Appendix 1.1.W - Image tracker analysis

Wessex Water

September 2018

Wessex Water
YTL GROUP

Business plan section	Supporting document
Board vision and executive summary	
1 Engaging customers	**1.1 Summary of research findings**
	1.2 Communications strategy
	1.3 Customer participation and behavioural engagement strategy
2 Addressing affordability and vulnerability	
3 Delivering outcomes for customers	
4 Securing long term resilience	
5 Markets & innovation: wholesale	
6 Markets & innovation: open systems & DPC	
7 Markets & innovation: retail	
8 Securing cost efficiency	
9 Aligning risk and return	
10 Financeability	
11 Accounting for past delivery	
12 Securing trust, confidence and assurance	
13 Data tables and supporting commentaries	

PR19 Supporting Research

Insights Review Debrief

14 March 2016

Contents

1. Introduction

This pack covers full results from our literature review and analysis of past Wessex Water data

Background

- Initial meetings have been had between Wessex Water and Dectech to broadly discuss research leading up to PR19

- Following on from these, Wessex Water have asked Dectech to conduct a literature review and analysis of past data

- Data has been received from the tracker, as well as a variety of 'feedback' sources (Live chats, SMS, Care team and Feedback cards)

- This pack includes the literature review, analysis of this data and a set of recommendations from both of these

Objectives

- Show how academic literature can provide insights to help tackle a range of different business issues

- Analyse different sources of customer feedback data to reveal hitherto unseen insights

- Demonstrate how the new tracker design can be improved based on analysis of previous data

- Provide a set of recommendations for things to action based on the results presented

Literature review insights may be applied to a variety of areas including WTP methodology, pricing and improving satisfaction

Literature Review Process

Hundreds of abstracts scanned

~50 articles read in detail

~15 summarised to illustrate insights
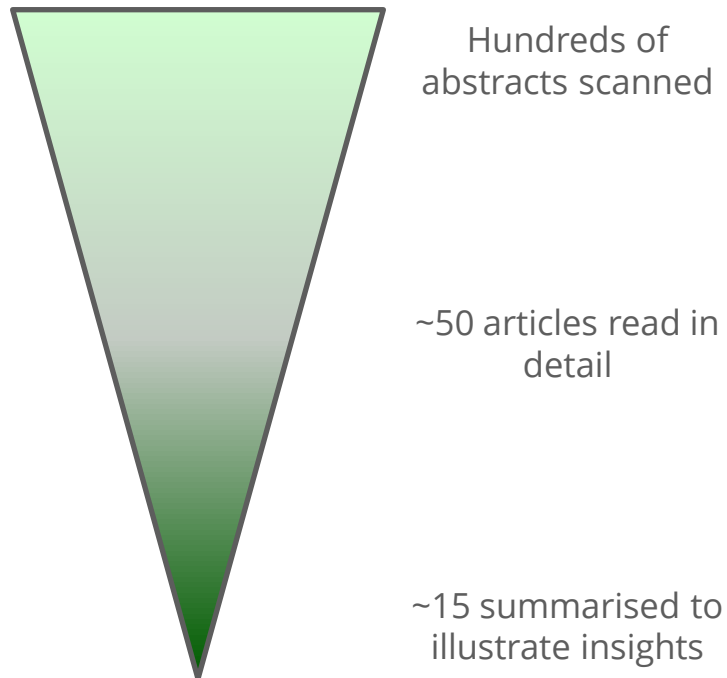
- The original proposal outlined exploring the literature for studies in relation to pricing, service and fairness

- Following review of the environmental aspect of Ofwat's Water 2020, we have also included research on water consumption

- Studies include water-specific research where possible, but also include relevant research from a broader range of fields

- The process undertaken is outlined to the left, with a list of papers read detailed in the appendix

Analysis of the past data has shed light on new ways to report the data and how to design future studies

Data Analysed

Data Source		Details
'Call-Out' Feedback	SMS	Service NPS data from Jan 2014 – Jan 2016 (~3.6k cases)
	Feedback Cards	Data from Nov 2013 - Feb 2016 (~9.9k cases)
'Support' Feedback	Live Chat	Customer service data from Apr 2015 – Feb 2016 (~11.8k cases)
	Care Team	Proactive call back data from Aug 2015 – Feb 2016 (~15.6k cases)
Tracker		Annual tracker data from 2013 to 2015; 2016 for comparison

- 'Feedback' data sources come in distinct types, with SMS and Feedback Cards following some form of service *call-out*

- Live Chat and Care Team data represent forms of customer *support* not necessarily associated with a physical problem

- Note that there were some limitations to analyses that could be done (e.g., only 6% of Care Team data with satisfaction scores)

- Tracker data covering the three years 2013-2015 has been analysed to yield insights on improvements to the 2016 design

2. Literature Review

a) Willingness-to-Pay
b) Pricing Communications
c) Improving Satisfaction
d) Reducing Consumption

The conjoint approach to WTP has a number of advantages; Limitations can be overcome with careful design

Conjoint Advantages

- Revealed preference approach helps to uncover drivers the respondent is not aware of

- Requires trade-offs that are similar to those in real world purchasing decisions

- Simplicity reflects real world decisions, whereby choices are made on relatively few dimensions

- Response is to a complete package rather than individual attributes of a product

- Allows for control over variables and ensures that interactions are not present
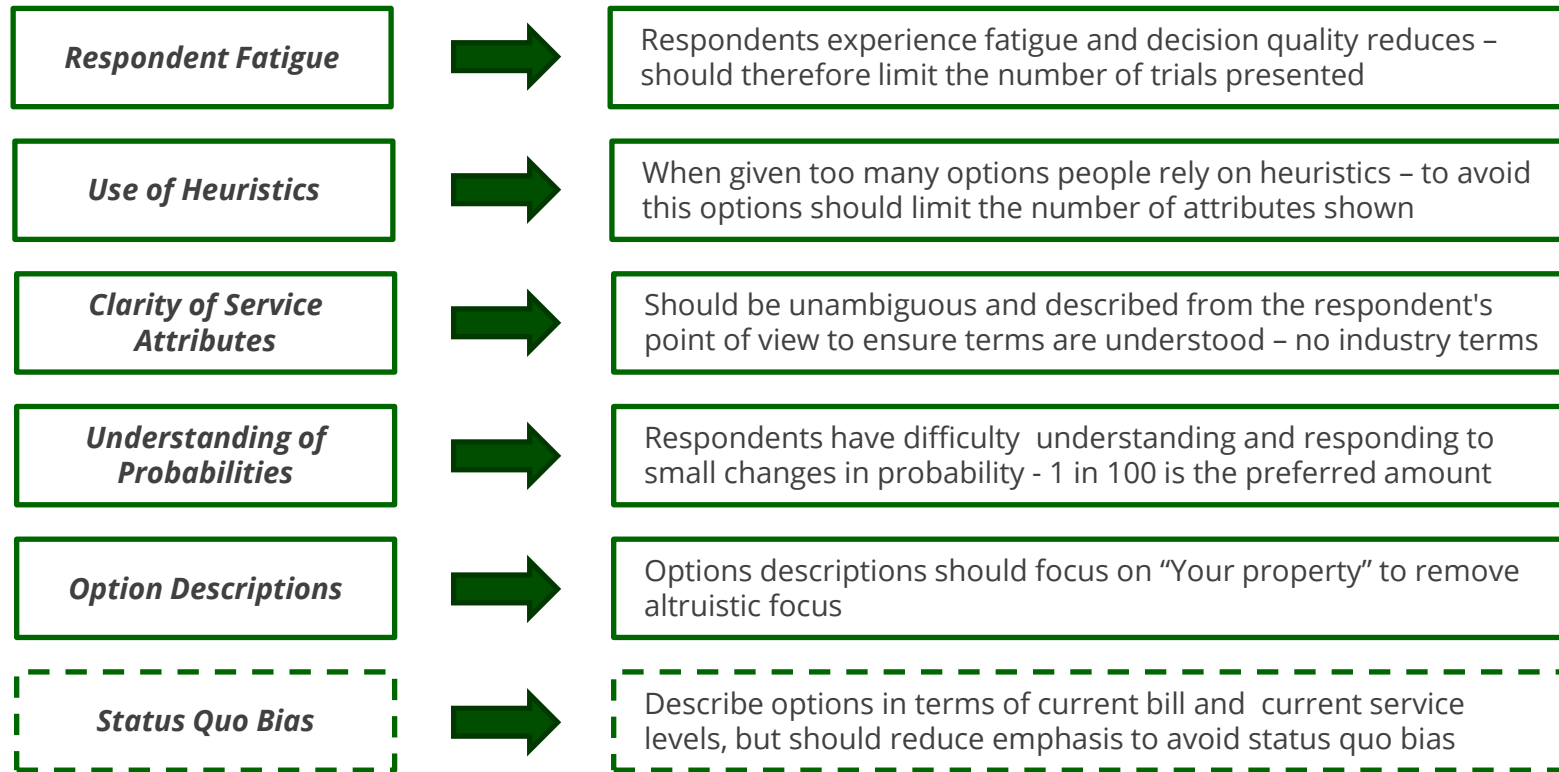
Conjoint Limitations

Limitations	Remedies
Respondent fatigue when there are too many trials included	Reduce number of trials any one participant has to take
Use of heuristics to make trade-offs when there is too much information	Reduce attributes presented to remove reliance on heuristics
Trade-off model may not capture all elements of the *choice process*	Perception questions can be used to illuminate other aspects of process

Source: Huber, J. (2005). Conjoint analysis: how we got here and where we are (An Update). *Sawtooth Software Conference* (p. 31). Green, P. E., Krieger, A. M., & Wind, Y. (2001). Thirty years of conjoint analysis: Reflections and prospects. Interfaces, 31(3_supplement), S56-S73.

Ofwat outline a sensible best practice for WTP that covers some of these points and others we have made previously

Key Ofwat WTP Best Practice Guidelines

Respondent Fatigue	Respondents experience fatigue and decision quality reduces – should therefore limit the number of trials presented
Use of Heuristics	When given too many options people rely on heuristics – to avoid this options should limit the number of attributes shown
Clarity of Service Attributes	Should be unambiguous and described from the respondent's point of view to ensure terms are understood – no industry terms
Understanding of Probabilities	Respondents have difficulty understanding and responding to small changes in probability - 1 in 100 is the preferred amount
Option Descriptions	Options descriptions should focus on "Your property" to remove altruistic focus
Status Quo Bias	Describe options in terms of current bill and current service levels, but should reduce emphasis to avoid status quo bias

Ofwat acknowledge an issue with the status quo bias, but suggest a "current level" approach that we don't recommend

Academic literature demonstrates the status quo bias in WTP studies; Better price framing approaches have been used

Status Quo Bias

Service Chosen

- Option A - Status Quo
- Option B
- Option C
- Don't Know
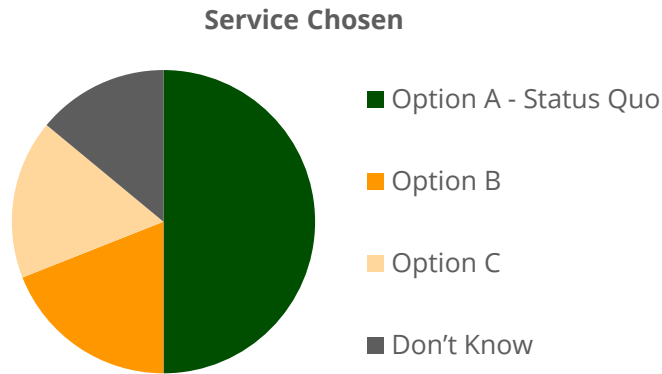
- Respondents exhibit status quo bias when asked about their WTP for water services
- Cost options were framed as relative to the respondent's current bill
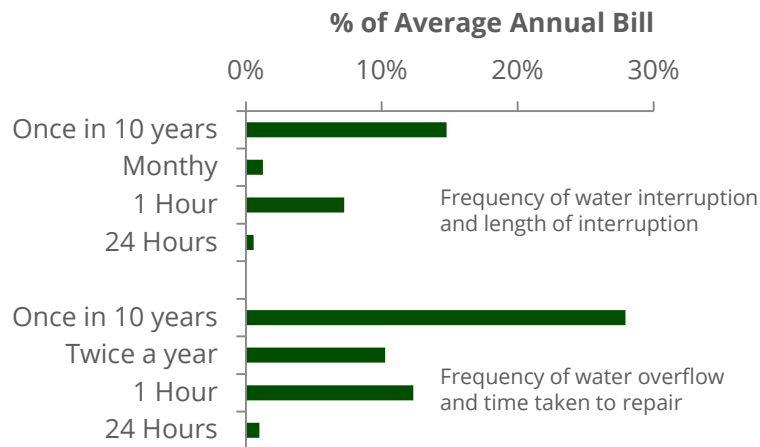- 50% of respondents chose the status quo option

Source: MacDonald, D. H., Barnes, M., Bennett, J., Morrison, M., & Young, M. D. (2005). Using a choice modelling approach for customer service standards. *Journal of American Water Resources Association.*

Options Without Status Quo

	PACKAGE A	PACKAGE B
Number of times water is unavailable to your home:	1 time per year	2 times per year
Length of time that water is unavailable to your home each time that it goes off:	8 hours	5 hours
Time of day that water is unavailable to your home each time that it goes off:	Over the weekend	Mon-Fri sometime after 8am
Prior notification that water will be unavailable to your home:	1 day	2 days
Response to phone inquiries in the event of water becoming unavailable to your home:	You get straight through to a PERSON - you are not put on hold and there is no machine directing you to press buttons	You get straight through to a PERSON - you are not put on hold and there is no machine directing you to press buttons
Total Water & Sewerage bill for the year:	$800	$850

- Options should be in absolute terms, not relative to current service level and cost
- Should force choices and not give an "I don't want either" option
- Demographic information should be used to create models of key drivers of WTP

Source: Hensher, D., Shore, N., & Train, K. (2005). Households' willingness to pay for water service attributes. Environmental and Resource Economics, 32(4), 509-531.
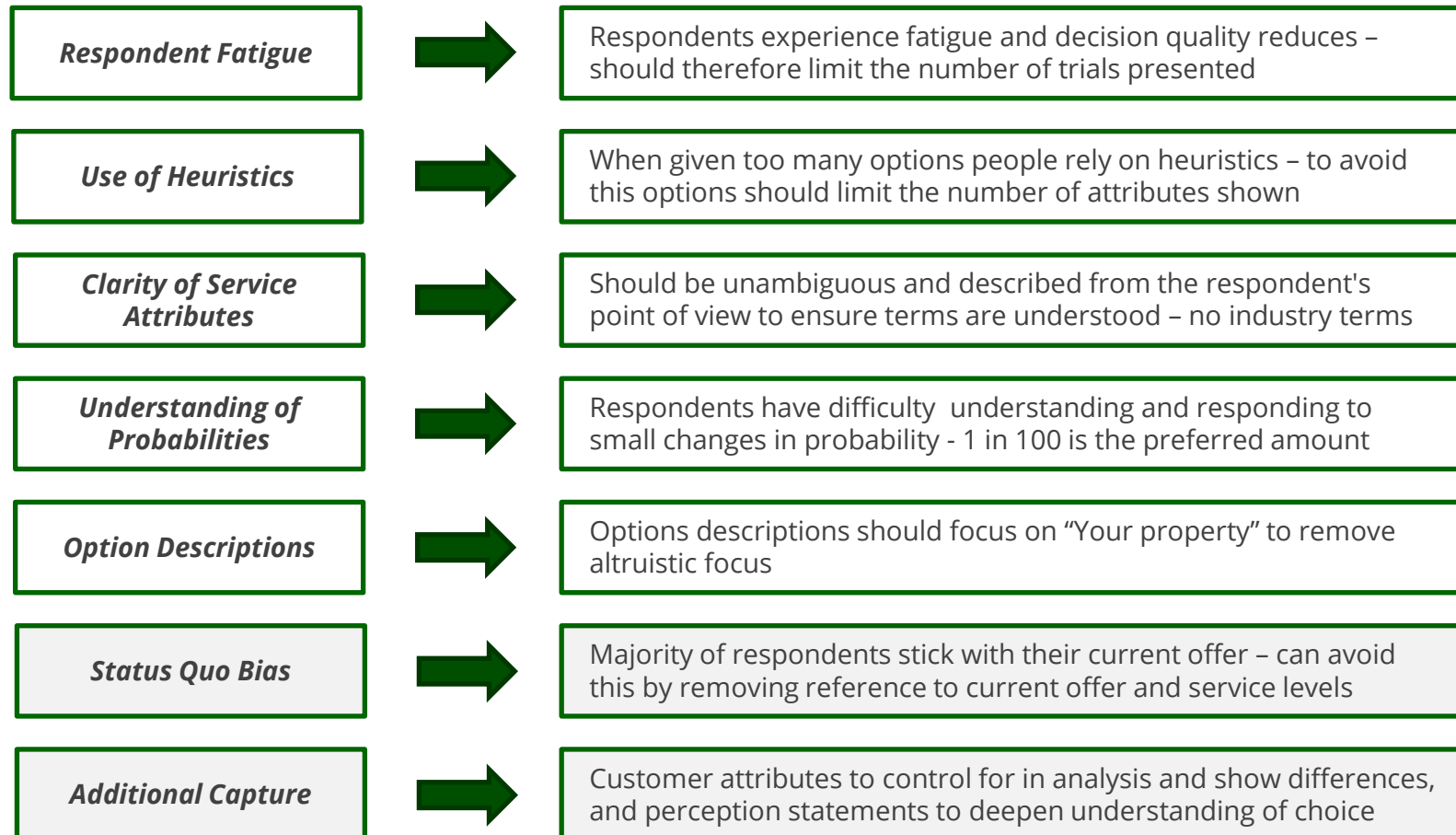
Done properly, results demonstrate clear preferences for certain attributes, as well as customer differences

Attributes WTP Differences

% of Average Annual Bill

Frequency of water interruption and length of interruption

- Once in 10 years
- Monthy
- 1 Hour
- 24 Hours

Frequency of water overflow and time taken to repair

- Once in 10 years
- Twice a year
- 1 Hour
- 24 Hours

- WTP was almost twice as high to avoid a overflow than to avoid service interruption
- WTP dropped the longer the interruption and the longer it took to repair an overflow
- Customers willing to pay 19% of their bill to receive advance notice of interruptions

Source: Hensher, D., Shore, N., & Train, K. (2005). Households' willingness to pay for water service attributes. Environmental and Resource Economics, 32(4), 509-531.

Demographics WTP Differences

Demographic	Effect on WTP
Rural household	Increase ▲
3+ cars	Increase ▲
Hosepipes	Increase ▲
Income <£10,000	Decrease ▼
Male	Decrease ▼

- As income increases respondent is more likely to choose higher service level
- Rural households are more likely to pay more to improve services
- Male respondents are less willing to pay for improvements

Source: Willis, K. G., Scarpa, R., & Acutt, M. (2005). Assessing water company customer preferences and willingness to pay for service improvements: A stated choice analysis. Water Resources Research, 41(2).

Hence there are some improvements that could be made beyond those recommended by Ofwat

WTP Methodology Guidelines

Respondent Fatigue →	Respondents experience fatigue and decision quality reduces – should therefore limit the number of trials presented
Use of Heuristics →	When given too many options people rely on heuristics – to avoid this options should limit the number of attributes shown
Clarity of Service Attributes →	Should be unambiguous and described from the respondent's point of view to ensure terms are understood – no industry terms
Understanding of Probabilities →	Respondents have difficulty understanding and responding to small changes in probability - 1 in 100 is the preferred amount
Option Descriptions →	Options descriptions should focus on "Your property" to remove altruistic focus
Status Quo Bias →	Majority of respondents stick with their current offer – can avoid this by removing reference to current offer and service levels
Additional Capture →	Customer attributes to control for in analysis and show differences, and perception statements to deepen understanding of choice

2. Literature Review

Future proposition pricing can learn from academic research demonstrating preference and perception malleability

Market Framing

- Participants choose a high price/quality beer or a low price/quality beer

- The market is evenly split until an inferior "decoy" of high price, same quality is added

- Even though no one purchases the decoy beer, the other two market shares change

Source: Huber, J., Payne, J. W., & Puto, C. (1982). Adding Asymmetrically Dominated Alternatives. *Journal of Consumer Research*, *9*(1), 90-98.

Malleability of WTP

Options	Average Maximum
Resort Hotel	$2.65
Run-Down Supermarket	$1.50

- Participants state the most they would pay for a beer on a hot day

- If the beer is bought from a supermarket, not a hotel, the amount decreases by $1.15

- Higher prices are an expected annoyance at a hotel, but a rip-off at a supermarket

Source: Thaler, R. (1985). Mental Accounting and consumer choice. *Marketing Science*, *4*(3), 199-214.

Discounts should be unpacked, but costs should be bundled and with appropriate framing

Bundle Pricing and Discount
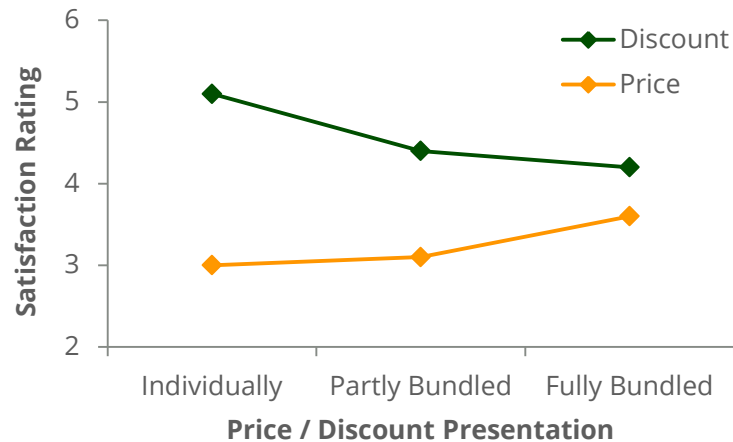
- Participants saw prices for a car and its optional features, and associated discounts
- The prices/discounts were presented either individually, partly or fully bundled
- Satisfaction was highest when prices were fully bundled, with individual discounts

Source: Johnson, M., et al. (1999), The effects of price bundling on consumer evaluations of product offerings. *Inter. J. of Res. Marketing*, *16*, 129–142.

Temporal Framing

- Participants are given the choice to take part in a charitable donation scheme
- Payment is presented as $ per day or $ per year to compare it to other expenses
- Daily donations are preferred when they are less than typical daily expenses ($1 - $5)

Source: Gourville, J.T. (1998). Pennies-a-day: The Effect of Temporal Reframing on Transaction Evaluation. *J. of Consumer Research*, *24*(4), 395-408.

To protect perceptions of fairness to the brand, cost rises should include justifications and be expressed in advance

Cueing Firm Costs

Scenario	Impact
Participants reminded of rent and pay roll costs	8% increase in fair price estimates
Participants told about the labour costs involved in making an item	15% increase in fairness perception

Importance of Motive

	Description	Unfair
Pair 1	Store X was charging $4.00 for a gallon of water	4.84
	The store had been charging this price the previous week	2.53
Pair 2	Store X had raised the price of a gallon of water	5.06
	This price change had been planned earlier in the year	3.24

- Participants presented with a series of scenarios and asked to judge their fairness

- Emphasising store's additional costs results in an increase in fair product price estimate

- Stressing labour costs involved in making a product increases fair price perceptions

- Participants viewed descriptions of a store's water prices after an earthquake

- When price increase was planned, prior to increased demand, price was seen as fairer

- Motive plays a role in people's perceptions of price fairness

Source Bolton, L. E., Warlop, L., & Alba, J. W. (2003). Consumer perceptions of price (un) fairness. Journal of consumer research, 29(4), 474-491.

Source: Campbell, M. C. (1999). "Why did you do that?" The important role of inferred motive in perceptions of price fairness. Journal of Product & Brand Management, 8(2), 145-153.

Such information should come from Wessex Water first and be in written form

Transparency of Price Increase

(Horizontal bar chart, x-axis: Price Fairness, 0 to 8)
- Disclosed by outside source: ~6.3
- Disclosed by firm: ~7.2
- No reason given: ~3.8
- Detailed (alignable reason): ~6.6

Source of Price Increase

(Bar chart, y-axis: Price Fairness, 0 to 3.5)
- Human: ~2
- Non Human: ~2.9
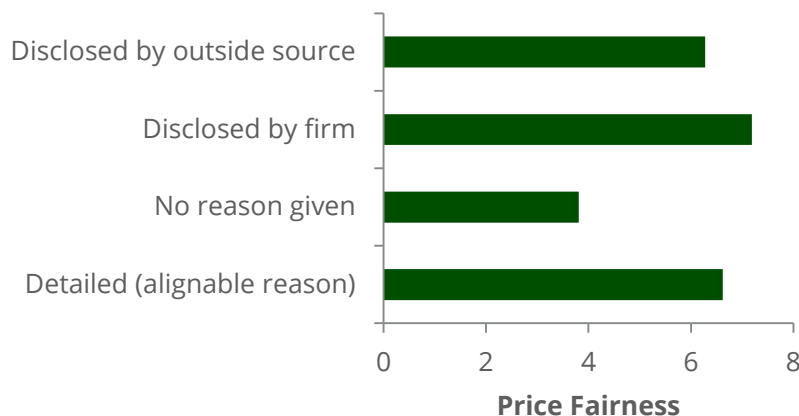
- Participants were told about a price increase in coffee

- A price increase is perceived as fairer when it is admitted by the firm in question

- Describing the price increase as aligned to firm's costs also increased price fairness
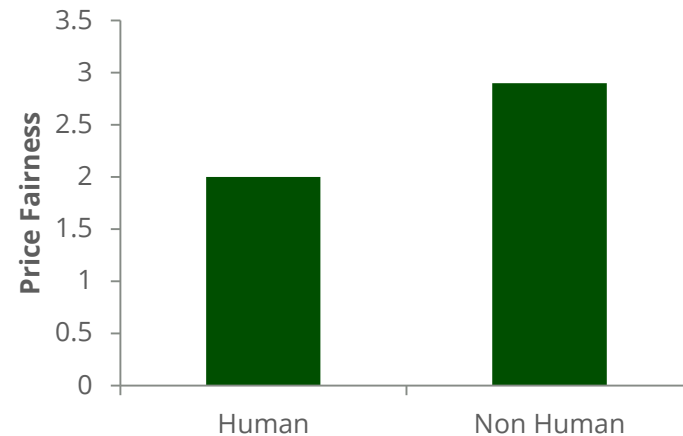
- Price fairness was higher when the price came from a non-human source

- People more likely to respond emotionally when dealing with other people

- People assume non-human sources do not have control over outcomes

Source: F erguson, J., & Scholder Ellen, P. (2013). Transparency in pricing and its effect on perceived price fairness. *Journal of Product & Brand Management,* 22(5/6), 404-412.

Source: Campbell, M. C. (2007). "Says who?!" How the source of price information and affect influence perceived price (un) fairness. *Journal of marketing research, 44(2), 261-271*

2. Literature Review

a) Willingness-to-Pay
b) Pricing Communications
c) Improving Satisfaction
d) Reducing Consumption

Customers satisfaction can be improved with appropriate recovery from failure; Only one failure is allowed, though

The Recovery Paradox
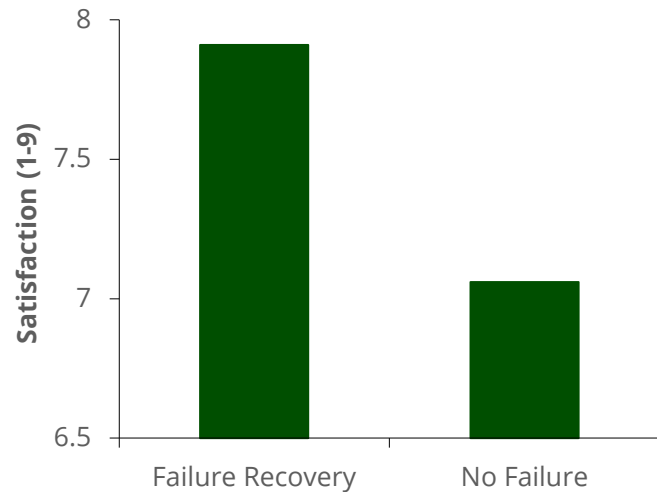
- Experiment participants are asked to rate their satisfaction on a hotel stay scenario
- Half are provided with a service failure-recovery scenario and half of them are not
- A recovery significantly boosts post-failure satisfaction above the no failure level

Source: McCollough, M.A. (2000). The Effect of Perceived Justice and Attribution Regarding Service Failure and Recovery . *JHTR*, *24*(4), 423-447.

Recovery Paradox Limits
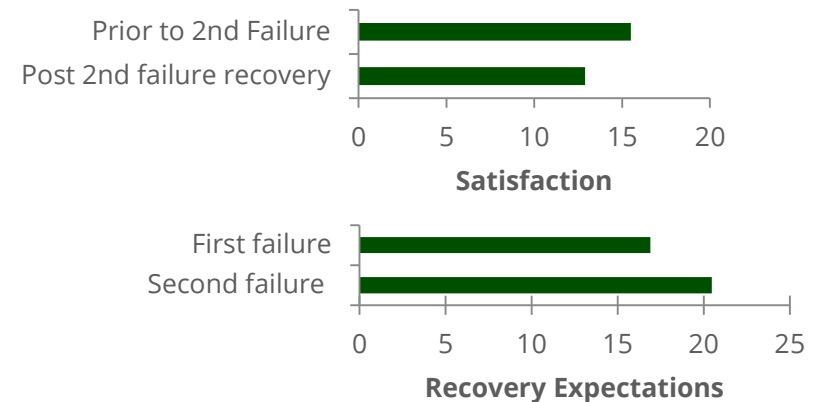
- Experiment looked at bank complaints over a 20 month period
- More than one failure results in decreased satisfaction ratings
- On experiencing second failure, recovery expectations are higher

Source: Maxham III, J. G., & Netemeyer, R. G. (2002). A longitudinal study of complaining customers' evaluations of multiple service failures and recovery efforts. Journal of marketing, 66(4), 57-71.

There is a variety of recovery strategies for service failures that provide different levels of performance

Recovery Strategies

% Retention
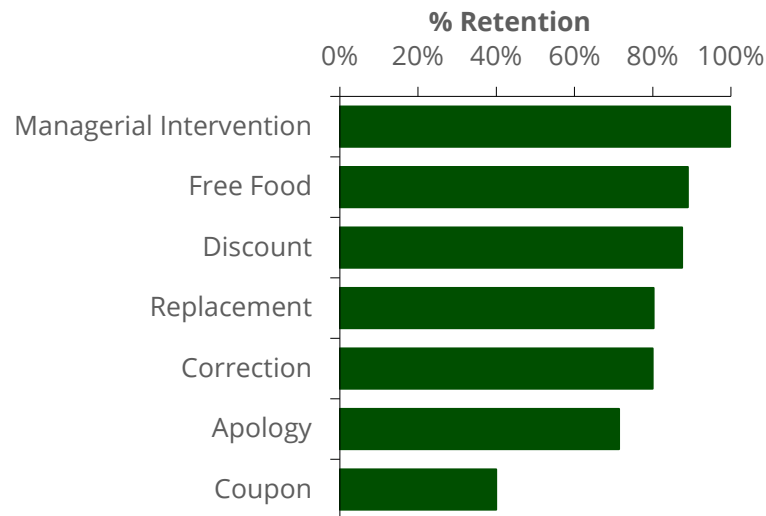
- Participants are asked to recall failure recovery incidents at restaurants
- They're asked to rate them on magnitude, effectiveness and revisit likelihood
- Complete recovery is possible with the right strategy (e.g. managerial intervention)

Source: Hoffman, K. D., et al. (1995). Tracking service failures and employee recovery efforts. *Journal of Services Marketing*, 9(2), 49-62.

Staff Authenticity
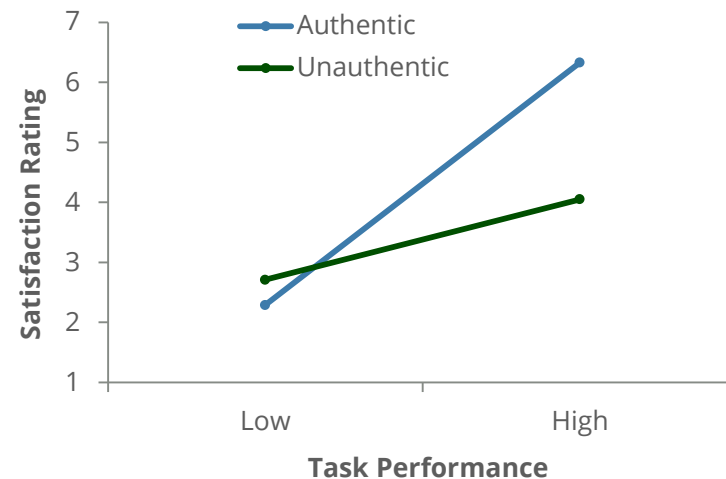
- Participants rate their satisfaction with a simulated hotel encounter
- Staff performance and authenticity (sincerity) are varied between conditions
- Authentic staff yields higher satisfaction when performance is high, but not if low

Source: Grandey, A. A., et al. (2005). Authenticity of positive displays during service encounters. *Org. Behav. & Human Decision Processes*, 96, 38-55.

Satisfaction can be improved by focusing on 'human' characteristics, including superficial ones

Key Drivers of NPS & Satisfaction

Customer Satisfaction

Legend:
- ■ NPS (orange)
- ■ Satisfaction (green)

Categories (top to bottom):
- Relational performance
- Satisfaction with problem recovery
- Core performance
- Features performance
- Competitive rates
- Skilled employees

- Participants are asked to rate their experience with their main bank
- Relational (e.g., friendliness) performance is the key driver of satisfaction and NPS
- Employee knowledge is not as important as employee relationship with customer

Source: Levesque, T., & McDougall, G. H. (1996). Determinants of customer satisfaction in retail banking. *International Journal of Bank Marketing*, *14*(7), 12-20.

Staff Appearance

Dimension Score

3   4   5   6

Legend:
- ■ Attractive Staff (green)
- ■ Average Staff (red)

Categories (top to bottom):
- Tangibles
- Empathy
- Reliability
- Assurance
- Responsiveness
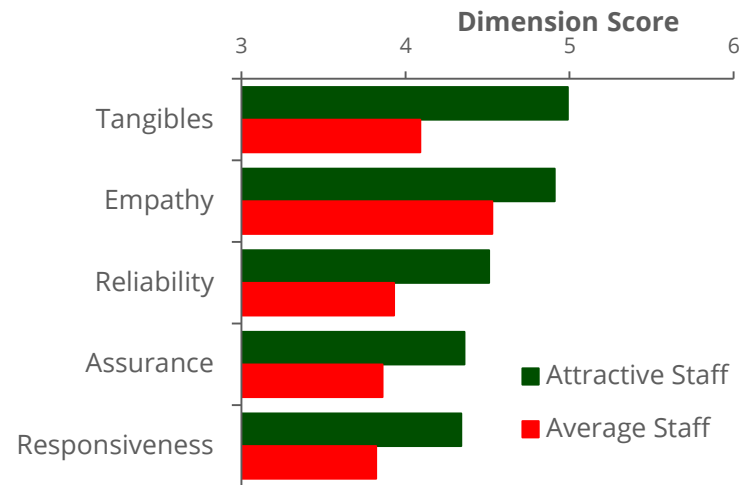
- Participants are shown a picture for an attractive or an average waitperson
- They then rate aspects of restaurant service (e.g. quality of tangible furnishings)
- The attractive waitperson is consistently rated higher across all aspects of quality

Source: Luon, H. F., et al. (2009). Physical attractiveness stereotypes and service quality in customer-server encounters. *Serv. Indust. J.*, *29*, 1093-104.

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2. Literature Review

a) Willingness-to-Pay
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d) Reducing Consumption

# Consumption has been identified by Ofwat as an issue to be addressed in Water 2020

Water Environmental Challenges

- *Population growth and climate change mean that the water sector is under increasing pressure to address the issue of water scarcity*

- *The uneven distribution of population and water resources means that the supply of water is often drawn from areas where water resources are under pressure*

85% of WW customers thought that protecting rivers, lakes and estuaries was an important element of its business plan

- *Running information campaigns offers a simple approach to reducing consumption, however, these campaigns are ineffective at producing a behavioural change*

- *Social norms approaches have emerged, in the literature, as a potential lever for reducing water consumption*

Source: Ofwat (2015) Towards Water 2020 – meeting the challenges for water and wastewater, *Trust in Water July 2015,* Schultz, P. W., Messina, A., Tronu, G., Limas, E. F., Gupta, R., & Estrada, M. (2014). Personalized normative feedback and the moderating role of personal norms a field experiment to reduce residential water consumption.*Environment and Behavior*

Providing social norms and social feedback have been shown to influence energy usage

Energy Consumption
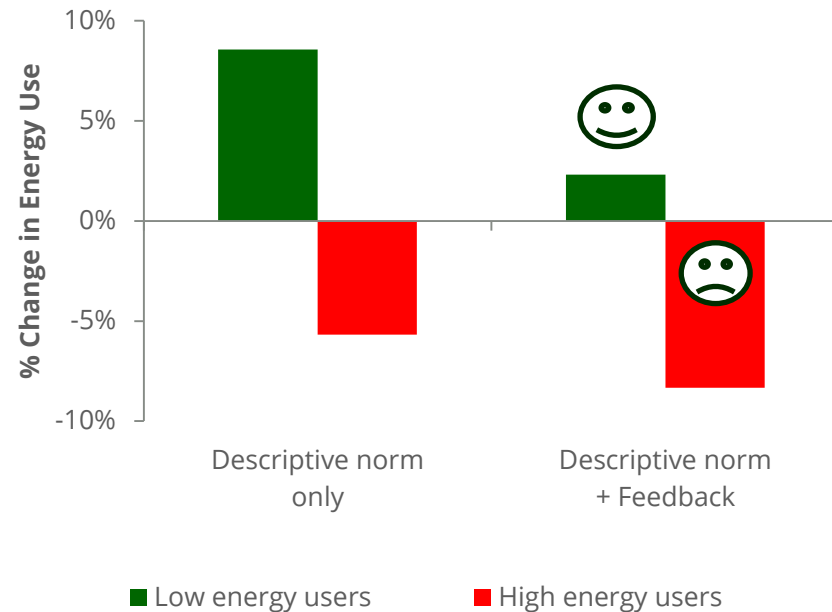
- US households were told whether their energy use was above or below average amongst peers

- Although high energy users decreased their usage, low energy users increased their usage to be in line with the norm

- Some were also given feedback with a smiling (below average) or frowning (above average) emoticon

- The social feedback prevented the "boomerang" effect of low usage customers increasing their usage

Source: Schultz, P. W. et al. (2007). The Constructive, Destructive, and Reconstructive Power of Social Norms. Psychological Science,18. pp. 429-434

Similar peer comparison effects have been shown with water and have a greater effect than providing water saving tips

Social Norm Approaches
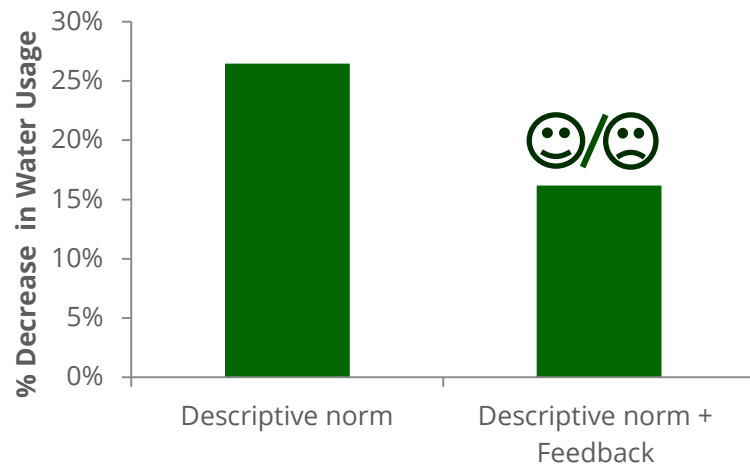
- Households were told whether their water use above or below average amongst peers
- The feedback group households were also given a smiling or frowning emoticon
- Both approaches resulted in a significant reduction in water consumption

Source: Schultz, P. W., Messina, A., Tronu, G., Limas, E. F., Gupta, R., & Estrada, M. (2014). Personalized normative feedback and the moderating role of personal norms a field experiment to reduce residential water consumption. *Environment and Behavior*..

Information Approaches

Intervention Period

	Pre	During	Post	Difference
Description norm	128.27	116.65	120.38	-6.15%
Information only	112.83	110.93	112.93	0.08%

Litres per person per day

- Households were either given water saving information or descriptions of usage norms
- Information approach has a short term, but not a long term, impact on consumption
- Social approaches appear more effective in reducing consumption in the long term

Source: Fielding, K., Russell, S., Spinks, A., McCrea, R., Stewart, R., & Gardner, J. (2012). Water end use feedback produces long-term reductions in residential water demand. Science forum and stakeholder engagement

Metering would also help; Barriers to take up include overestimation of usage

Flat Rate vs. PAYG

% Customers

	0%	50%	100%
Flat Rate to PAYG	35%		65%
PAYG to Flat Rate	90%		10%

■ Would Pay More By Switching
■ Would Pay Less By Switching
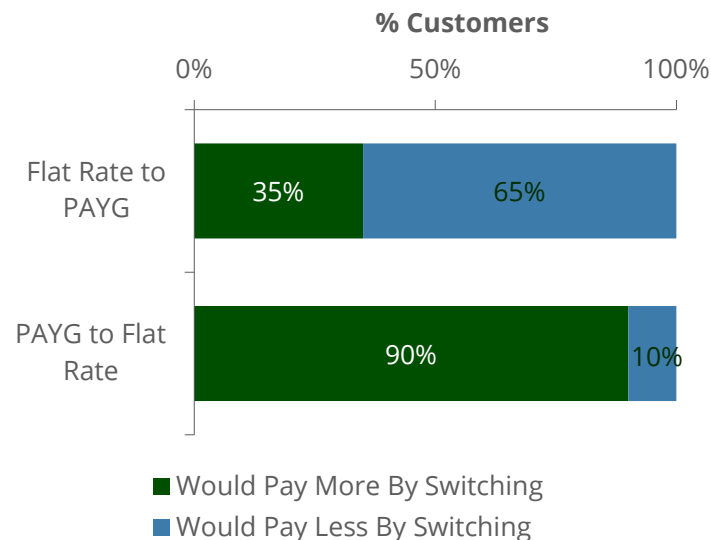
- Participants chose either flat rate or PAYG phone tariffs

- 65% choosing flat rate could switch to save, but only 10% from PAYG to flat rate

- One explanation is that customers routinely overestimate their usage

Source: Kridel, D. J., et al. (1993). Option Value, Telecommunications Demand, and Policy. *Informational Economics and Policy*, *5*, 125–144.

Flat Rate Drivers

Taxi Meter Effect → 0.33 → **Flat Rate Choice**
Insurance Effect → 0.30 → **Flat Rate Choice**
Overestimation Effect → 0.11 → **Flat Rate Choice**
Convenience Effect → 0.00 → **Flat Rate Choice**
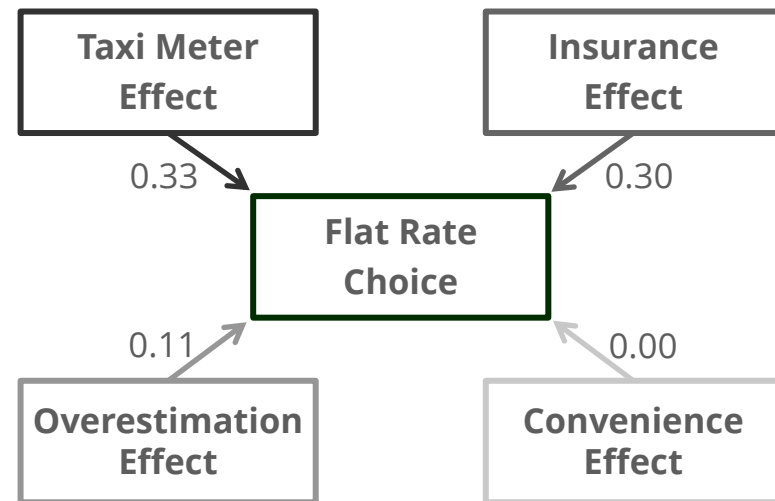
- People choose an internet tariff, along with their attitudes

- Unlimited usage (Taxi Meter Effect) and capped costs (Insurance Effect) drive choice

- Overestimation of usage drives flat rate tariff choice; convenience has no impact

Source: Lambrecht, A. & Skiera, B. (2006). Paying Too Much and Being Happy About It. *Journal of Marketing Research, 48*, 212-223.

3. Data Analysis

a) Call-out Feedback
b) Support Feedback
c) Tracker Analysis

Satisfaction ratings can be tracked and smoothed to show genuine movements over time

Satisfaction Over Time
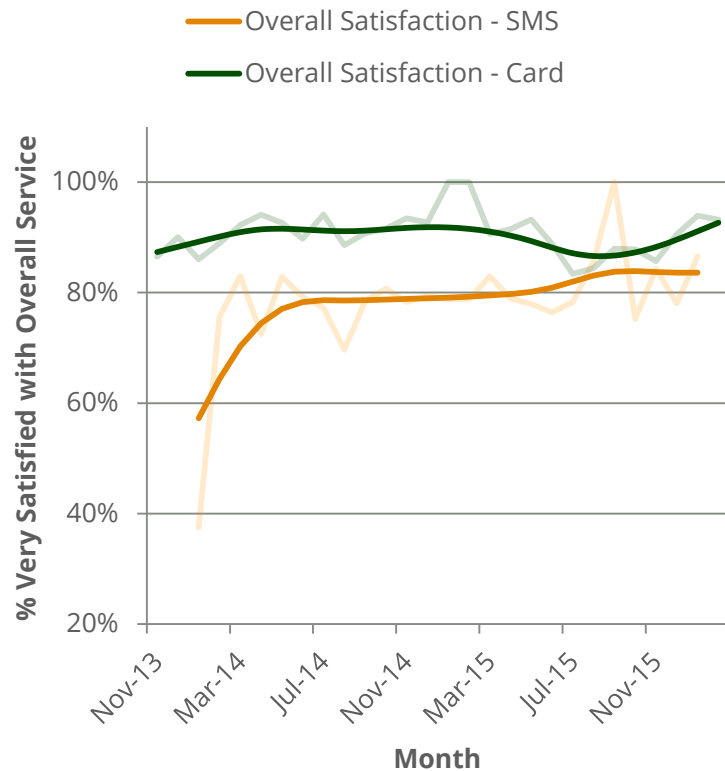
- SMS and Feedback Card data include satisfaction ratings going back as far as late 2013

- There appears to be some anomalies in the SMS data, with initial satisfaction ratings being unusually low

- Cubic spline smoothing, including weightings, have been applied and show upward trends towards the end of 2015

- Satisfaction ratings are very high, with little room for improvement, though this may in part be due to the 5-point scale used

Beyond this, we can examine what impacts on satisfaction to help guide strategies for improvement

Impact of Problems on Satisfaction

- Satisfaction ratings are extremely high when there are no problems or if problems have been resolved (92% very satisfied)

- Different problems experienced by customers impact on the percentage rating that they are very satisfied

- Consistent with academic research, staff conduct is more damaging than not being able to resolve the issue immediately

- By examining the frequency of the event, the net impact of different issues may be determined

Source: Wessex Water SMS Feedback Survey (n = 3,629; Time span: Jan 14 – Jan 16)

Evidence also suggests that details as arbitrary as the time the survey is taken can affect satisfaction ratings

Satisfaction Ratings by Time (SMS)
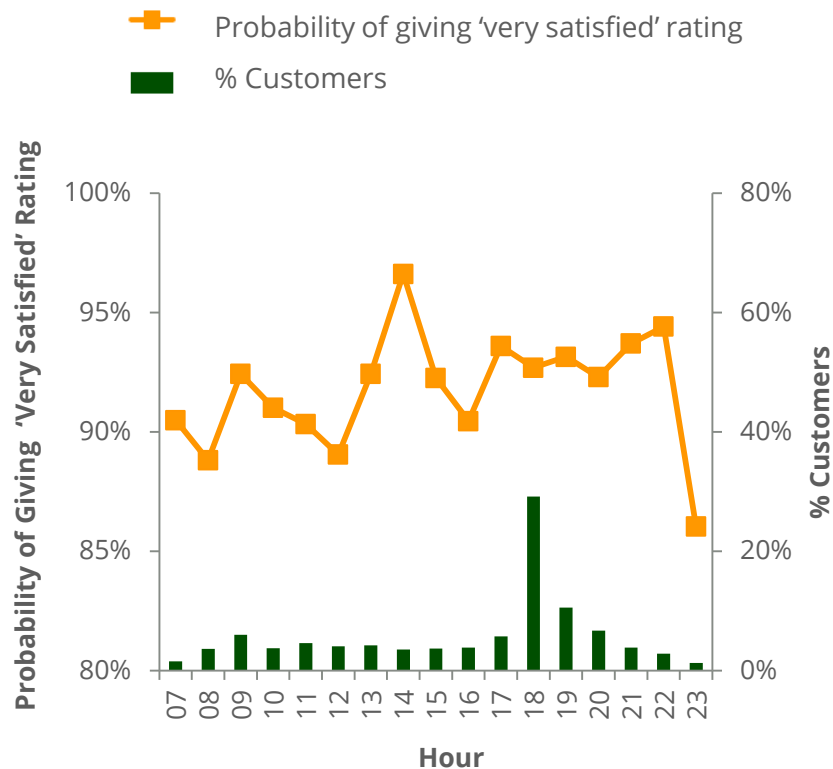
- The SMS data include details on the time of the day that the customer completed the survey

- Satisfaction ratings appear to improve throughout the day and are higher post-lunch (2pm) and in the evening (5-10pm)

- However, there is a big drop at 11pm, suggesting WW should avoid having customers answer at this time

- To understand this situation fully – whether WW have any control over this - data is needed on when the surveys are sent

Source: Wessex Water SMS Feedback Survey (n = 3,629; Time span: Jan 14 – Jan 16)

3. Data Analysis

a) Call-out Feedback
b) Support Feedback
c) Tracker Analysis

The Care Team and Live Chat data also included measures of satisfaction; These measures could be made consistent

Satisfaction and NPS (Care Team)

Satisfaction (Live Chat)
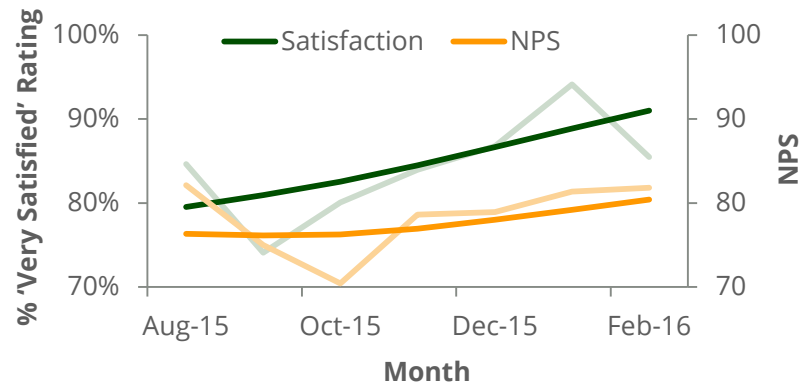
- Care Team data only goes back as far as August 2015, though follows the same satisfaction pattern as with other data

- The data include a measure of satisfaction along with a Net Promotor Score (NPS) measure
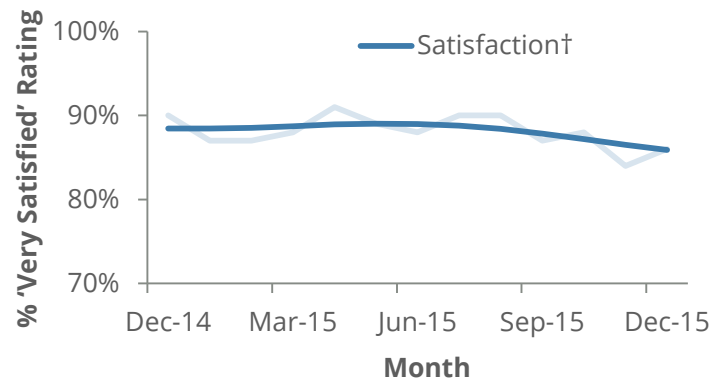
- These metrics appear to be measuring the same thing, mirroring each other's pattern and with a correlation of 0.96*

- Note that the Live Chat satisfaction data is of a different form and shows a different pattern to the other satisfaction metrics

Source: Wessex Water Care Team Feedback Survey (n = 15,564; Time span: Aug 15 – Feb 16); Live Chat Data (Aggregated)
* correlation is based on smoothed numbers, raw numbers correlation is 0.66; † Live Chat satisfaction question was phrased as ' How helpful did you find the agent?'.

Care Team satisfaction scores vary depending on the nature of the inquiry and the area

**Satisfaction by Inquiry Type and Area**
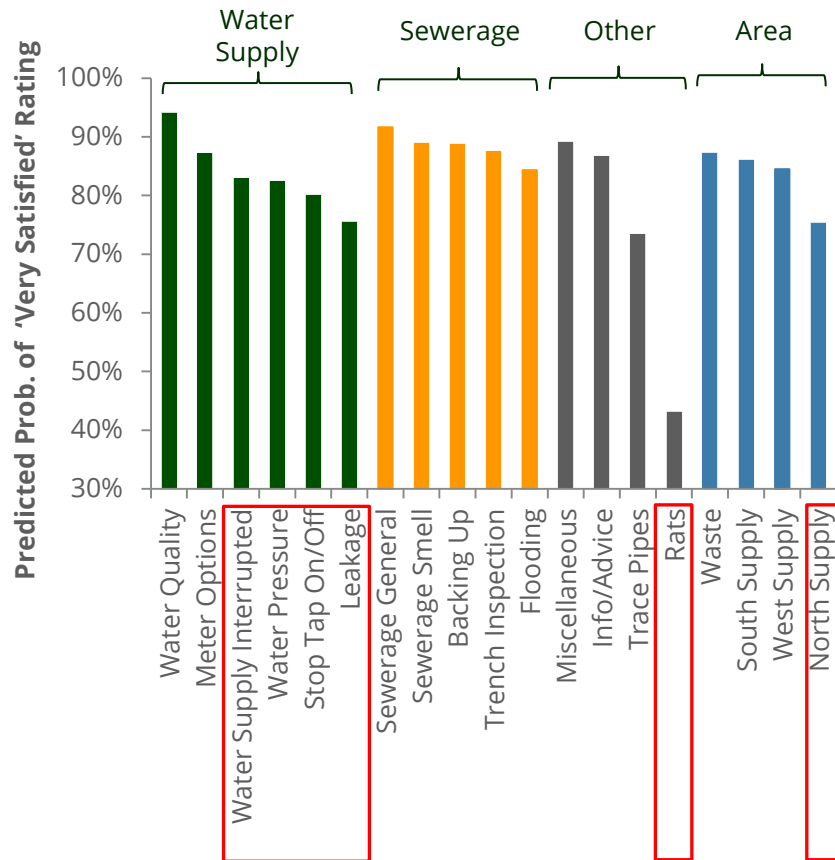
- The Care Team data includes details of the nature of the inquiry and the area associated with the call

- These have been hand-coded into categories; going forwards a more consistent codebook is recommended

- These can be included in a model of satisfaction ratings to determine if there are impact differences

- The highly emotive problem of rats leads to lower satisfaction ratings, as do problems relating to the flow of water (e.g., leakage)

Source: Wessex Water Care Team Feedback Survey (n = 15,564; Time span: Aug 15 – Feb 16)

Understanding the time signatures of inquiry types can help manage interventions and staffing

Inquiry Type Frequency Over Time
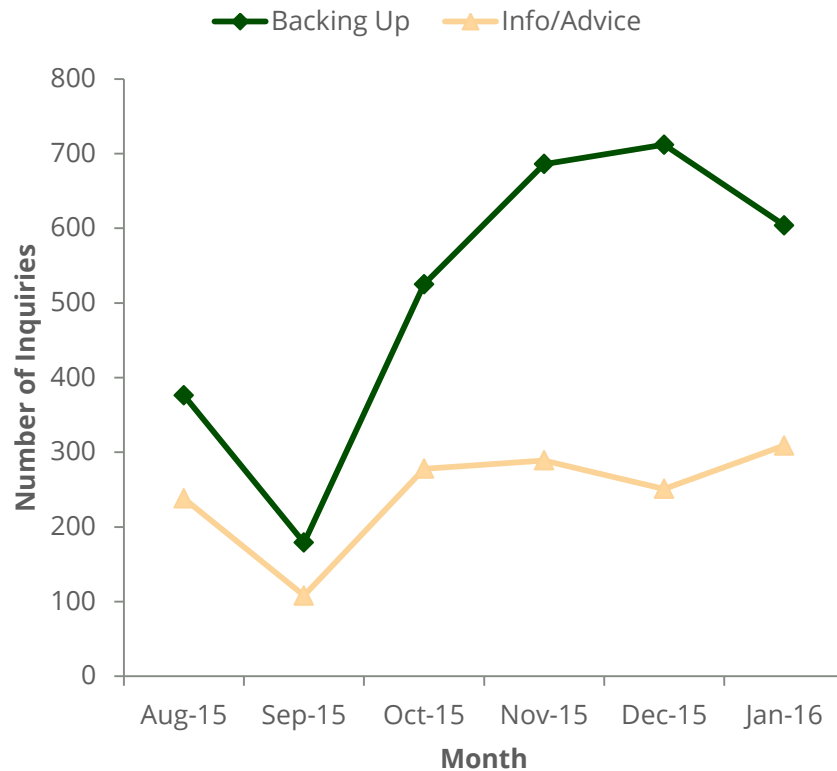
- Whilst the data is limited (i.e., not covering a full year) there do appear to be some seasonal differences

- For example, inquiries about backing up are more common in the autumn/winter months

- By contrast, inquiries about general information or advice tend to be fairly constant across the year

- Understanding these can be used to help understand and improve satisfaction ratings by responding appropriately

Source: Wessex Water Care Team Feedback Survey (n = 15,564; Time span: Aug 15 – Feb 16)

3. Data Analysis

a) Call-out Feedback
b) Support Feedback
c) Tracker Analysis

Tracker data has been analysed to determine key measures to report, as well as provide recommendations for future design

Tracker Contents

Section	Key Questions
Awareness/ Interaction	• Drinking Water Supplier • Sewerage Services Supplier • Contacted WW • Problem Experienced
Attitudes/ Satisfaction	• Importance Rating and WW Performance Rating (General Service Related Statements)
Environment	• Importance Rating and WW Performance Rating (Environment Related Statements)
Billing	• Importance Rating and WW Performance Rating (Billing Related Statements) • Bill Size • Bill Awareness
Information	• Importance Rating and WW Performance Rating (Community Related Statements) • WW Magazine • WW Website
Demographics	• Age, gender, SEG and etc.
Bespoke Section	• PR 14 (2013) • Financial Support and Blockage (2014) • Blockage (2015)

- Tracker data from 2013 to 2015 have six sections in common (the first six shown in the table)

- Each then also included a bespoke section of particular interest for that particular time

- Focus has been paid to the data that is consistent across the three years in order to demonstrate trends

- In turn this has been used to relate to the current 2016 design to suggest improvements that can be made

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001)

Many of the statements in the tracker lead to very similar answers, demonstrating a great amount of redundancy

Example Statement Rating Similarities*

	Safe Water	Good Water	Reliable Water	Water Pressure
Provides safe and healthy drinking water	100%			
Provides water that smells, looks and tastes good	66%	100%		
Provides a reliable supply of water	69%	61%	100%	
Ensures adequate water pressure	54%	51%	55%	100%

* Proportion of respondents giving exactly the same rating to the statements

- Respondents were asked to rate Wessex Water on 29 perception statements, each scored on the same scale

- These statements were spread out throughout the tracker survey, but can be examined together

- Many of these statements have clear similarities, resulting in respondents answering them in the same way

- As can be seen from the chart, respondents gave very similar ratings to water supply related statements

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001); numbers are percentages with log transformation

Accordingly, factor analysis reveals that 29 perception statements can be reduced to six underlying dimensions

Underlying Dimensions

Dimension	Example Statements
Maintenance	• Resolves enquiries/problems quickly • Carries out work efficiently
Water Supply	• Provides safe and healthy drinking water • Provides water that smells, looks and tastes good
Sewerage	• Waste water taken from your home is properly cleaned before its released back into the environment • Takes away, treats and disposes of waste water and sewage from your home
Billing	• Ease of setting up appropriate payment method • Provides a range of methods to pay bills
Environment	• Wessex Water has made improvements to the quality of the river water in the last few years • Wessex Water plays a key role in protecting the environment
Community	• Plays a key role in helping people within the Community • Educates children and young people about water

• Factor analysis is a useful tool for investigating variable relationships for complex concepts such as brand images

• Some statements show similar patterns of responses because they are all associated with an underlying dimension

• For example, bill accuracy and simplicity are highly correlated and can be better understood as one dimension ("Billing")

• The six dimensions revealed can help simplify reporting and understanding of brand or firm performance

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001)

Wessex Water currently scores highly across all of these dimensions

Wessex Water Factor Scores

Factor	2013	2014	2015
Maintenance	83	77▼	80▲
Water Supply	83	83	74▼
Sewerage	82	81	78▼
Billing	84	77▼	79▲
Environment	82	78▼	81▲
Community	77	82▲	81

Note: Scale (0-100); Arrows indicate statistical significant (95%) change from the previous year

- Scores for each factor can be calculated by aggregating weighted statement ratings underlying the dimensions

- Wessex Water's performance on these can then be tracked over time for any improvements or areas of concern

- Genuine changes in performance can be observed by examining statistical significance (indicated by the arrows)

- However, more frequent running of the tracker would help understand trends better, as well as any seasonal effects

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001)

As with the perception statements, the three measures of satisfaction in the tracker correlate highly

Satisfaction Rating Similarities

Satisfaction Measures	% Giving Same Rating
Overall & Water Supply	78%
Overall & Sewerage	74%
Water Supply & Sewerage	73%

Rating Difference Predictors

- For around 75% of cases the satisfaction rating given for one measure is exactly the same as for another

- Where there are Water and Sewerage satisfaction rating differences, these are predicted by particular events experienced

- Lower Sewerage ratings are predicted by blockages and flooding; For lower Water ratings it is water quality problems

- The remaining slides in this pack examine overall satisfaction only (see appendix for separate Water and Sewerage results)

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001)

The perception factors can be modelled against Satisfaction to determine which have the most impact

Predicting Overall Satisfaction (Factors)
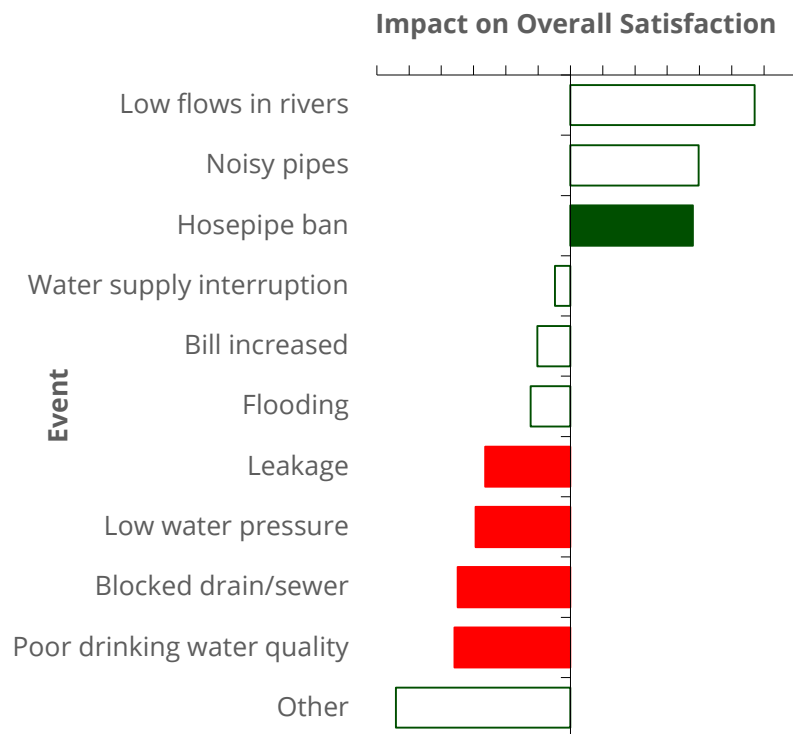
Impact on Overall Satisfaction
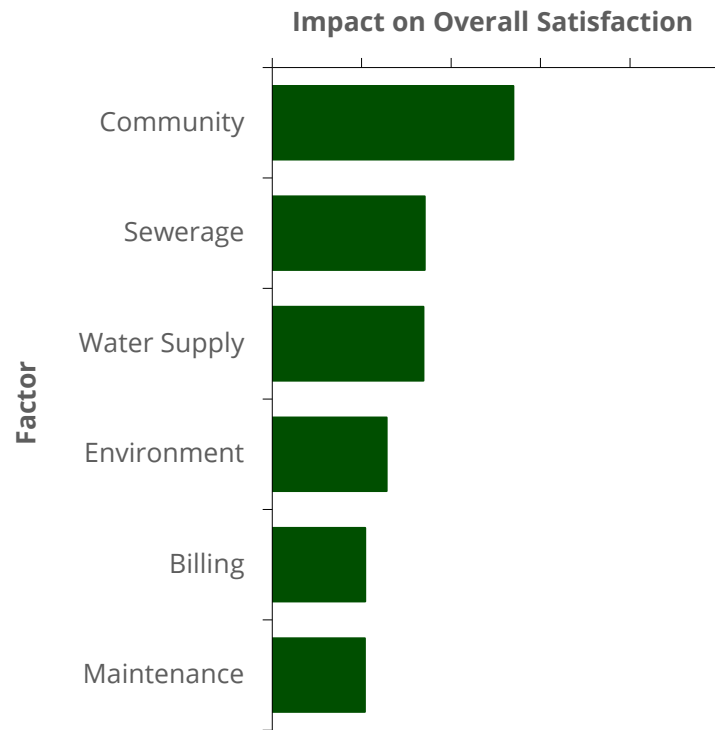
- Using a regression model we can determine the key drivers of Satisfaction, with Community the most important

- This 'revealed' approach is superior to introspective approaches (i.e., asking respondents which are the most important)

- Note that the pecking order for the factors is dissimilar to the introspective importance ratings from the survey

- The introspective importance ratings, although all high, showed Community to be the least important

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001)

Examining the impact of events instead leads to more actionable levers to pull to improve customer satisfaction

Predicting Overall Satisfaction (Events)

Impact on Overall Satisfaction

Event (chart categories, top to bottom):
Low flows in rivers, Noisy pipes, Hosepipe ban, Water supply interruption, Bill increased, Flooding, Leakage, Low water pressure, Blocked drain/sewer, Poor drinking water quality, Other

Note: Solid bars indicate significant drivers

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001)

- Perception drivers are useful to know, but less tangible; Instead we can take the same approach, but using water/sewerage events

- Poor drinking water quality and blocked drains have the biggest impact on impairing satisfaction ratings

- Note that the hosepipe ban result is an oddity and more likely a reflection of a respondent characteristic

- The tracker could benefit from the addition of more events in place of the many redundant perception statements

14 March 2016

4. Recommendations

Summary of key findings: Part 1

- Willingness-To-Pay
  - Ofwat guidelines are sensible and help to reduce cognitive load and improve understanding
  - However, their approach to the status quo bias is ambiguous and can be improved upon
  - Furthermore, WTP studies should control for and examine customer differences

- Price Communications
  - Perceptions of price are malleable and context-dependent
  - Accordingly choice (e.g., of tariffs, providers) can be influenced by the way price is framed
  - Price rise comms need to be carefully managed (who, when and how)

- Improving Satisfaction
  - Making a recovery from a service failure increases satisfaction ratings, but only the first time
  - Actual staff service performance is merely a hygiene factor
  - 'Human' aspects of service (e.g., friendliness) are more important in driving satisfaction

Summary of key findings: Part 2

- Reducing Consumption
  - Providing information on saving water only has a short and temporary affect on consumption
  - Providing social norms – benchmarking against peers – has more, and lasting, impact
  - The key barrier to meter uptake is an overestimation of water consumption

- Feedback Data
  - Satisfaction measures could be made more consistent, though show recent increases
  - Consistent with academic literature, satisfaction is most influenced by 'human' service aspects
  - Some inquiry types have more impact on satisfaction, and seasonal frequency variations exist

- Tracker Data
  - The 29 perception statements from the 2013-15 trackers may be reduced to six dimensions
  - Of these, 'Community' has the greatest relationship to overall customer satisfaction
  - However, events are more actionable, with poor drinking water quality the key issue to resolve

The following slides outline the most pertinent actions to take based on these findings

The WTP methodology should adhere to Ofwat's best practice, but can go beyond this in a number of ways

WTP Research Improvements

Area	Details
Content	• Limited attributes to reduce cognitive load • Limited trials to reduce fatigue • Participant water knowledge and bill understanding
Framing	• No own-bill reference to remove status quo bias • Consistent presentation of probabilities
Structure	• Start with trials to reduce fatigue and prevent bias
Channel	• Run online to eliminate interviewer effects, randomise better and reduce costs
Analysis	• Control for participant types • Show impact of participant types

- The Ofwat WTP best practice guide includes sensible suggestions for reducing customer fatigue and cognitive load

- Whilst it also notes avoiding a status quo bias, its suggestion for using customer bill information can be improved upon

- Beyond these, the WTP methodology can be improved by reviewing the survey structure (e.g., question ordering)

- Further modifications from our original proposal would also help, such as running it online and analysis of participant types

# A number of strategies may be adopted to improve customer satisfaction ratings and recovery from service failures

Satisfaction Optimising Strategies

Area	Details
Staff Training	Revamp staff training and protocols to ensure 'human' elements of service (friendliness, etc) are optimised
Problem Prioritisation	Prioritise resolution to problems affecting satisfaction and if possible have your best staff manage these
Feedback Timing	Examine current practices regarding the sending of feedback surveys and determine whether these should be altered
Written Comms	Focus on 'human' elements in comms and reinforce positive messages ("90% of our customers rate us 5/5")

- Mistakes will happen from time to time when dealing with customers, but every failure provides an opportunity for recovery

- A number of current practices and strategies may be reviewed to determine if improvements may be made

- For example, both the literature review and data analysis revealed 'human' service attributes driving satisfaction ratings

- Resources may be allocated accordingly to ensure the most important factors affecting satisfaction are addressed

The 'Feedback' data sources should be pulled together into a results dashboard for better satisfaction and problems tracking

Example Dashboard Screenshots
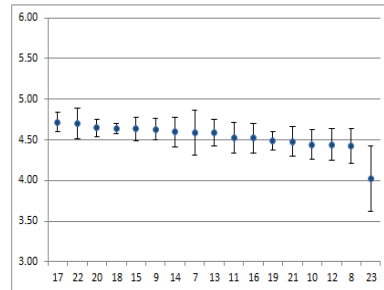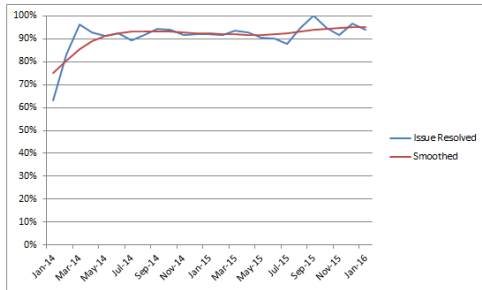
- Satisfaction is currently measured in different ways, across different channels (e.g., different types of satisfaction, NPS)

- Steps could be taken to make measurements consistent across channels, but should otherwise be collated

	Backing Up	Flooding	Info/Advice	Leakage	Meter Options	Stop Tap On/Off	Water Pressure	Water Quality	Supply Interrupted
Aug-15	376	172	238	417	276	148	79	34	41
Sep-15	179	76	108	332	132	114	25	16	5
Oct-15	525	211	278	407	371	157	109	43	88
Nov-15	686	304	289	333	453	200	128	74	65
Dec-15	712	312	251	277	275	143	99	41	91
Jan-16	604	354	309	328	283	115	79	89	57
Feb-16	312	160	116	169	171	50	40	21	29

- Problems customers face should also be coded consistently and tracked over time alongside satisfaction measures

- Having these metrics pulled together and monitored over time can aid flagging service issues and areas for concern

The annual tracker should be re-designed to focus on key aspects and improve reporting

Suggested Tracker Changes

Area	Details
Statements	Remove redundant statements, keeping the ones with discriminatory power (key ones under each factor)
Events	Increase the number of events (which are more actionable) specifically those relating to 'human' aspects of service
Structure	Re-evaluate question ordering to avoid response biases and ensure consistency of response scales
Channel	Consider moving survey online, removing interviewer effects, improving randomisation and allowing visualisations

- Some reduction in the length of the survey for 2016 has been made, although other analysis-driven reductions could be made

- Key statements from 2013-15 should be carried forwards and the events list should be increased

- Beyond these, changes could be made to the structure of the survey to improve information fidelity (e.g., see P60)

- Migrating the survey online has data quality advantages, would be cheaper and would facilitate more frequent running

Finally, the results outlined also provide insights to help guide future business issues

- Communicating Price Rises
  - Express rises in advance to demonstrate that they are planned, rather than arbitrary
  - Communicate in writing (e.g., letter, email), rather than by person (e.g., news, PR)
  - Justify price rises (e.g., improvements in service, environmental obligations)

- Pricing in a Competitive Environment
  - Unpack any savings that can be made (e.g., online billing, direct debit), but bundle costs
  - Offer 'full service' decoy product to push demand towards target products
  - Frame costs against appropriate benchmarks (e.g., clean water for less than a cup of coffee)

- Reducing Customer Consumption
  - Encourage reductions in use by benchmarking against similar households
  - Overcome meter uptake barriers in comms by outlining benefits and overestimations of usage
  - Consider future technological interventions (e.g., like Smart meters for energy, Hive, etc)

Appendix

We are prone to discounting the future heavily, often to an irrational extent

Discounting

Buying Air Conditioning	Choice
NIS 14,000	19%
NIS 5,000 and NIS 940/month for 10 months = NIS 14,400 total	81%

- People choose paying a lump sum or in instalments (using 10% discount rate)
- People tend to prefer delaying payment, suggesting irrationally high discount rates
- Ruderman et al. (1986) found real-world offers implied rates of up to 243%

Source: Liebermann, Y., et al. (2002). Efficiency of Consumer Intertemporal Choice Under Lifecycle Cost Conditions. *J. of Eco. Psych.*, *23*, 729-748, Ruderman, H., Levine, M., & McMahon, J. (1986). Energy-efficiency choice in the purchase of residential appliances. In K. Willet & M. Neiman (Eds.), Energy-efficiency perspectives on individual behaviour. Washington, DC: American Council for an Energy Efficient Economy.

People see discounts in relative terms so the same absolute discount seems more significant for a cheaper item

Diminishing Sensitivity

Buying a Calculator	Choice
In this store for $15	32%
Available 20mins away for $10	68%
In this store for $125	71%
Available 20mins away for $120	29%

- Diminishing Sensitivity means that $5 has more meaning as 33% rather than 4%
- Savage (1954) noted you might purchase a $2,124.56 car with a radio for $2,228.41
- But if you already owned a car, you wouldn't pay $93.85 for a radio (in 1954!)

Source: Tversky, A., & Kahneman, D. (1981). The Framing of Decisions and the Psychology of Choice. *Science*, *211*(4481), 453-458.

People compare features against a sample of experienced values, leading to memory biases from the memory system

Current Account Debits
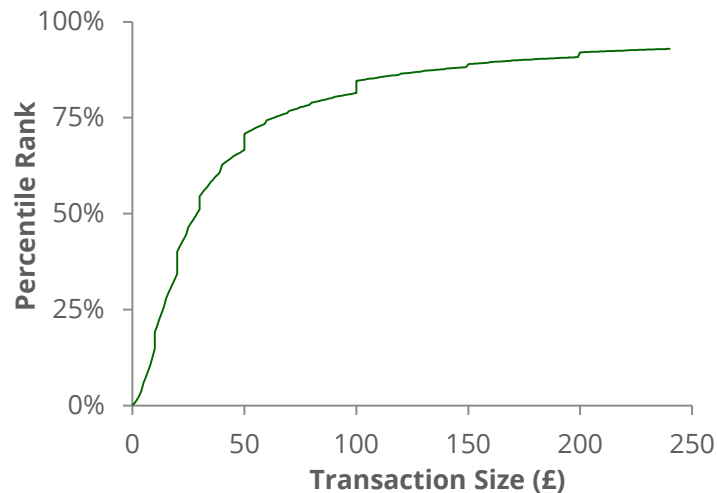
- Shows cumulative distribution of debits for a UK clearing bank's retail base

- 89% of transactions are less than £150, making £150 a 'big' amount

- A strategy for making an amount 'small' is to limit references to larger expenditures

Source: Stewart, N., Chater, N., & Brown, G. D. A. (2006). Decisions by sampling. *Cognitive Psychology, 53,* 1-26.

People are much more likely to do someone a favour if their request is justified - even by a meaningless reason

Compliance

- ■ No Info: May I use the xerox machine?"
- ■ Placebic: "...Because I have to make copies?"
- ■ Sufficient: "...Because I'm in a rush?"
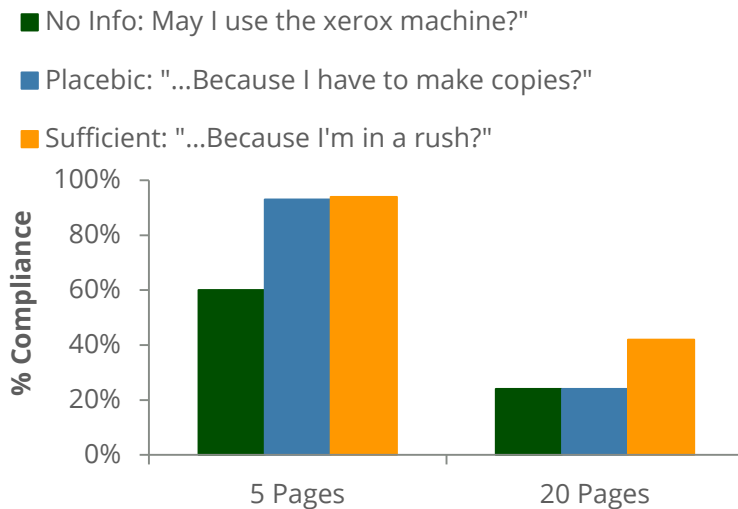
- An experimenter asks the 1st person in the queue if they can use the photocopier first

- They provide either no reason, a content-free reason, or a real reason

- If the favour was small even a content-free reason increases compliance significantly

Source: Langer, E., Blank, A., & Chanowitz, B. (1978). The mindlessness of ostensibly thoughtful action. *J. of Pers. and Soc. Psych.*, *36*(6), 635-642.

There are key areas and drivers of customer satisfaction

Key Areas of Customer Service

	Description
1. Reliability	Ability to provide the promised service accurately and dependably
2. Tangibles	Physical appearance of personnel, communication materials
3. Responsiveness	Willingness to help customers and provide prompt service
4. Assurance	Knowledge and courtesy of employees and ability to convey trust
5. Empathy	Caring individualised attention provided to the customer

Source: Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1991). Understanding customer expectations of service. Sloan Management Review, 32(3), 39-48.

Repeating a customer's restaurant order increases waiters' tip levels

Feedback Impact
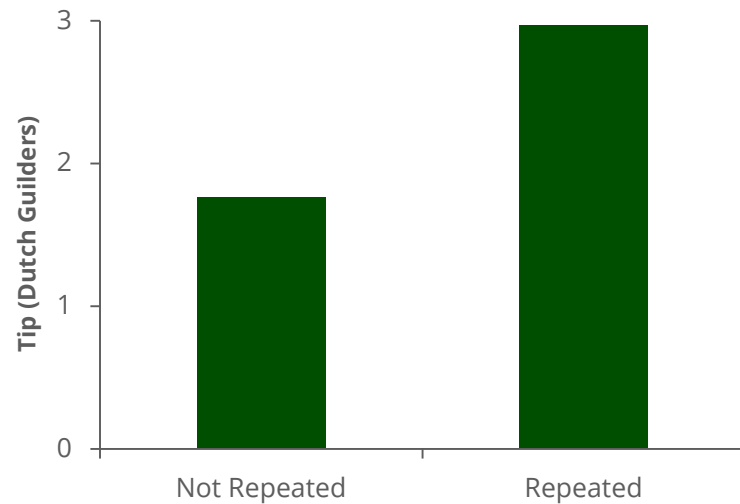
- Experimenters observe customers tipping waiters after restaurant meals
- In one condition, the waitress repeats her customer's order
- A larger tip is awarded, probably as a result of increased rapport and liking

Source: Van Baaren, R. B., et al. (2003). Mimicry for money: Behavioral consequences of imitation. *J. of Experimental Social Psychology*, *39*, 393-398.

Genuine facial expressions lead to higher satisfaction of the interaction partner

Expression Authenticity
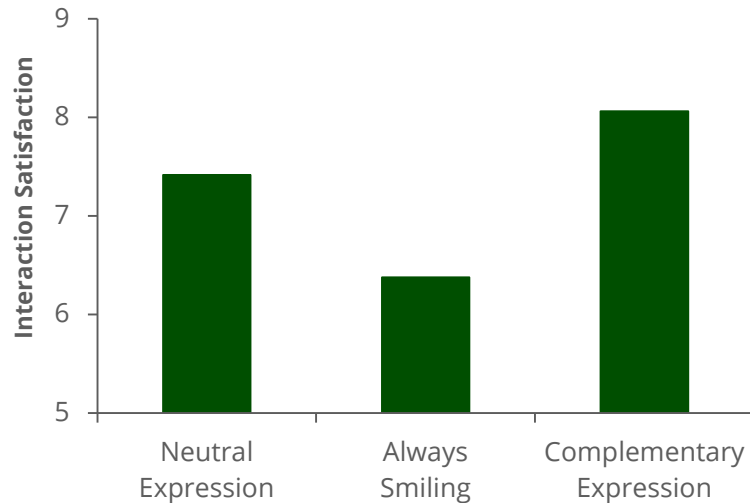
- Participants rate their satisfaction with a financial service encounter
- The bank staff manipulate their facial expressions across the encounters
- Smiling inflexibly yields worse ratings than reflecting the participant's expression

Source: Kim, K., et al. (2009). The Benefits of Synchronized Genuine Smiles in Face-to-Face Service Encounters. *Inter. Con. of Comp. Sci. & Engin.*, 801-808.

People care about how an experience feels but not how long it lasts

Peak-End Rule
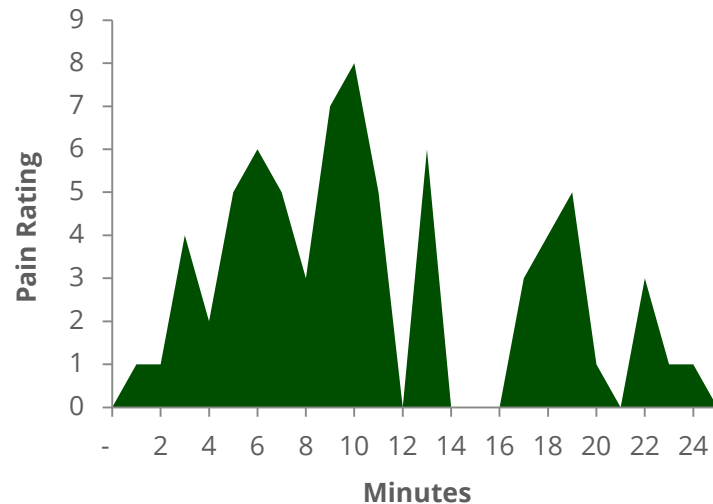
- Half of patients had a colonoscope left in, but stationary, for an additional minute

- This made the painful experience longer but the final moments less unpleasant

- Extended condition patients reported the overall procedure as less unpleasant

Source: Redelmeier, D. A., & Kahneman, D. (1996). Patients' memories of painful medical treatments. *Pain*, *66*(1), 3-8.

Poorly designed surveys prompt respondents to give similar answers to different questions

Effect of Question Order

General → Specific	Specific → General
Q1 "How happy are you with life in general?"	Q1 "How happy are you with your dating?"
Q2 "How happy are you with your dating?"	Q2 "How happy are you with life in general?"
-12% correlation	66% correlation

- Participants reported their well-being across different facets of their life and overall
- Because of priming, survey responses were heavily influenced by the question order
- This effect can be reduced by separating the concepts as part of the survey instructions

Source: Strack, F., et al. (1988). Priming and Communication. *European Journal of Social Psychology, 18*, 429-442.

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Number of Inquires by Month

Inquiry Type	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16*	Total
Backing Up	376	179	525	686	712	604	312	3394
Leakage	417	332	407	333	277	328	169	2263
Meter Options	276	132	371	453	275	283	171	1961
Flooding	172	76	211	304	312	354	160	1589
Info/Advice	238	108	278	289	251	309	116	1589
Miscellaneous	167	79	186	246	287	237	134	1336
Stop Tap On/Off	148	114	157	200	143	115	50	927
Water Pressure	79	25	109	128	99	79	40	559
Water Supply Interrupted	41	5	88	65	91	57	29	376
Trace Pipes	58	29	63	63	53	33	26	325
Water Quality	34	16	43	74	41	89	21	318
Sewerage Smell	40	24	51	54	48	26	2	245
Trench Inspection	24	24	32	38	26	25	12	181
Sewerage General	30	3	18	31	27	27	7	143
Rats	26	9	18	31	29	14	9	136
Pipe Noise	7	6	11	10	10	13	5	62
Pipe Burst	4	1	4	11	10	16	5	51

* Data received part way through February

Source: Wessex Water Care Team Feedback Survey (n = 15,564; Time span: Aug 15 – Feb 16)
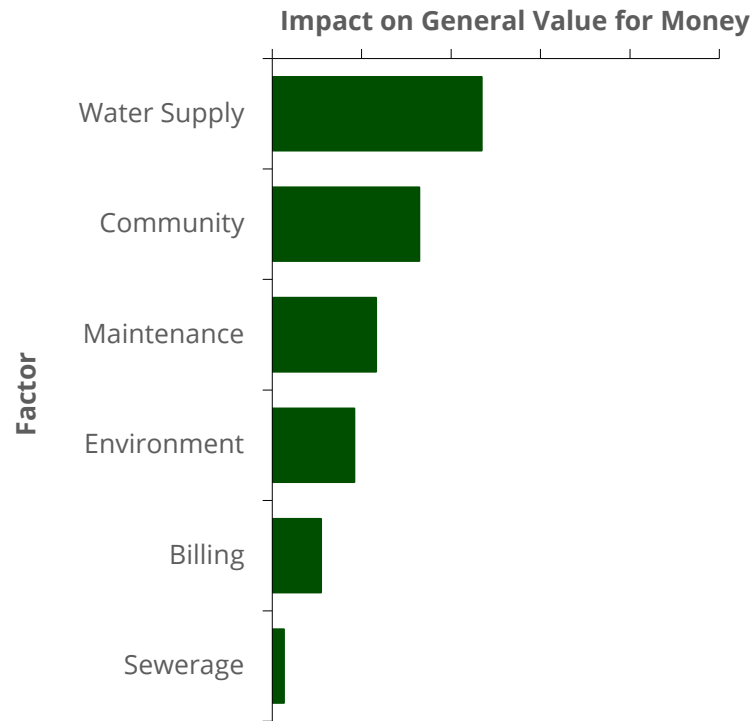
Full tracker factor analysis results

Tracker Factor Analysis Dimensions

Dimension	Statements
Maintenance	• Resolves enquiries/problems quickly • Carries out work efficiently • Responds quickly in emergencies • Repairs leaks as quickly as possible • Handles phone calls/written contacts efficiently • Keeps water leakages to a minimum
Water Supply	• Provides safe and healthy drinking water • Provides water that smells, looks and tastes good • Provides a reliable supply of water • Ensures adequate water pressure
Sewerage	• Waste water taken from your home is properly cleaned before its released back into the environment • Takes away, treats and disposes of waste water and sewage from your home
Billing	• Ease of setting up appropriate payment method • Provides a range of methods to pay bills • Provides accurate bills • Bill is easily understandable • Ease of querying your bill
Environment	• Wessex Water has made improvements to the quality of the river water in the last few years • Wessex Water plays a key role in protecting the environment • Wessex Water is investing a lot of money in the Environment • Wessex Water has made improvements to the quality of costal bathing waters in the last few years
Community	• Plays a key role in helping people within the Community • Educates children and young people about water • Keeps customers informed of how their money is used • Helps customers with financial difficulties who struggle to pay their water bill • Invests for the future

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001)
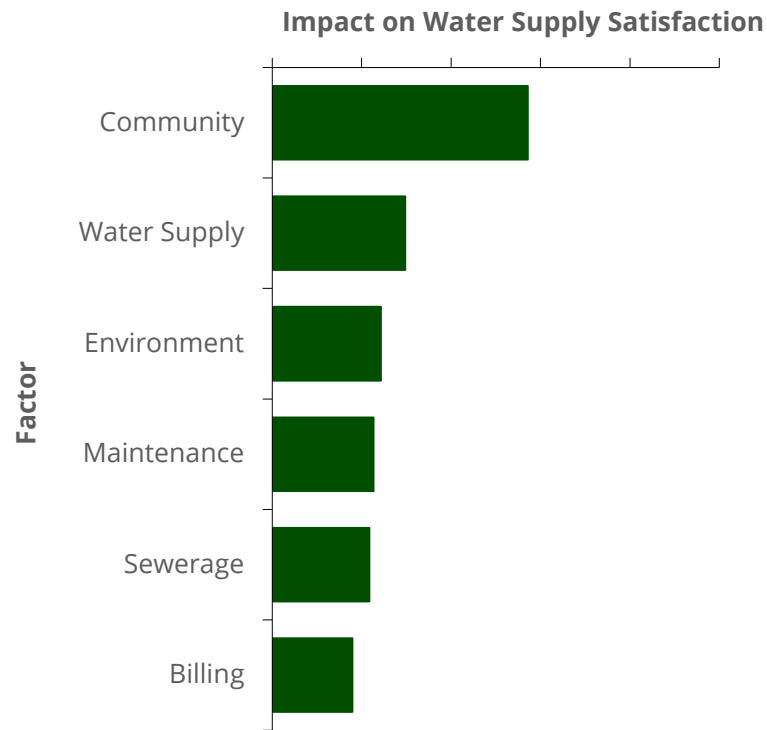
Value for Money Drivers - Factor

Predicting General Value For Money

Impact on General Value for Money

Factor

- Water Supply
- Community
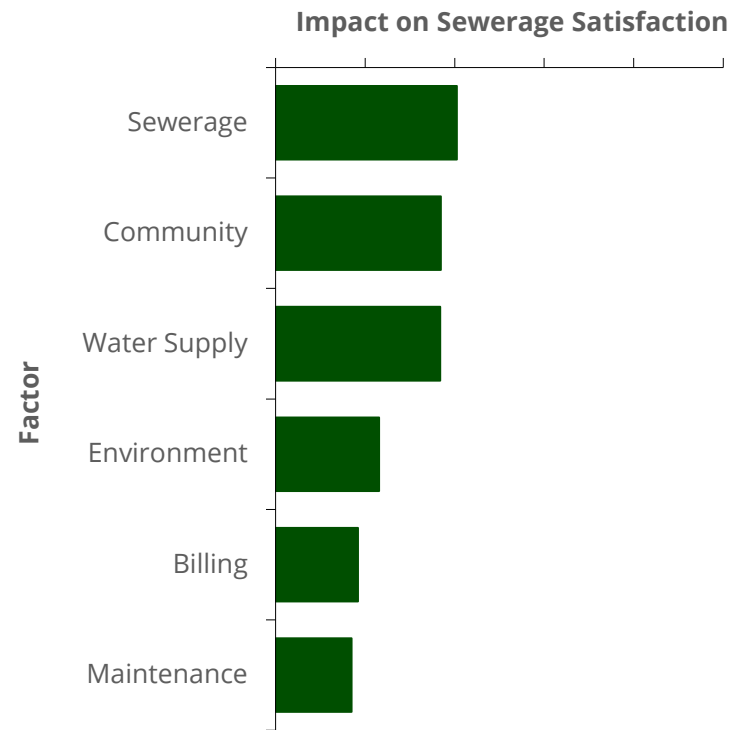- Maintenance
- Environment
- Billing
- Sewerage

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001)

Water Supply and Sewerage Satisfaction Drivers - Factor
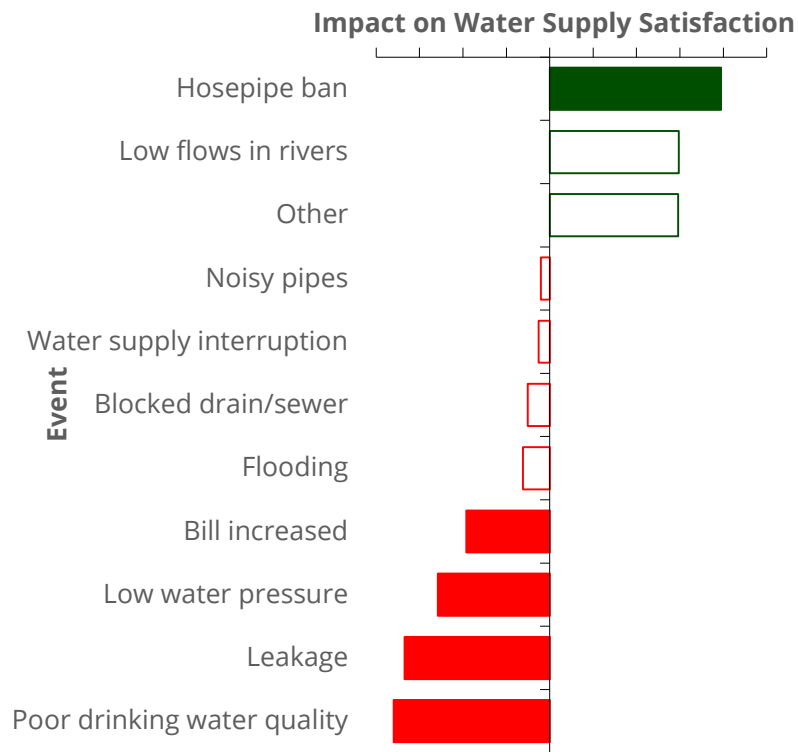
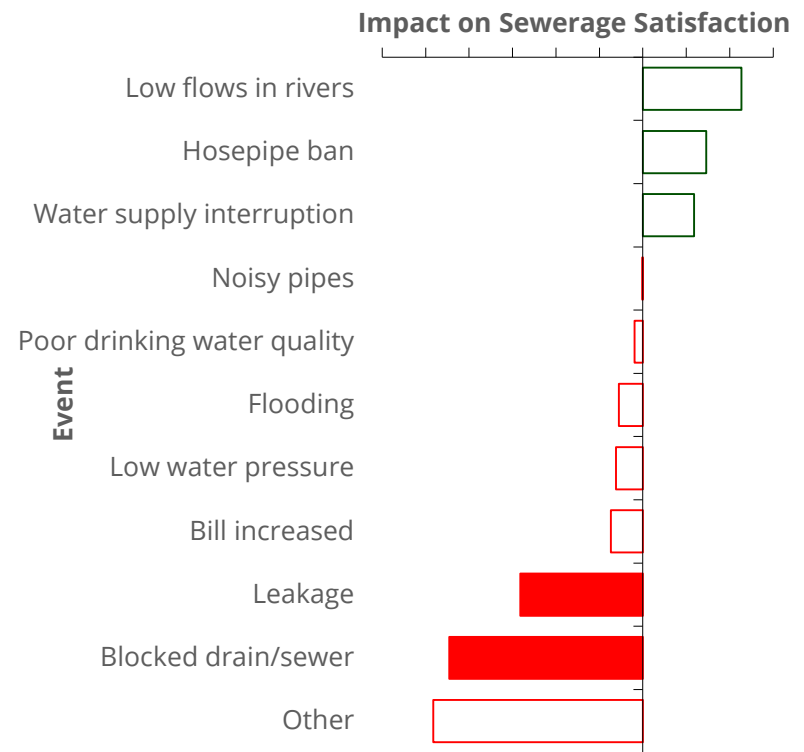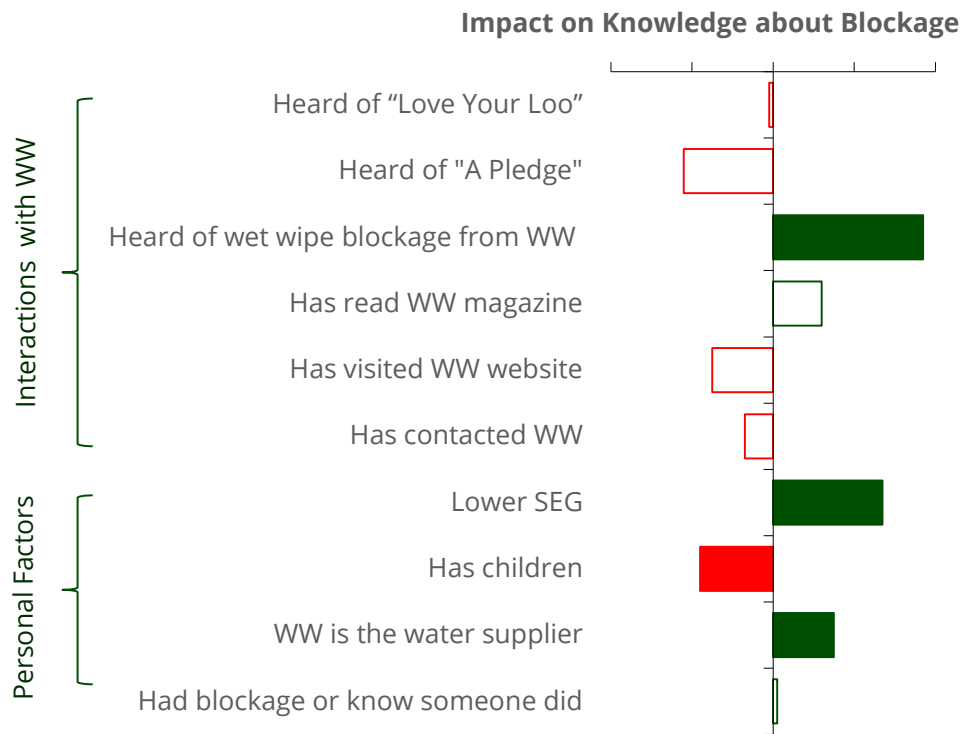## Water Supply Satisfaction (Factors)

Sewerage Satisfaction (Factors)

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001)

Water Supply and Sewerage Satisfaction Drivers - Event

Water Supply Satisfaction (Events)

Sewerage Satisfaction (Events)

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001)

Sewer blockage knowledge model

Sewer Blockage Knowledge

Impact on Knowledge about Blockage

Chart categories (top to bottom):

Interactions with WW:
- Heard of "Love Your Loo"
- Heard of "A Pledge"
- Heard of wet wipe blockage from WW
- Has read WW magazine
- Has visited WW website
- Has contacted WW

Personal Factors:
- Lower SEG
- Has children
- WW is the water supplier
- Had blockage or know someone did

- A single measure of customers' knowledge about sewer blockage was constructed using questions for flushable items

- Specific campaign messages – "Love Your Loo" and "A Pledge" had limited impact, possibly due to low awareness

- Customers were told about items that were not to be flushed down the toilet before asking whether they were aware of them

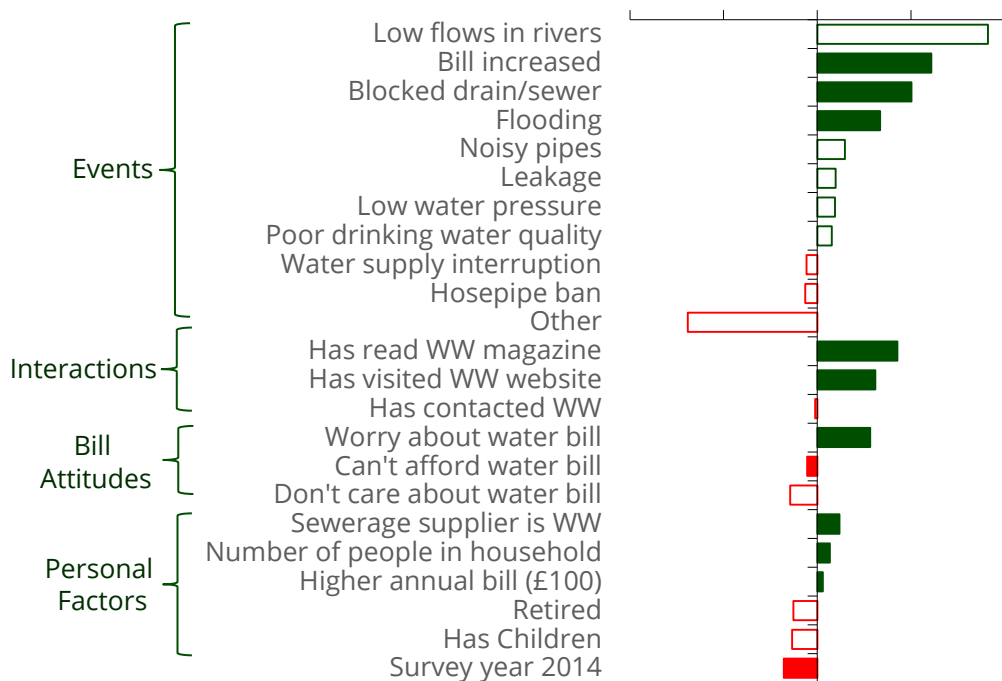- Therefore this methodology makes it possible for customers to 'lie', hence the oddity observed for low SEG

Note: Solid bars indicate significant drivers; other insignificant demographic variables in the models are: area, age, gender, work status, number of people in household; ability to pay the water bill

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001)

Willingness to receive information from Wessex Water model

Willingness to Receive WW Info

Impact on Willingness to Receive Info

Events: Low flows in rivers, Bill increased, Blocked drain/sewer, Flooding, Noisy pipes, Leakage, Low water pressure, Poor drinking water quality, Water supply interruption, Hosepipe ban, Other

Interactions: Has read WW magazine, Has visited WW website, Has contacted WW

Bill Attitudes: Worry about water bill, Can't afford water bill, Don't care about water bill

Personal Factors: Sewerage supplier is WW, Number of people in household, Higher annual bill (£100), Retired, Has Children, Survey year 2014

Note: Solid bars indicate significant drivers; other insignificant demographic variables in the models are: area, age, gender, work status, ethnic group and SEG

Source: Wessex Water Image Tracker 2013 – 2015 (n = 3,001)

- 54% of customers were willing to receive info for saving water, investing money, improving service, and reducing leakage

- Naturally, customers who already have interactions with WW (e.g. magazine, website) were more likely to receive info

- Customers who had bad experiences (e.g., blockage, flooding) also showed higher interest in receiving additional WW info

- Finally, bill size, increased bill, and financial situation (e.g. worry about the bill) all prove to be positive drivers for receiving info

Additional tweaks should be made to the 2016 Image Tracker

2016 Tracker Content

Section	Key Questions
Awareness/ Interaction	• Drinking Water / Sewerage Supplier • Value for Money • Effort for Resolving Query • Fairness
Satisfaction	• Satisfaction (Overall, Billing, Sewerage, Water Supply) • Reasons for being Unsatisfied • Perception Statements Rating
Value for Money	• Bill Size • Value for Money (Water Supply and Sewerage) • Reasons for Low Value
Customers Information	• Channel of Getting WW Information • Prompted Awareness of WW Information • Magazine and Website Rating
Flexible Section	• Importance Ratings • Service / Price Trade-off Question • NPS
Demographics	• Age, gender, SEG and etc.

Suggested Changes

- Add event questions (e.g. service failure, staff interaction)
- Remove value for money questions
- Remove fairness questions

- Expand the perception statements list to include top two statements from each of the six factors; add in trust, fairness, value factors

- Remove value for money questions

- Rephrase price-service trade-off questions

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