

## **Deliberative democracy, data mining and sustainable development: The Hamilton Community Outcomes Project**

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### **Abstract**

In response to legislative requirements and developing best practice, New Zealand local authorities are adopting new ways of consulting with their communities. A challenge of participatory, inclusive consultation is how to summarise large amounts of qualitative data into concise and meaningful information. This paper describes a bespoke adaptation of data mining software which helped transparently condense consultation results from more than 3,000 people into a one-page statement of community outcomes for Hamilton City.

### **Introduction**

There has been an upsurge of interest in New Zealand over the past decade in more participatory forms of public decision-making, including creative forms of “deliberative democracy” (MacLennan, 2000) and “inclusive consultation” (Killerby, 2001). Inclusive consultation is not just about obtaining a sufficient sample size to make valid inferences; rather the emphasis is on reaching as many people as practicable, with an emphasis on engaging sectors that are not traditionally heard. The expectation is that inclusive consultation will result in more democratic results with broader buy-in from community members and stakeholders.

All New Zealand local authorities are obliged under s. 91 of the Local Government Act 2002 to “not less than once every 6 years, carry out a process to identify community outcomes...”. Community outcomes are synonymous with the aspirations of local and regional communities for their current and future well-being. The Act’s intention is that community outcomes identified through consultation will become the basis for increased transparency and accountability by the council, and potentially other stakeholders.<sup>1</sup> The anticipated result is a more communicative, collaborative approach to the promotion of community well-being in an holistic sense, and improved progress towards more sustainable development.

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<sup>1</sup> McKinlay (2004) argues that the intention of community outcomes processes is not just to identify a set of community aspirations but to enable more collaborative, community-based strategic planning. In other words the community outcomes process is a means to an end. The level of understanding of this intention varies throughout the local government sector and wider community and is not explicit in the Local Government Act 2002, but was adopted from the outset of the Hamilton community outcomes process.

Burke's (2004) review of approaches to the identification of community outcomes by various local authorities shows a diversity of community engagement frameworks and relatively high levels of inclusiveness. In many cases community outcome processes have involved asking multiple questions of thousands of people through a variety of consultation modes. The resulting information is typically collated by key staff or consultants, followed by interpretation or filtering by a broader group of staff, councillors and/or other stakeholder groups. The process of coding responses is typically done manually using a database or spreadsheet, although some local authorities have attempted to use qualitative software such as NVivo to assist the process. There are substantial ongoing challenges in how to accurately, efficiently and transparently theme a large amount of qualitative data. Generally the theming stages of consultation are not reported in any great detail.

### **Hamilton's community outcomes process**

Hamilton City had a head-start on many other parts of New Zealand in terms of identifying community outcomes. In 1994 Hamilton adopted the principles of Agenda 21, a global charter to work towards more sustainable development. In the years that followed, more than 4500 residents had input into developing Hamilton's Strategic Plan 1997-2017, plus a set of Sustainability Indicators for measuring progress. As part of this process, a set of community visions was identified for making Hamilton a more sustainable city. Over subsequent years these visions were updated by Hamilton City Council staff on the basis of new consultation information.

The 2005 round of consultation provided an opportunity to take into account key lessons from the process in the 1990s. In particular, an evaluation of the 1990s process concluded that: "The creation of an overall multi-disciplinary stakeholder [group] to guide the process in Hamilton might have minimized the feeling in the community that the plan belonged to the council. It would have also added more varied ideas and input, and a greater 'buy-in' from the organizations represented in that group" (ICLEI, 1998, p. 25). It was also identified that Maori communities should be involved in the process from the earliest opportunity, and that the role of Council staff should be one of support and coordination rather than leadership and control.

In keeping with the spirit of the Local Government Act 2002, Hamilton City Council took a collaborative and deliberative approach to identifying community outcomes. In late 2004, the Council invited a range of community-based organisations, iwi/Maori and Central Government representatives to develop, oversee and contribute towards a community consultation process throughout 2005. Administration and funding was provided by the Council, including the commissioning of an independent facilitator. Organisations represented on the Consultation Steering Group were:

- Hamilton Arts Sector Group

- Hamilton City Council
- Hamilton Environment Centre Trust
- Hamilton Youth Council
- Ministry of Social Development
- Nga Mana Toopu o Kirikiriroa
- Sport Waikato
- Social Services Waikato
- Te Runanga o Kirikiriroa
- Tertiary Education Alliance
- Waikato Chamber of Commerce
- Waikato District Health Board
- Waikato Raupatu Lands Trust (Tainui)

The Consultation Steering Group met on an approximately monthly basis from January to October 2005. A Project Support Team of Council staff met in parallel, and meeting notes were shared between the Steering Group and Project Support Team. Meeting venues and catering costs were provided by various Steering Group member organisations on a voluntary basis. An evaluator was also engaged to work alongside the Steering Group and Project Support Team throughout the process, and a high level of communication was encouraged.

### **Collecting ideas**

The Consultation Steering Group oversaw a visioning process that included dozens of focus groups with a wide variety of sector groups; surveys with thousands of people via telephone, face-to-face, self-return and on-line returns; and a hui hosted by mana whenua. Reports from each stage of the consultation are available at [www.myhamilton.org.nz](http://www.myhamilton.org.nz). In total more than 3,000 people had their say about what would make Hamilton a better place. Key questions included:

- For you, what are the best things about living in Hamilton?
- What would make Hamilton better for you over the coming 10 years?
- What would make Hamilton better for the whole community over the coming 10 years?
- How could these things happen and who could make them happen?

A variety of other questions was also asked in different settings to ensure a more targeted approach for different communities of interest (e.g. young people, Maori, environmental groups). Overall the process used an inclusive, community-based approach. Although not everyone's initial expectations could be met due to time and resource constraints, the process has been positively evaluated by most participants.

In total the consultation results encompassed 2,846 individual survey responses, 38 focus group and hui transcripts, three unsolicited submissions and one response in poster format, which translates into tens of thousands of discrete but related ideas. Survey demographics were broadly representative in terms of gender, age group, ethnic group and location of residence. Theming and coding was done by Hamilton-based consultancy Martin Thomas & Associates, which had previous experience in working with community consultation issues and contexts.

### **Making sense of what the community said**

While many of the Steering Group members were hands-on throughout the consultation process, the relatively specialist fields of data entry, coding and reporting were commissioned out. The consultant submitted a proposal for coding and reporting based on an innovative adaptation of Reel Two Classification System software ([www.reeltwo.com](http://www.reeltwo.com)). Reel Two's data mining software was originally developed to help extract meaning from data in large document collections. Reel Two is headquartered in San Francisco but much of its intellectual property stems from a development centre in Hamilton with prior connections to the University of Waikato.

Classification System is a data mining product that enables users to organise unstructured text according to customised topics. The software can be trained to recognise categories of interest and the relationships between them. For example, in the case of the Hamilton community outcomes results, the software was trained to link comments about traffic congestion to other concepts such as cycling, walking and public transport. The power of the Reel Two Classification System comes from its patented Weighted Confidence Learner algorithm.

As a prerequisite to coding and reporting, data entry in Excel was performed in a way that would ensure blocks of related text were maintained. Full-stops, question marks and exclamation marks were used as data dividers. Wherever there was an obvious link between consecutive ideas within an individual response, the data entry operator inserted a hyphen. The Classification System software subsequently treated all text between dividers as a single idea. Examples of the data entry style are as follows (the code on the left is the respondent number):

<p>What would make Hamilton better for you over the coming 10 years? 59 More touristy type things for people to do - More shows/ exhibitions about Hamilton's history. 1069 Hamilton needs more entertainment - more affordable things to do. 1086 More things to do - fun events like the University does but organised at a city level. 1283 Attracting more things to do within the City area. More arts and culture, more nightscene (not drinking scene) like street theatre, comedy acts, more things to do at night without having to go pubbing.</p>
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Initially the consultant took some time to become familiar with the software and database content and to work with Reel Two to adapt the software to suit the survey's purpose. The software was then trained on the basis of emerging themes. For this an initial batch of around 800 responses was used for each question, and then the remainder of the database was themed automatically. Some manual checking was also undertaken to sort items too complex for trained statistical processes to recognise without full human understanding.

The report was cleaned manually for spelling and data entry errors. The full report, including contents and introduction, is 623 pages long. Links between related ideas were reinforced by permitting individual ideas to appear under multiple themes. Because the data mining was largely automated, an even larger sample size could have been accommodated with little marginal cost.

The full themed report contains a wealth of information that can be referenced over the coming 5-6 years on a wide variety of topics. The report can potentially provide base information prior to, or instead of, further consultation. For example, shortly after completion of the report, Council's Roads and Traffic Manager requested frequency counts to inform a Committee Report. Martin Thomas & Associates was able to rapidly compile indicative frequency counts relating to traffic congestion, roading, public transport, cycleways, rail, walkways, cycleways and bridges. These frequency counts provided supporting information to help prioritise actions within Hamilton's transport strategy.

Subsequent steps of the community outcomes process were aimed at ensuring a robust method of summarising the data which would preserve the integrity of what the community said, and also enable a high level of deliberation between key stakeholders:

1. Steering Group members familiarised themselves with the full report and undertook a joint mapping exercise to cluster the individual themes into six broader themes (quality/ spirit of place; arts and events; traffic, infrastructure & form; services & amenities; business & economics; leadership & decisions).
2. Under instructions from the Steering Group, a 20-page summary report was developed by a sub-group of consultants and Council staff on the basis of the above themes, taking care to preserve common phrases and context.
3. The Steering Group reviewed the summary report, developed a standard format for the community outcome statements (i.e. themes, narratives and statements) and summarised the report into an initial set of draft community outcomes. At this stage the themes were refined and split by the Steering Group into seven areas on the basis of emerging clarity about the clusters of ideas (sustainable & well-planned; vibrant & creative; unique identity; safety & community spirit; healthy and happy; progressive city; working together).

4. Following further revision by the Steering Group, a draft set of community outcome statements was distributed to all households for community feedback. Approximately 260 people commented on the draft statements.
5. The Steering Group took account of this community feedback through small-group work, plenary discussions, and e-mails for last-minute suggestions.

The result was a one-page list of 37 community outcomes statements that were agreed by the Steering Group and Project Support Team to be an accurate and concise reflection of the aspirations of Hamilton communities. These statements will be used by the Council to describe, through its Long Term Council Community Plan 2006-16, its own contribution to community well-being in the city. They will also be made publicly available and promoted to Central Government, community and iwi/Maori organisations as a basis for their own strategic planning.

Having arrived at an agreed set of community aspirations for the city, the next challenge is to use Hamilton's community outcomes as a "common accountability platform" (Craig, 2004) and develop a core set of indicators for monitoring progress. Discussions are under way to develop an integrated strategic framework that gives context to the long-term plans of the Council and other organisations, and supports progress towards a more sustainable and vibrant city.

## **Conclusion**

Summarising large amounts of qualitative data poses considerable challenges. Pitfalls include potential biases of the analysts, inadvertent omission of key ideas, or loss of context due to splitting up of related ideas. Although there is no 'best way' to ensure a robust process, appropriate use of data mining software can play an important role in clustering large amounts of data into a more manageable form and representing the relationships that exist between data. Martin Thomas & Associates' adaptive use of Reel Two's Classification System software in Hamilton helped to reliably and transparently refine thousands of ideas into a single page of community outcome statements.

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