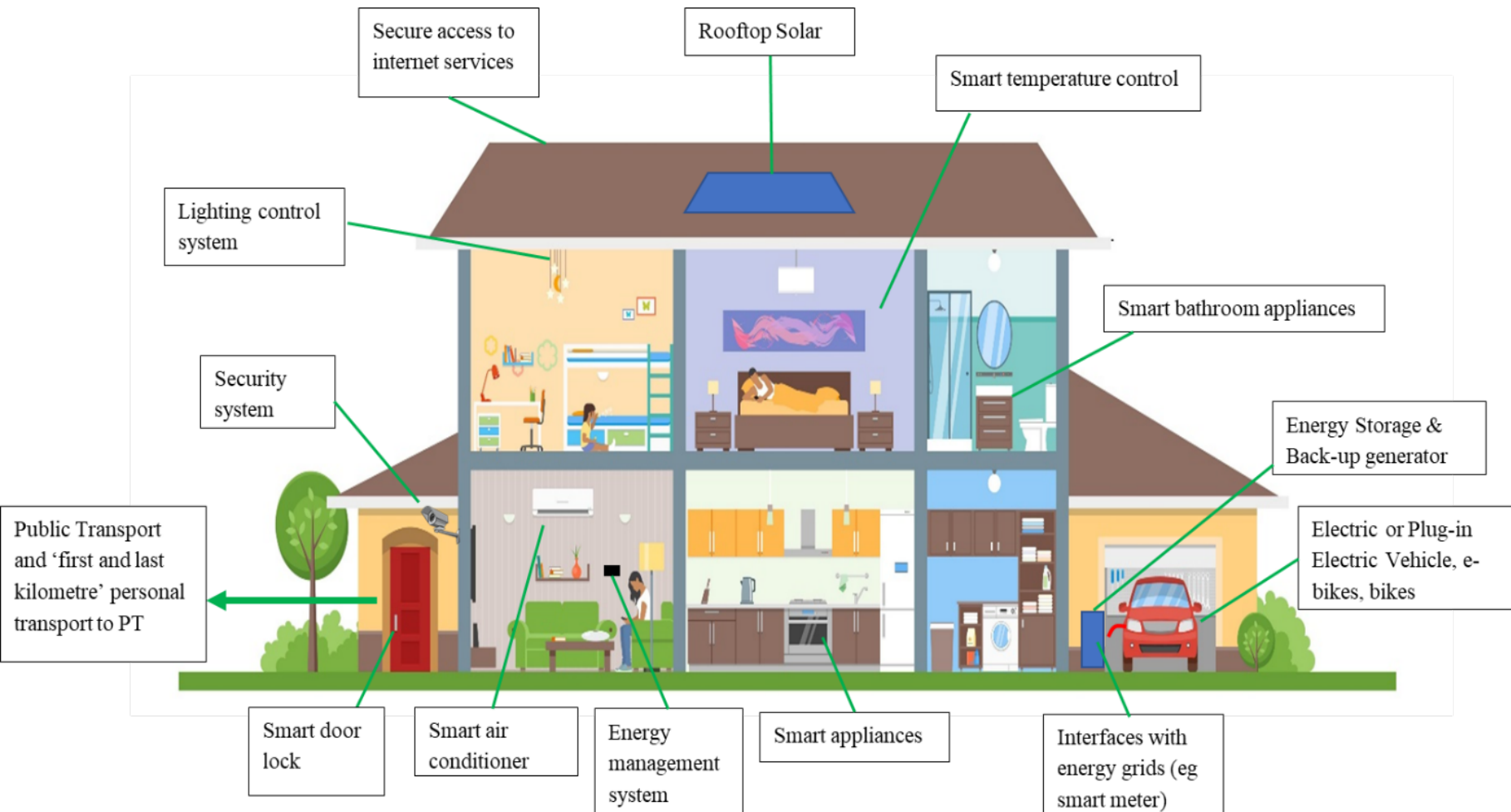


# Smart Homes (digitalisation and connection) and Households – how can vulnerable households benefit?

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Fuel Poverty Research Network

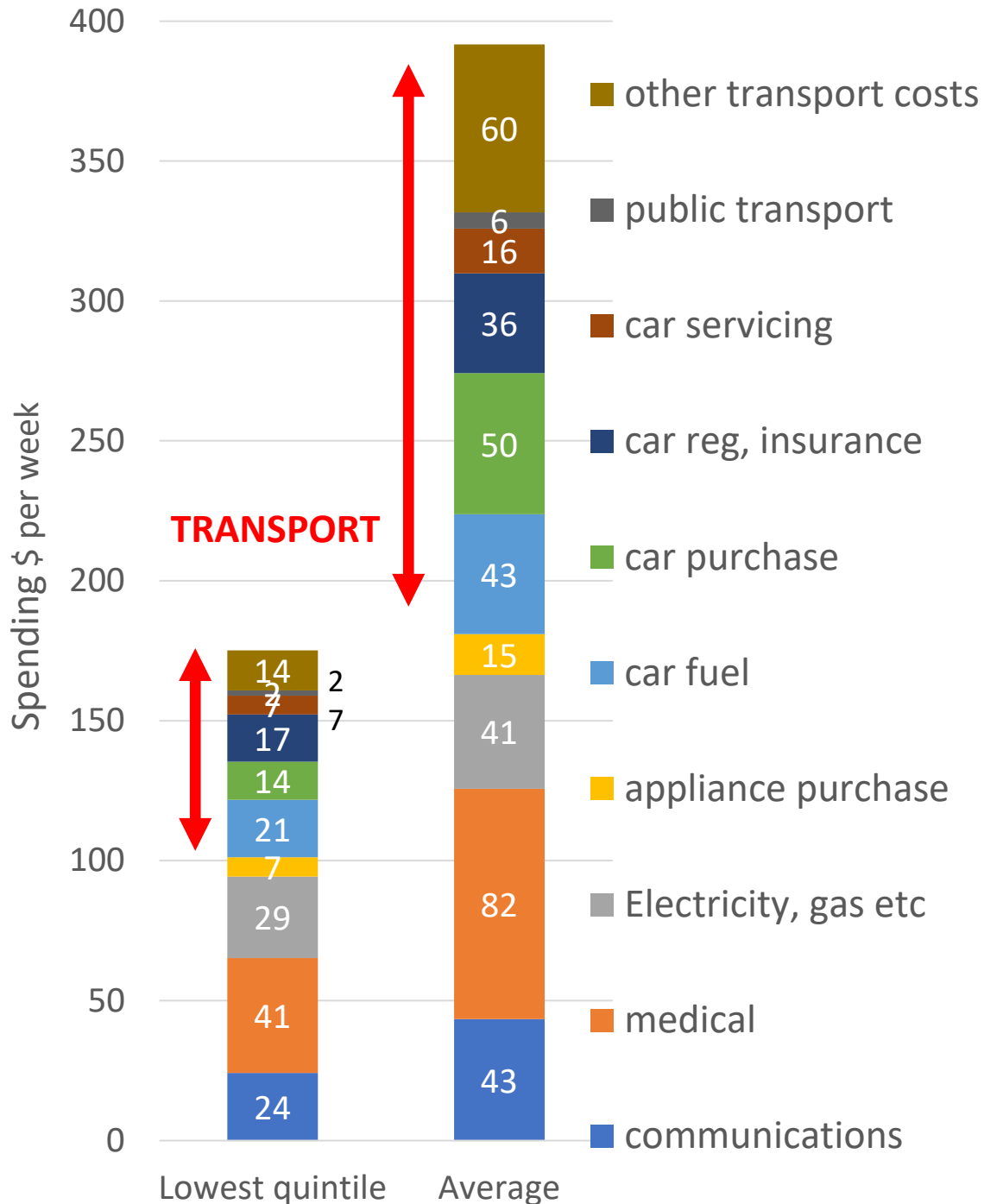


**Integrating information from multiple data streams opens up many possibilities!**

From Pears and Moore chapter in *Decarbonising the Built Environment* Newton P et al, 2019, Palgrave Macmillan

Context: most promotion of 'smart' focuses on comfort, convenience, luxury.....

- Reality: most purchase decisions are NOT made with much consideration of operating energy costs and associated carbon emissions: other factors usually dominate – eg laptop computer, air fryer, house etc
- Information, education, performance standards etc can help – eg appliance energy labelling, mandated building performance
- Many vulnerable households buy second-hand and rent, so they face
  - Thermally poor buildings
  - Inefficient appliances
  - Poor locations relative to access/public transport
- Many benefits of 'smart' are invisible but real, eg how much is 'time' or 'health' worth?



How significant is spending on selected activities potentially affected by digitalisation?

Household expenditure – low income and average

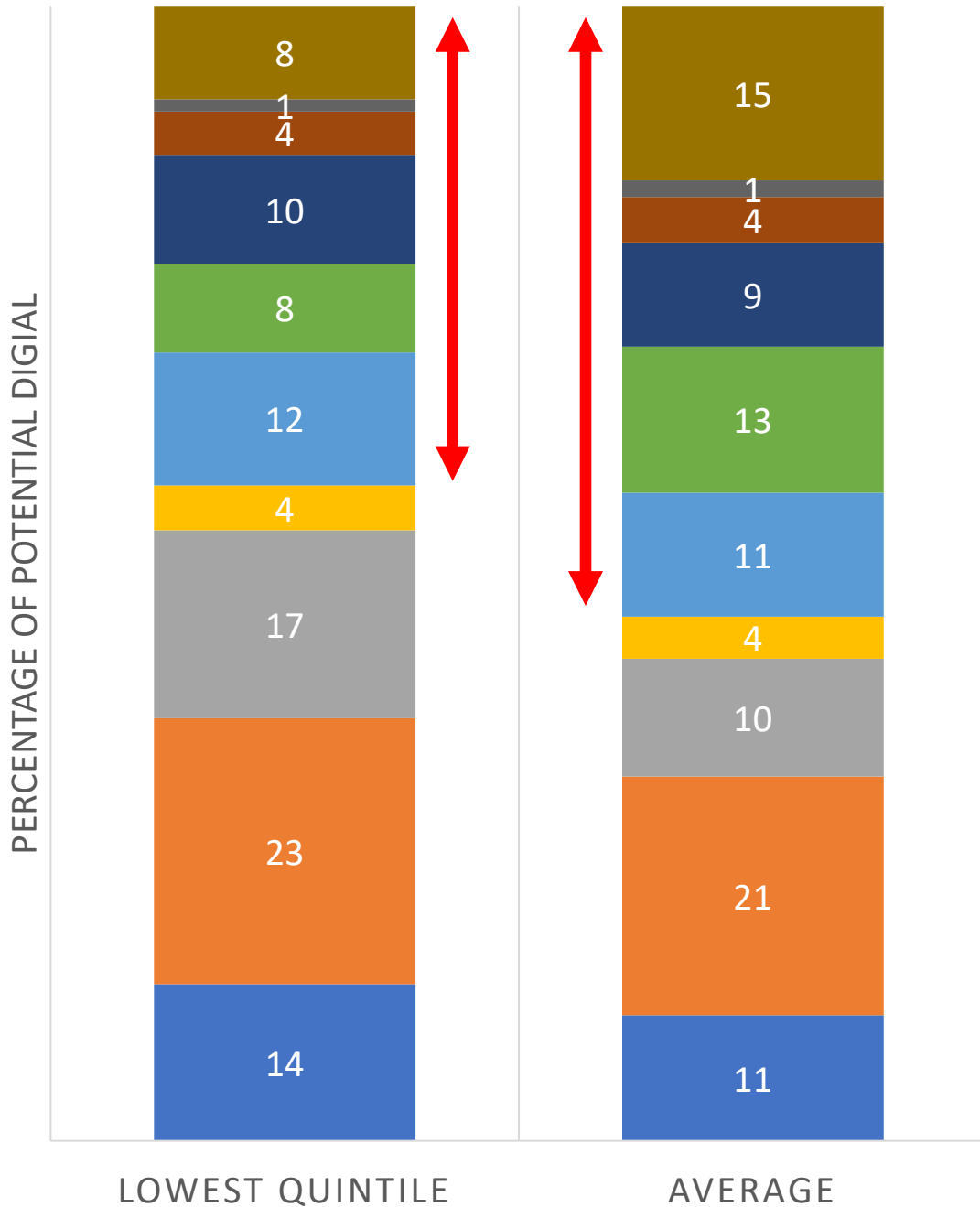
2015-16 Australian household expenditure data (ABS)  
 Weekly expenditure for lowest quintile and average households – 27.7% of total weekly spending of \$632 (\$175) for lowest quintile and 27.5% of \$1425 (\$392) for average

**Lots of complex interactions, eg**

- Building energy and health/amenity/environment;
- Home location and transport
- Cost/time/independence/safety/environment...

**Other areas that may be affected:**

- Food purchases \$114/\$237 (18% wasted)
- Purchases of goods and services \$\$\$
- <https://www.weforum.org/agenda/2022/05/how-digital-solutions-can-reduce-global-emissions/>



## Comparison of shares of spending on potential digital measures

- other transport costs
- public transport
- car servicing
- car reg, insurance
- car purchase
- car fuel
- appliance purchase
- Electricity, gas etc
- medical
- communications

2015-16 Australian household expenditure data (ABS)  
 Weekly expenditure on activities potentially influenced by digitalisation for lowest quintile and average households – \$175 (28%) of total weekly spending of \$632 for lowest quintile and \$392 (27%) of \$1425 for average household

# How can digitalisation help vulnerable households?

- Transport:
  - Avoid need to own and use cars – good access to services, e-bikes and mobility scooters, flexible on-demand transport, virtual service delivery
- Medical:
  - Encouragement to monitor health and apply preventive measures
  - Virtual health service delivery and digitalisation of health technologies
  - Information on importance of maintaining healthy temperatures and improved thermal performance – pressure for governments to mandate decent performance
  - Feedback on operating costs of heating/cooling appliances and scope to reduce them – eg fans cost 2 cents/hour; shading, insulation, draft-sealing etc
- Household energy:
  - Real time and historical feedback on what activities drive energy use
  - Advice on energy contracts/tariffs based on real data
  - Help to get best prices on appliances (including access to second-hand appliances that have demonstrated efficient performance)
- Well-priced and energy-efficient communications services and IT devices
- How much are time and anxiety worth?