which a person sits in a semi-enclosed cabinet and experiences a stereoscopic 3-D display, augmented by a fan that spreads aromas and a vibrating chair to simulate movement

1970

Massachusetts Institute of Technology researchers develop an early VR mapping simulation that allows users to move through the streets of Aspen, Colorado

Image courtesy of Caleb Kastein on Unsplash

1990s

Boeing researchers developed the first AR application, which guides aircraft assembly workers on how to install wiring

2014

Facebook buys Oculus for $2bn

Image courtesy of Pontus Wellgraf on Unsplash

2021

Global XR market size is expected to be worth 31 billion U.S. dollars

2024

Global XR market size is expected to rise to 300 billion U.S. dollars

2026

Analysts such as IDC expect healthy growth in consumer AR/VR spending to deliver, a five-year CAGR of just over 52 percent

Image courtesy of Martin Sanchez on Unsplash

Why does it **matter**?

Virtuality becomes reality

3G and 4G networks helped facilitate the sharing of ideas through speech, and over time, through visual and musical media. 5G will go a step further; removing the bandwidth blocker currently holding back technology from delivering the innovation that can enable interaction in the virtual world that feels just as real as that IRL (in real life). And we needn't wait long for it; according to a report from Intel *"a new dawn of VR-driven experiences will emerge as early as 2025."* The next generation of immersive experiences will add new sensations - users will feel vibrations of a car race or the breeze on a tropical island. 4D experiences will become the norm.

It may even outperform learning in the non-digital "real" world: research from Stanford University and Technical University Denmark found learners recall more when using virtual teaching methods than with traditional methods, resulting in a 76% increase in learning effectiveness. (Accenture)

And it also holds the very real potential of enabling near live experiences to reach audiences previously excluded. Students from Oslo's School of Architecture and Design conceived of Strimo, a platform for making events ordinarily unrecorded, or not streamed, recorded and streamed - from smaller local concerts, to school plays - facilitating access to those otherwise excluded by way of technological exclusion.

Case Studies

1

Re-envisioning visual technology with inclusion at its core

Movers & Shakers began as a technologically-centred movement to challenge the *"inequitable distribution of monuments in New York City"*; reflected in the over-indexing of white, CIS males, and comparatively few statues of BIPOC, female and animals. The project has since evolved to harness XR as a powerfully inspirational educational decolonising device. The Monuments Project is a *"catalog of augmented reality monuments of women, people of color and the LGBTQIA+ icons"*. Powered by a dynamic educational approach, the project creates site specific monuments with limited accessibility, accessible to, and helping empower, anyone with a smartphone to be able to see digital monuments of black and brown icons in their homes.

2

Illuminating the past with future-facing technology

In China's Southern Song Dynasty Guan Kiln Museum, 5G is being harnessed to create supremely rich XR-based experiences that serve to truly bring history to life. The sword of King Goujian, for example, is one of ancient China's most precious artefacts, preserved for over 2,500 years in physical form, and recently reproduced as a digital model. With an AR handset and connected app, users are able to interact with it in dynamic detail, spinning it around and zooming in and out. (Huawei)

3

Driving deeper engagement by appropriating immersive technology

PepsiCo recently applied lessons from Minecraft to reimagine their training mid-pandemic, offering inspiration to organisations grappling with the transition from in-person to virtual in the process. Taking the lead from his 11 year old son, a PepsiCo Lean Six Sigma program leader for Europe received permission to transpose their training to a Minecraft-styled context in which employees are taught to iron out inefficiency and reduce waste by working in an imaginary distribution company that creates pallets out of different products and ships those pallets to a warehouse. (HRDive)

"Our team decided that if New York City was not going to prioritize underrepresented groups, we could do it ourselves with augmented reality (AR). While New York City has allocated $1 million per new monument, we can make hundreds of AR monuments for the cost of 1 statue. We started building out a catalog of AR monuments of women, people of color and the LGBTIA+ community. In the future they will exist in public spaces as tools for public engagement."

Movers & Shakers

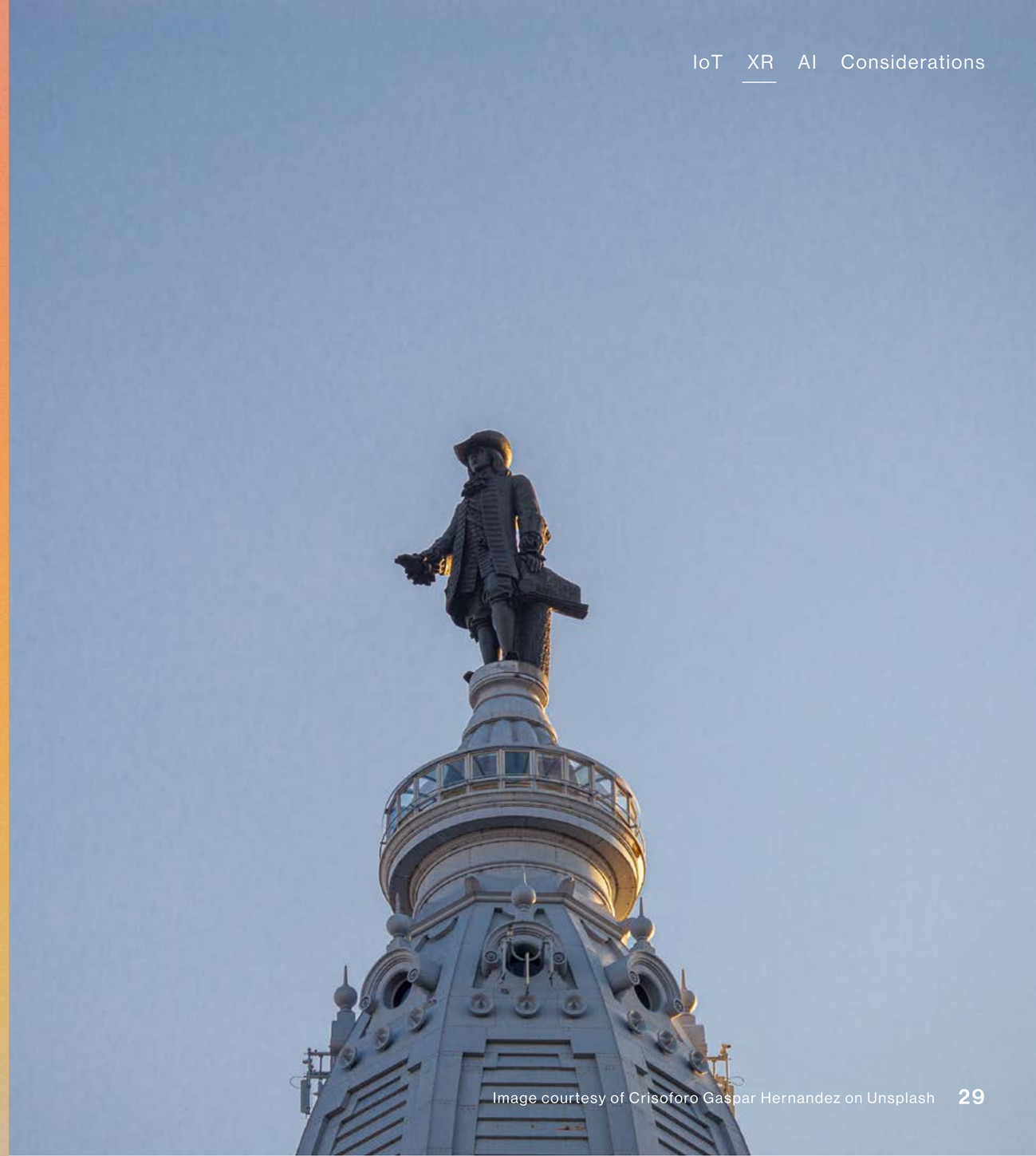


Image courtesy of Crisoforo Gaspar Hernandez on Unsplash

So **what?**

(This isn't a definitive list, but some starters for thinking)

1

How could XR revolutise how you engage supporters?

- How can you use XR to create experiences and narratives that drive empathy to connect supporters with your cause and your impact?
- How can you build a deeper connection with cause built on the power of immersive storytelling told through XR, where supporters can engage with 'real' experiences?

2

How could XR remove the barriers of real world delivery by translating engagement, connection and community into the virtual?

- What would your existing portfolio look like delivered through XR?
- How could mass participation offer real time collective experiences in a digital space, or for supporters to witness the impact of the regular gift?
- If tech capability drives an acceptance of virtual working and remote communities, what role will real world communities play and how can you harness their power?
- What will become old fashioned, what parts will be missed or viewed with nostalgia?

3

How could XR change the way you develop and deliver learning and development?

- How will XR change the way you currently deliver services and training?
- How can you create and deliver immersive learning experiences that train staff, volunteers and supporters?

4

How will XR change the expectations of consumers and what will this mean for trading?

- How will XR change the expectations on commerce?
- Will your estate become redundant as more consumers are driven online?
- How can you use XR in-store to deliver new engagement opportunities and connect customers with mission and impact?

Artificial Intelligence (AI)

What *is* **AI?**

Artificial Intelligence (**AI**) allows computers and machines to imitate the perception, learning, problem-solving, and decision-making capabilities that we would ordinarily associate with humans. In computer science, the term AI refers to any human-like intelligence exhibited by a computer, robot, or other machine.

From the Wizard of Oz's "heartless" Tin man, to the humanoid robot that impersonated Maria in Metropolis, to Turing's exploration of AI as a mathematical possibility. After decades of being relegated to science fiction, today, AI is part of our everyday lives. Computational decision-making power surrounds us. AI is completing our words as we type them, providing driving directions when we ask, vacuuming our floors, and recommending what we should buy or binge-watch next.

But 5G presents an opportunity for AI to "free us" from mundane tasks, to make more informed decisions (from more data, with deeper analysis), and **embody even the most "human" qualities.**

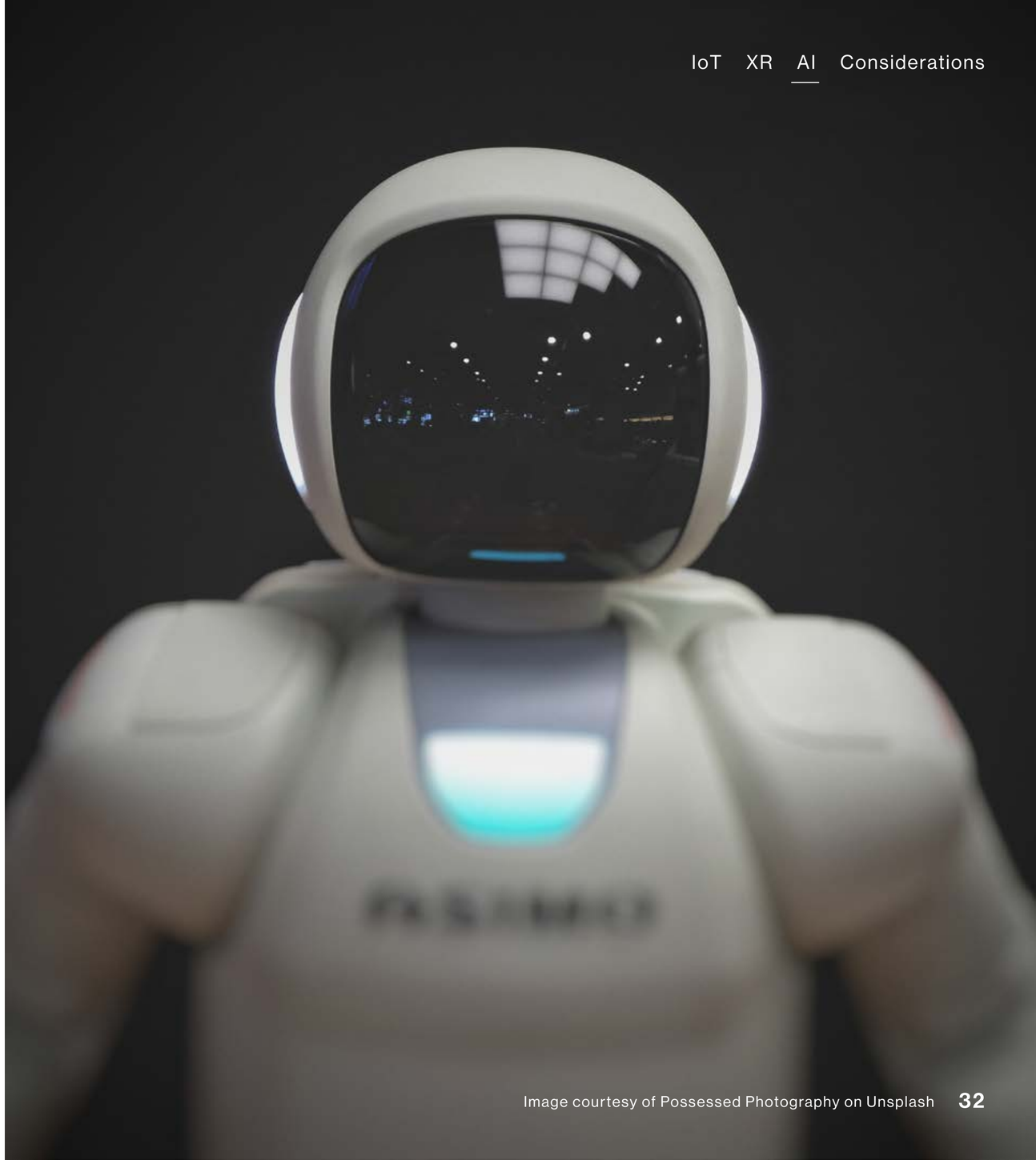


Image courtesy of Possessed Photography on Unsplash

A Brief History of **AI**

Image courtesy of Sam Moqadam on Unsplash

600 BCE

We find the origins of AI in Greek mythology, where myths of Hephaestus and Pygmalion incorporate the idea of intelligent robots (talos) and artificial beings

1950

Alan Turing proposes the Turing Test. A test of a machine's ability to exhibit intelligent behaviour equivalent to, or indistinguishable from, that of a human, and Isaac Asimov publishes his Three Laws of Robotics

1955

Allen Newell, J.C. Shaw and Herbert A. Simon demonstrate the Logic Theorist, the first AI programme

1968

Arthur C. Clarke and Stanley Kubrick imagine that, by the year 2001, a machine would exist with an intelligence that matched or exceeded the capability of human beings (HAL 9000)

Image courtesy of Bernard Hermant on Unsplash

1990s

We see major advances in all areas of AI, with significant demonstrations in machine learning, intelligent tutoring, case-based reasoning, multi-agent planning, scheduling, uncertain reasoning, data mining, natural language understanding and translation, vision and virtual reality

1997

Deep Blue defeats the (then) world chess champion, Garry Kasparov

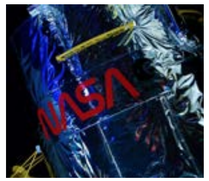


Image courtesy of Brian McGowan on Unsplash

2004

DARPA introduces the DARPA Grand Challenge for autonomous vehicles and NASA's robotic exploration rovers, Spirit and Opportunity, autonomously navigate the surface of Mars

2009

Google build an autonomous car

2011

IBM's Watson computer defeats television game show Jeopardy! champions Rutter and Jennings

2015

Elon Musk, Stephen Hawking and Steve Wozniak and 3,000 researchers in AI sign an open letter to ban the development and use of autonomous weapons

2027

Global AI market is expected to reach $267bn; a CAGR of 33% (Fortune Business Insights)

Image courtesy of M. B. M. on Unsplash

Why does it **matter**?

We're increasingly accepting the role of AI-powered voice assistants to guide and assist us

But AI is fast-reaching the point where little to no intervention is required for us to go about its business of *completing* tasks independently, and with supreme efficiency.

With this in mind, **AI will fundamentally disrupt the current employment landscape**. According to the World Economic Forum, 50% of employers are expecting to accelerate the automation of some roles in their companies, potentially leading to large scale unemployment.

Others identify the potential for a more optimistic future: explosion of job creation: the robot revolution set to create 97 million new jobs; and prioritisation of distinctly "human" skills: In 2025, analytical thinking, creativity and flexibility are among the top skills needed; with data and artificial intelligence, content creation and cloud computing the top emerging professions.

Data analysis will enable AI to also replace decision-making

Combined with the ultrafast speed and data processing capacity of 5G, AI will ensure that our devices get ever better at predicting what we "want" and "need", especially given high levels of consumer willingness to submit data to AI to inform better experiences with business (62%). AI is starting to analyse thousands and thousands of data points in a fraction of the time our old technology could manage, ensuring we make smarter decisions about the future ahead of us. From the strategy our businesses take, right across to the music our artists create, predictive analytics will have a greater role in shaping these decisions. **AI has the potential not just to replace parts of our workforce but also monitor and manage our workplaces, write our strategies and create our culture.**

Case Studies

1

Actualising a people-centric future of work

Shimmy Technologies emerged from the urgent realisation that advanced investment in people, rather than machines, was required to align it with the exponential boom in automation set for acceleration under 5G, especially given the need to support communities most vulnerable.

Their applications futurproof the supply chain, whilst prioritising a people-centric future of work through the use of reskilling, upskilling, and data management applications.

2

Powering a more efficient means to communicate unique, contextual needs

In supplying its advanced AI capabilities, HelloDone's partnership with delivery company DHL Parcel UK aims to address shortcomings in the retail delivery experience for disabled consumers, and in a way that passes cost to the retailer, not the disabled consumer.

How does it work? HelloDone's AI connects up to DHL tracking numbers and integrates with retailer messaging channels on social media - and increasingly popular sites of e-commerce - like WhatsApp and Facebook Messenger, to allow consumers to easily ask the retailer Frequently Asked Questions (FAQ). 'Just a Minute' (JAM), a feature alerting drivers to wait a little longer to give more time for customers to get to the door, is one of those FAQ options. Conceived from insight provided by the Citizens Advice Bureau network, and shaped by tonal guidance from Scope, the solution harnesses AI's potential to provide consumers with a straightforward means to communicate the specificities of their delivery needs.

"Even though the majority of AI research has been targeted toward automation in the production domain, there are plenty of new pastures where AI could complement humans. It can increase human productivity most powerfully by creating new tasks and activities for workers."

Daron Acemoglu
Institute Professor at MIT Department of Economics

Image courtesy of Possessed Photography on Unsplash

So **what?**

(This isn't a definitive list, but some starters for thinking)

1

How will AI change the future of work?

- What does the likely replacement of entire roles and capabilities, and the outsourcing of repetitive and mundane tasks to automated technology mean in terms of challenges and opportunities?
- How could AI transform how you create, deliver and innovate your services?

2

How can you use AI to transform supporter engagement?

- Platforms like WordAI and Frase.io are already utilising AI to generate content and answer web queries. How could AI revolutionise your content production and supporter engagement?

3

How can AI take on the more complex problems?

- AI has the potential not just to automate but to take over complex problem solving, and even decision-making. What role could AI play in your governance and strategy?
- What decisions would we be comfortable letting AI take the lead, and where's the red line?

4

How can you use AI to predict problems before they occur?

- How can you exploit the full potential of AI (machine learning, neural networks and deep learning) to predict problems or issues before they occur?
- How could AI help you understand your beneficiaries and predict their behaviour so you can intervene or prevent rather than support?

Considerations

But... Digital Exclusion

Internet as a basic human right

In 2016 the UN General Assembly passed a non-binding Resolution that declared internet access a human right. COVID-19 has made one thing crystal clear: Society needs the Internet to function. During the pandemic, the Internet has been critical for buying food, working, educating children, getting medical care, accessing news and connecting with our loved ones.

We turned to technology to replace the everyday normal experiences removed due to lockdown. But COVID-19 also highlighted the fact **that billions of people around the world remain without this human right.**

Affordable access and skill represent major hurdles

Many rural and low-income communities around the world, including those in large urban areas, lack reliable, affordable access. Data from the International Telecommunication Union (ITU) reveals that 97 percent of the global population lives within reach of a mobile signal, and 4.1 billion people use the Internet (54 percent of the world's population). However, more than 3 billion people are still offline. Skills are perhaps one of the most significant barriers, especially in the UK. 11.9m people (22% of the population) do not currently have the digital skills needed for everyday life in the UK. (NHS Digital)

By 2030, it is predicted that

4.5m

people will remain digitally disengaged.
This is equivalent to 8% of the population.

But... Digital Exclusion

Digital inclusion is fraught with barriers to overcome

There are a number of barriers to digital inclusion, including: access, affordability, skills, confidence, motivation, design and awareness. The consequences are profoundly concerning, and should energise targeted efforts to address the issues they give rise to.

Crucially, those sections of society are more likely to be digitally excluded than others. Across those sections, certain barriers represent more insurmountable, challenging obstacles.

These are:

- older people
- people in lower income groups
- people without a job
- people in social housing
- people with disabilities
- people with fewer educational qualifications (those who left school before 16)
- people living in rural areas
- homeless people
- people whose first language is not English

(NHS Digital)

People with a disability are

35%

less likely

to have essential digital skills for life.

Also... Environmental Impact

5G: an ecological holy grail?

The speed, capacity and connectivity of 5G could potentially provide many opportunities to protect and preserve the environment. IoT will be able to increase energy efficiency, reduce greenhouse gas emissions and enable more use of renewable energy. It could help reduce air and water pollution, minimise water and food waste, and protect wildlife. It could also expand our understanding of and hence improve decision-making about weather, agriculture, pests, industry, waste reduction and much more. (Columbia Climate School)

However, there are **already concerns that 5G could have catastrophic negative effects on the environment** because of its energy use, and the impacts of manufacturing new infrastructure and a multitude of new devices.

The burden on Information Technology (ICT)

Currently, information and communications technology is responsible for about 4 percent of global electricity consumption, and 1.4 percent of global carbon emissions. But Ericsson is already projecting that by the end of 2025, 5G will have 2.6 billion subscribers; total global mobile subscriptions are expected to reach 5.8 billion by then. By 2030, IoT devices around the world could number 125 billion. At that point, information technology is expected to be responsible for one-fifth of all global electricity consumption and by 2040, it could generate 14 percent of worldwide greenhouse gas emissions.

By 2040

14%

of worldwide emissions will be from ICT

Also... Environmental Impact

Smartphones have much to answer for

Greenhouse gas emissions are projected to increase due, in part, to the fact that consumers will need to buy new 5G mobile phones in order to take full advantage of 5G. A Swedish study calculated that a smartphone produced 45 kg of CO2 during its entire lifetime, with most of it coming from the production phase. If accessories and the mobile network are included, the total life cycle impact amounts to 68 kg CO2. As consumers around the world move to 5G phones, many older phones and IoT devices will be discarded if there are no buy back or recycling plans for them. This will result in enormous amounts of e-waste, which is already a huge global problem.

Crypto: the worst of the Iot?

Add to this the impact of other associated technologies like Blockchain (which we covered in our article on Redefining Ownership) and mining for cryptocurrencies. Cryptocurrency farms require vast amounts of electricity to go about their business, given that a single Bitcoin transaction leaves a carbon footprint of 360kg, compared to 500mg from an average Visa transaction.

The future is complicated

Ultimately, the analysis is not a straightforward one, and to really understand the impact requires a close contextual lens; unpacking the collective impact across a matrix of enduring and new behaviours.

Image courtesy of Ralph (Ravi) Kayden on Unsplash

So **what?**

(This isn't a definitive list, but some starters for thinking)

1

What's your role in tackling digital exclusion?

- What's the role of the third sector in ensuring those already excluded are included in the next wave of technology?
- How can you support and empower your service users?
- How can you ensure that those least able to afford access aren't priced out of the market?
- What does this mean for your technology strategy?
- How do you continue to engage those who choose not to connect and how can you protect and support those who can't connect?

2

How can you use the benchmark of sustainability to assess the potential of 5G enabled technology?

- 5G isn't the solution to all the world's problems. With everything there's a flip side - positive and negative. When considering the opportunities 5G could bring to society, we also need to balance the potential environmental impact of the decisions we make. How can you prioritise sustainability as a red line in your technology investments?

3

How can you champion innovation that prioritises environmental impact?

- What does "green growth" mean for your organisation?
- What's your role in championing "green growth"?
- What new funding streams can you unlock by making green growth part of your strategy and mission?

4

How can you reduce the reliance or need for technology?

- How can you repurpose or reuse?
- How can you revalue offline experiences?
- How can you extend the life of technology to combat e-waste?

3

Societal Shifts

Image courtesy of Matthew Bennett on Unsplash

Privacy & Safety

Technological Shift

In supercharging IoT, AI and helping make Blockchain technology a more mainstream reality in particular, 5G drives unprecedented levels of personal data generation, capture (& analysis) and storage.

"These business model innovations will result in intelligent devices and applications consuming and generating data like never before, creating a demand for data lakes and data analytics capabilities that are exponentially larger and more widely available to data consumers than what is available today." (CIO)

Connected Implications

We *feel* increasingly vulnerable. Rooted in our fear of the heightened potential for harm to be inflicted upon us with:

- **More** of our **own personal** data generated and available to others, and the supreme machine intelligence to analyse it
- **More** of our **trusted sources**' data generated and available to others, and the supreme machine intelligence to analyse it

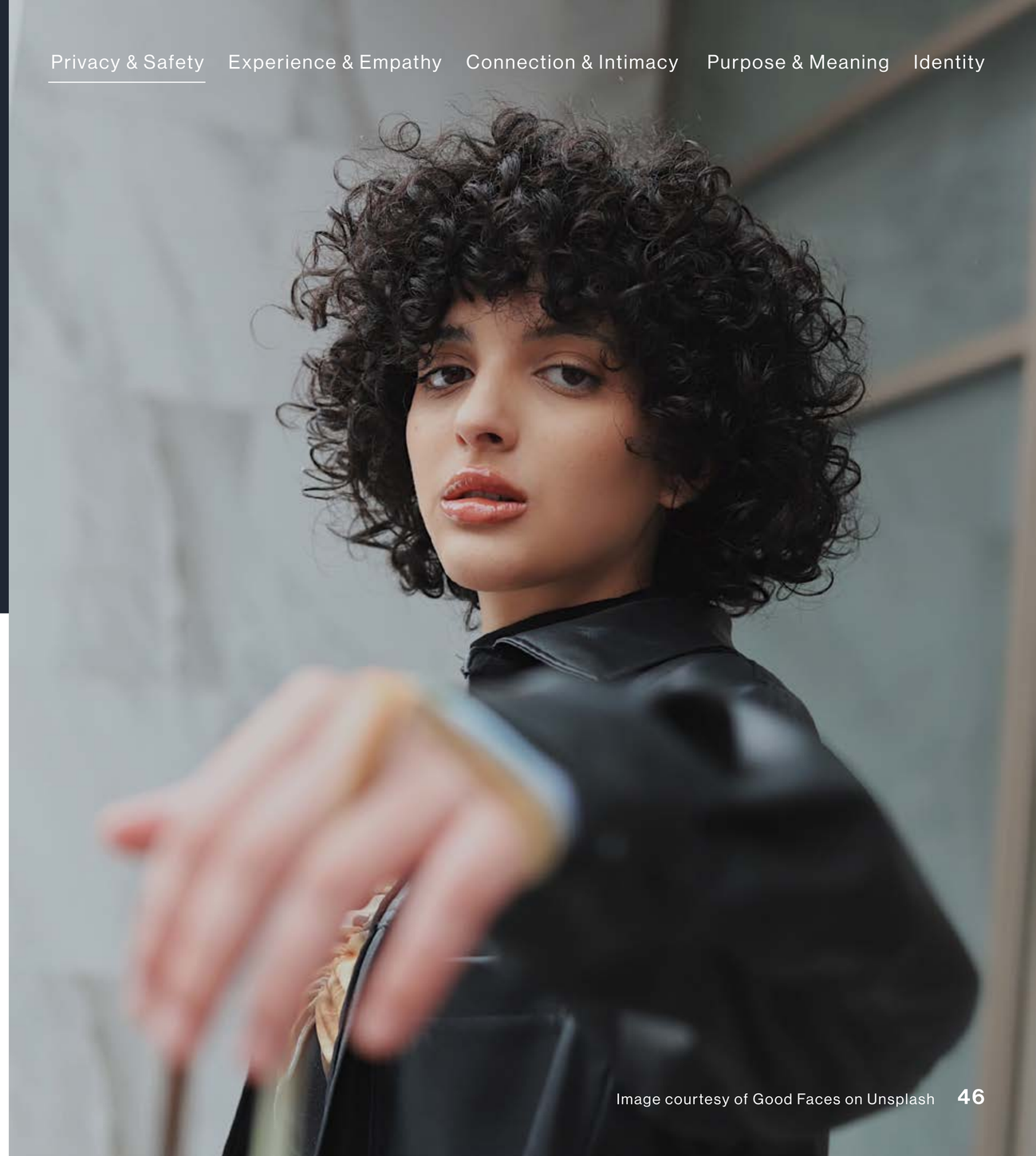


Image courtesy of Good Faces on Unsplash

Societal Shift

We (society) become **even more** safety-centric and privacy conscious EXCEPT for Gen Z, who represent the anomaly.

"For [Gen Z], content consumption is all about hyper personalisation. They want a unique, engaging customer experience, focussed on things like convenience, heightened services, simplicity and ease of use." Vivek Kwatra, Cognizant.

The *Nuance*

Gen Z are willing to trade super tailored (and slick, efficient) experiences for their personal data. No surprises for a generation for whom the sharing of personal information is totally normal, and required to participate in the social fabric.

Image courtesy of Bernard Hermant on Unsplash

Reasons to **believe**

1

Connectivity explosion informs unprecedented levels of data generation

According to a recent IDC estimate, there could be up to **42 billion connected IoT devices** by 2025 (rising from 26 billion in 2019). *"These devices are also becoming more complex, evolving from basic smart devices to smart connected systems and processes. With a greater number of more complex devices comes an exponential increase in the amount of data being generated—one that could exceed what a centralized cloud can absorb, especially as IoT applications rely more heavily on ultra-high-definition video and audio processing"* (McKinsey)

2

Blockchain's myriad potential advantages are explored and realised by influential parties

The costs of transactions using blockchain are millions of times cheaper than transaction costs in the traditional economy. By the end of 2018, about 90% of U.S. and European banks and financial institutions had begun exploring the adoption of blockchain technology. 86% of tech-savvy executive teams surveyed by Deloitte said they believe there's huge business potential in blockchain technology.

3

"Misinformation" is rife and a prominent societal ill

"2021 Edelman Trust Barometer reveals an epidemic of misinformation and widespread mistrust of societal institutions and leaders around the world. Adding to this is a failing trust ecosystem unable to confront the rampant infodemic, leaving the four institutions – business, government, NGOs and media – in an environment of information bankruptcy and a mandate to rebuild trust and chart a new path forward." (Edelman Trust Barometer 2021)

Reasons to **believe**

4

And the “misapplication” of technology is being called out

We’re already seeing deep fakes get eerily good (check out the @deeptomcruise fiasco) such that determining the difference between truth/fake becomes near impossible to discern. This has forced us to no longer take for granted the authority of content featuring the faces of “trusted” individuals. At the same time, cases of identity fraud have sky-rocketed.

But consumers are getting savvier, and are no longer sitting ducks. Canadian sex toy maker We-Vibe was forced to pay a £3 million settlement following a privacy-based class-action suit. The company’s connected vibrator collected sensitive user data - time of use, vibration settings - and linked it to user emails.

In the US the Immigrations and Customs Enforcement agency (ICE) is being sued for refusing to provide answers on how it uses Clearview AI’s notorious facial recognition technology. And in April this year a Detroit man filed a federal lawsuit over a wrongful arrest after he was misidentified by a facial recognition system. Privacy advocates say these sorts of errors disproportionately affect people of colour.

5

“Big tech” pivots to position itself as pro-consumer privacy

Google’s project to replace 3rd party browser cookies is a response to consumer demand for enhanced privacy controls, and broader enterprise to put the consumer in control; but viewed with inherent scepticism (Gizmodo) deemed not to have gone far enough.

Apple’s recent privacy update is part of a longer lineage of consumer-centric design that dates back decades - Steve Jobs famously noted that *“Privacy means people know what they’re signing up for, in plain language, and repeatedly”*. Significantly, it is reflective of the brand’s attempts to ground its differentiation in an advocacy for user-centric privacy.

6

Recent technological innovation aims to meet those needs

Disney has partnered with Vodafone to harness the potential of IoT to develop a basic smartwatch that balances the needs of contemporary millennial parenting: fostering childhood independence whilst ensuring child safety. The Neo allows parents to stay in control of their child’s usage via the Vodafone Smart app, staying in touch via calls, chats, emojis, and can check Neo’s location in real time.

So **what?**

(This isn't a definitive list, but some starters for thinking)

1

How can you own trust, impartiality and independence?

- How can charities respond to the Trust agenda by becoming society's guardians?
- What do you stand for and how can you protect your supporters, your beneficiaries and your mission by holding corporates and governments to account?
- How can charities own a position of trust when stories can become much more immersive?
- Will XR facilitate a further explosion of fake news and what's the role of the sector in combating this?

2

How can you get ahead of privacy concerns now?

- How can you get ahead of supporters' concerns by being proactive now? Charities have been hit by this before (GDPR). What moves do you make now to protect yourself and your brand in the future and build trust?
- How can you use the lessons learnt through GDPR to create robust policies, frameworks and communications that increase supporter trust?
- For those who trust you, how do you make the most of it and make it hyper personalised?
- How can you be truly transparent about data? What does a brand positioning around trust look like?

3

How can you use privacy and trust to build a stronger engagement strategy?

- What's the opportunity to segment your audiences based on attitude to privacy, and therefore cater your messaging based on their preferences?
- How can you target and acquire customers if they restrict your access to their data and information? Which of your existing channels will die?
- Where should you disinvest now if hyper targeting isn't a thing?
- Could this be a move back to mass broadcast?

Experience & Empathy

Technological Shift

Powered by 5G technology, XR, IoT and AI will work independently and in tandem to:

1. Deliver “as-real” experiences to individuals, regardless of spatial or temporal distance
2. Communicate stories more immersively

Connected Implications

We become **more perceptive to, engaged in, and concerned with the complexities (and challenges) of experiences that are not our own.** At the same time, where individuals of differing abilities are no longer barred from activities or experiences, differences become less apparent, and individuals formerly marginalised feel empowered. **Lives led without limitation.**

But our increasingly universal experience of super low latency and reduced lag creates an elevated expectation of technology. More problematically, those standards are implicitly applied to interpersonal interaction.

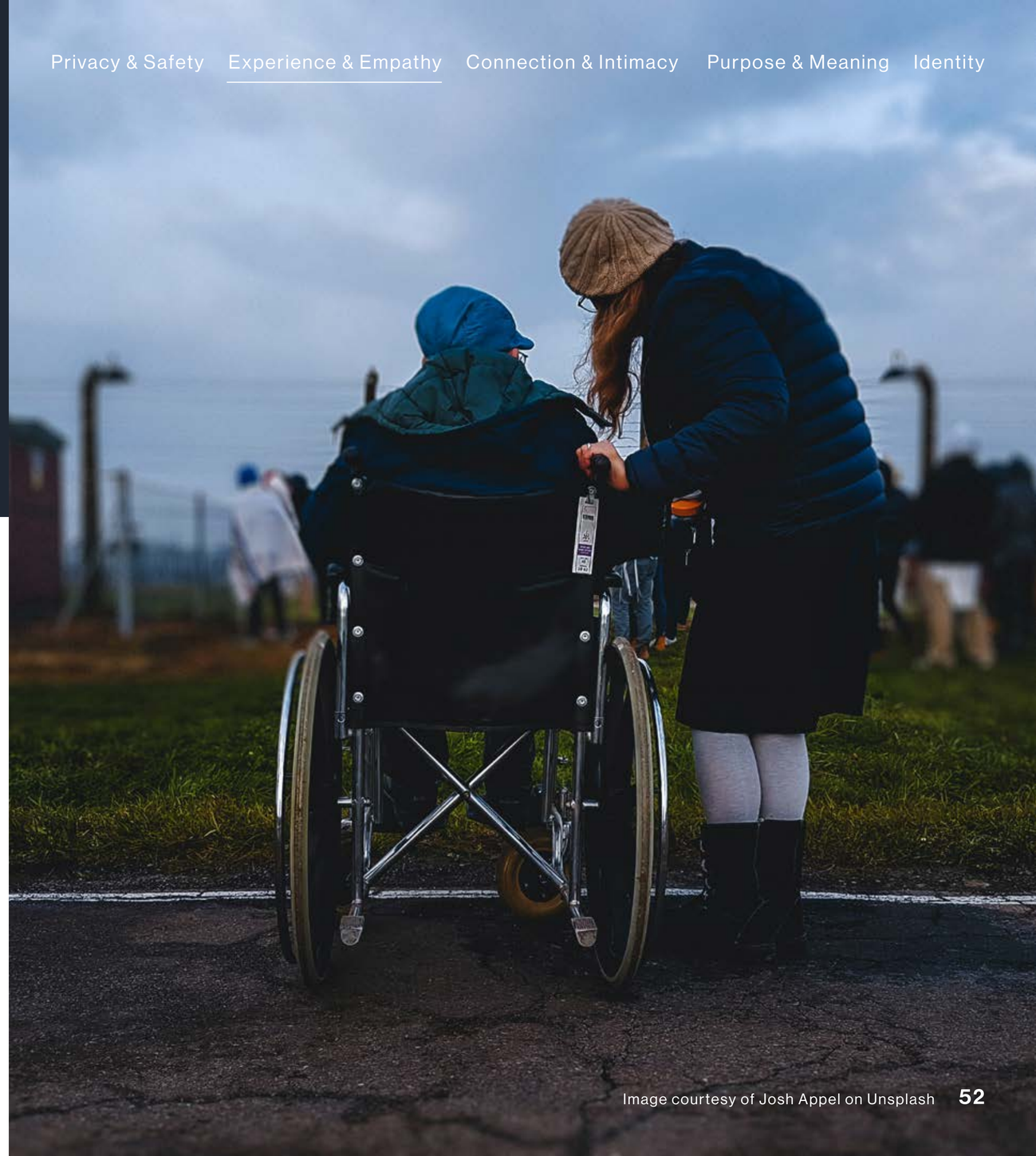


Image courtesy of Josh Appel on Unsplash

"[5G] is going to enable us to be an empathy engine for each other like never before...Through networks that are supercharged and superpowered like this, accessing those perspectives, leveraging them, connecting people so they are learning from each other, not just from content. All of that becomes possible and powerful like never before. **It drives on us a responsibility that empathy is not just this thing we value, that we want to have, but this thing that we deliberately engineer.**"

Vidya Krishnan
Global Chief Learning Officer at Ericsson (HRleader)

Societal Shift

Society becomes more inherently inclusive as:

1. **Difference is better understood** (where previously it was misunderstood) and to which there is now empathy (where it was impossible before)
2. **Difference becomes redundant** because the experience of those who can / cannot dissolves.

But...

With low latency comes a heightened expectation for slick, friction-free experiences. Where individuals are not made adequately (acutely) aware of the complex challenges faced by those different to them, and the technology that fills the gaps has not been made available, it is possible that there may be a lower threshold for slowness and dysfunction with people.

"Technology creates the expectation that everything should move more quickly, as if this somehow makes humans more productive." Chris Matyszczyk, tech columnist and award-winning creative director and head of Howard Raucous LLC (ZDNet)

Our current experience of the digital and virtual has been poorly policed. People act without consequences and governments struggle to force the ruling monopolies to put in adequate safeguarding. **Without regulation, reprimand and champions now, there is a risk that our 5G world will replicate the existing divisions in society** and amplify those currently being created in the virtual.

"The immediacy of 5G services will mean that consumers will have less time and patience for anything that is even a second too slow to load. Blunders unacceptable in a 4G world will become outright rejected once 5G is mainstream"

Tom Robertshaw
Author, "How 5G will supercharge a new digital revolution"

The *Nuance*

For digital natives like Gen-Z, and Gen Alpha, the seamlessness of UX has defined their experience of life (largely lived virtually). There is a danger that their threshold for dysfunction and friction may be even lower.

Reasons to **believe**

1

Demand for seamlessness and efficiency reach unprecedented heights

5G's promise is one of unprecedented speed and latency. At the upper end of estimates, approximately 10 gigabits per second to your phone i.e. more than 600 times faster than the typical 4G speeds on today's mobile phones and fast enough to download a 4K high-definition movie in 25 seconds, or to stream several at the same time.

While we'll likely see technology create more seamless interpersonal communication in the moment, it's possible that we'll see lower tolerance for latency in people. Without action now we risk entrenching, or worse, exacerbating a culture that has already normalised and celebrated those traits, ostracising those who do not meet our elevated standards.

2

Vitriol of online world "trolling" an entrenched problem

"In strong contrast to all published figures and statistics, a large number of people report being exposed to online abuse." According to the Oxford Internet Survey (OxIS1), between 30-40% of people in the UK have seen online abuse, and 10-20% of people in the UK have personally been targeted by abusive content online. Black people and those of 'Other' ethnicities are far more likely to be targeted by, and exposed to, online abuse than White and Asian people. (The Alan Turing Institute)

Disney's Club Penguin was one of the first social networks for children. Launched in 2005, it had more than 200 million players at its peak. In May 2020 Disney forced the closure of a Club Penguin fan site - Club Penguin Online - after children were exposed to racist, homophobic, anti-Semitic and sexual messages.

Reasons to **believe**

3

Conscious innovation is bridging the gap with intention

Universal Design (as featured in Good Futures Fortnightly) has emerged as a broader innovation impulse with empathy at its core. This is all about designing at the extremes, and in the process, creating solutions that make differing ability irrelevant. An example of this is SONY's patent application to enable users to use (any) *"inexpensive, simple, and non-electronic device as a video game peripheral"*, even a banana, signalling an intent to reduce barriers to access.

In education, early research from Richard Van Hooijdonk indicates that virtual and augmented reality tools can increase student engagement and motivation while increasing knowledge construction. According to Games For Change, recently outlined in their "XR for Social Impact" survey, the world's learning crisis could be in-part addressed by XR given its potential for *"transforming how students interact and learn about the world, catering to needs of students with different learning styles, motivations and cognitive capacities"*.

Izzy Ngo and VERE360 are leading the way on this with their offer as a world-leading virtual reality resource for education.

We're also seeing tech deployed to foster understanding of those different from us. Future Aleppo: A VR experience for children to rebuild homes and cities destroyed by war, which operates under the same philosophy of Dot's Home: a game that explores historical housing injustices faced by Black and brown home buyers; and Our America *"an autobiographical VR Experience"* in which *"the audience must make quick decisions, answer questions – but any wrong move is the difference between life and death."* In the world of healthcare, Axon Academy Training Room puts individuals into the shoes of those with mental disabilities to help ensure that incidents are more effectively managed.

So **what?**

(This isn't a definitive list, but some starters for thinking)

1

How can you leverage your unique understanding of your beneficiaries to drive design?

- While disability simulation programs in XR should help individuals experience the world from a different point of view, the danger that these individuals remain recipients rather than drivers of design is a reality. That, in turn, risks perpetuating existing and damaging biases, or creating new attitudes that fail to effectively address actual issues.

  How can you ensure you advocate in a way that enables them to shape content development - along with caregivers, community leaders, and activists - in a meaningful way, to truly valuable ends?

2

How can you harness empathy as a catalyst for change?

- As we move into an empathy economy, how can you evolve from creating empathy as a cause to leverage support, to working with others (business, government, communities) to use empathy in a way that is authentic, to drive systemic change?

3

How can you deliver hyper-personalised, frictionless experiences?

- How could you curate storytelling through XR that's based on hyper-personalised data and experience? And use these hyper-personalized experiences to retain supporters and drive lifetime value?
- In order to deliver frictionless experience there is a technological and financial cost. How can you start experimenting now to work out what works and doesn't. There are lots of startups in this space. Who can you partner, collaborate with or invest in?

4

How can you embrace the role of guardian of society?

- Charities are well poised to become guardians of society in a virtual space that's unpoliced. How can you be recognised and valued for taking that role (and therefore raise income off of it)? But not become the PC/Woke police?
- How can you champion the less obviously apparent but remarkably significant benefits of difference required to drive a society that is intrinsically more empathetic and in which individuals are treated equally?

Connection & Intimacy

Technological Shift

5G's low latency and super-fast connectivity will help make virtual experiences more immersive, tactile and true to IRL.

Connected Implications

Our digitally-dominated experience of recent times has (re-)centred that need for rich, real-feeling connection.

"The stress of social distancing and the palpable inadequacy of virtual interaction manifest a basic truth of personal identity: we are embodied beings, not streams of consciousness. In craving contact with each other, we crave physical not just psychological proximity." (New Statesman)

5G is well poised to enhance the power of digitally-enabled mediums to **create connection and intimacy in virtual spaces** with equivalence or even superiority to those IRL.

Image courtesy of Surface on Unsplash

Societal Shift

The barrier between the virtual and physical worlds becomes increasingly blurred. Distance is no longer the mitigating factor in creating connections and intimacy. **Remote relationships can be strengthened as collaboration and community can be acted out beyond borders.** And connection and intimacy isn't limited to 2D expressions, such as audio or visual. New technology will enable us to connect and care for one another in tactile and sensory ways.

58% of consumers said they would be excited about a connected, end-to-end extended reality experience, and 84% of them would be willing to pay for it. (Accenture Immersive Entertainment Study in a Post-COVID-19 Reality)

But...

In a world where virtual becomes our primary reality there's a real risk for increased isolation for those who can't, won't or don't connect. As Tim Berners-Lee noted, the inequality gap that widened with the emergence of the web, and became more apparent with COVID, will only worsen if areas fail to receive adequate connectivity. (BBC News)

Single-person households are expected to increase from about 2.1 million in 2011 to almost 3.4 million in 2036. Incidences of loneliness (and concomitant mental health issues) have skyrocketed with the rise of social media; rooted in the sense of FOMO that it creates. We can reasonably anticipate the same level of disconnection, loneliness and resulting anxiety and depression.

"Envy is being taken to an extreme. We are constantly bombarded by "photoshopped lives" and that exerts a toll on us, the likes of which we have never experienced in the history of our species."

Ethan Kross
Professor of Psychology at the University of Michigan

The *Nuance*

Younger generations identify via a more global notion of citizenship. The behavioural and attitudinal homogeneity of Gen Z and Millennials across the world is indicative of the borderlessness the global internet has fostered. There's an identification with the notion of "global" rather than "national" citizenship, which goes hand-in-hand with an interest in exploring multiple different worldviews.

Reasons to **believe**

1

“Big tech” is hedging its bets on virtually immersive remote tech

Mark Zuckerberg is betting big on an AR-centred era of digital connection by 2030, whereby AR can enable “teleportation” that helps reduce climate-destructive behaviour like international travel. *“We talked a little bit about climate change before just being so important. People are just going to want to maybe travel a little less in the future and do it more efficiently, and be able to go places without having to take the travel or commute time.”*

2

Benefit-rich experimental tech is proving compelling enough to drive novel behaviours

The technology around connecting with passed loved ones is developing, and its presence and uptake - albeit experimental for some - can be reasonably read as an indication of growing consumer appetite to engage in new death rituals. MyHeritage’s GAN-fuelled Deep Nostalgia tool for example, enables individuals to build clearer, ‘real’ picture of those they never knew. As of early April, over 72 million photo animations had been created through its site - with just 10 options available.

3

COVID-19 has normalised a virtual-first experience

COVID forced much of our lives online, normalising (and creating some notable enthusiasm for) a virtual-first existence. New ways of being intimate with one another have come to the fore in light of the pandemic. Sales of teledildonics, or Internet-connected sex devices, have soared. In March 2020 alone sex toy revenue in Italy, Spain, and France had outpaced projected goals by 124%, 300%, and 94% respectively. (Rolling Stone)

IoT exercise equipment that enables the same sense of comradery and competition as would be achieved in a gym also saw a massive increase during lockdown. Peloton said the number of “connected fitness” subscribers, who had access its remote classes via one of the firm’s machines, jumped to more than 1.09 million at the end of June, up 113% in comparison with the same period last year. (BBC)

Meanwhile, cultural experiences have abandoned an offline-primary model. The Metropolitan Museum of Art in New York City has launched “The Met Unframed” which uses 5G and augmented reality technology to fully immerse viewers. The platform comes with the option to enable gyroscope technology to further imitate the experience of walking through the galleries.

So **what?**

(This isn't a definitive list, but some starters for thinking)

1

How can you engage global citizens with your cause?

- For younger generations (Z and Alpha) operating in a borderless world, 5G creates opportunities to bring geographically remote audiences and causes closer together. How does this impact the remit of your focus and the audiences you go after?
- How does this enhance opportunities to forge an enriched sense of belonging (where audiences seek that)?

2

How can you transcend time to unite loved ones?

- Is there an opportunity for charities to experiment with "Deep Nostalgia" style technology to enhance the experiences you create in helping individuals move through the trauma of grief?
- How can technology revolutionise In Mem and tribute fundraising?

3

What's the role of offline opportunities in this new connected world?

- Reaching out to the whole world offers many possibilities. But does this mean that everything should be streamed, shared and available online? What's the opportunity and value in offline experiences?

4

How can you create a deeper connection to your cause?

- How can you communicate the impact of support using technology to bring it to life?
- How can you leverage IoT and blockchain to give real time, real world feedback to donors, in the moment?
- How could this real time connection be leveraged to increase value?
- How can you communicate urgent needs through real time data?

Purpose & Meaning

Technological Shift

5G enables connected and increasingly autonomously intelligent computational technologies to “do the work” for us, replacing the paid (and unpaid) labour that would have historically been carried out by humans. The replacement of labour by AI could lead to an increase in productivity. Equally it could lead to a wave of mass unemployment.*“There is no question technology will eliminate jobs.”* (Richard Branson)

The workforce is already automating faster than expected, in large part because the pressures created by COVID-19 has produced more compelling justification for prioritising automation: 85 million jobs set to be displaced in the next five years.

Connected Implications

We begin to feel anxious and potentially excited by the prospect of finding new meaning-making endeavours to fill our time. Informed by an uncertainty rooted in the novelty of this experience.

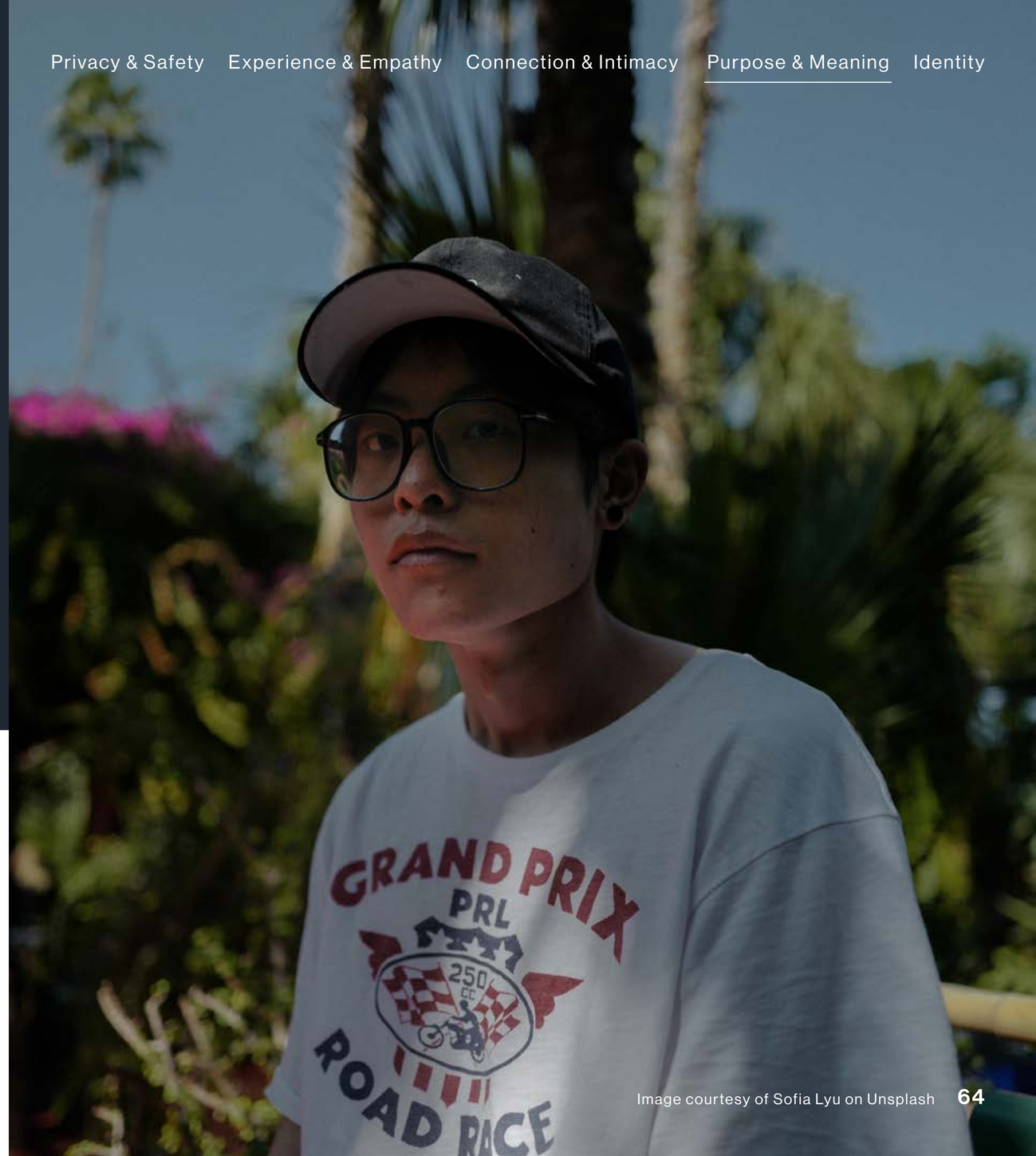


Image courtesy of Sofia Lyu on Unsplash

"The challenge in a world with less work is how you maintain that sense of social solidarity. At the moment, that comes from a sense that everyone is paying into the collective economic pot through their taxes or, if they're not in work, they are actively looking for work or training for work."

Daniel Susskind
Economist

Societal Shift

Society is flooded with discussion of new economies of purpose, where individuals are grappling with how best to use their newfound freedom.

“There are something like 15 million people doing a hugely valuable set of voluntary activities in the UK – why not recognise that? The UBI solves the distribution problem – how do you share income if the labour market doesn’t do it very well? – and if everyone is contributing, some in economic and others in non-economic ways, that may solve the we’re-all-in-it-together problem.” Daniel Susskind, economist.

But...

In losing our work to technology, and in allowing it to become our governess, we face two significant, potential challenges:

1. If we fail to receive adequate reskilling in non-AI work, or the implementation of adequate social support systems like Universal Basic Income do not come into play, the purpose-crisis will be layered with a survival crisis
2. If we allow these devices to continue to carry regressive conventions and unconscious biases into our 5G future, they will become (even) harder to dislodge. **The stereotypes that have dogged previous generations will hold us all back**

“To put it frankly, most tech-insiders believe the majority of people will become ‘unemployable’— unable to produce anything (or offer any service) better, faster, and cheaper than robots (AI). Without jobs, people, especially those who live in urban areas, would lose their way of making a living.”

Alan Tan
Professor of Psychology at the University of Michigan

Reasons to **believe**

1

AI capitalism has emerged as a nascent reality

The foundations have been set. We have already entered into *"actually-existing AI capitalism"*, driven by unprecedentedly powerful oligopolistic companies like Google, Microsoft, Amazon, IBM, Alibaba, Tencent and Baidu where *"AI permeates everyday life... its algorithms organise social media feeds, financial activities, virtual games, workplace monitoring, welfare systems, and police surveillance."*

Consumers are helping to accelerate this shift. The predicted growth of the 'Smart Home' - voice-activated assistants, self-regulating homes, grocery-stock checking and notifying are all established or soon-to-be established. According to data gathered by PreciseSecurity.com, the global smart home market revenue is expected to reach $158 billion value in the next four years (rising from $43 bn in 2017). (UKTech)

And we're moving into a world where machines are no longer *"a supplement to and by-product of human effort"* but rather "the main game". As such, the role of humans is designed out of existence, replaced in totality by AI.

2

The evidence plots the inextricable relationship between technology and society

Voice-recognition AI is often gendered and regressive. Amazon's 'Alexa' responds to the prompt *"You're a slut"* with *"well, thanks for the feedback"*. Whereas male voices are more frequently used to communicate leadership and superiority, such as IBM Watson.

The Smart Wife: Why Siri, Alexa, and Other Smart Home Devices Need a Feminist Reboot charts the ways that AI, robots, and other digital devices have been assigned — and play — the roles that were typically the realm of the 1950s housewife (or at least what people imagined her to be). *"Meet the Smart Wife: she handles housework, cares for family members, and provides companionship (and even sometimes sex)."*

In a US government study testing 189 facial recognition algorithms from 99 developers, a significant number of algorithms *"falsely identified African-American and Asian faces between ten to 100 times more than Caucasian ones."*

So **what?**

(This isn't a definitive list, but some starters for thinking)

1

How can you support and enable supporters, beneficiaries and staff to live their lives with purpose?

- Where swathes of society are swept up by the great automation displacement, how do you need to adjust your offer in a way that actively supports those individuals looking to lead more purposeful lives?
- In a potentially Black Mirror version of the future, how could you showcase positive contributions to society to facilitate Conditional Basic Income?

2

Where do you stand on UBI and how can you lead and influence it's development?

- If Universal Basic Income comes in, and totally reframes expectations of what parts people play to contribute to society, how can the sector use this to reframe the role of people and their contribution to charity?
- Can the sector influence to position volunteering as a 'requirement' / parallel to UBI, therefore unlocking huge volumes and the opportunity to define new services?
- How can technology revolutionise In Mem and tribute fundraising?

3

How can you ensure negative and harmful stereotypes aren't perpetuated in the development of new technologies?

- How can you partner with or employ tech providers who can ensure the absence of and/or iron out any biased thinking?
- What action can you take to proactively counterbalance the cultural effects of perpetuated existing biases?

4

How will your organisation look different as a result of AI replacing jobs?

- Where can you start to automate now?
- What roles could become redundant in the future?
- How will your organogram change?
- What skills do you need to start investing in now?

Identity

Technological Shift

As 5G helps advanced technologies become a more integral component of how we manage our lives and store our information, we see comprehensive personal data capture and storage solutions, and connected personal verification services that prioritise consumer control, come to the fore.

Connected Implications

Individuals formerly excluded due to a lack of physical documentation have their records stored digitally and are thus capable of accessing services they were previously prohibited from.

The World Bank estimates 1 billion people have no legal form of identity (McKinsey Digital). Without it, individuals are more likely to suffer exploitation, trafficking and slavery.

Image courtesy of Noah Buscher on Unsplash

Societal Shift

Society's new overarching ideology hangs on the idea of free citizenship ("citizens of the world" in a borderless society). This emerges because we complete the transition to a society in which **digital identity becomes our primary "mode" of capturing, managing and communicating who we are**, as the benefits of a digital-first system win out.

The potential economic value of digital identity by 2030 will be the equivalent of 6% of GDP in emerging economies, and 3% in developed ones (McKinsey Digital)

But...

The inverse problem emerges: lacking digital identity in a digital-first world means you do not exist. Of the 7.6 billion people on earth, 3.4 billion have some form of ID but no digital trail. (McKinsey Digital)

The absence of effective safeguarding will likely lead to "more efficient discrimination" against the most vulnerable. Just over half (55%) think that vaccine passports are likely to lead to discrimination against marginalised groups, such as young people, people who are shielding, members of the LGBTQI+ community, people from a minority ethnic background or those who are in precarious work (e.g. on zero-hours contracts or gig workers). More POC are highly concerned or quite concerned that a vaccine passport scheme would lead to facing greater discrimination than those who were not that concerned or not at all concerned.

"Digital ID offers individuals social, civic, and political benefits, from increased inclusion, formalization, and transparency to better control of online data. Designed carefully and scaled to high levels...it can also create significant economic value, particularly in emerging economies, with benefits for both individuals and institutions."

McKinsey Digital

Reasons to **believe**

1

Applications are transitioning from beta to real-world

The Hospital of Taipei Medical University (TMUH) officially launched its blockchain to create smart health passports with which to share medical data between health organizations.

New York has been piloting an IBM "Excelsior Pass", confirming vaccination or negative SARS-CoV-2 test status through confidential data transfers, whilst the European Union is delivering a "Digital Green Certificate" to enable free travel within the bloc, and Canada is offering optional digital IDs - tracking vaccination records - to its residents.

2

Foundational infrastructure is becoming a reality

Companies such as Dataswift, with which we are involved, have developed personal data servers (PDAs) with computational abilities to create their own digital personas. Using this technology, individuals will be able to import their own sources of truth – such as banking and healthcare information and even data from Facebook – and use this for identity, authentication or authorisation with applications and websites directly.

3

Demands of emerging out of the pandemic have familiarised the concept

Our lives - our work, and our play - were largely transposed to the digital realm. In spotlighting the urgency of investing in epidemiological tracking - with regards to infections, and later testing results and vaccination passports, consumers have displayed a willingness to embrace these solutions. 63% strongly support/tend to support the introduction of a vaccine passport to allow overseas travel into and out of the UK this summer.

So **what?**

(This isn't a definitive list, but some starters for thinking)

1

How can you lead the way in this space?

- Given the equalising opportunity this presents, but the currently limited investment and literacy in this space, can you educate yourself and present as ambassadors for secure digital identity: promoting literacy in this space, and spotlighting the benefits to those most vulnerable?

2

What would a commitment to securing digital identity for those who need it most look like?

- Given the likely prospect of individuals falling through the cracks of this system, how can you evolve to embrace a new role - as an established, trusted organisation - to support the process of ensuring those gaps are filled?

3

How can digital identity revolutionise safeguarding?

- How can you use digital identity to speed up processes and replace old systems and approaches to safeguarding?
- What systems and processes do you need to start investing in now in order to take advantage of the opportunity?
- How can you monetise your experience and knowledge in safeguarding in this new world?

4 Summary

Image courtesy of Charles Deluvio on Unsplash

Technological Shifts

IoT

- When geography is no longer a limitation, how can you exploit borderlessness?
- How can you be ready to exploit the Sharing Economy 2.0?
- How could massive amounts of data radically transform income generation?
- How can charities act as the guardians and gatekeepers?

XR

- How could XR revolutise how you engage supporters?
- How could XR translate engagement, connection and community into the virtual?
- How could XR change the way you develop and deliver learning and development?
- How will XR change consumer expectations?

AI

- How will AI change the future of work?
- How can you use AI to transform supporter engagement?
- How can AI take on the more complex problems?
- How can you use AI to predict problems before they occur?

Societal Shifts

Privacy & Safety — How do you get ahead of future concerns now?

Experience & Empathy — How can you deliver hyper-personalised, frictionless experiences?

Connection & Intimacy — How can you broaden your reach and create deeper connections?

Purpose & Meaning — How can you help others live their lives with purpose?

Identity — How can you protect those who might be digitally excluded?

What NEXT?

The Paradigm Shift report is just the start. We designed the report as a springboard to stimulate thinking and act as a stimulus for ideation. The next step is to explore what it means for your mission, your supporters and your beneficiaries.

That's why we've created the Trend Exploration Canvas. It's an innovation framework designed to help you unpack each of the 'so whats' through a series of provocations. Once you've stretched your thinking and considered the opportunity (**Diverge**), it's time to move to action and focus on those ideas to act now, experiment, research, watch or park (**Converge**).

GOOD FUTURES TREND EXPLORATION CANVAS

START HERE 1. Select a trend, technology or so what:

DIVERGE

CONVERGE

2. SOCIETAL IMPACT

What does this look like:

- At the extremes?
- If it happened now?
- If the opposite was true?
- Through the PESTLE lens?

3. ORG. IMPLICATIONS

What could this mean for:

- Your mission
- Your supporters
- Your operations
- Your fundraising
- Your beneficiaries
- Your governance

4. LEVERAGE

What do you have to leverage?

- What assets can you exploit?
- What experience/knowledge do you have?
- What partners do you have?
- What partners could you find?

5. SO WHAT

What next?

- What do you do now?
- What needs more research?
- Where can you experiment?
- What do you need to watch?
- What should you park?

Good Innovation 2021

Want to discuss the implications of the shift and how you can use it as an opportunity to innovate?

Need some help exploring the potential?

We're here to help.

Get in touch.

GoodFutures@goodinnovation.co.uk

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