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EDINBURGH INNOVATIONS

Building Trust in the Digital Era: **Achieving Scotland's Aspirations as an Ethical Digital Nation**

Case Study Supplement

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Introduction

This supplement to the ‘Building Trust in the Digital Era: Achieving Scotland’s Aspirations as an Ethical Digital Nation’ Report is a collection of case studies provided by a group of experts from a range of backgrounds. These case study contributions have fed into the core report content, helping to position the ethical challenges relating to digital innovation across a range of sectors. This supplement has been structured to reflect the chapters in the ‘Building Trust in the Digital Era’ report and case studies have been positioned under the chapter that they have primarily contributed to.

The report editors owe considerable thanks to the experts who took the time to compose these case studies.

Public Awareness of Data Use and Sharing

Case Study: Targeted Advertising, Advanced Marketing and Behaviour Change – Dr. Ben Collier & Dr. James Stewart

Contemporary forms of digital marketing are the financial lifeblood of the Internet. Most of the online platforms, search engines and social media sites we use are provided for free to the end user, generating revenue through the collection of intimate behavioural data, which are used to generate advertising profiles. These profiles allow adverts to be targeted and personalised not only based on demographic characteristics and traditional segmentation, but on previous and current behaviour, surfaced by the application of algorithmic technologies to extremely intimate and fine detail records of online browsing, communication, and activity. The targeted digital advertising industry has been the subject of a series of scandals and critical debates in recent years, not only due to concerns around intrusive corporate surveillance, but also in the use of this surveillance influence infrastructure for legitimate and subversive political communication. We have recently identified a new area of potential concern: the increasing use of these infrastructures by government to shape the behaviour of the public.

Government communication practices are not static, and change and adapt in line with the cutting edge of industry practice. These practices involve not only classic forms of awareness-raising - public health and safety, regulatory changes, democratic participation etc, but attempts to directly shape the behaviour of the public - often through 'nudge' and other approaches incorporating insights from behavioural science. As digital marketing tools have evolved, government departments and law enforcement are increasingly using them in behaviour change campaigns as part of a shift to prevention. This in theory allows government to shape behaviour in-the-moment in novel, intimate, and deeply targeted ways, bringing together administrative data, marketing data, and platform targeting data to target, deliver, and evaluate complex campaigns.

These tools complicate the 'participatory' and democratic nature of modern communications and government policy and raise some profound ethical issues. First, there are a series of practical and legal questions. The use of government administrative or survey data to develop targeting profiles may be contested where those data are explicitly not to be used for marketing purposes. This blurs the line between marketing and service delivery. Secondly, the algorithmic targeting of adverts leaves open legal room to challenge if it can be proven that it has the potential to harm or disadvantage.

The public are largely aware of the existence of digital targeting, and as a result, may feel anxious if they receive government adverts, which they assume are as a result of their online behaviour. Particularly for more vulnerable groups, this presents a real capacity for unintended harm. Additionally, there are a set of issues around privacy/intrusiveness. These practices open up to government a new generation of detailed data sources that can be used to target communications by interposing a private entity (the platform). This allows for the use - at arm's length - of very intimate targeting and delivery approaches in ways not historically available to government.

Within the Scottish Government, many of the policy campaigns are run with the Marketing, Insight, Brand Scotland and Internal Communications Unit, in particular the, Strategy & Insight Team, acting as gatekeeper, experts, and promoter of the design, targeting, ethical review, and purchase of targeted ads. This is partly historic due to the conventional (and now digital) advertising in the Scottish government being placed through framework agreements that are tendered for by media buyers every (4 years) and administered by the MIBSICU. This unit puts out a call twice a year for policy units to propose targeted campaigns, including digital components, and circulates examples of successful practice, awards won etc widely in government. Units propose projects, these are evaluated at ministerial level, and resources of the Unit allocated according to ministerial priorities. The Unit arranges tendering processes with creative agencies to co-design the campaigns.

Although this unit is staffed with thoughtful and skilled staff who are attentive to ethical issues, there is no formal ethics training provided for dealing with these influence methods - rather, this is a case of expert practitioners learning and sharing on the job. There is a distinctive Scottish approach developing for the delivery of these campaigns, which draws on GCS expertise without replicating the same frameworks; this does integrate some of the expertise of Behavioural Science but not in a systemic way. Media buying is arranged through two agencies who have a lot of input into this process. SG gives them the target audience and the desired behaviour change - then they draw on marketing data, such as from Yougov etc. to develop profiles, then they do the ad buy.

We can broadly counter pose two distinct visions of government digital behaviour change - these are ideal types, intended to demonstrate potential positive and negative futures rather than referring to specific current practices. The first, we describe as ‘influence government’, embodying the more coercive and centralised forms of behavioural marketing. In this format, efficiency of delivery and central control of goals and resources are paramount. Campaigns are designed and delivered centrally, with little connection to local experiences and priorities. They are intrusive in the data, which are used to target, including a range of commercial sources which people would not expect to be available to government and a range of government sources people would not expect to be used for marketing. They are also intrusive in the spaces and places in which messaging is delivered, such as in the home environment or more intimate online channels. In these campaigns, complex policy issues with structural causes are simplified, with policy levers, and responsibility for social change, collapsed down to the level of individuals making choices. They are coercive and covert, framed as more successful when the individual is unaware, passively receiving messages which shape their behaviour.

The second vision might better be described as ‘participatory prevention’. This would draw on the Scottish Government’s core strategies around participation and co-production, following the lead of best practice examples in industry and public service where the public are not only consulted to develop the aesthetic wrapper of the message, or studied to inform targeting, but also directly involved in shaping the priorities, theories, and messages, which animate these campaigns. These approaches aim to empower, framed as more successful when people know that they are being messaged and why - they are actively engaged.

Recommendations

At its current level of development, it is clear that despite individual concerns about particular campaigns, there is the capacity for digital behaviour change to campaigns to be assessed by this central unit of practitioners. The expertise and responsibility is distributed between this central unit and key external suppliers - we are yet to explore the role of these suppliers in depth, however this clearly needs to be better and more systematically understood by government, as at present this appears to be somewhat of a black box. If the use of these practices were to be expanded, there is a further need to provide wider frameworks of accountability and review. The scaling up of these methods would likely require the creation of a professional oversight board within the Scottish Government, which would review proposals for new digital behaviour change campaigns by Scottish Government departments and agencies. Membership of this board could include communications professionals, academic experts, statisticians, and experts in data ethics. This board could meet fortnightly, modelled after the statistical corps' data sharing board, developing expertise that can be re-used consistently and identify patterns. Legal and ethical issues with these approaches should be explored in further public debate about the use of these methods. More broadly, there is an immediate need for a wider public discussion of these issues - and an explicit determination at the level of policy and legislation of the acceptable bounds of such approaches.

Harm Protection when Online

Case Study: Elections and Social Media – Prof. Shannon Vallor

Online behaviours aimed at influencing political opinions and voter choices represent a substantial portion of social media activity globally and in Scotland. Much of this activity is authentic and ethically benign, even desirable. Social media lower many traditional barriers to political engagement. For those with a smartphone, tablet or computer, the services are free and easy to use. They do not require travel outside the home, or formal affiliation with a party or other political organisation.

However, online social media are widely recognized as contributing to a number of democratic ills: most notably, misinformation (false or misleading information shared unwittingly); disinformation (false or misleading information shared with the intent to deceive); manipulation (targeting emotional or psychological vulnerabilities of others in order to undermine their capacity for reasoned political choice) and inauthentic political behaviour (political activity that misrepresents the intentions, identity or nature of the author or authors).

Of course, misinformation, disinformation, manipulation and inauthentic political behaviour are nothing new; each has been a part of political life since politics began. However, their online manifestations on social media pose unique risks to the health of Scotland's political community, not only due to the unprecedented speed and scale of their influence, but also the potential to leverage new forms of data and increasingly sophisticated algorithmic techniques to coordinate their impact, disguise their origin, amplify their negative effects, and make them harder for authentic political actors to mitigate or resist.

This case study examines the phenomenon of inauthentic online behaviours designed to influence political opinions and activity in Scotland. Inauthentic online behaviours cluster into several types (Miller et al. 2017), including sock puppets (individual accounts that project a false identity), astroturfing (concealing the sponsorship or other interests behind a message, usually to project an illusion of 'grassroots' support and origin), and spambots (automated systems for generating, linking, boosting and coordinating fake accounts and their content).

Of particular interest is the problem of coordinated inauthentic behaviours in political contexts, as these enable harms of greater scale and complexity. The term 'coordinated inauthentic behaviour' (CIB) has its origins in Facebook's own efforts to define activity on their platform that violates their policies not because of false or dangerous content, but because the activity involves agents "working together to mislead others about who they are, or what they are doing." (Gleicher 2018).

For example, imagine a network of twenty Facebook pages representing themselves as separate, locally grown environmental groups based around the United Kingdom. The individual pages seem benign, but they often share contradictory opinions and data, or directly challenge views expressed on the other pages. Now imagine that this lack of consensus is no accident, as they are all produced by a single group working in a foreign country or for an oil corporation, aiming to sow divisions among the UK environmental activist community and drive negative perceptions of environmental activism among the wider voting public. That is coordinated inauthentic behaviour, and it can be far more politically damaging than single acts of

inauthenticity (for instance, a lone teenager pretending to be an MP). Let us go beyond hypotheticals. What kind of coordinated online inauthentic behaviour has been documented in the Scottish political ecosystem, and what harms may follow from such activity?

Between 2018 and 2020, Facebook removed hundreds of accounts linked to the Islamic Republic of Iran Broadcasting Corporation, which were associated with suspicious online activity in numerous countries including the United Kingdom. Pages removed included Free Scotland 2014 and The British Left (Scotsman, 23 Aug 2018); both posted about the 2014 Scottish independence referendum. These efforts preceded the Russian foreign interference campaign associated with the Brexit referendum in 2016. In August 2018, unverified reports and opinion pieces in The Herald (Leask 2018 and Jones 2018) alleged that local Scottish activists may have used 'retweet bots' – spambots that use automated scripts to seek out posts to retweet – to boost the hashtag #dissolvetheunion, and to attack pro-independence Scottish women. Later that year, a report commissioned by MEP Alyn Smith (Patrick 2018) confirmed that Scots were a target for malign bots controlled by state and non-state actors, with between 4% and 12% of Scottish Twitter activity determined to be "potentially malign." Along with the report, a website (scotorbot.scot, currently inactive) was launched to connect people with free 'bot detection' tools. In 2020, The Times reported, "SNP cybersecurity experts have detected a rise in divisive social media posts" linked to accounts in the United States, "particularly in relation to transgender rights." (McLaughlin and Andrews 2020)

What ethical issues does inauthentic online behaviour present, and what are its implications for Scottish democratic health? There are a number of important ethical issues to consider. One question is how to distinguish inauthentic activity by foreign actors purporting to be local, from inauthentic activity originating in Scotland? The former is clearly misleading, but the latter can be as well. For example, using coordinated spambots to automate the boosting of a hashtag creates the false impression that the hashtag is trending because it enjoys the spontaneous and widespread support of many different individuals. So, is the use of automated tools by Scottish citizens to boost the apparent popularity of political opinions within Scotland inherently unethical, or is this merely a new political technique that should be accepted as 'fair play'? Does it differ ethically from pre-digital modes of cultivating wider reach of political expression, such as anonymous leaflets and signage?

Another question concerns the extent of ethical responsibilities of platforms to detect and suppress inauthentic political activity. Currently, such efforts only remove a minority of the inauthentic accounts active on any given platform. Yet platforms arguably have an even greater ethical duty to prevent this type of online harm, because inauthentic activity is often virtually impossible for the average user to detect on their own. Is it then incumbent upon social media platforms to disable some of the tools and design features that enable coordinated inauthentic activity, even if it comes at a cost to their business? Should platforms be responsible for pouring more of their profits into detection and suppression measures?

Alternatively, might some ‘inauthentic’ online behaviours be legitimate, if they are used by marginalised groups to boost their voices and at last gain a fair hearing in democratic politics? Is this possible without inauthentic modes of digital amplification like spambots? Is there a moral difference between artificially amplifying the message of marginalised or traditionally suppressed voices, and artificially amplifying other types of voices and opinions?

One might ask why is inauthentic online activity a serious problem for democratic health at all, given that deception and obfuscation have always been part of the political landscape? One reason is that inauthentic activity seeks to exploit cognitive biases that are antithetical to effective reasoning and deliberation – such as our tendency to be irrationally influenced by how many times we have heard an idea, or how recently we have heard it, or how closely in our social circle. When we cannot reason effectively, we cannot self-govern effectively. Nor can we effectively deliberate together with our civic fellows. Thus exploitation of these biases at online scales and speeds not previously accessible to political manipulators not only strikes at the weakest point of any democracy, it does so with far greater force than we are used to.

So how can the Scottish government balance the goods of open political discourse and free expression with the need for a political sphere that reflects rather than the distorts the genuine views of Scottish publics? What can Scotland learn from other countries facing the same challenge, and what can Scotland do to show ethical leadership in this regard?

Recommendations

Here are three possible actions Scotland might take:

- Increase political pressure on social media platforms to invest far more resources in research on inauthentic online political behaviour and most importantly, to make the results of that research open and accessible to governments and citizens everywhere.
- Encourage Scottish news media to train reporters to use bot-detection and other tools to investigate online phenomena that may be trending or becoming highly visible for inauthentic reasons, and put editorial policies in place to discourage uncritically amplifying or legitimising online inauthentic activity in news media outlets.
- Establish an independent, non-partisan Scottish research body devoted to detecting, tracking, studying and publishing emerging patterns of online inauthentic political behaviour in Scotland.

The future of democratic publics worldwide, and here in Scotland, is increasingly tied to the social media ecosystem. These are just a few ways we might ensure that this ecosystem enables authentic political flourishing.

A ‘Green’ Digital Scotland

Case Study: Digital Waste – Gerry McGovern & Dr. Laura Fogg-Rodgers

“Scotland played a significant part in the Industrial Revolution and was once the mining and heavy industry capital of the world,” the Visit Scotland website proudly states. “Millions were employed in mining, shipbuilding, steel and cotton mills.”

The UK was the first industrial society. Which also means it was the first to emit significant quantities of CO2. In 1751, the UK was estimated to have emitted 10 million tons of CO2.

Fortnite and World of Warcraft are very popular computer games. Based on my analysis, the playing of these games have been responsible for 50 million tons of CO2, both in electrical energy consumed and in the CO2 caused making the hi-spec computers and screens used to play such games.

Digital is physical. The Cloud is on the ground. Yet we treat digital like it was some invisible, benevolent force. Most of the waste and pollution that digital causes occurs during the manufacture of the device. Digital devices, for all their shininess and ultracool modernity, have a disturbing, dirty and deeply unethical backstory.

A smartphone can be made up of hundreds of materials and many of these materials are mined in the Global South. Child and slave labour is not uncommon in this mining process.

Many digital devices are manufactured and assembled in the Global South in working conditions not much better than sweatshops.

After very short lives, these “old” electronics are often packed into containers and then shipped back to the Global South where they pollute the environment and sicken the people.

The Global North can smugly claim its achieving zero this and zero that, when in fact what it has ‘cleverly’ done is outsource its pollution and extractive activities to the Global South. The blind eye and hidden hand has never been so blind and hidden. Less than 20% of e-waste gets recycled and much of the recycling is done “informally”.

According to a 2021 study by the WHO, over 18 million children and 13 million women are involved in the ‘informal’ e-waste sector. Teenagers inhale toxic fumes as they burn cables in order to expose the precious wires, pregnant women sort through digital trash, and children as young as five are used (because of their small, dexterous fingers) to pick apart digital products that were deliberately designed so that they could not be easily disassembled.

“Waste colonialism” is what the International Institute for Sustainable Development terms it, “in which toxic wastes from developed countries are relocated to developing countries on “ships of doom”, some of which roam the ocean looking for a port to offload their toxic cargo.”

Unfortunately, for the Global North, what goes around does eventually come around. We only have one earth and pollution and damage that the technology-driven mass consumer society has wrecked on the earth cannot be localized forever. The pollution seeps out beyond national boundaries affecting the atmosphere, among other things.

According to the UN, the world produced over 50 million tonnes of electronic waste (e-waste) 2019. That is the equivalent of dumping 1,000 laptops every second. This figure is expected to double in the next thirty years.

The UK is the second worst in the world at creating e-waste, producing and average of 23.9 kg per person in 2019, according to the UK Green Alliance. “The UK is the worst offender in Europe for illegally exporting toxic electronic waste to developing countries,” according to a report in The Guardian in 2019.

The global average for annual e-waste production is 7.3 kg per person. What this means is that the majority of the world’s population is creating a couple of kg of e-waste a year at maximum, while the rich North is spewing out the waste like there was no tomorrow.

With proper commitment to rules and standards, e-waste can be recycled in a way that it delivers a significant source of essential materials. It must be treated as a resource, not as waste. There are significant concentrations of copper, gold, lithium, etc., in e-waste and if digital products are correctly designed, the extraction of these materials can be highly efficient.

Recommendations

What can Scotland do about the current hugely unethical and climate-damaging situation?

- Keep Scottish e-waste in Scotland.
- Ensure that e-waste is properly and professionally recycled.
- Encourage the repair of digital devices and facilitate such activities.
- Encourage holding onto digital devices as long as possible.
- Raise awareness among citizens and businesses because so many people are totally unaware of the negative impacts of digital
- Encourage the purchase of digital products that have the longest warranties, and whose design allows for repair and recycling. In government procurement, mandate the purchase of such products
- Encourage everyone that once they are finished with a digital device they immediately:
- Give it to someone locally who can still get use of it.
- If it is beyond use, ensure that it gets to a professional recycler.

Reliable, Representative Data & Technologies Underpinning Algorithmic Decision Making

Case Study: Gambling – Dr. Raffaello Rossi & Dr. Agnes Nairn

The social media advertising sphere has developed incredibly fast, and many regulations seem to be unfit to regulate the domain accordingly. Of particular worries is advertising by potentially harmful products such as gambling, tobacco, vaping, or HFSS - especially when it potentially affects children or vulnerable people. Our research focused on gambling advertising on social media – however, we believe many of our findings are similarly applicable to the earlier mentioned product groups.

The gambling industry in the UK has increased its marketing spend by 56% since 2014 to £1.5bn and has now a seven-time higher annual marketing budget than Proctor & Gamble. Most of this massive annual budget is going into online strategies, with £747m spent on direct online marketing and £149m into social media marketing. The increasing use of social media gambling advertising raises serious concerns about the potential effect and exposure to children. Most social media platforms these platforms tend to be composed of relatively young demographics – on Twitter, for example, the largest demographic group are users from 18-34 years old (51.8% of all users).

Our empirical research investigates the use of social media advertising by UK gambling brands. In doing so, we focused on a) the volume, content, regulatory compliance of gambling ads on social media, b) which age groups engage with these adverts on social media, and c) how such advertising efforts affect children, young persons and adults emotionally.

A particular focus was on the use of content marketing (a relatively new advertising technique that hides advertising behind humours and harmless messages) and esports betting advertising (which is the betting on the outcomes on online video games that are being played competitively such as FIFA Football, Fortnite, DOTA, CounterStrike). Indeed, our research found that two-thirds of all engagement (comments and replies) with UK gambling accounts on Twitter are from people under 25-year-olds, and that around 41,000 children under the age of 16 follow such gambling accounts. With children and young people being particularly susceptible to both advertising efforts and the development of addictions, the resulting vacuum appears exceptionally worrisome.

Social media advertising spent is <u>increasing rapidly</u> and the basis for many modern advertising campaigns. <u>Already in 2018</u>, the gambling industry invested a massive £149m into social media marketing – which has likely increased substantially in the past three years.

The increasing use of social media (gambling) advertising, however, raises three general concerns: First and foremost, most social media platforms tend to be composed of relatively young demographics. On Twitter, for example, the largest

demographic group are users from 18-34 years old (51.8% of all users). On Snapchat 82% are aged 34 or younger. And on TikTok even 60% are aged 9-24. Any advertising posted on these platforms is therefore likely to disproportionally affect children and young people.

Second, the cascade of social media advertising – which is considerably cheaper to launch and thus, resulting in more adverts per pound – raises substantial challenges for regulators due to its volume. Even the CEO of the UK Advertising Standards Authority publicly admitted during a House of Lords Committee Inquiry that methodological challenges render it highly complex for his organisation to identify whether advertisers are targeting specific (vulnerable) groups or, indeed, even know the volume of advertising to which these groups are exposed online. The combination of regulators not being able to uncover irresponsible social media advertising activity, together with the methodological challenges of analysing this massive amount of data, could potentially create a "dark space" with no one obeying the advertising rules, no one able to monitor this, and therefore no one able to regulate or inform policy thinking (Rossi et al., 2021).

Finally, and related to the previous point, current UK advertising regulations are outdated. The Advertising Standards Authority (ASA) argues that UK advertising is well regulated and under control, but the stipulation that rules "apply equally to online as to offline advertising" makes little sense given the "social" characteristics and possibilities of social media that simply don't apply to traditional media. For example, the "snowballing" effect created when users *follow* and *engage* with social media posts from companies' accounts only applies to social media. Through snowballing, the sender of the post (e.g the company account) has no control who will end up seeing their post – which means it might inadvertently expose children to harmful adverts. This powerful mechanism currently completely unregulated.

A new but highly trending social media advertising technique called content marketing (sometimes also "native advertising") raises severe issues in relation to children. Such efforts try to bypass protective heuristics that warn users internally: *Be careful, this is an advert*. Instead, they are designed to create a warm fuzzy feeling or to make their audience giggle. As social media users who see such a funny post *like*, *comment on* and *share* it, it gains momentum – might go *viral*. We know from previous research that children are more affective (Pechmann et al., 2005) and do not have the same advertising recognition skills as adults (Wilcox et al., 2005). With this new form of advertising, however, it is nearly impossible for children to immediately recognise the posts' persuasive intent – breaching a fundamental marking pillar: "*Marketing communications should be clearly distinguishable as such, whatever their form and whatever the medium used*." (International Chamber of Commerce (ICC)). Although content marketing poses a real danger of luring children into addictive behaviour, it is nearly completely unregulated. Currently, there are regulations set by the Committee of Advertising Practise (CAP) that prohibit, for example, that adverts for gambling or HFSS targets or appeals to children. However, such codes do not apply to content marketing as they are not considered advertising by the regulator (see CAP, 2020). Indeed, currently advertisers in the UK can do anything they like within content marketing posts. An alcohol brand account could post content marketing ads, which include

children, and a gambling brand could post content marketing ads that are obviously targeted at children. Both cases, of course, would be strictly prohibited for "normal" (i.e. non content marketing) advertising.

In our research we found that out of 888,745 UK gambling adverts on Twitter, around 40% were classified as content marketing (Rossi et al., 2021). In a subsequent study, we found that these content marketing adverts were almost 4x more appealing to children and young persons (11-24) compared to adults: 11 out of 12 gambling content marketing ads triggered positive emotions in children and young persons – only 7 did for adults (Rossi & Nairn, 2021).

We have published a The Conversation article: "How children are begin targeted with hidden ads on social media."

Our concerns about gambling content marketing were also recently picked-up by Channel 4´s "Joey Lycett´s Got Your Back". The TV programme criticised PaddyPower for using content marketing and therefore luring children into gambling. They launched the trending hashtag: #PaddyPowerLeaveTheKidsAlone.

Another area of concern is advertising for esports betting (Nairn & Rossi, 2021). Most large sports events came to an abrupt halt during the pandemic, but one category was not only unaffected but enjoyed accelerated growth. Esports is the industry surrounding the professional competitive playing of computer games online. Games include Counter-Strike: Global Offensive, Fortnite, Defence of the Ancients and FIFA. The industry's market revenue is forecast to reach $1.1 billion in 20218. Global audience reach was estimated to be 474 million people in 2021 – most of them children and young persons. Conventional bookmakers (such as Bet365) have responded by offering esports bets and new dedicated esports betting internet sites (e.g. Midnite) have emerged. The esports betting market is predicted to be worth $205 billion by 2027.

In 2020, a stunning 21% of 18-24 year old UK respondents who took part in a Gambling Commission survey said they had already betted on esports. This is not too surprising since esports spectators are on average 26. Accordingly, there is substantial concern that esports betting advertising will be of inherent appeal to children.

This was confirmed in two of our recent studies. The first one found that 85% of all 9,332 followers of esports betting accounts on Twitter were under the age of 25 (Rossi et al., 2021). Our most recent study found, that esports betting was only appealing to children and young persons, whereas adults had strong negative emotions. Indeed, adults were four-times more likely to feel intense negative emotions about esports gambling adverts than children and young persons (Rossi & Nairn, 2021).

To clarify, we do not have any concerns with eSports – indeed; a recent study by the Oxford Internet Institute confirmed that video gaming could be good for one´s wellbeing (Johannes, Vuorre, & Przybylski, 2021). Our concerns solely lay in the intersection of eSports and gambling: Firstly, by offering bets on eSports due to the

young age of the average eSports player. Secondly, since current regulations do not offer any guidance/requirements for eSports advertising which we believe is a huge problem (Nairn & Rossi, 2021)

Recommendations

1. Ban All Esports Gambling Advertising

Esports gambling advertising is dramatically more appealing to children and young persons than to adults – who find it very unappealing. As most esports fans are under 30 anything related to esports – including gambling – has an almost inherent appeal to children and young persons. It is even questionable whether esports gambling advertising can ever not be of strong appeal to youth. Esports betting advertising should thus be banned.

2. Better Labelling of Social Media Ads

Advertising regulations should specify unambiguously that all posts from commercial operators on social media must be clearly labelled as advertising. Otherwise, users – in particular children – are unlikely in a position to immediately identify the advertising as such – which might leave them defenceless against advertisers' persuasive attempts. This is particularly important for *content marketing.* Whilst we believe that an ad-label might be sufficient for content marketing of non-harmful products, we believe that this would suffice for harmful-products such as gambling, tobacco, HFSS and we believe that in these cases the use of content marketing should be banned.

3. New Social Media–Specific Advertising Regulations

The ASA posits that rules apply equally to online and offline advertising. Sometimes this is appropriate, and the wide range of restrictions should apply in both spheres. However, our research has shown that social media presents additional opportunities for advertisers that are well beyond the scope and consideration of traditional advertising regulations such as (1) encouraging engagement with and sharing of content that exposes an ever-increasing number of children to gambling, (2) immediate links to accessible betting on a mobile phone, (3) exposure to gambling opportunities at night, and (4) an incredibly high volume of gambling ads that serves to normalise the activity.

4. Better Enforcement of Current Regulations

That 68% of the traditional and 74% of e-sports gambling ads contravened regulations is a serious issue. We therefore strongly recommend that regulations relating to gambling advertising on social media be given particular attention by the enforcement team at the ASA.

To aid this, social media platforms should establish a free, searchable database of gambling advertising. This resource could be maintained by platforms and function in a similar way to existing libraries for political advertising. This database should be made available to regulators and researchers to ensure compliance, transparency, and accountability.

5. Ask Children and Young Persons Directly and Frequently What Appeals to Them

That gambling advertising is appealing to children is a serious issue. However, regulators (in neither tobacco, gambling nor HFSS contexts) have never asked children and young persons what actually appeals to them. We strongly recommend that the ASA includes children and young persons when evaluating complaints, and that the CAP uses our appeal test ongoing and when creating guidance or new codes.

6. Use Children´s and Young Person´s Answers to Urgently Review Guidelines for What Advertisers Must Avoid

The current CAP guidance for advertising features appealing to children is unclear and highly subjective – making it almost impossible for advertisers to stick to the rules. We recommend that, using answers from children and young persons, the criteria for "strong appeal" are very clearly articulated within the revised CAP code with specific examples of images and text considered of “strong appeal”.

7. Expand the Definition of “Young Persons” in CAP from 16-17 to 16-24

CAP use the terms children for anyone aged 0-15 and young persons for anyone aged 16 and 17. As 18-24-year-olds found gambling adverts more appealing than other age group we recommend that CAP extend the definition of “young persons” to 18-24-year- olds to ensure their protection, too.

8. Only Serve Up Gambling Ads on Social Media When Users Confirm They Recognise It and Want It

We recommend that social media companies use tools to ensure that people only see gambling/tobacco/HFSS ads when they recognise and want to. This could be done by using a Sensitive Content tool, where users only see an ad after confirming that they recognise it as advertising and want to see it. Instagram has recently introduced such a tool.

Case Study: Video Games in Scotland: Risks, Opportunities and Myths – Dr. Matthew Barr

Video games play a role in a significant number of peoples' lives across Scotland, with UK-wide data suggesting that 86% of people aged 16-69 have played computer or mobile games in the last year (Ukie, 2020). In addition, despite assumptions to the contrary, 50% of these players are female, and nearly half are over the age of 40. It is notable that, as an industry, video games continue to grow in significance, with the UK video game market valued at £7bn in 2020 – an increase of 29.9% from 2019 (Ukie, 2021). So, while Scotland-specific statistics are not readily available, it is safe to assume that the people of Scotland spend a significant amount of time (and money) playing video games. Scotland is also a prominent producer of video games, with games companies including Rockstar, Outplay, Blazing Griffin, Ninja Kiwi, No Code, Stormcloud, and many more developing games here.

As both producers and consumers of video games, it is imperative that we understand the ethical and social implications associated with playing them. However, our understanding of the issues is muddied by a mixture of bad science, anecdotal reports, and ill-informed media coverage. This case example will provide a balanced, evidence-based overview of the science behind games' potential impact on player well-being. As such, it will look at the relationships between video games and mental health, video games and violence, and online games and gambling. In doing so, the case example will dispel some common misconceptions about video games, relating the research to the Scottish context through interviews with experts and players based in Scotland.

The public and academic discourse around the effects of playing video games has, in the past, focused on games' alleged ill effects. From the moment video games entered the mainstream in the late 1970s until at least the turn of the century, the overwhelming majority of research published in relation to games' impact was concerned with their harmful effects. These effects were, variously, associated with concerns about cardiovascular health (Gwinup, Haw and Elias, 1983), seizures (Kasteleijn-Nolst Trenité, 1994), and physical injuries dubbed "Nintendinitis" (Brasington, 1990). From the beginning, video games' psychological effects have also been the subject of much discussion, including the threat of addiction or "pathological preoccupation" (Keepers, 1990), violent behaviour (Dorman, 1997), and even – in one, isolated case – hallucinations (Spence, 1993). These tensions came to a head in 1993, when the United States Judiciary Committee and United States Senate Committees on Governmental Affairs held a congressional hearing ('Violent Video Games: What Parents Need to Know') that examined the perceived impact of video games on children (Roth *et al*., 1995). The hearing was a response to the moral panic around games such as *Mortal Kombat* (1992) and *Night Trap* (1992), the latter of which was also raised in the UK Parliament (Maclean, 1993), and resulted in the creation of a video games rating system.

While the machinations the United States Judiciary may appear somewhat irrelevant to policy in Scotland, it must be acknowledged that the games industry is a global (and increasingly US-centric) phenomenon. Furthermore, the two best-selling video games of all time have significant ties to Scotland: *Grand Theft Auto V* (2013) was developed

primarily by Rockstar North, based in Edinburgh, while the console (Xbox, PlayStation and Nintendo) versions of *Minecraft* (2012-17) were handled by Dundee-based 4J Studios. For context, *GTAV* has 150 million sold copies to date (Take-Two Interactive, 2021), while *Minecraft* has sold in excess of 238 million copies across all platforms (Microsoft, 2021). The IP for both *GTA* and *Minecraft*, however, is owned by US companies (Take-Two Interactive and Microsoft, respectively). At the same time, the Scottish games industry continues to produce significant original IP, a recent example being *Observation* (2019) – developed by Glasgow-based No Code Studios – which received the British Academy Games Award for British Game in 2020.

Returning to the controversy surrounding video games, it should be noted that we have been here before: virtually every new medium – be it radio, film, television, comics, or even the humble novel – has been the subject of some initial moral panic (Bowman, 2015). Indeed, given that the first commercial video game, *Computer Space*, was released just 50 years ago, video games remain the 'new kid on the block' when compared to other media. As such, the moral panic associated with games' initial rise in popularity persists to this day, with former US President Donald Trump suggesting – in the absence of evidence to support the claim – that "gruesome and violent video games" were to blame for a spate of lethal shootings in 2019 (Shanley, 2019).

Indeed, the violent nature of the aforementioned *GTAV* – largely a product of Rockstar's Scottish studio – has been the subject of much discussion in the popular press. The game – like its predecessors in the *GTA* series – has been described by the *Daily Telegraph* as being "designed deliberately to degrade women" (Hoggins, 2013), while the *Daily Record* highlighted "footage that lays bare the shocking sexual violence at the heart of a controversial hit video game, which has its roots in Scotland" (Allen, 2014). A scene from the game in which the player is involved in the torture of another character attracted significant attention on the game's initial release in 2013, for example. As reported in *The Guardian*, this scene was condemned by organisations including Freedom from Torture and Amnesty, but it was the Association of Teachers and Lecturers that perhaps got to the heart of the matter, noting that "ATL is not calling for a ban on these games, or censorship at all. What we are asking is for parents to become aware that the little ones are seeing these things" (Hern, 2013). The issue here is not necessarily games' mature, often controversial, content. Rather, the issue is with a lack of awareness around the intended audience: *GTAV*, in common with many titles, is designed for an adult audience and is rated 18 by the body responsible for video game age classifications, PEGI.

This is a concern that was highlighted over a decade ago in arguably the most influential report on the impact of video games published in the UK. The *Safer Children in a Digital World* report – the result of Dr Tanya Brown's government-commissioned review of children's video game and internet use – made a number of key recommendations, concerned primarily with age classification, and parent and carer responsibilities (Byron, 2008). Noting that systems to inform parents about the content and suitability of games already exist, the Byron Review highlighted the need to raise awareness and understanding of these systems. The UK Government's response to the Review focused primarily on internet safety, and the recommendation that the British Board of Film Classification (BBFC) play a greater role in games classification has been superseded by the Digital Economy Act

2010, which passed responsibility for rating video games to the Video Standards Council, using the PEGI system. However, as the controversy around *GTAV* in 2013 demonstrates, the lack of parental understanding of the age classicisation system remains an issue.

Another, more recent controversy concerns the presence of 'loot boxes' in online video games. Also known as, 'loot crates', loot boxes are digital items that may be purchased from within a video game. The controversy surrounding loot boxes stems from the apparently random items that they contain, which may include new colour schemes or outfits for player characters, new weapons, power-ups, or other in-game rewards. The inclusion of loot boxes was seen as appealing to game publishers, as they provide a revenue stream beyond the initial purchase of a game. In some games, loot boxes and other in-game purchases are the sole means of monetisation, with the base game distributed for free (the so-called 'free-to-play' business model). Paid-for downloadable content (DLC) has been commonplace since home internet connections first became popular (and, indeed, the origins of paying for game expansions may be traced back to the 'add-on disks' of the pre-internet era). The issue with loot boxes is the random element: when a player makes their purchase, they have no way of knowing what is inside the box. As such, the purchase of loot boxes may, quite reasonably, be viewed as gambling, and – again – there is a lack of awareness about the inclusion of such features in many games.

Press and politicians alike have been keen, however, to highlight the dangers of loot boxes, and their parallels with 'real world' gambling (see Ferguson, 2020, for example). Internationally, legislators saw fit to treat loot boxes as games of chance that fall under existing gambling laws, for example in the Netherlands (Taylor, 2018a) and Belgium (Taylor, 2018b). In the UK, the Gambling Commission drew a distinction between loot boxes that gifted items of value only within the game, and those, which may have some value beyond the game. It is this latter scenario – where ostensibly in-game items are traded for money or goods outside of the game – that might constitute gambling in the UK (Gambling Commission, 2018). In 2020, the UK Government launched a call for evidence to inform any decision about classifying loot boxes as gambling, the results of which have yet to be published (Davies, 2020). The legal aspects of loot boxes are discussed further in the Expert Insights below. Meanwhile, many games publishers have moved to head off any such legislation by, for example, removing the random element typically associated with loot boxes, and adopting a more transparent model of monetisation.

Perhaps the most controversial condemnation of video games, however, has come from the World Health Organization, in the 11th revision of their International Classification of Diseases, commonly referred to as ICD-11 (World Health Organization, 2018a). ICD-11 saw the inclusion of 'Gaming disorder', which identifies a pattern of gaming behaviour that "results in marked distress or significant impairment in personal, family, social, educational, occupational, or other important areas of functioning" (World Health Organization, 2018b). ICD-11 also adds a second, less serious condition referred to as 'Hazardous gaming', which "appreciably increases the risk of harmful physical or mental health consequences to the individual or to others around this individual" (World Health Organization, 2018c). 'Gaming disorder' is categorised under 'Disorders due to addictive behaviours', while 'Hazardous gaming' falls under 'Problems associated with health behaviours'.

However, the move to include 'gaming disorder' in ICD-11 has proved divisive; with many academics highlighting the poor quality of the research on which the desire to pathologize video game use is predicated. For example, as noted by van Rooij *et al*. (2018), basic reporting standards are not always adhered to in studies that claim to show evidence of 'pathological gaming'. An excellent example of how the picture has been distorted by poor quality research is the way in which several of the most commonly-cited papers claiming to show a link between games and violent behaviour actually rely on the same data set, used repeatedly to show the same result in multiple research papers (see Przybylski & Wang, 2016). As van Rooij *et al*. (2018) note, this has had the effect of inflating the number of studies that appear to show some causal link between video games and violent behaviour. In actuality, observational studies cannot show causation: only correlation. This is a fundamental flaw in much of the work that appears to show links between video games and violence or depression: these may be underlying issues that result in increased game play, perhaps as a coping mechanism. Furthermore, the research on the negative effects of playing video games is afflicted by publication bias, wherein studies that appear to show some hint of games' negative effects – regardless of research quality – are more likely to be published (see Ferguson, 2015).

While the research on games' alleged negative impact remains inconclusive, there is increasing evidence of the potential positive effects of playing video games. These beneficial effects include stress relief (Reinecke, 2009), cognitive skills development (Barr, 2017), combatting loneliness (Kaye, Kowert, & Quinn, 2017) and dealing with trauma (Colder Carras et al., 2018). In the Case Example and Expert Insights that follow, games' positive effects on well-being are explored.

While the prevalence of video game play across the UK is striking (see the Ukie statistics cited above), perhaps even more remarkable is the extent to which games became central to so many peoples' lives during the COVID-19 pandemic. Ofcom, for example, have found that more than half of the UK population reported playing video games in order to cope with lockdown (Ofcom, 2021).

In a study conducted by the University of Glasgow, the effects of playing video games during the COVID-19 were examined via a survey of nearly 800 players (Barr & Copeland-Stewart, 2021). The study was intended to document how video games were being used during the pandemic, with a particular interest in examining how games were affecting players' well-being – for better or for worse. It was found that time spent playing games increased for 71% of respondents during the first lockdown, while 58% of respondents reported that playing games had impacted their well-being, with the overwhelming majority of responses indicating a positive impact. Seven broad areas in which playing video games had affected players were identified, as follows.

Mental health

> "I got really anxious around the time of [the] COVID outbreak in the UK and in Portugal (where my family is). Games have always helped with anxiety as they give me something else to focus on."

Improving mood and alleviating conditions such as anxiety were common themes, with many references to games helping players “cope” with lockdown, in line with the findings of the Ofcom report. Indeed, previous studies have demonstrated games’ potentially restorative effects on mood (see, for example, Rieger et al., 2014).

Stress relief

> “I find playing video games enjoyable and relaxing, taking time out to play games can mean I return to what I was doing in a less stressed frame of mind.”

Many players reported using games to relax or de-stress, often citing the simple enjoyment of playing games – especially when other forms of entertainment were unavailable. Again, there is prior evidence of games’ capacity to help players ‘de-stress’. These include the aforementioned Reinecke (2009), as well as studies wherein players reported stress relief as an unexpected side effect of playing games (Barr, 2019).

Escape

> “Games provide an escape from the world for a limited time. They create a distraction from everything and also it is good exercise for the brain.”

Related to games’ reported capacity for stress relief is the escape that they offer players. Several respondents also compared video games favourably with social media, citing games as a healthier distraction from COVID than “doom scrolling” through their feed. As one might expect, the possibility of escaping to some other world is a common motivation for playing video games, as noted, for example, by Scharkow et al. (2015).

Cognitive stimulation

> “Keeps my mind busy, and sharp.”

In addition to simply staving off the boredom associated with lockdown, respondents here make reference to ‘exercising the brain’ and being able to explore new experiences as an important source of mental stimulation. As noted above, there is evidence in the literature of games’ capacity to improve cognitive skills, so this is not a surprising finding.

Agency

> “There’s a feeling of control within the context and confines of the game.”

Many players talked about how video games provide them with a sense of control and fulfilment that was otherwise lacking during lockdown. Player agency is a well-documented motivation for playing games, with the feelings of competence and autonomy that games are apt to produce being linked to our basic psychological needs (Ryan, Rigby and Przybylski, 2006).

Socialisation

> "It has helped to keep me in touch with friends who I can't see in person, and has kept me from being completely isolated at home. Some friends have started to play video games with our gaming group when they had not expressed an interest before. This has been very positive – it's good to be able to share your hobby with people!"

The social aspects of video games are often overlooked by those who do not typically play them. Here, players made numerous references to the opportunities for social interaction that games afforded during lockdown. Again, there is prior research, too, that has shown games can help combat loneliness, such as the aforementioned study by Kaye, Kowert, & Quinn (2017).

Normalisation

> "Playing video games has brought a sense of normality to everything."

Finally, players reported how video games had provided them with a link to their normal, pre-COVID lives, as well as providing structure to the day. It is interesting to note that the US Centers for Disease Control and Prevention state that citizens should "try to do enjoyable activities and return to normal life as much as possible' during a crisis" (CDC, 2020). Perhaps video games have a role to play in how a nation copes with such disasters.

The study also highlights the small number of negative responses to the question of how video games had affected players' well-being, noting, "in several cases, negative comments about the impact of playing video games on well-being were balanced with more positive sentiments". The main concern identified by players was that they were spending time doing something that was not 'worthwhile' or 'productive'. But the trade-off was generally considered to be acceptable, as one participant noted: "One minor issue I can mention is I might have spent a bit too long playing games but I think in the current situation the positive side completely outweighs the negative and can justify the time spent".

The following insights, from two Scotland-based players, help illustrate the relationship between video games and well-being touched upon in the case example above.

First is Gabriel Elvery, a PhD student at the University of Glasgow, whose research focuses on “the development of an analytical approach to video games that includes the balancing of affective immersion with mindful engagement and analysis”. Their work explores the parasocial interactions that players can have with in-game characters, also known as ‘non-player characters’, or NPCs.

> Identifying how video games provoke emotional responses, and investigating the qualities of those feelings, can help us understand our wider social lives; video games provide demonstrations of social systems which are often taken for granted, and give us a way to think through our feelings. They may not provide perfect representation, but like a novel or great work of art, hailing their virtues and critiquing their flaws are both equally valuable educational experiences. Video games offer, for anyone who cares to learn, a platform for social and emotional education - especially single player games which can serve as an emotional testing ground that allows for mistakes.
>
> Personally, video games have helped me understand and come to terms with the social difficulties I experience as someone with borderline personality disorder, as they allow me to study different relationship dynamics and analyse my emotional responses to them within a safe environment. Creating a game which illustrates my battle against mental illness has helped explain my neurodiversity to others - helping, I hope, to destigmatize a maligned disorder. Furthermore, using video games to teach has improved the morale of my students by providing social lubrication and offering them a shared social experience at a distance. Video games are a medium for connection: both with others when used to mediate group gameplay, and as affective technology which can help us connect with, and understand, our own sense of self via parasocial interaction with non-player characters.
>
> Gabriel Elvery, LKAS PhD Researcher, University of Glasgow

Next is Glaswegian author and journalist, Joe Donnelly, who published *Checkpoint: How Video Games Power Up Minds, Kick Ass and Save Lives* in 2020. He was also featured in BBC TV documentary, *Gaming and Me: Connections, Identity and Support*, broadcast in 2021.

> I’ve always used video games as a means of escapism, but when my uncle took his own life in 2008, I turned to the medium like never before. At a time when my reality wasn’t the nicest place to be, I delighted in visiting Grand Theft Auto 4’s Liberty City, BioShock’s Rapture and Tomb Raider: Underworld’s coastal Thailand, whose digital landscapes helped me through a rough time like never before. In the early 2010s, I discovered indie games such as Zoe Quinn’s Depression Quest, Will O’Neill’s Actual Sunlight and Vander Caballero’s Papo & Yo, all of which explore mental health themes and latterly gave me the courage to seek professional help for my

> own developing depression in the wake of my uncle's suicide. Through all of this, I believe video games saved my life and gave me support during some of my darkest days. During the stretches of national lockdown and enforced isolation throughout the global pandemic, video games such as Fortnite, Minecraft and Animal Crossing: New Horizons provided thriving social spaces for so many people, at a time when real-world exploration was impossible and our collective mental health was compromised.
>
> Joe Donnelly, author of *Checkpoint*

Video games and loot boxes

The following overview of how loot boxes relate to existing gambling legislation comes from Edinburgh-based solicitor Neil Falconer. He highlights the limitations of the 2005 Gambling Act in relation to dealing with loot boxes, and notes that updated UK-wide legislation has likely been delayed as a result of Brexit and the COVID-19 pandemic.

> As is often the case with new matters arising in the technology sector, when the relevant legislation was drafted the development of Loot Boxes would likely not have been envisaged. With the Gambling Act 2005 (the legislative basis for regulation by the Gambling Commission in the UK) now over a decade and a half old, the prevalence of in-game Loot Boxes would not have been a material consideration at that time.
>
> The Gambling Commission can only act within its legislative remit. To fall within the remit of regulated gambling the 2005 Act requires that the prizes won via a game of chance be considered "money or money's worth". The Gambling Commission has taken the view that this requires a cash-out or financial reward which is not present in Loot Boxes where the prize is restricted to the gaming environment and therefore does not have a monetary value (although it obviously has utility to the player).
>
> Loot Boxes therefore fall between the cracks of the current regulatory framework. With the prizes being in-game assets with no real world cash value, it would appear that current legislation does not allow for regulation. However, this point is blurred as there have been instances of third party transaction sites allowing in-game items to be traded for real-world money. The fact that gamers are willing to pay sometimes large sums of real world money for in-game items clearly shows there is a monetary value to these items for the gamers. Also the fact that gamers often pay real world money for the chance to win a Loot Box item would suggest that the prize has monetary worth to those playing the game.

> Outside the purely legal position, the academic research on the psychology of Loot Boxes shows a connection between Loot Box purchasing and problem gambling. The fact that Loot Boxes appear in an industry which has a high volume of child gamers would amplify this issue in the eyes of the Government. Interestingly, that legislation has in some respects future-proofed itself. Both the definitions of 'gaming' and 'lotteries' in the Gambling Act 2005 allow for secondary legislation to be passed which would enable certain types of arrangements to be classed as gaming or lotteries. While this may have been pushed further down the Governments priority list in the last couple of years due the Brexit and the Covid-19 pandemic, it would seem that amendments or clarification from the legislature in relation to the regulation of Loot Boxes is probably likely.
>
> Neil Falconer, Associate, Thorntons Law LLP, Edinburgh

The potential ill-effects of playing video games are frequently overstated in media reports and, indeed, in certain research papers. The reality is that the research has failed to find convincing evidence of a causal link between video games and violent behaviour or gambling habits. This is not to deny that playing video games – as with many pastimes – carries *some* risk. There are, of course, instances of players developing an unhealthy relationship with games, exhibiting what can only be described as addictive behaviour. In addition, there are games – clearly labelled as such – which are not suitable for younger players, on the basis of their content. Furthermore, while video games rarely feature gambling in any overt sense, we have seen that loot boxes do, indeed, constitute a potentially problematic form of gambling. Loot boxes, however, are now largely consigned to the past, as a result of public concern and likely amendments to legislation.

All of these concerns must be considered in context. With the overwhelming majority of Scotland's citizens (and many millions more, globally) likely to have played a video game of some form in the last year, the absence of an epidemic of game-related violence or widespread gaming addiction reveals the extremely low risk that games pose. Such risks must also be weighed against the increasing body of evidence that suggests video games may be a force for good in many players' lives. Video games can have a positive impact on players' well-being, offering a range of social, emotional, and cognitive benefits. To stigmatise video games is to potentially deny our citizens the opportunity to enjoy these benefits.

In short:

- Playing video games is a pastime that brings joy to many, and the potential benefits are increasingly clear.
- Meanwhile, the evidence for games' negative effects remains inconclusive, and muddied by poor quality research.
- There remains a lack of awareness and understanding of existing video game age classification systems, and of the content and suitability of games aimed at adults.
- This lack of awareness also extends to the mechanisms that underpin in-game purchases, including loot boxes, which arguably constitute gambling.

Recommendations

- Scotland should adopt a suitably positive stance on video games, eschewing the moral panic with which they have often been associated.
- We should also actively avoid demonising an industry in which Scotland has frequently enjoyed significant success.
- We should consider a campaign to raise awareness of the PEGI video game age classification scheme at a national level, or advocate for a similar UK-wide campaign, aimed primarily at parents.
- If the UK fails to legislate to classify loot boxes as gambling in a timely fashion, Scotland should seek to pass equivalent legislation as soon as possible.

Digital Inclusion

Case Study: Online Courts – Prof. Burkhard Schafer

Covid-19 forced legal systems around the globe to move at least parts of their court procedures to an online environment. The pandemic succeeded where previously, academics, NGOS and law reformers had failed. The use of online courts had found vocal advocates since the turn of the century, not just or even mainly driven by the need to reduce the costs of the administration of justice, but as an ethical demand to achieve several aims of the justice systems better than physical courts are capable to.

The focus of this section are online courts and online proceedings, that is legal proceedings where the parties participate remotely and mediated by technology such as Zoom, Skype, Teams, and via mobile phones, laptops or other hardware. The discussion of online courts in this sense is often combined with a demand for better use of intelligent technologies, “legal AI”, sometimes with a view of automating parts of the litigation process. These ideas for “enhanced” online courts will only be touched upon, though in the recommendations, as argue that some of the new problems that online courts can bring can in turn be mitigated by better use also of “smart” technologies.

In particular there has been hope expressed in the literature that online courts can increase access to justice.

This can happen by reducing barriers to access

- A reduction in direct and indirect costs on the parties (including time and opportunity costs, such as the need by parties and witnesses to travel, arrange work or care commitments around the trial schedule etc),
- reduction of physical barriers that affect citizens with a range of disabilities,
- creation of curated and sharable accounts of judicial decision making for the wider public, for instance a video recording of the decision with auto-generated subtitles. In this case, access to justice and the principle of open justice are both served.

“Enhanced” online courts in addition might provide new forms of legal support for laypeople who can’t afford or are otherwise prevented from using, professional legal advice, for instance by having documents automatically checked for completeness before the trial commences. This can support the principle of equality before the law.

Other possible benefits with ethical salience include

- More efficient and as a result faster decision, speaking to the principle that justice delayed can be justice denied.
- A more diverse legal profession that is more representative of the community that it serves, with arrangements more accommodating to childcare or other care responsibilities, or more accessible facilities for lawyers with disabilities.
- Reduced costs for the taxpayer, and with that the ability to support other parts of the justice system.
- A more positive emotional experience of the judicial process and a less intimidating atmosphere, that in turn can lead to more accurate decision making. For some parties or witnesses, being in the same room with the other party can be intimidating and effect their behaviour detrimentally.

Legal practice and the legal profession by contrast have been in the past mostly concerned about attempts to abandon the court and the trial as a physical space that takes place in designated buildings, synchronously, and with an architecture that amplifies and enforces certain key values

The very same values that proponents of online courts saw protected or enhanced where seen by many as under threat from such a move.

In particular, there are concerns about

- Procedural fairness, especially lack of effective support by counsel if lawyer and clients are not in the same physical space, and cannot confidentially communicate.
- Exacerbated social exclusion and (further) loss of access to justice. This could be because of lack of suitable hardware, living in remote communities with slower broadband, accessibility issues for citizens with disabilities, or lack of digital skills to efficiently participate and use technology confidently.

One should note that these two concerns can interact. We do not know for instance if a participant with less stable broadband, who as a result more often “interrupts” the smooth running of the process, will be (subconsciously) get blamed by the decision maker in a way that affects the verdict. Participants with powerful hardware, technical knowledge and a safe and quiet room from which to participate in the proceedings can ensure that the background is blurred. Participants with less powerful hardware, technical knowledge, or a separate room from which to participate will “invite the judge and jury” into their living room, with the danger that this discloses contextual information that can prejudice the decision maker against them (one can think e.g. of glimpses of a dirty kitchen in a child custody hearing). These obstacles are likely to trace other patterns of social exclusion and affect predominantly poorer citizens.

While procedural fairness and equal access to justice are two significant concerns, there are also other worries

- Open justice: The principle that justice also must be seen to be done. The trial is not just a means to reach a decision, but also to communicate the law and its values to the citizenry, who in turn as observers guarantee an additional layer of scrutiny. It is unclear how online courts can be made “observable”
- Privacy: this principle pulls into the opposite direction from open justice. As noted above, online trials may “invite the court into the living room”. This means that simply open the proceedings to a wider online audience may not always be appropriate.
- Dignity of the parties. Court decisions can significantly affect the life of those participating in a trial. The remoteness of the hearings – further acerbated by mandated social isolation during the pandemic – could lead to parties bereft of necessary emotional support and communal expressions of empathy and support, a problem noted in particular in child custody hearings
- Dignity of the court and the legal process. As many critics of the concept of an online court have pointed out, trials are solemn affairs where the seriousness of what is at stake for the citizens is symbolically and visually reaffirmed through the courtroom architecture, and the way in which the court conducts its business. This solemnness of the process aims to protect the respect of the public for the individual verdict and the justice system in general, enhances the moral message that the decision of the court sends to the public, and also ensures that the parties remain aware of their special duties and obligations. As an iconic example, a lawyer participating in the proceedings while looking like a cat (due to being unable to switch off the zoom filter his son had installed on the machine) may be harmless fun as a one-off, but events like this could undermine public trust in the justice system, and also raise the question when, and under what rules, that procedure should have been stopped.

Recommendations

The experience with online courts during Covid-19 so far gives rise to cautious optimism that online courts can make a positive contribution to delivering justice that is fair, timely, accessibly and openly. Increased use of remote hearings and procedure, when used in the right type of case with the right type of support, can contribute to a more just and inclusive society. In addition to the values discussed above, a more systematic adoption of online courts would also increase resilience. The next pandemic, or an environmental disaster that make physical hearings impossible, may force court proceedings online again in the future. The response to Covid-19, for all its efficiency, was improvised and haphazard, with rules made ad hoc and without proper scrutiny. Existing technology was shoehorned into performing the task, rather than a bespoke solution that reflects the domain specific requirements. While appropriate as an emergency response, it would be irresponsible to be found in such a situation again. Continuous use of at least some online procedures that allows evolution of the technology, and investment in the necessary infrastructure supported by a legal framework that protects the rights of the parties, would also contribute to future resilience.

Covid-19 has accelerated the adoption of online courts globally, and the data generated from this experience should play an important role in shaping future responses. It is therefore recommended to carry out a comprehensive study of the reports that are currently created across a huge number of jurisdictions, to learn from their mistakes and also their successes. It should be born in mind though that legal systems are historically evolved entities, and while the relevant technologies have been developed for global markets, legal systems are culturally and historically situated, which means that what works in one jurisdiction may not work as well in one from another legal tradition. Technology is not value neutral, and design choices must also reflect the local values of the legal system in question. Scotland as a mixed jurisdiction is well placed to benefit from the experiences made in both common law and civil law countries, but still has to remind mindful of the way in which legal technologies offered on a global market may conflict with local conceptions of justice and the just society.

While there is a rapidly increasing number of studies that evaluate the experience with online courts during Covid-19, the debate is still dominated by members of the legal profession, judges, academics and government officials. There are a few studies that elicit the experience of citizens with online courts, but they are still the vast minority. Hearing the voices of citizens is crucial for developing technology for the justice system that is trusted and trustworthy. It is recommended to actively seek out the voices of citizens whose cases were adjudicated in the online courts. This should not just inform any future deployment of online courts, but also ensure retrospectively that the changes introduced as emergency measures did not result in disadvantages for the participants, especially of these were from vulnerable groups. There is at least some evidence for instance that remote court proceedings produce less favourable criminal sentencing outcomes for defendants, which if confirmed would be worrying and requiring redress.

The overarching value that any legal technology must be measured against is its compliance with the rule of law ideal. This requires at the minimum that the trial be governed by a system of rules, that these rules guarantee equality before the law, and that decisions made under these rules are subject to appropriate scrutiny and can be challenged, again in a rule governed process. This does not mean that all forms of discretion need to be “design out”, but it makes it essential that also the use of discretionary powers be subject to review. In the early days of the response to Covid-19, different courts in Scotland adopted diverging procedures with regards to online courts. While the most serious inconsistencies were quickly rectified, a formal legal framework is needed. Some of the ethical issues indicated above require balancing between values of equal importance, e.g. privacy interests of the parties and the principle of open justice. Fundamental conflicts between values like these can only be resolved by Parliament, and after public debate. Other rules may fall more appropriately into the remit of the Lord President, the Judicial Office for Scotland and the Scottish Courts and Tribunals Service, advised by the Judicial Council for Scotland. In either case, the rule of law and the overarching principle of equality before the law require a more detailed and explicit set of rules than the enabling legislation in response to the Covid-19 crisis.

The feedback received in Scotland indicated that discretionary powers by the sitting judge on how to conduct an online trial were welcome and necessary to respond quickly to unanticipated problems. This report agrees that there has to be room for discretionary decisions and exercise of professional judgement by the presiding judge, but this discretion has to be constrained, and also needs clear rules on how and under what conditions it can be challenged. If online courts as stipulated above are not just a convenient "second best" in time of crisis, but can serve some ideal of justice better than physical courts, then clear and justified rules need to be put in place on which type of procedure is to be conducted using them and which ones not (and why), and also justifiable rules on when to revert exceptionally to physical trials. Such as justifiable decision could be for instance that for one party the use of the online environment would be unduly burdensome due to a disability. In this case, it is likely that courts will encounter situations where the legitimate interests of the parties pull in opposite directions. For the resolution of these conflicts too, clear rules and guidelines are needed. Finally, rules are needed to determine under which condition a decision can be challenged on the ground that technical problems during the hearing raise doubts about the fairness of the process, or how parties that abuse the technology can be sanctioned. The latter would benefit also from explicit rules on professional and ethical conduct during online procedures by the regulatory bodies of the legal profession.

The reported experience with online courts indicates general consensus that purely procedural hearings and other hearings that involve solely legal professionals have been highly successful and posing few problems, while evidential hearings, hearings that need access to multiple documents at the same time, and hearings involving larger number of laypeople (e.g. juries) are the most problematic, though some of these issues may be solvable though technology alone. It seems however equally agreed, even by the most enthusiastic proponents of online courts, that not all types of procedure are equally suitable. The choice of appropriate procedures has to be ethically informed and again measured against the rule of law ideal. This is particularly the case if, as generally advisable, there will be a period of experimentation that also tests the potential to address or mitigate the above ethical concerns through technological and design solutions. Introduction of online courts for some, but not all types of proceedings must not result in "second class justice" for some, and the risks and costs of necessary experimentation must not be shouldered by groups that are already vulnerable and least likely to mitigate any adverse effects. The introduction of fully automated decision making in the 1996 Social Security Act is a relevant warning: here a new and untested technology was trialled on an already marginalised group, without proper justification why Social Security, as opposed to any other possible administrative decision, was singled out for an experiment with automated decision-making. Even though the monetary value of each decision may have been small from the perspective of the government and hence "low risk", for those citizens affected it was of crucial importance for a life in dignity and health. Furthermore, as a group they were least well placed to absorb the impact of a mistaken decision, and least well placed I terms of resources to challenge mistaken decisions. By contrast, the decision which type of procedure to continue online should not be based on an attempt to determine objectively the "value" or "stake" of the procedure. For some citizens, a fine as part of a criminal sanction or the loss of a contract dispute can be as severe as losing a multi-million pound lawsuit for a

multinational company, or an equivalent fine by the ICO. Instead, the decision should be primarily driven by the intrinsic match between the attributes of the procedure and the affordances of the online medium, and the chance that these affordances contribute to the ideal of justice. A secondary consideration should be to identify procedures where the parties that benefit most (in terms of reduced cost e.g.) are also best placed to take the risk of something going wrong. Intellectual Property litigation or similar commercial disputes between professional parties (which also may not require as a matter of law the presence of non-lawyers) are candidates, where successful innovation could also strengthen the role of Scotland's courts within the UK.

Several of the ethical concerns listed above can be addressed or at least mitigated through a combination of formal rules and technological design solutions. Reconciling for instance privacy concerns with the principle of open justice requires rules on what parts of the procedure are recorded, how long recordings are kept and who has access to them. The problem that participants may inadvertently have to disclose too much of their living conditions can be mitigated through a platform where participants join a virtual room in which they are represented through avatars, as has been trialled experimentally for jury trials. There is a significant body of work that analyses how the architecture of physical courtrooms amplifies or even enforces certain key values of the justice system. The same holds true for online courts. The design features of the meeting tools are not ethically neutral, they afford or do not afford, enhance or supress certain values. We expect physical court rooms to be controlled by the state and build in compliance with accessibility laws. We should equally expect the online court environment to be controlled and "owned" by the state. A key task will be to transfer as many of the value-sensitive design features of the physical court online. While accessibility to citizens with a broad range of capabilities is non-negotiable, value-centric online court room design goes beyond questions of accessibility and asks which values of the trial can be preserved from the physical court room architecture, or even amplified. Equality before the law too is easier to assure if the main infrastructure for online court hearings is provides through a task-specific platform operated by the court service, and the relative role and importance of the terminals and software on the citizen-side is as limited as possible. It would be a mistake to see online courts at least in the short term as a cost saving device – also earlier experiments with online hearings in England have confirmed that direct cost savings are limited. Rather, the rational for online courts should be a fairer society, which will also necessitate investment into appropriate platforms that not only embody the value of the trial as far as possible in the software architecture, but also one where these value-sensitive design choices are openly discussed in the appropriate fora and authorised by democratically legitimated procedures and office holders.

Ethical Limits to Monitoring and Surveillance

Case Study: Cybersecurity – Dr. Markus Christen

Cybersecurity is a major area of growth and investment in Scotland, and the Scottish Government has been proudly promoting this sector as an enabler of prosperity and jobs.

The development of tools for strengthening personal and corporate privacy-protection, building cyber-resilience against threats presented by criminal or state actors, supporting financial or supply chain accountability and helping to tackle serious crime may, on the one hand be regarded as an ethical duty.

At the same time, the cybersecurity sector is also heavily invested in the development of surveillance and forensic tools for purposes such as law enforcement, border control, national security and behavioural monitoring, which can challenge public expectations for ethical, proportionate, transparent, fair, inclusive and accountable digital practice.

Investments in Scottish cybersecurity/forensics companies are also partly based on the prospect of selling such technologies/services abroad. Some of these may be regarded as ethical exports, since they may help to guard vital public services or secure the assets and private information of citizens globally. Yet even the most well intentioned technologies may be misused in the wrong hands; for example, there has been much coverage of Israel's success in cybersecurity innovations, yet we are seeing evidence of these being used in for domestic, corporate and governmental spyware, including by authoritarian governments or geopolitical adversaries of the UK.

Recommendations

Scotland can make the most of a cyber-Scotland and avoid the potentially harmful effects of misuse and misappropriation by following three layers of action:

Government and legal: obtain an overview of the often-fragmented legal landscape, including gaps and conflicts, across the legislation areas of network and information security measures, electronic communications, including privacy and data protection issues and cybercrime.

Guidelines and soft law**:** Legislation will not be able to cover all cases/issues that will emerge in real live. Thus, what is needed is that companies themselves create a culture of awareness for such ethical and legal issues including procedures how to operate (and deliberate) in case of unclear legal guidance. The process of generating guidelines within a company could be an instrument to enforce such a cultural change.

Training of professionals on all levels: It is well known that cybersecurity is a "wicked problem" that cannot be solved but only be managed. Thus, knowledge regarding cybersecurity should include a broad spectrum of competences (certainly with a specified focus depending on the profession). What we consider relevant is that ethical, legal and social aspects of cybersecurity should be part of the training of professionals.

Case Study: Domestic Abuse and Data and Digital Technologies - Dr. Katherine O'Keefe

The use of digital technologies to facilitate domestic abuse mirrors many of the concerns revealed in mini publics about surveillance and technology. The increasing integration of digital connected devices into the home life impacts privacy generally but is of particular concern in the context of domestic abuse or intimate partner violence. Where the legal and ethical frameworks often used to raise concern regarding the impacts of digital technologies and surveillance on our rights to privacy, autonomy often model the threats and harms as external to the home and look for protection of the home from government, industry, or external criminal threats, the same threats to privacy, dignity, and autonomy can occur within the domestic space, in the context of intimate partner violence. This is reflected in the focus of legal protections. The UK Data Protection Acts and GDPR limit the scope of protections, exempting "domestic" or "household" use of personal data from requirements for compliance.

The impact of domestic abuse in Scottish life is wide-ranging and significant. According to research done by the Scottish Government 62,907 incidents of domestic abuse recorded by the police in 2019/20, and the Coronavirus crisis saw a "shadow pandemic", with an increase in reported domestic violence as well as increased threats and pandemic specific tactics of abuse during lockdowns. "Some services observed increases in online stalking and harassment behaviours." According to Scottish Women's Aid, "For women not living with their abuser, lockdown meant that their abuser knew they would be at home, increasing the abuser's opportunities for stalking and continued harassment. The reliance on technology during lockdown to maintain social contact and for work also provided opportunities for abusers to misuse that technology to continue the abuse."

Many emerging digital devices and connected services have been weaponized by abusers as tools for surveillance or stalking (facilitated by GPS, webcams, spyware, or abusive uses of apps and phone functions), as well as control of "smart" home IoT technologies such as smart meters, voice assistants, and locks. These can impact victims' autonomy and be used as methods of coercive control and psychological abuse, to establish power over victims and harass them as well as for surveillance.

Technology facilitated abuse in the context of domestic abuse or gender based violence is not necessarily fully recognized in the way domestic violence is recorded and countered in the justice system, though they are likely to fit into categories of "threatening or abusive behaviour or stalking" offences that constitute 88% of breach of the peace-type convictions recorded against abusers in the statistics recorded by the police in Scotland - 2018/19 (5). Additionally, the types of harassing and coercive behaviour for such digital abuse is intended to "cause the partner or ex-partner to suffer physical or psychological harm" such as fear, alarm, or distress. This is recognized in The Abusive Behaviour and Sexual Harm (Scotland) Act 2016 as an aggravation of an offense (Abusive Behaviour and Sexual Harm (Scotland) Act 2016, 1 (2)).

The harms of technology-facilitated abuse are significant, and part of a range of tactics used by perpetrators.

Restriction of access and monitoring of mobile phones has become a significant element of coercive control, as well as stalking behaviour. Abusers may misuse general-purpose software or operating system features or install more purpose specific spyware on phones. This can include changing passwords to block or control access to communications, as well as access to bank accounts and monitoring finances, using location tracking to surveil or stalk victim-survivors, and enabling spyware on phones. One example of psychological abuse often employed against survivors is harassment using payment apps, by repeatedly sending small payment amounts to constantly remind victims and survivors that they are within the abuser's reach.

Technology facilitated abuse, particularly in the context of smartphones and "smart home" connected devices and systems integrated into the functioning of a home abuse raises specific privacy and security concerns for such sensitive situations and introduces new threats and harms. A number of digital technologies may be used by abusers as surveillance mechanisms to stalk victims and monitor their activity throughout the day as a tool of coercive control. This surveillance affects victims/survivors psychologically, impacting their dignity, privacy, and autonomy. The Scottish Government's reported that a commonly used phrase victims used was that they felt like "sitting ducks", as their abusers knew where they were at all times"

This can include many "internet of things" (IoT) devices as well as mobile phones. Webcams and home assistants such as Alexa or Google Home devices may be used for surveillance, or to control connected thermostats, lights, locks, and other elements of the home, connected devices, or wearables. The effects of this weaponized use are not only limited to the possible physical effects of the literal updated "gas lighting", but the psychological effects of the threat whether the threatened control is possible or realized.

There has been increasing recognition of the harm caused by non-consensual publishing of intimate images or "revenge porn" as abuse and harassment. It is one of a number threatening and abusive uses of social media. The design of social media networks makes it difficult for abuse survivors to control their privacy and cut their abusers off from information about them, as their privacy is impacted by the social media profile privacy settings of everyone they know. Even if they block an abuser from all of their social media, they cannot ensure that everyone in their network also blocks information about them. Technologies such as facial recognition and automated tagging aggravate this risk.

Digitalization and introduction of new connectivity into conventional technologies introduces new threats and ethical dilemmas in design. As Jane Bailey that technology facilitated abuse "is perpetuated not just by "bad individuals," but also by the systems and practices of the technology companies that structure and facilitate online interactions" (Bailey, et al introduction). Lack of prioritization of privacy and security in design can be directly related to the harms that result from the misuse of digital technologies. Potential impacts in the context of domestic abuse or coercive control are often considered "edge cases" in the design of connected technologies, or the potential misuse of technologies is simply not acknowledged as something a responsible designer accounts for and designs for. In order to have ethical digital design, designers, developers, and policy makers should consider and take into

account the experiences of victims/survivors in design and development of the systems and threat modelling.

The concerns of differently impacted demographics and marginalized groups are vital for ethical design, and designers must take understand and account for potential misuse rather than designing with an assumption of best-case scenarios.

Dr. Leonie Tanczer, principle researcher in Gender and IoT at University College London, notes that the traditional model of thinking of computing and device design as “access to a personal computer” or a single account holder is no longer fit for purpose, and that for many digital technologies and particularly for IoT devices, the model that needs to be considered for access, control, and privacy, is that of shared access to a resource. The effects on privacy and control in a shared service space with multiple people potentially affected by a device are not appropriately designed for with single account holder access and controls, which are often set up and controlled solely by the abuser.

While digital technologies have been misused and have the potential to be weaponised to abuse people in the context of domestic violence, they can also be key supports for victims and survivors, enabling them to leave an abusive situation and reassert control over their lives. The ability to disconnect, privacy and security in communications may be a deciding factor in victims’ ability to leave an abusive situation.

The same digital technologies that abusers may have weaponized against abuse victims can, once they have regained control over their data and have autonomous control over the technology themselves, be liberating. Cameras the victim/survivor has control over can be used to ensure security. Yee Man Louie observes that smart phones can be used to document evidence, and online forums can provide social connections and support.

Ethical and responsible design of digital technologies appropriately taking into account and mitigating risks of abuse can readdress the balance of potential harms and benefits resulting from these technologies.

At a government and policy level, support for the programmes and organisation working with victims and survivors of domestic abuse and gender based violence should consider the digital and physical abuse holistically. Similarly, the framing of legal protections in relation to data could take into account the gaps in protections resulting from “domestic use” exemptions to data protection legislation. Support offering specialized expertise and cyber security support for survivors will likely be increasingly needed. Having a centralized government cybersecurity resource devoted to this, perhaps as an aspect of the Scottish cyber strategy, would also provide insight and statistics into the prevalence and trends in technology facilitated abuse. Additionally, policies supporting better understanding of threats through Higher Education could offer another opportunity to help emerging developers understand the social context in which their products will affect people, individually and socially.

The Future of Work in a Digital Economy

Case Study: Governing the Rise in the Remote Economy – Sam Brakarsh & Abigail Marks

The nature of the relationship between home and work has changed significantly over the past 18 months. The Office of National Statistics (ONS) noted that prior to the start of 2020, employees that worked from home were most likely to be female and work part-time hours. Yet in 2020, given the unprecedented increase in homeworking, the characteristics of the home working population changed. Full-time, ICT, and professional workers now represent the highest incidence of homeworking. Despite some evidence suggesting that, people who combine homeworking with working away from home are more productive than those who never work from home, Scotland both during and before the pandemic had the lowest proportion of home and hybrid workers (ONS, July 2020).

Boss Tech and Surveillance Tech programs are playing an increasingly central role in the experience of employment and the structure of the labour market. Currently, industry and government policies are promoting remote work as a means to address inequality by increasing productivity and access to opportunity regardless of geographic location. However, an unreserved emphasis on remote work has the potential to cause significant social and economic harm. This case outlines three key domains in which remote work can fail to lead to social progress. Firstly, the language of inequality reduction can be co-opted by the for-profit industry to reduce costs to the detriment of community wellbeing. Secondly, the expansion of remote work only increases access to opportunity for a stratum of the labour force already engaged in work that is easily digitised. Indeed, the TUC has warned of an “emerging class divide” between higher-paid homeworkers who plan to continue doing their job remotely at least some of the time, and working-class occupations where people have limited access to, or opportunity for, any form of flexible working. Finally, remote work has the potential to significantly increase gender disparities in the workplace.

The Digital Strategy for Scotland sets as a goal that the country becomes a centre for home working, saying “we will engage with communities in remote and rural areas to find ways in which Scotland can capitalise on changes in the world of work and position itself as a leading centre for home and remote working.” The articulated value of such an initiative is clear. It has the potential to increase the ease of work for entrepreneurs who would benefit from collaborations that extend beyond the local. Boss Tech also allows teams to coordinate without shared office spaces thereby purportedly increasing worker efficiency without in situ managerial supervision. In addition, remote work is framed as a solution to spatial inequality, opening up access to specialised employment for individuals in remote areas of Scotland who would otherwise find such opportunities restricted to those in larger cities and business centres. The potential for these benefits holds true. However, an overemphasis on remote work can lead to social harm. Comprehensive policy is needed to secure the economic and social gains whilst protecting against potential drivers of inequity that are embedded within remote work.

The language of inequality reduction can be co-opted by the for-profit industry to justify actions that may benefit the employer rather than the employee. Remote work can increase access to opportunity, but remote work is just as capable of being used as a strategy to shift costs of supplies and overheads onto employees. Throughout the COVID-19 pandemic, large organisations have provided insufficient support to employees to work from home. Most individuals have had to pay for basic office supplies out of pocket to make their home environment workable.

At least a quarter of employees had to finance provision for IT tools in order to homework during the COVID-19 pandemic and over half had to provide their own office equipment. In addition, working remotely is likely to silo employees and make collective mobilisation around worker rights more challenging. Shared hardships in the workspace are veiled through restricted social engagements on digital platforms. As one participant from the Working@Home project noted 'And with the technology, you know, you can see people, talk to people…..I think you missed some of the contact with people you're particularly friendly with ... So, there's probably been occasions where it would be nice if, you know, we could get together'. Asking the question of who remote work serves, the employee or the corporation is vital in assessing how to protect the wellbeing and rights of Scottish peoples in the digital economy.

Remote work has its own barriers to entry. Blue-collar workers, whose labour is inextricably tied to their bodies, or those who work in Scotland's extensive tourist industry, will not benefit from policies aimed at increasing remote work. From a recent TUC (2021) survey of employers, there is the suggestion that organisations are less likely to offer flexible work to staff who were unable to work from home during the pandemic. One in six (16 percent) of employers surveyed said that after the pandemic, they will not offer flexible working opportunities to staff who could not work from home during the pandemic, compared to one in sixteen (6 percent) saying they will not offer flexible working opportunities to those who worked from home during the pandemic.

We cannot allow flexible working to become a perk for the favoured few - offered to a minority of the workforce who are able to work from home – and serving to reinforce existing inequalities. The remote economy is most likely to support middle to upper-income workers whose skills are easily transferable to digital platforms. Remote work is not radically restructuring the economy. It removes some barriers to entry but introduces others. In particular, the Working@Home project found that those who had large homes with less occupancy (and thus the space to afford a dedicated office) were more likely to 'succeed' at homeworking. From the Working@Home survey, it was clear that this advantaged men with 60% of men having a dedicated home office space compared to 49% of women. Moreover, with many remote workers having to pay for some of their own office equipment and IT provision, there is another advantage to those that are most affluent. The impact of a crowded home on homeworking is illustrated in the following quote -

"I would say my home is no longer – well it is my home but it is very difficult to say office workspace and private are separate because of the setting. When I go into the kitchen, I see my laptop, I see the computer, or when I go into the living room I see

the office, I see my workspace. So I am – ideally I'd have a room that I can lock up and close the door and that's it but it is, then my work is constantly with me because I see the desk, I see the chair so I see whenever I move in the flat -" (male, hospitality)

Finally, current data indicates that remote work disproportionately harms women in the workforce. Working from home is frequently presented as a means for women to fill the conventionally gendered role of raising children whilst simultaneously maintaining their careers. Whilst the Working@Home data suggests that there is no clear difference in terms of men and women and their intention/desire, with all employees wishing to work at home around 50% of the time, this is a simplistic finding. The study clearly found that men are less distracted when working from home - compared to the office - and women are more distracted. Women's reaction is probably due to their disproportionate responsibility for domestic chores and decreased opportunity for a dedicated office. Nonetheless, the majority of workers felt more productive at home.

This increase in productivity comes at a cost. From a survey (n=1200) undertaken in December 2020/January 2021 by the working@home project, workers were starting to suffer as a response to the remote working technology. Respondents report a clear relationship between the time they spend using collaborative or video conferencing software and the intensity of their overall work demands. Specifically, the respondents reported that the more time they spent using collaborative or video conferencing software, the greater their perception of 'always' working and the more they felt they were too frazzled to participate in family activities/responsibilities. One third (32%) of respondents believed that technology forces them to work to increasingly tight time schedules; more than one quarter (27%) of respondents reported that technology forced them to work more than they can handle; and one quarter (25%) of respondents reported that technology forces them to work faster than they were used to.

The Working@Home study was undertaken with employees across the employment spectrum. However, research focussing only on senior managers has indicated that men are far more interested in returning to the office. This difference has serious implications for gender equity in the workplace since all-male 'managerial' workspaces will become increasingly inaccessible to women and, in the case of promotions, having a physical presence in the office may increase the visibility and the chances of moving up the organisational ladder. There is reason to be concerned that mismanaging the rise in remote work could push gender equity in the workplace back over a decade.

Recommendations

- Flexible/remote or hybrid work has to be encouraged across the board from senior to entry-level staff, regardless of gender, to avoid disparity
- Organisations should be legally mandated to ensure equality in terms of promotion and progression regardless of work location
- With the likely savings from the reduction in real estate and utilities costs, employers must financially support hybrid and home working to avoid penalties to the most vulnerable

- Organisations must ensure that home and hybrid workers have appropriate, subsidised equipment at home
- Employers must ensure appropriate integration and inclusion of homeworkers in organisational decisions making
- Government must mandate that surveillance technology, whether in built-in software such as Teams, Zoom, or other programs more integral to performance systems, must only be used with the full consent and understanding of employers and employees

Case Study: Non-Fungible Tokens (NFTs) and Cultural Heritage – Dr. Foteini Valeonti & Prof . Melissa Terras

Non-Fungible Tokens (NFTs) are a new, blockchain-based technology that introduces scarcity into the digital realm. First invented in 2017 as a way for game players to trade virtual goods, NFTs emerged into the mainstream in 2021, when the NFT titled “5000 Everydays: The first 5000 days” featuring a collage by digital artist Mike Winkelmann was auctioned at Christie’s for 69 million US dollars (Kinsella 2021). The year before, 2020, was a particularly challenging year for museums and galleries, as, due to the pandemic, institutions had to fight for their financial survival with widespread redundancies and financially-motivated deaccessions (Valeonti et al. 2021). Museums Galleries Scotland were urging the government in August of 2020 to provide additional financial support to the sector stating that two thirds (71%) of the country’s independent museums had not enough funds to survive for one year (Knott 2020). Emerging in that context, NFTs were deemed as a potential lifeline for museums and galleries (Ciecko 2021). Major museums were amongst the early adopters of this new technology, raising funds by selling primarily digitised images of artefacts in their collections raising issues of digital deaccessioning (Valeonti 2022). The first to do so was the Uffizi Gallery, Italy, which sold an NFT on an image of Michelangelo’s Doni Tondo for 170,000 US dollars in June 2021 (Artnet News 2021); the Hermitage Museum in Russia sold 5 works for 440,000 US dollars (Partz 2021) and in the fall the British Museum sold multiple editions of NFTs of Hokusai woodblock prints following up with NFTs of paintings by J.M.W. Turner (Harris 2022).

Scotland is spearheading research in the broader field of blockchain technology. The University of Edinburgh’s Blockchain Technology Laboratory was co-established by IOHK (the parent company of the Cardano blockchain network) and since 2017, it is undertaking all pioneering research and development of Cardano, currently the 4th largest blockchain with a market capitalisation of 16 billion US dollars (CoinMarketCap 2022). In the cultural sector, numerous artists in Scotland have been “minting” (i.e. creating) and successfully selling NFTs, including graduate of the Edinburgh College of Art and Edinburgh-based artist Trevor Jones, who is amongst the top selling NFT artists of all time (Anon. 2022a). As of yet, no Gallery, Library, Archive or Museum in Scotland has been known to mint and publicly auction an NFT as a means to raise funds. Although the potential of NFTs is indeed substantial, presenting a modern revenue stream, for the modern artworld and the increasingly digital cultural heritage sector, there are numerous issues to be considered in this emerging area, including understanding the environmental impact of NFTs and the underlying blockchain technology; understanding how copyright and intellectual property rights intersect with NFT ownership; navigating malicious uses of this

technology and understanding the financial risks associated with investing in NFT artworks. However, these are issues that can be addressed, and since this is a rapidly emerging area that Scotland has shown leadership in, support should be provided for creators and institutions alike to understand and leverage this powerful new technology.

NFTs derive from the blockchain, a technology that enables trust-less transactions between strangers, eliminating the need for the mediation of centralised authorities; in simple terms, the blockchain can be described as a decentralised database that is accessible by everyone, but cannot be compromised by anyone (Valeonti et al. 2021). Beyond underpinning crypto-currency, blockchain technology is used for a wide range of applications (Ahram et al. 2017) considered also as the technological foundation of “web3” (Potts & Rennie 2019); The “decentralised web” as it is also referred to, web3 is widely considered the next iteration of the internet, as its decentralised nature could help tackle critical limitations of current Internet architecture (Jain 2006). By definition, NFTs are defined as cryptographically-unique, indivisible, irreplaceable and verifiable tokens that represent a given asset be it digital, or physical, on the blockchain (Valeonti et al. 2021). NFTs can be described as the digital equivalent of Limited Editions, which is a method widely employed by photographers and artists of immaterial art in order to create artificial scarcity due to the lack of a unique, original, tangible artefact. As demonstrated in Figure 1, in NFTs, the print copy is substituted with a digital copy and the signature is digital instead. Although NFTs closely resemble Limited Editions in many respects, the fundamental difference between the two is that, unlike Limited Editions, NFTs can compete in price with rare original artworks. Beeple’s “Everydays: The First 5000 Days” ranked at the time, as the 3rd most expensive work sold at an auction by a living artist (Kinsella 2021). As such, NFTs significantly increased the value of immaterial art (e.g. digital art, photography, performance), as well as the value of any kind of high quality, born-digital content.

With the trading volume of NFTs estimated at 40 Billion US dollars for 2021 (Versprille 2021), the potential of this new medium for fundraising is evident. Critically, despite the turbulent bear market, which is becoming increasingly severe, with all crypto-currencies currently in freefall, in a 7-day period (between the 12th and the 17th of June 2022), more than 18 million US dollars were invested in NFTs of Bored Apes alone, with 1 Bored Ape being sold for 1.22 million US dollars (Anon. 2022b). In the heart of the so-called “crypto winter”, with the price of Bitcoin under 20,000 US dollars and only a few days after the dramatic events of leading “De-Fi” (decentralised finance) projects Luna and Celsius collapsing, causing a domino effect in the broader “crypto economy” (Oliver 2022), NFTs are still turning over millions daily. As of the 19th of June, 2022, the 24-hour NFT trading volume is more than 37 million US dollars (Anon. 2022c). The financial resilience of NFTs, despite the dramatic events unfolding in the broader space, could be attributed to their core value, i.e. the scarcity value. Similar to how real-world collectors invest in paintings, rare watches, trading cards or any other type of collectibles, digital natives invest in NFTs. Nevertheless, a decline in the NFT market is expected. According to Gartner Research, in August 2021 NFTs were at the “Peak of Inflated Expectations” right before the "Trough of Disillusionment”; the firm projected that it will take 2 to 5 years before the technology reaches the “Plateau of Productivity” (Gartner 2021).

Resilience in the bear market and millions in daily trading volume for such a nascent technology, highlight the potential of NFTs. However, despite the galloping pace in which the digital sector is evolving, NFTs remain a raw medium, plagued by risks that must be acknowledged, navigated and addressed with caution. The main criticism against NFTs relates to their environmental impact. In today's format NFTs were invented on the Ethereum blockchain network, which is also where the vast majority of NFTs are still being traded (Coin Telegraph Research 2021). The energy consumption of Ethereum is indeed substantial. Beeple's auction by Christie's alone, consumed energy enough to power 15 US homes in a year (Coin Telegraph Research 2021). However, NFTs are not inherently energy-intensive. As a technology NFTs are blockchain-agnostic, therefore if they are minted and transacted on energy-efficient blockchains, i.e. Layer-1, Proof-of-Stake blockchains (such as Cardano and Algorand) their environmental footprint can be considered negligible compared to the amounts of money they help raise. The copyright landscape is also unclear, creating a confusion to creators of NFTs and collectors alike. Research indicates that, legally, NFTs are similar to paintings, where the collector only gains ownership over the actual asset (e.g. the frame and canvas in the case of paintings), but no copyright, or commercial rights over the artwork depicted (Evans 2019). However, popular projects such as the Bored Apes which are one of the best-selling "PFP" (Picture for Profile) NFT collections of all time with millions of US dollars in weekly trading volume, award full copyright to token holders (Dale, 2021), creating the false impression amongst collectors that this may apply to all NFTs. Beyond the environmental impact of the NFT trade and the lack of clarity regarding copyright, there are also some fundamental technological shortcomings of blockchain technology, when compared to web 2.0 and to what Internet users of today have come to expect from software applications. As explained in (Valeonti 2022) in the decentralised web "Undo" and "Reset your Password" are no longer an option and the absence of such safety nets is critical. Indicatively, the ZMK Centre for Art and Media in Karlsruhe, Germany, permanently lost access to 2 rare NFTs of CryptoPunks accidentally, which were valued more than 100,000 US dollars each (Batycka 2022). Regarding the inability to retrieve lost accounts, in August 2021, prominent NFT journalist Farokh shared on Twitter the link to his lost wallet, expressing his despair over being permanently locked out of it; the NFTs it contained were worth more than half a million US dollars at the time (Twitter 2022). Some of those challenges can be addressed by using custodian, centralised platforms (such as the Binance NFT Marketplace), but these also come with risks, especially during bear markets.

In the context of Policy and our cultural heritage, one of the key risks that must be acknowledged when employing NFTs is that of "digital deaccessions" (Bailey 2021). The vast majority of NFTs created and sold by museums to date, have featured images of artefacts sourced from the respective institutions' digitised collections. However, this a practice that should preferably be avoided, especially in the case of publicly funded museums. The digitised images of museum artefacts are their digital surrogates, also referred to as "digital twins" (Niccolucci et al. 2022). Considering that NFTs (being the digital equivalent of Limited Editions, as visualised in Figure 1) present a form of ownership over the asset they feature, selling "digital twins" raises issues of digital deaccessioning. National museums are not the owners of their collections, but instead their custodians, supported by taxpayers' money. As such,

it is advisable that cultural heritage institutions, and especially national, publicly funded museums, galleries, archives and historical sites should refrain from selling NFTs with images from their digitised collections, or NFTs of any other form of “digital twins” (where a 1-to-1 correlation can be made between the digital asset minted and the actual artefact). Instead, museums are advised to mint NFTs of derivative works, new content and new concepts. The NFT minted by the Whitworth Gallery that features a new image of the artwork, which was created especially for this NFT, instead of the artwork’s digital surrogate, which is part of the museum’s digitised collection, is one such example. As institutions gradually gain a better understanding of this new medium, it is expected to start seeing increasingly creative uses of NFTs, that leverage their multifaceted nature and capacity for limitless customisation, transparency, immutability and even co-ownership with with F-NFTs, “Fractionalised NFTs” (Valeonti et al. 2021), helping cultural heritage organisations engage with a young, dynamic, tech-savvy audience they could not reach otherwise. In addition, to the aforementioned challenges, similar to any other rapidly expanding market, the NFT space has also been subject to fraud; there have been cases where individuals with no connection to cultural heritage institutions have taken images of artworks and sold them as NFTs, implying partnership and endorsement (Cascone 2021). Such attempts failed to raise any funds, however, as these cases are becoming increasingly common, institutions must have clear guidance on how to respond to such scenarios. In such instances, institutions must distance themselves from the NFT creators (unless they have been actively involved in the project and were informed well in advance, allowing them enough time to perform their own risk assessment and seek advice from domain experts) and follow the take-down procedure of the respective platform where the NFTs were minted; take-down policies are provided by all leading NFT marketplaces. Finally, from a collector’s standpoint, a risk to be considered is that NFTs present a speculative investment and it is uncertain how they will perform over the longer term, similar to any other investment.

Although the challenges associated with NFTs are numerous, if they are acknowledged and addressed proactively, they have the potential to make a significant contribution towards the financial sustainability of creatives and cultural institutions, helping them in the long-term becoming less reliant on public funding. NFTs and the broader domain of web3 open up a wealth of opportunity for artists and cultural heritage institutions alike, paving the way for their financial sustainability and independence, effectively saving taxpayers’ money. By investing in research, development, support and training, whilst leveraging early successes of Scottish artists, Scotland can help shape that future of the increasingly digital cultural sector.

In Scotland there have been a variety of artists who have successfully minted and sold NFTs (McMahon 2021), whilst with regards to the cultural heritage sector, so far there has been no known selling of NFTs from a gallery, library, archive, or museum in Scotland. The speed and pace of institutional decision-making may be a factor, as may the inherently risk-averse nature of museums in general, often being amongst the late adopters of bleeding-edge technologies (Valeonti et al. 2021).

Edinburgh-based artist and graduate of the Edinburgh College of Art Trevor Jones (Klein 2021) is amongst the top-selling NFT artists of all time with sales in excess of 20 million US dollars (Anon. 2022a). Jones has focussed on cryptocurrency and the

crypto-art space since 2017. His first NFT creation, the “EthGirl” sold for a final bid of 10,027 US dollars, whilst his oil painting “Picasso’s Bull” was digitally adapted as an animated NFT, selling for 55,555 US dollars on marketplace Nifty Gateway. Jones has held the first place for the highest bids on leading NFT marketplaces, including SuperRare, Nifty Gateway and MakersPlace. In February 2021, Jones’ “Bitcoin Angel” set a record for the “most expensive open-edition NFT artwork” at the time, when it sold for 3.2 million US dollars (Klein 2021). “The acceleration of the market” according to the artist is both “good and bad” because "there’s more money and attention available for emerging artists, who can make more from their work because NFT platforms take smaller cuts than traditional galleries and offer royalties for re-sales”; on the other hand, the exponential growth of the NFT market according to Jones “makes it harder for those emerging or lesser-known artists to get seen” (Klein 2021).

Edinburgh-based artist Anna Louise Simpson has sold NFTs for 28,000 (McMahon 2021). A divorced, mother of two, who discovered NFTs at 47 (Ables 2021), Simpson explains the significant impact this new medium had in her career and personal life: “As a woman and a mother, the financial freedom that this offers as an artist to not be struggling to make ends meet is incredible and I think a lot of that’s been lost in some of the conversations about NFTs”; Simpson adds that “the financial impact for women and mothers is absolutely huge” (McMahon 2021). Simpson also highlights the potential positive impact NFTs could have on Scottish art, explaining: “If you’ve not been to the right art college or met the right people, or even exhibited in the right gallery, a lot of doors are not open to you. At least this way, you’ve got access to a global, international audience and that aspect of internationalism I think is really important for Scottish art” (McMahon 2021).

In the UK, the first museum-accredited NFT was minted by the Whitworth Gallery in July 2021, as an experiment examining alternative models of financing and social art practice (Harris 2021). Titled “The Ancient of Days” after William Blake’s homonymous artwork, the NFT featured a special picture of the piece, which was produced with multispectral imaging, instead of the work’s actual digital twin. Minted on an energy-efficient (i.e. Layer 1, Proof-of-Stake) blockchain (i.e. on the Tezos blockchain) the NFT was made available in an edition of 50 each one costing approximately £2,000 at the time (999 tezos), with two copies retained by the Whitworth Gallery. The volume did not sell out and exact numbers were not disclosed by the museum. However, for the gallery it was primarily a learning experience. A "At a time of great social and economic instability, the gallery [entered] into the emerging and chaotic world of NFTs to test alternative models of financing social practice" according to the institution (Harris 2021).

A more controversial case of museum-accredited NFTs, was that of the British Museum. In October 2021, the British Museum released NFTs of 200 Katsushika Hokusai artworks in editions of varying volume that featured the exact images from the museum’s digitised collections. The price points ranged from approximately £400 for NFTs of larger volumes (referred to as “common” NFTs), up to several thousands of pounds for “rare” and “ultra-rare” NFTs, whose volume was limited (Adam 2021). The British Museum did not disclose numbers of sales, however in January of 2022

the institution announced it will be launching more NFTs in similar formats; this time of 20 paintings by J. W. Turner (Harris 2022).

Three major issues arise in British Museum's application of NFTs. Firstly, all tokens were minted and are now being traded on the energy-intensive Ethereum blockchain network, raising justifiable criticism. Since the British Museum began selling digital versions of works from its collection in September 2021, it has consumed enough energy "to power an average US home for at least 57 years" according to the Art Newspaper (Grosvenor 2022). Given that there are several energy-efficient blockchains (which require orders of magnitude less electricity than Ethereum) that support NFTs, similar to the Whitworth Gallery, the British Museum could have avoided to "[send] its carbon footprint soaring" (Grosvenor 2022). Secondly, British Museum's implementation of NFTs uses images from the institutions digitised collections, causing concern in relation to digital deaccessioning. As explained earlier, NFTs present a form of ownership over the asset they feature and given that the British Museum is a national, publicly funded institution, it may not be entitled to sell any form of ownership over digital twins of artefacts in its collections, no matter how small, as the museum is a custodian (rather than the actual owner) of its collections. Thirdly, at a time where the colonial nature of world-history museums is under scrutiny, the fact that the British Museum chose a (commonly available) Japanese artist and imagery to release as NFTs raised issues of internationalisation and nationalism. Many wondered: Should the British Museum be promoting NFTs based on its British cultural collections, first? Nevertheless, the British Museum is undoubtedly amongst the early pioneers, who braved into this "chaotic world of NFTs" as the Whitworth Gallery described it, conducting the largest museum NFT project to date, providing us with an informative case study that allowed us researchers and fellow practitioners to gain a better understanding, advancing the knowledge of this new medium.

"How museums choose to use NFTs could significantly impact their digital transformation and have unforeseen implications that could potentially haunt them long into the future. I would encourage museums to follow Walt Disney's advice and 'not sign away anything they don't know about.'" - Jason Bailey (Bailey 2021)

"The Whitworth decided to embark on this project because it wanted to think about how it could redistribute the wealth of its collections in the most democratic way. This technology offers the opportunity to open up the collections to the broadest possible audience."

- The Whitworth Art Gallery (Harris 2021)

As a new, blockchain-based technology that achieved the seemingly impossible by introducing scarcity into the digital realm, NFTs have emerged as a powerful new fundraising medium that could potentially pave the way for the financial sustainability of artists and cultural heritage institutions alike, helping them become more independent and less reliant on public funding. Critically, although the NFT market is not unscathed by the dramatic events unfolding in the current "crypto winter", daily trading volume is still in the scale of tens of millions US dollars, demonstrating strong financial resilience for such a nascent medium. Irrespectively of the macro

environment, market decline was to be expected, as according to Gartner Research, NFTs are currently situated at the very “Peak of Inflated Expectations”, requiring between 2 to 5 years to reach the “Plateau of Productivity” (Gartner 2021).

In Scotland, several artists have seen success in the crypto-art space and were amongst its early pioneers. This is an opportunity for the Scottish Government to support, congratulate, broadcast their success and encourage them to share their deep knowledge of this otherwise exotic space to fellow artists. Cultural heritage institutions in Scotland did not rush into NFTs and perhaps rightly so, given that NFTs as a medium are still at their infancy with expertise and even plain information about them being often scarce.

Despite their strong potential, NFTs remain a raw medium, plagued by risks that must be acknowledged, ranging from the environmental impact, depending on the blockchain they get minted to the unclear copyright landscape and the technical deficiencies of the irreversible nature of blockchain technology, i.e. that in a decentralised environment “Undo” and “Reset your Password” are no longer options; unless custodial platforms are utilised which could offer such options. However, the collapse of Celsius (Oliver 2022), which was one of the leading custodial wallets, highlighted that centralised platforms also come with risk. Finally, NFTs must be treated and communicated to collectors as a high-risk investment, whose return remains to be seen, given the nascent stage of the technology. Nevertheless, given the substantial potential of the technology, after taking into consideration the aforementioned challenges, the appropriate framework should be provided for institutions and individual creators to explore this new medium cautiously and methodically.

Recommendations

Given that NFTs provide a medium that in the long-term could help artists and cultural organisations become more financially independent and less reliant on public funding learning, training, familiarisation and cautious experimentation with NFTs should be encouraged.

Experimentation with this nascent, new medium should only be done after acknowledging and proactively addressing associated risks. The two main risks concerning cultural heritage institutions are (a) the environmental impact and (b) digital deaccessioning.

Regarding the former (environmental impact), only use of environmentally friendly NFTs must be encouraged. Environmentally friendly NFTs (also referred to as “Green NFTs” or “Clean NFTs”) should only be considered those minted on energy-efficient blockchains, which, in general terms are the Layer-1, Proof-of-Stake blockchain networks, such as Algorand and Cardano.

Regarding the latter (digital deaccessioning) cultural heritage organisations are advised against making NFTs of “digital twins” of artefacts in their collections. They are encouraged to use content, which is inspired by the artefacts instead, or content that is entirely new.

The potential of NFTs is substantial, both economically, and also in terms of outreach, enabling artists as well as institutions to engage with a global, dynamic audience that would have been challenging to reach otherwise. However, information, knowledge and expertise is scarce. Therefore, in order to maximise long-term benefits economic and otherwise, it is critical to invest early in research and development, taking series of measures that will foster innovation and knowledge building both in the industry, i.e. the cultural sector and the broader creative industries, as well as in academia.

Since Scotland is home to pioneers of web3 and to early adopters of the tight-knit and highly competitive crypto-art space (i.e. from artists, such as Trevor Jones and Anna Louise Simpson to researchers of the University of Edinburgh's Blockchain Technology Laboratory, who are conducting pioneering research for one of the world's largest blockchains) it is advisable to facilitate knowledge exchange; to engage with them and encourage those pioneers and early adopters to share their knowledge, invaluable insight, learnings and methodologies with other fellow artists and researchers, as well as, with creators, cultural institutions and innovation entrepreneurs, effectively creating a community of web3 creatives, researchers and practitioners. A platform that could potentially facilitate such knowledge exchange is Creative Informatics; an AHRC-funded Creative Cluster (at the University of Edinburgh, Edinburgh Napier University, Codebase and Creative Edinburgh) fostering innovation and supporting Research & Development on the overlap of technology and the creative industries in the Edinburgh city region. Beyond facilitating knowledge exchange, the Creative Informatics cluster could also contribute to community building, through the Scottish network of creative technologists it has been developing, i.e. the Creative_Tech Scotland Gathering, which is also supported by the Scottish Government Ecosystem Fund.

Case Study: Datafication of Higher Education – Joanna van der Merwe, Melissa Amorós Lark and Grégory von Boetticher

Higher education encompasses various institutions that provide tertiary education leading and are authorised to grant degrees by the Royal Charter or under Act of Parliament (Scottish Statutory Instruments, 2018). Within Scotland there are 19 higher education institutions, 16 of which are universities providing education through campus-based teaching, distance learning, educational partnerships (European Commission, 2021). These higher education institutions are grouped into four main types namely 1) Ancient Universities, 2) Chartered Universities, 3) Post 1992 Universities and 4) Small Specialist Institutions (European Commission, 2021). Scotland's universities rank among the best in the world delivering 'economic and social benefits for both Scotland and the wider world' (Scottish Government, n.d.a). Investing and growing the education sector is part and parcel necessary for the Scottish Government's progress towards the United Nations Sustainable Development Goal (SDG) 4 on quality education this education infrastructure. As well as, creating a 'more educated, inclusive and innovative Scotland' (Scottish Government, n.d.a; The Scottish Government, 2020).

The right to higher education is enshrined in Article 26 of the Universal Declaration of Human Rights and SDG 4 aims to ensure that this right is recognised across all groups through ensuring increasing access to education (OHCHR, n.d.; United Nations, n.d.). The Scottish Government has included this focus on equal access in its 2021 National Improvement Framework and Improvement Plan, as well as, in the Scottish National Framework (The Scottish Government, 2020; Scottish Government, n.d c). Furthermore, in relation to progress on SDG 4 the government has set the target 'that by 2030 20% of students entering university will be from Scotland's 20% most deprived background' (The Scottish Government, 2020).

One of the key opportunities in achieving accessibility to higher education is the integration of digital technologies. Digital technology is being integrated into higher education at an exponential rate, especially as the COVID-19 pandemic moved teaching online causing severe educational disruption across the globe. The increased use of digital technology therefore corresponded with a rise in the amount of data collected by not only education institutions but also by private sector providers. This includes novel data (for the education sector) such as biometrics and behavioural data that can be used to gain a deeper understanding of individual students.

These digital tools and the data provide a great opportunity to improve the quality of education provided by universities and teachers. Used correctly, the tools can make education more flexible and accessible, and insights gained from data can help, for example, teachers understand whether their course material or teaching methods are effective. However, there are several risks that access to so much data presents, especially with regards to the students. Clear rules and policy guidance still need to be put in place both at the government and at the higher education institution level. Rules and polices would have to cover topics such as who owns this data, and how such ownership is practically implemented, who can use this data and for what purposes, how to achieve transparency about the data collection and involve data subjects in the dialogue on what the rules and guidance will look like.

If done correctly, these tools and data can change the way higher education is delivered, ensuring that it is flexible and accessible. It can also empower students and teachers by giving them insights into their learning and teaching practices allowing them to improve themselves and their learning/teaching journey. As well as using digital technologies to use digital technology to increase community engagement and participation. Conversely, if implemented without adequate ethical considerations this data can be used to create a model of education reliant on the constant surveillance of teachers and students rather than empowerment. Additionally, their data being used for-profit motives, their right to privacy challenged and boundaries between personal and professional/student life blurred.

Education has always relied on data. At a fundamental level, education institutions have kept track of students' progress by grading them with a numerical value (or letters). In that sense, data in education is nothing new. However, the last 10 years have brought about an explosion in not only the (digital) tools needed to carry out education, but also the data they produce and ways it is collected. The data created is not just about the student themselves, such as their admission files and course records, but also how they behave and engage with material throughout their

learning career (Atif, et al., 2013). Moreover, the increased dependence on tooling and the use of third-party companies from around the world also complicate issues like data ownership, which now depend on case-by-case contract negotiation moving away from higher education institutions' traditional data ownership (Regan & Jesse, 2019). Renewed attention should be paid to make sure students are protected from any potential negative impact based on data collected during their educational journey (Barrett, 2021).

It is almost impossible to find a higher education institution that does not make use of, for example, Learning Management Systems (LMS), learning analytics, plagiarism detectors or automatic grading software. The reasons for the introduction of such technologies are varied as they were put in place to aid with 'improving retention, addressing curriculum standards, increasing accountability, measuring teaching quality, graduation rates and employment placement' (Arnold & Pistilli, 2012; Dawson, 2011; Kovačić, 2012; Atif, et al., 2013).

Many benefits are brought about by using digital tooling education; however, it is important to be cautious about touting possible advantages as we are only at the starting point of this technological development. This section will point out three main opportunities: first, administrative ease, as technology relieves administrative pressure on education stakeholders, including teachers, students, and support staff, by improving administrative services' efficiency and reducing costs (Bichsel, 2012) Data generated from the tools also allows for better forecasting and more effective resource planning (Gašević & Dawson, 2015). Second, quality enhancement, as it allows teachers to receive feedback on assignments and courses. They can take those insights and improve their work through a process termed 'academic analytics'. Lastly, giving students access to personalised insights from learning analytics allows them to monitor their education progress, both at the course and programme level, supporting reflection and allowing for timely interventions.

However, the risks brought about by digital technologies should not be cast aside by their apparent benefits and opportunities. Three major risk categories will be presented below. First, the use of digital technologies if not done correctly can be drivers of digital inequalities and exclusion also known as 'digital poverty', as they can mirror and increase pre-existing vulnerabilities present in societies and erase any accessibility the technologies claim to facilitate. Second, student vulnerability and lack of privacy as well as increased surveillance, as studying puts them under the 'all-pervasive gaze of their institution' (Prinsloo & Slade, 2016; Knox, 2010) that analyses and collects all sorts of data throughout their education journey. All this data collection leaves students vulnerable to social and demographic profiling with untold negative consequences if poorly managed. And finally, compounding these vulnerabilities is the fact that students have little power to consent or workaround technological developments due to the uneven power dynamics between them and the higher education institutions pushing for digital transformation. However, institutions are also vulnerable themselves when negotiating against tech giants regarding tooling, security, and data ownership.

All in all, we would be remiss to not mention the benefits that have been brought about with the introduction of digital tooling in education. However, no two technologies are the same and the use of automated decision-making tools along with surveillance technology should always be scrutinised, as the consequences of misuse are of danger not only to institutions but especially to the students for whom they have a duty of care.

With the datafication of education, reflecting on the ethical concerns raised with previous technologies is vital in assessing the risk and benefits involved in future technologies and their implementation.

The case examples will serve to illustrate the ethical issues revolving technologies, namely digital proctoring and the video-conferencing platform Zoom, which are currently in use and have permeated the (digital) education sector in the past two years. Given the datafication of education, reflecting on the ethical concerns raised with previous technologies is vital in assessing the risks and benefits involved in future technologies and the design of a national policy on digital ethics.

Digital Proctoring

Digital proctoring, also known as digital invigilation, is the act of monitoring students through their personal computer while they complete an exam/assessment. Though, it may simply be regarded as a digital extension of a monitoring students when taking an exam in a classroom, there are many more ethical concerns that arise with digital proctoring. Indeed, as the University of Edinburgh points out: '[digital proctoring] should only be used in specific use cases and not as a blanket solution […]' (University of Edinburgh, n.d. a). This weariness of digital proctoring can largely be traced back to ethical concerns that are brought about by using technology as it involves room scans and AI based invigilators, among other capabilities. The introduction of digital proctoring has brought about ample controversy, especially among students, some calling to 'stop video monitoring', to 'keep tabs on students', and to 'protect students' privacy' (The New York Times, 2020). Such discussions, particularly the privacy concern, were exacerbated by instances of data security breaches, such as Proctorio's, one of the leading providers, CEO posting student's chat logs on Reddit (Zhou, 2020). Such instances highlighted that with increased use of digital technologies and data ownership being split between institutions and companies, the likelihood of security breaches augmented. Thus, university administrators have had to grapple with the risk and benefits of proctored exams. Some questioning the scalability of digital proctoring, considering technical trouble shooting, which could cause immense stress to students and teaching staff (Howie, 2020). Moreover, 'discrimination that [has] been shown to impact the most vulnerable first' (Foulkes, 2020) is furthered by these technologies, hindering the social mobility education is supposed to enable. In one of many forms, discrimination could occur due to the well-documented racial bias of face recognition/matching software, resulting in more people of colour being wrongly flagged for cheating than others. Alternatively, being of a poorer socio-economic background is likely to cause more stress, as affordable technology is of lower quality and thus more prone to technical issues while sitting an exam.

Yet, there are instances where digitally proctored exams are the best form of assessment, ‘for example resits by students not on campus […], smaller online courses, low stakes assessment that require invigilation’ (Blaney & Howie, 2020). Digital invigilation is effectively the translation of an offline activity (exam hall invigilation) to an online activity. In a university environment, it has several practical benefits such as flexibility of location allowing students to participate in proctored assessments all over the world and reduced physical space requirements for the University.

Zoom

The topic of digital proctoring, concerning with video-monitoring, raises wider ethical considerations for video-conferencing tools, such as Zoom. Video-conferring tools, which enable video calls of larger groups, have become invaluable for online teaching, as the primary tool for classes to convene and lectures to be given online.

Though existing before the COVID-19 pandemic, Zoom rose to prominence due to the switch to remote work/teaching/studying, in the process producing controversy about encryption, data storage and access, as well as hijacking. Most blatantly, Zoom was caught ‘sharing data […] with Facebook without the user's consent’ (Duffy, 2021). Zoom accordingly removed the elements of its software that enabled the sharing of data with Facebook, and despite previous data concerns, the daily user numbers for Zoom grew exponentially. This prompted Zoom to improve its encryption protocol, though it at first refused to install end-to-end encryption for free users: ‘[…] the implication that Zoom would only protect users' conversations from law enforcement if they were paying customers […]’ (Duffy, 2021). While Zoom eventually agreed to provide end-to-end encryption to all users, albeit free users would have to verify their phone numbers, with some of the company's servers being in China as well as the USA (Zoom, 2021). Both locations are of concern as the respective governments maintain powers, which allow them to access the data if they determine the need.

Beyond data storage, who has access to Zoom meetings is a further point of contention. Though this is mostly in the hands of the users, as they can choose to set passwords and how to share the link for the Zoom meeting, reporting users for hijacking meetings and potentially getting them banned from the platform was only introduced later. But even with enabling report features, hijacking of meetings has continued, creating horrible instances of hate speech, as hijackers are emboldened by the online environment, leading to: ‘Black and LGBT Edinburgh University students [being] attacked in Zoom meeting’ (Hunte, 2021).

As a result, many Scottish universities continue to recommend using Microsoft Teams or other platforms for discussing sensitive topics, as Zooms data protection has lost trust with many users (University of Glasgow, n.d.; University of Edinburgh, n.d. b).

Though Zoom remains a widely used video-conferencing tools with a plethora of benefits, the risks outlined above have created considerable push back and even the prohibition of Zoom at some institutions. The case of Zoom, as well as digital

proctoring, highlight that without discussing the ethical concerns of technologies effectively everyone involved in digital education, may it be as a student, teacher, staff etc., is being put at risk without their awareness a fully informed consent. The datafication of education presents great benefits that will transform the future of education, yet its ethical parameters must continuously be re-examined, to not put individuals at risk, as has been the case with Zoom and digital proctoring.

To explore the current state of digital technologies and data within Scottish higher education institutions, the authors spoke to several teachers and experts, as well as a student representative, based at Scottish institutions. From those conversations, they saw several central themes emerge, namely; awareness, data and digital literacy, the need to rethink education, new divides and barriers, funding, and power dynamics between institutions, staff, and students.

Awareness Traps

Dr Michelle Olmstead, Director of the Centre for Innovation at Leiden University, highlighted the general lack of attention being paid to the increasing amount and sensitivity of data being collected in higher education, noted that 'we do not know what the data is, we do not know what is being used and what is not' (Olmstead, 2021). Mia Clarke, Vice President Education of the Glasgow University Students' Representative Council, pointed out another one of the challenges connected to the data collection: the lack of awareness challenge among students. She highlighted that 'as a student, I would not have thought about all this data about me on Zoom' (Clarke, 2021). Dr Anna Wilson, Lecturer in Lifelong Learning at Stirling University, pointed out that 'when it comes to data privacy for students, although we are all trained in UK GDPR compliance, we are probably not even aware of any [higher education]-specific policies, and we may not be aware of the data privacy risks posed by some digital tools' (Wilson, 2021). This lack of awareness, alongside the novelty of the technology and the pace at which the environment is changing, creates a sense of fear amongst policy makers and 'if the policymakers are fearful and do not know where to start, they cannot actually tell the government what they need' (Olmstead, 2021).

Data and Digital Literacy

When discussing the implementation of data protection, one cannot avoid the topic of digital literacy, and this was evident in the expert discussions. Dr Keith Smyth, Professor of Pedagogy and lead of the Learning and Teaching Academy at the University of the Highlands and Islands, believed that 'a key consideration of moving forward is around the data literacy' (Smyth, 2021) dimension of digital literacy. He highlighted that 'we have got to look at embedding data literacy into the curriculum […] the same way we have been talking for 20 years about embedding employability skills' (Smyth, 2021). Dr Wilson warned that there is a danger in mistaking literacy with being an expert 'where it is really not fair to expect them to be experts. You do not expect somebody to be a mechanic to drive a car, but you do make sure you design a car in a way that somebody who is not a mechanic can drive it' (Wilson, 2021). This user-centric design approach should also apply to the use of technology in higher education, particularly to understand the data being collected and used.

Second, when it comes to data literacy, those interpreting the data and basing policy decisions on it, or teachers taking actions on it, must understand that ‘a quantitative figure does not really tell you everything’, and that data-driven decisions must come in conjunction with analytics. As Mia Clarke concurred, ‘yes, analytics [are] important, but a part of the whole’ (Clarke, 2021). Moreover, relying on analytics alone is extremely dangerous – especially if policies leave little to ‘no consideration for the human condition’ (Clarke, 2021). In his work Dr Smyth and his colleagues are actively working against that; he explained that they are taking a holistic approach to analytics, where analytics themselves are not considered equivalent to student engagement or learning in themselves, but a part of the bigger picture.

Rethinking Education

The experts highlighted that a major challenge around the use of digital tooling and data in education is to ensure that their use is based on a strong model of education. Building on a strong model of education is an ethical requirement; however, it may also indirectly address ethical challenges such as those that exist around online proctoring. Dr Ben Williamson, Chancellor’s Fellow at the Centre for Research in Digital Education at the University of Edinburgh, pointed out that ‘if education has moved increasingly online and is hosted on platforms that are built on fairly weak models of education then we might not be providing the best education to our students’ (Williamson, 2021). In relation to the use of Learning Analytics, Dr Wilson went further, to say ‘unless we go back to a behaviourist model of learning, then counting interactions within an online module is never going to be a good indicator of learning. We understand learning as so much more complex both socially and psychologically, and none of that gets measured by click rates and wait times and so on. [...] These quantitative behavioural measures are never going to give us information about really deep, conceptual learning’ (Wilson, 2021). Dr Smyth makes a key point in that any policy about how to ethically implement digital technology for education must be driven by practice, and so governments must be willing to ‘look to [the higher education] sector for direction because that is where practice [is] driving policy’ (Smyth, 2021), especially in this new area of data-driven education. Furthermore, Wilson, Williamson and Smyth agreed that curriculum updates are needed to accommodate these challenges and opportunities. In line with the curriculum updates, Wilson also highlighted the opportunities that digital education gives rise to, particularly shifting to skill rather than degree focused university programmes and increased accessibility no matter the socio-economic background or geographic location of an individual. '[...] Build up a portfolio of qualifications and that is something that can be enabled through digital tools and digital learning [...] in the way that courses are provided, allowing more remote access, and allowing more remote learning, but also continuing with face to face and on-campus learning.' (Wilson, 2021)

New Divides and Barriers

Although digital technology is seen as an opportunity to increase accessibility and reduce divides, the experts pointed out that it is creating new divides, and old divides simply manifest in new ways. Mia Clarke noted that minorities and those already disadvantaged are marginalised even further: ‘one thing that you can notice when students enter a call with their camera on is the quality, which is normally accredited to how expensive the laptop or computer is. So, I think it definitely offsets people already when they turn cameras on and speak as you can already tell if they are from a marginalised group. I think digital education exacerbates that divide more than in person teaching’. There is a lack of recognition that the divide is now based on who has access to what quality of technology, something that is evident when interacting in the online environment. Dr Wilson actively tries to keep the digital tooling in her education as simple as possible based on the recognition that some of her students are on the poorer end of the digital spectrum. Dr Smyth argued that the COVID-19 pandemic revealed some key elements of how this divide manifests when students ‘chose external technologies to try and self-organise […] the students that did not know [about the technology] or who are not on Facebook or WhatsApp got left behind’.

Furthermore, Clarke highlighted a specific challenge for gender diverse students and the collection and storage of their data: ‘I think there is a huge issue in terms of recording and video software, especially for gender diverse students who [seem to be] transitioning. They might struggle to present on camera or speak knowing someone has a recording of their voice pre-transition. That can be really damaging to them’. Keith Smyth remarked that at the University of the Highlands and Islands, the work with students has gone ‘beyond simple representation on things like the steering groups’ (Smyth, 2021) but rather engaged them in the process of identifying the ‘initial set of student engagement indicators that they were happy with […] and which they felt would support their learning and teaching experience’ (Smyth, 2021).

Funding

Experts brought up funding as one of the barriers to the ethical implementation of digital tooling in higher education, especially when ensuring resources are available for exploring the ethical challenges and requirements, as well as ensuring equality of opportunities amongst students. Dr Wilson highlighted that ‘you need effort to understand the technologies and what they do. Each new technology, and each new supplier, probably has new issues that need to be thought about’ (Wilson, 2021). Furthermore, not only does generating the knowledge and ethical guidelines take resources, but Dr Olmstead pointed out that ‘it is fairly easy to get the policy and people to agree on an ethical framework or a data privacy framework. The difficult part is actually implementing that with the funding that exists’ (Olmstead, 2021). Part of the implementation challenge that is often overlooked is providing access to the equipment needed to take part in digital education, which relates closely to new barriers and divides or biases that may result from unequal access to equipment. Mia Clarke added that ‘education has been underfunded in Scotland and […] that is a disaster because there is so much untapped potential. If you want […] students coming in from disadvantaged backgrounds, it’s great if there are going to be

provisions for them' (Clarke, 2021), provisions that are not currently available. As such, funding is one of the key steppingstones that allows for as Richard Lochhead, the Higher Education Minister, said for 'every young person in Scotland [to have] an equal chance of success, no matter their background or circumstance' (Denholm, 2019).

Power Dynamics Between Institutions, Staff, and Students

Higher education institutions inherently have a baseline of power based on their position as the issuer of the degree and provider of the education. However, digital tooling and the types of data that are now available hold the potential to create a dynamic where students are especially at risk for losing their power to protect what data is collected about them, how it is processed, for what purpose it is used and what conclusion/assumption is made about them based on that data. Signs of this unequal power dynamic are clear when discussing the current levels of informed consent at institutions. Dr Wilson commented that universities 'do informed consent incredibly badly because basically you do not have access to the degree if you do not agree to the terms and conditions [which] also discourages people from finding out what they are'. Dr Williamson noted that 'every institution is running a learning management system (LMS), and really by signing an agreement that you're going to attend the university […] you are opting into the [LMS]. It's more or less impossible to attend university without it. There is no meaningful consent, you are just in' (Williamson, 2021). Taking this trend further, he indicates that: 'if you choose to go to a university and it [uses] Amazon Web Services (AWS), and that means that every data point that is generated in that institution goes to a data lake, which is hosted by AWS, then your choice to go to that university means you are consenting for your information to go to Amazon'. This demonstrates how this data then brings Big Tech into education data. There are 'cautionary tales of taking a market focussed approach which assumes that the business deal or financial agreement is always in the best interests of the institution' (Williamson, 2021)

Without informed consent and adequate student involvement, there is also the concern that universities will use data about students combined with unfounded assumptions, leading to incorrect conclusions. Mia Clarke provided a pertinent example of what this may look like, based on a pilot that was conducted: 'you can look at analytics in terms of how often they engage with online content, but then add things into it like postcode or the Scottish Index of Multiple Deprivation (SIMD). To include things like [postcode or SIMD] puts an expectation on certain students that might not even exist. Just because someone comes from that SIMD background, that doesn't necessarily mean that they are at high risk of dropping out' (Clarke, 2021).

The barriers to ethically implementing digital tooling in higher education are plenty; however, there are also many opportunities and benefits. As Mia Clarke put it, 'digital education is the future of education in Scotland, and for the wide world' (Clarke, 2021). She cannot see things going back to the way they were and hopes that the opportunities such as accessibility and openness are tapped into further.

Summary, Mapping, Recommendations

These recommendations focus on broader-ranging steps that must be taken to ensure that as the datafication of education continues, it follows a route that enables the establishment of strong ethical foundations. The COVID-19 pandemic provided key insights into the vital role digital technologies play in ensuring access to education, amongst other opportunities highlighted throughout the case. It also clearly demonstrated that ethical challenges around these new technologies, the types and amount of data they collect, the automated decisions based on the data (e.g., exam proctoring), risks around use of tools without adequate protections (e.g., zoom) and the inability to access education without these tools (making it harder for students to opt out). These recommendations are broader than specific tools as the education sector [is at a nexus] where it can build the ethical foundations for a future of digital education. It is key that the Scottish Government take this opportunity to set up these foundations, and do so as quickly as possible, will reduce the monumental task of making technologies and institutions more ethical later down the line. Based on the research and insight gained throughout the process the authors have come up with this non-exhaustive list of recommendations:

- Including higher education, experts and stakeholders have a meaningful contribution to the identification and development of necessary policy.

Perhaps the most important aspect of the future development of digital tooling and data-driven processes in higher education is ensuring the policy decisions are driven by the right people. The policy must be sector driven, as the complexities and expertise are within the institutions. Furthermore, the current level of student involvement at all levels of policy development is insufficient with students consistently being “outnumbered” in representation but also, the few students who are involved are expected to provide input across multiple topics at various levels. Individual universities, such as the University of the Highlands and Islands, have made significant steps in ensuring that a sufficient portion of the student body are involved in decision-making around data reliant developments such as learning analytics. The processes that these universities use need to be obligatory across the sector, linked to QAA Scotland and, aligned with Scotland’s Quality Enhancement Framework (QEF).

- Programs and funding support are needed.

Support, in the form of funding and/or special programs, must be established, or expanded if already existing in inadequate amounts or size, to ensure adequate access to tech infrastructure and equipment to effectively participate in increasingly digitised education. This is indirectly and directly linked to ability to protect data but also ensure fair representation should systems begin to base decisions on this data.

- Establishment of sector wide standards and codes of conduct, especially ethical codes.

Shared standards for the ethical use of data-driven technology and decision-making must be established for the higher education sector as a whole. This includes, ethical

codes of conduct, methodologies for evaluating tools, technical standards, data, and digital capabilities (within institutions) etc. This can also include a suite of tools that are contracted at the government level and made available as standard tools to all institutions to ensure that the standards are met but also balance out power dynamics between private sector providers and the institutions. This will facilitate integration of tool across the sector, a key aspect of enabling flexibility around data collection (especially variations between what students opt-in and opt-out of).

- Updating of core competencies that all students must develop.

The core competencies of all curricula, that must be included across all education, need to be broadened to include data and digital literacy. The definition of what it means to be literate in these areas also needs to be clearly delineated. Being data and digitally literate does not mean that students must develop deep technical expertise (e.g., programming skills) but rather understand it to the extent that consent can be truly informed, they meaningfully participate in dialogue and understand the wider implications of the data generated and used. During the current transition into increasingly digital education, the baseline levels of knowledge will vary so the manner in which this is delivered will need to evolve over time (Wilson, 2021; Smyth, 2021).

- Identification of new compulsory position, responsibilities, and processes.

As more data-driven technologies and processes are integrated into higher education (and the scope of their impact widens), the institutions take on increasing responsibility for ensuring that it is done so ethically. However, a challenge within these institutions is that the capacity to evaluate the ethical risks and oversee the ethical implementation is lacking. Like the creation of the Data Privacy Officer position that was created under the UK GDPR and Data Protection Act 2018, a similar position for ethical implementation of data-driven technology and decision-making within higher education institutions. This position must be connected to an ethical review board that takes the evaluation of the tools beyond a data privacy assessment, but includes assessing impacts on accessibility, fairness, discrimination etc. This mechanism and process must be made compulsory protect students and their data and to ensure all tools rolled out are done so based on well-grounded and researched evidence of the effectivity.

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Case Study: Fintech in Scotland – Felix Honecker

Over the past decade, innovations in financial technology (fintech) have started to transform the way financial services are delivered. Advancements in cutting-edge technologies such as artificial intelligence, natural language processing, cloud computing, Application Programming Interfaces (API), and blockchain continue to change how businesses in the sector operate, collaborate, and transact with their customers, regulators, and other stakeholders. Additionally, Open Banking practices allow fintech companies to access vast amounts of previously unavailable data (including transaction data), enabling them to develop new products and services that are potentially better suited to the needs of consumers.

Fintech's economic potential is staggering and investment into the sector is booming, with venture capital funding in 2020 exceeding $4.1bn in the UK alone.1 Globally, the sector is projected to reach a value of about $305bn in 2025 – growth that is fuelled mainly by consumers and small and medium-sized businesses turning to fintech for payments, financial management, and financing.2 When promoting the fintech sector, businesses, NGOs and policy makers alike have highlighted not only its huge economic potential, but also its capacity to trigger positive social change. Fintech can improve the efficiency and reduce costs of the current financial system, extending financial services to previously unserved or underserved households. However, consumer experts have identified several obstacles that could reduce the positive social effects of fintech and, potentially, leave consumers worse off.

Convenience, speed, lower cost, and simplicity may come at the expense of losing control over our money and data, a reduction in privacy and exposure to unfamiliar security risks. And while increasing digitisation theoretically widens access to financial services by tearing down geographical barriers, it neglects that particularly vulnerable consumers often lack the capability and access to mobile or broadband data that is necessary to make use of most fintech products. These issues create ethical tensions that require thorough consideration to prevent fintech from exacerbating rather than alleviating financial and social exclusion. The UK have established themselves as global leaders in fintech and aim to maintain that position by adopting specific policies and regulatory approaches that create an enhanced and enabling environment for fintech businesses. As a major financial technology hub and home to more than 140 fintech firms, it is crucial for Scotland to develop an in-depth understanding of the ethical challenges associated with facilitating the integration of technologies into financial services.

There is no doubt that fintech can play a key role in delivering some of the National Outcomes set by Scotland's National Performance Framework. Scotland is home to a fast-growing fintech sector that benefits from the country's historically strong financial services expertise, world class universities and talent, and excellent business support ecosystem.3 The Scottish cluster has positioned itself among the leading fintech destinations in the UK and the world, creating high-income, tech-based employment in the country's fintech cities Edinburgh, Glasgow, Aberdeen, Dundee, Stirling, and Perth.4 Through an increase in remote work, current and future jobs in fintech are no longer restricted to these larger cities but open up opportunities for high-quality employment across Scotland. Moreover, companies across a varied range of sectors can adopt financial technology tools for payments, accounting, cash flow management, smart contracts, and other business functions to increase productivity. These developments, therefore, contribute to the Economy, International, and Fair Work and Business outcomes of the performance framework.5

Additionally, fintech has the potential to significantly improve social inclusion and tackle poverty. Digital finance is faster, more efficient, and usually cheaper than traditional financial services. Building on these advantages, fintech firms are extending access to financial services to low-income households and small businesses that previously had been unserved or underserved.6 World Bank data shows that between 2011 and 2017 about 1.2 billion people have gained access to a transaction account, with much of this progress attributable directly to digital technologies.7 In addition, open banking practices combined with AI and machine learning have enabled fintech firms to use new, supposedly fairer approaches to credit scoring and risk assessment that are more transparent and do not solely rely on a credit history.8 These technologies help financial businesses to gain an improved understanding of their customers and allow them to provide better money advice or develop products that are more suitable to their customers' (or excluded households') needs. InBest.ai, for example, use artificial intelligence to transform a variety of banking data into a holistic picture of each customer. Financial institutions use InBest's platform to uncover early warning signs of financial vulnerability based on personal circumstances, financial situation, and transaction patterns. Financial institutions use these insights to provide customised solutions that improve the financial wellbeing and resilience of consumers.

By facilitating access to accounts and credit, fintech is creating opportunities for wider sections of society to participate in formal economic activity. Moreover, complementary products and services, such as benefits calculators or AI-enabled financial management apps, can help consumers reduce expenditure, maximise income, and manage their money more effectively. These tools can play a decisive role in debt and financial poverty prevention. Reduced complexity and methods like gamification (i.e., the use of game concepts and design principles for non-gaming applications) can further improve how people interact with their financial futures and increase financial literacy. Scottish fintech firm Sonik Pocket, for example, uses gamification to teach children the value of money and help them achieve savings goals.

Fintech, therefore, has the potential to create income and employment, enhance economic growth, narrow income inequalities, improve financial literacy, and

significantly reduce poverty and social exclusion.9 And there is still plenty of scope to improve the positive social impact of fintech, particularly through expanding e-government services and targeted fiscal measures. However, there are also risks related to higher fintech adoption. Careful ethical considerations and comprehensive policy interventions are required to realise fintech's economic and social potential while also mitigating these underlying risks.

Notwithstanding the aforementioned opportunities, there are several challenges emerging from increased fintech adoption. Social inclusion could be at risk if the ongoing COVID-19 pandemic accelerates the transition to digital financial services. Unequal access to digital infrastructure (e.g., lack of access to mobile phones, computers, or the internet) could exacerbate existing and create new forms of exclusion. Additionally, people who may have access to the necessary infrastructure but lack digital expertise may refrain from using new technologies and miss the opportunities associated with them. This could aggravate existing inequalities, expand the digital divide, and further isolate vulnerable groups.10

Similarly, machine learning and data biases (which occur due to prejudiced assumptions made during the algorithm development process or biased training data) as well as inaccurate or incomplete data could restrict rather than broaden access to credit. There is some evidence indicating that, instead of delivering on the promise of facilitating access to affordable credit for previously excluded consumers, increasing data points in credit scoring also increases inaccuracies which in turn negatively affect creditworthiness.11 People who deliberately avoid leaving a data trail or who suffer from data poverty12 will be disadvantaged by these approaches if there are no moderating measures in place.13 This potentially forces people to establish a data history at the expense of their privacy if they want to avoid being subjected to unfair price discrimination (or being excluded from credit altogether). At worst, some of our most sensitive and private data could be extracted and used for exploitative ends. Thereby, the financial inclusion argument could be co-opted by firms to bolster their legitimacy.

Comparable risks emerge when fintech applications are "gamified." While gamification can positively shape and encourage better financial behaviour or improve financial literacy, it can just as easily entice people to spend over their budget or aim for short-term rewards rather than make the decisions that are in their best interest in the long term. Some investment and trading apps, for example, have drawn huge criticism for using gamification to encourage their users to trade more frequently even though this approach often increases the likelihood of losses.14 Young, inexperienced consumers with low financial literacy tend to be particularly susceptible to such unethical applications of gamification. Similar challenges exist with businesses offering easy access to micro credit (e.g., Klarna's buy-now-pay-later or instalment options), which often entice young people to spend over their budgets.15

Recommendations

The government must ensure digital financial inclusion, for example by providing means and funding for digital infrastructure (devices, internet access, and special equipment for people with disabilities), provide skills training, and build trust and motivation to use financial technology. Since there will always be varying degrees of tech-savviness and differences in the willingness to engage with technology, the government should also support viable alternatives to high-tech digital finance. Promoting and financially supporting the digitisation of credit unions' and building societies' operations, for example, could allow people who are not able or willing to engage with fintech solutions to still benefit from its advantages (lower cost, speed, more transparent processes etc) without personally adopting new tools.

To maximise the positive social impact, the government should facilitate and support long-term dialogue and relationships between financial technology firms and organisations that have experience working with and are trusted by vulnerable consumers (e.g., NGOs, credit unions). This will facilitate innovation and improve fintech tools for financial inclusion through expert input while also accelerating adoption of such tools if trusted institutions recommend them to the people they work with.

The government and financial regulators should require transparent and understandable explanations on what the collected information is used for, why it is required, with whom it is shared for what purposes, and how it is protected to ensure data privacy. There could, for example, be terms and conditions templates that follow the same format, use similar language, have standardised components etc, to improve understandability and avoid illegitimate or unethical data practices being buried in complexity.

To complement (3) and to enable sound decision-making when it comes to data sharing, the government should facilitate a balanced education process for citizens to better understand their digital footprint, put them in control of their own data, and recognise both the upsides (e.g., source of useful innovation, products and services tailored to specific needs) and downsides (e.g., loss of privacy, potentially loss of control, increased susceptibility to manipulation of behaviour) of sharing their data. A better understanding will allow consumers to make informed, case-by-case decisions on what data to share, with whom, under which conditions.

The government and regulators could require technology firms to set the strictest privacy settings as the default, so that consumers must give explicit consent to all aspects of data collection. Accepting/rejecting should be possible through a transparent and understandable process without "convenience traps" (no "accept all" option to quickly get through the process). This would create an incentive for businesses to adopt data practices that are acceptable to consumers, and to clearly demonstrate to consumers how sharing their data will create value for them or others.

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