

From workhorse to thoroughbred: Review of bus rapid transit and branded bus service performance

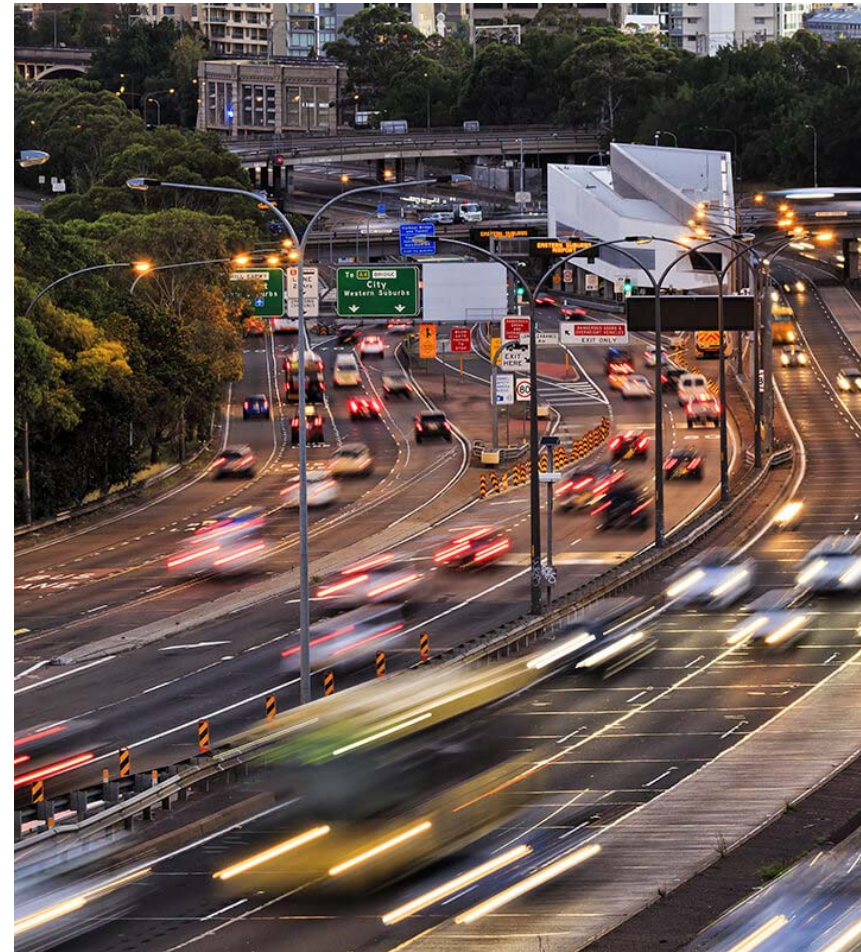
Bus Industry Confederation Conference
Canberra 19 November 2019

Yale Z Wong

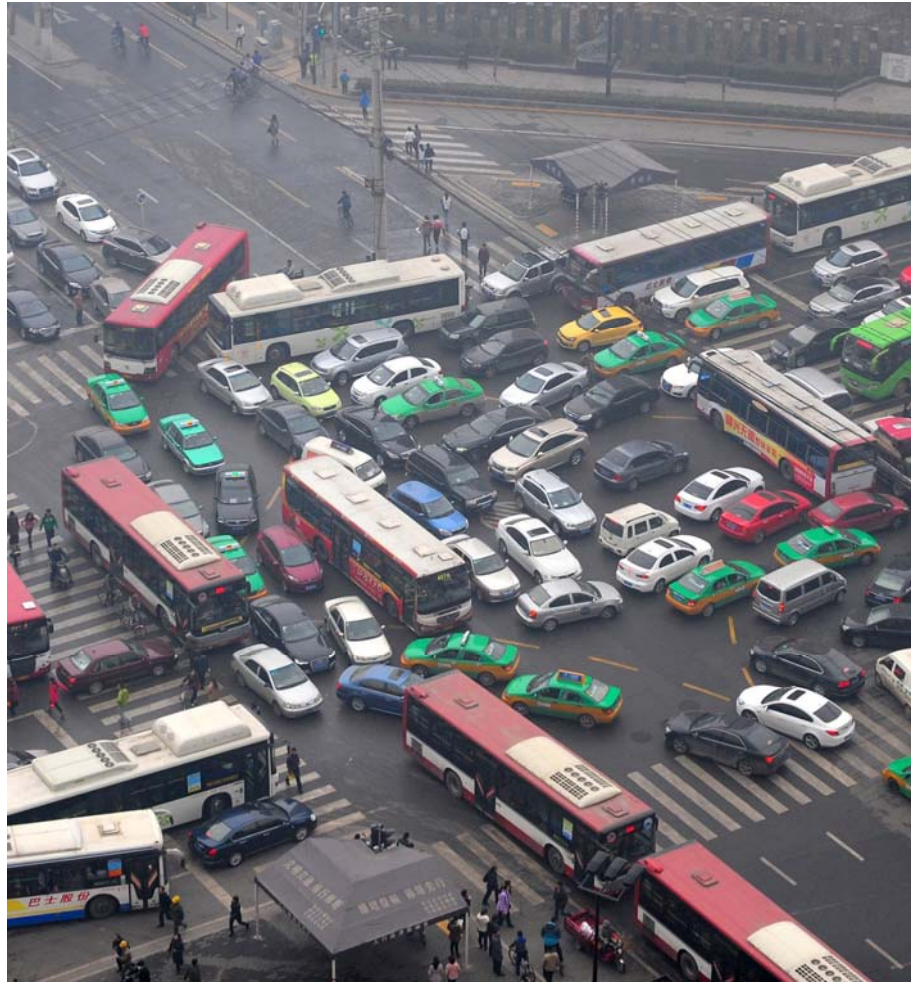
Institute of Transport and Logistics Studies
University of Sydney Business School

yale.wong@sydney.edu.au

Acknowledging: David A Hensher
Loan Ho







Bus rapid transit (BRT) vs. Light rail transit (LRT)

- Choice vs. blind commitment (Hensher, 1999)
- Right-of-way vs. traction technology
- Modal ideology, political imperative
- **BRT may have already lost the battle**



Bus rapid transit (BRT) vs. Branded bus services (BBS)



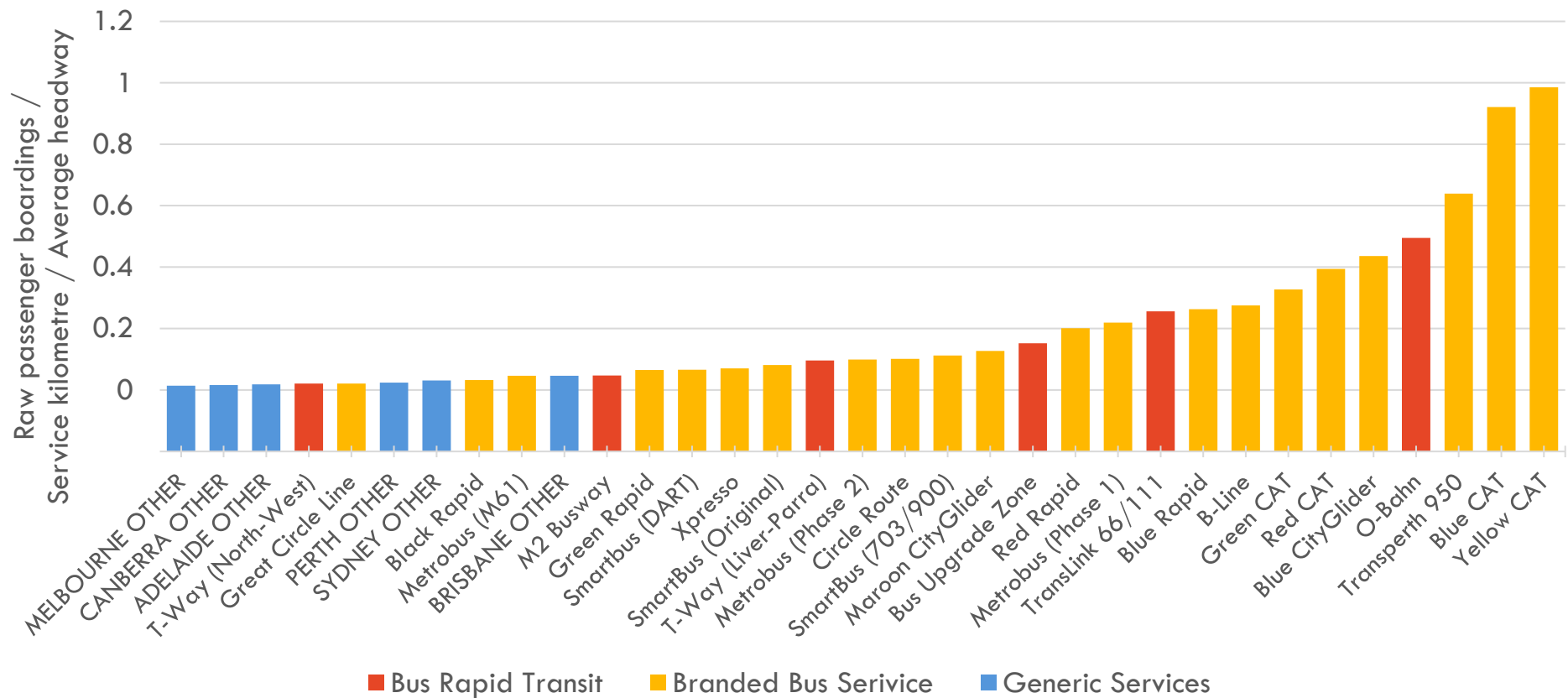
- ‘Last minute’ bids of political desperation (Sydney, Canberra)
- Brand identity and service simplification crucial (Currie and Wallis, 2008)
- BBS might be an acceptable alternative to LRT (?)

Our report provides extensive **policy** and **operational** commentary on these systems and their **political** backstory.

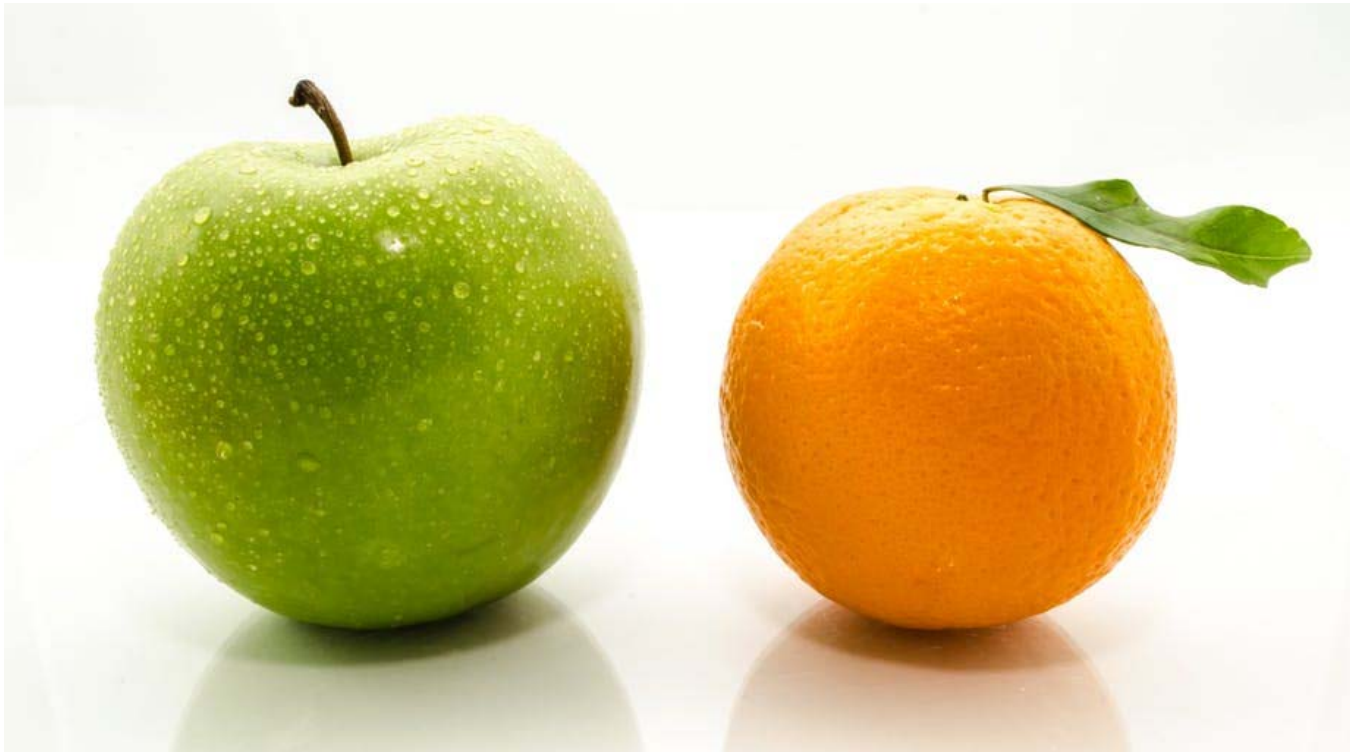
Studied systems

City	Service	Fleet	Brand Identity	Bus Priority
Sydney	T-Way (Liverpool-Parramatta)	Mixed	None	Low/Medium
	T-Way (North-West)	Mixed	None	Medium
	M2 Busway	Mixed	None	Medium
	Metrobus (Phase 1)	Mixed/Dedicated	Medium	Low
	Metrobus (Phase 2)	Mixed/Dedicated	Medium	None
	B-Line	Dedicated	Strong	Low
Melbourne	SmartBus (Original)	Dedicated	Strong	None
	SmartBus (DART)	Dedicated	Strong	Low
Brisbane	Busway	Mixed	None	High
	Bus Upgrade Zone (BUZ)	Mixed	Weak	Medium
Perth	Central Area Transit (CAT)	Dedicated	Strong	Low
Adelaide	O-Bahn	Mixed	None	High
Canberra	Rapid	Mixed	Weak/Medium	Low

Gross performance ratio (pax/skm/headway)



Rationale for normalisation





Normalisation approach

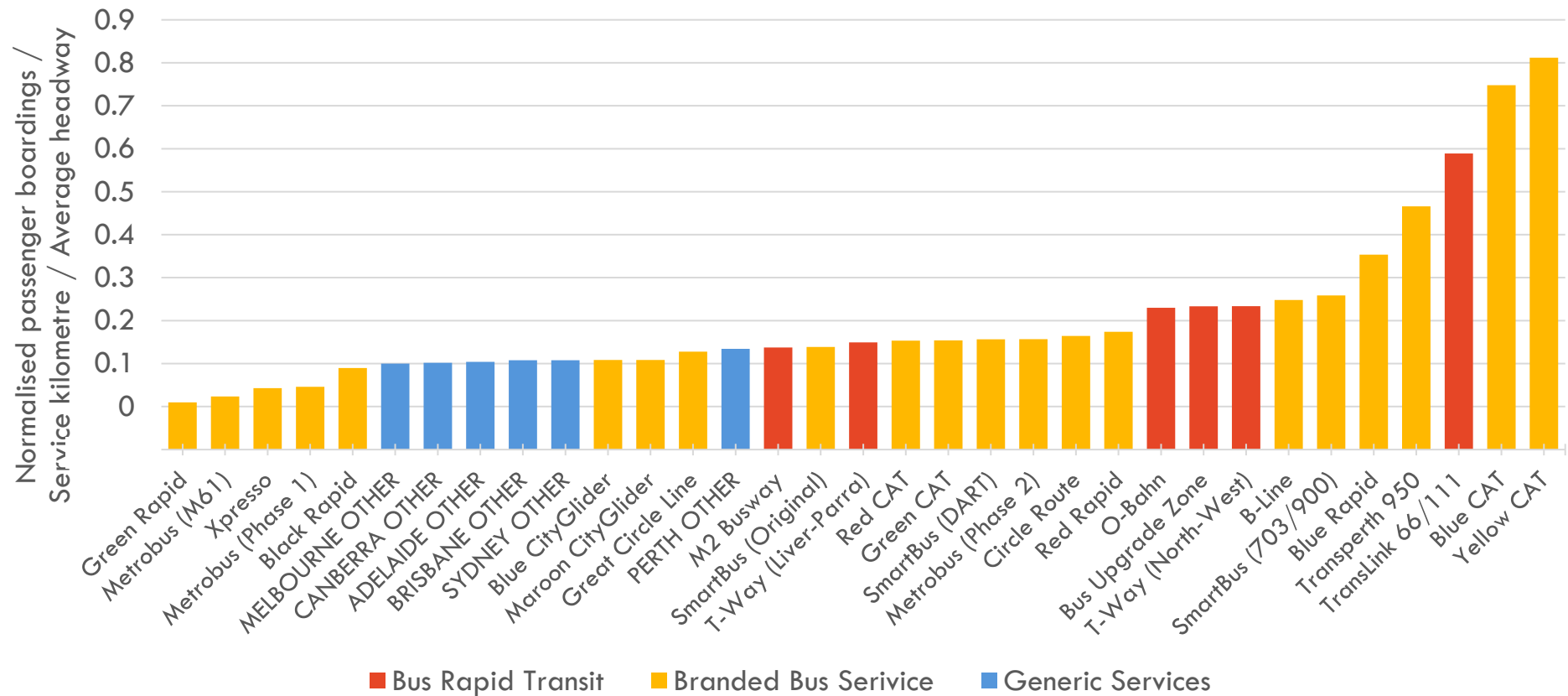
- Replace impact of a specific influence not under the control of the system with a **mean/median level** (across all sampled systems) of a factor that may influence performance
- First need to identify service-specific features and context-specific settings which do influence performance through regression model ($R^2=0.729$)

$$\begin{aligned} &NPR(GPR) \\ &= 0.1068 - 0.772 * Syd + 0.0199 * Brs - 0.0189 * Can + 0.1396 * Per \\ &+ 0.0293 * Mel + 0.3065 * PCat + 0.3678 * BBWay + 0.0509 * BCGLid \\ &+ 0.0763 * CRapid + 0.0726 * SMetB + 0.1486 * SBLine + 0.0244 \\ &* SM2Bw + 0.1252 * PricWay + 0.0977 * PriLane - 0.1048 \\ &* Average Outer - 0.0879 * Average Orbital + 0.1038 * Average Comp \end{aligned}$$

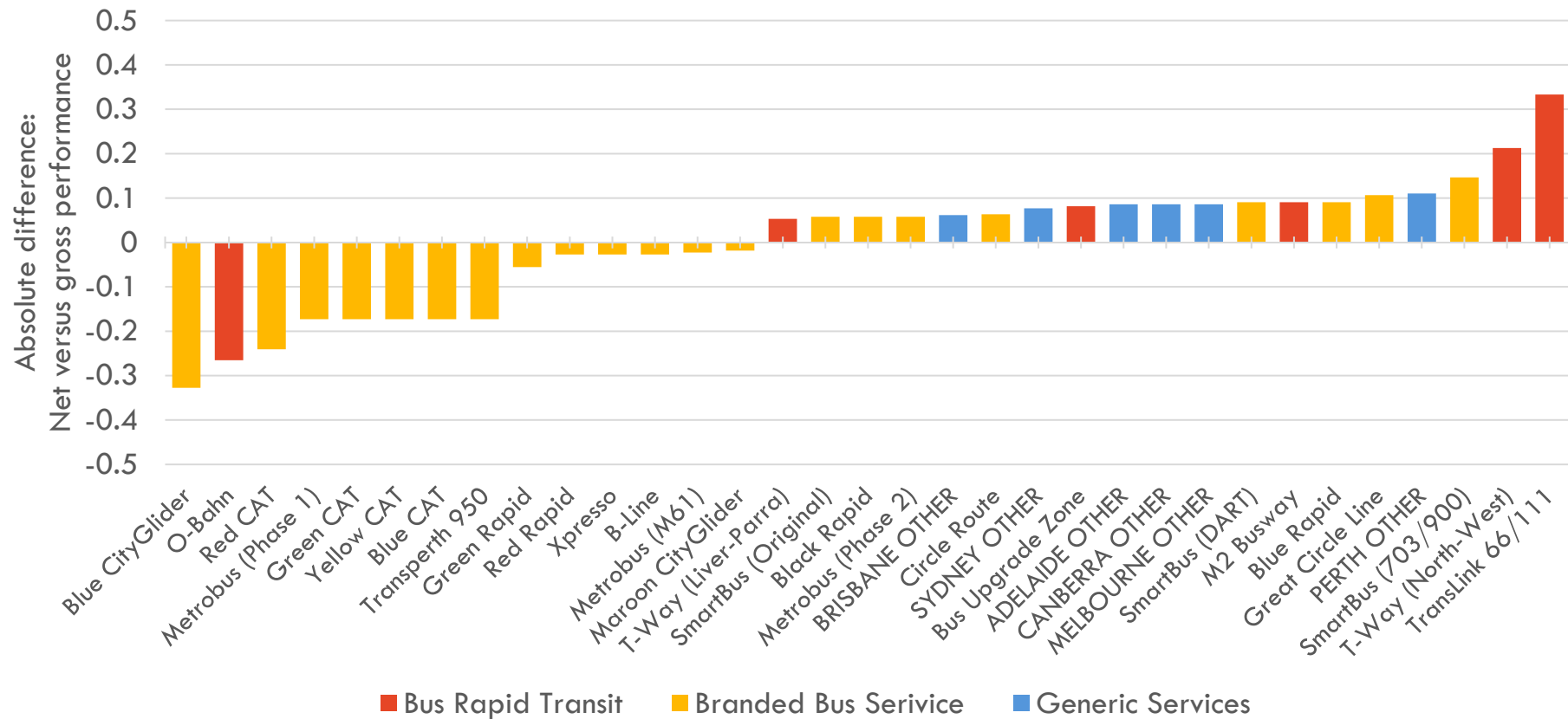
Normalisation procedure

Category	Attribute	Statistically Significant
Bus priority	Dedicated carriageway	✓
	Dedicated lane	✓
	Signal priority	
	Premium stations	
Brand identity	Soft branding	
	Hard branding	
Service type	Downtown circulator	
	Radial inner	
	Radial outer	✓
	Cross-town/Orbital	✓
	Feeder/Coverage	
Other attributes	Direct competition	✓
	Free service	
	City-specific dummies	✓

Net performance ratio (Normalised)



Net versus gross performance comparison



Main contributions

- BBS performance **comparable** to BRT in most cases
- BRT performance poorer than expected due to **open system design** (with through-routing) and congestion faced off-corridor
- Showcased which **factors attract patronage** and which retain patronage
- Established importance of **normalisation** procedure for any fair comparison
- Generic services performed worst, though this improved slightly on normalisation
- **Limitations:** *Open vs. closed systems; Definition of average; Scale of analysis*

Overseas experience



Service-specific branding (Seoul)



Route-specific branding (Auckland)

New (?) technologies and opportunities



Optically-guided bus (Zhuzhou)



Wright StreetCar (Leeds)

Policy/Research recommendations



1. Rethink project **appraisal** including remit of assessment agencies
2. Ensure wider use of **normalisation** methodology
3. Promote benefits of **service** over infrastructure investments
4. Continue research on **secondary** impacts of bus priority



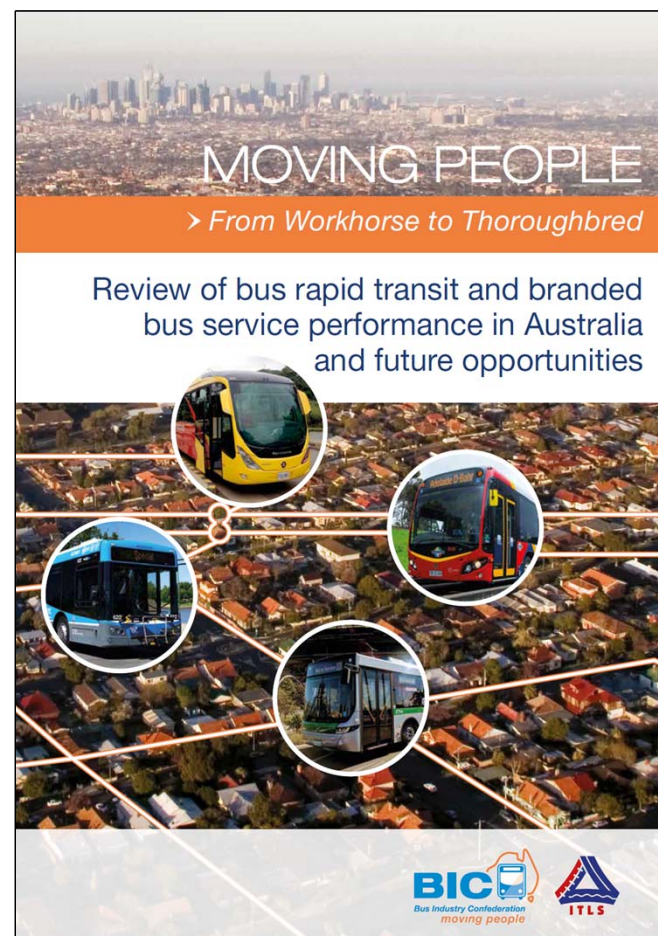
Policy Thinker series and Landmark Reports

bic.asn.au

sydney.edu.au/business/itls



The University of Sydney



Page 18

From workhorse to thoroughbred: Review of bus rapid transit and branded bus service performance

Bus Industry Confederation Conference
Canberra 19 November 2019

Yale Z Wong

Institute of Transport and Logistics Studies
University of Sydney Business School

yale.wong@sydney.edu.au

Acknowledging: David A Hensher
Loan Ho

