POVERTY PANOPTICON

[The hidden algorithms shaping Britain's welfare state]

BIG BROTHER WATCH

About Big Brother Watch

Big Brother Watch is a civil liberties and privacy campaigning organisation, fighting for a free future. We're determined to reclaim our privacy and defend freedoms at this time of enormous change.

We're a fiercely independent, non-partisan and non-profit group who work to roll back the surveillance state and protect rights in parliament, the media or the courts if we have to. We publish unique investigations and pursue powerful public campaigns. We work relentlessly to inform, amplify and empower the public voice so we can collectively reclaim our privacy, defend our civil liberties and protect freedoms for the future.

Contact
Silkie Carlo
Director
Email: silkie.carlo@bigbrotherwatch.org.uk

Jake Hurfurt
Head of Investigations
Email: jake.hurfurt@bigbrotherwatch.org.uk

Poverty Panopticon: the hidden algorithms shaping Britain's welfare state
Published: 20th July 2021

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INTRODUCTION

Introduction

Our report on Poverty and Digital Suspicion reflects many months of investigative research into the secretive emergence of a digital welfare state that risks perpetuating deeper data collection, processing and algorithmic bias, further disadvantaging some of our country's most vulnerable people. This digital reshaping of the country's century-old welfare system has happened behind closed doors, with minimal scrutiny and little public or parliamentary awareness. This report, which focuses on the digitisation of suspicion within local authorities, aims to shine a light on this drastic change and calls for transparency and reform.

In the course of our investigation, we have sent Freedom of Information requests (FOIs) to more than 400 local authorities about their use of algorithms, data analytics and automation in welfare systems; we have used Contracts Finder, Spend Network's Insights and a data scraper to identify contracts from councils who claimed not to use algorithms in their decision making; and we have questioned both councils and contracted companies. We have been able to advance research of algorithms and data analytics in the welfare system both in breadth, across all local authorities, but also depth, taking deep dives into specific local authorities' systems. In summary, we have found:

- Approximately 1 in 3 local authorities risk-score people who receive housing benefit and council tax support when they apply, using opaque, privately-developed algorithms, covering more than 540,000 people.
- Approximately 1 in 3 local authorities and more than 1 in 3 housing associations run predictive analytics to assess whether social housing occupants will keep up with rent payments. , adding up to 1.6 million tenancies.
- Some large local authorities use bigger predictive systems that can model who is at risk of homelessness (Newcastle, Maidstone, Cornwall, Croydon, Haringey); others use similar systems to model children at risk of harm (Hillingdon, Bristol); whilst others can model general financial vulnerability (Barking and Dagenham). , with at least 250,000 people's data being processed by huge predictive tools.
- The Department for Work and Pensions conducts risk modelling of housing benefit recipients on a regular basis to predict who poses the highest fraud/error risk due to change of circumstance, and passes this data to local authorities.

Surveillance of the poor and vulnerable is becoming more deeply integrated in Britain's welfare state. Algorithms decide who to subject to the most intrusive questions over their claim for welfare payments. Vast numbers of people who live in social housing are profiled every month to predict who will miss their rent payments. Complex predictive tools model the risk of homelessness, financial vulnerability and even the chance of harm from the pandemic. All of this happens without the knowledge or consent of the people whose data is secretively entered into these hidden systems.

Years of austerity and increasing pressure on local services have led to private companies advertising their supposedly high-tech solutions as the answer to diminishing council budgets, offering a way to do more with less.

Software firms are pitching technology as the answer to catching out fraudsters, making staff time more efficient and allowing for cost-saving early interventions.

However, automation and algorithms are not all they claim to be when it comes to public services. Whilst the claimed "benefits" are rarely evidenced, these opaque, invasive and often unfair systems rely on masses of personal data, generalised rules and stereotypes. Many of the predictive systems used by councils are, in practice, governed by private sector designers rather than publicly accountable officials. Furthermore, proxification of characteristics and algorithmic bias make discrimination in automated public services a real and threatening prospect.

Uncovering the real impact of AI and algorithmic decision-making in welfare is challenging, owing to low transparency in the welfare system, proprietary systems and the influence of private tech firms. This means that risks to people's data rights go unchallenged. We are still unaware of a single case where an individual has been informed that they have been subjected to a purely automated decision, as per their legal rights under Article 22 of the General Data Protection Regulation (GDPR), indicating that vague legal definitions and a lack of oversight are facilitating a dangerous grey area between automated and human decisions.

Freedom of Information (FOI) requests have formed the basis of this report. Ever more refined queries and a ruthless approach to appeals yielded important disclosures and gave a detailed, if incomplete, insight into the surveillance of society's most vulnerable. Nevertheless, the influence of private suppliers in the FOI process is evident. There has been a pattern of identical responses from different authorities on the same issues that suggests coordination, possibly from a third party supplier. At the same time, one data company even attempted

to attend our meeting with FOI officers about a request.

With high-tech systems often needing support from software suppliers, there is a worrying fusion of public and private sector interests that have harmed transparency.

In addition, extensive corporate and desk research, conversations with colleagues in the sector and the wider welfare state have further informed this research and have been vital in shaping some critical avenues of research.

The overall picture is alarming. Algorithms and predictive models that treat the poor with suspicion and prejudice risk automating stigmas. Local authorities using these tools rarely seem to undertake thorough assessments of individuals' data rights, including the risk of embedding discrimination in the wider welfare state.

Local authorities' ignorance of the effects of digital surveillance and automation is mute complicity in the harm they can cause, and risks a failure to comply with Data Protection Act 2018, the Public Sector Equality Duty, and even the Human Rights Act. Radical transparency measures and greater clarity of how data protection laws apply to public sector algorithms are needed to stop the United Kingdom from becoming a country where the poor's existence is conditional on constant surveillance by intrusive and secretive digital tools.

This is the United Kingdom's digital welfare state. The harm it can cause has risked being unchecked and unchallenged for too long. Big Brother Watch aims to change that.

Key recommendations

Recommendation 1: Given the serious discrimination and privacy risks, equalities Impact Assessments and Data Protection Impact Assessments should be required for any public sector algorithm that informs decision making about individuals or households, and made publicly available.

Recommendation 2: Algorithmic audits examining risks of bias, compliance with data protection regulation and equalities impact should be required prior to the operational use of public sector algorithms that inform decision making about individuals or households, and made publicly available. Audits should be conducted on a periodic basis and made available for sampling by the ICO, civil society and the public for independent verification.

Recommendation 3: The ICO should maintain a register of public sector algorithms that inform decision making, containing all impact assessments, audits, details of who created the algorithm, data controllers and processors, functions, and data fields inputted to the algorithm. This information should also be summarised in an accessible "nutrition label" indicating any high risk processes, sensitive data processing, and key measures taken to protect the data.

Recommendation 4: Public authorities must correctly assign algorithms that lack meaningful human intervention as producing solely automated decisions, where the effects of those decisions are significant. In the context of welfare, Risk Based Verification should be understood as producing automated decisions, as risk downgrades are impossible and reviews of information input are not carried out.

Recommendation 5: Overall, we have identified an over-reliance on intrusive data processing and algorithmic systems that pose serious privacy and equalities risks to individuals in the welfare system, despite insufficient evidence of genuine benefits. Robust procurement processes should be put in place to ensure that public authorities are making the best uses of new technologies, transparently and in the public interest, rather than building secretive systems of digital suspicion.

Recommendations for Risk Based Verification

Recommendation 1: Local authorities should end their use of RBV. It is clear from the declining use and the justifications for this that RBV is of little value and is unnecessary, intrusive, and secretive surveillance of people receiving benefits.

Recommendation 2: TransUnion must delete its claimants register permanently, as its retention of this data lacks subjects' consent and cannot be justified.

Recommendation 3: Local authorities must put measures in place to assess and mitigate the risks of indirect discrimination associated with private sector algorithms.

Recommendations for Mobysoft's RentSense

Recommendation 1: Local authorities must publicly explain their specialised surveillance of social housing tenants via RentSense, and absent a serious justification must cease use of the software.

Recommendation 2: Local authorities and contractors must only collect and process data where it is necessary for a legitimate purpose. In the case of RentSense, only the data strictly necessary for rent payments should be collected and processed – superfluous data that provides ease for operators is not justifiable.

Recommendation 3: Local authorities that use RentSense should reassess the controller-processor relationship as the definitions, and thus responsibilities, may be blurred.

Recommendations for Digital Care

Recommendation 1: Local authorities should seek to minimise data collection associated with telecare to that which is necessary for the legitimate purpose, and avoid partnering with technology providers who are unwilling to minimise data collection. Further, privacy policies must be made clear and accessible for vulnerable users.

Recommendation 2: It is important that individuals are empowered to choose which care options in the privacy of their own homes are best for them. The legal basis for telecare should be the user's consent, and monitoring technology should not be used as a default alternative to in-person care.

Recommendations for Policy in Practice's Low Income Family Tracker

Recommendation 1: Local authorities should suspend their use of LIFT unless greater justification for the significant data processing can be made. The results uncovered by Big Brother Watch show very limited utility.

Recommendation 2: If authorities do find the use of LIFT justified, data protection practices must be improved including more robust pseudonymisation and strictly necessary data retention policies.

Recommendations for Bristol Council's Children's Analytics

Recommendation 1: Bristol Council should provide greater detail on accuracy rates, including whether they are "live" or based on training data, and whether the inaccurate results lead to borderline cases being missed. This data is vital to assess the impact, and thus the proportionality, of the system.

Recommendation 2: Bristol Council should improve privacy protections, including by reassessing the data fields collected and removing any that are not strictly necessary for use, and cancelling data sharing with schools, the police and third parties that are not a statutory requirement.

Recommendations for Hillingdon Council's Project Axis

Recommendation 1: Hillingdon Council should significantly increase transparency around Project AXIS and data processes, including whether machine learning is used, what data is gathered and how.

Recommendation 2: Hillingdon Council should conduct proper EIAs and DPIAs regarding Project AXIS, including an assessment of the potential for bias in relation to geodemographic profiling and the appropriateness of the data retention periods, having regard to the ICO's findings on the Metropolitan Police's Gangs Matrix.

Recommendation 3: Hillingdon Council should not encourage members of the public to report children's non-criminal activity to them as intelligence to be held on databases. This can lead to division, suspicion and profiling within communities.

Recommendations for Xantura OneView

Recommendation 1: Local authorities using Xantura OneView should fully explain and justify the accuracy rates claimed. In absence of clear, objective evidence of a unique positive impact, these invasive data processing systems should not be used.

Recommendation 2: Xantura should immediately delete its register of people who have exercised their data rights by making Data Subject Access Requests. There is no clear legitimate purpose for this data retention.

Recommendation 3: Councils must understand and be accountable for the full capabilities of algorithmic systems that they use, even if they claim not to fully use some of them.

Christiaan van Veen, Director of the Digital Welfare State Project and Adjunct Professor of Law at NYU Law

In November 2018, I was part of the team of the United Nations Special Rapporteur on extreme poverty and human rights on an official country visit to the United Kingdom to assess the country's track record on these crucial issues. As we wrote at the end of that visit, "a digital welfare state is emerging" in the UK. This report by Big Brother Watch makes an important contribution to understanding the current state of digitalisation of government services that are crucial to the human rights of individuals living in poverty and near-poverty in the United Kingdom.

Despite the important research by Big Brother Watch and other human rights organisations, it is striking how little we still know about the impact of algorithmic risk assessments and other new digital tools in areas such as social benefits, social housing and homelessness in the UK (and elsewhere). The report relies heavily on Freedom of Information requests with public authorities, emphasising how the digitalisation of government is often hidden from view, forcing civil society organisations to dig for government information before they can even begin mapping the impact of these policies. What is more, the report shows that local governments are not able to answer all FoI requests because of their heavy reliance on private corporations for these digital initiatives.

The key question here is: why are all these government investments in supposedly intelligent digital solutions to detect risks and criminality among the poorest individuals? Austerity may be the most immediate driver for such investments, but the real driver appears to be a fundamental distrust by government of people living in poverty. In essence, the algorithmic risk models described in this report are looking to formalise and mathematise that fundamental distrust and laying the burden of disproving official paranoia on the most marginalised. The private industry that has emerged to build these digital weapons of paranoia merely pick up the spoils of that government distrust.

2

RISK
BASED
VERIFICATION

Risk Based Verification

a)What is Risk Based Verification?

Risk Based Verification (RBV) is used to assess the risk of 'fraud and error' in welfare claims. It was promoted by the Department for Work and Pensions (DWP) to councils in a document from 2011 as a modern way to streamline benefit applications by allowing low risk applicants for housing benefit and council tax support to supply fewer documents to support their claims and to allow councils to focus resources on verifying riskier applications. [1]

The DWP guidance makes it difficult to understand how RBV algorithms work, as councils are told that the information contained in RBV processes (such as how people are categorised) is sensitive and should not be made public. The DWP even offers incentives to councils for adopting RBV, including guarantees over central government subsidies.[2]

The introduction of Universal Credit as the main benefit in the UK has triggered a decline in the use of RBV as Universal Credit is administered centrally, unlike council tax support and housing benefit which are run by local authorities.

This decline has also been triggered by increased data sharing between HMRC, the DWP and local authorities. This has led to a number of councils, such as Tameside, saying they have ended RBV contracts as it is no longer financially worthwhile to process a limited number of cases - but dozens of councils still persist in profiling large numbers of their most vulnerable residents.

Of the local authorities who responded to Big Brother Watch's Freedom of Information (FOI) requests, more than1 in 4 said they have used RBV in the last three years and more than 1 in 6 still use RBV software today.[3] At least 540,000 people who receive housing benefit live in local authorities that use RBV and are therefore highly likely to have been risk scored when either applying for their benefits or when reapplying following a change in circumstances.[4]
There are three main suppliers of RBV software:

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[1] Housing Benefit and Council Tax Benefit Circular - HB/CTB S11/2011
[2] The Data Flows of Universal Credit, MedConfidential, 2020 https://medconfidential.org/wp-content/uploads/2020/09/Annex-2-RBV-20200908.pdf
[3] 303 councils in England, Scotland and Wales responded to FOI requests with 86 saying they have used RBV in the last 3 years and 53 still using RBV.
[4] Estimated figure based on the number of people receiving housing benefit in local authorities with active RBV polices when asked in late 2020, with data taken from the Government's Stat-Xplore service. There is limited data on how many people receive council tax support so this number will be an underestimate.

- TransUnion, a credit reference agency. The company bought out CallCredit and older contracts are sometimes under the CallCredit or Coactiva brands
- Civica, a multinational IT firm
- Xantura, a British data analytics firm, who also provides RBV modules for Capita and Northgate systems.

RBV starts by treating all claimants as high risk, requiring the same amount of verification as pre-software, and then deciding which people can be treated as low or medium risk, so needing fewer checks.[5] The DWP says RBV models should target a risk split of 55% of claims classified as low risk, with 25% medium and 20% high with 75p in every £1 of anti-fraud resources spent on the high risk and the other 25p on the medium risk. The following table is an extract from the evidence requirement table at Chichester Council.[6]

Type of Evidence	Sub-category of evidence	Low Risk	Medium Risk	High Risk
Identity and NINO	Identity	Originals or photocopies	Originals or photocopies	Originals Required
	NINO	Originals or photocopies	Originals or photocopies	Originals Required
Residency/Rent	Private Tenants	Not Required	Originals or photocopies	Originals Required
	Social Landlords	Not Required	Originals or photocopies	Originals Required
Household Composition	Partner ID, NINO, Income, Capital		Originals or photocopies	Originals Required
	Dependants under 18	Not Required	Originals or photocopies	Originals Required
	Non-dependants – working	Not Required	Originals or photocopies	Originals Required
	Non-dependants – passported benefit	Not Required	Not Required	Originals Required
	Non-dependant – student	Not Required	Originals or photocopies	Originals Required
	Non-dependant – not in remunerative work/other	Not Required	Originals or photocopies	Originals Required
Income	State Benefits	Not Required	Originals or photocopies	Originals Required
	Earnings/SMP/SSP	Not Required	Originals or photocopies	Originals Required
	Self-employed income	Not Required	Originals or photocopies along with fully completed SE1 form	Originals Required along with fully completed SE1 form

[5] Ibid
[6] Chichester Council Risk Based Verification Policy 2017, retrieved 23rd June 2021 http://chichester.moderngov.co.uk/documents/s10306/Housing%20Benefit%20and%20Council%20Tax%20Reduction%20Risk%20Based%20Verification%20Policy%202018-2019%20-%20Appendix.pdf

Someone who is scored as medium risk by RBV would be expected to provide a similar level of evidence as someone in an area not using RBV, so the purported benefit of the policy would see more than half of applicants supplying less paperwork before receiving their benefits.

RBV uses propensity modelling, a statistical approach that attempts to predict behaviour by accounting for all the independent and confounding variables that affect the behaviour, to compare a benefits application entered into the system against a large dataset of previous claims and assign a risk score based on the patterns of previous claims it most closely matches.[7]

West Lothian Council in Scotland said the use of RBV had led to savings of at least £37,000 per year but it is not clear if that accounts for the tens of thousands of pounds private companies charge to use their RBV software.[8] Bolton Council claims that if around half of people are scored as low risk, RBV will allow it to save money, but this could also mean that lots of high risk scores could cost the council significant sums.[9]

Savings from RBV were predicted by councils including West Lothian to come from several areas, from staff time to administration costs and fewer items being posted by the council about benefits. However, the results of this have been mixed – Birmingham Council admitted in a 2018 report that bar a small saving on postage costs, its RBV was yet to realise most of its predicted financial efficiencies.[10]

b) What data is used and how is it processed?

Not even the local authorities who buy RBV software are given a complete account of what data points and characteristics are modelled to produce risk scores, with Xantura claiming that commercial interests means they must keep this secret.[11] Most of the information used in the modelling comes from a benefits application itself but some comes from the council and some is derived from details in the application.

The type of data used to build the propensity model underlines the damaging nature of algorithmically sorting some of the most deprived people in the country,

[7] Ibid
[8] Freedom of Information Request to West Lothian Council, 5th January 2021
[9] Freedom of Information Request to Bolton Council, 1st March 2021.
[10] Freedom of Information Request to Birmingham Council, 4th March 2021
[11] Xantura RBV Model Overview May 2012, Freedom of Information Request to Bolton Council, 1st March 2021.

with income, sick pay and the value of the home someone lives in all being used to predict who is most likely to have fraud and error in their benefits application.

A Xantura document issued to Bolton Council in 2012 gave a non exhaustive list of characteristics it models:

- Council Tax band
- Local Housing Allowance indicator
- Family premium indicator
- Partner indicator
- Payment destination
- 'Output Area Classification' (OAC) super group [an ONS geodemographic profile of the area someone lives in, e.g. 'ethnicity central', or 'multicultural metropolitans']
- Type of Claim
- Previous Claims
- Number of child dependants
- Number of non dependants
- Percentile group of statutory sick pay received
- Percentile Group of other income [usually non-work/PAYE]
- Percentile Group of disregarded income

Another document disclosed under the FOIA outlined the greater quantities of data used to generate a risk score for someone reapplying for benefits due to a change in circumstance, such as changing a housing benefit application if a child moves out, including:[12]

- Tenancy type
- Severe disability premium indicator
- Disabled child premium indicator
- Carer premium indicator
- Claimant gender
- Claimant assessed income amount
- Claimant total capital amount
- Claimant employment income amount
- Claimant net employment income amount
- Claimant disability living allowance amount
- Claimant carers allowance care income amount
- Claimant state retirement pension income amount
- Claimant bereavement allowance income amount

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[12] Northgate Public Services Revenues and Benefits Risk Based Verification Guide February 2016, Freedom of Information Request to Salford Council, March 31st 2021

- Claimant widowed parents allowance income amount
- Claimant statutory sick pay income amount
- Contractual rent amount
- Claimant pension credit income amount
- Claimant maintenance income amount
- Claimant occupational pension income amount
- Claimant Age
- Partner Age

There could be more sensitive or even inappropriate data used in stratifying people receiving benefits but the shroud of commercial secrecy means that the finer details of the data supplied to the risk scoring algorithm are not known to the public, or even the council bureaucrats spending thousands of pounds on the software.

The process of translating an individual's personal data into a risk score remains a black box process that is unaccountable and difficult to challenge. In one internal Xantura report we learnt the rough structure of the equation that leads to the risk score but a key part remains opaque. [13]

In the equation:

$$S = \sum_{i=1}^{n} c_i \, x \, D_i + const$$

- S = the risk score from the model
- D = is the variable (such as having a partner) present
- C = the regression coefficient associated with the variable (the larger the coefficient the greater the impact on the final score and therefore the higher perceived risk associated with the variable)
- Const = a constant value in the model
- n = The total number of variables in the model

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[13] Xantura RBV Model Overview May 2012, Freedom of Information Request to Bolton Council, 1st March 2021.

However without a significant amount of additional information, and absent an accessible format, the amount an individual can learn about how their risk score is reached is limited. In fact, claimants are not even told that they have been assigned a risk score.

Xantura's model was developed using data from four diverse local authorities over a period of sixteen months and now includes more than 50 variables - many more than in the model documents we obtained through FOI requests.[14,15] The regression coefficient, which describes the influence of a variable on the outcome i.e. risk score, is also kept secret which means that nobody knows what makes a particular housing benefit application high or low risk. For example, does having more children make you riskier or safer? Xantura claims that the coefficient is based on historical cases and the risk of fraud associated with them but there is no transparency about the dataset used.[16]

Without these details being made public, RBV algorithms work in a black box meaning the people affected cannot properly understand or challenge how their data is processed.

The mathematics underpinning the equation underlines the dehumanising nature of many welfare algorithms, viewing people merely as a sum of their parts rather than holistically. The risk of a number of characteristics possessed by an individual simply stack up in this equation – there is no consideration of how different facts about a person's life may influence one another.

There is even less information about how TransUnion's RBV algorithm works but the company claims that it has been verified by DWP statisticians and has gone through a number of iterations, including developing local tweaks to meet demographic groups.[17]

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[14] Xantura RBV Document May 2012, Freedom of Information Request to Bolton Council, 1st March 2021.
[15] Chichester Council RBV Policy 2017
[16] Ibid
[17] RBV Information, Freedom of Information Request to West Lothian Council, 5th January 2021

Service contracts give some idea about the information transferred to the company:[18]

- Claimant name
- National Insurance Number
- Claim start date, end date and duration
- Address and postcode
- Household composition details
- Financial information
- Status indicators
- Electronic images of application forms

Although the inner workings are opaque, TransUnion claims to use a propensity model with data category headings that would fit the fields used by Xantura.

c) Outcomes of RBV and its changing usefulness

The desired outcomes of RBV are simple - to divide benefits applicants into low, medium and high risk to allow local authorities to focus their fraud detection efforts on the riskiest cases. However, the outcomes risk being merely arbitrary, since a decade ago, the DWP recommended that this supposedly objective measure of risk should have targets for the proportion of people assigned to each risk category.[19]

Documents from Xantura and Bolton Council claim that there was a much higher chance of finding fraud or error in the riskier applications, justifying the higher level of scrutiny. Bolton Council expected chances of fraud and error in low risk claims to be 3 %, 11 % in medium risk and 27 % in the high risk category.[20] Risk in benefits applications appears to be relative rather than absolute.

As RBV policies were being rolled out it was also predicted that they could speed up benefits processing time for the lower risk groups.[21] There is some evidence that this is the case with a number of councils claiming that their average processing time for claims fell as they were dealing with fewer documents for a significant number of claimants.[22] There is little consideration in council audit

[18] West Lothian/Callcredit Contract, Freedom of Information Request to West Lothian Council, 5th January 2021

[19] Housing Benefit and Council Tax Benefit Circular - HB/CTB S11/2011

[20] Xantura/Capita Presentation on RBV November 2012, Freedom of Information Request to Bolton Council, 1st March 2021.

[21] Chichester Council Risk Based Verification Policy 2017

[22] Annual Review of Risk Based Verification (RBV) Policy for Housing Benefit and Local Council Tax Support Assessments, Central Bedfordshire Council, 9th April 2018 - https://centralbeds.mod-

documents of the potential lengthening of claim processing that could result from more stringent checks for people unnecessarily assigned as high risk.

Recent monitoring reports of still-active RBV policies show a drastic departure from the DWP target splits of risk scoring in many councils. Unfortunately, a number of councils who have stopped using RBV no longer hold accuracy reports so a comparison between extant and cancelled policies is difficult.[23] A significant portion of councils who did hold documents either did not produce any performance monitoring or claimed the commercial interest of the software company outweighed arguments in favour of disclosure.
Data from a number of councils who use TransUnion RBV software shows the proportion of people in each risk group broadly matching the DWP's recommendation until around 2018, but there have been significant slippages from the targets since then. West Lothian Council saw a rapid change between 2017/8 and 2019/20.[24]

West Lothian Council: RBV algorithm assigned risk

Year	Low Risk	Medium Risk	High Risk
2017/18	58.39%	22.51%	19.09%
Mid Year 2018	69.35%	18.22%	12.43%
2019/20	84.48%	10.86%	4.66%

The rate of fraud and error detection rate in each risk class saw a similar shift, from around 5.5% in low risk claims, 9.5% in medium risk claims and 15.5% in high risk claims across the 2018 performance reports to just 1.31% in low risk, 2.94% in medium and none in high in 2019/20.

TransUnion told West Lothian that the shift towards a much higher proportion of low-risk cases was down to the introduction of Universal Credit, which replaced housing benefit for many people, changing the demographic profile of those still receiving the legacy benefit.[25]

Birmingham Council, which also uses TransUnion, saw a similar performance split to West Lothian in its mid-2020 summary, with 68.6% of claims being low risk and only 8.8% being high risk. Monitoring found that the highest rate of fraud and

erngov.co.uk/documents/s77223/08%20Annual%20Review%20of%20Risk%20Based%20Ver-ification%20RBV%20Policy%20for%20Housing%20Benefit%20and%20Local%20Council%20Tax%20S.pdf
[23] Freedom of Information Response from Rotherham Council, January 29th, 2021.
[24] RBV Performance Reports, Freedom of Information Request to West Lothian Council, 5th January 2021
[25] Email from TransUnion to West Lothian Council, Freedom of Information Request to West Lothian Council, 5th January 2021

error detection was in the lowest risk claims.[26]

Xantura-using Milton Keynes has also seen a noticeable change with low-risk scores leaping from around 55% in late 2018 to 70% at the end of 2020, while high risk scores almost halved over the same period.[27]

Arguing a changing cohort shifted the risk profile and score outcomes raises serious questions about the DWP's predefined targets that are the heart of RBV. It suggests that one of two conclusions can be made about RBV: either the risk model is unable to keep up to date with changing cohorts and is unable to match the DWP targets when the group of people it is asked to score changes suddenly; or the risk model is arbitrary and was designed with the DWP targets in mind rather than a genuinely objective risk assessment of each applicant.
Both possible conclusions raise serious questions about the necessity of RBV in local authority decision making.

Meanwhile Bristol Council, which also contracted Xantura for its RBV until last September, said:

> "The average number of errors detected on claims has increased significantly since 2016, with high risk claims at 35%, medium 29% and low risk claims recording an error rate of 22% in comparison to the 2016 average figures of 6.67% for high risk, 7.17% for medium and 7.88% for low risk claims."[28]

The council's admission paints a completely different picture to other authorities who saw a significant drop in the error rate following the introduction of Universal Credit. This suggests that either Bristol has a rate of fraud that is many times higher than the rest of the country, or that RBV is not a silver bullet for fraud and error in benefit payments despite suppliers claiming dropping RBV would "expose councils to increased risks of fraud and error".[29]

North Tyneside's evaluation that led to its decision to scrap its RBV policy was even more damning. The council said that there was "no evidence" that the software contributed to the fall of benefit overpayments in the borough. It also said that it could often find no evidence to back up why its TransUnion software labelled an individual as high risk.[30]

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[26] RBV Performance Reports, Freedom of Information Request to Birmingham Council, 4th March 2021
[27] RBV Performance Reports, Freedom of Information Request to Milton Keynes Council, 7th January 2021
[28] Freedom of Information Response to Bristol Council by The Guardian, 23rd November 2020
[29] RBV in the post Universal Credit world, TransUnion Blog, 12th October 2018, https://www.transunion.co.uk/blog/rbv-in-the-post-universal-credit-world
30 Report to Cabinet on RBV, North Tyneside, 9th September 2019 https://my.northtyneside.gov.

Further questions about the utility of RBV are raised by the dozens of councils who have stopped using the system in the past three years. One third (27 of 90) councils who responded to Big Brother Watch's FOI requests said they have used RBV in the past but no longer do. More detailed responses from some authorities cited two reasons for this change.

The first is the introduction of Universal Credit, which cut the number of people claiming benefits paid directly by the council and thus minimised their risk of losses.[31] RBV software costs thousands of pounds a year and the small financial risk of fraud and error when councils are processing ever fewer applications directly often means that it is not prudent to continue using it, despite the private suppliers still claiming RBV is useful.

More pertinently, councils now have access to a huge amount of information about people's incomes in real time, either through the Verify Earnings and Pensions Alerts service (VEP) or the data flows from HMRC, via the DWP, that allow local authorities to check significant amounts of information about claims already.[32] For example the VEP gives councils up to date information about income changes that may affect housing benefit, minimising some of the remaining financial risks to councils from the benefit.[33]

d) Equalities, discrimination and RBV

i) The equality duty

The majority of Equality Impact Assessments (EIA) we obtained that had been conducted in relation to local authority RBV policies were limited at best and showed a lack of understanding as to how algorithms can introduce indirect discrimination into decision making.

West Lothian Council made sweeping declarations that as RBV "does not take into account any of the protected characteristics dealt with by the Equalities Act, there is no need for a full equality impact assessment".[34] Scots Borders Council said that as protected characteristics were not considered there would

uk/sites/default/files/meeting/related-documents/5c%20Risk%20Based%20Verification%20Report.pdf

[31] Freedom of Information Request to Dundee Council, 31st December 2020

[32] Tameside Council Audit Panel Report - Risk Based Verification, 12th March 2019, Freedom of Information Request to Tameside Council, 3rd February 2021

[33] Housing Benefit Circular A5/2018 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/699619/a5-2018.pdf

[34] Equalities Impact Assessment for RBV in West Lothian, 8th December 2015,Freedom of Information Request to West Lothian Council, 5th January 2021

be "no impact" on any marginalised groups.[35] Sunderland Council, while also only considering direct discrimination, claimed that being subjected to high level checks would be beneficial in the long term as it would reduce the chance of overpayment.[36]

Despite case law around the equalities duty placed upon local authorities strongly advising that EIAs are carried out,[37] Big Brother Watch found that South Ribble conceded they had no record of ever completing one, saying "this is something we are now looking into" after we challenged them on this.[38] The pattern of cursory EIAs that do not consider the potential for indirect discrimination is alarming and reveals a lack of understanding about the potential harms of algorithms. Last year the Centre for Data Ethics and Innovation (CDEI) said that efforts to tackle bias in algorithmic decisions were at best slow to happen but often did not occur at all.[39] This certainly appears to be the case in the context of welfare.

Some local authorities did admit that the RBV algorithm could lead to certain groups being overrepresented and in 2019 Haringey Council explicitly stated they would monitor for this, but they were in the minority and did proceed to use the software regardless of this. However the DWP suspended the requirement for RBV policies to be reviewed in 2020/21 due to coronavirus pandemic so the outcome of this monitoring is yet to be published.

Tamworth Council, which uses TransUnion RBV via a third party portal raised the prospect of unrepresentative cohorts in risk scores. The London Borough of Haringey, which uses Xantura, said that it was capable of monitoring what characteristics ended up in different risk scores but only after the system was in use.[40] Although it is important that Haringey did consider the possibility of the algorithm disproportionately affecting certain groups, the decision to press ahead anyway means that the population of the borough was essentially subject to a live test of a potentially discriminatory system before equalities monitoring took place.

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[35] Equalities Impact Assessment for RBV in Scots Borders, 30th March 2017, Freedom of Information Request to West Lothian Council, 5th January 2021
[36] Equalities Impact Assessment for RBV in Sunderland, 22nd November 2016, Freedom of Information Request to West Lothian Council, 18th December 2020
[37] The Public Sector Equality Duty and Equality Impact Assessments, House of Commons Briefing Paper 06591, 8th July 2020
[38] Freedom of Information Request to South Ribble Council, 18th February 2021
[39] Review into Bias in Algorithmic Decision-Making, Centre for Data Ethics and Innovation, November 2020
[40] Tamworth RBV Equalities Impact Assessment, 17th March 2020, Freedom of Information Request to Tamworth Council, 2nd February 2021

Proxies for protected characteristics such as postcodes were not acknowledged in any of the EIAs we obtained, and lawyers have already flagged this as a problematic area. Robin Allen QC and Dee Masters argued in an opinion for The Legal Education Foundation that this suggests a failure to grasp issues of all but the most explicit discrimination.[41]

Issues around discrimination are of particular importance when addressing the welfare state which interacts with some of the most vulnerable people in society. RBV poses a particularly grave threat as it has the potential to delay vital benefits payments and subject already vulnerable people to administrative burdens and intrusive extra checks which may cause further difficulties in accessing the support they are entitled to.

It is commonly claimed by local authorities that as their RBV policies apply "equally to all claims", they cut the risk of human bias but this ignores the potential harms of intentional or unintentional algorithmic bias when deciding who poses what risk.[42]

ii) Indirect discrimination and high level checks

High level checks go above and beyond what would happen in a non-RBV local authority, with the DWP being satisfied by the equivalent of medium risk checks in those areas.[43] It remains up to each authority what the higher level checks consist of but the DWP suggests credit reference agency checks and home visits.

Other examples of the toughest checks include recorded telephone interviews with applicants, requirements for more documents, office-based interviews and check ups further down the line.[44,45]

There is a clear risk of harm and discrimination if certain groups are overrepresented in the highest risk categories. Central Bedfordshire's random sample in a review found that all 10 of the applicants selected were women.[46]

[41] In The Matter Of Automated Data Processing In Government Decision Making, Robin Allen QC and Dee Masters [Cloisters], The Legal Education Foundation, 7th September 2019

[42] RBV Equalities Impact Assessment ,Rochdale Council, June 2015, retrieved 23rd June 2021 http://democracy.rochdale.gov.uk/documents/s38489/Append.%202%20for%20Risk%20 Based%20Verification%20Policy.pdf

[43] Housing Benefit and Council Tax Benefit Circular - HB/CTB S11/2011

[44] Freedom of Information Request to Tameside Council, 3rd February 2021

[45] Milton Keynes RBV Policy, Freedom of Information Request to Milton Keynes Council, 7th January 2021

[46] Annual Review of Risk Based Verification (RBV) Policy for Housing Benefit and Local Council Tax Support Assessments, Central Bedfordshire, 9h April 2018, https://centralbeds.moderngov.co.uk/ documents/s77223/08%20Annual%20Review%20of%20Risk%20Based%20Verification%20

This is significantly more than the estimated 60% of housing benefits claimants that are women nationally; the local gender split is not known.[47] Although one isolated audit is inconclusive, it is a worrying indication that groups with protected characteristics could be subjected to disproportionate suspicion when accessing state support.

iii) Geodemographics and profiling

Xantura's use of geodemographics poses a particularly serious risk of discrimination in its RBV model. The data company uses the Office of National Statistics' 2011 Area Classification for Output Areas (2011 OAC) which geographically segments the country based on the census profiles of people who live there. It is a multi-layered system with every area in the country being placed into one of 8 OAC supergroups, which are then subdivided into dozens of groups and subgroups.[48]

The Xantura RBV model only uses the 8 supergroups, rather than the litany of subgroups, which are:

1. Rural residents - Live in rural areas, tend to live in and own large homes. Unemployment is below average and the population is older, educated and tend to be married. Less ethnic integration in these areas.

2. Cosmopolitans - Majority live in dense urban areas, often in flats and renting is common, characterised by young adults. High ethnic integration with above average proportion from EU accession countries and lower than average born in the UK or Ireland.

3. Ethnicity Central - Predominantly in denser areas of London and other major cities, with non-white ethnic groups having higher representation, particularly black or mixed race backgrounds. Above average number of EU residents. Residents are more likely to be young adults and a lower proportion having no children.

RBV%20Policy%20for%20Housing%20Benefit%20and%20Local%20Council%20Tax%20S.
pdfous
[47] Women's Budget Group Briefing: Housing and Gender, March 2020, https://wbg.org.uk/wp-content/uploads/2020/02/final-housing-2020.pdf
[48] Pen Portraits for 2011 Area Classification for Output Areas, Office For National Statistics, April 2015

4. Multicultural Metropolitans - Concentrated in urban areas with a high ethnic mix and a below average number of UK/Irish born residents. Likely to be below retirement age and above average number of families with children.

5. Urbanites - Likely to be in urban areas of southern England and to live in rented homes. Average ethnic mix and above average number of people from the EU with lower than average unemployment.

6. Suburbanites - Most likely to be on the outskirts of urban areas and own their own home. Tends to be a mix of people above retirement age and middle-aged parents, with above average marriage rates. Unemployment is below average and education levels are above average. Non-white groups are underrepresented.

7. Constrained city dwellers - Lower proportion of school aged children and higher number of people aged 65 and over. Lower representation of non-white ethnic groups and of EU citizens. Higher levels of unemployment and a lower proportion of households with no children.

8. Hard pressed living - Mostly in urban surroundings in northern England and southern Wales. Less non-white representation and higher proportion than average of people born in the UK and Ireland. Households are likely to socially rent and have non-dependent children. Smaller proportion of people with high level qualifications and higher levels of unemployment.

Just the names of some of these supergroups, let alone the profiles, suggest their use in deciding who is subject to the most intrusive checks could lead to indirect discrimination. Although councils who use Xantura's RBV software do not directly consider racial, ethnic or national background in their models their lack of consideration around proxies for these characteristics is concerning - if living in "ethnicity central" is accounted for in the risk model then there is naturally a high chance of discriminatory outcomes.

OAC supergroups can even split streets in half meaning that one person could be seen as higher risk than their neighbour, just because of their house number.[49] The ONS's own pen portraits of the supergroups make it clear that some groups, such as 'ethnicity central' and 'multicultural metropolitans' have populations with diverse ethnic and national backgrounds.

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[49] 2011 OAC Map, https://oac.datashine.org.uk/, retrieved 23rd June 2021

Oversampling these groups in the high risk category would necessarily lead to disproportionate black, Asian, minority ethnic and EU citizen representation among the groups facing the toughest checks - meaning that bias could be encoded in the model. The CDEI raised similar concerns about discrimination and the use of postcodes in predictive analytics, noting the correlation between postcode and race - something public bodies need to be acutely aware of.[50]

That potential proxies for protected characteristics are included in one of the most popular RBV algorithms, without evidence of any consideration of the discrimination this could entrench in the model, points to a lack of understanding of how algorithms can encode inequality and injustice.

Using geodemographics also threatens to introduce algorithmic bias that falls short of legally defined discrimination but may be generally unfair.[51] The descriptors given to many of the groups profile them on characteristics such as income, housing situation and marital status and the use of OAC supergroups in the risk model could lead to people with these characteristics being disproportionately placed in a particular risk group - just because of their wedding ring or if they rent their home.

In addition to the risk of proxy discrimination by geodemographics, a number of other variables that Xantura uses could pose a risk of bias.

Data points relating to children and the now-abolished family premium could impact single mothers disproportionately as 20% of households with dependent children are headed by a single mother and only 2.1% by a single father.[52]

The consideration of statutory sick pay (SSP) percentiles plays an unclear role in the risk model but the presence of it as a metric raises questions over potential bias against people with chronic illness and disabilities who are more likely to take time off sick. Who gets SSP and who receives more generous employer sick pay is also important, as people from black and minority ethnic backgrounds, women and those on low pay are all more likely to be left with SSP rather than employer's sick pay.[53] Using SSP as a factor in risk modelling could mean that individuals are treated differently if they are ill and fall into certain demographics.

[50] Review into Bias in Algorithmic Decision-Making, Centre for Data Ethics and Innovation, 27th November 2020, https://www.gov.uk/government/publications/cdei-publishes-review-into-bias-in-algorithmic-decision-making/main-report-cdei-review-into-bias-in-algorithmic-decision-making

[51] Ibid

[52] Calculations based on data from ONS Families and Households, https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/families/datasets/familiesandhouseholdsfamiliesandhouseholds

[53] Sick Pay That Works, Trades Union Congress, February 2021, https://www.tuc.org.uk/research-analysis/reports/sick-pay-works

A Northgate/Xantura user guide disclosed to us by Salford Council outlines a number of extra variables that are considered when risk scoring a change in circumstances on a benefits application, many of which have the potential to incur discrimination or cause bias against disadvantaged groups not protected by the Equalities Act.

Some indicators and variables refer to income, capital, employment, bereavement or carer status.[54]

Others touch on protected characteristics, such as age, gender, indicators for severe disability premium and disabled child premium are used as data to calculate a Change in Circumstances risk scores according to the internal document.

Disability, age and gender being specifically weighed in the risk scoring model could risk incurring discriminatory impacts, as the outcome of this algorithm is influential in deciding how much scrutiny someone's benefit application receives when their circumstances change. It is not stated in the Northgate/Xantura guide whether these protected characteristics are seen as indicators of greater or less risk. Without that clarity, the potential of vulnerable groups being assigned extra suspicion because of an immutable fact about them cannot be ruled out.

Salford Council has re-approved its RBV policy twice since 2015 and in both reports the authority stated that an EIA and any implications arising were not applicable.[55,56] This is despite the supplier's user guide stating that they assess a number of legally protected characteristics in their risk modelling for some RBV calculations.[57]

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[54] Northgate Public Services Revenues and Benefits Risk Based Verification Guide February 2016, Freedom of Information Request to Salford Council, March 31st 2021
[55] Report Of The Director Of Service Reform To Procurement Board on RBV, Salford Council, 25th July 2018, https://sccdemocracy.salford.gov.uk/documents/s10480/06a%20-%20Request%20 for%20approval%20-%20CT%20BR%20HB%20and%20CT%20reduction.pdf
[56] Report Of The Director Of Service Reform To Procurement Board on RBV, Salford Council, 22nd July 2015, https://sccdemocracy.salford.gov.uk/Data/Procurement%20Board/201507221000/ Agenda/$04b_RBV_pb220715.doc.pdf
[57] Northgate Public Services Revenues and Benefits Risk Based Verification Guide February 2016, Freedom of Information Request to Salford Council, March 31st 2021

Other Xantura documents contain profiles that link protected characteristics to particular risk scores. The profiles outlined are:

- 12 - low risk score: "More likely to be single men aged under 25, non working and with low capital. Above average proportion live in non self contained accommodation, Council Tax Band A, likely to be housing association or privately rented. Most receive JSA [job seekers allowance], IS [income support] or ESA [Employment and Support Allowance]."[58]

- 4 - medium risk score: "Typically couples 45-64, with children aged up to 10, with bias to Council Tax band C. Above average proportion have over 6k in savings. Mostly 'standard' cases claiming HB/CTB [Housing Benefit/Council Tax Benefit]."[59]

- 1 - high risk score: "Typically couples ages 35-54. Many are not working or work part time with some 'other' income. Above average proportions have more than 6k in capital. Generally standard cases claiming either CTB or HB, with bias to having a previous claim."[60]

Neither South Ribble nor Bolton disclosed their EIAs relating to RBV in response to Freedom of Information requests but publicly available documents from other authorities who use Xantura's RBV through the Capita platform provide insights into how the risks of bias are, or are not, considered.

A report for South Northamptonshire Council's audit committee said: "The mathematical model used to determine the Risk Score does not consider any of the protected characteristics within the Equalities Act. As such there should not be any equalities impact."[61] Identical phrasing also appeared in a 2018 audit committee report at Cherwell Council.[62]

It is important to account for the influence of the private companies supplying the RBV software when examining councils' poor approval processes and equalities monitoring. Xantura states in a document given to Bolton Council that it can provide a 'draft template' RBV policy that covers background, how the RBV

[58] Capita/Xantura RBV Culture Change Guidance, Freedom of Information Request to South Ribble, 23rd December 2020
[59] Xantura RBV Document May 2012, Freedom of Information Request to Bolton Council, 1st March 2021.
[60] Ibid
[61] Audit Committee Report, South Northamptonshire Council, 12th March 2020, http://modgov. southnorthants.gov.uk/documents/g3782/Public%20reports%20pack%20Thursday%2012-Mar-2020%2017.00%20Audit%20Committee.pdf?T=10
[62] Accounts, Audit and Risk Committee Report, Cherwell Council, 30th May 2018 http://modgov. cherwell.gov.uk/documents/g2993/Public%20reports%20pack%20Wednesday%2030-May-2018%2018.30%20Accounts%20Audit%20and%20Risk%20Committee.pdf?T=10

system works, performance reporting and sign off.[63]

Having the private company that stands to profit from a contract with a local authority provide templates for the sign off for the same contract, and even influence checks in relation to equalities and data protection, is concerning.

Big Brother Watch asked dozens of councils for documents relating to their equalities monitoring of their RBV processes, but not a single one provided this information. We were only able to find some reference to the different rates of finding fraud and error in relation to pensioners in TransUnion's performance reports that a number of local authorities disclosed but this discovering was purely based on the benefit received and did not arise from the monitoring of protected characteristics.[64]

Without demographic information about who disproportionately falls into particular risk categories inaccurately or accurately, the potential for discrimination in RBV cannot be measured. Similarly, it would be wrong and potentially a failure to meet the public sector equality duty for local authorities to claim that as no protected characteristics are directly inputted, the risk of discrimination is not possible and will not be explored. Some of the data points that are used in RBV have the potential to be proxies for a range of characteristics but the black box nature of the processing and the lack of transparency from local authorities means that there remain a number of serious questions to be answered in relation to the equalities impact of RBV.

e)Data processing and risk based verification

i) Digital suspicion in the Netherlands: SyRi

Although there is little case law to guide the application of the GDPR and Data Protection Act 2018 to algorithmic processing in the public sector, the SyRI case in the Netherlands draws on similar principles and can provide valuable guidance on the lawfulness of algorithms relating to welfare.

SyRI (short for "system risk indication") was used to identify individuals who were more likely to commit benefit fraud by matching information about claimants from previously separate central and local government

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[63] Xantura RBV Document May 2012, Freedom of Information Request to Bolton Council, 1st March 2021.

[64] RBV Performance Reports, Freedom of Information Request to West Lothian Council, 5th January 2021

databases, employing a hidden algorithmic risk model.[65] People living in poor neighbourhoods were targeted and digitally surveilled by the system without any actual suspicion they they were involved in wrongdoing.

In its ruling the Dutch court expressed concern about the "significant effect of risk indications on the privacy of affected individuals" and found that there were insufficient protections for privacy rights.[66] The Dutch government was found to have failed to balance privacy rights against the public interest in detecting welfare fraud and that the use of SyRI was disproportionate for its intended aims.[67]

Risk based verification and SyRI do not work in the same way, with RBV being used to assess the risk of fraud and error during a benefits application while the Dutch tool was used to monitor people already receiving benefits and flag any seen as a risk of fraud.[68] Despite this, there are a number of striking parallels and the court raised a number of points around processing and privacy that could apply to RBV.
Both systems surveil and profile vast numbers of people without any prior suspicion that they are involved in wrongdoing. Although RBV is only used for housing benefit, which is being phased out, and council tax support, there are more than 5 million people who make new claims or see the circumstances of their claim change each year.[69,70]

With around 1 in 4 councils using RBV over the past few years, more than a million people could have been profiled by the system. Much like local authorities who have RBV policies in the UK, the Dutch government argued that the inner workings of the algorithm should be kept secret as greater transparency would allow people to alter their behaviour to avoid being flagged.[71] The court found that the lack of transparency in data processing, especially when using large

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[65] Landmark ruling by Dutch court stops government attempts to spy on the poor – UN expert, 5th February 2020 https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=25522
[66] The Hague District Court, ECLI:NL:RBDHA:2020:1878, 5th February 2020, https://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:RBDHA:2020:1878
[67] The SyRI case: a landmark ruling for benefits claimants around the world, Privacy International, 24th February 2020 https://privacyinternational.org/news-analysis/3363/syri-case-landmark-ruling-benefits-claimants-around-world
[68] High-Risk Citizens, Algorithm Watch, 4th July 2018 https://algorithmwatch.org/en/high-risk-citizens/
[69] Housing Benefit Statistics, Department for Work & Pensions, 29th April 2021 https://www.gov.uk/government/statistics/housing-benefit-statistics-on-speed-of-processing-2020-to-2021/statistical-release-october-to-december-2020-quarter-3-2020-to-2021#new-hb-claims-and-change-of-circumstances-to-existing-hb-claims
[70] Council Tax Reduction Schemes, House of Commons Library, 24th August 202 https://commonslibrary.parliament.uk/research-briefings/sn06672/#:~:text=The%20Ministry%20of%20Housing%2C%20Communities,4.0%20million%20in%20the%20first
[71] The Hague District Court, ECLI:NL:RBDHA:2020:1878, 5th February 2020, paragraph 6.49

datasets, could lead to biased outcomes.[72]

Councils who use RBV rely on guidance from the DWP and claims of commercial sensitivity on behalf of their providers in order to conceal vital details that would allow individuals to understand exactly how their data is processed.[73] Like SyRI, it means that nobody knows exactly how their risk scores are calculated and even the Xantura equation Big Brother Watch has uncovered is missing key elements that means the processing remains firmly in the black box. The lack of transparency and verifiability of processing means that benefit recipients face an asymmetric fight in ensuring their data is handled fairly and in a non-discriminatory manner.

A key part of the SyRI ruling found that the use of the tool infringed on individual's right to privacy, with the Hague District Court finding that if a person cannot track how their data is used their Article 8 rights are imperilled.[74] There were further risks to privacy rights in relation to purpose limitation and data minimisation. Purpose limitation means that personal data collected for a particular purpose should only be used for that, while data minimisation means that the minimum amount of personal data necessary for that purpose should be held.

SyRI involved separate data silos across the Dutch state being used in combination to identify potential risks of fraud and the court stated that drawing on these datasets violated the principle of personal information only being used for the purpose it was provided for, and that the algorithm could use much more data than necessary for its purpose.[75]

It is less clear whether purpose limitation arguments could apply to RBV as the vast majority of data used is given to local authorities as part of a benefits application process. However, authorities do need to pay more attention to data minimisation, as it is incumbent on them to prove they need to use so much information in processing. The local authorities which have cancelled their use of RBV due to the increased data flows from the DWP and HMRC raise questions about data minimisation as benefits recipients may be having their data analysed on multiple fronts.[76]

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[72] Ibid, paragraph 6.87

[73] Housing Benefit and Council Tax Benefit Circular – HB/CTB S11/2011

[74] The Hague District Court, ECLI:NL:RBDHA:2020:1878, 5th February 2020, paragraph 6.90

[75] Ibid, paragraph 6.96

[76] Tameside Council Audit Panel Report – Risk Based Verification, 12th March 2019, Freedom of Information Request to Tameside Council, 3rd February 2021

As Article 8 rights are balanced against other interests, such as the public interest in preventing public funds being misspent, arguments around the proportionality of the invasion of privacy and lack of accountability around the RBV algorithms are of utmost importance. However, the lack of transparency in processing and performance mean that it is difficult to assess what balance may or may not be being struck.

This balancing of rights is particularly important in the context of welfare, as the affected individuals do not give free and fair consent to be profiled, nor do they even know that such profiling takes place. Previous work on RBV found that individuals are only able to glean an idea that they have been risk scored by an algorithm when they are asked to provide more or less evidence than somebody else.[77] Internal documents from Birmingham City Council back this up, with a service review stating claimants have "no indication of the risk score assigned to their new claim or change of circumstances".[78]

ii) Data processing justifications

One woman from London who used our template Data Subject Access Request (DSAR) to find out her risk score was told that as her adult son lived at home, her claim for benefits was assessed as a medium risk. She told Big Brother Watch that she had no idea her applications for benefits were risk scored by a computer algorithm and her council does not mention that it shares her information for profiling in its privacy policy.

Although the woman said she sees that computers have a role to play in local government decision making she questioned the fairness of allowing algorithms to have so much influence, including potentially delaying payments. She was also shocked at the sheer quantities of data used in the profiling. Clearly, councils have maintained an unacceptable and unjustified level of secrecy about the data processes they use.

Instead of proactively informing people applying for benefits that their data will be used by a third party profiling tool, councils rely on public task arguments or claim to notify their residents by putting details about RBV in their privacy policies.

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[77] The Data Flows of Universal Credit, MedConfidential, 2020 https://medconfidential.org/wp-content/uploads/2020/09/Annex-2-RBV-20200908.pdf
[78] RBV Service Review 2017/8, Freedom of Information Request to Birmingham Council, 4th March 2021

Public task arguments to justify processing are rooted in regulations requiring benefits applicants to provide documents to verify their claims.[79,80] Local authorities are in turn required to have enough accurate information to assess claims. The DWP makes it clear in guidance that the use of RBV would be compatible with public task duties and that risk based profiling is a function councils may carry out.[81]

The reliance on dense privacy notices and policies buried on council websites is problematic for transparency, especially when councils claim that this is enough notice to give their residents that they may be subject to algorithmic risk scoring when applying for benefits.[82] Even so, the quality of the privacy policies are often mixed and references to RBV can be non-existent - Arun Council does not feature the phrase "risk based verification" once on its benefits service privacy policy despite claiming it would in its data protection impact assessment.[83,84]
Even when RBV is mentioned the notices are often limited. For example, Colchester Council merely says it may share residents' data with TransUnion, the software provider, but does not explain that RBV is a form of profiling or give any detail about what this involves, instead referring people to the private company's website.[85] Tamworth Borough Council does explain that it assesses the level of evidence required in benefits applications but also does not give details of profiling or algorithmic processing.

iii) Automated decisions, secrecy and the law

The Data Protection Act 2018 requires someone to be notified about 'solely' automated decisions that have legal or similar significant effects on them.[86] However, what constitutes a 'solely' automated decision is a point of contention and Big Brother Watch has long lobbied for greater clarity around the definition to ensure it is a meaningful, functioning safeguard.[87]

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[79] The Housing Benefit Regulations 2006, Section 86, https://www.legislation.gov.uk/uksi/2006/213
[80] The Council Tax Regulations 2006, Section 72, https://www.legislation.gov.uk/uksi/2006/215
[81] Housing Benefit and Council Tax Benefit Circular - HB/CTB S11/2011
[82] Data Protection Impact Assessment for RBV, Freedom of Information Request to Arun Council, 4th February 2021
[83] Arun Council Privacy Notice for Housing Benefit, retrieved 23rd June 2021 https://www.arun.gov.uk/privacy-notice-housing-benefit
[84] Arun Council Privacy Notice for Council Tax, retrieved 23rd June 2021 https://www.arun.gov.uk/privacy-notice-council-tax
[85] Colchester Council Housing Benefit and Local Council Tax Support Privacy Notice, 30th October 2020https://www.colchester.gov.uk/privacy-policy/housing-benefit-local-council-tax-support-privacy-notice/
[86] ICO Guidance on GDPR – Automated Decision Making and Profiling, retrieved 23rd June 2021 https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/automated-decision-making-and-profiling/what-does-the-uk-gdpr-say-about-automated-decision-making-and-profiling/#id2
[87] For example, see Big Brother Watch's Briefing on the Data Protection Bill for Report Stage in the

Article 22(1) of the GDPR provides that:

"Automated individual decision-making, including profiling"

1. The data subject shall have the right not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her".

Article 22(2)(b) of the GDPR allows Member States to create certain exemptions from this right, as long as "the data subject's rights, freedoms and legitimate interests" are safeguarded. Where such automated decisions are permitted, data subjects must be notified and informed of their right to request a human review. We are not aware of a single case where an individual has been notified that they have been subjected to a purely automated decision in the welfare context.

As we warned when the legislation was going through parliament,[88] the Data Protection Act fails to provide sufficient clarity as to what constitutes a solely automated decision making and as such provides insufficient protection where human input is so minimal as to be meaningless, such as a merely administrative authorisation of an automated decision by a human controller. Whilst the Government has stated that such administrative human intervention would not be sufficient,[89] there is no wording in the Act at all that defines what constitutes an automated decision. Recital 71 of the GDPR is relevant, stating that automated decisions are those "without any human intervention" - but it does not clarify that such interventions must be meaningful. Therefore, public authorities may believe that even the most minimal human input or token gesture lacking any influence over the decision could authorise an automated decision that has a significant legal effect. Such administrative input circumvents the vital safeguard prohibiting such solely automated decisions.

Our concern was echoed by the Deputy Counsel to the Joint Committee on Human Rights during the passage of the Data Protection Act through parliament, who warned that "there may be decisions taken with minimal human input that remain de facto determined by an automated process."[90]

House of Commons, May 2018: https://bigbrotherwatch.org.uk/wp-content/uploads/2018/05/Big-Brother-Watch%E2%80%99s-Briefing-on-the-Data-Protection-Bill-for-Report-Stage-in-the-House-of-Commons.pdf
[88] Ibid.
[89] Data Protection Bill, Committee stage, 3rdday, 13 November 2017 (https://hansard.parliament.uk/lords/2017-11-13/debates/F52C75EF-3CCC-4AC4-9515-A794F269FDAE/DataProtectionBill)
[90] Note from Deputy Counsel, 'The Human Rights Implications of the Data Protection Bill', 6 December 2017 (https://www.parliament.uk/documents/joint-committees/human-rights/correspondence/2017-19/Note_Deputy_Counsel_DPBill.pdf)

Guidance from the Information Commissioner requires a "meaningful human intervention" in an algorithmic decision to stop it being solely automated – but this is only guidance and is not enforced. According to the ICO, the human has to be able to fully review the information and alter the decision.

An ICO example is: "An employee is issued with a warning about late attendance at work. The warning was issued because the employer's automated clocking-in system flagged the fact that the employee had been late on a defined number of occasions. However, although the warning was issued on the basis of the data collected by the automated system, the decision to issue it was taken by the employer's HR manager following a review of that data."[91]
A legally significant or similar effect is either an impact that directly affects someone's legal rights, such as entitlement to something in law, while a similarly significant effect will have an equivalent impact on their behaviour, choices or personal circumstances. Examples include automatic decisions on eligibility for loans, e-recruitment with no human intervention or how much of a welfare payment someone is entitled to.

In RBV policies across the country and in DWP guidance the human intervention element of the process is limited. Benefits officers who request the risk score are permitted in limited circumstances to upgrade a risk score, for example from low to medium, but are forbidden by the DWP from lowering anybody's score.[92]

Any claim that this is a meaningful human intervention is questionable. The benefits officer cannot use their judgement or discretion to lower the score of someone they think poses minimal risk - instead they can rubber stamp the computer's decision or raise it higher in limited circumstances. Furthermore, they cannot fully review the information that has been processed in producing the decision, due to aforementioned commercial opacity. This lack of freedom to fully review a decision undermines the claim that the allocation of a risk score is not a solely automated decision.

iv) Data retention

The amount of personal data that is stored by local authorities and private companies following the risk scoring process is a further cause for concern. Scores are not always discarded after being generated and a user guide from Xantura-using South Ribble Council, among others, states that prior risk scores are kept on the system and can be accessed by council officials.[93] It is unclear

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[91] ICO Guidance on GDPR – Automated Decision Making and Profiling, retrieved 23rd June 20212
[92] Housing Benefit and Council Tax Benefit Circular - HB/CTB S11/2011
[93] Capita/Xantura RBV User Guide, Freedom of Information Request to South Ribble, 23rd December 2020

what purpose holding these historical risk scores serves as officials generate a new score for each fresh claim or change in circumstances.

Local authorities are bound by the storage limitation principle of the GDPR which states that personal information must only be held for as long as it is needed and after this it must be erased.[94] Data relating to benefits applications is of a particularly personal nature and it is unclear what the justification is to hold these old and ostensibly useless data points.
TransUnion's database of benefits claimants is more concerning still. In contracts between the credit reference agency and local authorities, the private company states that as well as generating a risk score it will also check an applicant's data against its own database of benefits claimants.[95]

Thousands of people will have information related to their benefits claim stored by the multinational company on a "National Claimant Register". When an application is risk scored by TransUnion their National Insurance number is checked against the register and any matches are flagged for fraud checks.

This data is harvested from the tens of thousands of benefits applications that TransUnion has profiled, but very few claimants will be aware that this sensitive information is being stored by a private company. No authority using the system supplied a Data Protection Impact Assessment (DPIA) to Big Brother Watch in response to FOI requests, and examples of privacy policies from councils using TransUnion's RBV include no mention of the claimant register.[96] This extraordinary data retention makes a mockery of the contracts that state TransUnion is only a data processor rather than a controller.

Any reasonable interpretation of data processing rules would identify TransUnion as a controller because they are retaining some of the information transferred to them in order to create a benefits claimant register.[97][98]

The register is also an obvious breach of data minimisation principles as the

[94] ICO Guidance on GDPR – Storage Limitation, retrieved 23rd June 2021 https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/principles/storage-limitation/#:~:text=Personal%20data%20held%20for%20too,a%20lawful%20basis%20for%20retention.&andtext=Remember%20that%20you%20must%20also,for%20longer%20than%20you%20need.
[95] Angus Council Contract Renewal with TransUnion, January 2020, Freedom of Information Request to Angus Council, 11th February 2021
[96] Sefton Council Privacy Policy, retrieved 23rd June 2021, https://www.sefton.gov.uk/council-tax/privacy-notice/
[97] ICO Guidance on GDPR – Controllers and Processors retrieved 23rd June 2021 https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/key-definitions/controllers-and-processors/
[98] Tamworth Council Privacy Policy, May 2018 https://www.tamworth.gov.uk/sites/default/files/privacy/Benefits-Fair-Processing-Notice.pdf

TransUnion check is completely unnecessary. Through the central government-run National Fraud Initiative (NFI), extensive data matching of benefits claims and other information occurs meaning that anyone who is risk scored by TransUnion's RBV undergoes multiple rounds of data matching in an attempt to detect fraud.[99]

It appears that the NFI and TransUnion's internal data matching are similar processes acting for the same purpose and could well breach data minimisation principles, as the same process is being practically duplicated.

f) Impact on individuals

Although a person subjected to RBV may not be aware of the algorithm's impact on their benefits application the effect is clear. The formula is the main influence in deciding how much evidence a person has to supply. If the algorithm assesses a person as high risk the impact is significant, as the council will then set a higher burden of proof and perform stringent checks on applications. Councils also claim that there is a positive impact on some individuals - those who are assigned as low risk, as they are required to provide less documentation than others.

The woman from London who described to us her experience of being unknowingly profiled by an RBV algorithm said that the evidence she had to provide for a change in her benefit circumstances varied significantly over the years, to her confusion. Now, she thinks RBV may have had a role. Very few people appear to be aware whether they are profiled when they apply for housing or council tax benefits and this lack of transparency is unjustified and unacceptable.

g) Conclusion

Excessive, black box data processing, secretive risk-scoring, proxy variables for protected characteristics, and arbitrary risk targets are all structural issues with risk based verification that suggest the scores given to individuals are not as objective as local authorities suggest.

The equality implications of RBV are even more alarming, with clear dissonance between the information unearthed by Big Brother Watch and the public statements of companies and councils that claim there is no potential for bias or discrimination. Geodemographic modelling and the clear socioeconomic profiles

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99 National Fraud Initiative Report, July 2020, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/903221/NFI_report_2020.pdf

used to describe some risk scores point to unacceptable ignorance of the potential prejudice RBV may cause.

It is increasingly the case that the use of RBV is disproportionate, with the principles of the SyRI case and the greater data flows from the DWP to local authorities making it hard to justify profiling thousands of people who claim benefits.

This unfairness, intrusion and risk of injustice has only prevailed due to an unacceptable level of secrecy around authorities' use of RBV. This, in turn, is likely the result of the insufficient safeguards provided by the Data Protection Act, notably the lack of clarity around automated decision making that permits such decisions to take place without the knowledge of the people affected. If data rights are to be meaningful – and, in the information age, they absolutely must be – urgent rectification is needed.

Welfare recipients are stigmatised in society and these crude algorithmic processes treat people in need as fraud threats, automating suspicion.

The lack of justification for this data processing, disproportionality, and risk of indirect discrimination make both the data and governance processes unfit for purpose. Big Brother Watch believes that RBV should be scrapped.

h) Recommendations

Recommendation 1: Local authorities should end their use of RBV. It is clear from the declining use and the justifications for this that RBV is of little value and is unnecessary, intrusive, and secretive surveillance of people receiving benefits.

Recommendation 2: TransUnion must delete its claimants register permanently, as its retention of this data lacks subjects' consent and cannot be justified.

Recommendation 3: Local authorities must put measures in place to assess and mitigate the risks of indirect discrimination associated with private sector algorithms.

3

HOUSING BENEFIT FRAUD RISK PROFILING

Housing Benefit Fraud Risk Profiling

The intrusive surveillance of people receiving housing benefit in the UK is moving away from local government to a centralised system run by the Department for Work and Pensions. As part of the Housing Benefit Award Accuracy Initiative (HBAA), the DWP has created a predictive model for fraud and error which identifies claimants who are most likely to have had a change in their circumstances affecting their benefit payments.[100]

Every single housing benefit claimant, more than 3.2 million people, will be profiled by the algorithm and assigned a risk score that relates to the percentage chance the claim contains fraud or error.[101][102] The purpose of the predictive model is to identify who should be subjected to a full case review of their housing benefit claim.

The 400,000 people with the highest risk scores are collated onto a list, which is then split up by local authority and handed to councils as the cases they may want to investigate. Initially the scheme was optional and was linked to additional funding given to councils by the DWP for perform more checks on housing benefit but from April 2021 the initiative became mandatory.[103]

Local authorities are obliged to perform a full case review (FCR) of all of these, meaning that 400,000 people per year are subjected to a review of their housing benefit claim because an algorithm decided it was necessary.[104] What constitutes a FCR is still down to local authorities but the DWP suggests this includes validation of information on a claim, seeking evidence from a claimant to support this and using available data to check housing benefit claims and recalculate if necessary.

The DWP claims that 64% of cases identified as high risk had unreported changes in circumstance in their claim, while 22% of medium risk cases had

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[100] A5/2020: Housing Benefit Award Accuracy Initiative re-launch, Department for Work and Pensions, February 2021, https://www.gov.uk/government/publications/housing-benefit-adjudication-circulars-2020/a52020-housing-benefit-award-accuracy-initiative#annex-a-copy-of-hb-award-accuracy-indicator-letter

[101] August 2020 Benefit Statistics, Department for Work and Pensions, 11th August 2020 https://www.gov.uk/government/statistics/dwp-benefits-statistics-august-2020/dwp-benefits-statistics-august-2020#:~:text=Housing%20Benefit%20fell%20to%203.1,the%20year%20to%20February%202020

[102] Freedom of Information Request to the Department for Work and Pensions, 24th May 2021

[103] Making The Right Choice For Your Local Authority, Northgate Public Services, retrieved 24th June 2021 https://northgateps.com/article/hbaai/

[104] A9/2020: Housing Benefit Award Accuracy Initiative re-launch, Department for Work and Pensions, February 2021 https://www.gov.uk/government/publications/housing-benefit-adjudication-circulars-2020/a92020-housing-benefit-award-accuracy-initiative-re-launch

discrepancies.[105]

Historical housing benefit data was used to construct the predictive model and the Single Housing Benefit Extract supplies the information for the algorithm to flag the so-called risky cases. An Equality Impact Assessment (EIA) of the algorithm said that the data points used in the model are:[106]

- Non-passported
- Passported from JSA
- Tenancy type
- HB entitlement
- Claimant's age
- Claimant's gender
- Claimant's capital
- Claimant's total disregarded income
- Number of dependents

Coefficients are used to weight these data points to be more or less important in the final risk score which the DWP claims are based on historical data of changes in circumstances in benefit claims to model which people most resemble those who are most likely to see a reduction in claim amount due to their circumstance.[107] A Freedom of Information request response also states that coefficients are fixed which suggests that the algorithm would not adapt to changing patterns in the future.

Both sex and age are protected characteristics under the Equality Act 2010. However, in the EIA the DWP quickly dismissed any chance that their algorithm could lead to disproportionate outcomes, saying people "will not be treated differently as a result of the reviews undertaken as part of this initiative".[108]

FCRs are not non-trivial events for the people whose benefits claims are reevaluated and a failure to engage can lead to benefits being suspended altogether.[109] A Lambeth Council form relating to a FCR requires people to submit a large amount of information if the algorithm views them as a fraud risk, containing questions about income, savings, capital, children and financial information about an applicant's partner. This is a significant burden on people

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[105] Ibid
[106] High Level Equality Analysis of the Housing Benefit Accuracy Award Initiative, Freedom of Information Request to the Department of Work and Pensions, 26th March 2021
[107] Freedom of Information Request to the Department of Work and Pensions, 26th March 2021
[108] Ibid
[109] Benefit Review, Birmingham City Council, retrieved 24th June 2021, https://www.birmingham.gov.uk/info/20017/benefits_and_support/2295/benefit_review

who may be reviewed just to see no change.[110]

The arduous nature of a FCR also creates a real risk of harm for any protected group that is overrepresented in the cohort of reviews. Therefore, it is incumbent on the DWP to justify the use of protected characteristics in the algorithm, rather than simply dismissing potential prejudice because the reviews themselves are the same for everyone.

Unfortunately, the DWP claimed that releasing information about the demographic breakdown of people flagged as high risk could prejudice law enforcement interests and declined to publish this information so the public remains in the dark as to whether the algorithmic black box produces disproportionate results.[111]

It also appears that the decision to initiate a FCR may meet the definition of a solely automated decision. Launching a full review of a benefits application that requires significant participation from the claimant appears to resemble a legal or otherwise significant effect, especially when it could have a major impact on an individual's behaviour and finances. The algorithm at the very least will require a person to provide further personal information to cooperate with the FCR so the impact of being flagged is more than trivial.

The imposition of an obligation for local authorities to begin FCR for benefits claimants flagged by the algorithm makes it clear that the decision to investigate someone has no meaningful human intervention, as the 400,000 cases are decided by a machine and the only role of a human being is to begin investigating these cases.

It is not known whether the DWP deems the HBAA algorithm to be a solely automated decision as the department refused to disclose its Data Protection Impact Assessment when asked, claiming it contained details of the model and was therefore exempt from disclosure.[112] This conflicts with the Information Commissioner's advice that DPIAs should usually be published, with redactions if necessary, and points to a lack of transparency within the DWP on its use of algorithms.[113]

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[110] Lambeth Council Housing Benefit Case Review Form, Lambeth Council, retrieved 24th June 2021, https://forms.lambeth.gov.uk/HBFULLCASEREVIEW

[111] Freedom of Information Request to the Department of Work and Pensions, 26th March 2021

[112] Freedom of Information Request to the Department of Work and Pensions, 26th March 2021

[113] Guide to the GDPR - Data Protection Impact assessments, Information Commissioner, retrieved 24th June 2021, https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/data-protection-impact-assessments-dpias/

The DWP also declined to say if any private companies were involved in the development of the algorithm or whether the data from the Single Housing Benefit Extract (SHBE) is transferred to any private companies in the course of the risk scoring. Refusing to say whether the data is sent to a private company is particularly worrying as the extract contains a wealth of sensitive, private data including financial and personal information,[114] and individuals are entitled to know who processes their data.

There is a further lack of transparency over accuracy as the DWP claims not to have any error statistics or details on false positives and negatives due to the design of the algorithm.[115] Using a propensity model, the algorithm generates a percentage chance of a person having seen a change in circumstance that would lead to a reduction in their benefits and then ranks people from high to low based on these scores.

The DWP claims that as everyone is given a percentage score rather than a yes or no flag the algorithm cannot have false positives or negatives, and said in response both to a direct query about error rates and to a more general question about the accuracy of higher risk scores: "there cannot be false positives or false negatives as we are estimating the chance of a change-in-circumstance occurring".[116] [117]

This claim betrays a worrying attitude to algorithmic modelling within the DWP as there appears to be little desire to understand the accuracy of the tool. Other risk scoring algorithms, including Xantura's predictive model around children's vulnerability, attempt to assess their accuracy. For the DWP to avoid such an assessment only undermines the credibility of the tool.[118]

A simple way to assess accuracy would be to monitor how many of the FCRs conducted lead to a change in benefit payments, and how many of those changes are appealed, and examine those figures against the baseline data for changes in circumstance.

In a response to a Freedom of Information request, the DWP said that it was relying on public task as the GDPR justification for the predictive model.[119] Necessity is a key plank of the public task justification and this must be called

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[114] Single Housing Benefit Extracts, Department for Work and Pensions, 12th December 2012, https://data.gov.uk/dataset/d3d8ec82-6288-4d63-9d96-23650b6134a2/single-housing-bene-fit-extract
[115] Freedom of Information Request to the Department of Work and Pensions, 26th March 2021
[116] Ibid
[117] Freedom of Information Request to the Department of Work and Pensions, 21st May 2021
[118] OneView DPIA, Freedom of Information Request to Maidstone Borough Council 28th May 2021
[119] Freedom of Information Request to the Department of Work and Pensions, 26th March 2021

into question going forward if the Department cannot provide accuracy data for the algorithm. It cannot be argued that the processing is necessary if nobody can explain if it works well or not.[120]

The HBAA is yet another way for the DWP to digitise its treatment of benefits recipients as worthy of suspicion by default. The algorithm is only tasked with predicting the likelihood of changes in circumstance that would lead to a drop in the amount of housing benefit paid out.[121] It also represents a shift from decentralised anti-fraud efforts by councils towards a joined up, digital system that treats everyone as a potential fraud risk.

Housing Benefit is viewed by the Department as a major source of fraud, but it is by no means the biggest cohort of people receiving benefits from the state and the DWP is spending millions on broadly defined innovation.[122] This includes the Automation Garage, which is developing new forms of intelligent automation and robotic processing that the DWP refuses to answer Freedom of Information requests about. [123][124]

Profiling people to predict if they are committing fraud is only the start. The DWP is committing significant resources to develop more and more automation for its own use, and the HBAA is just one example. The question remains whether this is a standalone algorithm or if regular automated profiling is going to become part and parcel of life for benefits recipients in the future.

[120] Guide to the GDPR - Lawful Basis, Public Task, Information Commissioner, retrieved 24th June 2021, https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/lawful-basis-for-processing/public-task/
[121] Freedom of Information Request to the Department of Work and Pensions, 26th March 2021
[122] High Level Equality Analysis of the Housing Benefit Accuracy Award Initiative, Freedom of Information Request to the Department of Work and Pensions, 26th March 2021
[123] DWP Inks £2m Capgemini Partnership To Deliver 'unconstrained Innovation', Public Technology, 30th November 2020, https://www.publictechnology.net/articles/news/dwp-inks-%C2%A32m-capgemini-partnership-deliver-%E2%80%98unconstrained-innovation%E2%80%99
[124] How We Are Using Robotics and Intelligent Automation, DWP Digital Blog, 23rd April 2018 https://dwpdigital.blog.gov.uk/2018/04/23/how-we-are-using-robotics-and-intelligent-automation/

4

RENT SENSE & RENTAL ANALYTICS

RentSense and Rental Analytics

Millions of people who live in social housing, either owned by local authorities or housing associations, have their personal data run through predictive algorithms every time they pay their rent. RentSense, developed by Mobysoft, is the dominant system used to analyse rent payment patterns in the social housing sector but there are a number of other private companies who also sell algorithms that claim to predict rental arrears.

Alternatives include software developed by MRI/Orchard Systems, which also offers arrears analytics and Universal Credit targeting, and i4Housing's system which claims to be able to predict arrears, repairs and even evictions. However only two local authorities released information about these companies and this was extremely limited.

Due to the balance of Freedom of Information request responses and the oversized role of Mobysoft in the sector, the vast majority of this section will focus on RentSense, although many principles apply to other systems too.

a) What is RentSense and where is it used?

RentSense is marketed as a set of "complex algorithms" that looks at the payment patterns of a social housing provider's tenants to predict who will and will not pay their rent so caseloads can be prioritised.[125] The company claims it can help cut rent arrears, increase revenues, create efficiency in staff workloads and help manage changes in relation to welfare, particularly Universal Credit. Mobysoft says that it has 150 customers, making up one third of local authorities and two thirds of housing associations.[126] It analyses data on 1.6 million tenants, which is 31% of all social tenants, and a significant proportion of people who both claim Universal Credit and live in social housing.[127]

Advertising materials say that the algorithms used by RentSense analyse tenants' payment patterns to assess who needs to be contacted by their landlord and who does not, reducing unnecessary contact and prioritising the highest risk cases for intervention.[128] According to Mobysoft, caseloads are reduced by 62% on average, with "efficiency" savings of 32% and average arrears reductions of 16% in the first year of use. However, these claims have not been independently

[125] Mobysoft Rentsense, retrieved 23rd June 2021, https://mobysoft.com/products/rentsense
[126] Mobysoft Update, 31st July 2020, Freedom of Information Request to St Albans Council, 3rd February 2021
[127] St Albans Rentsense Optimisation Presentation, Mobysoft, Freedom of Information Request to St Albans Council, 3rd February 2021
[128] RentSense Brochure, https://cdn2.hubspot.net/hubfs/2639450/RentSense%20Brochure.pdf

verified and the risks of disproportionality and discrimination in data processing have not been evaluated.

Additional modules are also offered to social landlords that allow for automated texts to tenants, a higher frequency of data processing, in-depth performance reports, automatic escalation of arrears cases and the capability to manage former tenants' arrears.[129] The performance reports and more regular processing, which works to analyse rent payments as they come in rather than on a weekly basis, have little impact on how the system works.

AutoEscalate may meet the definition of a solely automated decision under the GDPR as it allows landlords to identify cases that need escalating and automates this in some cases, for example sending a letter or a text. Guidance from the EU's Data Protection Working Party on Article 22 suggests that anything that would have a significant impact on the behaviour of an individual would meet the criteria.[130]

What letters may be automated by the add on module is not clear but it is reasonable to assume that if they outline further steps that may be taken, such as eviction proceedings, they will cause significant stress for a tenant and may have a significant effect on their behaviour. Such automated escalations could have a particularly harmful impact if they are incorrect. Any social landlord adding on this module must consider whether they are using solely automated decisions as defined in Article 22 by the GDPR, whether there is a legitimate purpose to do so and whether subjects' GDPR rights are protected in the process.

RentText is a different form of automated contact focusing on sending mass messages to significant numbers of tenants, for example to ask people with pre-set levels of arrears to get in touch.[131] It is also able to make rules purely about Universal Credit (UC) claimants and send messages based on these. Ad-hoc mass texts to certain groups or tenants can also be sent to contact more people.

There are four categories of automated texts the tool can send:[132]

1. Rule texts - based on RentSense rules with definable parameters such as area or arrears

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[129] Mobysoft Rentsense Modules, retrieved 23rd June 2021, https://mobysoft.com/products/rent-sense-modules
[130] Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679, Article 29 Data Protection Working Party, 6th February 2018
[131] Mobysoft Rentsense Case Study, Octavia Housing, retrieved 23rd June 2021 https://mobysoft.com/case-studies/octavia
[132] Mobysoft Optimisation Presentation to St Albans Council, 31st July 2020, Freedom of Information Request to St Albans Council, 3rd February 2021

2. Unactioned texts - messages to uncontacted cases to request they reach out
3. UC texts - ahead of benefit payments and on benefit payment day
4. Payment reminders - can be configured to different cohorts

b) Universal Credit as a selling point

As Universal Credit has mostly replaced housing benefit there has been a significant shift in how social landlords receive rent. Housing Benefit is often paid directly to the landlord whereas Universal Credit is paid to the individual who then pays their rent themselves.[133] A report by the Smith Institute found that arrears tended to increase among social tenants when their benefits switched from Housing Benefit to UC. [134] It was estimated that across London, millions of pounds worth of arrears could build up as tenants switch between the benefits.

Mobysoft has capitalised on the concerns many social landlords have over the potential negative effect that UC could have on their income streams. Local authorities were given marketing presentations that described UC as a threat that RentSense would help tackle.[135] The RentSense brochure features a page of alarming statistics that describes UC as a serious financial threat to social landlords and the company even offers a specific Universal Credit toolkit that reflects the suspicion many benefits claimants are treated with by default. This appears to be motivated by UC's switch from direct-payment to landlords (as Housing Benefit initially was) to payment to the individual who then pays their rent themselves.[136]

Embedding a "Rent First" culture is a key tenet of the strategy Mobysoft recommends for social landlords dealing with the migration to UC.[137] Thirteen Group, which uses RentSense, fleshed out what a "Rent First" culture means:[138]

- Robust affordability and vulnerability checks
- A former discussion when a tenant signs up about their responsibilities,

[133] Universal Credit And Rented Housing – Frequently Asked Questions, January 2016, https://www.walthamforest.gov.uk/sites/default/files/uc-rented-housing-faq-Jan16.pdf
[134] Falling Behind, The Smith Institute, 22nd July 2020, http://www.smith-institute.org.uk/wp-content/uploads/2020/07/Falling-behind.pdf
[135] Mobysoft Business Impact Assessment with Denbighshire Council, 2nd December 2019, Freedom of Information Request to Denbighshire Council, 3rd February 2021
[136] Mobysoft Guide to Reducing Rent Arrears, retrieved 23rd June 2021 http://mobysoft.com/wp-content/uploads/2016/08/12071_-_guide_to_reducing_arrears-s3.pdf
[137] Universal Credit Toolkit, Mobysoft, retrieved 23rd June 2021,http://mobysoft.com/wp-content/uploads/2016/08/uc_toolkit_2016.pdf
[138] Income and Debt Recovery Policy, Thirteen Group, October 2018, https://www.thirteengroup.co.uk/uploaded/thirteen/files/Income%20and%20Debt%20Recovery%20Policy%20Nov20.pdf

including:
- Rent paid in advance
- HB/UC are to be used to pay rent
- Assessment of income and benefit entitlement
- Highlighting that whilst support will be provided, non-payment of rent is taken very seriously, and could lead to them losing their home.

However, delays in initial UC payments mean that paying rent in advance can be a challenge for many claimants. RentSense capitalises on this by associating this problem with tenants rather than the system, and justifying a culture of intensive surveillance and coercive pressure on tenants. The push for "Rent First" policies by Mobysoft and their particular focus on UC tenants embeds a sense of suspicion around socioeconomically vulnerable tenants. For example, in a case study about the relationship between Ongo Homes in north Lincolnshire and Mobysoft, the landlord says that it will refuse to complete "non-urgent" repairs until rent issues are addressed, despite repairs being a legal obligation.[139,140]

c) RentSense - how does it work, where does the data come from and how is it processed?

Mobysoft uses its own data extraction tool, Midas, to pull information from social housing databases for analysis.[141] It is able to work alongside and pull data from existing housing management tools, such as Northgate. All of the data comes from the social housing provider's database across six categories, all with account reference numbers attached (see next page).[142]

Rent Balances	Rent Accounts
● Balance Date	● Reference number
● Current Balance	● Housing Officer Name and Code
● Rent Tenants	● Tenancy dates, type and tenure
● Name	● Property Type
● Gender	● Needs Category
● Age	● Local Authority Code and Patch
● Telephone Number	● Rent Free Week indicator
● Address and Postcode	● Recovery Group
● Tenant Vulnerabilities	● Possession Notice Served Indicator
● Number Of Bedrooms	● Court Judgment Details

139 Ongo's Rent First Model with Mobysoft, Housing Technology, September 2020, https://www.housing-technology.com/ongos-rent-first-model-with-mobysoft/
140 Repairs – what are the landlord's responsibilities? Citizen's Advice Bureau, retrieved 23rd June 2021, https://www.citizensadvice.org.uk/housing/repairs-in-rented-housing/repairs-what-are-your-options-if-you-are-a-social-housing-tenant/repairs-what-are-the-landlord-s-responsibilities/
141 RentTest Mobysoft Brochure, retrieved 23rd June 2021, https://omghcontent.affino.com/AcuCustom/Sitename/DAM/145/13422_-_Mobysoft_-_RentTest_Brochure_Stage_1_SP.pdf
142 Freedom of Information Request to Runnymede Council, 10th March 2021

Rent Transactions	Rent Contacts
- Time and date of transaction - Transaction amount - Transaction Description - Transaction Code - Transaction Sign - Code and SubCode	- Contact Description - Contact Date - Contact Code - Contact Type - Notes
Rent Recommended Actions	**Rent Universal Credit**
- Action Code - Action Date - End Week Date	- UC Start Date - UC Payment Date - UC End Date - UC Status

Mobysoft requires huge amounts of data to be transferred from social landlords to the company's cloud in order to operate its service.[143] Much of this information is sensitive, personal data that is being sent to the private company's information stores.

After extraction the data is then analysed, with Mobysoft claiming that only rent transaction data is run through the algorithm but we do not know the precise fields of data input under this banner.[144] The rent transaction data enters a black box and is processed by secretive algorithms. Neither desk research nor Freedom of Information requests yielded much information on exactly how the software processes more than 1.6 million people's information. The algorithm works to establish patterns, predict payments and potential future arrears and credits, but the inner workings are not made public and many local authorities used Section 43 exemptions relating to commercial confidentiality to refuse to answer questions about how the calculations work.[145]

The rest of the data is used as part of case management by housing officers in their contact work, it claims. Between 6 and 14 months of prior data are used to build a model for each social landlord according to the company, with the past 26 weeks of rolling data being used to analyse rent payment patterns.[146]

Five weeks of payment data is used to match transaction behaviour, taking into account pre-set rules that are used to decide whether a tenant is contacted or not by housing officers.

After algorithmic processing, the data is stored on a Mobysoft database that is "segmented by client" and is only accessible by housing officers or company

[143] Mobysoft About Us, retrieved 23rd June 2021, https://mobysoft.com/about-us

[144] Mobysoft GDPR Statement 2018, Freedom of Information Request to North Tyneside Council, 17th March 2021

[145] Ibid.

[146] Go Live Presentation, Freedom of Information Request to North Tyneside Council, 17th March 2021

staff.[147] Reports, which are also stored on Mobysoft's servers, are then generated with priority lists of tenants that can be allocated to housing officers for contact and can be accessed by social landlords through the RentSense portal.

The rule categorises tenants broadly into those who need to be contacted and those who do not.[148] They focus on whether rent is being paid, how much is being paid, how it is being paid and the trajectory of arrears, as well as the regularity of payment and any existing arrangements with the tenants.

Non Contact Rules	Contact Rules
● Tenants in break period (recently contacted) ● Agreement to start in future ● Agreement not broken ● Account not in arrears ● Below threshold ● Monthly Rent Charge ● Monthly Payer ● Erratic Payer (covers rent) **Informational rules** ● Housing Benefit - insufficient payments ● Arrangement Starting ● Arrangement expiring ● Insufficient transactions ● Balance above threshold ● In credit a week ago ● Last payment put into credit ● Erratic scheduled payments ● Increasing balance that dropped in last week ● Decreasing balance	● Housing Benefit expected but missing, in credit ● Housing Benefit but missing ● Housing Benefit has reduced, in credit ● Housing Benefit reduced ● Housing Benefit - Large payment (HB overpayment could be masking tenant underpayment) ● Arrangement broken ● Monthly payer - doesn't cover rent ● Monthly rent charge, missing payments ● Monthly rent charge isn't being covered ● Erratic payer - doesn't cover rent ● Monthly payer - arrears not reducing fast enough ● Erratic payer - arrears not reducing fast enough ● Regular payer with missing payment ● Increasing balance that dropped in last week ● Static Balance, decreased in last week ● Decreasing balance not fast enough

These rules recommend a course of action for housing officers and explain why someone is flagged for contact, or is not.[149] Examples of privacy policies that we obtained make it clear that discretion is left to staff to act, so it is not a solely automated decision, but the prioritisation function of RentSense appears to

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[147] Mobysoft GDPR Statement 2018, Freedom of Information Request to North Tyneside Council, 17th March 2021

[148] RentSense User Guide, Freedom of Information Request to Blackpool Homes, 31st December 2020

[149] Phoenix Community Housing Privacy Notice, retrieved 23rd June 2021 https://www.phoenixch.org.uk/data-protection

embed bias towards the software recommendations in the process.

d) Marketing and sales tactics

Case studies selected by Mobysoft illustrate the system delivering in some of the areas it claims to, cutting arrears and freeing up staff time for social landlords. Data science company QuantSpark also looked at the system in a study commissioned by Mobysoft and claimed that arrears dropped by 1.6 percentage points and the number of tenants in arrears fell by 11.5%, but the report is not publicly available to evaluate the methodology.[150] Mobysoft-provided case studies found significant drops in officer caseloads in Thurrock[151], while Adactus Housing claimed to have saved hundreds of thousands of pounds by using Rentsense.[152]

Despite the marketing and PR exercises celebrating RentSense as a vital tool for social landlords, the system has not always operated smoothly. In the first half of 2020, caseload completion fell sharply in St Albans despite RentSense being used, but this was partially attributed to the coronavirus pandemic. However, older emails from the council show that there was a steady downward trend in the number of cases being completed throughout 2019 as well.[153]

Mobysoft claims that it allows social landlords to reach "every tenant every time" but the evidence from St Albans is that the promise is overblown.[154] The company used the declining output at the council to try to sell more products, including automated texts and more regular data processing.

RentSense has not always functioned properly when introduced either, with Stockport Homes in Greater Manchester being given a huge discount on a new 18 month contract in August 2018. A 2014 introduction of the system was "unsatisfactory" and in recognition of this the housing association was given 6 months free and 42% off the cost of the following 12 months by Mobysoft as a "gesture of goodwill", in exchange for complete secrecy about the sweetener.

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[150] Quantspark Study Reveals How Technology is Helping Social Landlords Reduce Evictions, 6th May 2019 https://www.quantspark.com/insight/quantspark-study-reveals-how-technology-is-helping-social-landlords-reduce-evictions

[151] RentTest Report and RentSense Proposal, November 2020 https://rds.eppingforestdc.gov.uk/documents/s99831/HCS-016a%20RentTest%20Business%20Report%20-%20Epping%20Forest%20Council%20-%20November%202020%202.pdf

[152] Mobysoft Automating Arrears Management, retrieved 23rd June 2021 https://mobysoft.com/news/adactus-automating-arrears-management

[153] Emails between Mobysoft and St Albans Council, Freedom of Information Request to St Albans Council, 3rd February 2021

[154] St Albans Council Optimisation Presentation, July 2020, Freedom of Information Request to St Albans Council, 3rd February 2021

"As a gesture of goodwill following an unsatisfactory experience of the implementation of RentSense in 2014, Mobysoft have provided Stockport Homes with a preferential offer for an 18 month initial term. The discounted price for this initial eighteen-month term is conditional upon complete Confidentiality (Clause 11) and upon the contract being signed and returned by 21 September 2018, the offer includes a 6 months zero cost license fee and a 42% discount off the annual recurring license fee."[155]

Clearly, the marketing built on selective tales of Mobysoft's successful partnerships is not the whole story but the shield of commercial interest exemptions to FOI requests, and the lack of independent research, keeps the real impact of Mobysoft unknown or worse, hidden. The documented use of confidentiality clauses by Mobysoft makes it more difficult still to understand where its system does not work as the company is willing to offer discounts, with tough conditions, to landlords it has failed.

e) Equalities implications

Despite asking dozens of social landlords for their Equality Impact Assessments ahead of implementing RentSense, only one responded with their document, which did not mention RentSense profiling at all, despite the EIA covering housing policy until 2024.[156]

Often, local authorities claimed that an EIA was not needed as it integrated with existing services, despite RentSense explicitly acting as a new profiling tool.[157] Others dismissed any risk of harm to protected groups out of hand with little consideration of the potential of algorithmic bias.[158,159]

Although there is not any evidence that Mobysoft's algorithms contain bias, the fact that the potential for algorithms to entrench discrimination was not

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[155] Stockport Homes/Mobysoft Services Agreement, 21st September 2018, Freedom of Information Request to Stockport Homes, 30th March 2021.N.B. THIS COMES FROM A MISTAKENLY UNRE-DACTED DOCUMENT

[156] Housing Equalities Assessment, Charnwood Council, 18th February 2019, https://www.charnwood.gov.uk/files/documents/equality_impact_assessments_housing_income_and_financial_inclusion_policy_2019_2024/Equality%20Impact%20Assessments%20-%20Housing%20Income%20and%20Financial%20Inclusion%20Policy%202019-2024.pdf

[157] Report to Cabinet, Sandwell Council, 5th February 2020, http://tiny.cc/pjoxtz

[158] Gosport Report on Procuring Rentsense, 20th January 2021, https://democracy.gosport.gov.uk/documents/s2662/8.Procurement%20of%20Rentsense.pdf

[159] Epping Forest Mobysoft Equality Impact Assessment, 14th December 2020, https://rds.epping-forestdc.gov.uk/documents/s99832/HCS-016b%20Equality%20Impact%20Assessment%20Form%20-%20Procurement%20Waiver%20Mobysoft.pdf

considered is concerning. The Public Sector Equality Duty (PSED) requires public bodies and those performing public functions, such as many housing associations, to actively work to tackle possible instances of direct and indirect discrimination.[160]

In the August 2020 ruling against South Wales's Police use of facial recognition, the Supreme Court held that the PSED was not met by the police as they did not consider the potential for indirect discrimination when making a decision to use facial recognition.[161] RentSense's use of algorithms to profile people also has the potential to discriminate unintentionally and the cursory considerations of many EIAs or the refusal to do them does not allow for adequate consideration of potential bias.

This is further compounded by the lack of equalities monitoring performed by social landlords who use RentSense. Despite being asked for equalities monitoring data, none of the dozen social landlords who responded to our FOI requests with documentation disclosed any kind of documents outlining efforts to monitor potential bias in the system. Lewes and Eastbourne Council did include a presentation looking at the software's performance but did not address any bias monitoring in this.[162]

Much greater clarity is required as to what data points are considered "transactional" data and fed into the RentSense algorithm. Depending on exactly what data is used by the algorithm evaluations of the risks of potential bias, discrimination and fairness should be undertaken. Without the consideration or monitoring of these issues there is a serious risk that rent analytics could be systematically discriminatory - but the secrecy and the self-assured dismissals of equalities risks by public bodies mean that accountability in this area is unacceptably limited.

f) Data processing

i) Controller, processor or joint controller?

In the contracts between social landlords and Mobysoft the company is clear that the housing provider is the data controller and Mobysoft is merely a data processor.[163] However, the company's role in designing the algorithm and the

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[160] Public Sector Equality Duty and Bias in Algorithms, Centre for Data Ethics and Innovation, 9th December 2020, https://cdei.blog.gov.uk/2020/12/09/public-sector-equality-duty-and-bias-in-algorithms/

[161] The Queen (on the application of Edward Bridges) (Appellant) v The Chief Constable of South Wales Police (Respondent) and others [2020] EWCA Civ 1058

[162] Freedom of Information Request to Lewes and Eastbourne Council, 27th January 2021

[163] Ibid, Schedule 7 GDPR Information

transfer of data to their cloud make this split of responsibilities open to question. The ICO's checklist on processors and controllers says that a joint controller shares a common objective in processing, processes personal data for the same purpose as another controller, designs the process with another controller and has common information management rules with another controller.[164]

Meanwhile, processors are merely given data from a third party and do not decide on purpose, retention or what data is collected. They are also not interested in the end result of the processing and only make minimal decisions on how data is processed, which are implemented under contract with somebody else.

Both Mobysoft and the landlord share an objective and purpose in processing the data - to produce a prioritised list of tenants for contact by housing officers – and although the reasoning as to why this is the target of processing may differ, the ultimate aim is the same. Mobysoft also retains ownership over some aggregated data, which is used both for marketing and to improve their services - this ownership gives them a clear interest in the end result of the process.[165]

In a document about its Midas Extraction tool, Mobysoft dictates what data is to be extracted and transferred to its servers.[166] As the designer of the algorithm it decides what data is processed and in which way, even if the instruction comes from the landlord. Retention is also outlined in the Mobysoft GDPR statement and in contracts which state that the company will retain anonymous, aggregated data while deleting details about individuals when its contract with a landlord ends, rather than simply following social landlords' policies on data retention.[167] Contracts between landlords and the data company also establish some common information management rules, such as obligations to notify of data breaches, demanding landlords perform DPIAs and asking for technical measures to facilitate information transfers.[168]

Mobysoft clearly goes further than a mere processor in terms of influence over what data is collected, the purpose of its processing and how it is managed. However, it eases data protection responsibilities by including a contractual

[164] ICO Guidance on GDPR – Controllers and Processors retrieved 23rd June 2021 https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/key-definitions/controllers-and-processors/
[165] Charnwood Contract With Mobysoft, 21st October 2019, Freedom of Information Request to Charnwood Council , 24th February 2020
[166] Midas Documentation, July 2020, Freedom of Information Request to St Albans Council, 3rd February 2021
[167] Mobysoft GDPR Statement, Freedom of Information Request to North Tyneside Council, 17th March 2021
[168] Stockport Homes/Mobysoft Services Agreement, 21st September 2018, Freedom of Information Request to Stockport Homes, 30th March 2021

clause that claims the company is not a controller.[169] There is a distinct possibility that the stricter rules that apply to controllers should be, but are not being followed, under the terms of Mobysoft's contracts whereby responsibility is vacated to the social landlord.

As the data analytics company with professed expertise in information management, Mobysoft operates on an asymmetric playing field to local authorities when it comes to rules around data protection. Public and quasi-public bodies that allow private companies to contract away their data protection responsibilities put people's privacy at risk by absolving them of legal responsibilities they may otherwise have.

Despite claiming to solely be a data processor, a contract clause gives Mobysoft the right to retain anonymised, aggregated data that derives from their predictive software.[170] The clause allows the company to use this retained data for statistical analysis, publishing industry figures, reporting on benchmarking and to develop and enhance Mobysoft products, but the uses of this information are non-exhaustive. This means that as well as charging social landlords tens of thousands of pounds a year, the analytics company also extracts valuable data it uses to further its own ends. As part of the procurement process Charnwood Council put a set of questions to Mobysoft, one which raised the prospect of the contract being a de facto sale of their data to a third party.[171]

ii) Anonymisation and privacy

More than 1.6 million people's data is being aggregated and used by Mobysoft for its financial gain without their informed consent, with the company claiming that it is anonymised so there is no GDPR risk. Mobysoft claims that all personally identifiable information is removed during the anonymisation and aggregation process but this has not been independently verified and true anonymisation of personal data such as this is notoriously challenging.

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[169] Charnwood Contract With Mobysoft, 21st October 2019, Freedom of Information Request to Charnwood Council, 24th February 2020
[170] Stockport Homes/Mobysoft Services Agreement, 21st September 2018, Freedom of Information Request to Stockport Homes, 30th March 2021
[171] Charnwood Contract Queries to Mobysoft, 24th February 2020, Freedom of Information Request to Charnwood Council, 24th February 2020

1.6 Million People

Surveilled by Mobysoft without their knowledge or their consent

There is also a privacy risk in the process of data being transferred from social landlords to Mobysoft's servers as the information is neither anonymised nor pseudonymised at this point. Rather than just the transaction details required by RentSense's predictive algorithms, a huge amount of personally identifiable data is sent to the company's cloud.[172]

Rather than use anonymised or pseudonymised information to increase privacy protections, the connection of names and addresses to financial details is principally to save staff time. The North Tyneside DPIA said names are sent so lists "identify the tenant without having to go into the account on Northgate [the Housing Management System]". It is simply a decision to make social landlord's lives easier even though the personally identifiable information is not needed for the data processing at the core of RentSense.

Nevertheless, the North Tyneside DPIA is more detailed than the report completed by Lambeth Council which is derisory enough to say that RentSense does not engage in profiling. This is despite Mobysoft marketing RentSense as "able to accurately profile tenants after just three payment cycles" and the GDPR defining profiling as automated personal data processing that evaluates certain things about an individual, including their economic situation or behaviour.[173] There is a real prospect that local authorities and data processing companies are failing to appropriately apply data protection definitions and laws, and that millions of people are being subjected to intrusive data processing every time they pay their rent without proper consideration of the risks that can pose.

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[172] North Tyneside RentSense DPIA, 29th March 2018, Freedom of Information Request to North Tyneside Council, 17th March 2021
[173] Lambeth Council RentSense DPIA, 12th September 2019, Freedom of Information Request to Lambeth Council, 31st March 2021

iii) Legal justifications for data processing

Mobysoft requires landlords to conduct DPIAs in its contracts.[174] Despite this, Big Brother Watch has only had been able to obtain two DPIAs relating to RentSense, in which contractual processing and consent appear to be the lawful bases relied on to legally justify the use of the algorithm.[175][176] Lambeth Council merely states "contract" without giving further detail while North Tyneside expands and claims "as it is related to the management of rent accounts and collection of rent arrears this is explicit in the terms of the tenancy agreement", which could mean contract or consent.

It is questionable whether the use of contract as the legal basis for this processing complies with the ICO's guidance. The ICO says contractual processing must be a "targeted and proportionate step which is integral to delivering the contractual service or taking the requested action... The processing must be necessary to perform the contract with this particular person."[177] It is not obvious that third party predictive analytics are required to complete the contract, which relates to the provision of housing and the fact that RentSense is promoted as a financial boon to landlords rather than integral to delivering the contract i.e. providing housing casts doubt on the contractual basis of processing.

Claiming that informed consent has been given for data processing would an even weaker claim, particularly as tenants are generally unaware of the RentSense predictive system. Further, the ICO gives clear guidance that consent must be given freely and must be revocable.[178] With social housing being a product for financially vulnerable tenants[179] who often have little alternative for living arrangements, the consequence of refusing the terms of a tenancy agreement could be severe. Consent cannot be freely given in this situation..

Further ICO guidance states that for consent to be the lawful basis for data processing, clear guidelines must be given that are separate from the main agreement (such as a tenancy agreement) and without it, consent is not valid.

[174] St Albans Contract with Mobysoft, Freedom of Information Request to St Albans Council, 3rd February 2021

[175] Mobysoft Business Impact Assessment with Denbighshire Council, 2nd December 2019, Freedom of Information Request to Denbighshire Council, 3rd February 2021

[176] St Albans Contract with Mobysoft, Freedom of Information Request to St Albans Council, 3rd February 2021

[177] ICO Guidance on GDPR – Lawful Basis, Contract retrieved 23rd June 2021 https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/lawful-basis-for-processing/contract/

[178] ICO Guidance on GDPR – Lawful Basis, Consent retrieved 23rd June 2021 https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/lawful-basis-for-processing/consent/#ib4

[179] Lambeth Council RentSense DPIA, 12th September 2019, Freedom of Information Request to Lambeth Council, 31st March 2021

Nor is it valid if a person is not given detail about who will be processing their data and how it will be dealt with, and vague terms in a tenancy contract clearly do not provide the requisite detail.

Outside of the disclosed DPIAs, other social landlords appear to rely on broader legitimate interest justifications. Hull City Council cites public task under Article 6.1(e) to justify its processing, arguing that minimising arrears and identifying at-risk tenants is a key function of social housing.[180] Teign Housing also claims legitimate interest, arguing that it is in their interest to monitor arrears and income, and in its tenants' interest to not fall behind on their rent.[181]Clackmannanshire Council also relies on vaguely defined public task reasoning, with Saxon Weald Housing makes reference to contract and legitimate interest without specifying the exact legal basis for using RentSense in its privacy policy.[182][183]

Sandwell Council's consideration of data protection amounted to a one line statement that RentSense is in fact GDPR compliant.[184]

Legitimate interest has a stronger case to form a sufficient basis for processing, but the ICO requires that "the processing is necessary to achieve [the interest and must] balance it against the individual's interests, rights and freedoms."[185] Whilst processing may be seen as legitimate if it aims to reduce tenants' arrears, the use of third party mass data collection and predictive analytics may be deemed disproportionate for that aim. . Further, this argument relies on RentSense verifiably achieving that aim, as actually reducing rent arrears would be key to the legitimate interest.

It is not clear how further processing following significant failures of the algorithm, such as the one leading to Stockport Homes's discount or the declining contact rates in St Albans, can continue to support a legitimate interest justification when the system is not performing as required.
The unclear GDPR justifications for RentSense raises the question of whether there is a legal justification for this processing, and what it is. Without proper justification at a council level, social tenants are subjected to profiling and

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[180] Hull City Council Privacy Policy, retrieved 23rd June 2021, http://tiny.cc/ssqxtz

[181] Teign Housing Privacy Policy, September 2020, https://www.teignhousing.co.uk/privacy-notice/

[182] Clackmannanshire Council Fair Processing Notice, retrieved 23rd June 2021, https://www.clacks.gov.uk/housing/fairprocessing/

[183] Saxon Weald Housing Privacy Policy, retrieved 23rd June 2021, https://www.saxonweald.com/privacy/

[184] Report to Cabinet on RentSense, 5th February 2020, Sandwell Council http://tiny.cc/txqxtz

[185] ICO Guidance on GDPR – Legitimate Interest, retrieved 23rd June 2021https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/lawful-basis-for-processing/legitimate-interests/

surveillance on a weekly basis without a clear, accessible legal justification.

Transparency is a major issue and social tenants cannot be empowered to challenge potentially illegitimate data processes and profiling unless they are aware it is happening.

g) Universal Credit prioritisation and RentSense

Social tenants on Universal Credit are subjected to even greater levels of surveillance than their neighbours not on the benefit. The move to UC nationally is used as a selling point for Mobysoft, which tells councils that the new benefit system poses a threat to their financial health.[186] The system is developed specifically to allow tenants who claim Universal Credit to be targeted by additional contact and for them to be prioritised by the algorithm.[187]

RentText is the most explicit way that Mobysoft's system allows for tenants on UC to be singled out and treated differently to their neighbours. A landlord who chooses to use the text module can send reminder texts to every tenant on UC a few days before their benefits are paid and again on the day they are paid to remind them that they must pay their rent, regardless of whether that person is in arrears.[188] Clearly, people who receive UC are treated with suspicion by default.

Indirect discrimination can be lawful but there must be sufficient justification for this to be the case. Mobysoft and its clients point to supposed higher rates of arrears and greater contact requirements to justify singling out UC tenants for extra scrutiny. It is claimed that 89% of UC tenants are in arrears, a greater proportion than other social tenants, and that supporting tenants on UC costs more than support for tenants on legacy benefits, and this requires more spending on contact too.[189]

However, there is evidence that the cause for these greater arrears and the financial risk this creates for social landlords can be apportioned to the design of UC rather than tenant behaviour. A 2020 study by the Smith Institute looked at the role UC has played in rental arrears and found that the new benefit is designed in a manner that makes arrears much more likely to accrue.[190]

[186] Mobysoft RentSense Brochure, retrieved 23rd June 2021, https://cdn2.hubspot.net/hubfs/2639450/RentSense%20Brochure.pdf
[187] Mobysoft Supporting Your Switch to Universal Credit, retrieved 23rd June 2021, https://mobysoft.com/solutions/supporting-your-switch-to-universal-credit
[188] St Albans Council Optimisation Presentation, July 2020, Freedom of Information Request to St Albans Council, 3rd February 2021
[189] Mobysoft RentSense Brochure
[190] Falling Behind, The Smith Institute, 22nd July 2020

As UC is paid in arrears, tenants often suffer from short term cash flow problems which can lead to later rent payments and debts to landlords mounting up, especially when most people in that situation have little spare cash to begin with. Around 2 in 3 UC tenants underpay their rent in the first few weeks but the study found that around two months after a UC claim, arrears sit at around 5 % of the rent and decline to almost nothing by week 20.

This suggests that the initial delay in payment builds up a debt that is hard to repay, rather than ongoing issues with UC tenants not paying their rent. The Smith Institute study is focused on London but it is widely thought that the findings reflect the situation nationwide. It implies that UC tenants are not less likely to choose to pay their rent but instead structural issues in the benefits system lead to underpayment while claims are in their infancy. If this is the case, the justification for data processing and targeting UC tenants as ongoing non-payment risks due to their benefits status by Mobysoft or their landlord clients is questionable, and the possibility of indirect discrimination is serious.

h) Impact on Individuals

Mobysoft marketing materials report a drop in arrears and evictions following the introduction of RentSense at social landlords but the one-sided presentation of the software and the little available data on its failures make it hard to establish whether this impact is universal.

The added scrutiny of people on Universal Credit may have a detrimental effect on them, as rent-chasing texts from their landlord simply due to their benefits status may make people feel stigmatised for their socioeconomic situation.

i) Conclusion

RentSense is a prime example of the increasing surveillance that some of the poorest people in Britain are subjected to on a regular basis. More than 1.6 million people have their personal data processed and profiled by their landlord every time they pay their rent. The alternatives for them are few and far between.

The profiling happens without tenants' knowledge or consent; landlords often rely on unknown legal bases for the processing; while the private company that is given sensitive data about vast numbers of people places the responsibility for information governance mostly on the landlords. At the same time,

aggregated data about these individuals is extracted and can be used for the private company's economic gain. Tenants on Universal Credit are scrutinised even further with reminder texts and differential treatment that is justified by questionable interpretation of spiralling arrears figures that are more likely the fault of the benefits system rather than individuals.

Opaque predictive profiling as a condition of getting a social home cannot become the norm. Local authorities must be clear about their legal basis and inform claimants as to what data is being processed and how. Under the light of transparency, we believe it is likely that such predictive analytics will fail to be truly justified.

j) Recommendations

Recommendation 1: Local authorities must publicly explain their specialised surveillance of social housing tenants via RentSense, and absent a serious justification must cease use of the software.

Recommendation 2: Local authorities and contractors must only collect and process data where it is necessary for a legitimate purpose. In the case of RentSense, only the data strictly necessary for rent payments should be collected and processed – superfluous data that provides ease for operators is not justifiable.

Recommendation 3: Local authorities that use RentSense should reassess the controller-processor relationship as the definitions, and thus responsibilities, may be blurred.

Sophie Howes, Head of Policy - Child Action Poverty Action Group (CPAG)

The impact of the digital welfare state on children and families in poverty
The introduction of universal credit is one of the biggest changes to the UK social security system we have seen in modern times. Any change to the social security system comes with risks, as people going through difficult times, including children and families, are relying on it to get by.

Universal credit (UC) made sweeping changes to the support provided to people via the social security system, including a fundamental re-design of the way working age benefits are administered in the UK. One of the key changes is that UC is 'digital by default' – with the vast majority of UC claimants making and managing their claim online. Some of the systems responsible for administering UC are also automated – including how people's benefit is calculated.

UC has now been operational in the UK for eight years, and the system has dealt with unprecedented numbers of new claimants during the pandemic, partly because aspects of the system are automated. However, a recurring theme in the development and implementation of UC is the prioritisation of a digital system that works efficiently for the DWP and the 'ideal' claimant, over a system that accurately implements the law, is accessible for all claimants and is able to cater for the complexity of people's lives.

CPAG has been conducting research examining access to justice in universal credit, with a focus on the impact of digitalisation and what this has meant for the protection of claimants rights[191]. Through our research, including interviews with claimants, and evidence from our Early Warning System[192], we are building up a picture of a system that has been designed in a way which causes systematic errors in decision making in certain areas, and which prevents some claimants from fully understanding and exercising their rights.

Examples range from straightforward issues that could be addressed easily, such as inaccurate and unlawful information about appeal rights being provided to claimants[193] to much bigger challenges such as the recent 'assessment periods' legal case [194] - which resulted in the DWP having to make changes to the UC

[191] https://cpag.org.uk/policy-and-campaigns/computer-says-no-access-justice-and-digitalisation-universal-credit
[192] https://cpag.org.uk/policy-campaigns/early-warning-system
[193] https://cpag.org.uk/policy-and-campaigns/report/computer-says-no-stage-one-information-provision
[194] https://cpag.org.uk/welfare-rights/legal-test-cases/universal-credit-assessment-period-in-

computer system in order to make it lawful, after a long legal battle. This case concerned the way in which the monthly assessment period in universal credit deals with earned income, which has led to some claimants experiencing huge fluctuations in their universal credit payments making it difficult to meet their basic living costs. Despite the serious impact this issue has been having on claimants, during the case DWP tried to defend itself by pointing to the costs that would be involved in having to make changes to the automated system if the legal challenge was upheld.

These examples suggest that the technology involved in administering the digital welfare state risks taking precedence over the law as the foundation on which to build our public services. This means claimants' rights are not being protected, which we know can lead to children and families not having the resources to meet their basic needs as they do not receive the correct benefit entitlement. In the longer term, it signifies a worrying direction of travel, where the creation of the digital welfare state starts to erode long protected principles of the rule of law. Many parts of government are looking to technology to deliver faster and efficient systems, and it is clear that technology has the potential to improve many parts of public services. However, any further development of the digital welfare state in the UK must first and foremost comply with the rules set out in law, rather than treating them as an inconvenience or an afterthought.

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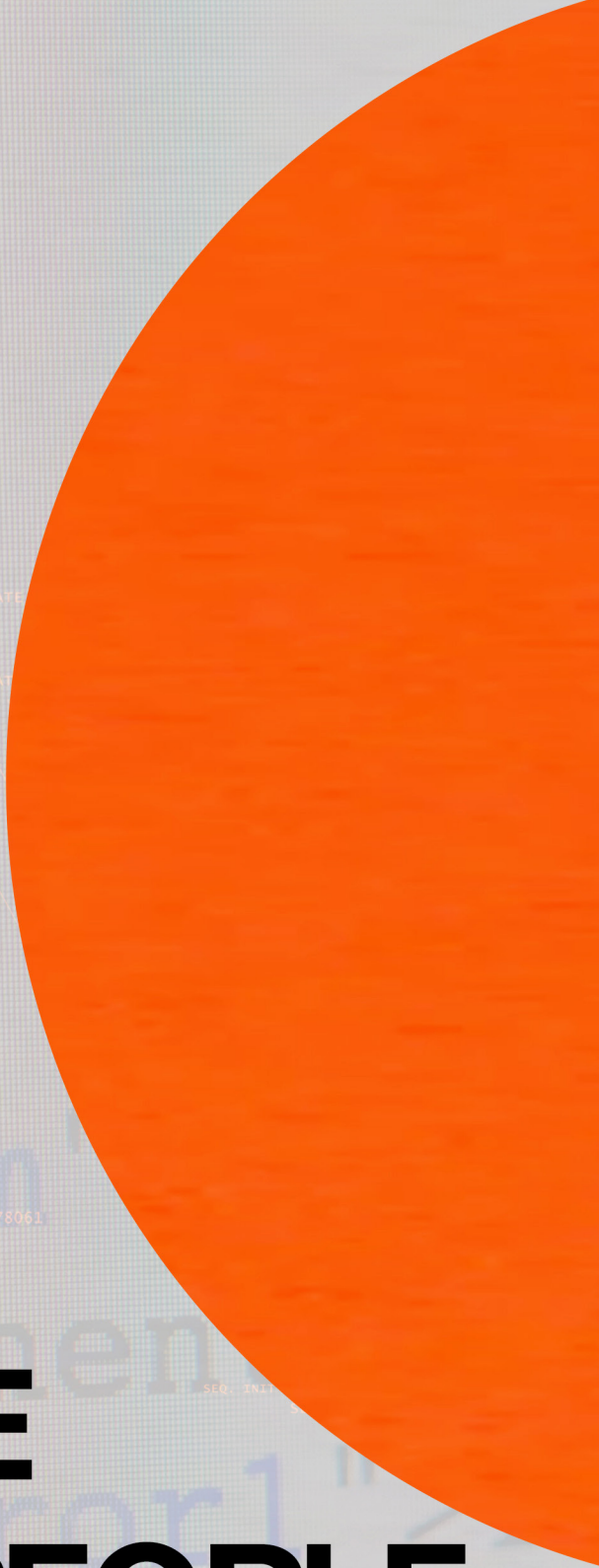
DIGITAL CARE
FOR OLDER PEOPLE

Digital Care for older people

With the social care funding gap running into the billions and the coronavirus pandemic requiring many older people to reduce their social contact, the shift towards digital care in the home has accelerated in 2020.[195][196] Many aspects of telecare offer significant advantages and can include fall alarms, either at the home level or personal alarms, and flood alarms that alert someone if a bath overflows. It can allow people a greater degree of independence and it can facilitate a vulnerable person staying in their own home longer than they may otherwise would.[197][198]

However, there is a balance between safety and the potential privacy infringements of increasingly remote and digital at home care that must be struck, but the debate over the role of digital technology in social care is still ongoing.[199] The rights and liberties of the people involved must be at the heart of any discussion, with the increasing sophistication of digital care solutions raising the prospect of private homes becoming inward facing panopticons all in the name of security. Even though digital tools may seem to be efficient, they are not always a suitable replacement for human care for vulnerable people.

During the pandemic, shielding policies and moves to limit the social contact of clinically vulnerable groups have led to many local authorities pushing telecare options with vigour.
Presented as an alternative to in-person care visits and a solution to allow fewer staff to achieve more, the particularly concerning expansions of telecare come in two categories. The first sees existing smart technologies such as Amazon's Alexa being adapted for social care and the second involves specifically developed tools for care that rely on digital rather than physical interaction to fulfil their duty.

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[195] Social Care Funding Gap, The Health Foundation, 11th February 2021https://www.health.org.uk/news-and-comment/charts-and-infographics/REAL-social-care-funding-gap
[196] Telecare Alarms and Sensors, Hackney Council, retrieved 23rd June 2020, https://hackney.gov.uk/telecare
[197] Age UK Telecare and Telehealth, , retrieved 23rd June 2020, https://www.ageuk.org.uk/information-advice/care/housing-options/adapting-home/telecare/
[198] Supported and Sheltered Housing Information and Advice, Newham Council, , retrieved 23rd June 2020 https://www.newham.gov.uk/housing-homes-homelessness/supported-sheltered-housing-information-advice/5
[199] Social Care Technologies For Older People: Evidence For Instigating A Broader And More Inclusive Dialogue, G. Toms, F. Verity, A. Orrell, Technology in Society, Volume 58, 2019

a) Alcove CarePhone Trials

Alcove, a British company, has signed a number of contracts with local authorities in the wake of the pandemic to install its CarePhone, including one to install the devices in 5,000 homes across Essex, Sussex and Kent.[200] The device is a video-enabled tablet computer that allows calls between the individual and their carers, family, friends and other approved numbers in a person's support network.[201] Analysis of this project will focus on Kent County Council who provided the most documents in response to our FOI requests.

Rather than having a full suite of capabilities the device is locked down to a limited set of functions for simplicity's sake and to remove the need for WiFi in the home as it is fitted with a SIM card. The company also offers a number of other products, such as glucose measures and in-home sensors, but at present they are not linked to the tablet in this 5,000 device project.

Use or a lack of use of the tablets is monitored by Alcove and the company is notified if the device is unused or is turned off, when it is then is either able to call the user or ask someone in their support network to do so. Information about this is then given to the council to make any changes to care plans. Significant amounts of other data are being gathered by the Kent County Council (KCC) project that is looking to use Alcove's CarePhones.[202]

Detailed call records, including time and date, length, type and who is called are all recorded by Alcove and given to KCC. Alcove is also given significant personally identifiable information about the care receivers who have a device, including their name, gender, contact details and information about their care provider.

Any friends or family who wish to contact a relative via the tablet are also required to log in through Alcove's online portal and provide their personal details to the company, including their name, phone number, email, IP address and analytics from their web browser.

The DPIA also suggests that significant amounts of sensitive data and information about vulnerable subjects will be collected and processed. Personally identifiable information will be visible on reports generated about the

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[200] Essex, Kent & Suffolk County Council's groundbreaking 5,000 Covid-19 Videocarephone Roll-out, 26th June 2020, https://www.youralcove.com/blogs/news/local-government-association-article-essex-kent-suffolk-county-councils-groundbreaking-5-000-covid-19-videocarephone-roll-out
[201] KARA DPIA Kent Council Council, Freedom of Information Request to Kent County Council, 22nd February 2021
[202] Ibid

Carephone project such as age, postcode and an identifier number - which could be enough for jigsaw identification. It is claimed that this is needed for analysis and risk will be mitigated by encryption. The potential privacy risk is amplified by the vulnerability of the people who are the subjects of this trial.

Participation in the Carephone programme is optional. However, KCC says carers for individuals will "strongly recommend" accepting the tablet during the pandemic. The asymmetry of power in this situation should be noted when considering the freeness of the consent around sensitive data gathering, especially when taking into account the vulnerability of the would-be service users.

Surprisingly, KCC is relying on public task rather than the consent of individuals as the legal basis for the processing, noting the public health exemption for special category data. If consent is not the main justification for processing it begs the question why it is sought at all, or if the council could act against someone's wishes. How details about privacy are communicated are also concerning, with individuals being given a summarised privacy notice while being directed to the full notice online. These online documents are complete but the signposting to the internet fails to acknowledge the digital divide and sits incongruously with the idea that the tablets are designed not to need a WiFi connection. There is a real possibility that someone given a Carephone may not be able to access to the internet and could struggle to access the full privacy notices.

Although the tablets are aimed at those with lower care needs, mostly people needing fewer than 10 hours per week of care, there is an obvious risk from the digitisation of care. KCC is explicit in stating it plans to use the tablets to slash in-person visits and it will benefit staff by "reducing travel time and unnecessary visits", while allowing more to be done with fewer staff. However, remote care is not a substitute for in-person contact and digital care solutions could even provide an excuse to justify the vulnerable foregoing genuine social contact.[203]

Meanwhile, studies into adults suffering from chronic pain found that telecare should serve to augment rather than replace in-person care for it to benefit the individuals.[204] KCC's project appears aimed at substituting remote contact for real contact all in the name of COVID safety without clearly accounting for the real harms of social isolation. There is also an assumption that more frequent

[203] Granny And The Robots: Ethical Issues In Robot Care For The Elderly, Sharkey, A., Sharkey, N. Ethics and Information Technol 14, 2021
[204] Social Isolation And The Perceived Importance Of In-person Care Amongst Rural Older Adults With Chronic Pain: A Review And Emerging Research Agenda, A Mort et al, January 2014, Journal of Pain Management. 7(1):

digital interactions would provide benefit over fewer real world interactions, something this is unproven.[205]

Alcove's data gathering from a less technologically engaged and more vulnerable group of people is concerning. Unless it can be proven that people fully understand the data they are allowing a private company to collect about them, there must be much more scrutiny over the placing of tablets in the homes of social care users.

b) Amazon Alexa as Social Care

Some local authorities, such as Hampshire Council are using Amazon Alexa devices as a social care solution. The project involves both ordinary use of the devices and the development of bespoke apps to work in a social care setting.

The intrusion of one of surveillance capitalism's biggest players into the homes of vulnerable people and the lack of added protections in light of this is alarming. Hampshire County Council documents show that the person receiving care was required to set up an Amazon account to use a device, which was provided by the authority's care technology outsourcer, Argenti.[206]

> **The intrusion of one of surveillance capitalism's biggest players into the homes of vulnerable people and the lack of added protections in light of this is alarming.**
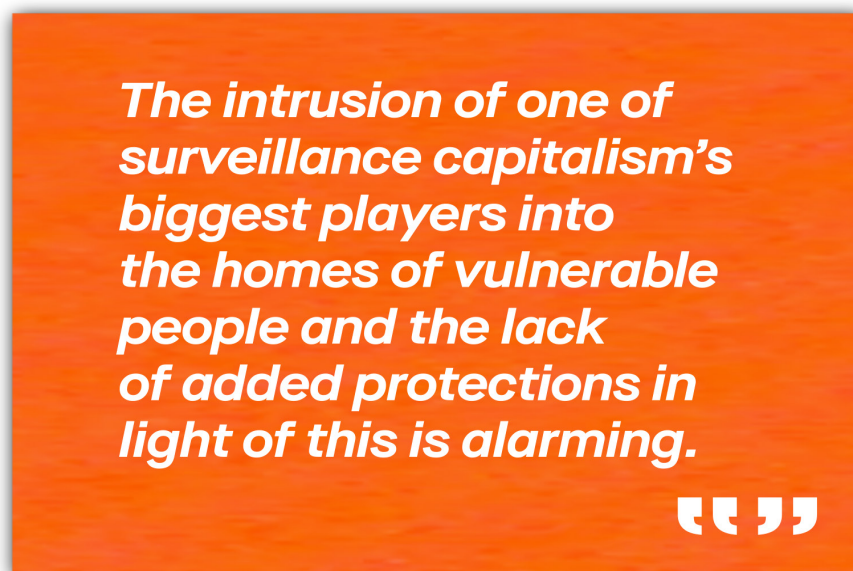
Rather than trying to work with Amazon to create a special category of account that would have higher data protection standards for what could be a vulnerable cohort, the council and its contractor instead say they stay out of the relationship

205 KARA DPIA Kent Council Council, Freedom of Information Request to Kent County Council, 22nd February 2021
206 Amazon Alexa Telecare DPIA, 2019/20, Freedom of Information Request to Hampshire County Council, 1st March 2021

between Amazon and the individual receiving care.
The four supposed benefits of the smart devices are:

1. Reminders and appointment planning
2. Contacting friends and family
3. Reduce levels of social isolation
4. Controlling lights and other appliances

The DPIA even concedes that data given to Amazon by an individual could be used for marketing purposes, although the council does offer mitigation by saying they work to make sure a service user understands what data flows to Amazon through an information sheet. On the sheet it warns people that Amazon may use the data for marketing purposes but refers a user to Amazon's 4,000 word privacy policy for more details. It is widely known that few people have the time or qualifications to read and understand privacy policies in full, so the sufficiency of merely pointing people to an online document is questionable.[207]

There is also the potential for voice-assistant based care to become less accessible for people with accents outside of the majority. Many voice recognition tools struggle with ethnic minority voices and incorrect comprehension could be a serious issue in a care setting.[208] The UK's diversity of strong regional accents could likewise pose problems for speech recognition and if a vulnerable person's primary portal into the world does not easily understand them, they may be more isolated than ever.

c) Impact on individuals

Whilst promising benefits, particularly during the height of the pandemic, telecare has the potential to usher in a low-contact, high-tech form of social care that may also have a negative impact on individuals if protections are not in place.

The replacement of in-person care with a video tablet represents a major lifestyle change for the individuals involved.

There are clear privacy risks, in particular with the use of Amazon Echo, as privacy policies are inaccessible and inflexible, and individuals risk losing the freedom to interact with others without monitoring or data collection by a third

[207] Does Anyone Read Privacy Notices? The Facts, Linklaters, retrieved 23rd June 2021 https://www.linklaters.com/en/insights/blogs/digilinks/does-anyone-read-privacy-notices-the-facts
[208] Racial disparities in automated speech recognition Allison Koenecke, Andrew Nam et al, 7th April 2020, Proceedings of the National Academy of Sciences 117 (14)

party.

d) Conclusions

Telecare has the potential to improve the lives of a large number of people who receive social care by facilitating their independence and making processes in the home easier. However, there are significant ethical and data privacy concerns that require greater consideration. Installing technological solutions in the homes of vulnerable people that have the capability to monitor them and their behaviour is not an action that authorities should take lightly and the dignity of care clients, as well as their right to privacy, must be respected.

From this small-scale analysis of some of the newer telecare solutions, local authorities should take a step back and consider whether they can minimise the amount of data collected and processed to make sure that there is not an unnecessary data burden placed on care users, their friends or families. More effort should also be made to make privacy implications accessible. Complex multi-thousand word documents will not be read and cannot be seen as a valid method for explaining the potential privacy risks of the technology, especially when written by private companies with motives to collect sensitive personal information.

e) Recommendations

Recommendation 1: Local authorities should seek to minimise data collection associated with telecare to that which is necessary for the legitimate purpose, and avoid partnering with technology providers who are unwilling to minimise data collection. Further, privacy policies must be made clear and accessible for vulnerable users.

Recommendation 2: It is important that individuals are empowered to choose which care options in the privacy of their own homes are best for them. The legal basis for telecare should be the user's consent, and monitoring technology should not be used as a default alternative to in-person care.

6

PREDICTIVE ANALYTICS TOOLS

Predictive Analytics Tools

Predictive algorithms are being used more and more frequently by local authorities across a number of policy areas, from child welfare and criminal exploitation to homelessness and the risk of socio-economic harm from the coronavirus pandemic. The sophistication of these tools also varies with some being little more than a basic sum of relevant risk factors, while others contain propensity models and the most complex introduce aspects of machine learning to allow the predictive systems to train themselves.

Despite the diversity of purpose, the underlying workings of these predictive systems are broadly similar. They analyse large quantities of data and identify patterns within it in order to flag people or families who are at risk of some specific harm. All rely on significant quantities of data being processed and raise some worrying ethical concerns.

a) Policy in Practice's Low Income Family Tracker (LIFT)

Developed by self-professed 'social policy software' makers Policy in Practice, the Low Income Family Tracker [LIFT] uses a predictive model to identify the families most vulnerable to a host of issues related to poverty in an area.[209] The most significant use of the tool to date has been as part of Newcastle's Homelessness Trailblazer but a number of other councils have used it to map poverty changes and identify financially precarious households who may need support based on internal authority data.

Croydon, Haringey, Cornwall, Camden and Reading are among the other councils known to use LIFT's predictive analytics for a number of projects, including proactive intervention on debt and to provide healthy eating vouchers to families. Much like predictive policing seeks to identify those who may commit crime, LIFT seeks to identify the financially vulnerable "proactively".[210]

Some of the language goes so far as to suggest it is a general financial surveillance tool for many families in poverty, with Newcastle City Council's user guide being titled "Track your Residents" and Policy in Practice's (PiP) own marketing videos saying the tool can "track" household changes.[211] There is already a social stigma in the UK around benefits and to subject people to

[209] Policy in Practice Policy Dashboard, retrieved June 23rd 2021 https://policyinpractice.co.uk/policy-dashboard/
[210] Ibid
[211] Policy in Practice User Guide, Freedom of Information Request to Newcastle City Council, 11th February 2021

profiling purely based on this status may well entrench this further.[212]

I) How it works

Extensive household level data is shared with PiP for processing. The Single Housing Benefit Extract (SHBE) is the core dataset used by LIFT but local authorities may also transfer information about council tax support, discretionary payments, benefit arrears and overpayments, universal credit as well as waiting list and rent information from arms length housing associations.[213][214] The data is anonymised but later visualisations can display at-risk households geographically, which may undermine anonymisation and make re-identification easier for those determined to do so.

After the data is given to PiP it is analysed in an opaque way to produce a dashboard that generates analytics around financial vulnerability in a local authority area. A number of on-screen filters allow for a range of cohorts to be identified through the dashboard, including disability, age group, employment status, household type and tenure in the home.[215] Lists of households based on given criteria can also be downloaded by council staff, such as people flagged as in financial crisis. An estimated 107,000 people's data has been processed by LIFT across the six councils who have used the product.[216]

As with many other high-tech tools sold to local authorities, the inner workings of LIFT remain a black box and it is not clear how PiP analyses data to then predict households who may or may not be at risk of homelessness or other financial vulnerability. Some form of profiling occurs but little more information is known about the algorithm processing the data.[217]

LIFT works to identify which households are suited to intervention; however, if workers only rely on LIFT flags to offer help, decisions to intervene may be largely automated and families missed by the tool could not receive vital support.

Housing Benefit (HB) reference numbers appear to be the identifier used for households within the LIFT system.[218] Following identification by the system as

[212] Universal Credit, Ubiquitous Conditionality And Its Implications For Social Citizenship, Peter Dwyer and Sharon Wright, February 2014, Journal of Poverty and Social Justice 22(1),
[213] Ibid
[214] Freedom of Information Request to Cornwall Council, 11th March 2021
[215] Policy in Practice User Guide, Freedom of Information Request to Newcastle City Council, 11th February 2021
[216] Estimate based on the total number of housing benefit recipients across the six user-councils according the the Government's Stat-Xplore service.
[217] LIFT Data Protection Impact Assessment, Freedom of Information Request to the London Borough of Haringey, 17th March 2021
[218] Policy in Practice User Guide, Freedom of Information Request to the London Borough of Cam-

meeting the criteria for intervention by a local authority, the HB number is then used to match the household to the individuals within it in order for council staff to get in touch.[219]

Not all councils using LIFT gave us details of what flags may be associated with households in response to our Freedom of Information requests, but common labels from Haringey and Reading give some insight into this process. The four broad categories are:[220]

1. In Crisis - Household take-home income is not enough to meet only their rent and their Council Tax liability and they do not have enough savings to meet 3 months' worth of expected expenditure.
2. At risk - Household take-home income is less than their expected expenditure, and they do not have enough savings to meet 3 months' worth of their expected expenditure. "At risk" in this context means they are getting mathematically very close to the "In crisis" category.
3. Struggling - Household take-home income is between zero and £100 greater than their expected expenditure and they do not have enough savings to meet 3 months' worth of expected expenditure.
4. Coping - Household take-home income is greater than expected expenditure by over £100. Or household take home income is less than £100 above expected expenditure and they do have 3 months' worth of savings.
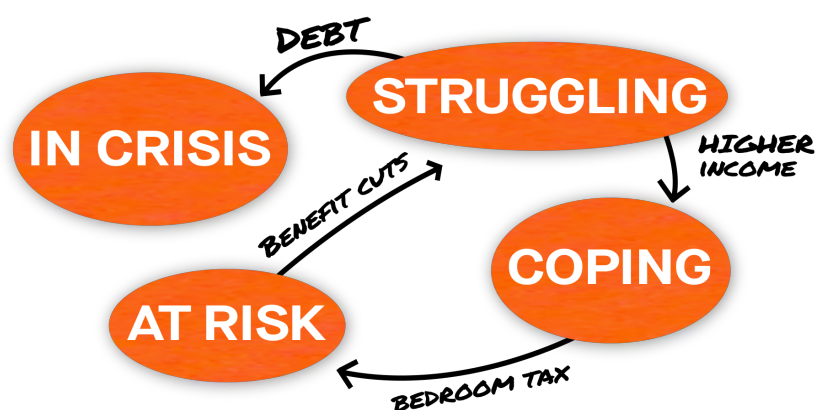
How people can move between risk categories

Separately, Cornwall said it used LIFT to identify four cohorts it wished to offer support to: lone parents in crisis, self-employed people with children, disabled people in crisis and pensioners in fuel poverty.[221]

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den, 8th March 2021

[219] LIFT Method Statement, Freedom of Information request to Newcastle City Council, 11th February 2021

[220] Freedom of Information Request to Reading Council, 24th March 2021

[221] Business Case, Freedom of Information Request to Cornwall Council, 11th March 2021

Following identification, the form of intervention that takes place varies between local authorities and the issues they are using LIFT to address. Newcastle and Reading contact households by letter, and follow this up with phone calls and home visits if there is no response. Meanwhile, Camden said it uses LIFT on an ad hoc basis to offer support when needed rather than as part of a wider program.

Newcastle City Council's approach to the consent of data subjects is worrying as the authority admits it may recontact households who opt out of receiving support, requiring households not just to opt out of support but to explicitly demand they not be contacted before council staff will leave them alone.[222]

ii) Equalities implications

The predictive value of different pieces of information collected by PiP is kept secret, so it is difficult to to evaluate how data is used and how this could impact marginalised groups. As outlined in detail in the chapter on Risk Based Verification, there is an over-representation of women and disabled people among those who claim some benefits, including Housing Benefit.[223] Haringey Council's DPIA strongly implies that benefits and rent data are used in the predictive model.[224] This kind of information is vital in assessing financial vulnerability and the potential impact of welfare reform on individuals so it is a reasonable assumption that this information would be used during profiling of low income families. Even if the intent of the data processing is noble it is vital to take into account the potential for bias and indirect discrimination in the outcome.

Postcode data is also sent to PiP but it is unclear whether it is only used for geographical mapping or for profiling, with DPIAs giving mixed information. Postcodes can be a broad proxy for race, a protected characteristic, so if postcode data is used in modelling there is a clear risk that the analysis could have a biased output.[225] The geographical mapping element of LIFT must also be used with caution as not to leave behind areas with a lesser density of households flagged as being at risk, which could translate into an inequitable offer of help where some miss out and some are afforded resources.

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[222] LIFT Method Statement, Freedom of Information Request to Newcastle City Council, 11th February 2021

[223] No DSS: Second Shelter court case confirms disabled dad-of-four was discriminated against for receiving housing benefit, 9th September 2020, https://england.shelter.org.uk/media/press_release/no_dss_second_shelter_court_case_confirms_disabled_dad-of-four_was_discriminated_against_for_receiving_housing_benefit

[224] LIFT Data Protection Impact Assessment, Freedom of Information Request to the London Borough of Haringey, 17th March 2021

[225] Using Data To Combat Bias Against Ethnic Minorities, Centre for Data Ethics and Innovation, 3rd December 2020 https://cdei.blog.gov.uk/2020/12/03/using-data-to-combat-bias-against-ethnic-minorities/

Camden Council said it may begin to use ethnicity data in LIFT in order to track the impact of welfare reform across different groups in the area.[226] This suggests it is possible to monitor protected characteristics within the model, even though none of the local authorities we sent FOI requests about LIFT to produced any equalities monitoring reports. It is therefore difficult to tell whether the flagged cohorts are representative of the areas they inhabit or just of those visible to the council in its existing datasets.

iii) Data processing

As one of the main purposes of LIFT is to identify households not in regular contact with local authorities, councils are relying on a legal basis other than consent to justify PiP's profiling of their financially vulnerable residents.[227][228][229][230] Public task is used either explicitly or implicitly by every local authority who disclosed their justification for data processing.[231] In recent years new legislation has placed increasing duties on councils to improve socioeconomic wellbeing[232] and to reduce homelessness,[233] and these duties are cited as the basis for non-consensual data processing, in addition to earlier laws facilitating information sharing around welfare services.[234]

The litany of duties placed on councils around socioeconomic wellbeing clearly relates to their use of LIFT's profiling, but for such duties to provide legal justification for the processing it must be "necessary" to the task, which the ICO also takes to mean targeted and proportionate.[235]
A good metric for proportionality in processing can be the number of people identified in relation to the number whose personal data is analysed.

Reading Council has completed two campaigns with LIFT (another is ongoing) and has identified 43 households across the borough, only 5 of which received extensive support with a further 4 being given "signposting". More than 7,000

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[226] LIFT Data Protection Impact Assessment, Freedom of Information Request to the London Borough of Camden, 8th March 2021
[227] LIFT Data Protection Impact Assessment, Freedom of Information Request to the London Borough of Haringey, 17th March 2021
[228] LIFT Method Statement, Freedom of Information request to Newcastle City Council, 11th February 2021
[229] Business Case, Freedom of Information Request to Cornwall Council, 11th March 2021
230 LIFT Data Protection Impact Assessment, Freedom of Information Request to the London Borough of Camden, 8th March 2021
[231] Ibid
[232] Digital Economy Act 2017, Part 5 Chapter 1 Section 35
[233] Homelessness Reduction Act, Part 4
[234] Social Security Regulations 2012 Part 3 Sections 5, 6 and 7
[235] ICO Guidance on GDPR – Lawful Basis, Public Task, retrieved 23rd June 2021 https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/lawful-basis-for-processing/public-task/

people are on Reading's Single Housing Benefit Extract and if all of these individuals data was used in the LIFT analysis, fewer than 0.1% were flagged by the model as needing support in line with the council's request.[236]

Cornwall Council has more than 48,000 households on its Housing Benefit and Council Tax Support databases but a 2020 "targeted campaign" using LIFT resulted in only 50 discretionary benefit payments, with 150 homes sent leaflets, a hit rate of a little over 1 in 1,000.[237]

Croydon Council used LIFT to run healthy eating campaigns and statistics from the last two campaigns found an additional 643 households began to receive Healthy Start vouchers and 426 households received help around healthy homes advice and funding.[238] There are at least 19,000 people on Croydon's housing benefit extract which suggests a success rate of around 5% of people profiled. However, the Healthy Start vouchers are based on receiving certain benefits, information that would have already been in the dataset given to PiP, so the better success rate is predicated on LIFT flagging people who the council should already have been aware of. This suggests that instead of offering complex analytics, some of LIFT's modelling does little more than put a data science veneer over simple tasks.

There are questions to be answered around the proportionality, and by extension the necessity, of LIFT's profiling. Thousands upon thousands of people's personal data is processed with sensitive conclusions drawn about their lives for either little success or insights that should already be apparent. Proportionality in data processing is important to respect an individual's privacy and the seeming imbalance between the number of people profiled and the outcomes make it hard to argue that the processing is indeed necessary for the public task.

The privacy risk is compounded by the limited steps to protect what is highly sensitive data and local authorities cannot agree if LIFT takes sufficient steps to protect identities. The information from user-councils is unclear, with both Camden and Newcastle claiming that the HB number is sufficient pseudonymisation and Cornwall Council stating that the databases are pseudonymised without outlining how. Haringey Council states that full pseudonymisation is not possible as other datasets are matched with the same identifier it uses within LIFT.[239][240][241]

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[236] Freedom of Information Request to Reading Council, 24th March 2021
[237] Freedom of Information Request to Cornwall Council, 11th March 2021
[238] Freedom of Information Request to Croydon Council, 16th March 2021
[239] Business Case, Freedom of Information Request to Cornwall Council, 11th March 2021
240 LIFT Method Statement, Freedom of Information request to Newcastle City Council, 11th February 2021
[241] LIFT Data Protection Impact Assessment, Freedom of Information Request to the London Bor-

It is not clear if Haringey uses HB numbers or another identifier but the council concedes either way that the datasets transferred are identifiable. Even though some personally identifiable information is removed, postcodes and dates of birth remain. Other councils, such as Cornwall, also leave postcodes and birthdays in the dataset.[242] These pieces of information may be enough to identify an individual.

The London Borough of Camden admits it would like to go further and include the most identifiable columns from the Single Housing Benefit Extract (SHBE) without redaction in order to aid council staff in identifying the flagged households more easily.[243] It is concerning that the council is willing to create an even larger risk to privacy purely for the sake of ease.

Data retention is another potential problem with council's use of LIFT, with Haringey Council's DPIA conceding that information on individuals is held for 6 years after they cease to engage with the service, with no concrete policy to ensure this is not longer. PiP keeps data for 6 months after councils end their contracts with the company.[244][245] The purpose of the data retention is already questionable and there appears to be little justification for holding onto it for more than half a decade after a household stops working with the council. Data protection law requires that information is not held for longer than necessary and there is no justification in the Haringey DPIA as to why the data is held for so long.[246]

iv) Impact on Individuals

Self-reported council data shows only minimal positive impact on individuals as few are offered extra support that they otherwise would not have received. Despite little evidence of unique benefits, LIFT has a significant privacy impact with the processing of personal data used in mass-profiling to identify families, often without their knowledge. Due to local authorities' lack of transparency, understanding the full impact on people's lives is difficult.

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ough of Haringey, 17th March 2021
[242] Ibid
[243] LIFT Data Protection Impact Assessment, Freedom of Information Request to the London Borough of Camden, 8th March 2021
[244] LIFT Data Protection Impact Assessment, Freedom of Information Request to the London Borough of Haringey, 17th March 2021
[245] Data Sharing Agreement with Policy in Practice, Freedom of Information Request to the London Borough of Haringey, 17th March 2021
[246] ICO Guidance on GDPR – Storage Limitation, retrieved 23rd June 2021 https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/principles/storage-limitation/

v) Conclusions

The motivation of local authorities to use LIFT is creditable. However, there are questions as to the legal justification for the use of a tool that processes so much sensitive data for what appears to be relatively simple risk-flagging, with little transparency and poor efforts to maintain individual privacy. Proportionality is a vital principle in data processing but it appears that the data quantity for each positive result is astronomical, while authorities have lax pseudonymisation processes that risk jigsaw identification.
Profiling for the greater good is not a carte blanche to survey the private finances of society's poor. Much more clarity on the legal bases relied on, as well as adherence to data protection laws, is required.

vi) Recommendations

Recommendation 1: Local authorities should suspend their use of LIFT unless greater justification for the significant data processing can be made. The results uncovered by Big Brother Watch show very limited utility.

Recommendation 2; If authorities do find the use of LIFT justified, data protection practices must be improved including more robust pseudonymisation and strictly necessary data retention policies.

b) Bristol City Council's Children's Analytics

Bristol City Council uses predictive analytics and models across a range of issues relating to children's wellbeing and welfare. The Child at Risk of Sexual Exploitation (CSE) Model is the most technologically sophisticated and involves fully fledged predictive analytics; the Risk of NEET (Not in Education, Employment or Training) Model also uses predictive algorithms; while the risk-scoring Child at Risk of Criminal Exploitation (CCE) Model does not yet use the predictive analytics technology.[247]

The three models come under the Think Family' approach, used by Bristol's Troubled Families programme which has been tasked to work with 4,200 families in a five year period across six broad "problem agendas" - crime, education, domestic abuse, health, child safeguarding and financial exclusion.[248] It is families who fit these categories whose data will be combined in the Think Family

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[247] How Your Data is Used in Modelling, Bristol Council, retrieved 23rd June 2021 https://www.bristol.gov.uk/documents/20182/34776/How+your+data+is+used+in+modelling.pdf/43ae9119-4402-48bb-eeb9-cb14ef70e9cf
[248] Bristol Council Troubled Families Scheme, retrieved 23rd June 2021 https://www.bristol.gov.uk/policies-plans-strategies/the-troubled-families-scheme

systems for analysis.

Although the three models address linked, but similar issues, they will be addressed together as they are run by the same team and are all risk models of varying sophistication that inform decisions by council staff to intervene and offer support to families.

i) Data sources and functions

Both internal council databases and external datasets provide information for the Think Family models, including those in the tables below.[249]

Internal:	External:
● Xvault – School attendance and exclusions data ● EYES – educational setting data ● Abritas – housing data ● Civica – housing data ● LAS – adult social care data ● LCS – Children's social care data ● EHM – Early intervention data	● DfE School census – school attendance ● Niche – Police crime recording system ● STORM – Police crime response system ● PINS – Prison database ● DWP – Unemployment data ● NHS – Patient registration data

There are at least 30 public sector sources that provide data points in the system with the information being stored in a data warehouse.[250] This spans across more than 40 social issues, from information on benefits and teenage pregnancies to a parent's alcohol use and mental health conditions. It is not clear whether this is maintained in a binary fashion with a yes/no indicator or whether the information is less structured. It is also understood that some data is bought from third parties, such as the credit reference agency Experian.[251]

Matching algorithms, which work to identify the same person across subtly different records such as where middle names are missing, are used to match data from different sources to try to remove duplicates and link new and existing entries. For example the name Mohammed has a number of different spellings that a simple data match may see as discreet individuals, so a Mohammed Amir and Muhammad Amir with the name birth year and address could be viewed as two people, whereas matching would suggest they are the same person with different spellings of their first name across different records.
For the CSE model the data is analysed and children are given an initial risk

[249] Freedom of Information Request to Bristol Council, 18th January 2021
[250] Data Scores As Governance: Investigating Uses Of Citizen Scoring In Public Services, Lina Dencik, Arne Hintz, Joanna Redden and Harry Warne, Data Justice Lab, Cardiff University, December 2018
[251] Ibid

score based on known risk factors in police data before being processed by a predictive algorithm, which flags children and families based on those who have been identified by council staff as suffering from CSE in the past. These are both combined to produce a final risk score which is used to inform council intervention.[252]

The NEET model takes data from educational systems to identify which young people were out of work or training in the past and then the algorithm identifies children who may be at risk of being out of work when leaving education based on these prior cases, assigning them a risk of NEET score.[253] There are future plans to share these scores with schools for intervention in educational settings.[254]

Although the CCE model does not use predictive analytics it still generates a risk score for children. Young people are scored against a number of known risk factors for criminal exploitation as outlined by the police and a general risk score is then calculated and used by Bristol council staff to intervene before criminality can take place. The council claims it does not have sufficient data on criminally exploited children to have developed a predictive model to use in addition to the risk scores.

Like many other risk scoring and predictive systems, the intricacies of the tool remain sealed inside a black box. The exact risk factors used to generate a risk score are not known and although it is implied that the predictive portion is similar to a propensity model the balance of this is kept secret and exactly how the data is processed is kept hidden. The result is a score between 1 and 100 and relates to similarity to the past training cohort made up of 2-3 years data.[255]

The council suggests that the model is cumulative, simply totting up risk factors and balancing them rather than also taking into account mitigating factors that may reduce the risk of harm. To train the model, Bristol City Council used records of children who had been assigned an anti-sexual exploitation worker by children's charity Banardos, using their characteristics at the beginning of their work with the charity as the profile of peak risk to identify.[256]
Interviews by the Data Justice Lab suggest that council caseworkers are given

[252] How Your Data is Used in Modelling, Bristol Council, retrieved 23rd June 2021 https://www.bristol.gov.uk/documents/20182/34776/How+your+data+is+used+in+modelling.pdf/43ae9119-4402-48bb-eeb9-cb14ef70e9cf
[253] Ibid
254 Ibid
255 Data Scores As Governance: Investigating Uses Of Citizen Scoring In Public Services, Lina Dencik, Arne Hintz, Joanna Redden and Harry Warne, Data Justice Lab, Cardiff University, December 2018
[256] Goldstein Awards Application 2019, Insight Bristol, Bristol Council, retrieved 23rd June 2021 https://popcenter.asu.edu/sites/default/files/19-04_bristol_uk_insight_cse.pdf

both the predictive risk data alongside a range of other information from the data warehouse. It was clear that it is not just a high risk score that leads to intervention, as there is also consideration from the council worker before action is taken. [257] A data process map shows there is a front-end part of the database and data visualisations which are the products of the predictive models and it is likely that this is what the 450 or so staff who have access to the database see. As well as the 1-100 risk score there are text descriptions of the particular risk factors identified in a case and visual representations of different risk types, including CSE, missing person and conduct disorder, which are available to all staff who can access the Think Family database.[258]

The threshold for intervention through the Troubled Families programme is having two issues in the family across the six "problem agendas".[259] In addition to this the DPIA suggests that families who do not qualify for direct support, but may become more troubled if not helped, are also identified as part of a vaguely defined prevention strategy. Their data is shared with partner agencies in order to offer support that may include signposting to relevant services, advice, advocacy and implementing support plans.[260]

Data on 170,000 individuals was on the Think Family database in March 2016, and it is reasonable to assume that number has grown since.[261] A 2018 estimate said 54,000 families were included in the dataset across Bristol with the council having the capacity to intervene with 1,000 households annually.[262] Census data from 2011 suggests that around 44 % of Bristol households have children in them while 2018 figures estimate that Bristol has around 193,000 households, suggesting there are around 85,000 households with children in the city. [263][264] This would mean that the 54,000 families on the database make up around

[257] Ibid

[258] Ibid

[259] Information Sharing Agreement, Bristol Think Family, https://www.bristol.gov.uk/documents/20182/33900/Think+Family+information+sharing+schem/8fb12c2a-a7ee-4b1f-a368-890bc078a2bb

[260] Prevention and Early Intervention Strategy, Bristol Safeguarding Adults Board, April 2016, https://bristolsafeguarding.org/media/1269/final-1-bsab-prevention-and-early-intervention-strategy-april-2016-draftv2.pdf

[261] Think Family DPIA, Bristol City Council, July 2016 https://www.bristol.gov.uk/documents/20182/34776/Privacy+Impact+Assessment+Think+Family/6c164789-9474-46dc-b698-d199484fc697

[262] Think Family Database shows How Joining Up Data Can Add Value, Bristol Health Partners, 10 September 2018, https://www.bristolhealthpartners.org.uk/latest-news/2018/09/10/think-families-database-shows-how-joining-up-data-can-add-value/1124

[263] Bristol Council Household Composition Data from the 2011 Census, retrieved 23rd June 2021 https://www.bristol.gov.uk/documents/20182/34008/Key+Statistics+Household+Composition_0.pdf/1ae6b9e5-1fc0-4d6a-8183-99640dde2325

[264] The Population of Bristol, Bristol City Council, September 2020, https://www.bristol.gov.uk/documents/20182/33904/Population+of+Bristol+September+2020.pdf/69aa0aa1-290a-ccf2-ec4f-13a7376b41a8

63.5% of all households with children in Bristol, a huge proportion.

There is a strong implication that the CSE predictive model uses machine learning to train itself on new information as it comes in, with the DPIA stating the prediction is not just for predicting those at risk now but the data will be used in "establishing those people most at risk of also demonstrating these outcomes into the future".[265][266]

Many of the pieces of information that are used by the model are directly and indirectly linked to poverty. Predictive models based on past data can act as a mirror, flagging similar cases and missing atypical ones that may reflect a pattern of change in the future.[267] Unless the training and current data is truly representative of children who are at risk of harm, the self-teaching algorithm could embed bias from this dataset and lead to cases being missed.

ii) Accuracy

In a response to our FOI request, Bristol Council said that the CSE predictive model had a precision rate [the number of flagged families actually needing intervention] and a recall rate [the number of families flagged out of all of those who should have been] of around 80 %.[268] Another FOI by the Data Justice Lab (DJL) found that Think Family claimed a 69 % precision rate and 94% recall rate in relation to a target cohort.[269]

Bristol Council said that both the precision and recall rates are at around 80 % (78.91% precision and 80.41% recall) meaning that the predictive model misses 1 in every 5 families in need of help and 1 in 5 of those flagged does not need it at all.[270]

1 in 5 children on the Think Family database

are **wrongly** classified as being at risk of harm.

[265] Think Family DPIA, Bristol City Council, July 2016
[266] Goldstein Awards Application 2019, Insight Bristol, Bristol Council, retrieved 23rd June 2021 https://popcenter.asu.edu/sites/default/files/19-04_bristol_uk_insight_cse.pdf
[267] Bias In, Bias Out, Sandra G. Mayson, June 2019, Yale Law Journal 128(8),
[268] Freedom of Information Request to Bristol Council, 11th February 2021
[269] Data Scores As Governance: Investigating Uses Of Citizen Scoring In Public Services, Lina Dencik, Arne Hintz, Joanna Redden and Harry Warne, Data Justice Lab, Cardiff University, December 2018
[270] Freedom of Information Request to Bristol Council, 23rd June 2021

The accuracy rates from the DJL are the same as those on a 2019 awards application by InsightBristol, the council's analytics unit.[271] The explanation of the recall and precision rates appear to imply a degree of circularity as it is measured against a target cohort made up of the same children with a Barnado's Against Sexual Exploitation (BASE) worker who were used to train the model. There is no examination of the 31% of children identified who did not have a BASE worker and whether their CSE risk factors translated into a genuine risk of harm that required intervention - if all these families were flagged and the risk of harm was minimal this is a significant number of false positives.

There is little independent review work on the performance of predictive models in children's social care as most algorithms are kept secret, with the main technical study coming from a project called What Works for Children's Social Care (WWCSC). The researchers built their own models using real council data to test the potential for predictive analytics identifying children at risk of harm. They found that often accuracy rates can be overestimated when large numbers of children who are obviously not at risk are included, because they are easily identified as this by the model.[272]

Keeping false alarms low and not missing children who are at risk are the key performance indicators for predictive modelling, rather than getting thousands of obvious cases correct. With the Think Family database holding information on around two thirds of Bristol's families, it is likely that there are a significant number of families who are not at risk of harm whose data is held in the system. Accuracy rates must be evaluated with this in mind.

The WWCSC report gave a damning evaluation of the prospects of machine learning providing much utility in a social care setting, and it found it would be "very challenging" to build a model that works well in predicting children's social care outcomes.[273] This was despite enlisting significant expertise in data and modelling to attempt to construct a worthwhile predictive tool, especially one that is successful in more than getting obvious cases right.

Further examination of the precision and recall rates is necessary to evaluate the system fully, but the council said that the percentage figures was all the information they hold. It would be useful to know whether the 1 in 5 false positives and 1 in 5 false negatives are distributed randomly across the whole cohort or whether there are certain groups who are often classified incorrectly. It is also necessary to understand whether the wrong predictions are more common on cases that are on the borderline threshold for intervention,

[271] Goldstein Awards Application 2019, Insight Bristol, Bristol Council, retrieved 23rd June 2021 https://popcenter.asu.edu/sites/default/files/19-04_bristol_uk_insight_cse.pdf
[272] Machine Learning in Children's Services, What Works for Children's Social Care, September 2020
[273] Ibid

therefore contributing to incorrect intervention or a lack thereof, or if the wrong predictions are easily corrected when cases are examined by council staff.

It may be that Bristol City Council's predictive analytical model is much more sophisticated than those built by WWCSC but without more transparency about the accuracy of the tool with an assessment of its performance in the cases that matter, its utility must be treated with caution.

iii) Equalities Implications

A number of the 40+ data points used in the Think Family database have the potential to be proxies for marginalised groups, whether protected characteristics or not.[274] Free school meals is essentially a poverty indicator as eligibility is family income dependent and certain ethnic groups, including children from black backgrounds and Gypsy/Irish Traveller backgrounds, disproportionately receive free school meals.[275]

Benefits status and other financial exclusion measures also clearly map onto socioeconomic status, and Bristol's predictive models on criminality and exploitation that include these factors could end up just oversampling people from poorer backgrounds. There must be consideration given to the justness of a system that causes the greatest intrusion for the most financially precarious in society.

The baseline dataset that the model is initially trained on also has the potential to bring bias into the system as the cohort of children with a BASE worker may not represent the general population. Although this may be due to structural factors, there would need to be sufficient controls to make sure that the profile of families flagged does not miss atypical cases.
Integrating machine learning into the predictive model as Bristol is doing may help with this if done correctly but there is a serious risk that the combination of an unrepresentative dataset with ill-designed machine learning algorithms could embed bias. Evidence from the USA about predictive analysis in the adult criminal justice system shows that there was significant discrimination against African Americans, at least in part due to a poor benchmark dataset.[276]

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[274] Think Family Data Process Map, Bristol City Council, retrieved 23rd June 2020, https://www.bristol.gov.uk/documents/20182/34776/Think+Family+Data+Process+Map/c9a4c8f9-04a5-5655-346c-1470f83f1d1d
[275] Child Poverty and Education Outcomes By Ethnicity, Office for National Statistics 25th February 2020, https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economicreview/february2020/childpovertyandeducationoutcomesbyethnicity#:~:text=The%20Chinese%20and%20Indian%20ethnic,pupils%20were%20eligible%20for%20FSM.
[276] Machine Bias, Julia Angwin et al, ProPublica, 23rd May 2016
https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing

Bristol City Council's glib dismissal of the potential for algorithmic bias makes this risk all the more alarming. In response to an FOI request about the demographics of the predictive model's output the council said "as none of our models use any protected characteristics in their calculation we find that the model output demographic is very similar to that of the overall population. The areas where the model highlights a more diverse cohort is where the overall population is more diverse."[277]

Even if the demographic does map well onto the Bristol population, the logic that this is due to no protected characteristics being used in the data is incorrect. Disproportionality can come from the training dataset or how factors, some of which may overrepresent some communities, are balanced in a predictive model. The lack of consideration of this potential bias in the prediction betrays a lack of attention paid to the prejudice that these systems can entrench.

iv) Data Processing Concerns

Bristol Council mostly relies on public task as its justification for processing data, with a slew of legal gateways across education, criminal justice and children's legislation outlining the council duties that underpins this. Additional justifications in relation to public interest and law enforcement are also cited by the council.[278] There are issues around many of these justifications if processing does not achieve its aims, as outlined previously.

Amalgamating so many datasets all while entering into a data sharing agreement with police poses some serious ethical issues around purpose limitation. While Bristol Council may have a legal basis to process the data it is also clear that using sensitive data, such as that from the NHS, and private information such as benefits indicators, goes a long way beyond what most people imagine their personal data is used for. Marginalised groups are already less likely to trust the police[279] and with such large tranches of data being shared with Avon and Somerset Constabulary, it is reasonable to expect that some people will share less personal information with other vital services as they do not want it falling into police hands.

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[277] Freedom of Information Request to Bristol Council, 4th February 2021
[278] Think Family Data Process Map, Bristol City Council, retrieved 23rd June 2020, https://www.bristol.gov.uk/documents/20182/34776/Think+Family+Data+Process+Map/c9a4c8f9-04a5-5655-346c-1470f83f1d1d
[279] 65% of Minority Ethnic Britons Say Police Are Biased Against Them, Vikram Dodd, The Guardian, 20th August 2020, https://www.theguardian.com/uk-news/2020/aug/20/65-of-minority-ethnic-britons-say-police-are-biased-against-them

v) Impact on Individuals

The tool is meant to aid social workers in identifying which families are in need of support and intervention, and the headline recall and precision rates suggest the predictive tool has some use. However, questions remain over the real world accuracy and how that compares to the test accuracy cited by the council. There are also questions to be asked about whether the 20% of inaccurate predictions fall mostly within borderline cases that the algorithm is meant to help in identifying or whether they are randomly distributed across the dataset.

Generally, people are not aware that they are being profiled by the algorithm so the impact of the processing is hard to measure.

vi) Conclusions

Transparency on the accuracy of this system is vital but this data is not forthcoming. The advertised rates are based on laboratory (matching a known cohort) rather than real world trials and it is the successful identification of children who actually are at risk that is a true measure of performance. The huge proportion of Bristolian families that are on the database is also a concern as Think Family is able to surveil and profile more 6 out of every 10 households with children in the city. Although this may be a legal use of disparate datasets, it raises the question of proportionality and risks of bias.

Bristol is better than many local authorities when it comes to transparency about what it is doing but without being open about how their system works and how it performs, real concerns about the utility and fairness of the processing remain.

vii) Recommendations

Recommendation 1: Bristol Council should provide greater detail on accuracy rates, including whether they are "live" or based on training data, and whether the inaccurate results lead to borderline cases being missed. This data is vital to assess the impact, and thus the proportionality, of the system.

Recommendation 2: Bristol Council should improve privacy protections, including by reassessing the data fields collected and removing any that are not strictly necessary for use, and cancelling data sharing with schools, the police and third parties that are not a statutory requirement.

c) Hillingdon's Project AXIS

The London Borough of Hillingdon operates what is akin to a miniature Gangs Matrix[280] in its corner of west London, gathering intelligence and working to build a predictive model around child criminal exploitation (CCE). Dubbed Project AXIS, the council combines hard and soft data from a range of sources to identify young people "at risk of falling into crime".[281] Predictive models around CCE are becoming more popular and could proliferate further with the new duty around information sharing and serious violence in the upcoming Police, Crime, Sentencing and Courts Bill.

Project AXIS consists of both an intelligence hub/data warehouse and an in-development predictive algorithm powered by Qlik, who also developed a model for Avon and Somerset Police. The data is used to identify those young people deemed at risk of criminality and assign them a risk score.[282]

i) Data sources and processing

Information flows from the criminal justice system, schools, social care, missing persons, care homes and the police into the Project AXIS database. This is compared against existing police, education, youth offending and care databases to create a view of a young person.[283] Intelligence is also sought from the wider public with people encouraged to tell the authorities about social changes, behavioural changes, overheard snippets or a sudden influx of cash with public-facing posters claiming "no piece of information is too small".

Project staff also take information from social media and have developed a slang dictionary of street terms they look out for online, in case, for example, council workers do not know that a "sad ting" is an unfortunate situation.[284][285]

[280] The Metropolitan Police's Gangs Matrix is a database of suspected gang members, associates and victims across Greater London. It is an intelligence tool used to identify and risk assess potential gang members based on their perceived threat of criminality. More than 2,000 people are on the controversial database which has been rebuked by the Information Commissioner's Office for its data practices and labelled racist by groups including Amnesty International due to the overrepresentation of innocent black and ethnic minority men on the matrix.
[281] Three Ways Governments Are Using Predictive Analytics, GovInsider, 12th December 2019 https://govinsider.asia/innovation/qlik-sean-price-three-ways-governments-are-using-predictive-analytics/
[282] Appendix 2, Social Care, Housing and Public Health Policy Overview Committee, Hillingdon Council, 7th February 2019, https://modgov.hillingdon.gov.uk/documents/s43875/190207%20-%20Appendix%202%20Early%20Intervention%20Final.pdf
[283] Project Axis Annual Review 2018, Freedom of Information Request to Hillingdon Council, 19th January 2021
[284] Three Ways Governments Are Using Predictive Analytics, GovInsider, 12th December 2019 https://govinsider.asia/innovation/qlik-sean-price-three-ways-governments-are-using-predictive-analytics/
[285] Hillingdon Submission to MJ Local Government Awards, 31st March 2019, removed from the

Despite our repeated FOI requests, Hillingdon Council will not explain what social media monitoring they do or how they arrive at the slang watchlist, claiming the information was provided in confidence under Section 41 of the FOIA.

Sad Ting - sæd tɪŋ

If you are a sad ting, you are person who feels unhappy because something happened that you do not like.

An imagined definition from the Project Axis slang dictionary

On the database children are sorted by nationality cohorts rather than by ethnicity and the council refused to give further details of this or provide a summarised racial breakdown. The Metropolitan Police's Gangs Matrix, a similar intelligence system used to monitor alleged gang members, overrepresented young black men, many of whom had no legitimate reason to be on the database - whether this is replicated in Hillingdon remains a guarded secret.[286, 287]

The council and its private sector partners have provided inconsistent explanations of how the data within Project AXIS is processed. A February 2021 FOI response said that no algorithmic processing occurs within the project, and a month after the council clarified to state that the only processing is visualisation.[288, 289] However, in a 2019 submission for a local government award the council boasted of 'sophisticated visual and emerging predictive analytical capabilities' that are used by the project to identify young people at risk.[290]

Corporate materials from Trilateral Research, which develops data-driven technologies, claims to have introduced its proprietary methods to the Project

internet
[286] Metropolitan Police FOI Response on the Gangs Matrix, retrieved 23rd June 2021 https://www.met.police.uk/foi-ai/metropolitan-police/disclosure-2019/march/current-list-people-gang-matrix/
[287] Freedom of Information Request to Hillingdon Council, 23rd April 2021
[288] Freedom of Information Request to Hillingdon Council, 17th February 2021
[289] Freedom of Information Request to Hillingdon Council, 19th January 2021
[290] Hillingdon Submission to MJ Local Government Awards, 31st March 2019, removed from the internet

which include "crime severity weighting" and "machine learning risk labelling". Meanwhile Catalyst, the company that developed the Qlik visualisation platform used by the project, claimed its data analysis is able to predict which harms children are more vulnerable to from their school or address.[291] The 2018 annual review also said that the project was given funding to employ a data scientist to "develop predictive analytic algorithms" into the data.

All of this suggests that significant data analysis and processing powered by algorithms is actually ongoing as part of Project AXIS and Hillingdon Council is either unaware of this or is not being transparent.

In recent years the project has become more sophisticated. It initially began as a Google-hosted spreadsheet of information about children in the area but by early 2018 funding had been secured to develop a cloud based system to link analytical capabilities with the database.

Future plans for the project include the introduction of machine learning algorithms to be used in the dataset to identify young people at risk of sexual abuse, violent crime, missing persons and possession with intent to supply.[292] If this capability is developed it will begin to morph into a form of predictive policing and trigger intervention for pre-crime rather than the actions of a young person. Liberty's Policing By Machine report (2019) raised the prospect of predictive policing having a serious chilling effect on other liberties as people may choose to self-police rather than do something that would get picked up by a predictive policing model.[293] Monitoring children's associations to predict risk and criminality, absent a very serious and clear justification, could undermine their rights to privacy and free assembly as children may be scared to socialise with certain friends for fear of guilt by association.

The council has not carried out a Data Protection Impact Assessment in relation to Project AXIS, claiming that they do not think it poses a high risk to individual rights or freedoms.[294] This argument directly contradicts advice from the Information Commission which states in its example DPIA checklist that an assessment should always be completed if there are plans to "combine, compare or match data from multiple sources", such as different public databases. It also suggests a public body should consider a DPIA if "evaluation or scoring", "processing of sensitive data or data of a highly personal nature" or "processing

[291] Qlik In Action - Protecting And Saving The Lives Of Children And Young Adults, Catalyst IT, retrieved 23rd June 2021, https://catalyst-it.co.uk/bi/sector-expertise/qlik-technology-saving-young-people-and-children-lives/
[292] Project Axis Annual Review 2018, Freedom of Information Request to Hillingdon Council, 19th January 2021
[293] Policing By Machine - Hannah Couchman, Liberty, 2019
[294] Freedom of Information Request to Hillingdon Council, 17th February 2021

of data concerning vulnerable data subjects" occurs.[295] With risk categories being assigned and data being processed about children at risk of exploitation, much of which is very personal, the failure to complete a DPIA is an alarming failure to respect data protection rules and principles at the London Borough of Hillingdon.

To legally justify the processing the council relies on duties under the Children's Act 1989 and Crime and Disorder Act 1988 to provide a basis for public task processing and it also cited the prevention of crime allowance of the Data Protection Act.[296] Although these bases do give a lot of leeway for data processing, necessity must also be taken into account as a valid reason for a database does not mean the data practices are lawful.[297]
Internal data does appear to show a decline in youth involvement with crime but it is not clear that this can be attributed to the data processing or the general focus on youth work. [298] There is no proven connection between mass data gathering and the better outcomes for the young people.

ii) Gangs Matrix Comparisons

The Metropolitan Police's Gangs Matrix is a similar system that was found to breach data rules. A key ICO finding in relation to the Gangs Matrix was on data retention as there was no codified policy for removal from the database by the Metropolitan Police, although the police claimed informally that people were removed after not coming to the attention of the Matrix for six months.[299] Project AXIS retains data for two years after the last time a piece of information is entered about them onto the system, with one year on the full database and a second on a shadow database where information is retained, in case the individual is flagged again, but this secondary database is not part of project visualisations.[300] This period is four times as long as the Metropolitan Police and it is not clear how minor the new information can be to justify another 24 months of data retention.

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[295] ICO Guidance on GDPR – Data Protection Impact Assessments, retrieved 23rd June 2021 https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-pro-tection-regulation-gdpr/accountability-and-governance/data-protection-impact-assessments/
[296] Freedom of Information Request to Hillingdon Council, 19th January 2021
[297] information Commissioner's Investigation Into The Metropolitan Police Service's Gangs Matrix Concludes With Enforcement Action, Information Commissioner's Office, 16th November 2018, https://ico.org.uk/about-the-ico/news-and-events/news-and-blogs/2018/11/information-com-missioner-s-investigation-into-the-metropolitan-police-service/
[298] Violence and Youth Work Cuts, Children and Young People Now, 31st March 2020, https://www.cypnow.co.uk/analysis/article/violence-and-youth-work-cuts
[299] Information Commissioner Enforcement Notice on the Metropolitan Police's Gangs Matrix, 13th November 2018, https://ico.org.uk/media/action-weve-taken/enforcement-notices/2260336/metropolitan-police-service-20181113.pdf
[300] Freedom of Information Request to Hillingdon Council, 19th January 2021

The ICO also found that much of the data held by the Metropolitan Police on the Gangs Matrix was done so disproportionately – i.e., people who are not at risk of gang activity. Around 650 people's data is currently held on the Project AXIS database but it was stated in 2019 that in one year just 79 were identified as needing intervention.[301] This could mean that hundreds of young people who are identified and then not flagged for intervention have their sensitive and personal data retained on the system.

When asked for a DPIA, the council directed Big Brother Watch to their general privacy policy for Children's Services which does not mention Project AXIS or risk profiling once.[302]

iii) Impact on Individuals

As almost everyone featured on the Project's database is a child there is not much known about the individual impact on them. The limited evidence that does exist suggests slightly better outcomes for children who engage with the Project but it is not clear if this is linked to the data analytics or the fact that they are offered support from youth workers. The shift to a predictive model comes with the responsibility for the Council to monitor impact, accuracy and bias to ensure that the processing is proportionate and does not result in discrimination.

The suggestion that children could be profiled by the school they go to or the area they live in is worrying as the effect could be that children are monitored or subjected to official attention for no good reason. Data retention policies may have a further negative impact as a child's personal data can be on the system for a long period of time.

Hillingdon Council refused to tell Big Brother Watch about the demographic breakdown of the children on the database for a number of spurious reasons so questions remain over disproportionality that must be answered.

iv) Conclusions

Project AXIS involves huge amounts of personal and sensitive data being processed and shared with a number of council agencies but the lack of attention paid to data protection and the potential rights implications is alarming. The lack of clarity as to whether and how the council is using algorithms as part of the project makes the amount of sensitive data processed a greater concern still, as accountability in how it is handled appears to be close to nil. The

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[301] Hillingdon Submission to MJ Local Government Awards, 31st March 2019, removed from the internet
[302] Hillingdon Data Protection Privacy Notice For Children's Services

similarities between the DPA-breaching Gangs Matrix are notable and the fact that no DPIA has been completed suggests that the council does not take data protection seriously.

There is also a chilling element to the intelligence gathering aspect of the project, with no piece of information being too small and the policing of young people online and in their speech. It encourages minute surveillance of young people, apparently because they live in the wrong area or go to the wrong school – and if AXIS goes wider it will create an apparatus that watches marginalised young people because of who they are.

v) Recommendations

Recommendation 1: Hillingdon Council should significantly increase transparency around Project AXIS and data processes, including whether machine learning is used, what data is gathered and how.

Recommendation 2: Hillingdon Council should conduct proper EIAs and DPIAs regarding Project AXIS, including an assessment of the potential for bias in relation to geodemographic profiling and the appropriateness of the data retention periods, having regard to the ICO's findings on the Metropolitan Police's Gangs Matrix.

Recommendation 3: Hillingdon Council should not encourage members of the public to report children's non-criminal activity to them as intelligence to be held on databases. This can lead to division, suspicion and profiling within communities.

d) Xantura's OneView

OneView is the headline product of data science company Xantura, offering a combination of a single view case management with predictive analytics across several social issues dealt with by local authorities. Versions of the system can be used to focus on children's social care, debt and financial vulnerability, homelessness and even the socioeconomic risks of the coronavirus pandemic.[303] [304]

It combines a dashboard-style view for individual residents which brings together large amounts of information held on them across different council databases, known as a single view system, with analytics that Xantura claims allow authorities to identify people for targeted support and understand the area

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[303] OneView How It Works, Xantura, retrieved 23rd June 2021, https://xantura.com/how-it-works/the-oneview-platform/

[304] Xantura OneView, Digital Marketplace, retrieved 23rd June 2021https://www.digitalmarketplace.service.gov.uk/g-cloud/services/202699743672817

at a population level to manage services.[305][306]

Data processed by OneView comes from internal council and external public sector datasets, such as social housing, regional troubled families and health information.[307] The tool is capable of working with both structured and unstructured datasets. A Xantura project analysis for Covid OneView with Shropshire Council outlined that even anger issues, dangerous dogs and a history of unsafe sex can all be gleaned from scraping unstructured data.[308]

The scale of OneView means that it is more than a risk prediction tool. Corporate documents show dashboards that look at cohort level data for a number of issues, such as debt, and link this to support offered as well as geospatial analysis of social problems, profiling even tiny geographical areas.[309]

Exactly how OneView is used in local areas is often unclear as some councils have told Big Brother Watch they do not use all of the capabilities offered by the system or appear not to understand what it is capable of. Thurrock Council said it does not use the predictive analytics around children's social care, despite having the ability to do so, due to low case numbers. Barking and Dagenham said in internal documents that it does not make use of some of the features in the Covid version of the system, such as modelling where isolation requirements may be broken, despite other councils stating this can be done in a presentation seen by Big Brother Watch.[310][311]

We are concerned about the relationship between Xantura and local authorities, as one council was seemingly unable to answer some of our questions about their use of OneView without input from the company. What made this more unusual still was the attempted involvement of Xantura's CEO in a meeting to discuss our information request, suggesting that the company enjoys privileged access to local authorities beyond the usual relationship between a software company and a client.

Heavy redactions and difficulties obtaining information have been a feature of

[305] Data To Drive Decisions Online, CIPFA, retrieved 23rd June 2021, https://www.cipfa.org/services/data-to-drive-decisions
[306] Xantura OneView, Digital Marketplace, retrieved 23rd June 2021, https://www.digitalmarketplace.service.gov.uk/g-cloud/services/202699743672817
[307] Information Sharing Agreement between Maidstone Council and Xantura, Freedom of Information Request to Maidstone Borough Council, 28th May 2021
[308] EY and Xantura Covid-19 Analysis, Project Briefing, 20th October 2020.
[309] Ibid
[310] One Borough, One Community – One View, London Borough of Barking and Dagenham, retrieved 23rd June 2020, https://modgov.lbbd.gov.uk/internet/documents/s143286/Appendix%201-%20Ethics%20Transparency%20in%20our%20use%20of%20Predictive%20Analytics.pdf
[311] Xantura Contact and Trace Webinar, 23rd October 2020

some of Big Brother Watch's attempts to understand Xantura's OneView, and our detailed analysis of the system will focus on Maidstone's use of the system for homelessness modelling and the Covid version used by a handful of councils, as that is where information was most forthcoming.

i) Maidstone and OneView for Homelessness

Maidstone Borough Council has spent £73,000 on Xantura and EY's OneView system to use it as a predictive model in relation to homelessness.[312] The purpose of the project is to combine data about those at risk of losing their homes, identify those at risk of doing so and target resources to ensure they are used well. As part of the project the council suggests that data could be shared with Kent County Council in the long run, which itself combines vast amounts of data to work on service planning.[313]

   a) How it works

Council documents claim that the Xantura system can identify people at risk of homelessness between six and nine months in advance and is able to flag particular risk factors that make the potential for harm greater. Agreements between the private suppliers and the council outline 5 data processes that will take place as part of the project:[314]

- Identification - combining data about people and matching it to create a single view of households in need
- Referral - To use internal data to generate referrals about households in need of support
- Triage - To allow council staff to access data about referrals generated by the predictive model to allow these to be processed
- Assessment - Allows staff to access internal data to help with assessment and intervention
- Service Analysis - Aggregated, pseudonymised data used to create local insights, look at how services work and assess how resources can be used.

Data is pulled from both internal and external sources for the system. Internal data comes from the Maidstone revenues and benefits service, housing service

[312] Service Agreement between Maidstone Borough Council and EY, 20th December 2018, Freedom of Information Request to Maidstone Borough Council 28th May 2021
[313] Kent Integrated Dataset, Kent County Council, retrieved 23rd June 2021 https://www.local.gov.uk/sites/default/files/documents/W5.%20Shifting%20the%20focus%20to%20prevention%20and%20early%20intervention%20-%20Dr%20Abraham%20George.pdf
[314] Information Sharing Agreement between Maidstone Borough Council and Xantura, 20th December 2018, Freedom of Information Request to Maidstone Borough Council 28th May 2021

and community protection while external data includes information from Kent County Council Troubled Families, Citizens Advice and Golding Homes, a housing association in the south east of England.

Significant quantities of special category and personally identifying data are processed by OneView, including names, address, date of birth as well as race, ethnic origin, religion and health information. The Data Sharing Checklist implies that criminal record data is also analysed by the tool with indicators including those for arrest and court summons costs.[315]

As with most privately supplied algorithms, little is known about how the predictive model is built and there is no specificity about how it works in practice. The Information Sharing Agreement relating to the project states that historical analysis of the people who have been in contact with Maidstone's homelessness services was used in combination with council rules to build the predictive model. This is made up of a number of risk factors based on models that also claim to consider the interplay between these factors.

A risk score is generated from this profile and if it exceeds a set threshold the household is flagged to council staff as being at risk of homelessness. Natural language processing (NLP) is used to generate a case file for review from all the strands of information flowing into OneView.[316] NLP poses some significant bias risks as it often struggles to cope with non-standard language and dialects[317] - depending on the content and format of unstructured data, it may well be the case that community-specific language is not properly identified and is handled incorrectly by the AI system. However, the potential for this is not addressed in any of the documents disclosed by Maidstone Council.

b) Results and Equalities Issues

How the risk factors are balanced or how they interact with one another remains concealed in the black box, so it is not known how data points are weighted and whether this could lead to a disproportionate output if factors that overrepresent some groups are a major influence on the risk score. Decisions using OneView are not solely automated but from the internal documents, it appears the tool has a significant influence on which households are subject to early or crisis intervention by council staff. Even if the actual decisions are made by a human,

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[315] Data Sharing Checklist, Maidstone Borough Council and Xantura, 20th December 2018, Freedom of Information Request to Maidstone Borough Council 28th May 2021
[316] Information Sharing Agreement between Maidstone Borough Council and Xantura, 20th December 2018, Freedom of Information Request to Maidstone Borough Council 28th May 2021
[317] Racial Bias in Natural Language Processing, Oxford Insights, August 2019, https://drive.google.com/file/d/1bOyCvqHScML8xHri-KICkXdXzL88C4ne/view

the persuasiveness of algorithmic recommendations must be taken into account.

The risk alerts and the referral pathway used by OneView are aimed at intervening early to help households who may be at risk of homelessness rather than allowing a family or individual to reach crisis point.[318] The council claims that early intervention creates financial efficiencies and improved outcomes.

Internal reports from Maidstone Borough Council suggest that the tool has had some positive impact on homelessness outcomes in the area.[319] In 2020, 658 households were flagged as being at risk of homelessness and the council were alerted to 257 of them and were not alerted to 401, due to "capacity constraints".

Of the 401 not flagged, 40% [160] became homeless and 30% [121] were classed as being 'under threat of homelessness', while only 0.4% [1] of the households flagged to the council became homeless and 9% [23] were under threat. On the surface this appears to be a powerful augment in favour of the system as the homelessness rate in the households flagged to council is much lower.

However the outcome analysis is missing some key information that leaves the findings open to question. Firstly, there is no explanation of how or why it is decided to send the alert about one household but not the other when both are identified as being at risk. The information services agreement outlines that council business rules are a factor in the system but gives no further detail. If the alerts are random, we can glean much more from them than if they are based on certain rules, such as who is eligible for homelessness support.

Five categories of people are in 'priority need' in relation to homelessness: pregnant women, households with children, 16-17 year olds, 18-20 year olds and those made homeless due to an emergency such as a fire. Priority is also given to 'vulnerable' people, as assessed by the council, who are elderly, disabled, veterans, prison leavers or victims of domestic violence.[320] It may be the case that the local authority focuses its resources on these groups who have statutory priority but are also more likely to be eligible for support and sets rules to flag these cases first. If the council did indeed prioritise alerts for cases more eligible for support then it should be no surprise that the success rate of intervention was higher, but without transparency over this the accountability of the data is not certain.

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[318] Ibid
[319] Analysis of Outcomes for OneView, Freedom of Information Request to Maidstone Borough Council 28th May 2021
[320] Categories of Priority Need, Shelter, 17th March 2021, https://england.shelter.org.uk/professional_resources/legal/homelessness_applications/priority_need_in_homeless_applications/categories_of_priority_need

Fewer than 50 cases a month are meant to be flagged to the council based on pre-set thresholds, and it could be that this limit and threshold that engineers the cohort and thus leads to weighted outcomes.[321]

There is also a problem of atypical cases that may be missed altogether - Xantura/EY said that the predictive model was trained on historical cases but people at risk of homelessness who do not fit the usual profile could well be missed altogether. The suppliers claim to monitor and adjust the model to reflect changes in the area but a single shock event, such as a major pandemic, could thrust atypical households close to destitution. If a tool misses these cases, there must be safety nets to offer these families support. While the council offers a detailed cost efficiency analysis it does not look at cases that may be missed altogether.

False positives are also not considered in the outcome analysis. To demonstrate that a predictive tool works, it is important to examine whether the flagged groups are flagged correctly - if not-at-risk households make up a significant number of the alerts then of course very few will become homeless as the vulnerability was not there to begin with.

Maidstone Borough Council cites an 80-85 % accuracy rate in predicting children's outcomes from a Xantura system at an unnamed London Borough as a plus point of the tool.[322] The council refused to give more details of this when asked and attempted to redact the 80 % figure, but failed, so it is not clear what exactly the 80% figure relates to. Nevertheless, the outcome analysis should also consider where the c.20% of false positives and negatives lie and factor this into the evaluation of the system. Are they easily corrected errors or is there uncertainty around the borderline cases that the system is trying to identify?

Attributing the entire success to the use of a predictive model also requires the assumption that a complex algorithm was vital in identifying at-risk cases. This link is not clearly evidenced and it may well be that one or two factors that are visible without privately-developed software could identify many of these cases.

c) Data processing issues

It is incumbent on public bodies to demonstrate not only that data processing meets the legitimate purposes for which it is undertaken, but that the minimal amount of data is used in the process. Instead, the OneView agreements hand

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[321] Information Sharing Agreement between Maidstone Borough Council and Xantura, 20th December 2018, Freedom of Information Request to Maidstone Borough Council 28th May 2021
[322] OneView DPIA, Freedom of Information Request to Maidstone Borough Council 28th May 2021

over vast amounts of data while the DPIA does not consider less information intensive processes.[323] Data minimisation is important and Maidstone Council should evaluate not just the results but whether the process is data efficient before celebrating the transfer of the personal information of vulnerable people to a private company.

A public task justification based on statutory duties to prevent homelessness[324] and to prevent multiple disadvantages[325] is the legal basis cited by Maidstone Borough Council for the data handling and process in relation to OneView. Previous sections of this report provide a detailed analysis of the merits and weaknesses of this GDPR justification but the key is that the process must be necessary and proportionate, something that there is not convincing evidence of here.[326]

Consent is then sought when a council worker begins the active intervention process to prevent homelessness, which can be refused according to the DPIA. However this could also impact accuracy figures as families who withdraw consent and decline intervention may not end up in the council's data as becoming homeless or threatened with homelessness as they are removed from the system - another potential data skew that does not appear to be accounted for.

Data is pseudonymised when it is transferred to Xantura for analysis and it is claimed that all personally identifiable information is stripped from sensitive information to protect privacy, and that it is only recombined by the council following an alert.[327] However, some information that may be a homelessness risk factor such as age, disability and benefits income could be sufficient for jigsaw identification. It is not stated in the DPIA or ISA exactly how much data is removed before transfer.

One particularly alarming data practice that was part of the failed redaction attempt was the admission that Xantura keeps a record of all people who ask the council to access to remove their data from the system as per their rights under the Data Protection Act 2018.[328] Although the council may have a legitimate purpose to keep such a register, to ensure a person is not re-entered into the

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[323] ICO Guidance on GDPR – Data Minimisation, retrieved 23rd June 2021 https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/principles/data-minimisation/
[324] Housing Act 1996 (amended by the Homelessness Reduction Act 2017)
[325] Digital Economy Act 2017
[326] Prior section
[327] OneView DPIA, Freedom of Information Request to Maidstone Borough Council 28th May 2021
[328] Information Sharing Agreement between Maidstone Borough Council and Xantura, 20th December 2018, Freedom of Information Request to Maidstone Borough Council 28th May 2021

system and for auditing purposes, the fact that a private company keeps a register of residents who exercise their data rights is shocking. There is also a question as to why this part of the agreement was redacted for "commercial sensitivity" reasons as there appears to be little commercial about a data protection clause.

This sits at odds with the individual service agreement (ISA) which states that Maidstone Borough Council is the sole data controller with EY/Xantura being the processor as it is only the data controller who is obliged to keep a record of Subject Access Requests.[329] There is nothing explicit in the ISA or the DPIA that information about people exercising their data rights should be recorded or shared permanently [rather than solely to allow data rights to be exercised] and this may well be a breach of the local authority's GDPR obligations.[330]

Xantura/EY claim to have designed their data processes to eliminate the risk of bias and disproportionate outcomes. However, in the process they are subjecting huge parts of the population of the borough to financial surveillance via predictive analytics. As full of a representation as possible will be contained in the data matched and processed which the company says is to "ensure that the data is not biased towards cohorts of the population who may appear more frequently within local data sets".[331]

In trying to tackle bias Xantura are instead analysing the sensitive data of what could be thousands of local people for whom there is no justification to process their data. There may be no risk of homelessness or financial vulnerability in many people but this clause implies their privacy intrusion may well just be collateral damage to balance the dataset.

Public task justifications are not a carte blanche for data processing and it is not clear that it is necessary to process the data of people for the purpose of 'balance' in meeting the council's homelessness prevention duty. Intrusive profiling of people not impacted by this obligation may also breach purpose limitation rules as much of this data will have been given to the council for different purposes. It is questionable whether processing the data purely to make a dataset representative is a compatible purpose in respect to purpose limitation.

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[329] Ibid
[330] OneView DPIA, Freedom of Information Request to Maidstone Borough Council 28th May 2021
[331] Information Sharing Agreement between Maidstone Borough Council and Xantura, 20th December 2018, Freedom of Information Request to Maidstone Borough Council 28th May 2021

d) Conclusions

Although internal documents suggest that OneView is proving useful for homelessness, the claimed success of a predictive system cannot be used to excuse data processes that are potentially unlawful. Between Xantura's controlling of a register of SARs, the use of more data than is necessary and the limited analysis of the software's performance there is a reasonable case to make that OneView goes beyond its public task justification and engages in data practices that conflict with data protection rights.

As with many predictive models there is a real risk of atypical cases being missed and unless the training dataset is diverse enough, action must be taken to mitigate this. This model was trained on databases of people who previously interacted with housing services and without refinement the prediction may fail to identify those at risk of homelessness who do not resemble previous cases. Worryingly, the inclusion of a wider set of people on the database to try to counteract bias implies that people may be profiled for no good reason, bar as an aid to the model.

Refusal to disclose more detailed accuracy reporting, an attempt to redact what was present in the disclosed documents, and no mention of an EIA despite requests further undermines the claimed performance and lack of bias by the system. Without evidence it remains an unproven claim and it remains to be seen if the complex algorithm is necessary or if a handful of factors could be spotted without private data being transferred to a data science company.

The use of OneView for homelessness prediction is another avenue through which the council places some of its poorest citizens under digital surveillance and profiles them, with consent only becoming part of the equation when intervention is triggered. It is hard to find any mention of OneView on the council website raising the question, how many people know they are being risk scored in this way? Introducing such an invasive system presents serious privacy risks where the poor are digitally profiled due to their socioeconomic status, whether they want to be or not.

ii) Covid OneView

A special version of OneView was launched last year for use in relation to the coronavirus pandemic which incorporated elements of case management, prediction of socioeconomic vulnerability during the outbreak and a test and trace tool. Thurrock Council and the London Borough of Barking and Dagenham are among the users, while both Shropshire and Kent County Councils considered

adopting the tool.[332]

Capable of utilising both structured and unstructured data, some of the corporate presentations by EY and Xantura to local authorities about Covid OneView attracted significant media criticism. Working with the Daily Mail, Big Brother Watch brought the secretive data practices underpinning the Covid version of the OneView system to light.[333] An analysis document from the companies, complied with Shropshire Council, suggested that the unstructured data scraping could include details on people's sex lives, anger management issues or if they possessed a dangerous dog.[334]

The Covid data spies paid to know ALL your secrets: Town halls harvest millions of highly personal details including if you're being unfaithful or having unsafe sex

Daily Mail - 27 November 2020

As well as the usual council datasets, information from the NHS, primarily shielding data, is incorporated into Covid OneView in order to help ensure individuals receive adequate support.[335] The software was being offered for just £15,000 plus VAT, around a third of the cost of ordinary OneView, which will no doubt act as a teaser for councils who may buy the full package.[336]
The use of OneView in relation to the pandemic was aimed at identifying people at risk of harm both from the virus and from the socioeconomic effects of the pandemic, such as isolation and financial challenges, as well as to help with local authority planning.[337]

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[332] Freedom of Information Requests to local authorities on Covid OneView, 14th December 2020
[333] The Covid data spies paid to know ALL your secrets: Town halls harvest millions of highly personal details including if you're being unfaithful or having unsafe sex, Tom Kelly, The Daily Mail, 27th November 2020 https://www.dailymail.co.uk/news/article-8994911/Town-halls-harvest-millions-personal-details-including-youre-unfaithful-debt.html
[334] EY and Xantura Covid-19 Analysis, Project Briefing, 20th October 2020
[335] Shielding Clinically Vulnerable People From Covid-19, Ministry of Housing, Communities and Local Government, 24th April 2020, https://www.local.gov.uk/sites/default/files/documents/SHIELDING%20GUIDANCE%20AND%20FAQS%20COMBINED%20-%2024%20APRIL%202020.pdf
[336] Covid-19 OneView Service, The Chartered Institute of Public Finance and Accountancy, archived 24th February 2021, https://web.archive.org/web/20210224235724/https://www.cipfa.org/services/data-analytics/covid19-oneview-service
[337] OneView Presentation London Borough of Barking and Dagenham

a) How it works

1) Harm prediction and single view of COVID risks

The predictive output of Covid OneView is less complex than the financial vulnerability model. Households simply receive a risk factor count from more than a dozen categories. These risk factors are not weighted depending on their impact on overall harm and households are given a whole number score.[338] Council staff are given an overview table which contains details of people who may be at risk, prioritised by risk score, so support can be offered. The categories of COVID-19 risk factors are:

- Debt - rent arrears, council tax, benefit overpayments, sundry debt
- Domestic violence
- Mental Health
- Lives Alone
- Exclusion from school
- Disability
- Children on free school meals
- Aged over-65
- Medical conditions, including cancer, respiratory issues, metabolic issues, cardiovascular issues
- Low income
- Single Parent

Unstructured data is scraped to identify domestic violence, mental health conditions, medical conditions and disability.[339] Council staff are also able to filter this overview table by cohort, such as being known to council services, or by cross-reference with other risk factors generated by OneView (such as homelessness).

Within this view it is possible to look into a household and see the individual risk factors for each household member and to also see which council services that household has interacted with. Council staff are able to add notes to an individual's case file within the system. A detailed questionnaire exists to be used when a staff member interacts with the household, including questions about prior coronavirus support, test status and potential symptoms of the virus. Information about contacts and actions taken by the council in relation to a household is also stored in OneView.

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[338] Covid-19 OneView Demonstration Video, https://www.youtube.com/watch?v=8vBHdMAc6_Q
[339] Welcome to Covid-19 Oneview Service, CIPFA/Xantura, 27th May 2020

The risk scoring, dubbed a "vulnerability lens on the population" by Xantura's CEO, is used to target support for vulnerable families during the pandemic, including welfare checks, emergency food parcels, and referral to both community and council services.[340] A presentation from the data science company to councils suggested that the predictive model could expand beyond helping the vulnerable and be used to map out longer term demand and spending plans for local authorities.[341]

Internal documents from Barking and Dagenham said more than 1,000 individuals aged 65+ who lived alone and had £1,000 or more of debt were identified. [342] However, it is not evidence that transferring sensitive data to Xantura for analysis is necessary to identify these people as this information is already easily accessible in council databases.

2) Contact Tracing and Council Level Analysis

Covid OneView can function in part as a local test and trace management system as it is able to record and automatically link track and trace data sent to local authorities. Cases are flagged as contacted or not and individuals' contacts are automatically linked, leading to council staff being able to see which contacts are linked to which cases.[343] It is suggested that if a name crops up repeatedly it could signify an asymptomatic spreader of coronavirus who needs to be contacted.

At a population level the tool also offers a lot of analytical views around coronavirus in the local area. The mapping of cases, contacts and related information allows for the visualisation of the disease progression in an area which includes a locally defined 'alert level' for small areas. It also claims to help with 'disease management', which includes tracing activity and identifying high risk contacts, such as asymptomatic carriers. Alarmingly it is also suggested that it could even be used to identify people who may be breaking self isolation rules, though how is not explained.[344]

The Covid tool also provides council staff with demographic and geographic analysis of cases and contacts as well as people who are shielding. The visualisations can also be used to look 'at risk cohorts' to establish which areas contain the greatest amount of vulnerability.

[340] Contact and Trace Webinar, Xantura, 23rd October 2020
[341] One Borough, One Community – One View, London Borough of Barking and Dagenham, re-trieved 23rd June 2020, https://modgov.lbbd.gov.uk/internet/documents/s143286/Appendix%20 1-%20Ethics%20Transparency%20in%20our%20use%20of%20Predictive%20Analytics.pdf
[342] Xantura COVID19 Presentation, 27th May 2020
[343] Ibid
[344] Ibid

B) Equalities and Data Processing Analysis

The contact tracing and predictive impact analysis functions of the Covid OneView platform can work without one another and Thurrock Council claims to only use the tracing element of the tool.[345] Despite not using what has the potential to be the more invasive part of the system, the council still uses concerning data practices in relation to OneView.

Thurrock states that public health rules are the legal basis for data processing with Covid OneView, suggesting it relies on the public task justification under the DPA.[346] However, it is questionable whether the invasive, extensive data processing is necessary to fulfil the stated aim.

Disconcertingly, the DPIA states that information from Public Health England can be held for as long as necessary, without consent. This appears to be in conflict with regulations around storage limitations which restrict data retention for longer than necessary and heavily suggest that policies around the length of retention are required, as the ICO advises that data controllers and processors "need to establish and document standard retention periods for different categories of information you hold wherever possible"[347]. Test and Trace data is only kept for six months but the council notes it is trying to extend this for "projects aimed at mitigating the impact of Covid". This vague justification is inadequate to demonstrate compliance with storage limitation principles.

Covid OneView uses pseudonymised data that is sent to Xantura by authorities, according to Thurrock. The council states this is for "processing" without giving much further detail on how this happens. However, pseudonymisation is tricky, especially with hyperlocal data, and particular care must be taken when it may be linked to sensitive details about an individual. Information is only rematched and made identifiable by the council when necessary, according to the DPIA.[348]

A large number of council staff appears to have access to Thurrock's Covid OneView platform and this fact combined with the sensitivity of the data included on it is a cause for concern. Environmental health officers and workers in a vaguely defined surveillance team, in addition to public health officials, seem to be able to access the system according to a webinar featuring Thurrock

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[345] Freedom of Information Request to Thurrock Council, 5th March 2021
[346] Thurrock DPIA Covid OneView, Freedom of Information Request to Thurrock Council, 15th January 2021
[347] https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/principles/storage-limitation/#retention_periods
[348] Ibid

Council officials.

The London Borough of Barking and Dagenham (LBBD) did not take kindly to the Daily Mail coverage of the OneView system, claiming that the lines about the potential for data scraping around sexual behaviour and identifying isolation breakers were false.[349] [350] However, the information about data scraping was sourced from a Xantura presentation and the information about isolation breakers was found in a webinar by Thurrock Council – so the capabilities remain even if LBBD does not use them.

The close links between Xantura and councils using their system are betrayed by LBBD's EIA, as metadata shows that it was initially the EIA for Thurrock and the initial author was Thurrock Council, not LBBD. Although the information within pertains to LBBD, this suggests either councils are sharing EIAs which should be completed independently or that another agent is working to supply EIAs to councils in relation to OneView.[351]

As is common with algorithmic EIAs there is no consideration of indirect discrimination which is concerning and LBBD claims the only positive impact would be on the socioeconomically disadvantaged.[352] The council admits there could be biased output and promises to test disproportionate outcomes against reality to see if the tool is legitimate, implying that it is willing to trial a potentially discriminatory tool and fix the bugs later.

This is a strange juxtaposition with the DPIA which cites public health, homelessness and economic well being duties in relation to public task as the legal basis for processing.[353] The necessity of processing for public task has already been discussed in previous chapters but the admission that bias could occur and be corrected undermines the claim that OneView's profiling is necessary for the council's activities.

What appears to be unrestricted capabilities to scrape unstructured data to

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[349] The Covid data spies paid to know ALL your secrets: Town halls harvest millions of highly personal details including if you're being unfaithful or having unsafe sex, Tom Kelly, The Daily Mail, 27th November 2020 https://www.dailymail.co.uk/news/article-8994911/Town-halls-harvest-millions-personal-details-including-youre-unfaithful-debt.html
[350] One Borough, One Community – One View, London Borough of Barking and Dagenham, retrieved 23rd June 2020, https://modgov.lbbd.gov.uk/internet/documents/s143286/Appendix%20 1-%20Ethics%20Transparency%20in%20our%20use%20of%20Predictive%20Analytics.pdf
[351] Freedom of Information Request to the London Borough of Barking and Dagenham, 12th January 2021
[352] EIA, Freedom of Information Request to the London Borough of Barking and Dagenham, 12th January 2021
[353] DPIA, Freedom of Information Request to the London Borough of Barking and Dagenham, 12th January 2021

identify risk factors are also alarming. The list of potential information points across all aspects of people's personal lives, as outlined by the Daily Mail and the Shropshire Covid OneView analysis, goes far beyond the direct harms of the pandemic and comes closer to an all-encompassing evaluation of the intricate vulnerabilities in individuals' lives.[354]

So many of the suggested extracts, from living in a neighbourhood with drug dealers present to socially unacceptable behaviour, have such a minor link to coronavirus harms the justification for scraping them would be difficult to make. Despite LBBD's rejection of this capability, the fact it was mentioned in an official EY/Xantura presentation makes the function hard to refute even if that council does not make use of it.

Poorer and more marginalised communities generally interact more with council services and will have greater amounts of personal information about them held on council systems. Constructing a massive data scraping exercise from all of these case files and notes will only lead to the most vulnerable citizens having their personal files scanned by an algorithm time and time again. The tool becomes two tier and the poorer residents are more likely to be subjected to invasive digital surveillance.

C) Conclusions

The Covid OneView tool may have some genuine use if truly anonymised data is used by local authorities to visualise demand for services and support, and as a test and trace case management tool if the correct data protections are in place. However, the collection of vast amounts of personal data requires much clearer justification than that currently offered. Further, we are concerned that the system projects risk from all sorts of harms with most tangential links to the coronavirus pandemic.

Covid OneView appears to be a basic vulnerability matrix for a range of socioeconomic harms that has been created under the guise of the coronavirus pandemic. Whilst local authorities must meet their obligations to their residents, it is concerning that some councils have turned to this data hungry system with seemingly little consideration as to whether the data processes involved are necessary and if similar outcomes could be achieved without transferring vast quantities of data to Xantura.

Local authorities' lack of understanding of what Covid OneView is capable of is

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[354] EY and Xantura Covid-19 Analysis, Project Briefing, 20th October 2020

also alarming, which was underlined by LBBD's reaction to the Daily Mail story and Thurrock Council's FOI responses. Barking and Dagenham Council claims it cannot filter people by risk factor in the contact tracing facility of the system, despite a Thurrock Council staff member discussing this exact capability in a webinar.[355][356]

In an FOI response Barking and Dagenham council claimed "Unfortunately the Webinar is misleading as it was recorded as a marketing event and the details provided at the time were to demonstrate what the system can do, not what we are actually using it for in reality (although regrettably this is not clear)."[357] The implication is that the council staff member was doing promotional work for Xantura rather than advocating for a system they used, a worrying situation for a public official.

Data retention is also an issue with some councils holding information indefinitely , while the unfettered data scraping shows how these predictive tools can become little more than automated monitoring of the files held on the poor. The pandemic has been used to justify all sorts of questionable official practices and some of the data processes in Covid OneView are no exception.

D) Individual Impact

The accuracy of the homelessness system is unknown as Maidstone Borough Council refused to disclose this and attempted to redact the 80-85% accuracy of another OneView system that was mentioned. The vagueness of the accuracy rate, that ignores the difference between false positives and false negatives, makes it hard to infer much about the system's usefulness or impact and further clarity is needed about the inaccuracy rate and whether that falls randomly across the cohort or whether there are certain groups the system struggles to identify.

The results that are available suggest there is some positive impact of the homelessness system but the significance of the flaws and their detriment to individuals need to be balanced against this.
How the Covid-19 system affects people's lives is harder to understand as no accuracy rates were given and different councils use it for different purposes. It is therefore hard to assess the impact outside of council claims that it facilitated support for isolating individuals. However, it is not established whether OneView was merely one way of many that this was given or whether it was the only way

[355] Freedom of Information Request to Thurrock Council, 5th March 2021
[356] Xantura Contact and Trace Webinar, 23rd October 2020
[357] Freedom of Information Request to Thurrock Council, 5th March 2021

these individuals would have been identified as in need of support.

E) Recommendations

Recommendation 1: Local authorities using Xantura OneView should fully explain and justify the accuracy rates claimed. In absence of clear, objective evidence of a unique positive impact, these invasive data processing systems should not be used.

Recommendation 2: Xantura should immediately delete its register of people who have exercised their data rights by making Data Subject Access Requests. There is no clear legitimate purpose for this data retention.

Recommendation 3: Councils must understand and be accountable for the full capabilities of algorithmic systems that they use, even if they claim not to fully use some of them.

7

CONCLUSION

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To be poor and rely on the welfare state in Britain today is too often to have your life scrutinised and monitored by a range of automated systems and your characteristics boiled down to mathematical values so you can be profiled and your behaviour predicted.

Anyone receiving benefits is treated with suspicion by default by both loca authorities and the Department for Work and Pensions and hundreds of thousands of people are scanned to check if they are fraud risk before they can receive the state support they are entitled to. Local authorities' issuance of housing benefit is a laboratory for the government to test the usefulness of predictive models. As the use of risk based verification declines, the DWP has introduced a centralised algorithm to identify which ongoing claims might involve fraud. This is a significant step, moving away from a single check to the regular monitoring of the socioeconomically deprived. Universal Credit is likely to be the next target for predictive analytics, which will only place millions more people under the microscope.

Monthly surveillance is now a requirement to live in more than a third of social homes in the UK. Overlooking the structural problems in Universal Credit that are not the fault of the tenant, councils and housing associations now send data about millions of tenants to private companies who claim to predict who will and will not pay their rent. Tenants do not have an opt-out from this and the private companies even retain aggregated copies of the data for private gain. The computer code now decides who is contacted by their landlord and can even escalate early arrears actions.

Privacy within the home for older people is also under threat as stretched social care budgets and the coronavirus pandemic have led to an increase in digital care replacing human care. Amazon's Alexa listens in on thousands of older people while other companies offer tablets that replace some real-life care and collect vast quantities of private data at the same time. The trend is councils doing more with less and that will mean vulnerable people being encouraged to swap their occasional friendly carer visits for a robotic voice in the corner.

Mounting duties for local authorities to support socioeconomic wellbeing and prevent homelessness combined with greater pressure on resources means that more councils are turning to predictive analytics for digital triage, to try to identify who needs support early and to supposedly allow staff to better prioritise frontline work. However, our thorough investigation has led us to conclude that many predictive systems are no more than glorified poverty profiling, working to

datify the long-held prejudices authorities in society hold against the poorest. Vast amounts of data are collected and analysed about people without their knowledge or consent and families may only find out they have been profiled, if at all, when a council worker gets in touch.

A common thread across all these automated systems is a lack of due attention paid by councils to the serious risks of bias and indirect discrimination. Very few councils consider the possibility that the data underpinning a model could be unrepresentative, leading to biased outcomes, and instead most claim that if they do not use protected characteristics as inputs their algorithms cannot discriminate against protected groups. Even when some of the data used by the tools have clear links to race and disability, councils are failing to account for the harm this could cause.

Without proper enforcement of the public sector equality duty, greater attention paid to algorithmic bias and more awareness of how computers can create discrimination across all levels of government, we will continue to have black box algorithms influencing decisions about real lives, without accountability.

Proportionality is rarely considered when justifying mass surveillance via algorithms even though there is mounting evidence many of these tools do not do what they claim. Further, the asymmetry of the relationship between councils and private software companies is alarming and we have been disturbed to find data science companies retaining data absent a clear legal basis.
Public sector algorithms in Britain are poorly regulated and we have uncovered scores of examples of secretive mass data processing that have gone unchallenged. Without more accountability structures and robust rules to restrict how personal data is used, society's most vulnerable individuals will continue to be an information mine for the datavores in government and private industry.

Close relationships between the public and private sector make accountability even harder with councils relying on companies for the technical know-how. In return, civil society is faced with a wall of exemptions and refusals when trying to find out the most basic information about councils' mass data practices.

Nutrition-style labels on public sector algorithms may be one way to promote transparency about what data is processed, how checks for bias have been done, the legal basis for the processing and how the algorithm is monitored to make sure it works. Individuals should know how the state processes their data and why - benefits and social housing decisions cannot be concealed in a black box. There must also be tougher enforcement of the rules, to make sure that equalities and privacy assessments are undertaken properly. It has been too easy for these

legal requirements to be waived away.

It is not fair or just that the poorest people in Britain live under this extra layer of digital surveillance. Authorities have started to build a panopticon from the bottom up that can monitor ever greater aspects of people's lives and behaviour, making the lives of the most vulnerable conditional on ever-growing digital surveillance. We urgently need more transparency, oversight, accountability and fairness to protect the data rights of all citizens.

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