Carefully Connected - Towards Designing More Equitable Digital Services

PRIME
Protecting Minority Ethnic Communities Online

POLICY BRIEFING

CAREFULLY CONNECTED – TOWARDS DESIGNING MORE EQUITABLE DIGITAL SERVICES

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	Key findings	Recommendation
1	Current methods of classifying the socio-economic status of geographic regions do not make effective use of geographic information, mostly relying on demographic and socio-economic information. This may lead to misleading classification of such areas, resulting in increased difficulty in using public data to inform policy decisions.	We recommend using tools and algorithms that combine geographic, demographic, and socio-economic information to classify regions more effectively. Our tool called **GOAAT** combines such information and enables policymakers to make informed decisions based on insights on poverty, housing, energy, health, and ethnicity.
2	Minoritised ethnic people desire for more agency and control over their personal data while using essential online services, as data such as immigration status can introduce bias and discrimination. A secure and convenient approach is needed so that personal data can be collected in a constrained and controlled manner, while preserving privacy.	We see Privacy Enhancing Technologies (PETs) as a solution to mitigating these harms. Our demonstrator PET app, **IRESHA Sharecode**, for the Social Housing sector, enables ME individuals to provide the least amount of sensitive eligibility data while preserving privacy but still conveying eligibility information to social housing providers.
3	Essential services are being rapidly digitised, yet designers and developers often lack insights into the concerns and challenges faced by diverse ME communities accessing these services.	We provide the **Persona Creator** app, which uses public datasets to create personas. These personas portray real ME community concerns and experiences of online harms, discrimination and bias while using digital services, and their security and privacy concerns.
4	Digitalisation of services (health, social housing and energy) should ensure that the current and future digital services are unbiased and non-discriminatory, and meet the requirements of ME communities.	We provide design guidelines that can be used by developers and managers of digital services to assess if these services meet the requirements and needs of ME communities.

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1. BETTER GEODEMOGRAPHIC ANALYSIS FOR HOUSING, HEALTH AND ENERGY (GNN OUTPUT AREA ANALYSIS TOOL)

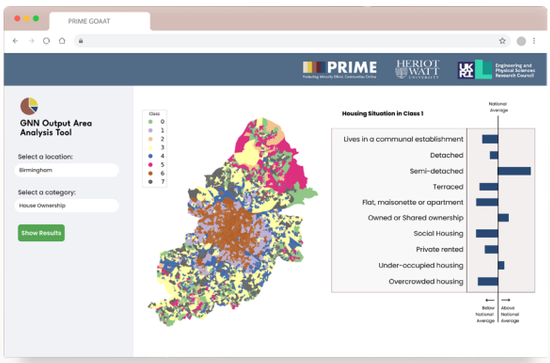

Fig 1: GNN Output Area Analysis Toolkit (GOAAT)

Current methods for classifying the socio-economic status of geographic regions, using public data such as census, do not take into account the interactions between geographically adjacent areas, which include the interaction of people, systems, services, and entities etc. Not considering such interaction leads to misleading classification of such areas [1][2]. This, in turn, makes it difficult to use public data to guide effective policy decisions.

PRIME has developed a technique, using state -of-the-art Graph Neural Networks (GNNs), which automatically account for geographic adjacency and improve socio-economic insights[2]. A tool using this technique, like GOAAT (GNN Output Area Analysis Tool), part of the PRIME Toolkit (See Figure 1) created from the England & Wales 2021 Census Data, should be adopted to help policymakers in health, housing, energy and social policy in central government, devolved administrations, public bodies and local council teams.

2. MINIMISING DATA SHARING IN SOCIAL HOUSING APPLICATIONS (IRESHA SHARECODE)

PRIME's analysis of interviews with minoritised ethnic people found recurring security and privacy concerns when using essential online services [3][4]. These included a desire for more agency over the sharing of their personal data e.g. their ethnicity information and proxies thereof. However, such data is highly personal in nature and can introduce bias and discrimination in the process. Therefore, people face a constant dilemma when deciding whether to share personal information, as a result of not knowing the purpose of the data collection, and the fear of repercussions as a result of not disclosing personal data.

We see Privacy Enhancing Technologies (PETs) as a solution to mitigating these harms, while not compromising the utility of the services, e.g., allowing data collection in aggregate forms. As part of the PRIME toolkit, our research team has developed the IRESHA app as a proof-of-concept PET for this purpose, for the social housing sector.

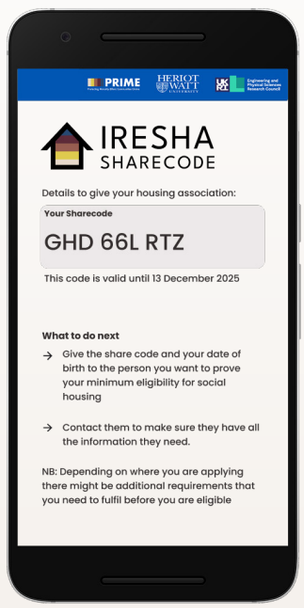

Fig 2: IRESHA App

Immigration/Residence Status Eligibility for Social Housing (IRESHA) Sharecode minimises the amount of personal data needed to assess eligibility for social housing. Similar to a Right to Work Sharecode, it can link immigration documents such as e-visas to generate a sharecode which then can be used by their potential social housing provider to check the applicant's eligibility without revealing their visa/ immigration status. Doing so can help reduce bias and discrimination in the social housing application process, while still providing housing providers with enough information to determine whether an applicant meets the minimum requirements.

3. UNDERSTANDING ETHNIC MINORITIES' CONCERNS (PERSONA CREATOR APP)

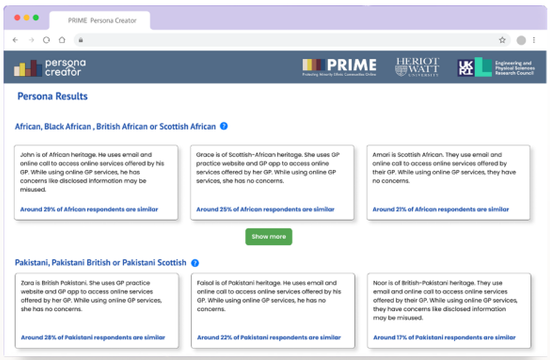

Fig 3: Persona Creator App

Minority ethnicity groups often face challenges while using online services in health, energy and social housing sectors [5]. To improve their experience, policymakers and service developers need to design more inclusively to address systemic challenges that hinder equitable access [6].

To address this issue, we implemented the Persona App that can inform policymakers and developers about existing service concerns faced by minority ethnic communities and foster more inclusive policy and service development. Persona App is an AI-powered data analysis tool that generates digital personas to capture the behavioural patterns of diverse ethnic user groups. In the PRIME Project, it supported online service providers in health and energy by offering deeper insights into ethnic minorities' service usage, preferences, and concerns. By identifying barriers such as digital exclusion, understandability of existing digital services, and mistrust in privacy and security of information disclosed, the app provides valuable data to improve service engagement and accessibility.

4. DESIGN GUIDELINES FOR MORE EQUITABLE DIGITAL SERVICES

Digitalisation of services (health, social housing and energy) should ensure that the current and future digital services meet the requirements of ME communities. As part of the PRIME Toolkit, we provide our design guidelines that can be used by developers and managers of digital services to assess if these services meet the requirements of ME communities. These can also be used as a checklist to assess already existing services or during planning and design of new digital services.

CONCLUSIONS

This policy briefing is informed by extensive evidence generated from the Protecting Minority Ethnic Communities Online (PRIME) project on experiences of accessing and using digital social housing services by minoritised ethnic (ME) individuals. This evidence was collected via an online survey, 1-to-1 interviews of ME individuals, and exploratory workshops. We also organised co-design workshops with stakeholders and ME individuals, resulting in design concepts for reducing online harm and bais. Prototype apps were then developed from these design concepts and evaluated with users.

Our prototypes, and design guidelines serve as a PRIME Toolkit for designing more equitable digital services. We argue for adoption of this toolkit, as it provides a way of tackling and preventing bias, discrimination and exclusion, in digital services, across sectors. This can ensure minimising the collection of personal data, privacy and security of the personal data. It encourages the use of unbiased algorithms in processing the data and automated decision making in digital services, and provides guidance on creating easy-to-use interfaces for ME people interacting with digital services.

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ACKNOWLEDGEMENTS

We thank our funder UKRI and the wider research team of the project, our partner community organisations (BEAP Community Partnership, Caribbean & African Health Network, CEMVO Scotland, East London Mosque, Hindu Forum of Britain, Chinese Association of Tower Hamlets), our advisory board members, our ME and stakeholder participants of our activities. We thank Gina Netto (PI, PRIME) and Ania Lewandowska-Craig for their valuable suggestions and comments, and Laura Whyte for her support in publishing and printing.

FOR MORE INFORMATION

For information about PRIME activity and other research outputs, please scan this QR code or visit our project website:
www.primecommunities.online

For details of the PRIME Toolkit containing our design guidelines and prototypes, please scan this QR code or visit our toolkit website:
www.primetoolkit.co.uk

For any queries or for integrating your data in our prototypes, please contact:
Mehdi Rizvi (s.rizvi@hw.ac.uk) or Lynne Baillie (l.baillie@hw.ac.uk).

 This work was supported by the UKRI Strategic Priorities Fund under Grants EP/W03235X/1, EP/W032333/1, EP/W032341/1, EP/W032058/1, EP/W032082/1.

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