

Smart-service innovation: how we can be great hosts and conserve resources at the same time

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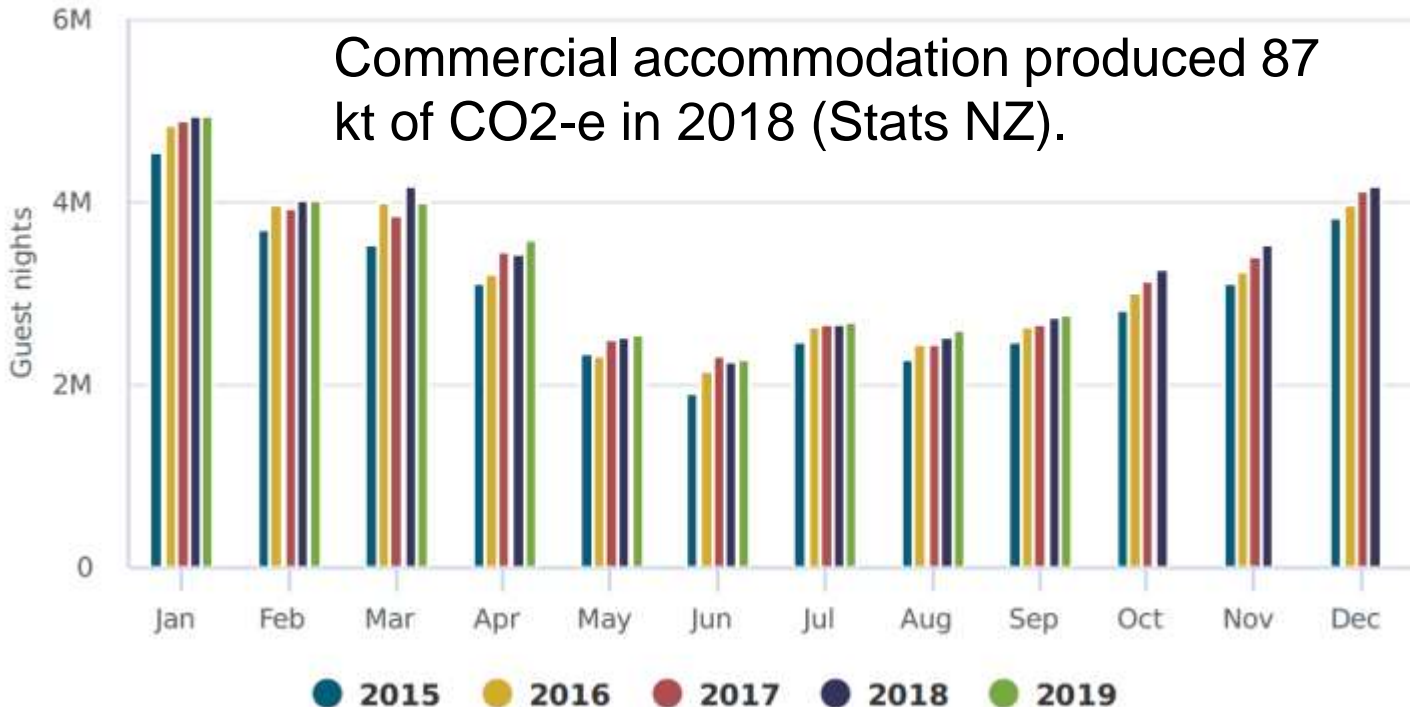


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Why accommodation?

Total guest nights, monthly 2015-19

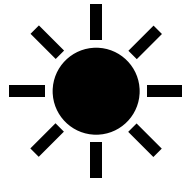
Commercial accommodation produced 87 kt of CO₂-e in 2018 (Stats NZ).



The 'average visitor' in a hotel ...



Consumes
242 MJ
energy per
night



Emits 27 kg
CO₂-e per
night



Uses 660
litres of
water per
night

Most research and practice focuses on technology and management

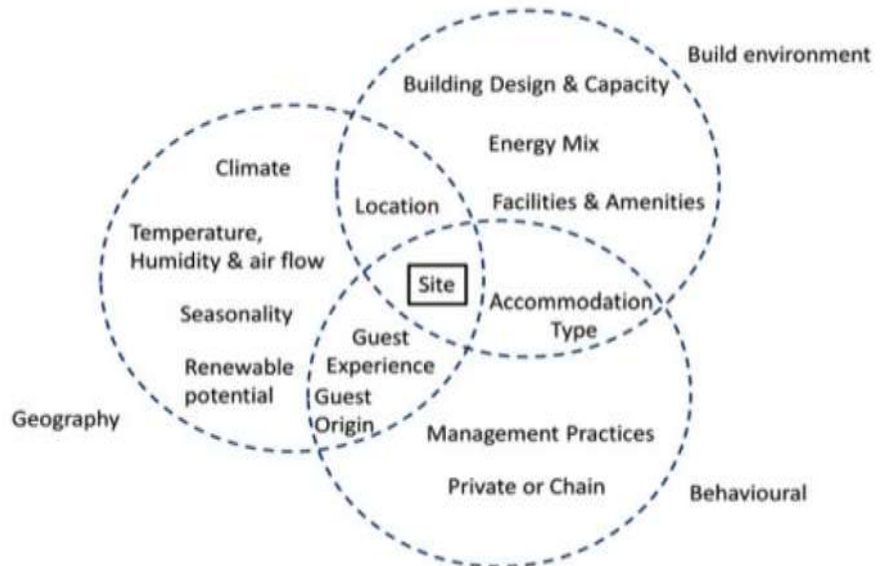
Saving energy and water in tourist accommodation: A systematic literature review (1987–2015)

Christopher Warren  | Susanne Becken

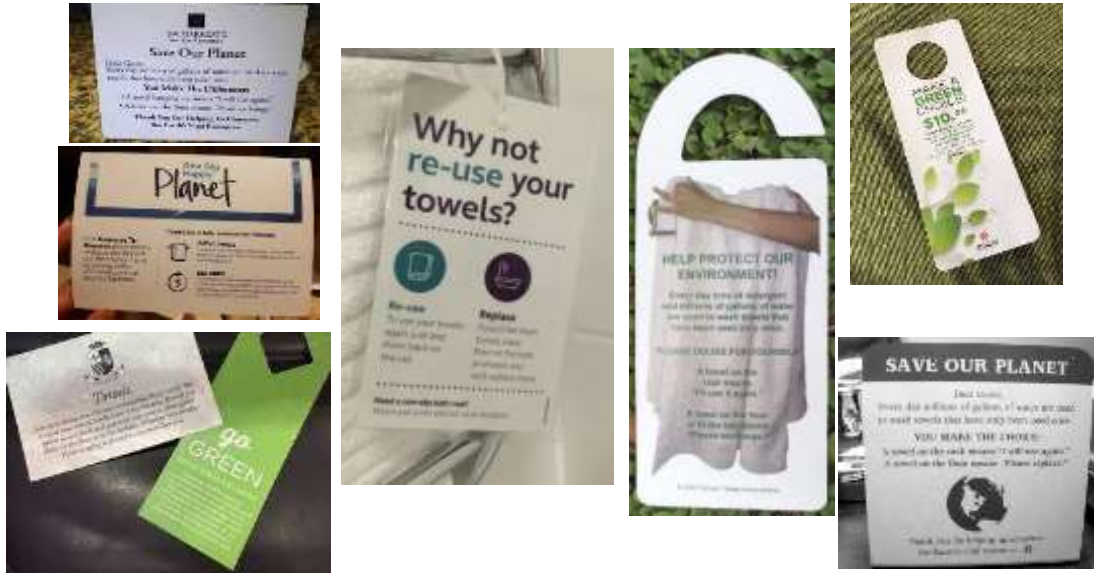
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There is a huge gap in engaging the guest



Except for the use of towels...

Singular approaches for WATER SAVINGS used in experiments

USING TECH + FEEDBACK – smart showers (with/without display panel) **15% reduction** in shower time (51 seconds, or approx. 20l of water saved) (Pereira-Doel, et al., 2019).

NON-TECH BEHAVIOURAL TECHNIQUES (all focussed on linen/towel reuse)

1. Personal communication² **twice as effective** as in-room sign only
2. Guest commitments³, particularly visible commitment, e.g. pin, led to **25% increase** in towel reuse.
3. Injunctive appeals⁴ (“do it, people approve of it”) – **23% more effective** than economic incentives (84% compliance vs 61% compliance)
4. Use of social norms⁵ is **9% more effective** than environmental appeals (44% vs 35% towel reuse)



¹ Knezevic et al., 2021); ² Leon & Araña, 2020; ³ Baca-Motes et al., 2013; ⁴ Morgan & Chompreeda, 2015; ⁵ Goldstein et al., 2007

Reporting on an integrated approach

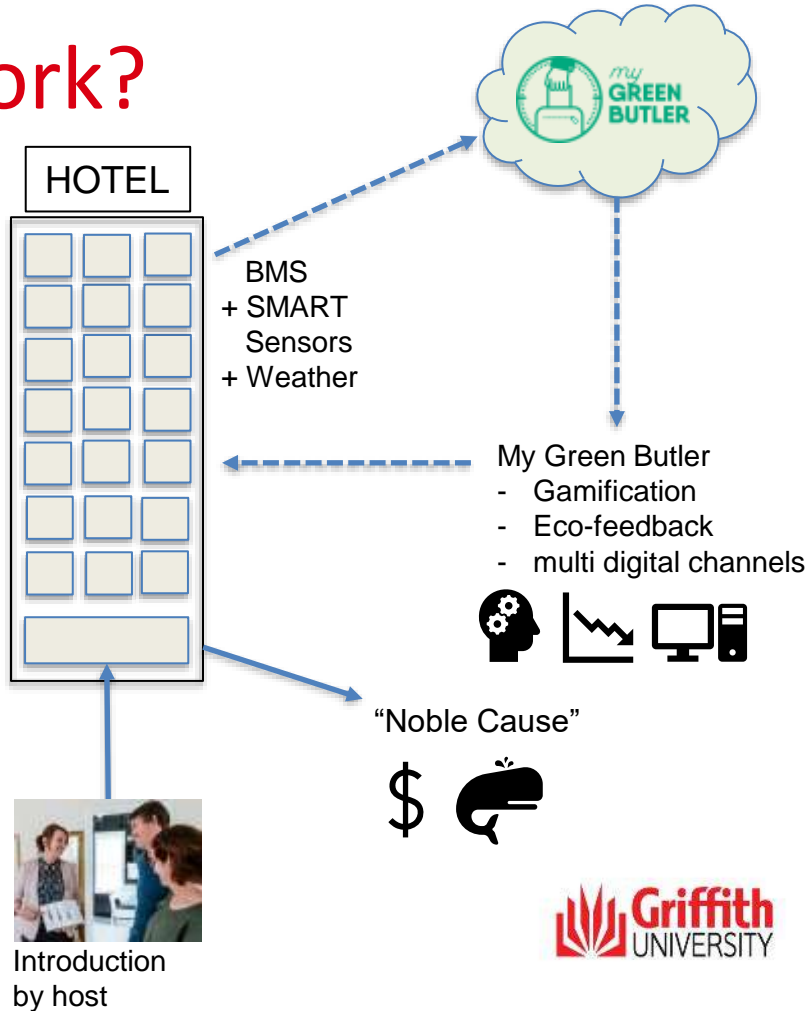


- Uses smart meter technology
- Considers local context and infrastructure
- Persuasive communication targeted at the guest including:
 - eco-feedback on their consumption
 - specific tips that allow guests to understand the impact of their actions



How does it work?

- Guests receive information before arrival and at check in
- Resource use is monitored and shared back in the morning
- Guests have options to make choices
- Resource savings are donated to a charity.



Information, for example...

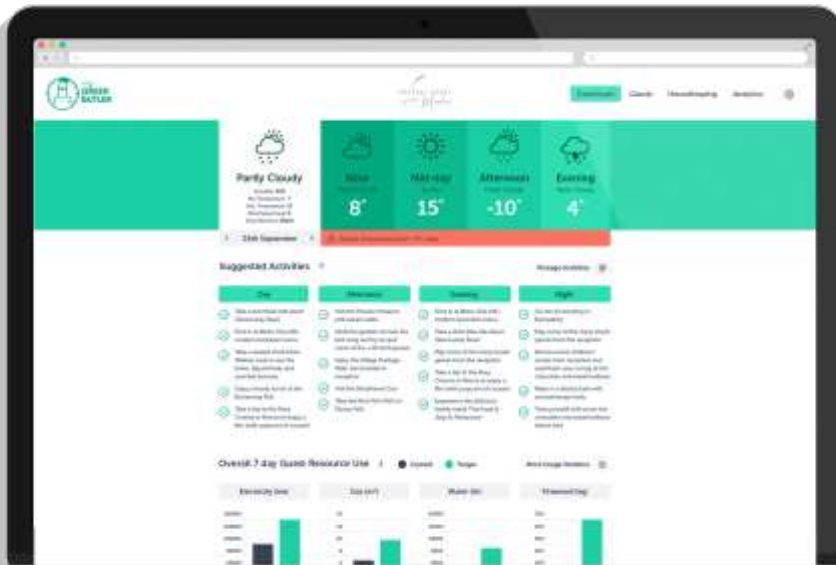
- About the local climate and other factors (e.g. drought)
- What the business itself is doing!
- Some suggestions for how to conserve
- What services are available, e.g. bikes, extra blankets
- May sign a pledge

Really! You want me to save energy when all the lights were on when I entered my room!!!



Eco-feedback

- Daily feedback on resource use
- Alongside data on 'average'
- And weather + activity suggestions

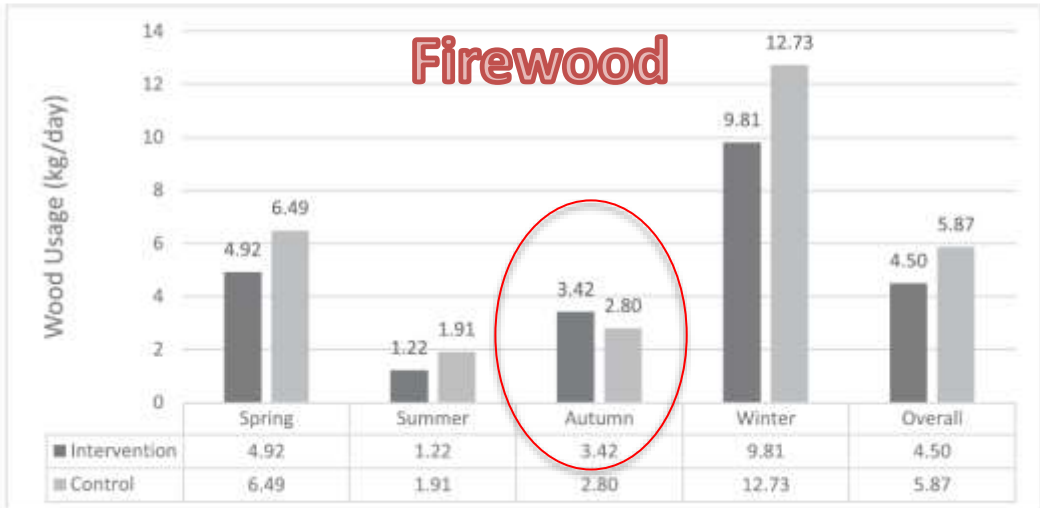
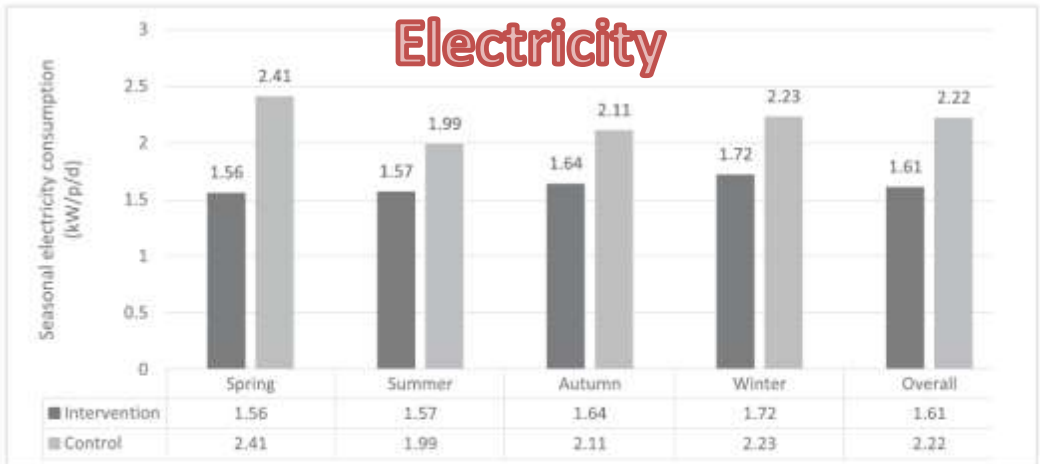


Guest options

Example thermal comfort



Warren, C., Becken, S., Nguyen, K. & Stewart, R. (2018). Impact of a sustainability smart service on daily resource use in self-contained B&B style tourist accommodation. *Journal of Cleaner Production*, 201, 599-608.



Experience-led resource saving

- In our research, guests responded that the eco-feedback “strongly added” (24.5%), “tended to add” (49.1%) or was “neutral” (26.4%) to their experience.
- ...learning new things, getting closer to nature, ‘doing things’ with the kids, leaving a positive impact, or simply being competitive...



Donating savings

- For example, New Zealand – biodiversity protection and restoration
- Important incentive for guests to contribute or 'give back'



Conclusion

- Social-technological innovation as the next big opportunity for change.
- Can achieve substantial additional savings
- It creates a huge opportunity to 'reconnect people'



Questions

