

Piloting novel evaluation methods for street interventions

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From research to practice: Innovation in data-driven monitoring and evaluation for public realm street interventions.



Who?

The [report](#) was produced by the **Edinburgh Futures Institute** as part of their 'Smart Places' workstream. It has been completed by collaboration with University of Edinburgh colleagues, including the Data Driven Innovation initiative, Edinburgh Living Lab, Edina and School of Informatics, as well as industry partner Jacobs. It has also been made possible via in-kind support from City of Edinburgh Council, and via a cycle hire dataset provided by Serco. It has been delivered using Business Booster funding from the ESRC Impact Accelerator.

What?

Piloting two novel M&E methods for the evaluation of changes to the public realm - specifically the Spaces for People (SfP) scheme in Edinburgh - including:

1. **Sentiment analysis** of Edinburgh-wide Twitter data using #SpacesForPeople. Including city-wide, by specific street or design infrastructure element commented on.
2. **Spatial data analysis of Edinburgh's Just Eat cycle hire data** - giving insights relating to numbers of cyclists, and the ways their chosen route varied to include/exclude George IV Bridge before/after the George IV Bridge SfP scheme.

These two piloted methods were **triangulated** with a more traditional method (a small survey) as a proof-of-concept for data-driven public realm evaluation and design insights.

Why?

- **Test in practice** key ideas from the '[Improving the use of data in decision-making in the transformation of public space](#)' research report - including how to reveal and utilise otherwise 'hidden' existing data for valuable operational insights.
- Feed into active built environment projects in Edinburgh, by **sharing the indicative insight produced** with City of Edinburgh Council (to potentially feed into Spaces for People, City Mobility Plan and City Centre Transformation), and Jacobs' work.
- Feed back insights to **data-providing partners** e.g. Serco to support their operational decision-making around service provision, and how this might be affected by street changes.
- Explore how a 'data and design' approach can harness available but currently little-used data-sets and combine this with existing traditional methods to provide a holistic understanding to support **city-level decision-making**.

Findings



[Read the full report and findings >>>](#)

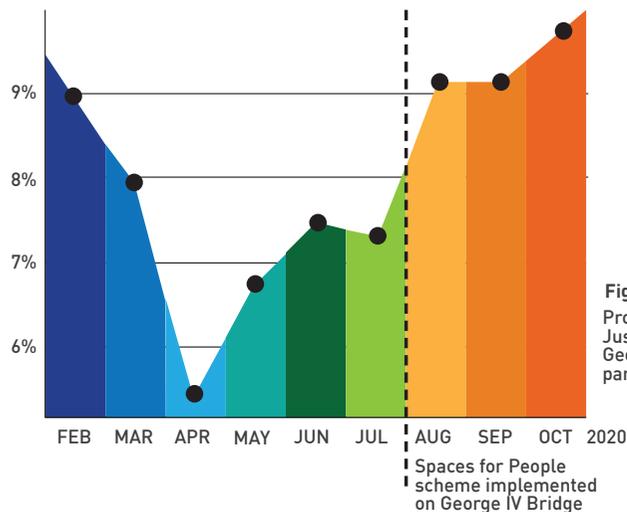


Fig E.
Proportion of total Just Eat cyclists using George IV Bridge as part of their route.

Spaces for People scheme implemented on George IV Bridge

About the methods used

Sentiment analysis and cycle hire data analysis should be combined with more traditional/qualitative methods for robust insights.

This triangulation is always necessary - you can't rely on only one method. However, in combining methods there is huge potential. For example - combining sentiment analysis as an 'early warning system' using the [live updating platform](#) (username: spaces, password: spaces2020#) created for this project to flag issues immediately in real-time through observed sharp down-turns in sentiment (e.g. for the #SpacesForPeople hashtag), to then allow closer investigation using more traditional methods.

Or cross-checking an increase/decrease in cycle numbers/route-choices on a street where changes have been made with an in-person or online survey to understand the 'why' and motivation for that choice.

Sentiment analysis needs a large social media dataset.

Sentiment analysis can provide useful public perceptions insights - but only where there are widely used relevant hashtags (e.g. #SpacesForPeople) and sufficient social media commenters. It is less successful for smaller datasets or where a change to the public realm does not have a commonly used hashtag.

Cycle hire data analysis provides a useful evaluation method to understand how cyclist numbers and routes change.

This was possible thanks to Serco's provision of a large private dataset. Further analysis of this data could provide other useful insights.

About Spaces for People interventions

The George IV Bridge street intervention was broadly supported and resulted in more cyclists choosing to use this route.

Just Eat cycle hire data analysis revealed use of George IV Bridge (our pilot street) as a cycle route showed a clear increase of 25% between July to August 2020 (when the Spaces for People scheme was installed), despite the total number of cyclists staying almost the same. This was supported by indicative survey results - 86% of respondents stated they were more likely to cycle and 75% more likely to walk this route, typically due to feeling safer from vehicular traffic and easier socially distancing.

Overall sentiment about Edinburgh's Spaces For People scheme was slightly positive. This was based on Edinburgh-location tweets including hashtag #SpacesForPeople scheme. These averaged 0 to +0.3 on scale -1 to +1.

Potential



Creating a data-driven feedback loop?

The [Piloting Novel M&E Methods for Street Interventions report](#) has demonstrated the value that combining insights and feedback from multiple data sources (qualitative and quantitative, real-time and static) can provide in giving a holistic understanding of how the public realm, and any changes to the street environment, are performing. This has potential to support policy and operational decisions for the city if further adopted as an M&E approach that allows a more structured feedback loop between changes to the public realm on the ground and city-level decision-making.

The examples piloted in this report demonstrate how - via sentiment analysis - real-time large social media datasets can give broad indicative initial insights into whether a new scheme or aspect of the built environment is supported publicly or not, with a live tool allowing this to be tracked in real-time and potentially immediately flag any concerns that appear. The Just Eat cycle hire data shows how - using the University's expertise in data analysis and kind provision of a dataset held by Serco - useful, otherwise unseen insights can be revealed about how any changes to the street environment affect cyclist numbers and routes chosen for a particular street that are helpful to understand the 'success' of that intervention for cyclist provision. And through triangulating these two novel M&E methods with a more traditional survey or (when restrictions allow) more in-person engagement approaches - the report demonstrates the value of triangulating findings - with qualitative approaches revealing the 'why' behind the patterns observed in the more quantitative data.

