

Parking management to support sustainability

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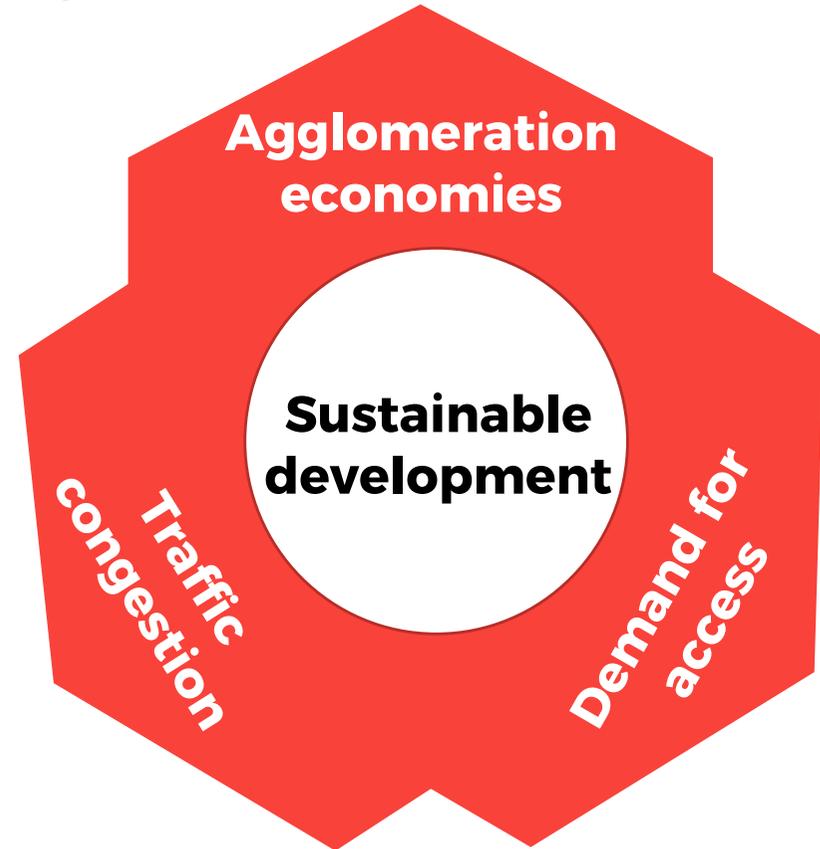
The issue with parking management and sustainability



Parking management often does not support sustainable development

Problem:

- Development result in unsustainable transport outcomes if not well managed
- Parking policy often is not made using evidence-based economic principles



Solution: market-driven parking management

- Set the right price for public parking
- Return parking revenue to improve access alternatives
- Remove minimum parking requirements

The High Cost of Free Parking (Shoup, 2005)

Parking management often does not deliver customer friendly outcomes

Problem:

- No integrated information on options
- Inequitable pricing of options
- Finding available parking
- Over/under-use of parking
- Parking fines discourage visitors
- Parking monopolies lead to overcharging



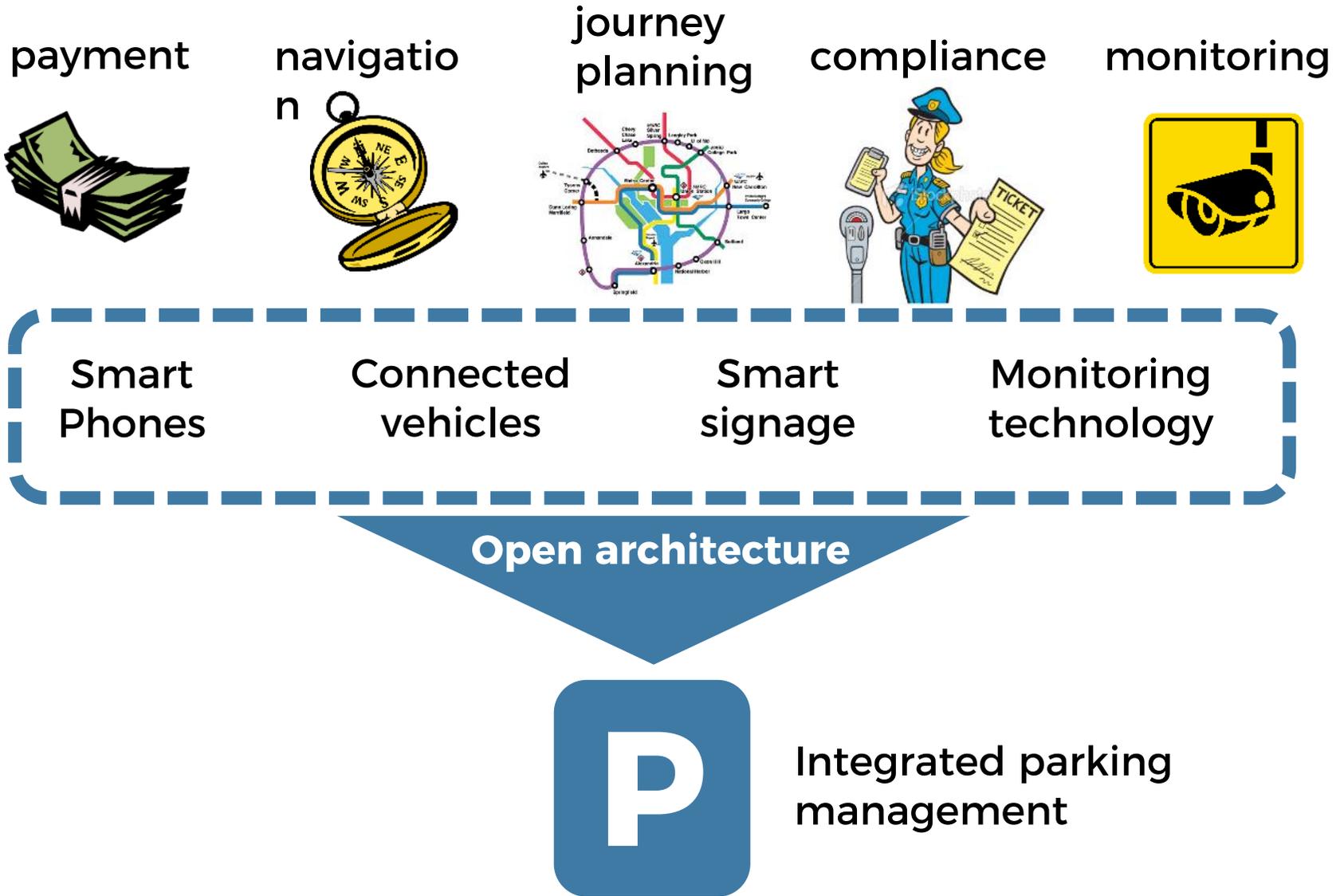
Solution: Improve customer experience through

- Integrated information on access alternatives
- Integrated journey planning and wayfinding
- Increase availability of short-term parking
- Improve ease of compliance with parking regulation

How can technology assist?

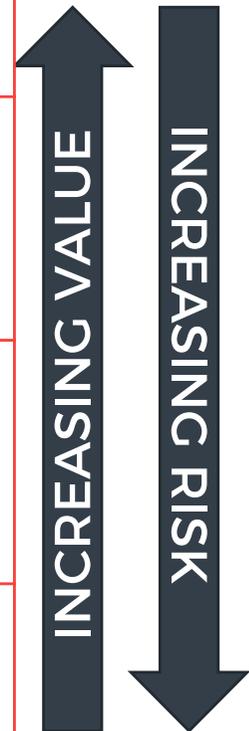


What technologies are changing parking management?



Journey planning and navigation - the role technology can play

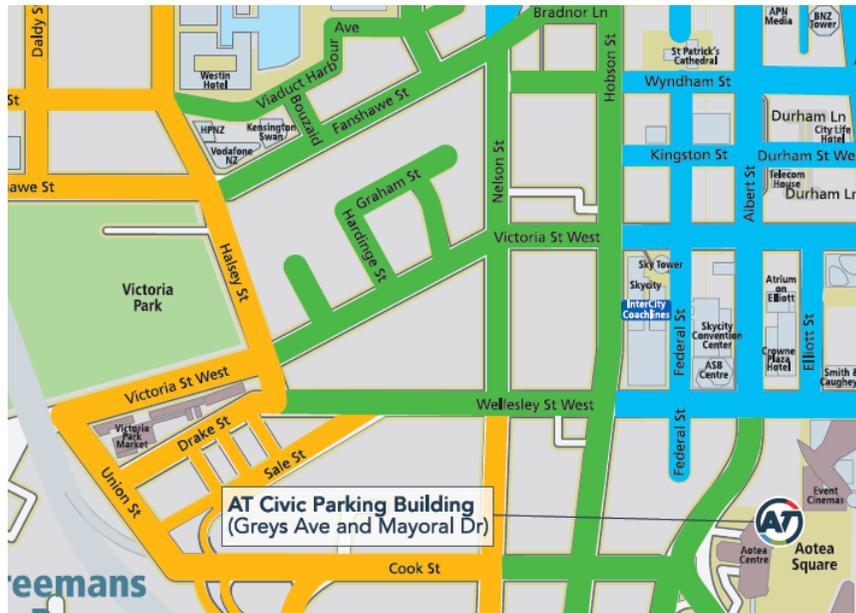
APPLICATION	EXAMPLE	VALUE / RISK
Dynamic wayfinding signs	<ul style="list-style-type: none"> – Edinburgh, UK – Charlotte, NC, USA 	V: Intercepts most drivers R: Different parking providers
Integrated parking information	<ul style="list-style-type: none"> – San Francisco, Cal, USA – Manly, NSW – 3rd party providers 	V: Supports customer decision making R: Different parking providers
Multi-modal journey planning	<ul style="list-style-type: none"> – Helsinki, Finland – West Midlands, UK 	V: Ease of access to alternatives R: Multiple service providers
Mobile parking guidance app	<ul style="list-style-type: none"> – Westminster, UK – San Francisco, Cal, USA (partly discontinued) 	V: Real-time parking info in vehicle R: Driver distraction, racing for spaces



Improve ease of compliance – Customer friendly parking management

- Turnover through pricing, not time limits and fines
- When demand is high, the rate increases with time
- Alerts sent to mobile phone when rate changes
- Mobile or credit card payment of time used
- Allows for reduction of parking regulatory signage

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	Length of stay	
	0-2 hours	2+ hours
Mon-Fri 8am-6pm	\$4 per hour	\$8 per hour
Mon-Fri 6pm-10pm	\$2 per hour	
Sat-Sun 8am-10pm	\$2 per hour	
Mon-Fri 8am-6pm	\$3 per hour	\$6 per hour
Sat 8am-6pm	\$1 per hour	
Mon-Fri 8am-6pm	\$2 per hour	
Sat 8am-6pm	\$1 per hour	
Part hourly payment accepted No time limits		

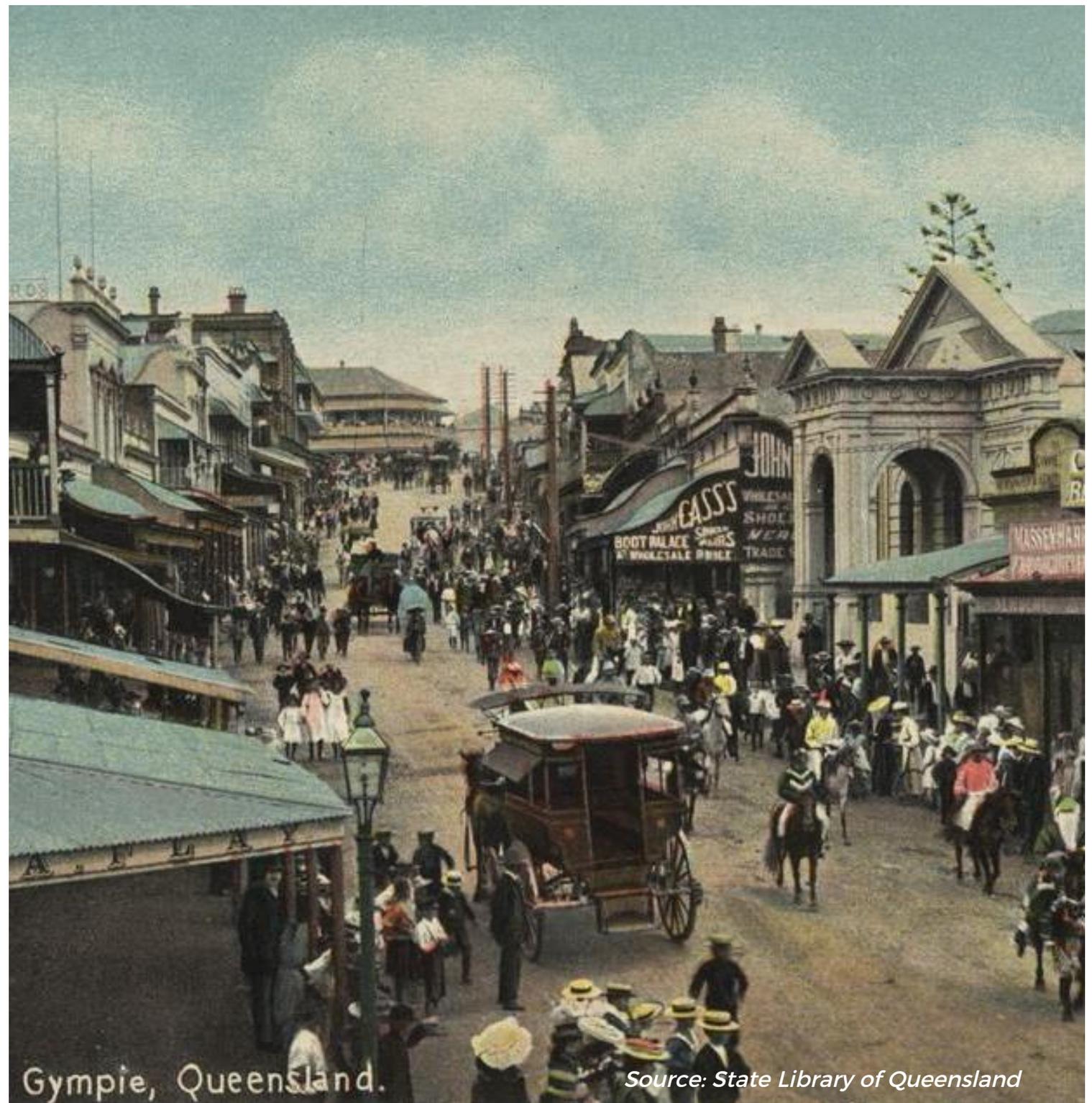


<https://at.govt.nz/about-us/transport-plans-strategies/parking-strategy/>

Technology approaches to monitoring parking

	PARKING BAY MONITORING	DATA ANALYTICS
Technologies	<ul style="list-style-type: none"> – In-ground sensors – Radar sensors – Video analytics & ANPR 	<ul style="list-style-type: none"> – Utilisation surveys using mobile video analytics – Integration of payment and survey data
Advantages	<ul style="list-style-type: none"> – Real-time utilisation data – Wayfinding to spaces – Targeted enforcement – Informed demand management decisions – Low cost for parking lots 	<ul style="list-style-type: none"> – Low cost per parking space – Data detail appropriate for management – Use of available data – Enforcement can provide survey data
Risks	<ul style="list-style-type: none"> – On-street monitoring has high cost and risks – Targeted enforcement is not customer friendly – Impending obsolescence 	<ul style="list-style-type: none"> – Low accuracy of real time utilisation
Suitable applications	<ul style="list-style-type: none"> – Off-street parking – Clearways – Designated parking bays 	<ul style="list-style-type: none"> – On-street parking

How do we prepare for the future?



Gympie, Queensland.

Source: State Library of Queensland

Is the future exciting, or scary?

- Connected vehicle technology
 - Soon to be standard in all new cars
 - Can link with parking management systems
 - Simplify detection, customer interface and payment
- Automated vehicle and driverless vehicle technology
 - likely to be broadly available by 2020
 - expected to be common between 2025 and 2040
 - Will significantly disrupt transport and parking
 - Without policy intervention it could cause
 - increased traffic congestion
 - reduced parking demand
 - Increased pick-up & drop-off demand

Future proofing parking management

Technology that can respond to change

- Open standards and architecture
- Supplier and technology agnostic and plural
- Interoperability and interchangeability of technology
- Australian National ITS Architecture aligned

Supportive policy frameworks that harness technology

- Pricing to manage demand for pick-up/drop-off
- Road user charges based on occupancy
- Parking demand management outside centres
- Parking and battery powered vehicle charging
- Land use policies reducing need to drive