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SMARTER COVENTRY

A ROADMAP TO TACKLING DEPRIVATION

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About the authors

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Laurence Lai

Introduction

The 'Smart City' concept believes that through the implementation of digital solutions, public and private services in cities can become more efficient and support the day-to-day life of everyday residents.[1]

According to 2021 ONS research, Coventry is the 68th most income-deprived local authority area in England.[2] Of 195 Neighbourhoods in Coventry, 55 neighbourhoods were among the 20% most deprived in England.[3] Large challenges in Coventry include food poverty, transportation, and personal security.

This report will seek to analyse the issues faced in Coventry, and propose digital solutions for everyday challenges. Through the understanding of the implementation of Smart Cities within the rest of the United Kingdom, Europe, and China, we will address the best, most efficient, and ethical ways of promoting prosperity in Coventry.

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[1] European Commission, n.d., Smart cities
[2] Office for National Statistics, 2021, Exploring local income deprivation
[3] Priyanka Patel, 2023, The richest and poorest neighbourhoods in Coventry - mapped

Briefing

The Issue of Food Banks:

Prevalence and impact of food poverty in Coventry.

- According to Feeding Coventry, 20% of residents in Coventry are living on the edge financially, unable to afford anything beyond basic housing, fuel, and food expenses.[4]
- As demonstrated by Coventry City Council, the Coventry Health and Wellbeing Strategy for 2019-2023 report states the city has a high level of homelessness such that at any one night between 2017 to 2018, 195-250 Coventry families with dependent children spend the night living in emergency or temporary accommodation.[5]
- According to Coventry City Council, the population has been challenged by the emerging impact of the cost-of-living crisis in 2023 such that 26% said they have had enough to eat, but not always the kind of food they wanted, a significantly higher number than of 2021 which was 19%.[6]

Inefficiencies in current food bank operations.

- According to Coventry Foodbank, the cost of living crisis has pushed more families into a food crisis which has increased demand but given that Coventry also faces the impact of higher prices from inflation, donations have decreased leading to supply and demand management facing a 'double challenge' in 2023.[7]
- To accompany this, Coventry foodbank has fed 800 people each week in January 2023 which is an increase of 60% since January 2022. Yet, inconsistencies with logistics has led to insufficient supply where demand was quantified at 103 tonnes and supply just at 77 tonnes.[8]
- According to a Trussell Trust report in 2023, food banks meet the immediate need for many households, they are not an appropriate solution to destitution in the long term since food banks provide a 'sticking plaster in times of crisis'.[9]

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[4] Feeding Coventry, n.d., Food poverty - managing surplus food
[5] Coventry City Council, 2019, Coventry Health and Wellbeing Strategy 2019-2023
[6] Coventry City Council, 2023, Coventry Joint Strategic Needs Assessment (JSNA) 2023
[7] Coventry Foodbank, 2023, Our foodbank fairies return for Christmas 2023
[8] Coventry Live, 2023, Coventry charity faces 'double crisis' over foodbank shortages and rising demand
[9] Trussell Trust, 2023, Cash or food? Exploring responses to destitution

- As reported from the Independent Food Aid Network (IFAN) survey of independent food banks in December 2022, over 91% of respondents reported increased need for their services when comparing November 2021 with November 2022.[10]

Opportunities for technological and community-based solutions.

- According to an article written by Mckinsey and Company in 2021, the Greater Boston Food Bank's $5 million reinvention has made food bank's operations more efficient, improved interactions with donors and the use of advantaged data analytics has allowed to match demand for food with changing sources of good supply including government food-box programs leading to more sophisticated forecasting models.[11]
- As stated in the Big Issue, a food bank in Huddersfield has teamed up with a global non-profit called Datakind which uses data and computer models to help people before they become dependent on food parcels which has created an impact since 3 to 4 clients of the Welcome Centre are referred to the support worker every day.[12]
- According to report by Esade, the advent of technology and ICT mediated ecosystems provides opportunities for foodbanks to increase their operational efficiency such as the optimisation of routes and scheduling to achieve costs reductions of up to 30% in terms of time and petrol.[13]

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[10] Independent Food Aid Network, 2022, December 2022 IFAN Survey
[11] McKinsey and Company, 2021, Digital Transformation comes to food banks
[12] Big Issue, 2019, Can technology help prevent people becoming dependent on foodbanks?
[13] Esade, 2021, Reinventing Food Banks through the lens of the digital economy

Coventry foodbank has fed 800 people each week in January 2023

The Issue of Bus Transport:

Lack of Routes.

- The deregulated nature of West Midlands Transport Services (TfWM) means companies make commercial decisions on what services to provide, making these services more sensitive to economic conditions.[14]
- Recent economic turmoil after the COVID Pandemic has meant bus routes are at a continuous risk of being cut.[15]
- Children have suffered the most as a result of Bus route cuts, with 12 major school bus routes having been cut since January 2023, and more under threat.[16]

Inefficiency and Unreliability,

- Even of those bus routes that are technically not being cut they will have to run less often to keep operating costs.[17]
- Rankings naming Coventry's public transport infrastructure 5th in the UK fail to capture the reality of bus timings and 'ghost buses'.[18]
- Stagecoach buses are often late or don't come at all in the greater Coventry area, made worse by the lack of drivers.[19]
- Anger at the 21 Line is symptomatic of greater frustration with Coventry bus services.[20]

Council Spending Cuts from Lack of Funding.

- Coventry City Council's financial struggles over the past years has led it down a path of service cuts which will total £8.4 million in 2024/25.[21]
- This stress on council finances has seen consequences in the bus services, where the city council decided to cut funding for 5 school bus routes in February of 2024.[22]

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[14] West Midlands Combined Authority, 2022, Transport Delivery Committee

[15] Claire Harrison, 2023, Coventry bus service to be axed as it is not 'value for money'

[16] BBC News, 2022, Threat to 12 West Midlands school bus routes

[17] Ben Eccleston, 2022, Changes to Coventry bus timetables will see reduced services

[18] Fresh, 2023, UK Cities With the Best Public Transport Links | Connected Cities - Fresh

[19] BBC, 2023, Anger over Stagecoach bus services in Coventry and Warwickshire

[20] Saskia Masaun, 2023, Coventry and Warwickshire council cuts: What do they mean for me?

[21] BBC, 2024, Coventry and Warwickshire council cuts: What do they mean for me?

[22] BBC, 2024, Coventry City Council urged to drop school bus cuts

- Coventry City Council Leaders have even defended warning the public that the local authority may be at risk of bankruptcy.[23]
- Coventry's issues with funding is part of a bigger problem facing over 30% of local city councils in the UK.[24]

[23] BBC, 2024, Council leader defends bankruptcy warnings - BBC News
[24] Unison, 2023, Councils face 'dire' cash crisis totalling more than £3.5bn | News, Press release

The Issue of Crime:

Coventry grapples with crime problems.

- According to Coventry Council's One Coventry Plan Annual Performance Report 2021-22, the total recorded crime in Coventry increased by 27.9% in the period of April 2021 to March 2022 compared to the previous year.[25]
- In the same report, it has also found that the top three offences in Coventry during 2021 and 2022 were Common Assault and Battery, Assault Occasioning Actual Bodily Harm (ABH), and Harassment.[26]
- According to CoventryLive, Coventry city centre has been identified as the most dangerous place in the Coventry and Warwickshire area, with more than 15 crimes committed per day, and 1 every 90 minutes.[27]

Current initiatives to tackle crime problems and their limitations.

- Operation Advance is a year-long initiative by the West Midlands Police (WMP) being implemented in Coventry. It involves personnel from various policing departments and aims to conduct 24-hour intensive policing operations to combat crime and ensure public safety.[28]
- The Community Initiative to Reduce Violence ("CIRV") programme launched in 2023 with a £2 million budget, providing targeted support to at-risk children and young people. It offers 24/7 access to professionals, addressing issues like poverty and family dysfunction to break the cycle of crime.[29]
- However, human involvement in certain tasks is susceptible to errors, which can limit their effectiveness. In contrast, artificial intelligence has demonstrated the capability to provide higher levels of accuracy, thereby potentially enhancing precision in policing.[30]

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[25] Coventry City Council, 2022, One Coventry Plan Annual Performance Report 2021-22, (p.33 - 34)
[26] Ibid.
[27] CoventryLive, 2023, Most dangerous place in Coventry and Warwickshire where a crime is committed every 90 minutes
[28] West Midlands Police, 2023, Op Advance - Coventry August | West Midlands Police
[29] West Midlands Police Crime and Commissioner, 2023, Knife crime reduced dramatically in Coventry - West Midlands Police & Crime Commissioner
[30] Korteling JEH, Van de Boer-Visschedijk GC, Blankendaal RAM, Boonekamp RC, Eikelboom AR, 2021, Human- versus Artificial Intelligence

The positive impact of implementing smart city technology on security.

- Police departments across America, including Los Angeles and Atlanta, have adopted PredPol, reporting decreases in crime rates. PredPol is a predictive policing software program that uses historical crime data and an algorithm to identify specific locations most likely to experience crime during a police officer's shift. It provides marked-up maps with red boxes indicating these high-risk areas.[31]
- Incheon Smart City has various crime prevention facilities installed. including CCTVs, emergency alarms, abnormal sound detection devices, and vehicle number recognition cameras, which are managed in real-time through the Integrated Operations Center. Each of which has an internet protocol (IP) address installed.[32]
- The Switching on Darwin program in Australia implemented an extensive network of digitised CCTV cameras with advanced video analytics. The initiative aimed to enhance public safety and improve public spaces. The video analytics allowed for data-driven insights, optimising efficiency, and facilitating real-time responses to local events.[33]

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[31]Ellen Huet, 2015, Server And Protect: Predictive Policing Firm PredPol Promises To Map Crime Before It Happens

[32] Mun-su Park and Hwansoo Lee, 2020, Smart City Crime Prevention Services: The Incheon Free Economic Zone Case

[33] Pat O'Malley and Gavin JD Smith, 2020, 'Smart' crime prevention? Digitization and racialized crime control in a Smart City

Tech & Innovation briefing note

Overview

In the following section we will delve deeper into why the issues presented by the Briefing are so prevalent in Coventry, and start to build an understanding of how they might be resolved.

First, we will take a look at the issue of Food Banks, and why the COVID crisis, along with other socioeconomic contributors, has plunged many Coventry Households into food poverty, something the current aid infrastructure is in no position to deal with.

Secondly, we will explore the issue of Bus services in Coventry; where a deregulated market, struggling firms, and dwindling local council finances have created an environment in dire need of reform.

Finally, the issue of crime in Coventry will be discussed, where underfunding and innate human limitations have created opportunities for reform in the sector through the use of technology and AI.

Coventry and its Issue of Foodbanks.

Poverty in Coventry has been an underlying issue considering 26% of Coventry's children, are living in poverty.[34] The escalation of food poverty within Coventry, particularly in the post-pandemic context, represents a multifaceted socio-economic challenge that demands a nuanced analytical approach. This discourse aims to dissect the underlying factors contributing to the increased dependency on food banks, thereby elucidating the complex interplay of economic, social, and technological dynamics at play. Through a detailed examination of the Coventry-specific scenario, the objective is to highlight critical areas for policy intervention and community-centric solutions, underpinning the necessity for a strategic and integrated response to food poverty.

The economic restructuring from manufacturing and engineering towards lower-wage, service-oriented employment has precipitated a notable shift in the employment landscape of Coventry.[35] This transition, further exacerbated by the COVID-19 pandemic, has amplified economic vulnerabilities, evidenced by a surge in unemployment rates that surpass national averages in certain locales.[36] The impact of the pandemic on Coventry's economy is stark, with the Coventry & Warwickshire economy experiencing a notably low growth rate of 1.24% in 2018/19, the lowest among all local economies. The subsequent arrival of COVID-19 further decimated economic stability, leading to an estimated contraction of 9.9% in the UK economy in 2020, with the West Midlands region, encompassing Coventry, facing the severest downturn across all regions.[37] This economic turmoil precipitated a dramatic surge in unemployment, with the claimant count in Coventry escalating from 7,525 (3.0%) in January 2020 to a peak of 16,490 (6.6%) by December 2020.[38] The proliferation of precarious employment contracts further aggravates this scenario, underscoring a significant factor in the financial instability facing Coventry's populace. This economic downturn, notably impacting household incomes, exacerbates poverty as more individuals turn to food banks as a vital source of sustenance. The increasing dependency underscores the urgent need for robust reform in the food bank system, aiming to address both immediate food needs and the root economic causes of food insecurity.

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[34] Feeding Coventry, n.d., Food poverty- managing surplus food
[35] Coventry Skills Strategy, n.d. Setting the scene: the need for a more equal Coventry and sustained economic recovery
[36] Anton Popov and Martin Price, 2013, The legacy of deindustrialisation has shaped the meaning of the urban landscape for young people in the West Midlands
[37]Coventry City Council, 2022, Economic Development Strategy 2022-2027
[38] Ibid.

Housing affordability emerges as a critical concern within Coventry, mirroring broader national trends yet presenting unique localised challenges. The stark disparity between housing costs and income levels, particularly in designated neighbourhoods, highlights a pronounced demand-supply imbalance in affordable housing. Over 13,000 of Coventry families were left waiting for a council house in 2021 and the Local Government Association has warned that one in 10 households wait more than 5 years due to a 'chronic shortage of affordable housing'.[39] Concurrently, the escalating living expenses, inclusive of utility and council tax increments, exert additional fiscal pressures on households, thereby directly impinging on food security for a considerable segment of the community.[40] This situation stresses the importance of reimagining the food bank system to not only provide food aid but also support in navigating housing and utility expenses.

The implementation of Universal Credit alongside other welfare reforms has markedly influenced the socio-economic fabric of Coventry.[41] Inherent delays in benefit disbursements coupled with systemic complexities render many families devoid of timely financial assistance.[42] Additionally, digital exclusion presents a formidable barrier, disproportionately affecting diverse demographic cohorts within Coventry, including students, refugees, and the elderly, thereby hindering equitable access to online services and welfare benefits. Despite a year-on-year closing of the 'digital divide', more than one in five people in the West Midlands do not use the internet.[43] The challenges within the welfare system, especially delays in the Universal Credit, vulnerable populations are closer to the edge of food insecurity. Thereby, reforming the food bank system will offer immediate, accessible support to bridge these systemic delays and ensure no one is left without food due to bureaucratic hurdles.

Amidst these challenges, Coventry presents a fertile ground for technological innovation aimed at enhancing the efficiency and outreach of food bank services. From September to November 2022, over 2/3rd of organisations reported having supply issues signifying a fragility of the donation model that food banks rely upon.[44] Potential technological interventions, such as online donation coordination platforms, food bank inventory

[39] Coventry Telegraph, 2022, Over 13,000 Coventry households left waiting for council house amid housing shortage
[40] Office for National Statistics, 2021, Impact of increased cost of living on adults across Great Britain: July to October 2023
[41] Coventry City Council, 2014, The Impact of Welfare Reform on Coventry
[42] CoventryLive, 2024, DWP stops benefits for thousands of families on Tax Credits and older benefits
[43] West Midlands Combined Authority, 2021, West Midlands Levelling Up Growth Prospectus
[44] Independent Food Aid Network, 2022, December 2022 IFAN Survey

management apps, and digital access facilitation systems, represent pivotal avenues for revolutionising food assistance delivery mechanisms, ensuring a more effective and inclusive support framework across the community.

Addressing digital exclusion is critical in combating food poverty, as it limits access to vital online resources, including food assistance programs. By integrating technological innovations within the food bank system, such as online donation platforms and inventory management apps, we can ensure equitable access to food support services, especially for those traditionally marginalised by the digital divide.

In conclusion, the intricate economic, social, and technological tapestry underlying food poverty in Coventry necessitates a comprehensive, multi-faceted policy and community action framework. Initiatives focused on job creation, industry transition support, affordable housing provisions, and social support system enhancements are imperative. Concurrently, fortifying community networks and leveraging technological advancements to augment food bank operations can significantly mitigate food poverty. The multi-dimensional analysis of food poverty in Coventry highlights the critical need for a systemic reform of the food bank system. Such reform should aim to transform food banks from emergency relief centres to integrated support hubs that address both the symptoms and root causes of food poverty, leveraging community, policy, and technological synergies to create a sustainable solution. This discourse underscores the imperative for collaborative synergies between policymakers, community entities, and technology innovators in devising efficacious solutions to address this pressing societal issue.

Coventry and its Issue of Bus Transportation.

Public transportation in the Coventry and Warwickshire area has been unreliable and underprovided since the pandemic and recent developments suggest this is an issue that is not likely to go away any time soon. The issue is multifaceted and can be traced to multiple different sources, all of which will be explored in this section.

Fundamentally, issues with the bus services in Coventry stem from the fact that we have been going through 4 years of economic strife and instability after the 2020 COVID-19 pandemic. During the pandemic, as drivers had to isolate, bus companies in the Coventry area were hit hard with reduced revenues from fares as services had to be cut.[45] Although larger companies such as National Express and Stagecoach were able to take the economic hit, smaller service providers such as Travel de Courcey were forced to go into administration.[46] The deregulated nature of the bus network in the Coventry area also contributed to the reduction in bus services, since companies are in their rights to cut the frequency of buses and bus routes altogether should they feel it necessary in times of hardship.[47] This was the start of the story for bus lines in Coventry, and up to now the situation has not improved.

Even if larger companies were able to survive the hit in 2020, they have continued to struggle causing bus services to suffer as a result. Stagecoach services have been reported to be unreliable, with continuing underprovision of bus drivers as well as buses which simply never arrive.[48] To avoid making cuts to services altogether, bus companies have been forced to reduce the frequency with which services run, entailing that less customers are able to get on a bus when they do arrive for the saturation of people eager to get on.[49] This is in the best of cases, even larger Bus service providers have been forced to close down important transit lines, starting in January 2023 and with greater threat of more being closed for financial tightening on company budgets.[50] Cuts and financial hardships for bus companies in Coventry were made even worse by driver strike action against NX Bus, the West Midlands bus provider which is also dependent on government subsidy and which only made £6.5 million profit on a revenue of £140 in 2021.[51]

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[45] Latifa Yedroudj, 2022, Coventry bus services reduced amid 'nationwide issue of driver shortages'
[46] Nicky Godding, 2020, Much-loved Coventry bus and coach company falls into administration
[47] West Midlands Combined Authority, 2022, Transport Delivery Committee
[48] BBC, 2023, Anger over Stagecoach bus services in Coventry and Warwickshire
[49] Ben Eccleston, 2022, Changes to Coventry bus timetables will see reduced services
[50] Transport for West Midlands, 2022, Bus Service Changes from 1 January 2023
[51] WMBU, 2023, OPINION: After the strikes, what about the aftermath?

On the matter of public subsidisation, this is another source of instability for Bus companies in Coventry and the surrounding area. As fear over the pandemic was at its peak the UK Government was not shy about all the public spending it was willing to invest to ensure that the economy would not go into recession.[52] However, as years have gone by and subsequent Prime Ministers have returned to the rhetoric of austerity, it has become clear that local councils are again struggling to keep their finances above water.[53] A report from the University of Newcastle highlighted just this, that local councils are now struggling to manage their finances as a result of government funding cuts.[54]

But what effect does this have on the bus services in Coventry and the surrounding area? As previously mentioned, many bus companies depend on the aid given by local councils, and have done so for years after the COVID pandemic plunged them into economic despair. However, it is now the Councils themselves that are struggling with their finances, and they can no longer give a helping hand to bus companies.[55] These issues came to a head recently with the Coventry city council pulling out of the funding to 5 major school bus routes in the city, a move that has produced outrage from affected parents whose children may have to take a longer route to school.[56] It has even gotten to the point where George Duggins, leader of the Coventry City council has openly declared the possibility of bankruptcy for the council.[57]

This is a fundamental issue that needs to be solved for the good of Coventry citizens. The cost-of-living crisis that has gripped the nation makes private transport through cars all the more difficult for those that are already struggling with the basic necessities of life. Public transport is fundamental for ensuring that everyone is able to get from A to B cheaply, and reliably, something that is becoming more and more of a luxury as the days go by. In this section we have explored the causes of the issue of Bus transportation in Coventry. From already struggling bus companies to sensitive bus services and local councils unable to pick up their slack when the private firms fail. In the next section we will tackle the issue head on, suggesting a solution to this major, and ultimately regressive, problem affecting Coventry's public transportation.

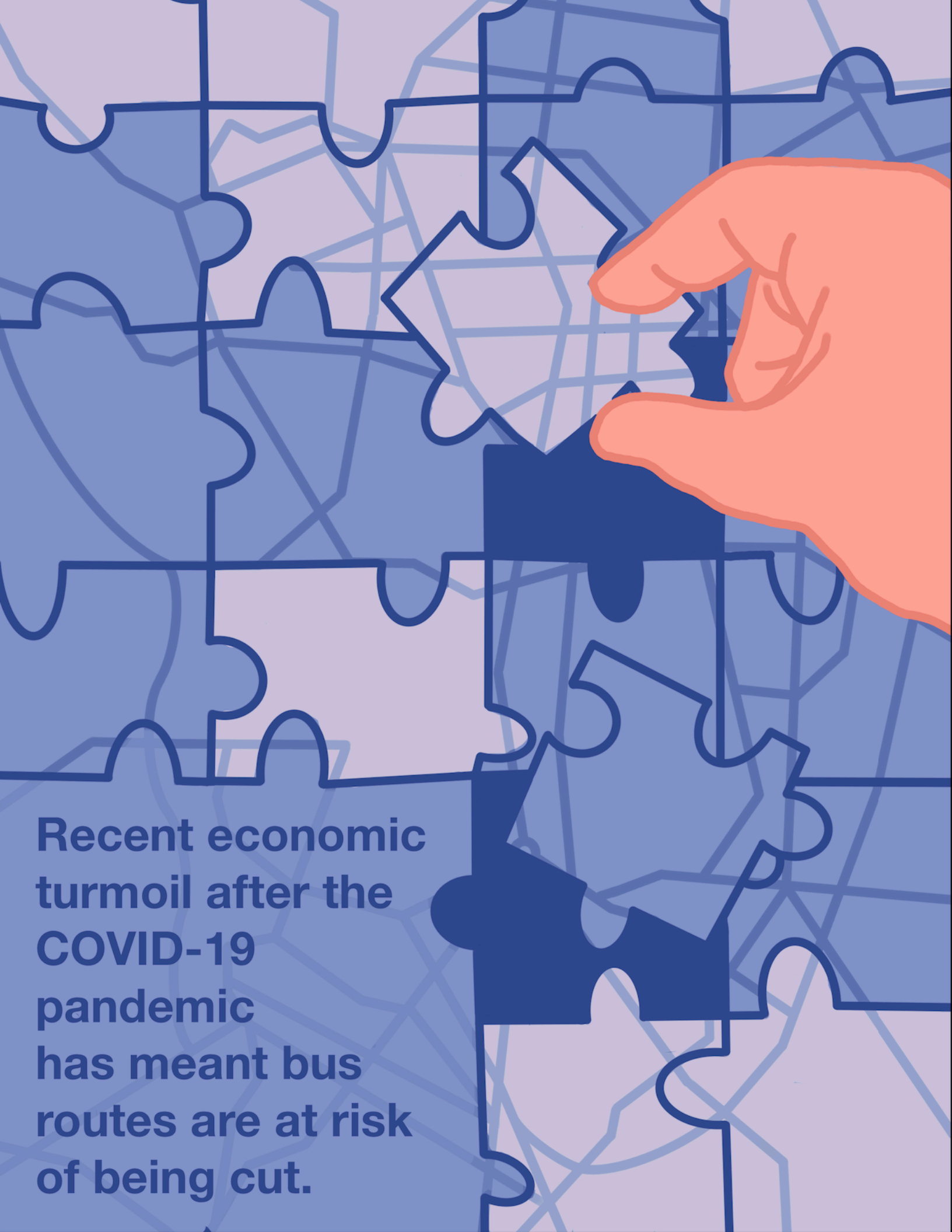[52] UK Parliament, 2023, Public spending during the Covid-19 pandemic
[53] Patrick Butler, 2024, The devastating impact Covid and austerity had on children in England
[54] Newcastle University, 2023, Local councils struggling to manage finances following cuts
[55] Economics Observatory, 2020, How is coronavirus affecting local government finances?
[56] Ellie Brown, 2024, Coventry parents demand action as school bus routes at risk from cuts
[57] BBC, 2024, Council leader defends bankruptcy warnings

Recent economic turmoil after the COVID-19 pandemic has meant bus routes are at risk of being cut.

Coventry and its Issue of Crime.

This in-depth analysis aims to uncover the underlying reasons behind the increasing security challenges that Coventry is currently grappling with. The study has identified two primary factors contributing to these challenges: insufficient funding and human deficiencies. Additionally, this report will primarily focus on the contentious issues surrounding predictive policing and facial recognition, which have emerged as the central controversies in the realm of security measures.[58]

To start with, the city of Coventry is currently facing a funding problem that has had a detrimental impact on the security situation. The announcement made by Coventry City Council in 2023 about cutting down on new initiatives signifies the strain on finances caused by insufficient funding.[59] As a result, the reduced availability of resources and support for security measures can lead to compromised security in the city.[60]

In fact, the root of the problem lies in the UK government's austerity policy. Following the 2008 financial crisis, the government had to allocate significant funds to rescue struggling financial institutions, leading to an economic downturn.[61] In an attempt to reduce the budget deficit, the government implemented cuts in public spending while slightly increasing taxes to stimulate growth.[62, 63] Unfortunately, these measures resulted in reduced funding for cities, pushing them perilously close to bankruptcy.[64, 65] As a consequence, there has been a lack of investment in new initiatives and preventive programs, creating gaps in the security infrastructure and posing greater challenges in effectively addressing and preventing crimes.

As mentioned in the briefing, despite the ongoing efforts of Coventry City Council to address criminal activities, the effectiveness of their implemented measures has been

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[58] Elizabeth E. Joh, 2022, Ethical AI in American Policing, (p.7)

[59] Coventry City Council, 2023, Coventry City Council finances - frequently asked questions

[60] Ibid.

[61] HM Treasury, 2012, Review of HM Treasury's management response to the financial crisis, (p. 23-33)

[62] Rob Merrick, 2017, Chancellor Philip Hammond accused of more 'failed austerity' after demanding extra spending cuts before the election

[63] Oxfam, 2013, The True Cost of Austerity and Inequality: UK Case Study, (p.2-4)

[64] Rowena Mason, 2023, Councils 'on their knees' as they face record £3.5bn funding shortfall

[65] Fergus Hewison and Adrian Goldberg, 2023, Bankrupt Birmingham: Why the council went bust

questioned. Initiatives like Operation Advance[66] and the CIRV programme[67] have not yielded the desired results in reducing crime rates.[68]

To add fuel to the fire, humans possess intrinsic limitations that can result in inefficient policing, whereas AI offers greater accuracy in various aspects. Human decision-making remains important in law enforcement, even when supported by AI technologies.[69] AI serves as a tool to expedite and enhance the decision-making process, rather than replacing actual police work.[70] The role of AI in policing is assistive and complementary, ensuring its intended purpose as a supportive aid.[71] It is unlikely that AI will replace the essential tasks of policing in the foreseeable future.[72] AI revolutionises policing by offering vast untapped opportunities, enhancing various aspects of police work.

In the area of predictive policing, regression analysis is frequently used which aims to forecast and prevent crimes by utilising social and economic data.[73] Through regression models, crimes can be explained by analysing these data points. AI technology further enhances this approach, enabling several functions such as criminal recognition, hotspot identification, criminal profiling, assessment of multiple offences.[74] In 2011, the Santa Cruz Police Department in California pioneered a predictive policing program, making it one of the earliest adopters in the United States.[75] Developed by PredPol (now Geolitica), this program utilised historical crime data to identify specific 500-square-foot areas that exhibited high crime rates.[76]

Additionally, in the area of facial recognition, it uses algorithms to match images in a database. This technology collects and classifies images, trains the data, and conducts

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[66] West Midlands Police, 2023, Op Advance - Coventry August

[67] West Midlands Police Crime and Commissioner, 2023, Knife crime reduced dramatically in Coventry

[68] CoventryLive, 2023, Most dangerous place in Coventry and Warwickshire where a crime is committed every 90 minutes

[69] Patrick Perrot, 2017, What about AI in Criminal Intelligence: From Predictive Policing to AI Perspectives, (p.12)

[70] Ibid.

[71] Evgeni Aizenberg and Jeroen van den Hoven, 2020, Designing for human rights in AI, (p.7-8)

[72] Sarah Dégallier-Rochat, Mascha Kurpicz-Briki, Nada Endrissat, and Olena Yatsenko, 2022, Human augmentation, not replacement: A research agenda for AI and robotics in the industry, (p.2)

[73] Patrick Perrot, 2017, What about AI in Criminal Intelligence: From Predictive Policing to AI Perspectives, (p.70 - 72)

[74] Ibid, (p.73)

[75] Mark Andrejevic, Lina Dencik and Emiliano Treré, 2020, From pre-emption to slowness: Assessing the contrasting temporalities of data-driven predictive policing

[76] IBM Center for The Business of Government, 2013, Predictive Policing: Preventing Crime with Data and Analytics, (p.19)

testing to deliver accurate results.[77] It can be utilised for face verification, identification, and general surveillance in locations such as airports or public streets.[78] It was widely used in countries, such as China[79] and Australia,[80] which found that it has led to a decrease in crime rate significantly.[81, 82]

Such preventive policing measures re-enforces the long-standing "broken windows" crime theory which is aimed at reducing crime rate.[83] The theory suggests that neglecting petty crimes or disorderly behaviours can create an environment signalling a lack of care, leading to more serious crimes.[84] By focusing on addressing petty crimes by leveraging technology, the police can prevent future crimes and create a less conducive environment for criminal activity. Without the use of technology, the crime rate in Coventry is likely to continue rising, as traditional methods alone may not be sufficient to effectively combat and deter criminal behaviour.

Though it must be noted that implementing advanced technology in law enforcement may incur high installation costs.[85] However, the benefits of improved resource management through predictive policing and facial recognition can outweigh these expenses.[86] By optimising resource allocation, law enforcement can reduce crime rates, streamline investigations, and make better staffing decisions, leading to cost savings in the long run.[87]

[77] Andrew Guthrie Ferguson, 2021, Facial Recognition and the Fourth Amendment, (p.22)
[78] Information Commissioner's Office, 2021, Information Commissioner's Opinion: The use of live facial recognition technology in public places, (p.16)
[79] 中商情報網, 2023, 2023年中国人脸识别行业最新政策汇总一览 (Summary of the Latest Policies in China's Facial Recognition Industry in 2023)
[80] BBC, 2022, The nation where your 'faceprint' is already being tracked
[81] Ibid.
[82] 中國中央電視台 (China Central Television, CCTV), 2023, 我国已成为犯罪率最低安全感最高国家之一 (China has become one of the countries with the lowest crime rate and highest sense of security)
[83] George L. Kelling and James Q. Wilson, 1982, Broken Windows: The police and neighbourhood safety, (p.5)
[84] Ibid, (p.1 & p.11)
[85] Voice of San Diego, 2021, Morning Report: Law Enforcement Is Spending on 'Predictive Policing'
[86] National Institute of Justice: Crime Solutions, 2022, Program Profile: Predictive Policing Model in Los Angeles, Calif.
[87] Ibid.

Insight Conclusion:

Over the course of this Insight we have explored and added greater context to the issues introduced in the briefing.

First, we expanded on the issue of food poverty in Coventry, where the shifting labour dynamics in the region left it vulnerable to economic crises that would eventually come in the form of the COVID pandemic. Absent universal credit, an asymmetric and difficult housing market, as well as surging unemployment figures have made food vulnerability a much greater problem in Coventry, especially for children.

Regarding the issue of bus transport, we have also analysed the inherently flexible and decentralised structure of public transport provision, a dynamic that ensures economic hardship is immediately reflected in prices and reduced routes. Furthermore, the dire situation of Coventry council after government cutbacks have cut one of the last lifelines bus companies sin Coventry had, something that again will affect children and the most vulnerable disproportionately.

Lastly, this Insight analysed and explained the growing issue of crime and anti-social behaviour in Coventry. with one crime being committed every 90 minutes, the insight again pointed to government lack of funding as one of the main explanatory reasons for surging crime numbers in the area. Finally, the section hinted at possible solutions, notably AI to combat this issue, a policy recommendation expanded upon and clarified in the next section.

Policy Recommendations

Overview

Given the exploration of the three main issues we have identified in Coventry, we will now provide our own solutions to these issues in a way that respects local constraints and adjacent limitations in the areas we are attempting to correct.

We will start with a multi-angled approach to tackling food poverty in Coventry, deploying modern technology and methods to energise the distribution and production of food to the most in-need communities.

Secondly, we will describe a method for collecting information and building a city-wide database bus companies can use to make their services more efficient.

Finally, we will take into consideration ethical concerns when devising a way to use artificial intelligence and technology to crack down on crime.

Action 1: Foodbanks.

In the quest to transform Coventry into a smart city, a significant opportunity arises to revolutionise the approach to food security. The integration of technology and innovation in addressing food poverty can lead to sustainable and profound impacts on the well-being of its citizens. The policy recommendation presented herein is designed to exploit the potential of smart city capabilities to eradicate food poverty and ensure no resident is left behind in the march towards progress.

The crux of the recommendation involves the establishment of a smart logistics network for food distribution. By harnessing the power of the Internet of Things (IoT) and big data analytics, Coventry can predict food bank demand in real-time, optimise food distribution routes, and reduce wastage. A study published in January 2022, by the University of Illinois, details how machine learning models can help facilitate better informed and quick decision-making in the complex environment of food insecurity.[88] A smart logistics network would allow for dynamic routing of food supplies based on predictive analytics, ensuring that the distribution is not only efficient but also responsive to the fluctuating demands.[89]

Additionally, the promotion of smart agriculture within the city's urban spaces is paramount. Initiatives like vertical farming, hydroponics, and community-led urban gardens equipped with sensors and AI-driven growth analytics can boost local food production.[90] Precision farming allows for farming to be more accurate and automation in smart, IoT-driven smart greenhouses can monitor and control the climate whilst data is being stored in cloud-based platforms.[91] The use of agricultural drones can provide data on a whole array of metrics to farmers including yield prediction, plant health indices and plant counting, which improves efficiency and accuracy.[92] This not only secures a fresh supply of produce but also educates and involves the community in sustainable practices, enhancing the city's food sovereignty.

The deployment of a city-wide digital platform is another pillar of this policy. This platform would serve as a hub for residents to access food-related services, providing information on food bank locations, operating hours, and availability of food items. For example, the Greater Boston Food Bank, implemented a NetSuite e-commerce platform and upgraded to Salesforce CRM systems to manage interactions with donors and volunteers, and to

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[88] Aces News, 2022, How machine learning can improve food insecurity predictions
[89] Shipsy, n.d., Optimizing Food Delivery Logistics: The 'Whys' and 'Hows' Explained
[90] Smarter Technologies, n.d., The Complete Guide to Smart Agriculture and Farming
[91] IoT for all, 2023, What is Smart Farming? It's the Future of Agriculture
[92] Connected Places, 2022, The case for drones in UK agriculture

allow food pantries to schedule deliveries.[93] Moreover, it would connect surplus food from retailers and restaurants with food banks and community organisations, ensuring that excess food reaches those in need rather than going to waste. For instance, OLIO is a sharing platform that has built up more than 4 million users globally where almost 17 million food portions have been shared using this platform.[94]

Furthermore, the recommendation includes the establishment of a Smart Food Security Task Force. The Scottish Government, introduced a Short Life Food Security and Supply Taskforce, with the purpose to monitor potential disruption to food security and supply following the impacts of the Ukraine conflict.[95] This multidisciplinary team would be responsible for integrating various smart initiatives, monitoring progress, and adapting strategies to evolving needs and technological advancements. The task force would be a central point for collaboration between technologists, policymakers, food charities, and community groups.

To complement these technological interventions, it is essential to foster a culture of innovation within the community.[96] Educational programs focused on smart technologies, nutrition, and sustainable living can empower citizens to take an active role in the city's transformation. These can include workshops on smart gardening, cooking classes using locally grown produce, and educational campaigns on reducing food waste.

In conclusion, by embracing smart city technologies and innovative approaches to urban planning, Coventry can set a precedent in addressing food poverty. This policy recommendation is not merely a blueprint for a single project but a comprehensive strategy for systemic change. It aligns with the city's vision of becoming a smart city and reflects a commitment to leveraging technology for social good. The effective implementation of these recommendations holds the promise of not just alleviating food poverty but also of enhancing the quality of life and resilience of Coventry's communities in the face of future challenges. In addition, given the economic hardships faced, alongside improving operational efficiency of food banks, the investment in technology would allow for local councils and governments to reap the benefits from cost-efficient solutions.

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[93] Mckinsey and Company, 2021, Digital transformation comes to food banks
[94] Coventry University, 2021, The Future of Food Symposium
[95] Scottish Government, 2022, Short Life Food Security and Supply Taskforce: report
[96] Omrania, 2022, Smart cities need culture and community, not just data

Action 2: A Centralised, Cross-company Data model for Future Transport Infrastructure.

In a post-pandemic society, an innovative, efficient, and consistent new data model for Transportation is needed. As the possibility of increased austerity intersects with declining transport routes provided by the major bus companies in Coventry and the West Midlands, we propose a centralised, cross-company data-tech system which works adjacently with local governments to provide a new deal for Coventry commuters.

Small elements of a 'smart' model to transport already exist in most modern commuting systems - the implementation of real-time mass transit schedule updates, the addition of Wi-Fi and charging systems on many buses, and phone applications for buying tickets.

We propose one main policy on this issue: Firstly, the creation of a Local Government-made B2B system which collates all passenger, ticket, destination, and current event data into one overall framework which will be accessible by all bus providers in Coventry.

Through an aggregation of data, local governments can provide an advisory role in setting bus routes and arrival times in a manner which predicts commuter behaviours. Currently, bus arrival times in Coventry are static, being set within any specified intervals of time (i.e. every 20 minutes) depending on the provider and route. While this builds stability for consumers, it fails to provide enough capacity during peak rush hours.

According to an unofficial list which appears to be the best estimate, there are around 170 bus fleets in Coventry across the National Express company.[97] In a current model of transport provision, these 170 buses are spread across a full-day, ensuring that every line has around one bus every 10-20 minutes consistently. Under a smart data-based approach, more buses would be active in the most crowded regions during rush hour, which would present a dramatically different view of how transportation could be organised.

It has been shown[98] overcrowding during peak hours is a determining factor in choosing between different modes of transportation, and a smart city approach believes that providing enough capacity during mornings and early evenings takes precedence over day-long stability.

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[97] BusTimes.Org, n.d., Fleet List
[98] Julia Dahm, 2022, German rail overcrowded after €9 ticket launch

As part of our proposal, we also support and commend a Tap-On-Tap-Off (TOTO) system in Coventry that has been used in other places in the United Kingdom such as Bristol,[99] Reading,[100] Oxford,[101] and other cities. TOTO systems allow customers to use their debit, credit, or contactless payment cards at the start of any journey when they enter a bus, with them tapping 'off' when they leave their bus which automatically calculates their distance travelled and gives them the most appropriate ticket according to their journey, on a day-to-day, week-to-week basis, a process that has already been up and running with First Bus in Bristol.

If a TOTO system is incorporated across all major bus services in Coventry, local governments and bus providers can have a much more accurate knowledge of not just when commuters enter a bus, but also leave it. In addition to short-term subsidisation of a TOTO system, both in incorporation to bus networks, and to ticket prices, commuters can be motivated to use this instead of traditional ticket purchasing, which over a longer period of time, can dramatically increase total data availability.

Data would be directly stored by the individual bus companies which would, in turn, be collected by the West Midlands Combined Authority which holds a Public Insight database through the Transport for West Midlands organisation.[102] This data would in-turn be processed and made accessible for the Coventry City Council and other stakeholders.

This data is technologically invaluable - while there will always exist constraints on the amount of data collected as alternative forms of ticketing will still be available to customers, however if successfully promoted, a TOTO system can highly develop more efficient transport routes and lines across the Coventry region. Within one year of implementing a TOTO system, it is possible to have a large data pool of consumer behaviours across all of Coventry, after which an overall review of public transport in Coventry and the wider region can occur, giving way to large-scale reform.

A short-term funding of the technological and social development of these systems can be economical long-term; more efficient planning of public transport can help customers reach destinations faster. Evaluating current routes and customer patterns can help understand demand so that the scarce number of drivers can be better allocated across

[99] FirstBus, n.d., Tap On, Tap Off - the easiest way to travel by bus
[100] ReadingBuses, n.d., Introducing tap on tap off
[101] Oxford Bus Company, n.d., Freeflow
[102] Transport for West Midlands, n.d., Data insight

Coventry. A shift to a people-based, data-based model can promote public commuting over longer periods of time, so that on a grand scale, a transformative infrastructure can give way to a transformative city.

A Smart Data-based approach to Coventry's bus issues allows for a complete re-evaluation of current lines, paths, connections between services, and the relationship between different bus providers with each other. Through consultations, assessments, and additional considerations, it is possible to build a Coventry that is faster, richer, and better.

Action 3: Predictive Policing.

The topic of regulating technology is far from novel and has been a subject of discussion for the past decade.[103] However, what renders this discourse particularly urgent is the recent substantial surge in OpenAI's influence and the vast untapped benefits it promises,[104] juxtaposed with the potential adverse consequences it could entail.[105] The following two policy recommendations focus on leveraging technology in the field of policing by introducing predictive policing and facial recognition. Every policy recommendation will address pertinent ethical challenges and propose potential solutions, with the aim of making a meaningful contribution to the ongoing discourse on AI regulation.

Predictive policing is a powerful methodology that harnesses historical data to create accurate forecasts of potential criminal hotspots.[106] By analysing past patterns and trends, law enforcement agencies can proactively allocate their resources to the right places and times, effectively deterring and detecting criminal activity.[107] This intelligence-led policing empowers police officers to stay one step ahead, enhancing their ability to maintain public safety and prevent crime.[108]

The idea is based on both routine activity theory[109] and crime pattern theory,[110] which combined underscore the significance of the convergence of offenders and victims in time and place. Consequently, it becomes possible to identify contextual factors and patterns that influence crime opportunities.

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[103] Roger McNamee, 2020, Big Tech Needs to Be Regulated. Here Are 4 Ways to Curb Disinformation and Protect Our Privacy
[104] OpenAI, 2023, GPT-4
[105] Michael Cheng-Tek Tai, 2020, The impact of artificial intelligence on human society and bioethics
[106] Beth Pearsall, 2010, Predictive Policing: The Future of Law Enforcement? , (p.1-2)
[107] Albert Meijer, 2019, Predictive Policing: Review of Benefits and Drawbacks
[108] RAND Corporation and National Institute of Justice, 2013, Predictive Policing: The Role of Crime Forecasting in Law Enforcement Operations, (p.64-67)
[109] Lawrence E. Cohen, Marcus Felson, 1979, Social Change and Crime Rate Trends: A Routine Activity Approach, (p.602-605)
[110] Bonnie S. Fisher & Steven P. Lab, 2010, Encyclopedia of Victimology and Crime Prevention, (p.192-198)

The process of predictive policing involves four main steps[111]: (1) In the data collection and preparation stage, relevant data is gathered and linked to a grid map using geocoding. This allows for analysis at the smallest unit of measurement, the grid cell, where a risk percentage is eventually calculated. (2) In the modelling step, a statistical model is trained using historical data, identifying patterns and linking indicator values to the risk of future crime events. (3) During the prediction step, the model generates risk percentages for each grid cell based on current indicator values, allowing for predictions within a specific time frame. (4) In the mapping phase, high-risk areas are selected based on a critical threshold value and displayed on a map, often colour-coded by risk level and crime type.

PredPol, initially developed in collaboration with the University of California, Los Angeles (UCLA), was originally designed for the Los Angeles Police Department (LAPD).[112] Since then, it has been implemented in cities across the United States, Europe, and the UK, including London, Kent, and Yorkshire.[113] The effectiveness of PredPol's methodology is evident. Comparative analysis between PredPol's predictive policing approach and the traditional best practice of hotspot maps generated by dedicated crime analysts revealed that, on average, the predictive policing approach predicted 1.4 to 2.2 times more crimes.[114] Furthermore, deploying police patrols based on the predictions generated by PredPol resulted in an average reduction of 7.4% in crime volume.[115] These findings demonstrate the tangible impact and improved outcomes achieved through the implementation of PredPol's predictive policing techniques.

Also, the Crime Anticipation System ("CAS") is implemented on a national level in the Netherlands.[116] In 2014, the CAS exhibited a 15% accurate prediction rate for home burglaries in Amsterdam and a 36% almost accurate prediction rate, meaning that a predicted crime event occurred in a neighbouring grid cell to the actual crime event In the case of muggings, CAS achieved a 33% correct prediction rate and a 57% almost accurate prediction rate.[117] These findings highlight CAS's ability to provide valuable

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[111] Wim Hardyns & Anneleen Rummens, 2017, Predictive Policing as a New Tool for Law Enforcement? Recent Developments and Challenges, (p.204-205)

[112] G.O.Mohler,M. B. Short,Sean Malinowski,Mark Johnson,G. E. Tita,Andrea L. Bertozzi & P. J. Brantingham, 2016, Randomised Controlled Field Trials of Predictive Policing
[113] Ibid.
[114] Ibid.
[115] Ibid.
[116] Politie, 2013, CAS: Crime Anticipation System Predictive Policing in Amsterdam
[117] Ibid.

insights into crime patterns, enhancing the effectiveness of law enforcement efforts in addressing home burglaries and mugging incidents.

However, it's essential to acknowledge that predictive analysis alone cannot fully comprehend the intricate nature of crime or serve as a complete replacement for sustained structural prevention measures. It's crucial to view predictive policing as a complementary technique that works hand in hand with more traditional quantitative methods.[118] By combining the strengths of both approaches, law enforcement can create a more holistic and effective crime prevention strategy that takes into account the nuances of criminal behaviour and the underlying social factors at play.

The Current Legislative Regime

As of early 2024, the UK Government has recently concluded its consultation process regarding the regulation of artificial intelligence, which was initiated in response to the White Paper published in 2023.[119] Although no specific policies have been officially announced at this stage, this policy suggestion aims to actively contribute to the ongoing discourse and help shape the future of AI regulation in the UK.

Tackling Racial Bias

Ensuring data integrity is crucial in order to prevent racial profiling when employing facial recognition technology. When AI learns from existing data, it assimilates information about the features present in the data and constructs a mathematical model.[120] Then, the model undergoes frequent adjustments by fine-tuning its internal parameters to minimise the error rate and enhance its performance.[121] However, in the context of predictive policing, there is a concern that machines may unintentionally incorporate individual characteristics, leading to the unfortunate situation where certain races are erroneously perceived as high risk.[122] Such circumstances can be seen as a form of racial profiling.

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[118] Wim Hardyns & Anneleen Rummens, 2017, Predictive Policing as a New Tool for Law Enforcement? Recent Developments and Challenges, (p.204-205)

[119] Department for Science, Innovation & Technology, 2024, A pro-innovation approach to AI regulation: government response

[120] James A. Nichols, Hsien W. Herbert Chan, and Matthew A. B. Baker, 2019, Machine learning: applications of artificial intelligence to imaging and diagnosis

[121] Antreas Antoniou, HarrisonEdwards and AmosStorkey, 2019, How to Train Your MAML, (p.1-2)

[122] European Union Agency for Fundamental Rights, 2022, Bias in Algorithms – Artificial Intelligence and Discrimination, (p.22-26)

It is crucial for the UK government to consider implementing pre-deployment requirements to address racial bias in technology. Counterfactual fairness involves conducting rigorous tests to ensure that a model's decisions remain consistent and unbiased, even when hypothetical changes are made to sensitive attributes like race, gender, or sexual orientation.[123] By subjecting the model to these additional tests, we can better understand and mitigate any potential biases that may arise in real-world scenarios.[124] This approach helps promote fairness and equity, ensuring that the technology is not perpetuating or amplifying existing biases.[125]

Some more radical policies propose the complete exclusion of data related to race from the machine learning process.[126] However, this approach faces formidable concerns due to the deep-rooted presence of racism in society, which can persist and be perpetuated through biased data.[127] Critics dismiss this idea as a mere "psychological fiction," emphasising the ethical concern that adopting a "colorblind" approach—where the race parameter is removed—does not address the underlying racist institutions.[128, 129] It is crucial to recognize that achieving equality requires actively dismantling systemic racism rather than relying solely on the elimination of race in machine learning.

Finally, the aforementioned government's austerity policy has been identified as a contributing factor to the rise in the crime rate in Coventry. It must be acknowledged that installing a new system will incur extra financial burden on the authority.[130] However, it is important to note that the availability of funding is subject to government policies and the priorities of different political parties.[131, 132] Therefore, within the scope of this report, it is not possible to comprehensively delve into the intricacies of funding and its distribution.

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[123] Matt Kusner, Joshua Loftus, Chris Russell and Ricardo Silva, 2017, Counterfactual Fairness, (p.9)

[124] Matt Kusner, Joshua Loftus, Chris Russell and Ricardo Silva, 2017, Counterfactual Fairness, (p.9)

[125] Ibid.

[126] Brian Uzzi, 2020, A Simple Tactic That Could Help Reduce Bias in AI

[127] Robert Shanklin, Michele Samorani, Shannon Harris and Michael A. Santoro, 2022, Ethical Redress of Racial Inequities in AI: Lessons from Decoupling Machine Learning from Optimization in Medical Appointment Scheduling

[128] Ibid.

[129] Michelle Alexander and Chatodd Floyd, 2010, The New Jim Crow: Mass Incarceration in the Age of Colorblindness

[130] Sarah Marsh, 2019, UK police use of computer programs to predict crime sparks discrimination warning

[131] Pippa Crerar, 2023, Keir Starmer: 'I'm against austerity. But we're going to have to be fiscally disciplined'

[132] Toby Helm, Anna Fazackerley and David Barnett, 2023, How austerity (and ideology) broke Britain

Predictive policing has the potential to significantly enhance law enforcement efforts, but it must be acknowledged that its implementation is accompanied by a set of ethical challenges. By recognizing and addressing these challenges, we can strive to strike a balance between the benefits of predictive policing and the protection of individual rights and societal well-being. Through ongoing discussions and thoughtful regulation, we can ensure that the deployment of predictive policing technologies is conducted responsibly and in a manner that upholds principles of fairness, transparency, and accountability.

Action 4: Facial Recognition

Facial recognition technology is a sophisticated methodology that leverages advanced algorithms to analyse unique facial features and patterns of individuals.[133] By comparing these facial characteristics with a database of known identities, facial recognition systems can accurately identify individuals, providing law enforcement agencies with a powerful tool to enhance public safety and aid in the apprehension of criminals.[134]

Implementing face recognition involves three main steps[135]: (1) In the face detection step, the system identifies human faces in an image using various techniques, which will be elaborated below.[136] (2) In the stage of feature extraction, where prominent facial features like the mouth, nose, and eyes are captured. This step creates a unique representation or "signature" of each face using methods like HOG, Eigenface, and local binary pattern (LBP).[137] (3) In the face matching step, the extracted features are compared to known faces stored in a database. This enables tasks like identification, where a test face is compared against a set of faces, and verification, where the test face is compared to a known face in the database to determine acceptance or rejection.[138]

Though there are three different approaches in face detection[139]: (1) The local approach focuses on specific facial features rather than considering the entire face. (2) The holistic (subspace) approach, the entire face is used as input data, which is then projected into a smaller subspace or correlation plane. (3) The hybrid approach combines both local and global features to enhance the accuracy of face recognition.

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[133] Yassin Kortli,Maher Jridi,Ayman Al Falou, and Mohamed Atr, 2020,i Face Recognition Systems: A Survey

[134] Gov.UK, 2023, Police use of Facial Recognition: Factsheet

[135] Wim Hardyns & Anneleen Rummens, 2017, Predictive Policing as a New Tool for Law Enforcement? Recent Developments and Challenges, (p.204-205)

[136] Ibid.

[137] Ibid.

[138] Ibid.

[139] Ibid.

Currently, facial recognition technology has been implemented in several European countries; however, its effectiveness is still being evaluated.[140] Notably, China has emerged as a frontrunner in the successful deployment of facial recognition systems.[141]

As of early 2024, the UK Government has recently concluded its consultation process regarding the regulation of artificial intelligence, which was initiated in response to the White Paper published in 2023.[142] Although no specific policies have been officially announced at this stage, this policy suggestion aims to actively contribute to the ongoing discourse and help shape the future of AI regulation in the UK. In this section, we will begin by addressing the two primary objectives and presenting relevant solutions.

Improving Public Trust

It is essential that the government will need to improve the transparency of the use of technology. The fear among people regarding the potential weaponization of police forces is a valid and pressing concern.[143, 144, 145] In order to alleviate this fear and build public trust, it is essential for authorities to prioritise transparency in their use of technology.[146] Citizens have the right to know how these technologies are being employed and to what extent they are impacting law enforcement practices.[147] In 2018, The New Orleans Police Department faced significant backlash and public outcry after it was uncovered that they had clandestinely employed predictive policing technology for a span of six years without disclosing these practices to the public or seeking necessary legislative oversight.[148] Numerous other instances can be cited, one of which includes the New York State Department (NYPD), where the court has notably compelled the NYPD to disclose further information regarding their use of AI.[149] Covert implementation of technology undermines public trust and erodes its legitimacy, generating widespread

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[140] J. Sunde; M.A. Butavicius; I. Graves; D. Hemming; V. Ivancevic; R. Johnson; A.K. Kaine; B.A. McLindin; K. Meaney, 2003, A methodology for evaluating the operational effectiveness of facial recognition systems

[141] Alfred Ng, 2020, How China uses facial recognition to control human behaviour

[142] Department for Science, Innovation & Technology, 2024, A pro-innovation approach to AI regulation: government response

[143] Sky News, 2023, 'Robot dog' among new gadgets unveiled for New York City police

[144] Hannah Harris and Andrew Burke, 2021, Artificial Intelligence, Policing and Ethics – a best practice model for AI enabled policing in Australia

[145] Sophie Bushwick, 2021, The NYPD's Robot Dog Was a Really Bad Idea: Here's What Went Wrong

[146] Elizabeth E. Joh, 2022, Ethical AI in American Policing (p. 281-283)

[147] Evgeni Aizenberg and Jeroen van den Hoven, 2020, Designing for human rights in AI

[148] Nicholas Corsaro, 2015, Most Challenging of Contexts: Assessing the Impact of Focused Deterrence on Serious Violence in New Orleans, (p.471–505)

[149] Tzu-Wei Hung and Chun-Ping Yen, 2020, On the person-based predictive policing of AI, (p.171)

opposition.[150] Operating opaquely risks alienating the public and fueling scepticism regarding the reliability of such technologies.[151]

Currently, the UK operates under the Data Protection Act of 2018, which serves as the foundation for safeguarding personal data.[152] However, the government has recognized the need for revisions to address the rapid advancements in technology.[153] It acknowledges that the existing legislation falls short of perfection and requires amendments to effectively incorporate these recent developments.[154] One area of concern is the provision in the current law that allows for exceptions regarding automated decision-making.[155] The interpretation of "significant decisions" within this context has been narrowly defined, potentially limiting its applicability.[156]

The question arises as to how "transparent" users need to be. In order to avoid a Blade Runner-esque dystopia, it is crucial not only to educate people about the use of technology but also to ensure their right to transparency.[157] This includes giving them the ability to express their dissatisfaction if they have been treated unfairly by the technology.[158]

AI Label

To enhance transparency, another potential measure is the introduction of a mandatory requirement for an AI Label. This label would function similarly to a nutritional label, providing information about the performance of the AI product across various aspects.[159] The metrics included in the AI Label could encompass, but are not limited to, transparency, accountability, privacy, reliability, and environmental sustainability, among

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[150] Council of Europe, 2021, Study on the Impact of Digital Transformation on Democracy and Good Governance , (p.4-5 and p.9-12)
[151] National Criminal Reference Service (U.S Department of Justice), 2017, Research on the Impact of Technology on Policing Strategy in the 21st Century, (p.12)
[152] Gov.UK, 2018, The Data Protection Act
[153] Department for Science, Innovation & Technology, 2023, The UK's International Technology Strategy
[154] Ibid.
[155] Privacy International, 2018, UK Data Protection Act 2018 – 339 pages still falls short on human rights protection
[156] Fatemeh Alizadeh, Aikaterini Mniestri and Gunnar Stevens, 2022, Does Anyone Dream of Invisible A.I.? A Critique of the Making Invisible of A.I. Policing , (p.6)
[157] Ibid.
[158] Ibid, (p.4-5)
[159] Kees Stuurman , Eric Lachaud, 2022, Regulating AI. A label to complete the proposed Act on Artificial Intelligence, (p.13-14)

others.[160] By implementing an AI Label, users would have access to crucial information that aids in making informed decisions about the AI products they engage with.

These policy recommendations seek to foster a hopeful outlook by bridging the discourse between embracing technological advancements and addressing ethical considerations. Finding the right balance, we can harness the potential of technology while ensuring that it aligns with our values and safeguards individual rights. With careful implementation and thoughtful regulations, we can create a future where technology serves as a force for positive change, enhancing our lives and society as a whole.

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[160] Ibid.

Conclusion

Over the course of this report, we have explored some of the main issues facing Coventry today, and have attempted to develop modern and innovative solutions to them given current constraints.

First, we looked at the persistent issue of food poverty, uncovering its source in the ongoing fallout from the COVID-19 crisis and devised a multi-faceted system of food production and distribution previously trialled in other parts of the world to make food banks more efficient.

Secondly, we tackled the issue of bus and public transport performance, using a central database of customer information in order to provide a blueprint to bus companies and allow them to make their services more efficient.

Finally, we looked at the issue of crime, and attempted to implement emerging AI technology in order to tackle crime threats in Coventry, all while remaining firmly aware of ethical problems.

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