Australian Water Recycling Centre of Excellence

Project Report

Water Reuse and Communities ToolKit

Module 4: Understanding Customer Attitudes and Segments

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Victoria University, November 2014

Water Reuse and Communities Toolkit
Module 4: Understanding customer attitudes and segments

This report has been prepared as part of the National Demonstration, Education and Engagement Program (NDEEP). This Program has developed a suite of high quality, evidence-based information, tools and engagement strategies that can be used by the water industry when considering water recycling for drinking purposes. The products are fully integrated and can be used at different phases of project development commencing at 'just thinking about water recycling for drinking water purposes as an option' to 'nearly implemented'.

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About the Australian Water Recycling Centre of Excellence

The mission of the Australian Water Recycling Centre of Excellence is to enhance management and use of water recycling through industry partnerships, build capacity and capability within the recycled water industry, and promote water recycling as a socially, environmentally and economically sustainable option for future water security.

The Australian Government has provided $20 million to the Centre through its National Urban Water and Desalination Plan to support applied research and development projects which meet water recycling challenges for Australia's irrigation, urban development, food processing, heavy industry and water utility sectors. This funding has levered an additional $40 million investment from more than 80 private and public organisations, in Australia and overseas.

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Water Reuse and Communities Toolkit

Module 4: Understanding Customer Attitudes and Segments

Meta-analysis of published studies and grey literature held by water companies reveals a number of important and independent dimensions underlying customer attitudes towards water reuse.Most important of these are:

- Trust in water authority and government
- Environmental motivation to adopt
- Emotional attitude to water reuse
- Perception of risk, also linked to trust in science and technology
- Knowledge about water recycling
- Cost factors

- The factor structure of concerns is complex and varies across location and time. While it is possible to estimate the distribution of a population on each factor listed above, reducing the dimensions listed above *universally* into only three of four cluster groups at which to target messaging (such as, for example categories of "future-focused" and "minimal service" consumers) is difficult, and requires local assessments.

- Broader global comparisons reveals significant differences between Australian cohorts and those in the US on some of these key dimensions, and messaging and material developed based on overseas experience must keep this in mind. Global comparative surveys indicate higher levels of sustainability consciousness and environmental motivation in Australia than many other countries. It is unclear whether the level of trust in authorities and concern about level of environmental risk differs in Australia from other overseas contexts.

- Analysis of extant data found significantly differing levels of support for water reuse options in different states (see also, Module 5), as well as significant differences based on gender, education, and knowledge of recycled water.

- One important audience for engagement for which there is a lower level of support for recycled water are those with less formal education and those with less access to telecommunications more generally. Outreach to these groups will be important.

Water Reuse and Communities Toolkit
Module 4: Understanding Customer Attitudes and Segments

Populations are not homogenous with regard to their attitudes and structure of concerns around water reuse. The sets of issues in each case vary across location and time, and interact with public discourses that can both aggregate and polarize concerns. Media focus can concentrate what were disparate concerns into one or two focus points that can become flashpoints for controversy. Reticulated water differs from many other products for which customer segmentation is conducted because, at least as far as residential consumers are concerned, there is currently only one product option (greenfields developments with dual-pipe supply excepted) and a single supplier acting as a monopoly. The entire population needs water, and supply must be consistently reliable and treated to a safe, potable standard. Therefore the value of target segment marketing (niche marketing) is not in products, but in messaging.

The aim of customer analysis is:

- To determine the different needs and issues of various segments of the Australian population with regard to water reuse;
- To determine if target customer groups with a homogenous set of concerns can be aggregated into clearly defined segments;
- To list the engagement and education strategies might be appropriate to the concerns of each segment ('niche marketing').

The most universal concerns about water reuse provide the starting point for any customer analysis. The following list reproduces the basic list of major concerns brought together in Dolnicar, Hurlimann, and Grün (2011), Po, Kaercher and Nancarrow (2003), and Bruvold (1988).

- Trust in authorities managing water reuse
- Perception of safety around water reuse
- Past experience with source
- Knowledge of water reuse technology and management processes
- Perception of water quality
- Motivation to adopt
- Emotional attitude towards water reuse

Numerous studies have also widely reported the impact of age, gender (males more likely to accept), and formal education (more formally qualified likely to accept) on willingness-to-adopt water recycling schemes (Donicar, Hulimann, and Grün, 2011).

Attitudinal segmentation

Two different types of customer segmentation are provided below of examples of how local information can be used to determine customer clustering and messaging options. The first is a hierarchical model, proposed by Jenkins & Storey (2011) for understanding the Sydney Water customer base.

Table 1: Sydney Water Customer segments for 2011

Segment	*Percentage of customer base*
1. Future Focused	22%
2. Efficient Usage	16%
3. Price Control	18%
4. Basic Supply and Maintenance	26%
5. Uninvolved	18%

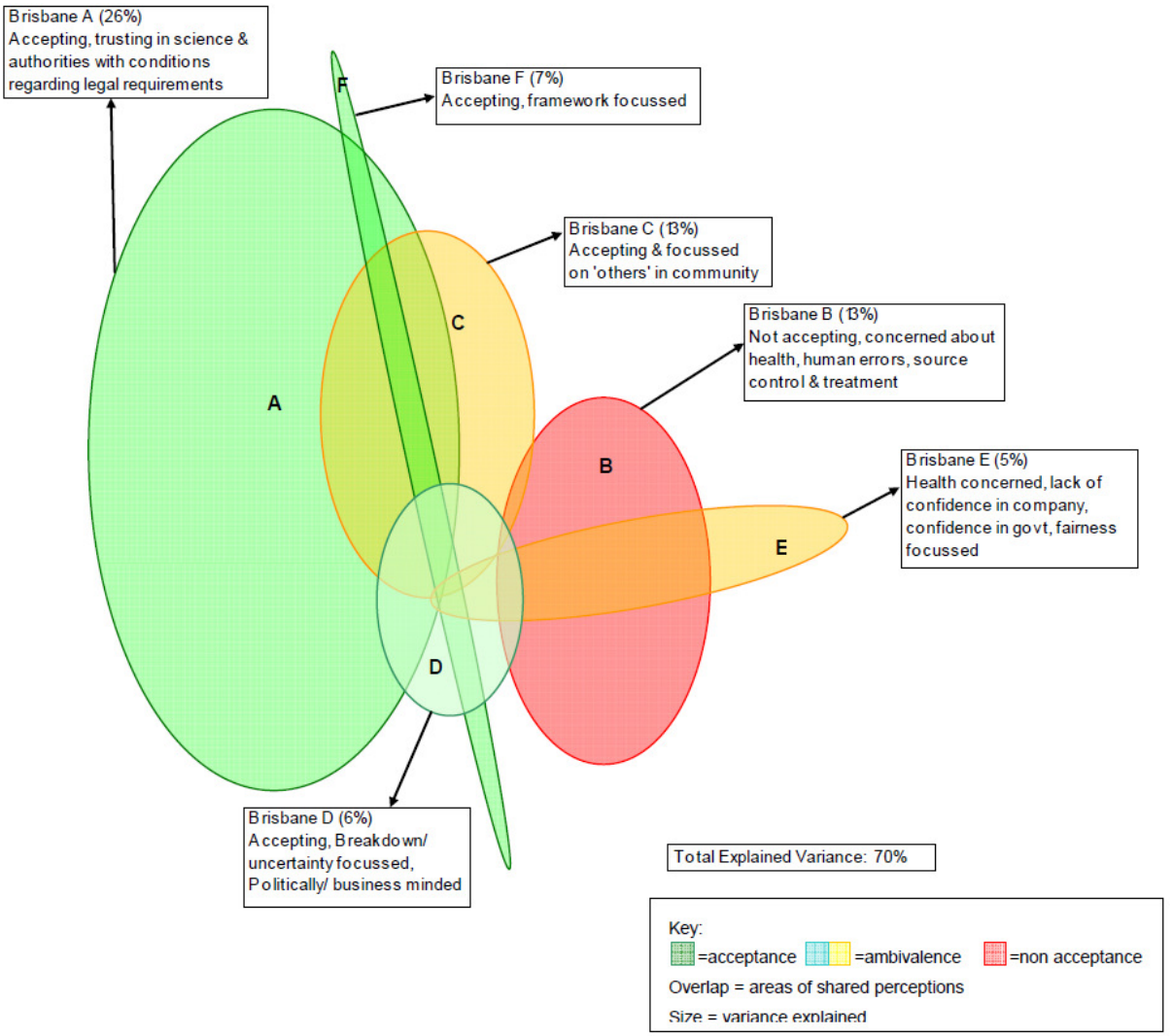
Different segments reflect hierarchical development and interest in water management. At the bottom, those who are uninvolved are not engaged with issues around water supply, while those in the 'Basic Supply and Maintenance' are only interested in ensuring the product comes to them reliably. At the top, the 'Future Focused' and 'Efficient Usage' segments are, in addition to basic supply issues, interested in the broader circumstances of water supply, including environmental impact and political issues. This kind of customer basic segmentation is an option for water authorities, and a more generic hierarchy of issues is pasted below in Table 2. In this typology, the Holistic concern corresponds to the Future Focused segment above, while Water Security concerned corresponds to both Efficient Usage and Price Control above.

Table 2: Hierarchy of concerns about water reuse and potential messages

Customer type	Concerns about reuse	Potential Messaging
1. Holistic concern	Environmental costs and benefits	Sustainability benefits of reuse
2. Water security concerned	- Knowledge about how reuse works - Need and supply benefits	Water reuse will protect supply
3. Basic supply	-Water safety and risk - Emotional response ('yuck factor'	- Water reuse is safe Water reuse is normal

One of the most comprehensive population segmentation studies was conducted for South-East Queensland, by Browne, Leviston, Green, and Nancarrow (2008). By using a Q-Methodology sorting task with participants, they were able to rank attitudinal statements across four locations (Brisbane, Gold Coast, Sunshine Coast, Ipswich) to form different population clusters. Each of these had their own attitudes towards reuse; however, in each location these clusters were slightly different in size and relation. The figure for Brisbane from their paper is reproduced below as an example:

Figure 1: Segmentation of Brisbane sample derived from a Q-Methodology sorting task, reproduced from Browne et al (2008, p. 9).



One of the main learnings from the Brisbane study was the understanding that water scarcity did not drive acceptance of water recycling schemes for all segments of the population. In fact, for some accepting segments, it demonstrated the necessity for water authorities to exercise caution in prescribing and over-anticipating particular areas of concern, when a deliberative process involving and discerning the structure of concern of that particular community would be more appropriate.

Demographic segmentation

Variations in attitudes to water recycling correspond moderately to demographic variables. Below are a number of key variables, and a summary of insights from a number of studies in dealing with both attitudes to water recycling, and the variables understood to drive it.

1. **Victoria University and Deakin University National Survey:** This dataset comes from 3077 Australians surveyed by mail, drawn from the electoral roll, between November 2011 and February 2012. Participants were questioned on their attitudes towards alternative water sources (desalinated and recycled). A representative national sample of 1998 respondents was supplemented by samples of 573 respondents drawn from a target area near the Wonthaggi Desalination Plant (VIC), and 485 respondents were drawn from a target area near the Port Stanvac Desalination Plant (VIC).

2. **ABS datasets on environmental attitudes**: Datasets were taken from the Australian Bureau of Statistics website. The reference numbers of datasets are listed next to each relevant table.

3. **Data supplied by water companies**: These included results of phone and mail surveys, focus groups, and customer analyses. As many of these were commissioned to market research partners, the level of detail of these was as summary results.

Respondents in the Victoria University and Deakin University survey (n=3077) were asked to rate their level of support for three water recycling options as a means of addressing domestic water shortages, on a five-point scale where 1 = very unsupportive, 2 = unsupportive, 3 = neither supportive nor unsupportive, 4 = supportive, 5 = very supportive. Displayed in Table 3 are the mean levels of support by education, showing the importance of this variable on customer segmentation.

Table 3: Support for recycling options by formal education level

Sample group		*Address domestic water shortages – 'Recycle treated sewage'*	*Address domestic water shortages – 'Recycle treated 'greywater'*	*Address domestic water shortages – 'Recycle treated stormwater'*
No or little formal schooling	Mean	2.64	3.09	4.14
	N	22	22	22
	Std. Deviation	1.255	1.192	.834
Primary School	Mean	2.71	3.13	3.66
	N	86	86	86
	Std. Deviation	1.309	1.125	1.223
Junior Secondary/Intermediate/Form 4/Year 10	Mean	2.72	3.47	3.88
	N	513	516	524
	Std. Deviation	1.326	1.212	1.087
Senior Secondary/Leaving/Form 6/Year 12	Mean	2.97	3.64	4.09
	N	504	506	509
	Std. Deviation	1.345	1.158	.943
Certificate (Level I,II,III or IV)	Mean	2.83	3.60	4.00
	N	246	247	247
	Std. Deviation	1.339	1.167	1.034
Trade Certificate	Mean	2.84	3.45	3.83
	N	334	331	335
	Std. Deviation	1.349	1.233	1.150
Diploma or Advanced Diploma	Mean	3.10	3.75	4.18
	N	378	378	377
	Std. Deviation	1.304	1.070	.906

Bachelor Degree	Mean	3.32	3.96	4.18
	N	413	413	413
	Std. Dev	1.256	.977	.911
Graduate Certificate or Graduate Diploma	Mean	3.43	4.05	4.27
	N	199	201	200
	Std. Deviation	1.304	1.033	.843
Post-graduate Degree	Mean	3.40	4.07	4.20
	N	179	178	180
	Std. Deviation	1.287	.918	.912
Total	Mean	3.01	3.68	4.05
	N	2874	2878	2893
	Std. Deviation	1.337	1.143	1.007

Data supplied by water company partners concurs with these findings. For example, the Groundwater Replenishment Community Survey 2013 conducted by Ipson on behalf of Water Corporation WA, concluded that respondents with post-secondary education were more likely to accept groundwater replenishment for drinking (80% against 67% with those at secondary education or lower). Similarly the report found lower levels of opposition to recycled water as part of drinking supply (12% highly educated vs 24% opposition from lowly educated), and higher confidence in the quality of water produced through groundwater replenishment (46% for higher educated cohort, 34% for lower educated cohort).

More broadly, data from the ABS shows that concern about environmental problems in general is higher amongst more highly educated cohorts, and this may be an important driver underlying higher level of support from these groups. This is displayed in Table 4.

Table 4: Educational Attainment and Concern About Environmental Problems (ABS, 1996)

Highest qualification	*%*
Higher degree	89.2
Postgraduate diploma	91.9
Bachelor degree	84.6
Undergraduate diploma	82.6
Associate diploma	77.8
Skilled vocational qualifications	70.1
Basic vocational qualifications	75.2
No qualifications	60.9
Total concerned	**68.4**

Source: Environmental Issues: People's Views and Practices, Australia, *1996 (cat. no. 4602.0). Australian Bureau of Statistics.*

Based on data from the Victoria University National Survey, support for various options based on home ownership, marital status, parent status, and employment status were analysed. In general, these were no important factors in and of themselves, however they tended to be correlated to age, which was a significant factor, as highlighted below.

The impact of age and gender

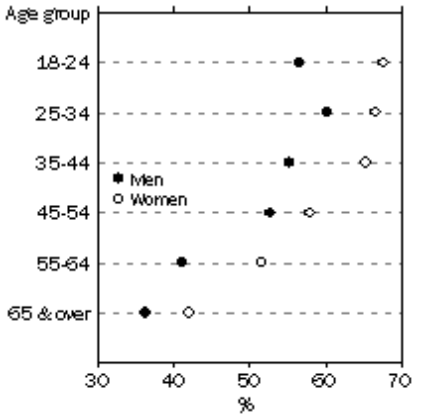
Two of the demographic variables correlated with acceptance of water recycling are age and gender. This has been found in both academic studies (*inter alia*, Lohman and Milliken, 1985; McKay and Hurlimann, 2003; and Dolnicar and Schäfer, 2009) and in water industry surveys of their customer base. Amongst academic studies using random or geographically targeted sample populations, a negative correlation was found between age and willingness to accept water recycling, i.e. younger cohorts of the population are more likely to accept water recycling, Additionally, these and other studies (Lohman and Milliken, 1985; Nancarrow et al., 2008) have found that the rate of acceptance of water recycling is higher amongst males than females. However, Miller & Buys (2008), based on a survey of 408 participants in Northern Brisbane, did not find a greater willingness to accept amongst males, but rather concluded that there was a higher level of interest and self-declared knowledge about water recycling amongst males.

These findings are also reflected on industry studies on demographic correlates of support for water recycling. For example, in Groundwater Replenishment Community Survey 2013 conducted by Ipson on behalf of Water Corporation WA, it was found that amongst the younger population (18-34 years), awareness of groundwater replenishment was low with 42% having either never heard of it or declaring no particular knowledge of it. In contrast, in the middle age cohort (35-54 years) and the older cohort (55+ years), only 28% and 14% of those cohorts respectively had not heard or known of groundwater replenishment.

However the acceptability scores for both non-potable and potable uses were much higher in the younger categories, with 97% of the younger cohort supporting groundwater replenishment for lakes and wetlands (as opposed to 93% and 88% for the middle and older cohorts), and less opposition to potable reuse, with only 10% of the young cohort opposing (as opposed to 24% of the middle cohort, and 21% of the older cohort).

In broader terms, it is likely that these younger target groups are more highly driven and influenced by environmental concern. The Australian Bureau of Statistics database contains figures on self-reported ratings of how influenced one is by environmental information provided to them. This is displayed in Figure 2.

Figure 2: Australian Bureau of Statistics: People influenced by Environmental Information (1992)



Source: Unpublished data, Survey of Environmental Issues:

People's Views and Practices, 1992 (cat. no. 4602.0).

Two factors are immediately evident; firstly the differential effect of gender, and secondly the effect of age. A much lower proportion of older respondents were likely to report being influenced by environmental information, as were a much lower proportion of males.

While males were less influenced by environmental information, industry surveys agree with the findings cited above in the academic literature (Lohman and Milliken, 1985; Nancarrow et al., 2008; and Dolnicar and Schäfer, 2009) that males are more likely to accept recycled water. In the *Water Issues 2013* conducted by Newspoll on behalf of Melbourne Water, 59% of males surveyed (n=200) were supportive of water recycling for drinking purposes, against 46% of females (n=200).

Implications for community engagement

From the review above, it is clear that attitudes towards water recycling are segmented amongst the Australian population amongst both attitudinal and demographic lines. Water customers who have a higher level of interest or concern in the holistic delivery of water (including environmental and social issues) may be pitched more comprehensive messages about the benefits of water recycling. Customers who have a lower interest or concern and are solely interested in the basic services offered, will be more focused on safety and cost. Similarly, both academic and industry studies concur that important demographic correlated to attitudes to recycled water (broadly defined) based are gender, age, education, and knowledge of recycled water. There is also a lower level of approval of recycled water amongst those with less formal education and those with less access to telecommunications more generally. Outreach to these groups will be important.

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