

A New Approach to Measuring Subjective Wellbeing: Introducing an Anchored Best- Worst Scaling

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Overview



Collaboration between CaPPRe and NSW Government



Develop a best practice approach to measuring and tracking the subjective wellbeing of NSW residents



Used as diagnostic tool to identify areas in need of intervention



Pilot data collected

Background (Scales)

- Previous methods rely solely on scales
 - Suffer from measurement bias
 - Difficult with large number of items
 - Poor discrimination between items
 - Single-dimensional (satisfaction only)

Standard of living	0	1	2	3	4	5	6	7	8	9	10
Health	0	1	2	3	4	5	6	7	8	9	10
Achievements in life	0	1	2	3	4	5	6	7	8	9	10
Personal relationships	0	1	2	3	4	5	6	7	8	9	10
Safety	0	1	2	3	4	5	6	7	8	9	10
Feeling part of your community	0	1	2	3	4	5	6	7	8	9	10
Future security	0	1	2	3	4	5	6	7	8	9	10

- Most satisfied = 4 items equal
- Least satisfied = 3 items equal



Background (Study)

- Study included
 - Literature Review
 - 10 focus groups with NSW residents around the state
- Domains chosen for the wellbeing index were based on the Personal Wellbeing Index (PWI) and OECD Wellbeing guidelines
 - Trade off methodology (BWS)
 - Measure both Satisfaction and Importance of each domain (dual response)
- Piloted with n=1000
- Plan to collect data every 6 months

Methodology (BWS)

- Best-Worst Scaling (BWS) Case 1 can be used to establish a relative ranking of items with greater distinction with respect to a specified dimension.
- Takes advantage of an individual's ability to reliably identify the extreme items ("best" and "worst") in a set of three or more (developed by Louviere in 1980s)
- Can reduce the list of items into various subsets to decrease the cognitive burden of comparing a large number of items.

Best	Worst	Working from home arrangement
		5 days at home
		4 days in office, 1 day at home
✘		2 days in office, 3 days at home
	✘	5 days in office

Methodology (Dual response)

- Dual response of Satisfaction and Importance based on Fishbein multi-attribute model of attitudes
 - Consumer attitudes towards a brand was the sum of Beliefs x Importance

TABLE 1.1 - MULTIATTRIBUTE ANALYSIS USING FISHBEIN MODEL

Attributes	Importance	Beliefs					
		Wal-Mart	Target	Kmart	Sears	Costco	Sam's Club
Price	4	8	4	3	1	7	4
Quality	1	6	7	3	6	3	5
Convenience	5	8	6	6	4	0	3
Variety	2	6	7	4	8	5	6
Satisfaction Guarantees	3	7	7	5	8	4	4
Wages/Benefits	7	5	6	3	7	5	3
Opportunities	10	8	6	4	8	3	4
Job Security	9	7	8	4	6	5	3
Environmentally Protective	6	3	5	4	6	3	4
Good Neighbor	8	8	9	5	4	2	3
Total Score:		371	364	229	321	197	196

Methodology

BWS was applied to wellbeing using 11 items:

1. Standard of living
2. Health
3. Achievements in life
4. Personal relationships
5. Safety
6. Feeling part of the community
7. Future security
8. Spirituality/beliefs or religion
9. Amount of time you have to do the things that you like doing
10. Quality of your local environment
11. Daily job and/or responsibilities

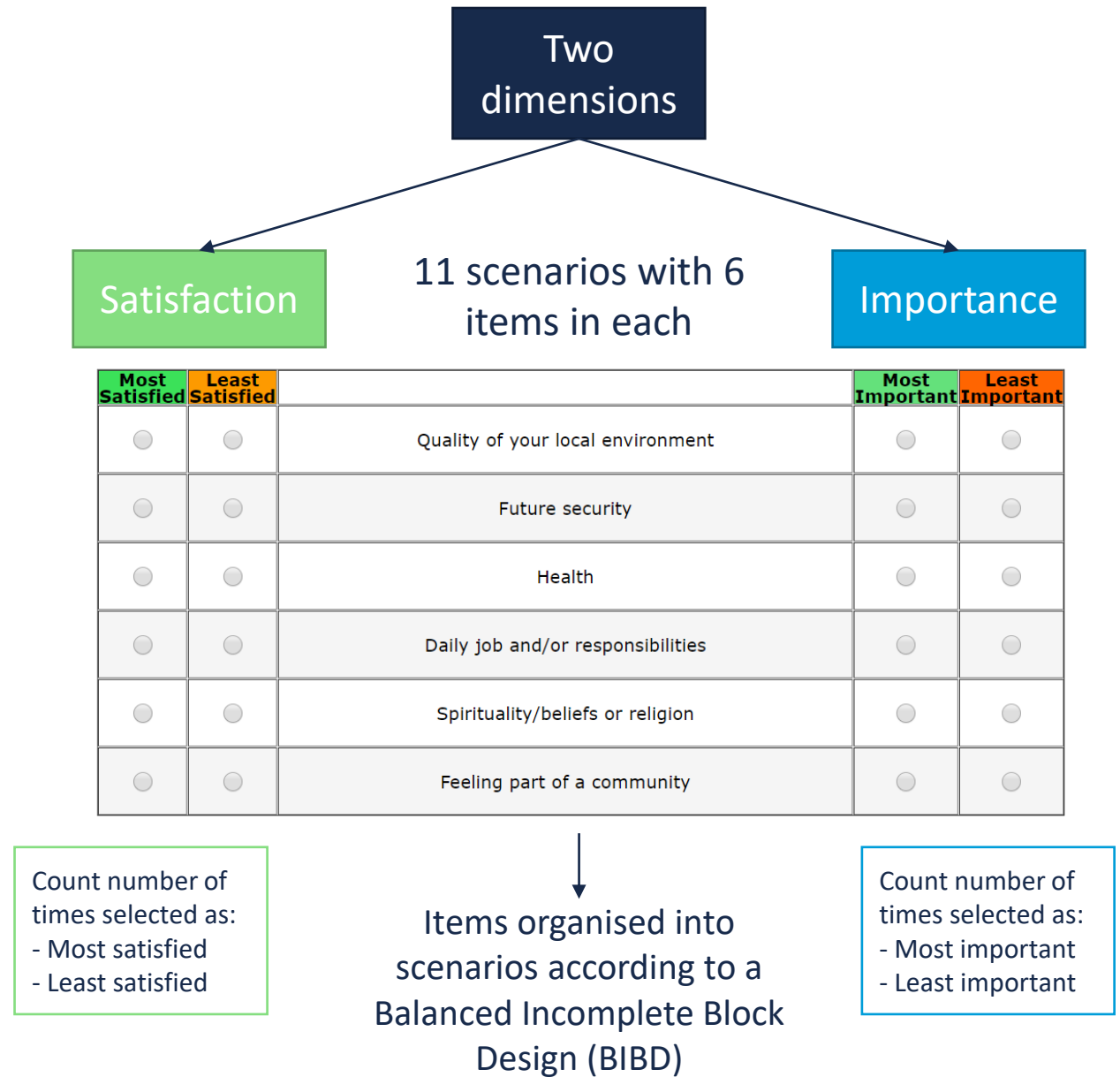
11 scenarios with 6 items in each

Most Satisfied	Least Satisfied		Most Important	Least Important
<input type="radio"/>	<input type="radio"/>	Quality of your local environment	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	Future security	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	Health	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	Daily job and/or responsibilities	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	Spirituality/beliefs or religion	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	Feeling part of a community	<input type="radio"/>	<input type="radio"/>

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Methodology - BWS scores

Item	Satisfaction				Importance			
	Most	Least	Diff	Score	Most	Least	Diff	Score
Living	1	1	0	0	2	0	2	0.33
Health	2	0	2	0.33	5	0	4	0.83
Achievements	1	0	1	0.17	0	1	-1	-0.17
Relationships	5	0	5	0.83	3	0	3	0.5
Safety	0	2	-2	-0.33	1	0	1	0.17
Community	0	1	-1	-0.17	0	5	-5	-0.83
Future security	0	3	-3	-0.5	0	0	0	0
Religion	1	0	1	0.17	0	0	0	0
Time	0	0	0	0	0	2	-2	-0.33
Environment	0	2	-2	-0.33	0	2	-2	-0.33
Job	1	2	-1	-0.17	0	1	-1	-0.17

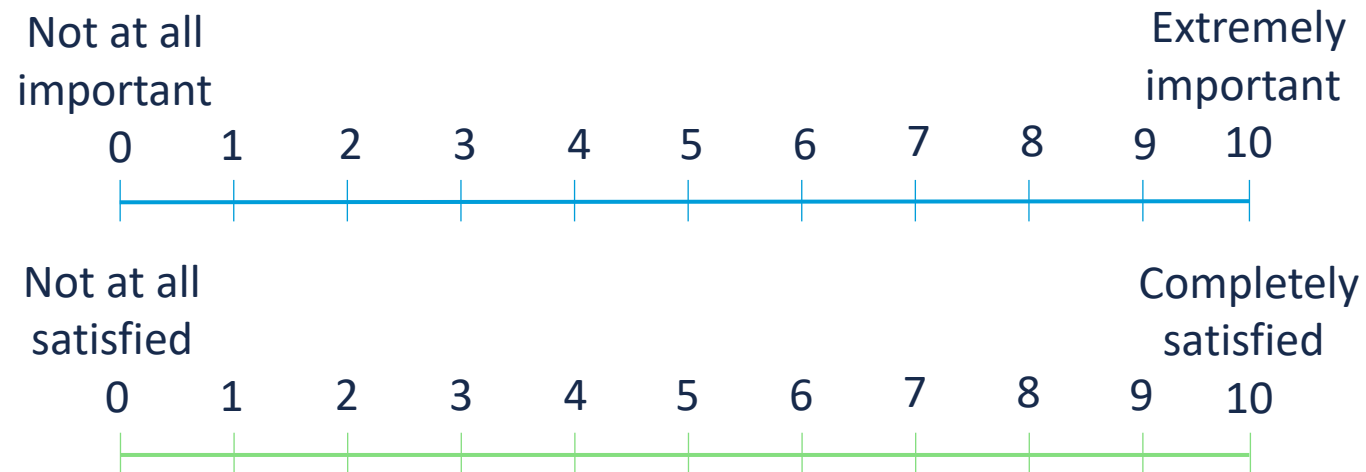
$$BWS\ score = \frac{most - least}{times\ appeared}$$

- Scores range between -1 and 1.
- Represent a relative ranking of the items within the two dimensions.
- A score closer to 1 = consistently chosen as “most” throughout the scenarios.
- A score close to -1 = consistently chosen as “least” throughout scenarios.

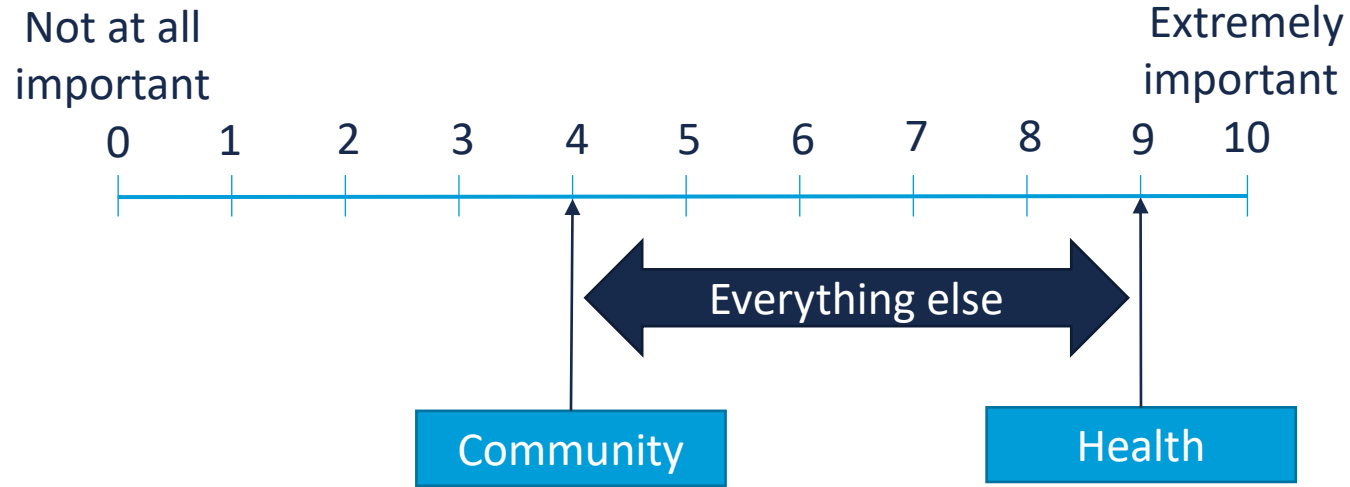
Standard BWS scores cannot be used to build an index that is comparable between groups of participants because the **scores represent a relative ranking**

Methodology - Anchoring

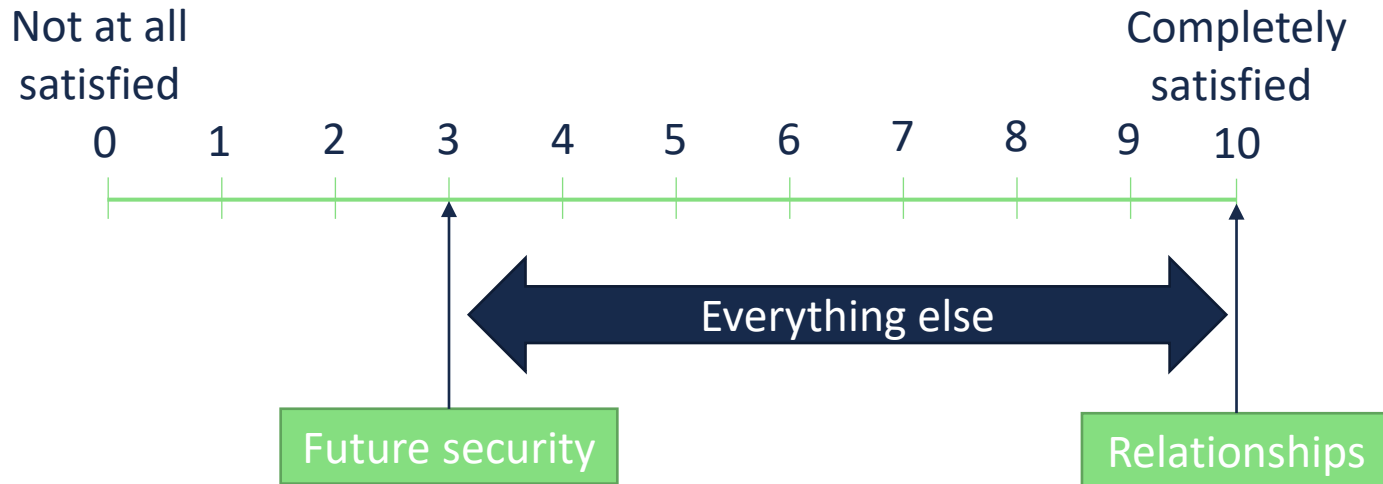
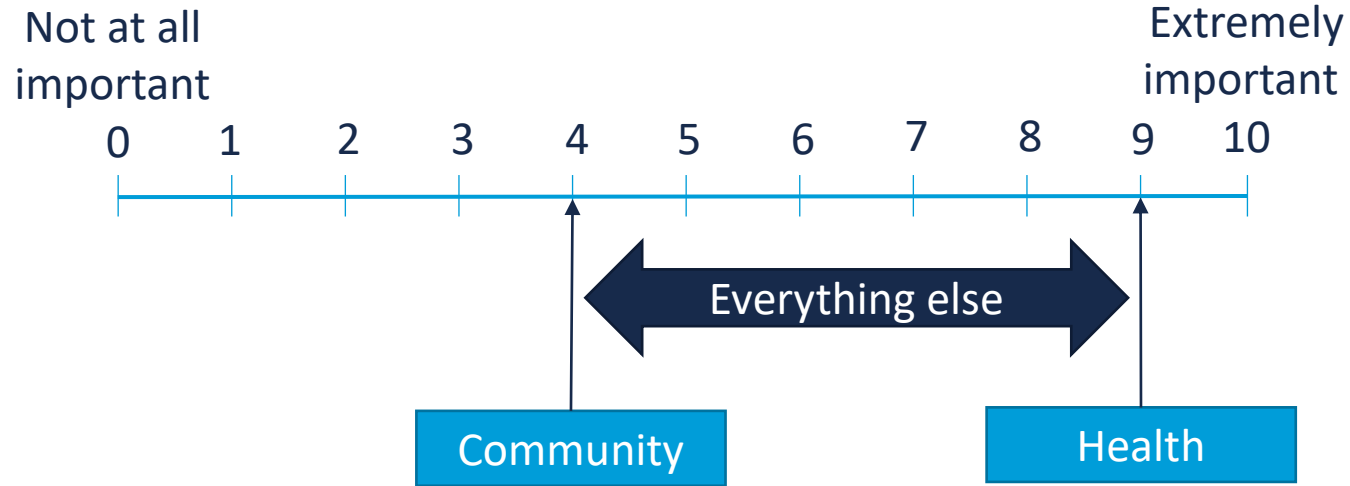
- To elicit **absolute satisfaction and importance scores** that indicate the *level* of satisfaction and importance for each item, we anchor the BWS scores on a numeric scale.
- Participants are shown their highest and lowest scoring items for satisfaction and importance and asked to rate them on a 0-10 scale.
- All remaining items are re-scaled between the two anchoring points in proportion to their respective BWS scores.



Methodology - Anchoring



Methodology - Anchoring



Domain	Imp	Sat
Living	7.9	5.6
Health	9.0	7.4
Achievements	6.2	6.5
Relationships	8.4	10.0
Safety	7.3	3.9
Community	4.0	4.8
Future security	6.8	3.0
Religion	6.8	6.5
Time	5.7	5.6
Environment	5.7	3.9
Job	6.2	4.8

Methodology - Overall index

- Calculate importance weights based on importance BWS scores (imp_i):

$$w_i = \frac{\exp(imp_i)}{\sum_{j=1}^{11} \exp(imp_j)}$$

- Weighting between 0 and 1.
- Multiply with the rescaled satisfaction scores (Sat_j) and sum to give the overall SWI:

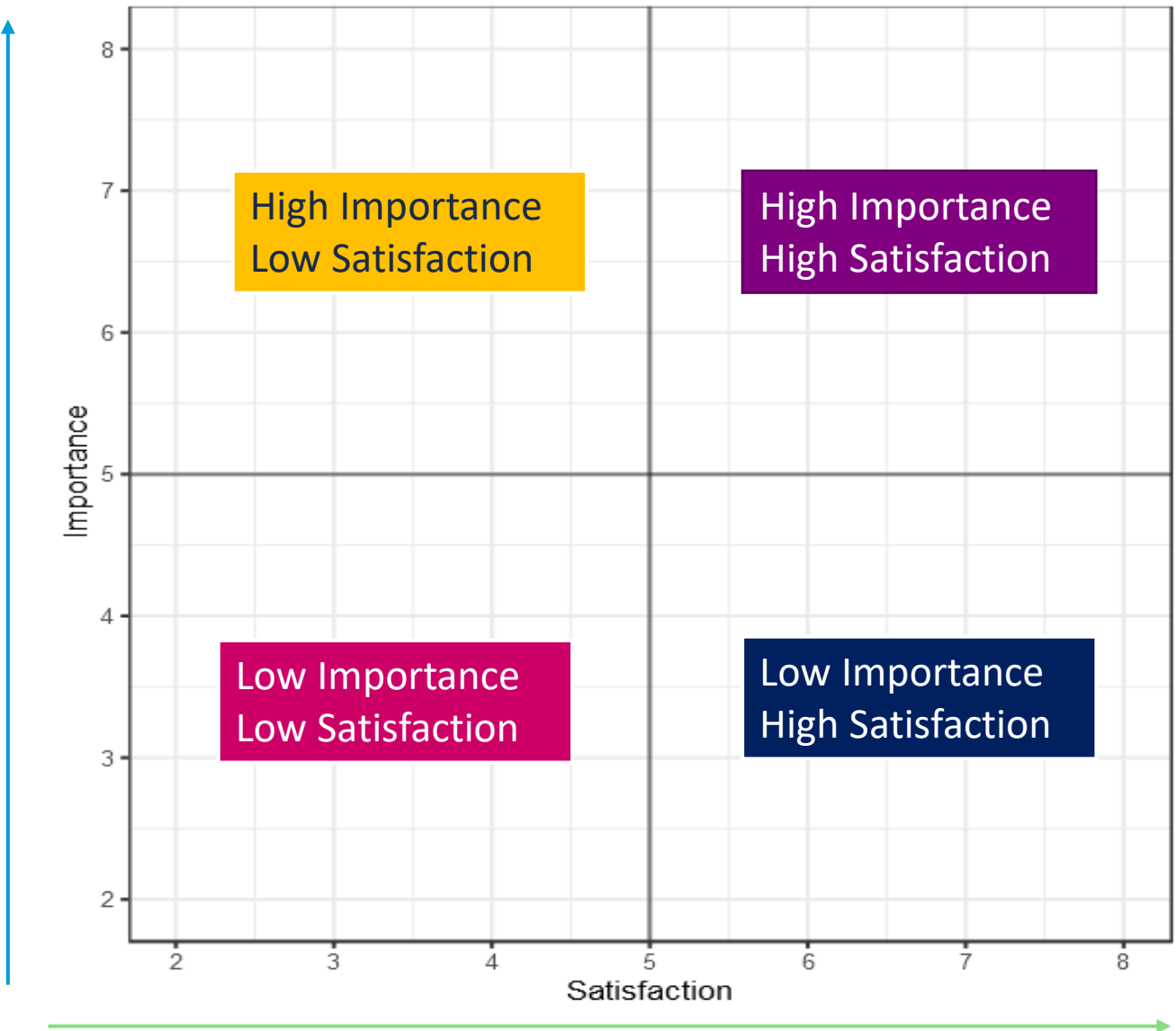
$$SWI = 10 \sum_{j=1}^{11} w_j \times Sat_j$$

Domain	Imp weight	Sat score
Living	0.12	5.6
Health	0.17	7.4
Achievements	0.07	6.5
Relationships	0.14	10.0
Safety	0.10	3.9
Community	0.04	4.8
Future security	0.09	3.0
Religion	0.09	6.5
Time	0.06	5.6
Environment	0.06	3.9
Job	0.07	4.8

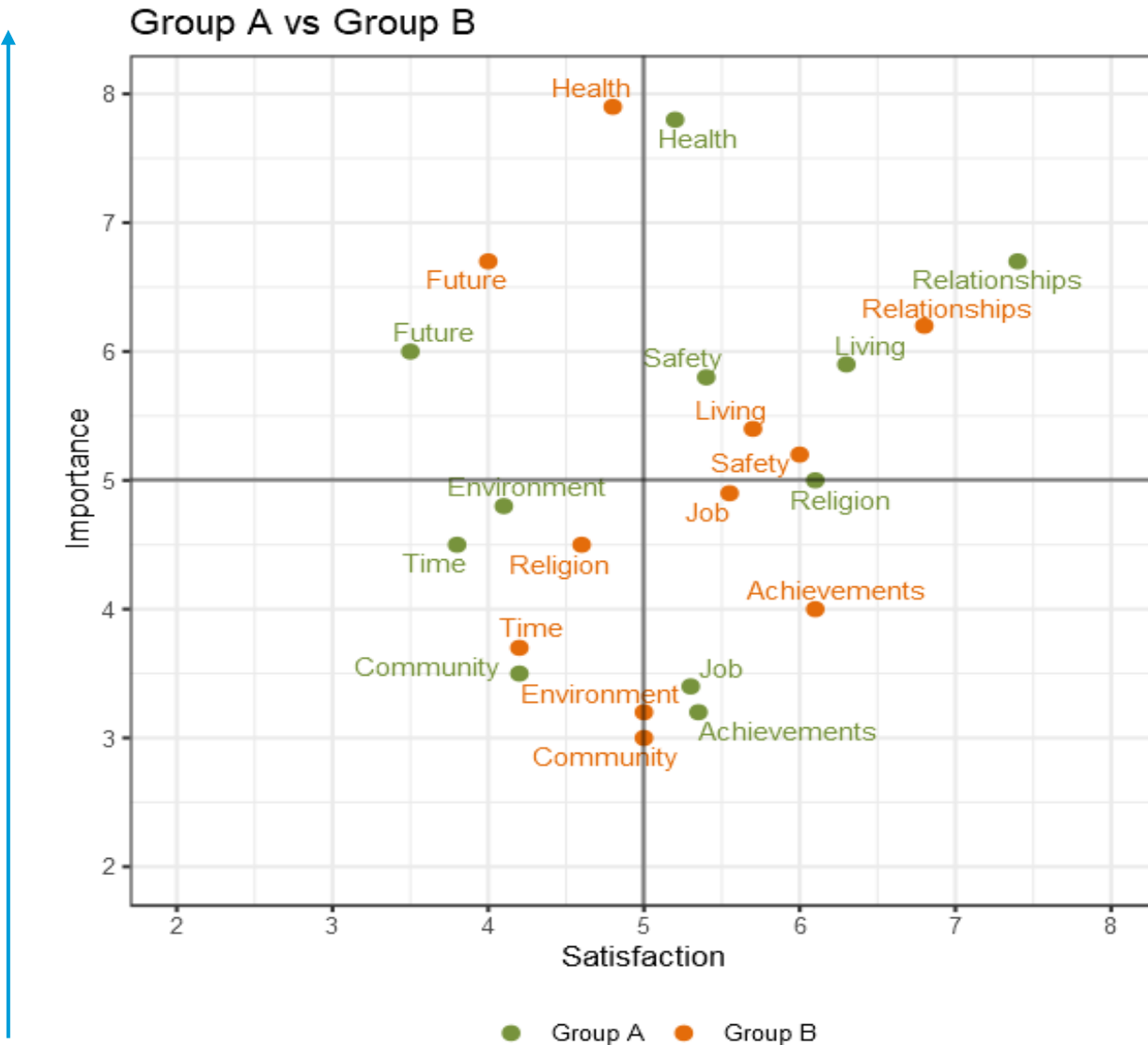
SWI: 60.66

Straight average: 56.3

Outputs – Quadrant Plot



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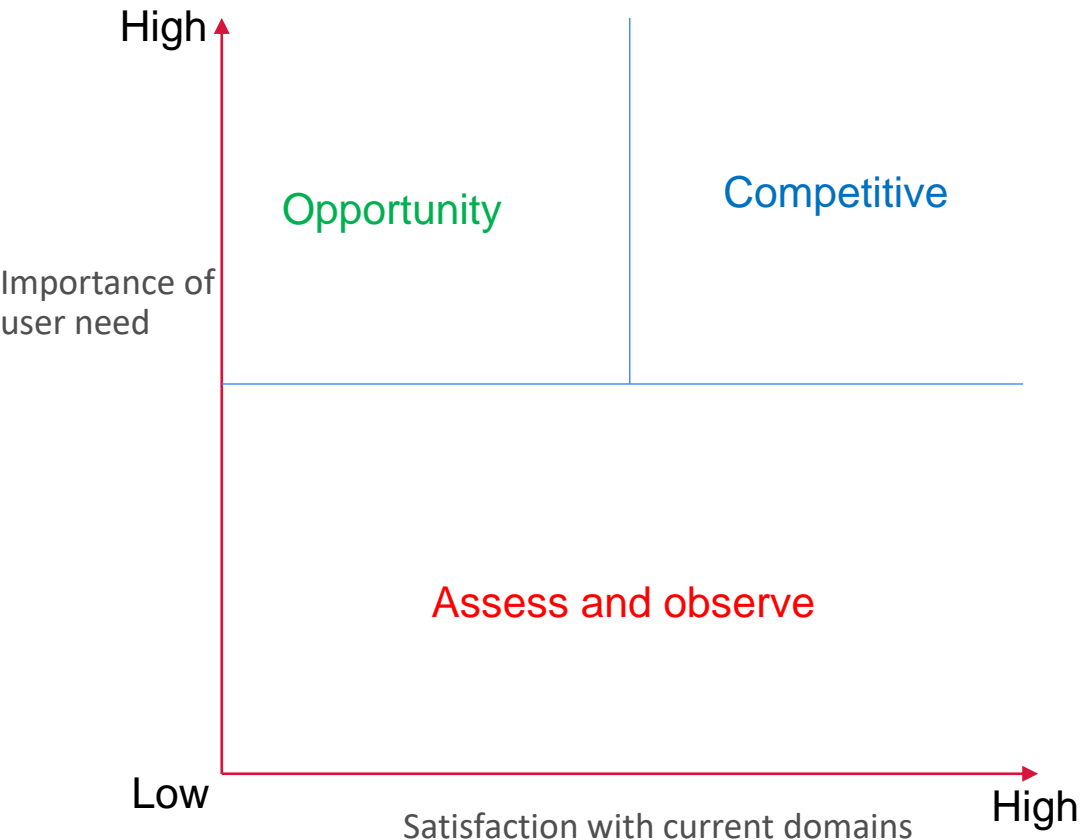


How can this be
used by
Government



**Premier
& Cabinet**

Why are we interested in this new approach?



Pilot this methodology to see how it differs from other methods

- Policy is about importance and satisfaction
- How important it is to someone and how satisfied they are

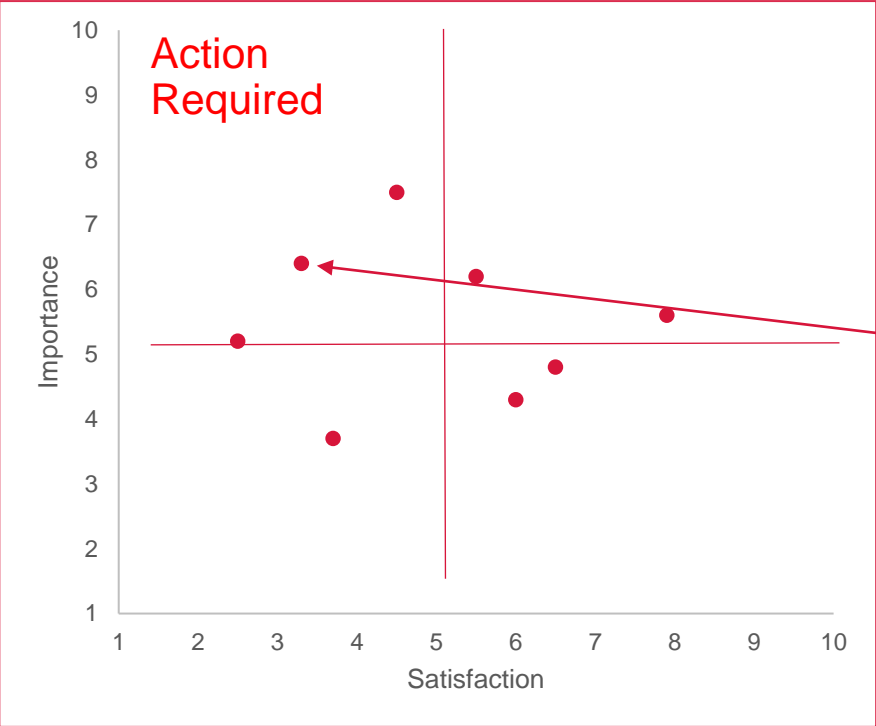
Importance allows us to understand where to potentially focus.

- Two domains might have the same satisfaction but differ in importance – without importance, difficult to know where to focus and whether it will be a good use of resources

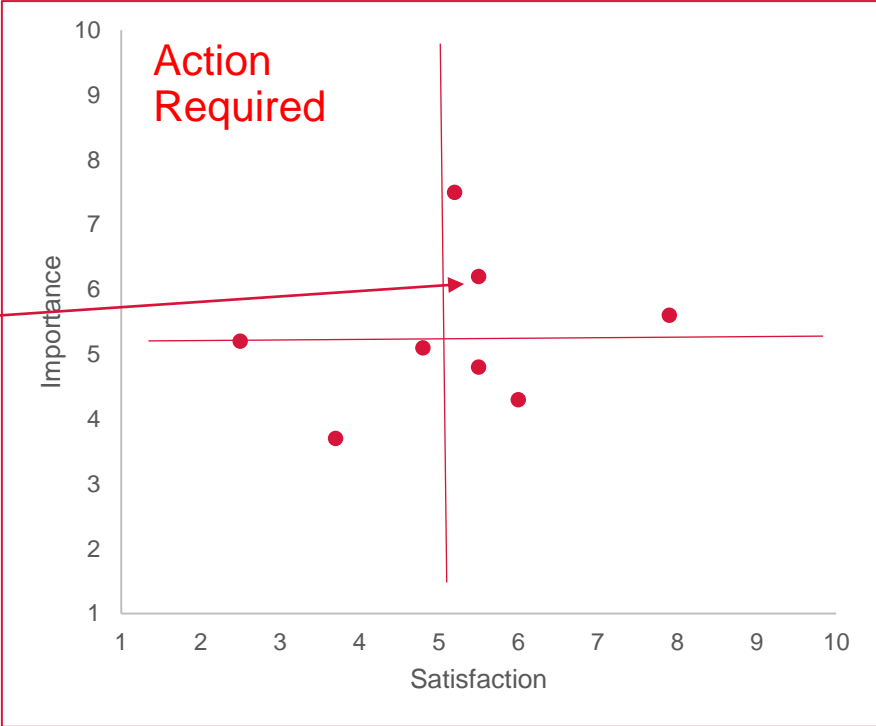
This might also allow us to see the differences b/w regions to move away from a one-size fits all approach and determine what specific action is needed where.

Understanding communities needs

Community 1



Community 2



Health Domain

Some communities feel like they need assistance in some areas while others don't

Richer data supports more accurate analysis

The other part of the methodology that could be important is the free text:

Allowing us to understand the context of a person's response

For Example:

- Individual not satisfied with 'health domain'.
- Free text tells us this about transport (bus stop not near the hospital) rather than quality of healthcare.
- Therefore, we need a transport solution to a health program.

This may not have been discovered without the insights of free text.



GDP as wellbeing measure?

Economic growth – and, by proxy, wellbeing – is currently measured by gross domestic product (GDP).

As the framework upon which governments build countless policies, GDP aims to track the production of all goods and services bought and sold in an economy each year.

GDP measures both the economy's total income and the economy's total expenditure on goods and services.

Much debate around whether this is the right proxy to use.

With a measure of wellbeing – can we use this instead to define wellbeing for a person, a community, a state?



Approaches to Cost-Benefit analysis is changing

A wellbeing approach to cost benefit analysis

“Economic appraisal is based on the principles of welfare economics – that is, how the government can improve social welfare or wellbeing, referred to in the Green Book as social value.”



“The required wellbeing analysis covers the LSF elements of current and future wellbeing, as well as risks and resilience. The wellbeing analysis is supported by fit-for-purpose cost benefit analysis, so the Treasury has also updated its cost-benefit analysis (CBAX) tool to include the intergenerational wellbeing domains.”

Potential use in Cost-Benefit Analysis



Reviewing in potential on cost benefit analysis (CBA)

The premise of CBA is welfare economics.

Wellbeing could be defined as a direct measure of welfare

Integrate CBA with a direct measures of welfare using a wellbeing measure.

GDP used as proxy to cover this currently



Thank you

