

Big Data + Behavioural Insights

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BIG DATA & BEHAVIOURAL INSIGHTS

Pii Policy Innovation Initiative

Using Big Data to Inform Policy

Exploring international case studies using Big Data & Behavioural Insights to inform policy decisions regarding:



Traffic Congestion



Community Safety



Public Health



Abstract

Big Data has become a powerful new tool for government: it helps inform effective policy-making based on individual preferences and behavioural evidence. Trends from comprehensive datasets may be used to gain behavioural insights on citizen behaviour and create more accurate predictions about urban challenges and opportunities. Prevalent issues exist regarding data collection and privacy concerns: this issue has been amplified through the advent of social media, notably the recent Facebook and Cambridge Analytica incident. Due to this, the preparedness of businesses and policy-makers must be considered going forward. The following report outlines three global case studies that have used Big Data and Behavioural Insights to inform diverse policy areas, including urban planning, public safety, and healthcare.

Reducing Traffic Congestion in Boston, MA



Problem: In the last century, the supply of infrastructure has lagged behind the growth of mobility, making congestion a critical urban policy challenge.

Methodology: Crowdsourced traffic data has been used in a partnership with the City of Boston and Waze to improve urban planning and institute regulatory changes to optimize traffic flow and emergency service delivery.

Results: 18% month-over-month reduction in congestion at key intersections in Boston. Waze has partnered with 14 other government agencies through its Connected Citizens Program.

Challenges: Users represent a specific subset of the population and are not evenly distributed across the city or socioeconomic and gender classes.

Predicting Fire Risk in New Orleans, LA



Problem: Rising fire-related deaths and small take-up of the free smoke alarm installation service.

Methodology: US Census and historical fire data were used to predict the presence of smoke alarms and the probability of future fire incidents.

Results: identified 2x as many households in need of smoke alarms.

Data is now publicly available as an interactive map for 178 cities.

Challenges: Long-term usefulness of the data depends on the continued inclusion of specific questions in national surveys and the reliability of self-reported data.

Mobile Phone-Delivered Reminders to Improve Childhood Immunization in Kenya



Problem: "A record 123 million children were immunized globally in 2017 but millions of children are still not reached by potentially life-saving vaccines."

Methodology: Behavioural insights through mobile device nudging were used to reduce the risks of treatable illnesses and improve public health outcomes.

Results: increase of childhood immunization rates in Kenya with the use of SMS reminders, and even more so with the addition of monetary incentives.

Challenges: Scaling this study is difficult and the added effect caused by monetary incentives suggest a "success ceiling" of this project.

Next Steps

Reducing Traffic Congestion in Boston, MA

- Continue identifying flows of vehicles and make adjustments to traffic lights accordingly
- Isolate the problematic intersections and consider possible changes to infrastructure to optimize efficient movement
- Using the Waze data, Boston is planning on giving buses priority through designated traffic signals. It hopes to cut average travel time by 10 minutes by letting busses skip through lights, thereby improving services using the same amount of equipment

Predicting Fire Risk in New Orleans, LA

- Ensure that questions pertaining to fire alarms remain on national surveys
- Encourage other cities to upload their regional data to further refine the national model
- Action should be taken to ensure that the data, which primarily identifies poorer and marginalized neighbourhoods as those in need of fire alarms, are not biased against poverty-stricken communities and perpetuates marginalization

Mobile Phone-Delivered Reminders to Improve Childhood Immunization in Kenya

- Determine the feasibility of implementing an immunization reminder program, even at a regional level
- Continue efforts to educate people about the benefits of vaccines

Conclusion

Big Data promises an exciting future of policy development; one that allows governments to make informed predictions about citizen preferences and behaviours, leading to more targeted policy design. These three case studies illustrate a small

selection of what can be achieved with robust datasets and advanced analytics. While there are important challenges that cannot be ignored, the opportunities and potential for social good that stretch far beyond the chosen policy areas are immense. However, as data collection becomes more ubiquitous and datasets more comprehensive, issues of ownership and governance will percolate and shape the future of its use by policymakers.

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