SOCIAL WELLBEING AGENCY | TOI HAU TĀNGATA

Information sheet

Cross-sector timeline modelling prototype

March 2020

Summary

The Social Wellbeing Agency have developed a technique for producing timelines of people's experience, drawing on cross-sector data in the IDI. This is part of SWA's work to develop new tools and methodologies to make social sector insights more accessible.

Whilst developed for a specific project, the method of producing the timelines is reusable and has value to others working across the social sector. We now have an initial prototype version of the tools and would welcome feedback from others across the sector.

Already, timelines have highlighted the many different government organisations people interact with, and provide a means of better seeing the people instead of the data that has been collected about them.

Representative timelines of people's experience using IDI data

To better understand the lives and experiences of New Zealanders, the SWA is constructing timelines of people's experience. These timelines capture those aspects of people's experiences that are recorded by, or can be inferred from, data in the Integrated Data Infrastructure (IDI).

This research approach was developed in partnership with The Southern Initiative (TSI) who were seeking to understand the experience of South Auckland families around the time of the birth of a child.

To support this, the SWA built timelines of families' journeys from nine months before the birth until six months after. A timeline of events in this interval was constructed for the baby, both parents, and any siblings, where these events could be inferred from data in the IDI. This timeline was supplemented with summaries of the years either side of the timeline, providing some indication of where the family had come from and was going to.

Only representative timelines are released from the secure IDI environment

Within the secure environment of the IDI datalab, timelines were prepared at an individual level. However, to respect the privacy of the people who appear in the data these needed to be confidentialised prior to their release from the secure IDI environment.

No technique for confidentialising timelines existed for IDI data prior to this work. In conversation with Stats NZ, we developed an approach so that representative timelines can be released from the secure IDI environment. Our approach takes groups of individuals and for each component of the timeline determines the number and timing of events that best reflects the whole group.

Groups were defined following two approaches:

1. User defined groups were constructed where there were known characteristics of interest (such as mothers' ethnicity).
2. Computer defined groups were constructed by a clustering algorithm that sought to connect individuals with similar journeys (for example it identified a group of working mothers who then take paid parental leave).

The user defined approach enables us to consider journeys for groups that are already known. The computer defined approach enables us to discover the common kinds of journeys.

Representative timelines are an effective analytical tool

Representative timelines provide a helpful way of viewing information and generating insights. First, the sequential format of timelines allows for both quantitative and qualitative insights, and can be easily extended to connect with population statistics, case studies, and ethnographic research.

Second, they can be a mechanism for empathy. While it can be easy for traditional statistics to be impersonal, a timeline can help the viewer appreciate what it would be like to live the journey, fostering empathy for, and understanding of, the study population.

Third, timelines can capture interactions with a range of organisations. This encourages people to consider the impact of organisations other than their own, broadening the range of available options and providing a point around which to collaborate.

Resources are available for the construction of other timelines

SWA have published a collection of resources that can be used for investigating other timelines. These include research guidance, data assembly code and documentation, and a visualisation tool.

We have applied these tools to understand other journeys, and continue to refine them.

More information swa.govt.nz info@swa.govt.nz