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Artists at work

Andy Warhol
p1

Warhol's early career was in advertising; his first commission was to draw shoes for *Glamour* magazine. By the early 60s his assembly line screen prints were overturning notions of authenticity and the value of the artist's hand.

Paolo Cirio
p14

Italian artist Cirio uses publicly available data to challenge our information society. *Obscurity*, for instance, took on the predatory online mugshot industry, cloning the sites, shuffling their data and blurring 15 million photos.

Tom Phillips
p2 & 75

The *Merry Meetings* series follows English painter, printmaker and collagist Phillips – also, crucially, trustee of various museums and galleries until his death in 2022 – through more than 100 board and committee meetings. Armed only with a few coloured pens, he transformed dry agendas and pages of statistics with not mere doodles, but erotic compositions, visionary worlds and vital aids to concentration.

Paul Gauguin
p54

Few know the post-impressionist started out as a stock broker, only turning to painting full time when the market crashed. He spent 10 years in French Polynesia painting landscapes and people – the latter attracting fierce controversy.

A wealth of information about every one of us is readily available for tech firms to monetise – and the NHS, government and employers to mine. With the metaverse and neurotechnology now encroaching into our most private spaces, Jenny Roper asks where next for the data economy

Consider the following two cryptic phrases. 'Look for a message from my wife saying that she had changed her mind and that she was coming back.' And: 'To see her for some reason I thought she would come to me and say she misses me.' Sound in any way similar? Perhaps not, given how distractingly nonsensical they both seem on first read – the kind of thing most will now have begun to associate with ChatGPT's less successful AI-generated offerings. And therein lies a clue.

The first phrase is actually a line that someone thought silently to themselves while being scanned by an fMRI machine; the second is the machine's guess – or 'translation' – of these thoughts, using a complex combination of brain blood flow mapping and AI language modelling to fill in the gaps. Suddenly the similarity of the two sentiments is startling. As is the realisation that, thanks to this brand new technique developed at the University of Texas at Austin, mind-reading technology is no longer science fiction but science fact.

What's more, similarly powerful neurotech is now headed for a telephone headset or smartwatch near you, with Elon Musk's Neuralink and Mark Zuckerberg's Meta working on tech that will enable you to control your phone or computer with your thoughts. Talking of Meta (as we so often are), another key project – heavily related to such highly (purely) intuitive tech – is, of course: the metaverse. But when Zuckerberg took to the stage at the recent Meta Connect conference to hype up a new "mixed reality" future, what he was actually talking about – according to legal expert Joseph Jerome, writing in *Wired* – was "a universe where Meta, and every third-party application it does business with, knows the placement and size of your furniture, whether you have a wheelchair or [cot] in your living room, or the precise layout of your bedroom or bathroom". That is a prospect that might not be quite so appealing to the rest of us.

Jerome should know whereof he speaks. Now visiting assistant professor at the University of Tampa, he was previously a privacy lawyer working on AR/VR policy at Meta Reality Labs. For him, such developments in spatial computing bring us ever closer, in his (terrifying) words, to a "total surveillance state". While most of us might have made our peace with the vast amounts of personal data swirling about the internet – on our employment histories, online searches, coffee preferences, even our daily routines – we might very well be less comfortable with big tech firms (and others) beginning to amass information on our most private spaces: our homes and even our brain waves.

The so-called data economy seems to be making ever more intrusive inroads into everything that makes us us: into our emotions and intentions to act or speak, and how we spend our time not just out and about, but behind closed doors. However, according to the likes of Jerome, while these latest leaps are particularly unsettling, we should already be worried about the creeping erosion of privacy that is happening right now. "In my current role I'm teaching a bunch of undergraduates and a lot of them, as you'd perhaps expect of their generation, are sceptical about the value of their privacy. If we're talking about targeted ads, understandably they think 'well I want to be shown the best tennis shoes' – it all seems pretty innocuous," Jerome tells *Work*.

"Then I describe the way standardised tests are operated by the college board in the US. As part of these you can opt into having your data sold to whomever, so suddenly all universities have this aggregated data they use to build a profile of 'students like you'. They can judge not just whether you're likely to be successful at the university, but whether you'd be likely to accept a place. They can decide – and are deciding – not to even offer you a slot in the first place."

It is a data-driven, black box, discrimination-behind-closed doors reality already well examined in the media – and one that has more of an impact on the less privileged in society. A 2017 study by privacy and technology academic Mary Madden found only 37 per cent of those in the highest-income households were 'very concerned' about not knowing what personal information was being collected about them or how it was being used. That compared to 52 per cent of the lowest-earning households. Similarly, 48 per cent of those in this low-income group were very concerned about becoming the victim of an internet scam or fraud, while just 24 per cent of higher earners were.

Such concerns are based on very real experiences of personal data being used to deny access to resources or opportunities (welfare benefits, say) but also to target those from poorer households with predatory marketing for payday loans, for example. "Companies will say all of this data generation has tremendous benefits. We can use biometrics to board a plane and it's incredibly efficient. And →

p14-22: Street Ghosts by Paolo Cirio

80 East Houston Street, New York, US. Below: 25 Rue Aldringen, 2346 Ville-Haute, Luxembourg

For series *Street Ghosts*, conceptual artist Paolo Cirio printed life-size posters and affixed them at the precise spot they appear on Google Street View, exploring aesthetic, economic and legal issues concerning privacy and copyright

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it's true for most people," says Jerome. "But it's not true for everybody. Whenever we're talking about how great anything is for a consumer, we should also recognise some will get left behind – and hurt."

By no means unrelated to this economic status divide is the way personal data is used to create highly addictive, closed-loop digital worlds – something that could be supercharged by the advent of mind-reading neurotech. Nita Farahany is a bioscience professor at Duke University and served on Barack Obama's commission for the study of bioethical issues. She is also author of *The Battle for Your Brain: Defending the Right to Think Freely in the Age of Neurotechnology,* in which she argues intrusions into the human mind by technology are so close that lawmakers should act immediately to protect cognitive privacy – and liberty. "A lot of people already recognise how social media platforms' algorithms can pick up what a person likes or doesn't like and send them down an echo chamber… And when you can calibrate that precisely to a person's biometric reaction… I do worry the precision of this in the wrong hands will become powerful," she tells *Work*. "And we have to realise that 'in the wrong hands' is as simple as a tech company that wants to keep your engagement. But it could also mean an authoritarian regime."

Which leads us to that ultimate counter argument to many people's 'but does it really matter?' impulse around the ubiquity of online personal data scraping: the potential that some or all of the 'trivial' information sloshing around could be abused by malicious states or governments. To take an obvious warning from history, when the Nazis started to invade countries in Europe in the run up to the Second World War, they targeted registries detailing each population's religion. The Netherlands – in contrast to other countries, such as France – kept records of its population's religious affiliation, meaning the Nazis were able to locate and murder some 73 per cent of the Jewish population in that country.

Of course that was all a long time ago and could never happen in 21st century liberal western democracies. Or could it? Recent events should give us pause for thought, highlights Mariano delli Santi, legal and policy officer at digital rights campaign organisation Open Rights Group: "In the US, following the overturning of the *Roe v Wade* jurisprudence, and so the criminalisation of abortion, you had several law enforcement authorities acquire location data from advertisers to prosecute women for abortion. And you can imagine in the UK, how something similar might play out in relation to the crackdown on the right to protest. The fundamental issue is, once you have a pool of data, there is always the risk of somebody changing the purpose. The question is always: who is making the value judgement? Because the goalposts can radically change."

Such developments – along with instances including the Edward Snowden revelations in 2013, the BA customer data leak in 2018, the Cambridge Analytica and Facebook scandal in 2019 and most recently the (highly sensitive) details of 10,000 Northern Ireland police officers being released – mean public opinion is increasingly taking a dim view of the data economy. Recent research from app Zipzero, for example, found 72 per cent of Britons feel the government is not doing enough to protect them from intrusive data tracking. The same percentage think large tech companies know an uncomfortable amount about their habits and preferences.

The darkside of data is only part of the story though, and we should be careful not to let it cloud our judgement entirely, says data and society expert Jack Hardinges, former head of programmes at the Open Data Institute and now consultant at the Aapti Institute. Big data does bring benefits, he adds. What worries this self-described 'data optimist' most is the emergence of a climate of "data fearing" – in which people start to lock their data down regardless of what it is being used for. "When I'm asked to describe data as a force for good, I always point to John Snow's work in the 19th century, measuring the spread of cholera in London. That's a very early statement for the benefit of data," he says. "If our collective concerns are not addressed, we could really end up missing out."

This threat was certainly illustrated by the General Practice Data for Planning and Research scheme in 2021, which intended to collate patient data held by GP surgeries in England and feed it into a central NHS database. Promises that the data would be anonymised were not enough to reassure the public about the privacy risks and millions opted out of the scheme, leading to its withdrawal.

So what can be done to allay people's concerns? The oft-ventured solution of giving people the ability to sell their own data is a seemingly neat way of redressing an →

imbalance where tech companies generate huge profits, while the individual at best reaps limited reward. But to Hardinges' and others' minds, this would not be very lucrative (data at an individual level is typically only worth a few dollars a year) and could further stretch the digital divide – with the poverty-enforced sale of personal data potentially becoming the digital equivalent of illegal organ trade, according to some, more extreme, predictions.

Hardinges outlines some better solutions in his view. The regulatory framework protecting consumers in the UK is too fine-based and individualistic, he says, placing the onus on the individual to read every terms of service agreement and flag where this has been breached. (Spoiler alert: there are not enough hours in the day to do this, even if it were your full-time job.) In a similar vein, while some more techie types might appreciate the idea of personal data stores, lockers or wallets, via which every instance of their data being processed is flagged (a bit like an online banking app), "that will only be a small slice of people involved in the data economy".

Much more interesting, he says, is the idea of data stewardship, or trusts – think a sort of National Trust model but for data rather than historic homes, where an institution is appointed guardian of an asset, making decisions on stakeholders' behalves. "We need imagination about the institutions we could build," says Hardinges, pointing back to the NHS as a strong example of what good (and bad) could look like. "Clinical practice data is a really good example of how data can be extracted up into some centralised architectures. Privacy is retained, but researchers can use it for all sorts of things. One of my current projects is working on a data bank for eye scans and medical imaging data. I was recently with the Health Research Authority's Research Ethics Committee, and it was rigorous, put it that way."

But how does all of this translate into the employment context? Our employers may – or may not – be more trustworthy custodians of our data, but we as individuals may stand to lose or gain more from them than from the usual big tech suspects. Most of us could just about imagine life without the addictive lure or convenience of Facebook, WhatsApp and Google. But potentially doing oneself out of a job – and income – would be a whole lot worse.

As yet to be updated, 2019 research by Accenture nonetheless offers telling insight into just how much data – in line with the wider data economy – employers collect. It found 70 per cent of business leaders globally are 'not very confident' they are using new sources of workplace data in a 'highly responsible' way. But that did not stop them from using it anyway – 49 per cent of C-suite executives said they would use this data any way they saw fit, with no additional responsibility measures, with 56 per cent not seeking any kind of employee consent.

The situation has worsened post Covid, feels Matt Scherer, senior policy counsel for workers' rights and technology policy at the Center for Democracy and Technology. The rise of tech-enabled hybrid working means employers' ability – and desire – to track much more of our activity (meetings, G chats…) is stronger than ever. "There are different categories," he says. "One is where employers simply over collect because they can. They don't have a clear sense of why, but they know in the modern economy data is valuable and one day they might be able to use it. Of course there are huge cybersecurity risks associated. Then bucket two is where they do have an idea in mind: they want to monitor productivity and performance."

Once again, economic discrimination is rife here. In lower-paying jobs, such monitoring is already ubiquitous. Eight of the 10 largest private US employers track the productivity metrics of workers, many in real time, according to a 2022 investigation by *The New York Times*. But now surveillance is also coming for white-collar workers, who are losing pay or even jobs when 'the data' apparently shows unacceptable levels of 'idle time'. And it is not hard to imagine how much more intrusive data collection will feel once neurotechnology shows up in the workplace. It is in fact already starting, says Farahany – in the form of headset sensors to stop truck drivers falling into microsleeps, for example, but also increasingly to track knowledge workers' engagement levels, with managerial decisions made off the back of this data.

"In the US, for example, if an employer issues technology they basically have the right to scan that for anything the employee puts on it. If the employer is issuing these →

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headsets, does that mean they'll have the right to access all of the brainwave data? That would really intrude upon the privacy of the employee. And so the question is how we're going to design policies and laws as the use of this technology becomes more ubiquitous."

Even in Europe, where the GDPR and the UK's post-Brexit retained version of this supposedly imposes stringent limits on data collection, employers have the easiest job of all actors to circumvent them, says Scherer: "The GDPR is still new, and how far the protection extends is still being worked out. But an employer's workforce is so integral to everything they do it is easy to come up with a justification for collecting the data that satisfies the GDPR."

James Farrar is someone who most in HR circles will have heard of. Many will know him as one of the two drivers successfully taking Uber to task over their status. They proved in the courts that Uber drivers really are workers, entitled to all the employment rights – such as minimum wage and holiday pay – this status confers. What they might not realise is how central that legal battle is to the debate around the data economy as it relates to employment. Farrar's experiences led him to set up the Worker Info Exchange in 2019, one of several 'sousveillance' inspired data co-ops springing up to try to counter the employer-employee data power imbalance – either by demanding access to employer-held details or tracking exactly the same information themselves.

It was a particular chapter in Farrar's court battle when Uber selectively submitted data on his non-acceptance rate for one particular week of driving – leaving out data that showed a similarly high acceptance rate (and so no choice on his part to decline a large number of rides) – that inspired him to found the exchange. But – as with similarly opaque decision making around credit worthiness, say – this goes further than demanding just data transparency, he says: "It is a bit like before an MRI scan where they inject your blood with dye so you can see how the organs are processing it. Data is the blood and the organs are the algorithms, so that algorithmic transparency is really important too."

Farrar warns that gig economy workers are at the bleeding edge (more blood analogies, perhaps tellingly) of where the employment data economy could go for more traditional jobs. As more and more intel is collected on employees, this could affect not just how fairly or otherwise they are managed by black box AI managers – or who wins an employment tribunal – but the very employment and business models organisations adopt. Having the same sort of granular data around people and their work as they already do for harder assets will make business models based on project work "very attractive to an employer", he says: "So you have a particular set of skills for a year then you flush them all out. And then of course whether a worker gets the next gig will depend on productivity and reputational data generated each time."

One more hopeful reading of his story is that more thoughtful employers will look at it as a cautionary tale of how the promise of tech-driven hyper efficiency is really a self-serving myth put about by tech firms themselves. "Uber is hugely wasteful of human capital because the business relies on having as much idle labour waiting as possible, as that drives down response times," says Farrar. "This is a company touting itself as a technological leader; there is no one better to achieve more efficient allocation. But there is absolutely no economic incentive for them to do so."

Indeed, Farahany has a more encouraging reading of where this could all go. "Worldwide, we have to develop better incentives to try to move tech companies toward a model that really aligns better with human flourishing, because so many [business] models depend on extracting data from humans. They're not acting evilly, it just makes rational economic sense. So we have to encourage them to develop alternative practices that enable them to continue to generate revenue," she explains. "I think there are ways to use the technology that can empower people. Give employees the ability to see 'when I am surfing on social media, re-engaging with my work takes 15 minutes even though I thought it was a very quick hit'. We need to offer data as a tool of empowerment."

But even a mind reader would struggle to predict whether the future of the data economy – as now powered by neurotech and the metaverse – will turn out to be utopian, dystopian or some combination of the two. W

For further reading, see page 72

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Often calls partner at 12.32pm Works in property development Drinks two espressos a day Goes into the office once a week Most purchased meal-deal sandwich: ham salad Always pauses on Facebook videos of sharks Takes an hour and twenty lunch break when working from home Lives in Sidcup (living area full of toys) Struggles to concentrate after 3pm Resents visiting ageing parents

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