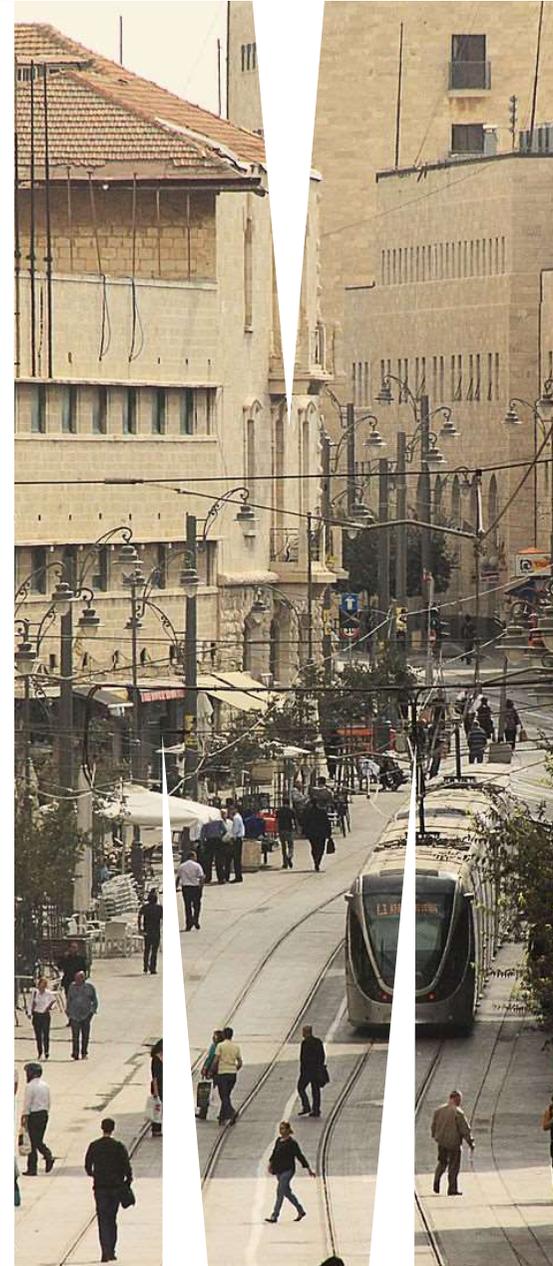




Monday 2nd August 2021
Israel Public Transport Authority

Public Transport Project Appraisal Research @ PTRG Monash

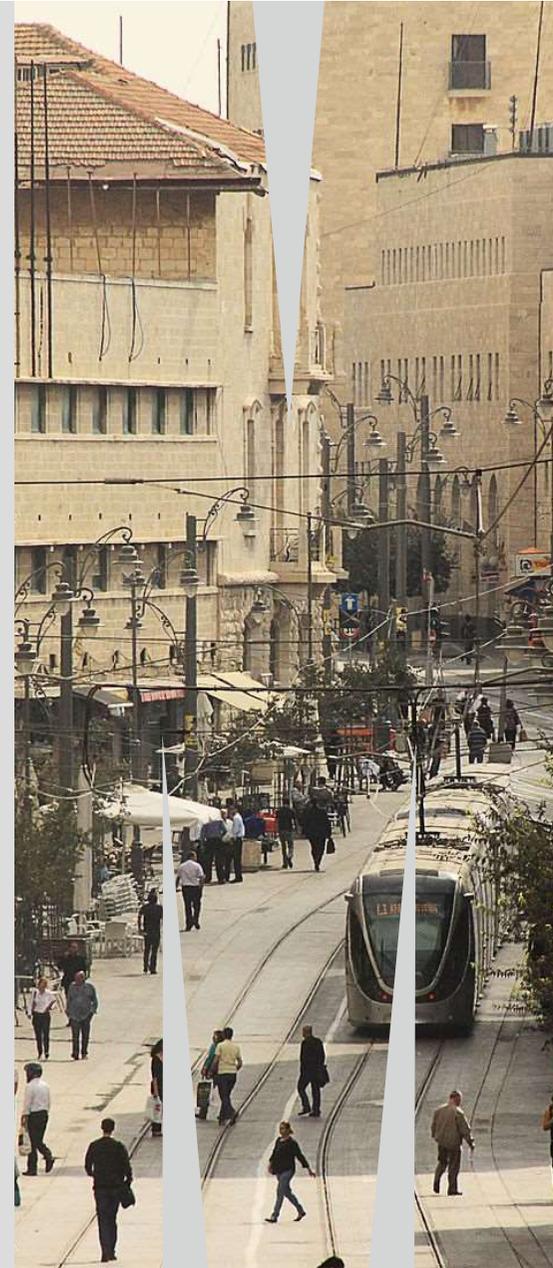
Prof Graham Currie FTSE
Public Transport Research Group
Monash Institute of Transport Studies
Monash University, Australia



Introduction

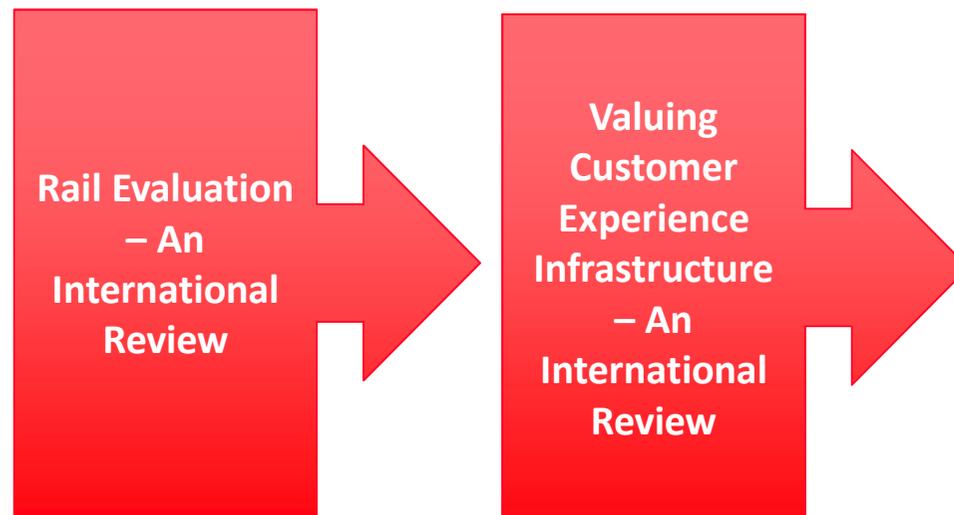
Rail Evaluation – An International Review

**Valuing Customer Experience Infrastructure
– An International Review**



This presentation outlines findings of two Monash PTRG research programs exploring variations in international approaches to project appraisal in Urban Public Transport

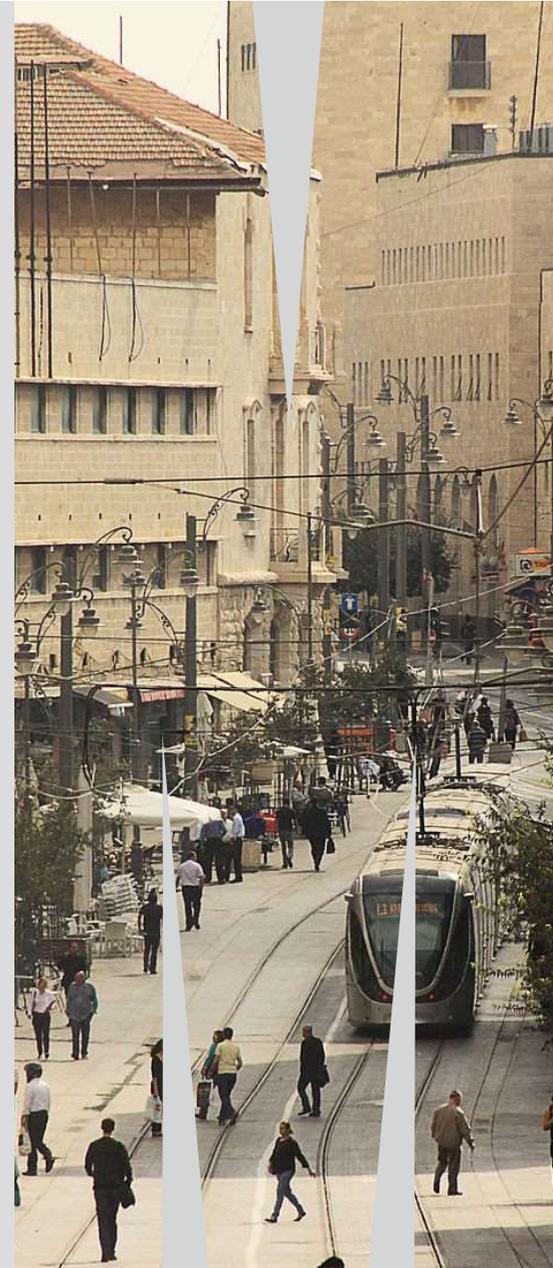
Monash PTRG Research Programs in Public Transport Project Appraisal



Introduction

Rail Evaluation – An International Review

Valuing Customer Experience Infrastructure – An International Review



In 2011 Monash PTRG undertook a review of economic appraisal approaches in urban railways

International Variation in Cost-Benefit Analysis of Urban Rail Projects Impact on Outcomes

Evan Gwee, Graham Currie, and John Stanley

This paper compares urban rail cost-benefit analysis (CBA) in 11 countries and the region of Hong Kong, China, to understand differences and implications for evaluation outcomes and to highlight possible CBA improvements. All countries studied used multicriteria analysis and examined capital, operating, and maintenance costs, and some included asset residual value. Monetized benefits varied, although travel time savings (TTS) were common primary benefits. Several countries also captured TTS for trucks, pedestrians, and cyclists. Accident cost savings (ACC) were common, although unit accident costs varied. For secondary benefits, all countries and regions except Hong Kong and Singapore included environmental externalities. Air pollution and noise value were common. The United States was unique in including option value, and Germany and the Netherlands were unique in including agglomeration benefits. The social discount rate (SDR), assessment period, and decision criteria varied. Most SDRs used the marginal rate of return on private-sector investment (yielding an SDR of 6% to 10%). Net present value was the common decision criterion, and 20 to 30 years was a common evaluation period. Standardized parameter valuations suggested a commuting value of time as \$5 in Australian dollars per hour (AS\$/h) to AS10.50/h for car users. Accident cost varied; fatal accidents cost AS0.1 to AS4.25 million and serious accidents AS60,000 to AS400,000. A case study illustrates implications of adopting approaches with varied outcomes. Only Australia, the United States, the United Kingdom, and the Netherlands had positive benefit-cost ratios (1.00 to 2.41). TTS and congestion relief were major benefits (50% to 60% and 40% to 50%, respectively, of all benefits). ACC, environmental externalities, and option value benefits were not significant. Agglomeration benefits substantially increased project benefits.

Cost-benefit analysis (CBA) was developed as an assessment method for the evaluation of public policy issues and projects (1-3). Today, CBA is widely used in the evaluations of major transport investment projects, such as urban rail projects, to ensure they generate optimum returns (4, 5). The importance of CBA in the evaluation of

E. Gwee and G. Currie, Institute of Transport Studies, Department of Civil Engineering, Monash University, Building 60, Clayton, Victoria 3168, Australia. Address: E. Gwee, Local Planning Division, Land Transport Authority, 1 Harbour Road, Block 10, Level 2, Singapore 210429. J. Stanley, Institute of Transport and Logistics Studies, Swinburn University, New Street, Wiles 3206, Australia. Corresponding author: G. Currie, graham.currie@monash.edu.
Transportation Research Record, Journal of the Transportation Research Board, No. 2261, Transportation Research Board of the National Academies, Washington, D.C., 2011, pp. 73-85.
DOI: 10.3141/2261-09

public transport (PT) projects is highlighted by TRB, which suggests that the increasing constraints on public funding and the sheer competition of public schemes across the whole sphere of government mean that urban rail proposals must "prove their merit by passing strict cost-benefit assessments" (6). According to Nash, transport was among the first fields in which CBA was regularly used as part of decision making (5). Despite this heritage, significant differences remain in approaches to rail project evaluation in countries (7, 8). These differences can be of interest because

- They illustrate alternative views on CBA application.
- They can indicate new and innovative approaches to appraisals, appropriate methods, and
- They can illustrate points of contention within CBA application that are often a useful focus for research.

While earlier papers have compared national differences in general CBA applications (7, 8), this paper expands on this comparative analysis by

- Including more countries in the comparative framework.
- Contrasting the strategic differences and parameter valuation approaches adopted in greater detail, and
- Illustrating the implications of these differences with a case study.

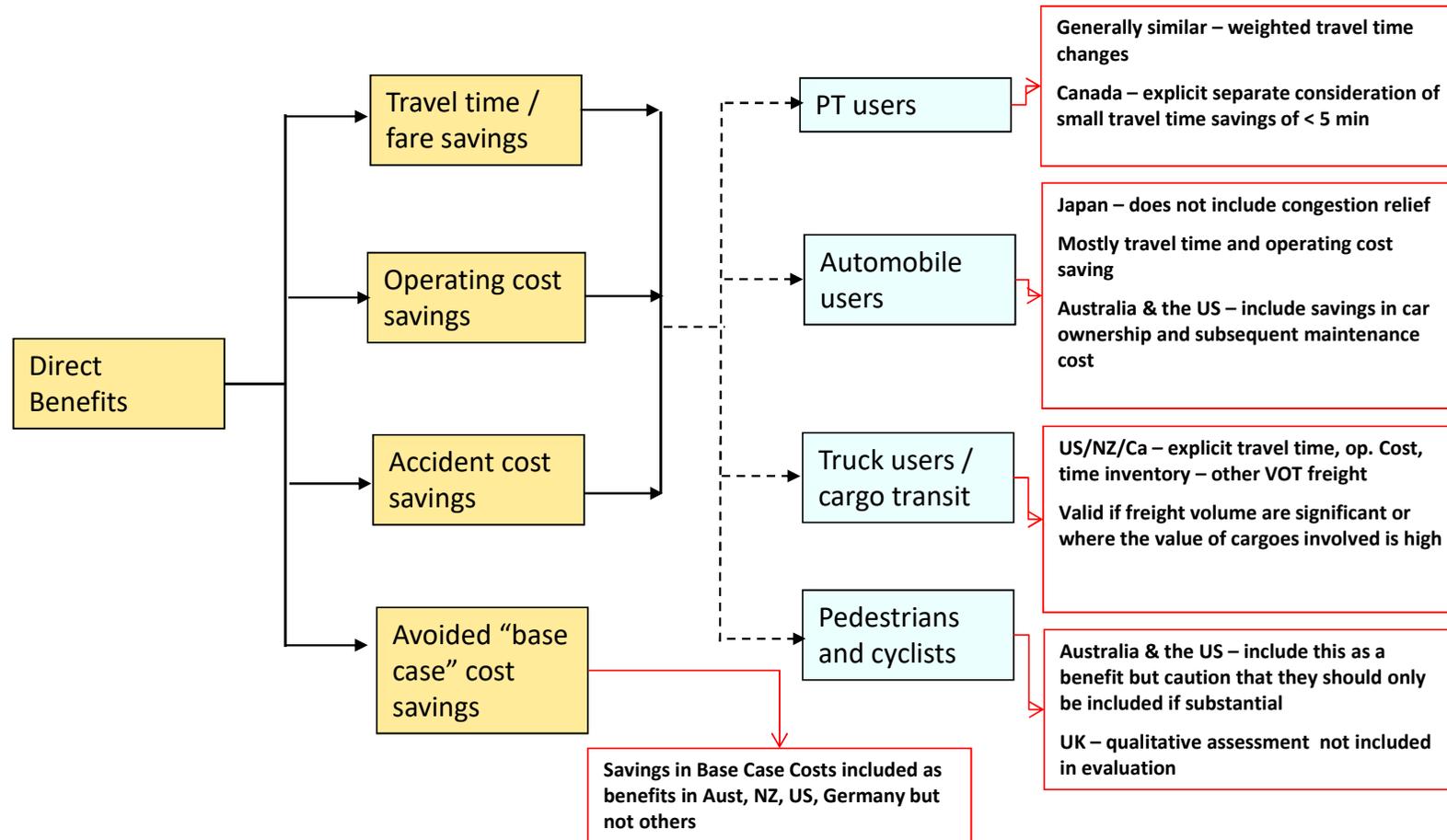
This paper compares CBA guidelines for urban rail project evaluation in Australia, the United States, the United Kingdom, Canada, New Zealand, Germany, the Netherlands, France, Japan, Hong Kong, South Korea, and Singapore. A major motivation for this analysis was to understand differences in approaches adopted, as these differences might inform best practices in the field. The key findings on the different aspects of the CBA framework for the appraisal of viewpoint as well as the different parameter values adopted are presented. The collected evidence is largely based on published economic assessment guidelines produced by national governments to provide a general overarching framework for the appraisal of publicly funded projects. For Japan, France, Germany, Hong Kong, in China, South Korea, and Singapore such guidelines were not published or available; in these cases, CBA approaches were derived from Morisugi (9), Quins (10), and Rothengatter (11) or obtained via email correspondence with the relevant authorities. Economic assessment is usually carried out as part of the local or strategic planning process as a precursor to the application of government

Source: Gwee E Currie, G. and Stanley J (2011) 'International Variation in Cost-Benefit Analysis of Urban Rail Projects - Impact on Project Outcomes' TRANSPORTATION RESEARCH RECORD, No. 2261, pp. 73-85

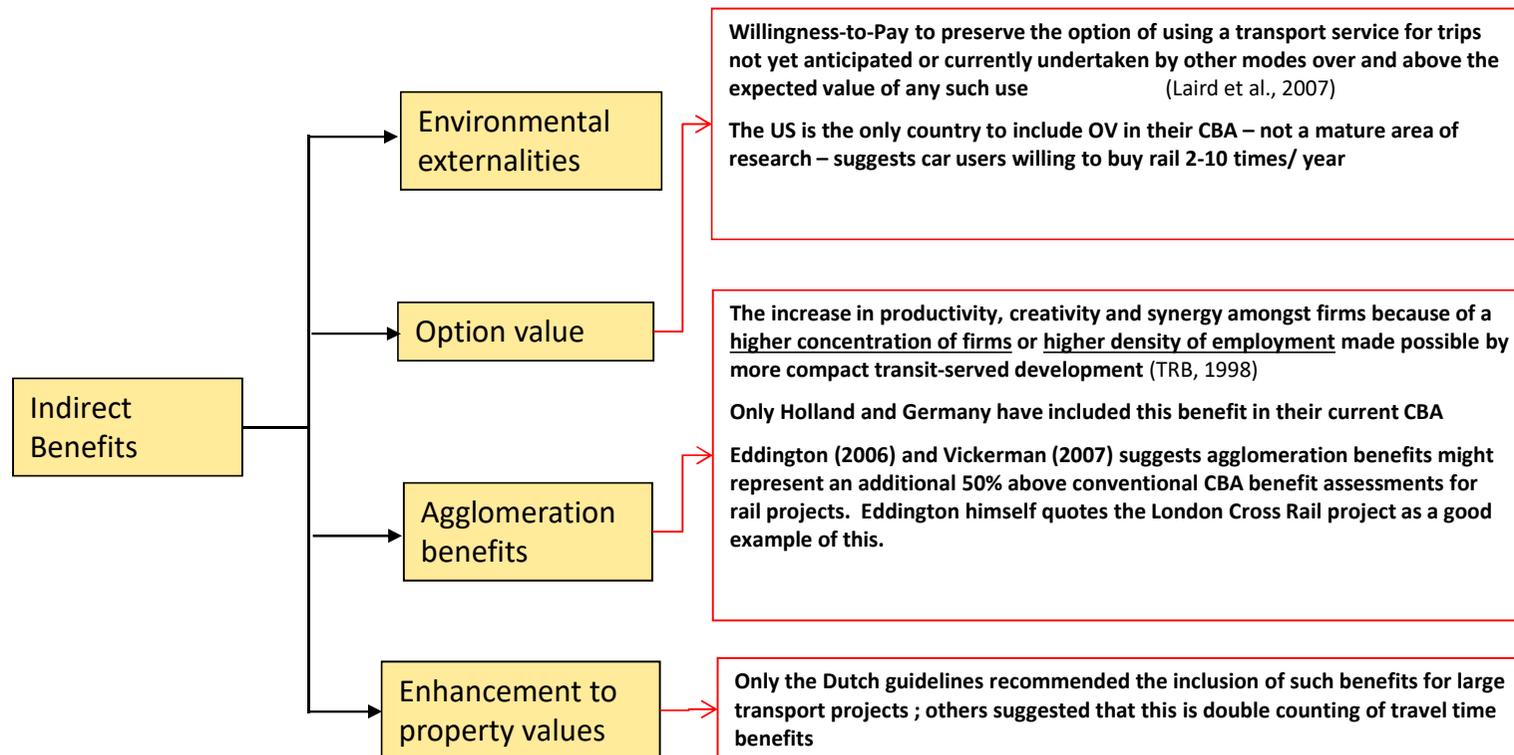
The research sought to compare CBA methodologies for rail project evaluations

- Aim is to seek out alternative approaches
- Differences are illustrated via a **comparator evaluation project**
- 12 countries
- Sources – published evidence (including national guidelines and research papers) and communication with the relevant authorities
- Proviso
 - national guidelines – many localised differences in approaches within countries
 - All aspects of methodology not fully documented
- To aid comparison, parameter values are updated by :
 - using the average wage increment of each country between the date the value was captured and Year 2006; and
 - converted to A\$2006 values based on ARB's exchange rate

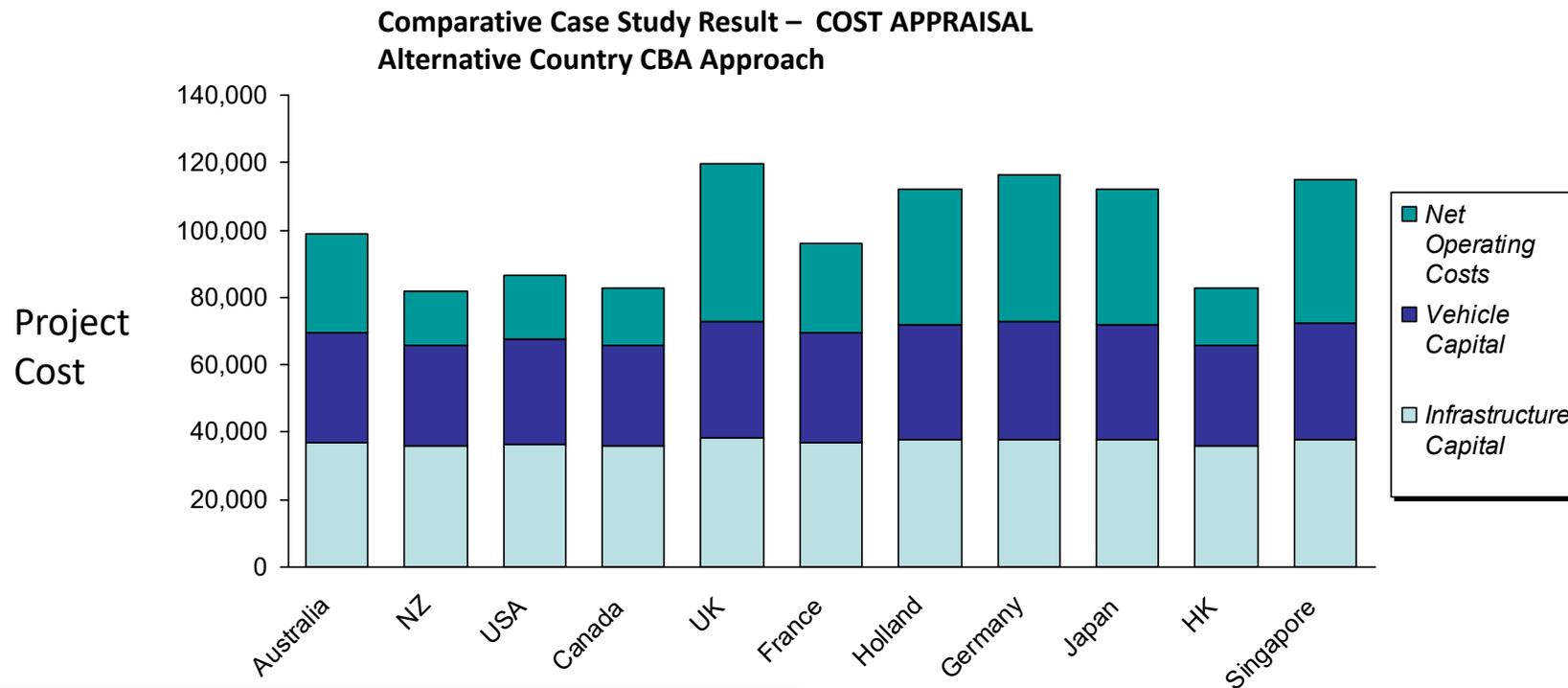
Approaches to many issues including direct benefits varied considerably



There were also significant differences in advice about in-direct benefits



Costs varied by length of appraisal period and discount rate

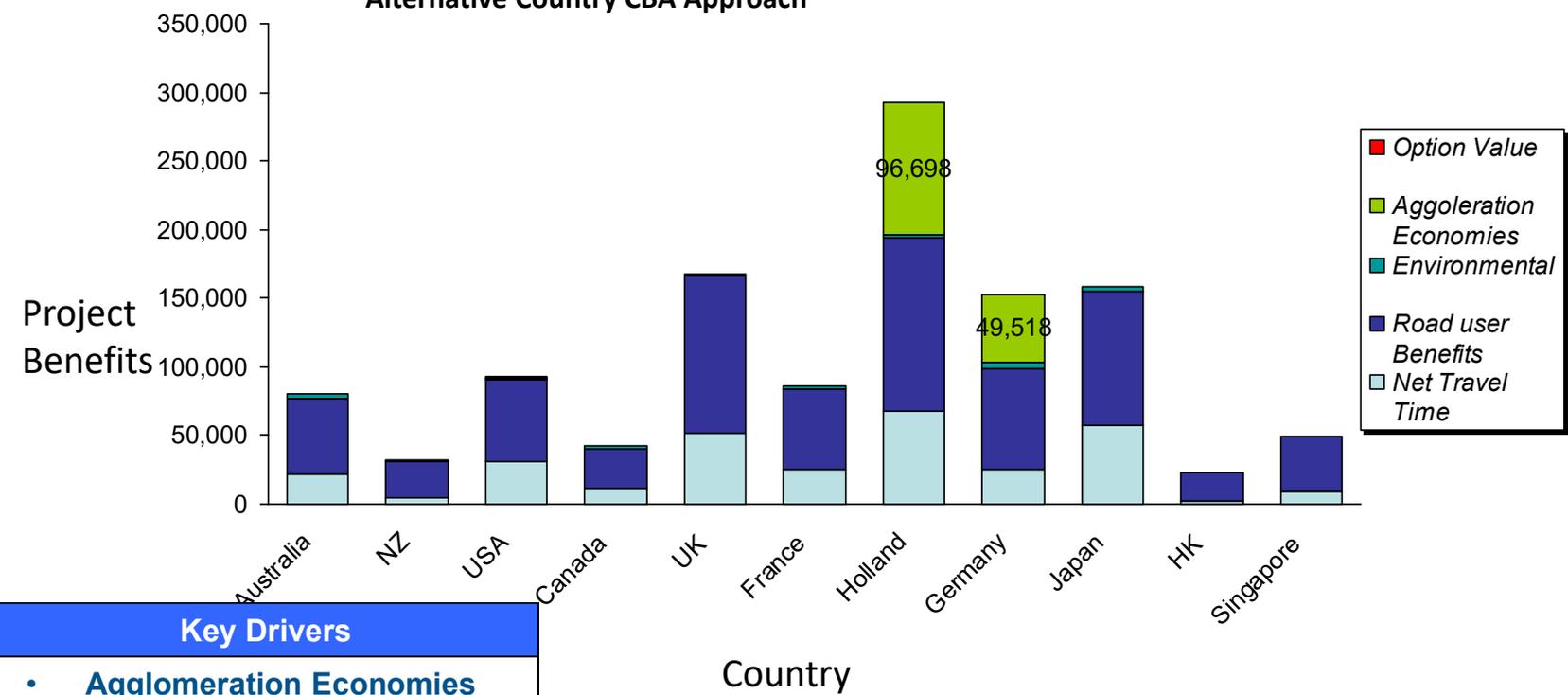


Key Drivers

- **Length of Appraisal Period**
 - Longer period higher cost e.g. UK 60 year
- **Discount rate**
 - Lower discount rate = higher costs e.g. UK 3.5%

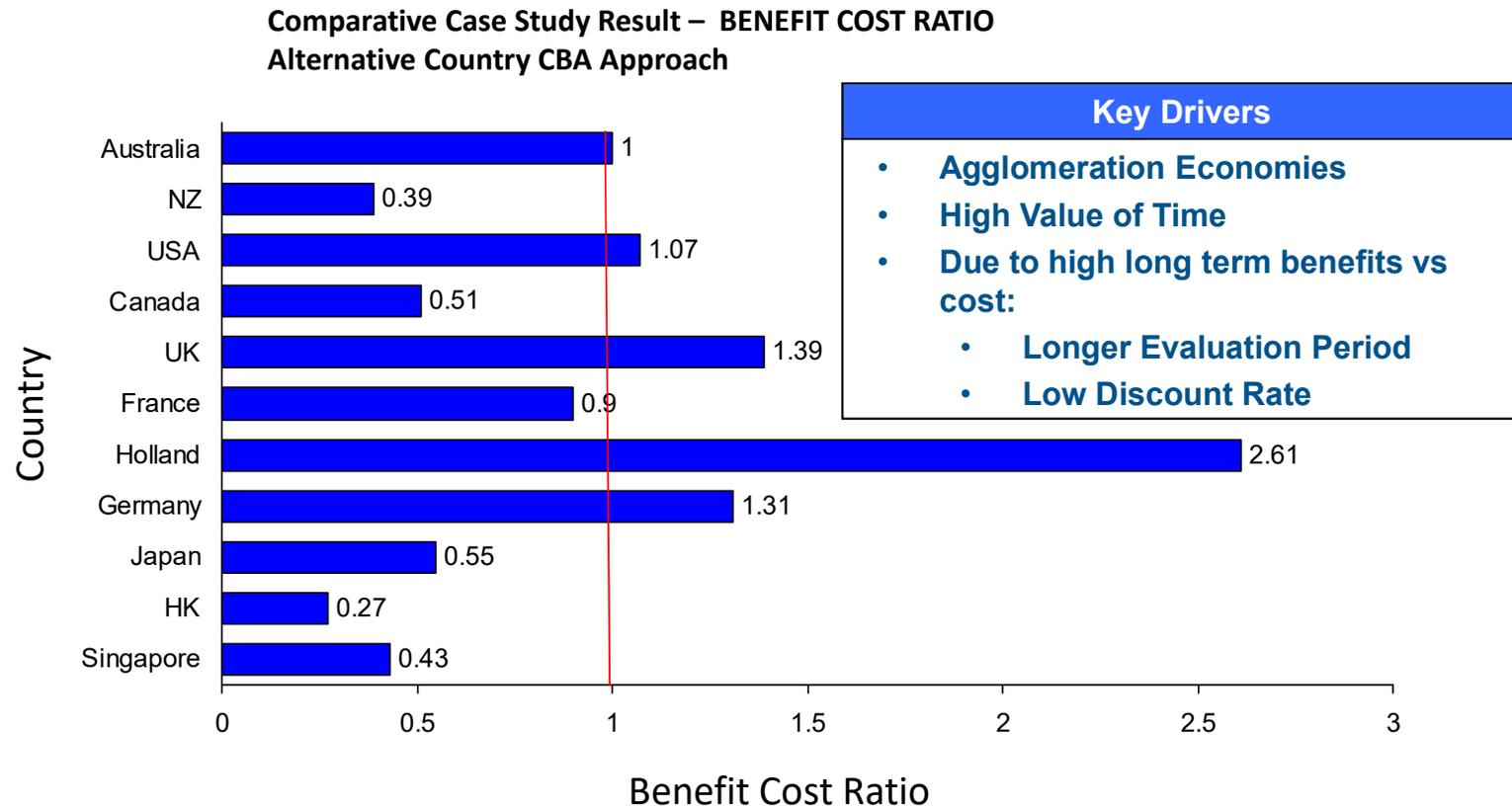
Benefits varied by inclusion of agglomeration economies; longer evaluation periods, a lower discount rate and higher value of time

Comparative Case Study Result – BENEFIT APPRAISAL
Alternative Country CBA Approach



- Key Drivers**
- **Agglomeration Economies**
 - **Long evaluation period**
 - **Low Discount Rate**
 - **High Value of Time**

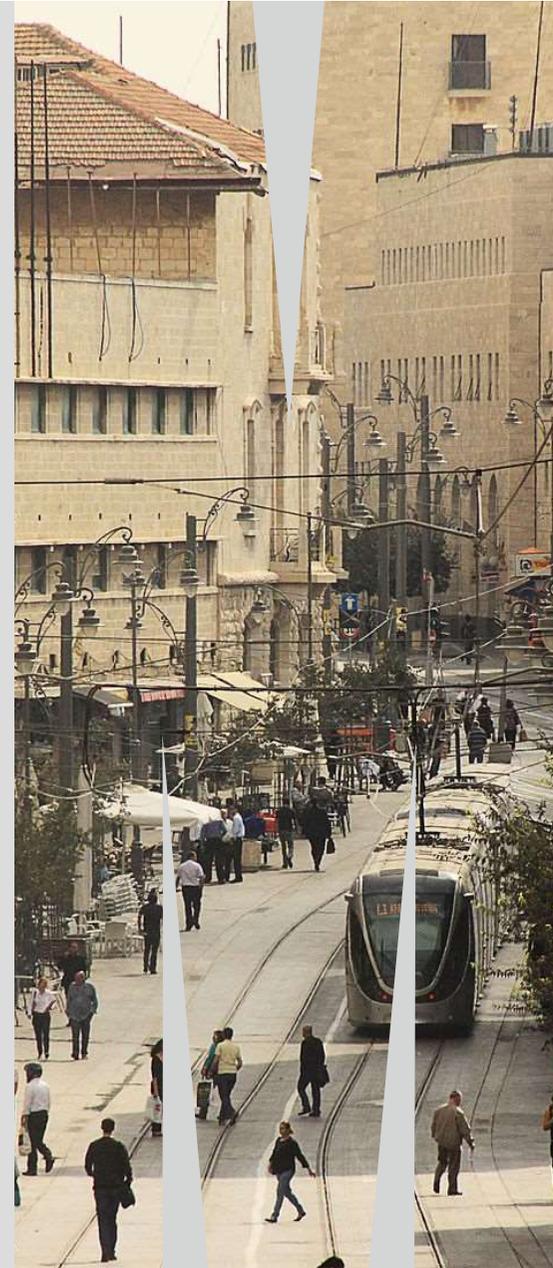
The BCR was above 1 in 5/11 countries – Agglomeration economies, higher value of time, longer evaluation periods and lower discount rates impact outcomes



Introduction

Rail Evaluation – An International Review

Valuing Customer Experience Infrastructure – An International Review



PTRG engaged to review customer amenity valuation approaches

Key Objectives

- Review **evidence** on measured values with regard to public transport customer experience initiatives
- Understand **current practices** in the use and adoption of these methods in Australia and internationally in public transport
- Understand what **can and cannot be measured** in terms of customer experience initiatives
- Explore **methods** used to measure amenity/soft factor values, their pros and cons and what is considered **good practice**

Key Tasks

1. Research Literature Review

- Review of published evidence on values and methodologies
- Types of amenities valued, range of approaches used, locations applied

2. World Transit Industry Practice Review

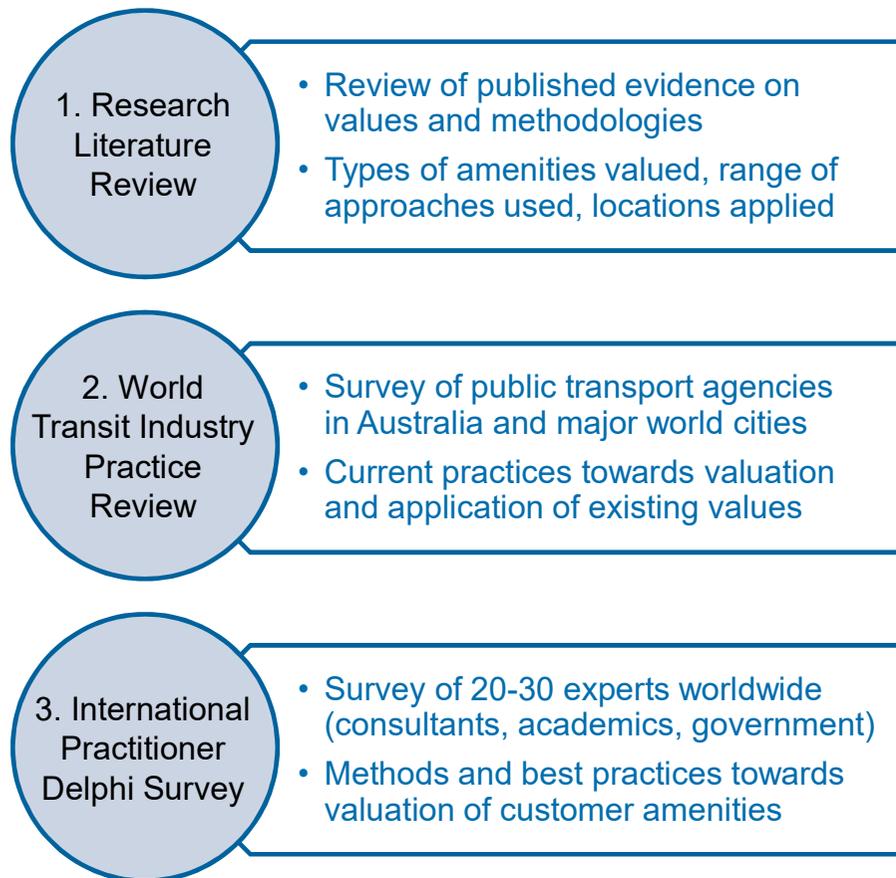
- Survey of public transport agencies in Australia and major world cities
- Current practices towards valuation and application of existing values

3. International Practitioner Delphi Survey

- Survey of 20-30 experts worldwide (consultants, academics, government)
- Methods and best practices towards valuation of customer amenities

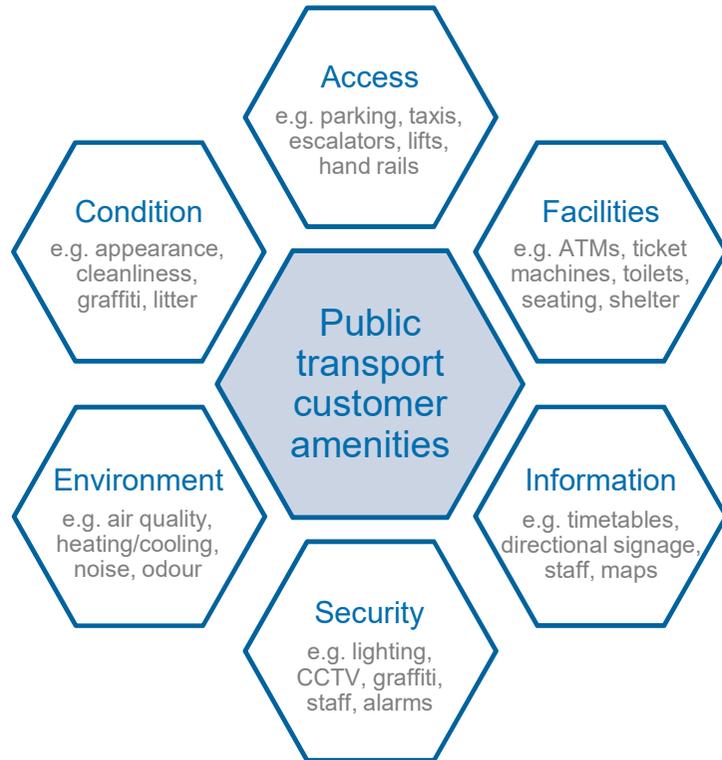


There are three key components to the research program



Amenities were classified into a typology of one of six types, for each key journey stage

1. Research Literature Review



Key journey stages

Access/egress



Waiting



Boarding/alighting



In-vehicle



A total of 532 individual amenity values were assembled from the literature

1. Research Literature Review

- Only studies which reported values in monetary units or in-vehicle time were considered for inclusion; ratings could not be converted with much accuracy
- 532 cleaned/validated amenity values were assembled from six countries with valuation dates ranging from 1992 to 2013
- To aid comparability, all values were converted to equivalent units of in-vehicle time (minutes) where not already reported in these units

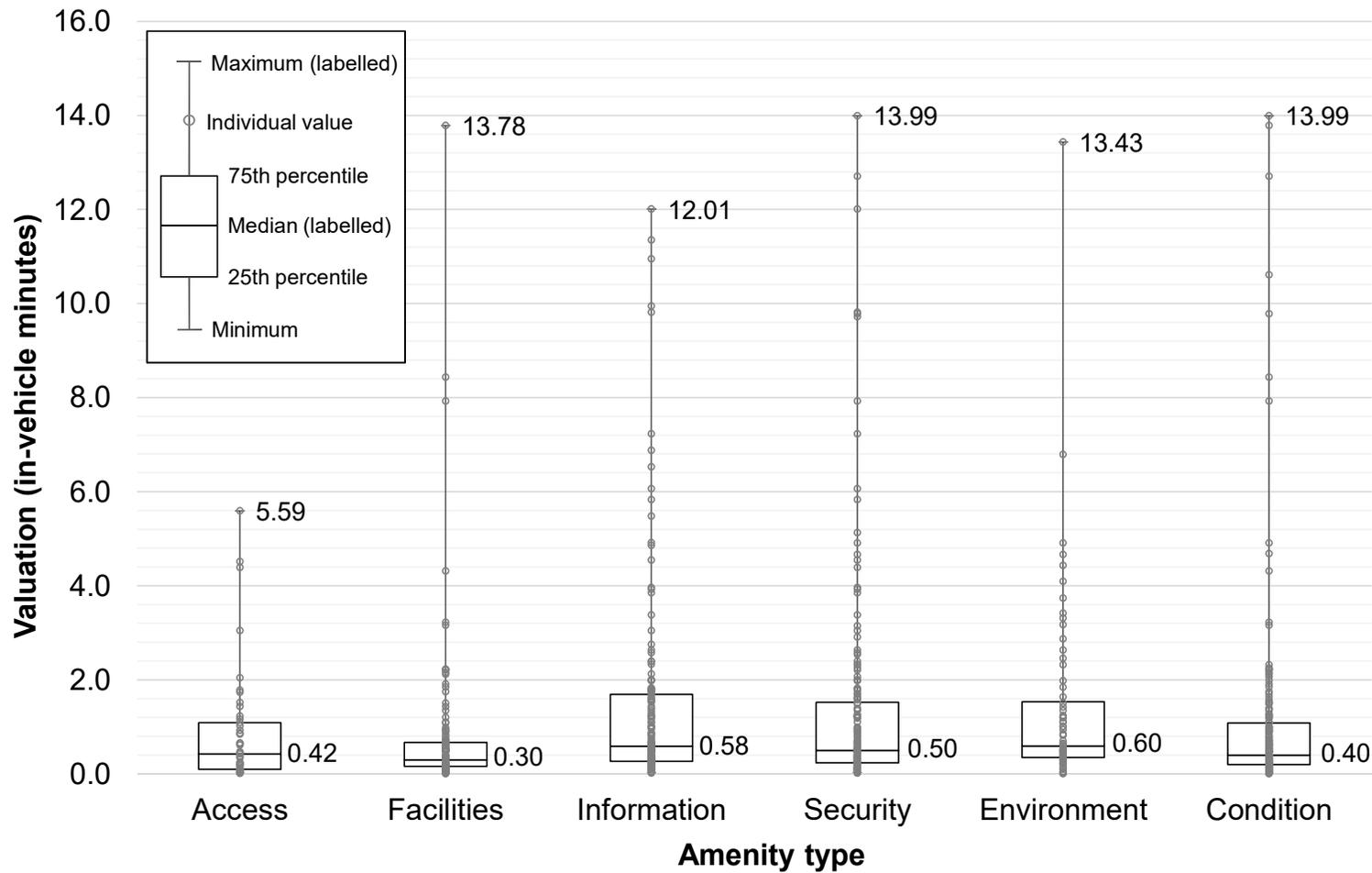


Database available at:

<http://publictransportresearchgroup.info/wp-content/uploads/2017/12/171208-PT-Customer-Amenity-Values-DATABASE.xlsx>

Considerable variability in individual amenity values was found...

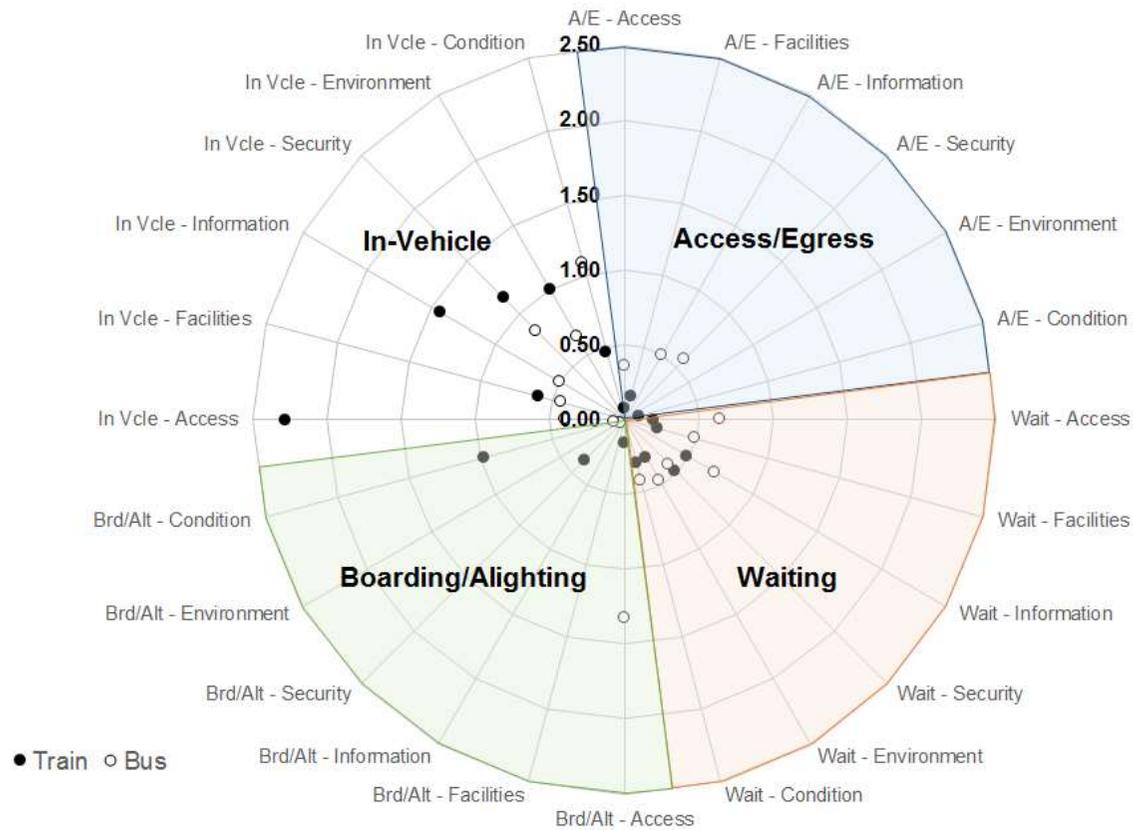
1. Research Literature Review



...with notable variation between modes and different stages of the journey

1. Research Literature Review

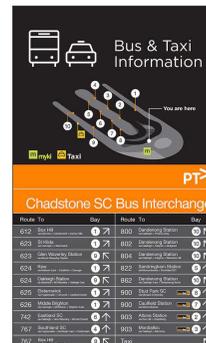
Median amenity values (in-vehicle minutes)



Only limited guidance on 'best practice' was found in the literature

1. Research Literature Review

Best practice element	Description
1. Customer segmentation	<ul style="list-style-type: none"> Segment by key customer markets given differences in their preferences Include non-public transport users in valuation surveys
2. Respondent familiarity with amenities	<ul style="list-style-type: none"> Tailor choice experiments to reflect amenities that respondents are familiar with Use images to aid understanding of amenities
3. Controlling of interaction effects	<ul style="list-style-type: none"> Control for interaction effects where possible in revealed preference surveys by using a sufficiently heterogeneous sample
4. Adopting of rating scales	<ul style="list-style-type: none"> Use rating scales to measure customer preferences for different amenities given the general lack of natural measurement units, but combine with stated preference results
5. Careful application of benefit transfer	<ul style="list-style-type: none"> Carefully consider the validity and reliability of underlying studies when selecting values Adjust values as necessary to better reflect the local context



A number of research gaps have been identified for future research

1. Research Literature Review

Research gap	Research opportunity
1. Valuations are very dated with limited reporting by key market segments	Undertake primary research to value customer amenities on a regular basis by key market segments
2. Little understanding of valuations by non-public transport users	Include non-public transport users in future valuation studies
3. Limited valuation of personal security amenities	Conduct a primary valuation study; segmentation by key groups (e.g. gender)
4. Limited valuation of Wi-Fi and mobile phone charging points	Conduct a primary valuation study of Wi-Fi and mobile phone charging points
5. Limited valuation of tram-based amenities	Conduct a primary valuation study of tram-based amenities
6. No valuation of ferry-based amenities	Conduct a primary valuation study of ferry-based amenities
7. Limited knowledge of factors affecting magnitude of valuations	Perform a meta-analysis of valuations using a regression model to identify key factors influencing values
8. Little testing of respondents' understanding of levels of amenity provision	Assess variability in respondents' understanding of levels of amenity provision to identify options for improving how such levels are framed
9. Limited understanding of appropriate and systematic use of benefit/value transfer	Develop options for improving use of benefit/value transfer, potentially drawing on environmental valuation literature

The phase 2 World Transit Industry Practice Review aimed to understand practice in selected cities

2. World Transit Industry Practice Review

1. **Levels of public transport project appraisal** typically undertaken by agencies
2. **Inclusion of customer amenities** in appraisal of public transport projects
3. **Studies undertaken** by agencies to estimate the value of customer amenities
4. **Application of values** for customer amenities and their sources
5. **Leading practitioners** in the field of public transport customer amenity valuation



Research method involved a survey of agencies in 12 target cities

2. World
Transit Industry
Practice
Review



- Cities were selected to be contexts relevant to Melbourne; some diversity included around this

Considerable time was spent in finding the right agency and representative

2. World Transit Industry Practice Review

City	Agency
1. Melbourne	Transport for Victoria (TfV)
2. Sydney	Transport for NSW (TfNSW)
3. Brisbane	Department of Transport and Main Roads (TMR)
4. Perth	Public Transport Authority of Western Australia (PTA) & Department of Transport (DOT)
5. Auckland	Auckland Transport (AT)
6. London	Transport for London (TfL)
7. Paris	Île-de-France Mobilités
8. San Francisco	San Francisco Municipal Transportation Agency (SFMTA)
9. Toronto	Metrolinx
10. Vienna	City of Vienna
11. Oslo	Ruter
12. Singapore	Land Transport Authority (LTA)



- Only one survey completion was sought from each city
- Agency representatives (survey respondents) were selected based on their knowledge of what their agency does in terms of public transport project appraisal

Australasia includes Amenities at high shares; excluding Melbourne with lower adoption; Paris, Toronto, Vienna have low/no amenity appraisal in PT projects



Extent to which CUSTOMER AMENITIES are included in appraisal of public transport projects

Mode	Project type	City										
		MEL	SYD	BNE	PER	AKL	LON	PAR	TOR	VIE	OSL	SIN
Train/metro	New or upgraded station/stop	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
	New or extended line/route	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
	New or refurbished rolling stock/vehicle	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
	Short range planning*	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
	Other	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
Tram/light rail	New or upgraded station/stop	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
	New or extended line/route	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
	New or refurbished rolling stock/vehicle	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
	Short range planning*	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
	Other	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
Bus	New or upgraded station/stop	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
	New or extended line/route	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
	New or refurbished rolling stock/vehicle	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
	Short range planning*	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
	Other	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Light Blue	Light Blue	Dark Blue	Dark Blue
Ferry	New or upgraded station/stop	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue						
	New or extended line/route	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue						
	New or refurbished rolling stock/vehicle	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue						
	Short range planning*	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue						
	Other	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue						

Sydney, Brisbane & Auckland almost always include customer amenities in project appraisal

Melbourne is out of sync with most Australasian/UK practice

Dark Blue	80-100% of the time	MEL = Melbourne	AKL = Auckland	VIE = Vienna
Medium Blue	60-80% of the time	SYD = Sydney	LON = London	OSL = Oslo
Light Blue	40-60% of the time	BNE = Brisbane	PAR = Paris	SIN = Singapore
Very Light Blue	20-40% of the time	PER = Perth	TOR = Toronto	
White	Up to 20% of the time	* Changes in frequency, operating hours and/or fares		
Yellow	Never			
Grey	Project not considered / no response			

Paris, Toronto & Vienna rarely (if at all) include customer amenities

28 experts were contacted; 18 did the Stage 1 survey; a HIGH response rate (64%) ; 6 experts provided Stage 2 feedback on the Stage 1 report

Experts who Responded to the Stage 1 Delphi Survey

– Only those agreeing to use of their name shown

No.	Name	Organisation	Country
1	Robin Barlow	NineSquared	Australia
2	David Hensher	University of Sydney	Australia
3	John Segal	Independent Consultant	United Kingdom
4	DID NOT RESPOND		
5	John Rose	University of Technology Sydney	Australia
6	Neil Douglas	Douglas Economics	New Zealand
7	DID NOT RESPOND		
8	Nils Fearnley	Institute of Transport Economics	Norway
9	Eric Kroes	Significance Quantitative Research	The Netherlands
10	John Bates	John Bates Services	United Kingdom
11	Abigail Bristow	University of Surrey	United Kingdom
12	Toby Cuthbertson	SYSTRA	United Kingdom
13	DID NOT RESPOND		
14	James Laird	University of Leeds	United Kingdom
15	Roger Mackett	University College London (UCL)	United Kingdom
16	RESPONDED BUT PREFERS NOT TO BE NAMED		
17	DID NOT RESPOND		
18	DID NOT RESPOND		
19	DID NOT RESPOND		
20	John Preston	University of Southampton	United Kingdom
21	Jeremy Shires	University of Leeds	United Kingdom
22	Stephen Stradling	Edinburgh Napier University	United Kingdom
23	Ryan Taylor	Transport for London	United Kingdom
24	Mark van Hagen	NS Rail	The Netherlands
25	DID NOT RESPOND		
26	DID NOT RESPOND		
27	DID NOT RESPOND		
28	DID NOT RESPOND		



18 valid responses from 28 experts is a 64% response rate; we were expecting about 10 with about a 33% return rate

Stage 2 Feedback:
1 expert thought the experts selected were 'British Commonwealth' focussed; suggested Chile, Sweden, Netherlands & US could have also provided experts

The Delphi Survey aimed to understand expert views on good practices in estimating and applying amenity valuations in public transport



Topics Covered in the Expert Survey	
<p>Method Advantages/Disadvantages</p> <ul style="list-style-type: none"> • What are the advantages/disadvantages of the measurement methods? <p>Method Suitability</p> <ul style="list-style-type: none"> • Which methods are more suitable for estimating PT amenity values? <p>Valuation Worthwhile?</p> <ul style="list-style-type: none"> • Is amenity valuation worthwhile and if yes why? <p>Measurement Issues</p> <ul style="list-style-type: none"> • How important are common measurement issues/problems? How often do they occur? <p>Overall Rating of Practice</p> <ul style="list-style-type: none"> • How good is current practice? 	<p>Best Practices</p> <ul style="list-style-type: none"> • What are best practices in the field? <p>Problematic Amenities</p> <ul style="list-style-type: none"> • Are there amenities that cannot be valued? <p>Post-Implementation Reviews (PIR) of Values</p> <ul style="list-style-type: none"> • what share are checked? How close are PIR values to estimates? Should more PIR valuations be undertaken? <p>Leading Practitioners</p> <ul style="list-style-type: none"> • Leading Companies, Experts, Authorities, what share adopt amenity valuations, reasons not adopted more <p>Other Comments</p>

Advantages; SP-analysis control/flexibility; RP-reality of behaviour; CR-cheap/data relativity; PE-forcing user trade-offs; MDS-negative experience & cheap; BVT-cheap/quick

Method Advantages/Disadvantages

Key Advantages of Methods

Q2. What do you believe are the key advantages of the following methods for estimating the value of public transport customer amenities?

Stated preference (SP)		Revealed preference (RP)		Customer ratings (CR)		Priority evaluator (PE)		Maximum difference scaling (MDS)		Benefit/value transfer (BVT)	
Comment	No.	Comment	No.	Comment	No.	Comment	No.	Comment	No.	Comment	No.
Enables full control of a range of variables	6	Based on real observed actual behaviour	12	Can collate lots of info cheaply/simple	4	Forces users to make trade-offs	3	Captures negative as well as positives in experience	2	Cheap/quick/practical to use	8
Flexible - can measure new unobserved variables/ hard to value amenities	4	Avoids market research weaknesses	1	Provides relativities/preferences/ rankings very easily	4	Cheap/easy to collect	2	Cheaper/simpler (than SP)	2	Easier to explain to client	1
Flexible - can measure new contexts/concepts	2	Free from bias	1	Easy for respondents to complete	3	More realistic/closer to money value	2	Enables relative importance found	1	No fieldwork needed	1
Has long history (accepted, valid, understood method)	2	Enables use and non-use valuation	1	Perceptions can be included	1	Easy for respondents to complete	1	Easy for respondents to complete	1	Leverages wider studies rather than a single local study	1
Can measure many types of customer amenities	1	Easy to use	1	Can be applied to a broader set of attributes	1			Allows non market valuation	1	Enables local conditions to be considered	1
Allows measurement of non-market values	1	Useful for package effects	1	Good when Important/ Performance combined	1						
Enables use and non-use valuation	1	full control of choices	1								
Can achieve representative samples	1										
Enables comparison of quality levels	1										
Has data/statistical efficiency	1										
Gives appearance of precision	1										
Keeps academics busy on methods no one understands	1										

Note; all experts permitted multiple points; above is a synthesis of all points made in their text responses



Disadvantages; SP-bias/scaling; RP-poor attribute control/data quality; CR-indirect valuation; PE-complexity for respondents; MDS-limited valuation; BVT-lack of transferability

Method Advantages/Disadvantages

Key Disadvantages of Methods

Method Advantages/Disadvantages

Q3. What do you believe are the key disadvantages of the following methods for estimating the value of public transport customer amenities?

Stated preference (SP)		Revealed preference (RP)		Customer ratings (CR)		Priority evaluator (PE)		Maximum difference scaling (MDS)		Benefit/value transfer (BVT)	
Comment	No.	Comment	No.	Comment	No.	Comment	No.	Comment	No.	Comment	No.
Too much bias/ 'Bonkers' results via bias/ scaling problems	8	Causal factors unclear/ no attribute control	7	Indirect value estimation biased	4	Too complex for respondents	4	Only measures outliers not central measures	3	Loses local context/ limits on transferability to context	9
Too hypothetical/ unreal study; unconstrained respondent budgets/ user view	4	Poor data/ data quality/ errors	3	Too subjective	3	Difficult to set budget	3	Gives no valuation	1	Only as good as studies adopted	2
Often too complex for users to understand	3	Cant measure many amenity types	3	Vague/too general for respondents	2	Valuation issues over time/ currencies	2	Best/worst often not symmetrical	1		
Results insensitive to local user decisions	1	Multi-collinearity	1	Too much respondent bias	1			Experimental design limits	1		
Cannot value 'transformational' change	1	Poor 'non-use' values	1	Lack of trade off testing	1						
Too expensive relative to other methods	1	Much measurement error	1								
Internet panels – users tick any boxes	1	Cant observe behaviour of interest	1	<i>Note; all experts permitted multiple points; above is a synthesis of all points made in their text responses</i>							
Uncalibrated results used too often	1										
Doesn't measure complex/ psychological decision factors	1										



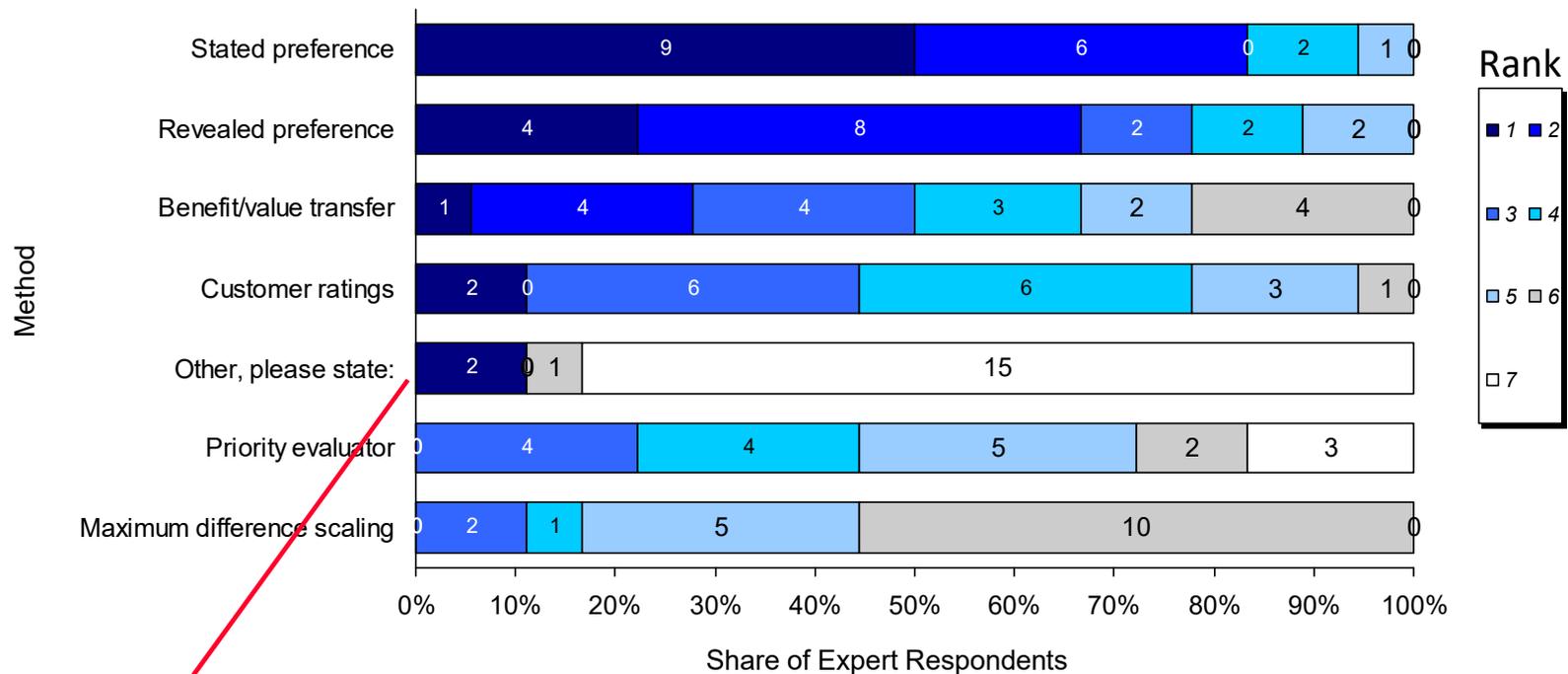
Note: comments edited to aid readability

1st rank method was SP (50% of experts) followed by RP (22%). 2nd rank method was RP (44%) followed by SP (33%). BVT ranked next; CR/BVT and Other methods rated few expert 1st ranks

Method Suitability

Expert Ranking of Method Suitability

Q4. Please rank the following methods (top to bottom) from most to least suitable for estimating public transport customer amenity values in general [1=1st rank, Number of Experts Shown]



- Other methods with 1st rankings were:
- Station Experience Monitor
 - Mixed RP/SP

...reasons given stress the need to support rational decisions on investment and policy for customer experience infrastructure

Valuation Worthwhile?

Reasons Why PT Amenity Valuation Worthwhile

Q5. In general, do you believe that the valuation of public transport customer amenities is worthwhile? Please provide reasons for your response below. [Selected Responses Shown]

It values an important aspect of service that we would otherwise not be able to value, but people clearly do appreciate the infrastructure.

If they are not valued, the implicit value given is zero.

if customer amenities provide a benefit...we must attempt to value them appropriately

Important for cost benefit analysis and hence for ranking of alternative investments

Allows investments to be prioritised, in terms of value for money

allows trade offs against other policy levers to be made.

understanding the valuation if amenities is important to ensure that scarce government funds are allocated to things that are most highly valued in order to maximise (or at least optimise) community outcomes. If this doesnt happen, the we are reducing overall welfare.

Even if total valuation is relatively modest (compared to impact of fares or journey time, for example) there can be potential for real gains at low cost. Also consider competition; cars continually add to customer amenities - try buying a car without air conditioning now.

3. International Practitioner Delphi Survey

Note: Above shows individual comments by separate experts – some word editing has occurred to aid readability

A range of amenity value measurement concerns/issues were identified in our previous research. Experts rated these issues...

Measurement Issues

Amenity Value Measurement Issues/Problems

Measurement issue	Description
Values Context Specific	<ul style="list-style-type: none"> High variability makes it difficult to estimate values that are transferrable to other services/cities Differences in values may be observed by age, gender, income, location and trip characteristics
Application of 'average' values for benefit transfer	<ul style="list-style-type: none"> Average values may be skewed towards higher/extreme values Generally not appropriate where proposals are targeted at specific groups (e.g. mobility impaired)
Absence of natural and/or meaningful units	<ul style="list-style-type: none"> Lack of natural/meaningful units limits the transferability of valuations Metric scales are often not meaningful to respondents (e.g. decibels for noise)
Packaging effect	<ul style="list-style-type: none"> Where values for individual amenities sum to more than the value of a package of improvements Valuations for individual amenities are typically scaled down to deal with the problem
Interaction and 'halo' effects	<ul style="list-style-type: none"> Where improving one amenity can change the perceived value of other amenities Example is mobile phone based information which may reduce the value of information displays
Changes in customer expectations	<ul style="list-style-type: none"> Willingness to pay for particular amenities may change over time as minimum standards increase Quality of customer amenities may need to continually evolve in order to stand still
Survey response bias	<ul style="list-style-type: none"> Strategic response bias – respondents' overstate their valuations to influence policy Non-commitment bias – respondents' lose nothing by indicating value for certain amenities
Respondents' understanding of amenities & levels of provision	<ul style="list-style-type: none"> Unfamiliarity with amenities can affect respondents' valuations Use of focus groups beforehand can help to ensure amenities are framed appropriately



Source: De Gruyter, Currie and Naznin (2018) 'Best Practice Approaches to Public Transport Customer Amenity Valuation - Research Literature Review'

Packaging effects, use of average values & the problem of inapplicable values due to context were the highest ranked issues/problems overall

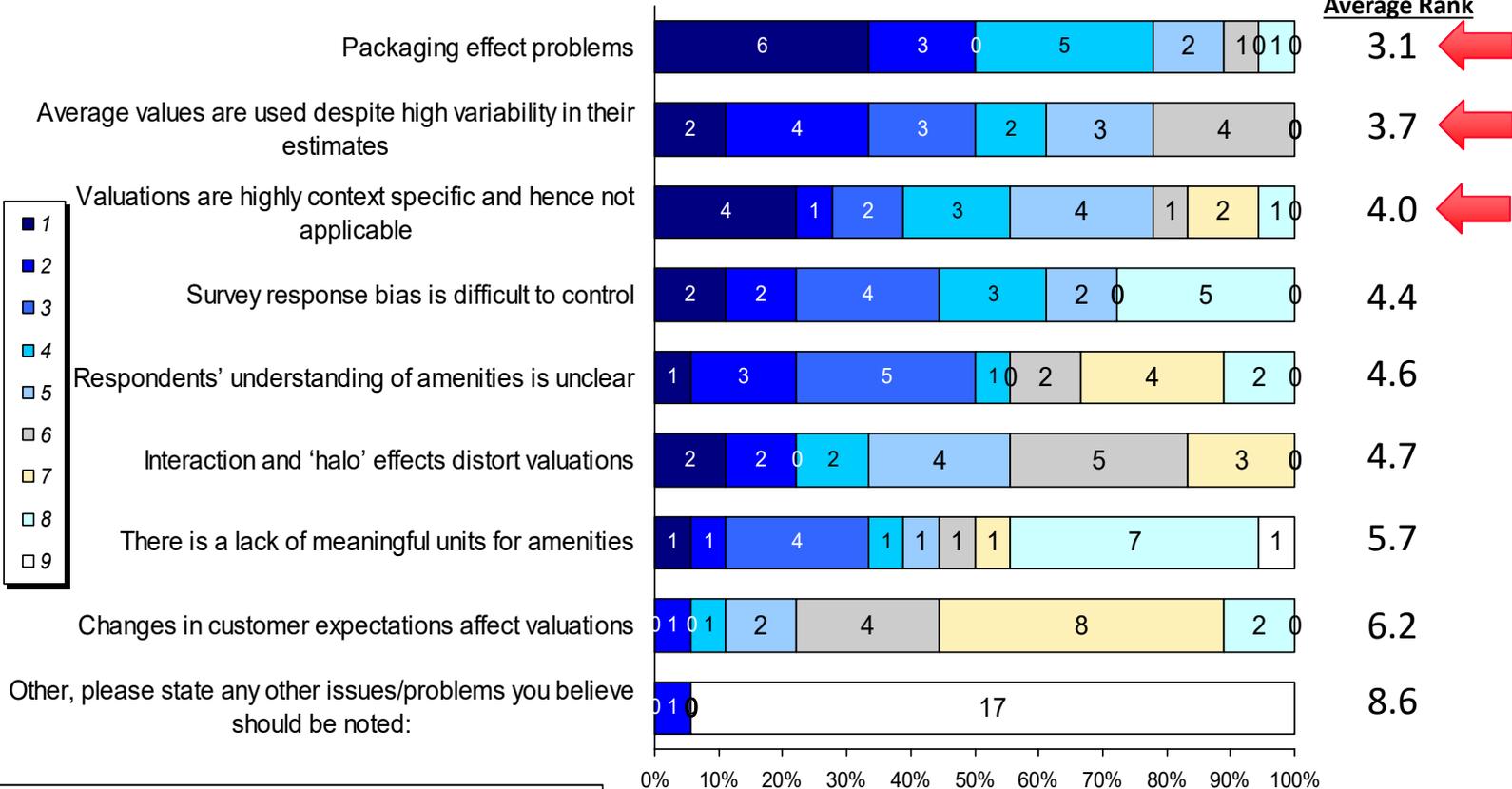
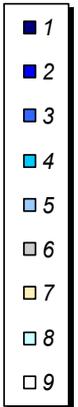
Measurement Issues



Rank of Issues/Problems with Measurement Methods

Q7. Please rank the issues/problems in terms of your view regarding their priority in limiting current practice in the field
[1= biggest problem; 9 is no problem; Number of Experts Shown]

Rank of Measurement Issues/Problems (1=highest rank)



Selected Expert Comment:
 • any of the above may be more or less severe depending on the design and implementation of the study. It is therefore hard to rank them in isolation

No. Expert Respondents Selecting a Rank for each Problem/Issue

A diverse range of 'best practices' were suggested; most comments suggest mixed methods...

Best Practices

Expert View of Best Practices – Comments Emphasising MIXED METHODS

Q9. What best practices would you recommend for valuing public transport customer amenities? Please provide reasons in your response below

Combine several approaches so that information from different sources can help assess robustness.

Useful to use multiple methods and compare consistency of results. Important to pay attention to different levels of detail/importance.

SP/SC. Good control with attributes (despite some problems) and well developed methods to control for different biases.

Methodology used by TfNSW P&G, ATAP, NZ EEM and Sydney Trains is pretty good...based on ratings for individual attributes and SP for package values with cross-section data for modes.. and time series data on ratings.

Probably in the area of combining methods in an efficient manner ; making sure that attributes like time are included where there may be outside evidence to cross check ; making sure that concepts like reliability are explained to respondent (see work by Hollander)

A combination of approaches - e.g., SP/RP and possibly with appropriate modelling (the modelling has been done very poorly in the past). Don't just rely on one method!

Using mixed RP/SP methods.

3. International Practitioner Delphi Survey

Note: Above shows individual comments by separate experts – some word editing has occurred to aid readability

Half of all experts said there are no customer amenities that cannot be valued...

Problematic Amenities

Are There Amenities Which CANNOT Be Valued?

Q10. Are there are specific public transport customer amenities that you believe cannot be valued appropriately? Please state these in the space below and provide reasons for why they cannot be valued appropriately

Nah - give me some money (and I'm cheaper than anyone else by a factor of probably 5) and I can value anything for you.

No.

No

NO, but you have to understand how the brain of people works..

There shouldn't be,

No but some are harder than others (i.e. security has a very high value but only amongst a population that feels under threat)

No, anything can be measured if the right tools are used.

Basically almost everything. But the packaging issue is very serious: these things tend to be not simply additive and free from context...

Not really if we think hard enough

Stage 2 Feedback:

It should be possible to estimate implicit values for hard to describe amenities but values would be only specific to the context they were measured and not be transferable.

3. International Practitioner Delphi Survey

Note: Above shows individual comments by separate experts – some word editing has occurred to aid readability

...others thought transformational effects, low frequency events, ride quality, amenities with no measurement scale and wheelchair/ disabled access amenities difficult to measure

Problematic Amenities

Are There Amenities Which CANNOT Be Valued?

Q10. Are there are specific public transport customer amenities that you believe cannot be valued appropriately? Please state these in the space below and provide reasons for why they cannot be valued appropriately

Transformational effects where a lot of improvements are made and the value becomes greater than the sum of the parts. Difficult for people to comprehend and value and difficult for us to explain to get people to value. Difficult for people to value high impact but low frequency events - i.e. getting splashed by roadside puddles. People systematically value them too highly because of the large negative impact. But it is a rare almost never sort of event. Yes people would be willing to pay £5 to avoid being soaked by a passing vehicle but not every single day.

Ride quality (and the related comfort factors) has proved surprisingly difficult to value.

Where there is no established measurement scale of the amenity in question, you can only provide study-specific valuations. In general there are lots of problems with qualitative improvements

Some are very context-specific – e.g. information may often be unnecessary but critical in the context of incidents. Also comfort variables are likely to have a (travel) time-dependent value component.

Wheelchair/Disabled Access

Those that relate to amenities that are only valued by a small minority of passengers - many amenities for disabled passengers fall into this category

I suspect things like wheelchair access are difficult and better to handle through rules/laws.

Facilities to improve accessibility for disabled people are not usually given values because improvements are usually introduced because of equality legislation rather than as part of a rational decision-making process

3. International Practitioner Delphi Survey

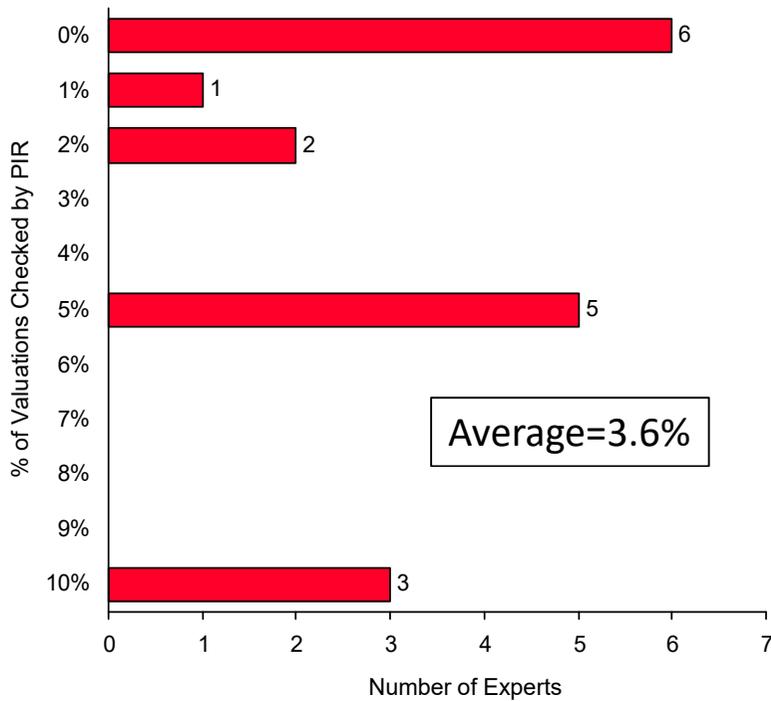
Note: Above shows individual comments by separate experts – some word editing has occurred to aid readability

Post-Implementation Review (PIR) of Amenity Values are rare (av. <4% of valuations); most experts haven't seen any - PIR values are generally less than the original amenity valuation

Post Implementation Reviews

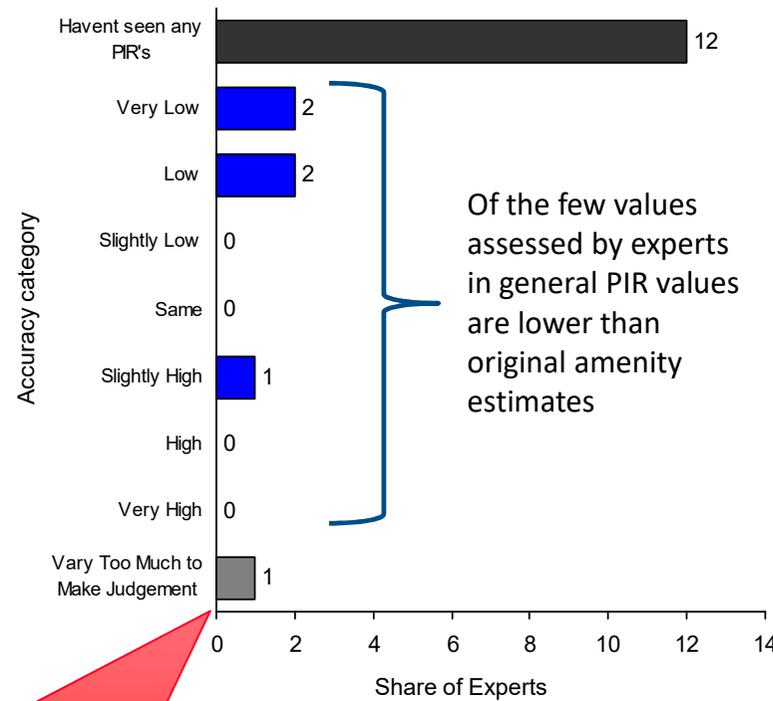
% of Amenity Valuations Checked by Post Implementation Reviews (PIRs)

Q11. In your experience, what percentage of amenity valuations are checked by post implementation reviews?



Post Implementation Review (PIR) Value vs Amenity Valuation

Q12. Of the Post Implementation Reviews you have seen, in general, how close have measured values been to estimates



3. International Practitioner Delphi Survey

Stage 2 Feedback:
How accurate are PIR's anyway? Its possible PIR values are lower because PIR measurement is wrong

Experts thought Method Complexity, Lack of Formal Appraisal and Lack of Resources major barriers constraining industry take up of Amenity Valuations

Other Comments

Reasons Why Agencies Don't Adopt Valuations

Q16. In your experience, why do some transport agencies not adopt valuations of public transport customer amenities? [Selected Responses Shown]

Methods Too Complex

- Too complicated, don't believe the results
- Differing views on the robustness of the estimates.
- Don't believe values - values don't suit the story they wish to convey
- Because they do not understand how the brain of humans work and still believe that people make rational decisions, which they do not (see the overwhelming evidence of scientist like Dan Ariely, Daniel Kahneman and Gerald Zaltman)
- Don't understand the value or too difficult to explain for a perceived small benefit. (e.g. it doesn't help them in their discussions with central agencies for funding so why do it?)
- They consider valuations to be too uncertain and open to challenge; they wish to be conservative.

Other

- History impetus, change in staff, afraid of bad press
- Never make the effort to properly value them and typically use outmodes customer satisfaction measures on a likert scale that are quite useless. Sadly they use traditional market research firms and most only know this type of metric method.

Methods Too Expensive

- Too much effort. No dedicated Dpt. to specify/oversee.
- Lack of resource
- lack of knowledge, constrained investment

Lack of Formal Appraisal in Industry

- These kinds of improvements are rarely subject to formal appraisal and budgets are prioritised according to benefit/cost. More often, amenities are specified as given requirements, e.g. in bus tender contracts and are not subject to cost-benefit consideration..
- Because they have bosses who don't care and/or are unlikely to be in the job long enough to do the work. They prefer to trust their gut instincts and don't understand the gobbledygook that comes out of academia
- Some are too pragmatic, too little research oriented
- Because decision-making processes are rarely that rational.



Note: Above shows individual comments by separate experts – some word editing has occurred to aid readability

Closing comments

- There is a VERY strong case for inclusion of amenities in appraisals
 - Melbourne is BEHIND Australian and world practice
 - If we agree Customer Experience is important, we need to justify investment in Customer Experience Infrastructure
- Multiple methods are best (SP/RP common methods)
- Resources are now available for use
 - (PTRG.Info)
 - Cite our reports and databases as proof of evidence when submitting business cases

In 2011 Monash PTRG undertook a review of economic appraisal approaches in urban railways



Source: Currie G and Fournier N (2020) 'Valuing Public Transport Customer Experience Infrastructure - a Review of Methods & Application' Research in Transportation Economics 83 2020



Source: De Gruyter, Currie G, Truong L and Naznin F (2019) "A meta-analysis and synthesis of public transport customer amenity valuation research" TRANSPORT REVIEWS Volume 39, 2019 - Issue pp 261-283

And the project has a webpage with available data

← → ↻ 🏠 ⚠ Not secure | publictransportresearchgroup.info/portfolio-item/best-practice-approaches-to-public-transport-customer-amenity-valuation/ 🔍 ☆ 📄 🛠 👤 ⋮

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Best Practice Approaches to Public Transport Customer Amenity Valuation

Key aims

- To review evidence on **measured values** with regard to public transport customer experience initiatives
- To understand **current practices** in the use and adoption of these methods in Australia and internationally in public transport
- To understand **what can and cannot be measured** in terms of customer experience initiatives
- To explore **methods used to measure amenity/soft factor values**, their pros and cons and what is considered best practice.

Research components

1. **Research Literature Review:** review of published evidence on values and methodologies
2. **World Transit Industry Practice Review:** survey of public transport agencies in major world cities to assess current practices towards valuation and application of existing values
3. **International Practitioner Delphi Survey:** survey of 20-30 experts worldwide to understand methods and best practices towards valuation of customer amenities.

The diagram illustrates the classification of public transport customer amenities. At the center is a blue hexagon labeled 'Public transport customer amenities'. Surrounding it are six white hexagons, each representing a category with examples:

- Access:** e.g. parking, taxis, escalators, lifts, hand rails
- Facilities:** e.g. ATMs, ticket machines, toilets, seating, shelter
- Information:** e.g. timetables, directional signage, staff, maps
- Security:** e.g. lighting, CCTV, graffiti, staff, alarms
- Environment:** e.g. air quality, heating/cooling, noise, odour
- Condition:** e.g. appearance, cleanliness, graffiti, litter

Fig. 1 Classification of public transport customer amenities

Research context

- The diverse set of factors affecting the quality of public transport are commonly classified into 'hard' or 'soft' factors.
- Hard factors are physical measures that impact on journey times and reliability, but can also include fares and changes to service frequency and operating hours.
- Soft factors, or customer amenities, cover a range of ancillary improvements which are not directly related to operations or service quantity but can enhance the quality of the customer experience. Examples are shown in Fig. 1.
- Considerable research has been undertaken to understand the value that public transport passengers place on hard factors, yet research into public transport customer amenity valuations is far less common, with limited synthesis of the topic.
- There is also a very limited understanding of current and best practices for valuing public transport customer amenities.

<http://publictransportresearchgroup.info/portfolio-item/best-practice-approaches-to-public-transport-customer-amenity-valuation/>

Please reach out for more information



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PTRG is the name for researchers at Monash University who are engaged in research on public transport systems, users, planning and policy.

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