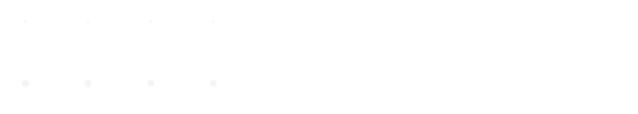


From the mind to the meter: *Empowering User Engagement*

Kristen E. Brown, PhD
ARPA-E Fellow



Adoption of energy efficient technology leads to...

**23% less
energy usage
per year**

**\$130B annual
energy savings**

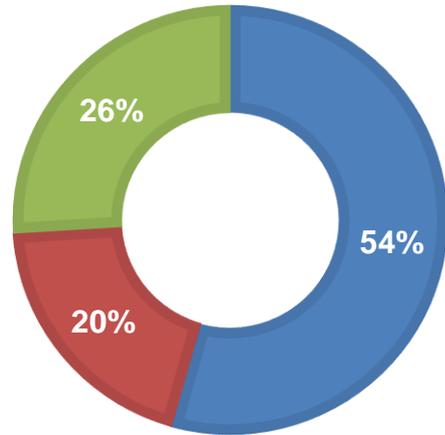
200+ energy management systems



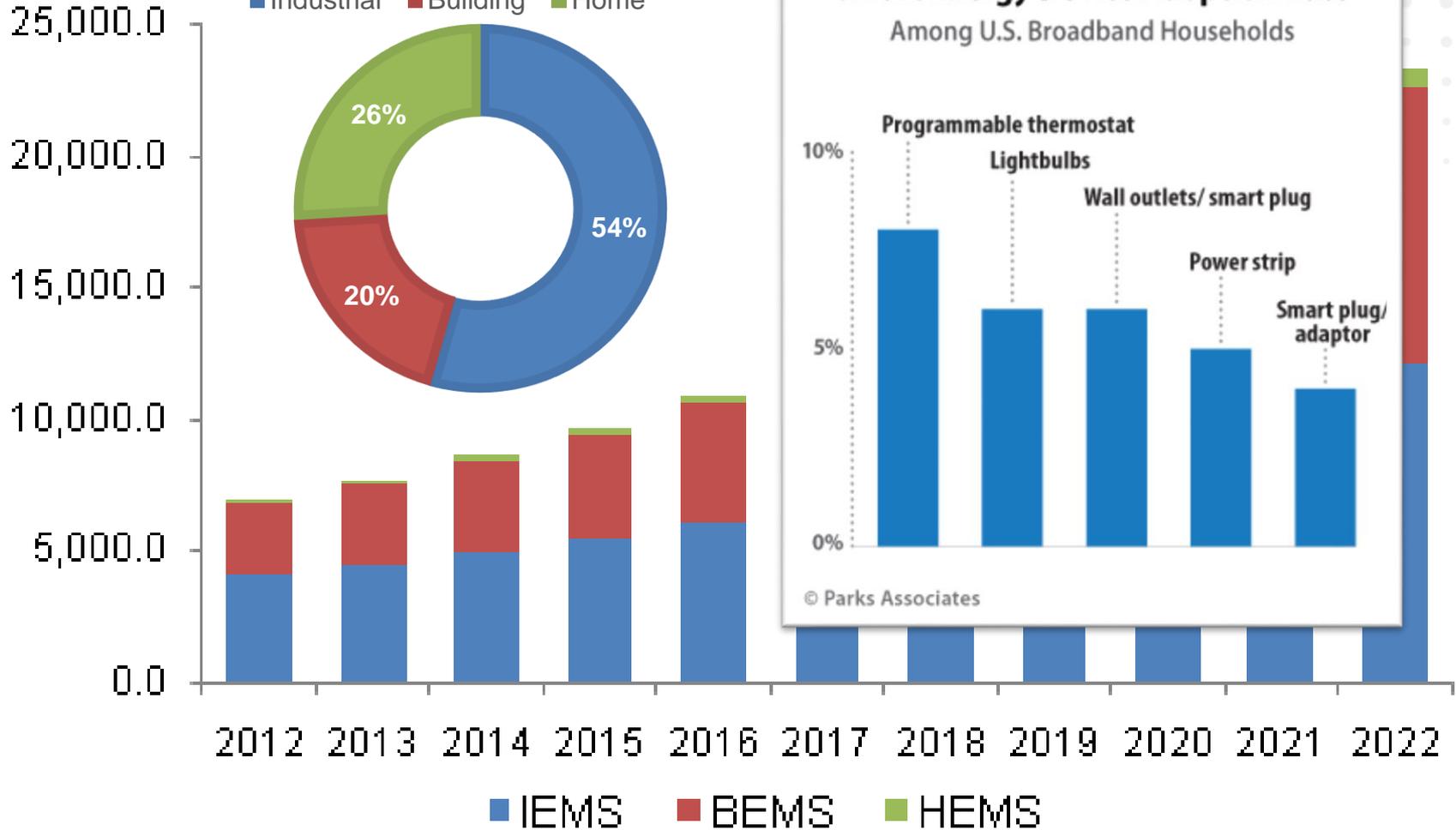
Residential market penetration remains low

% OF TOTAL ENERGY USE

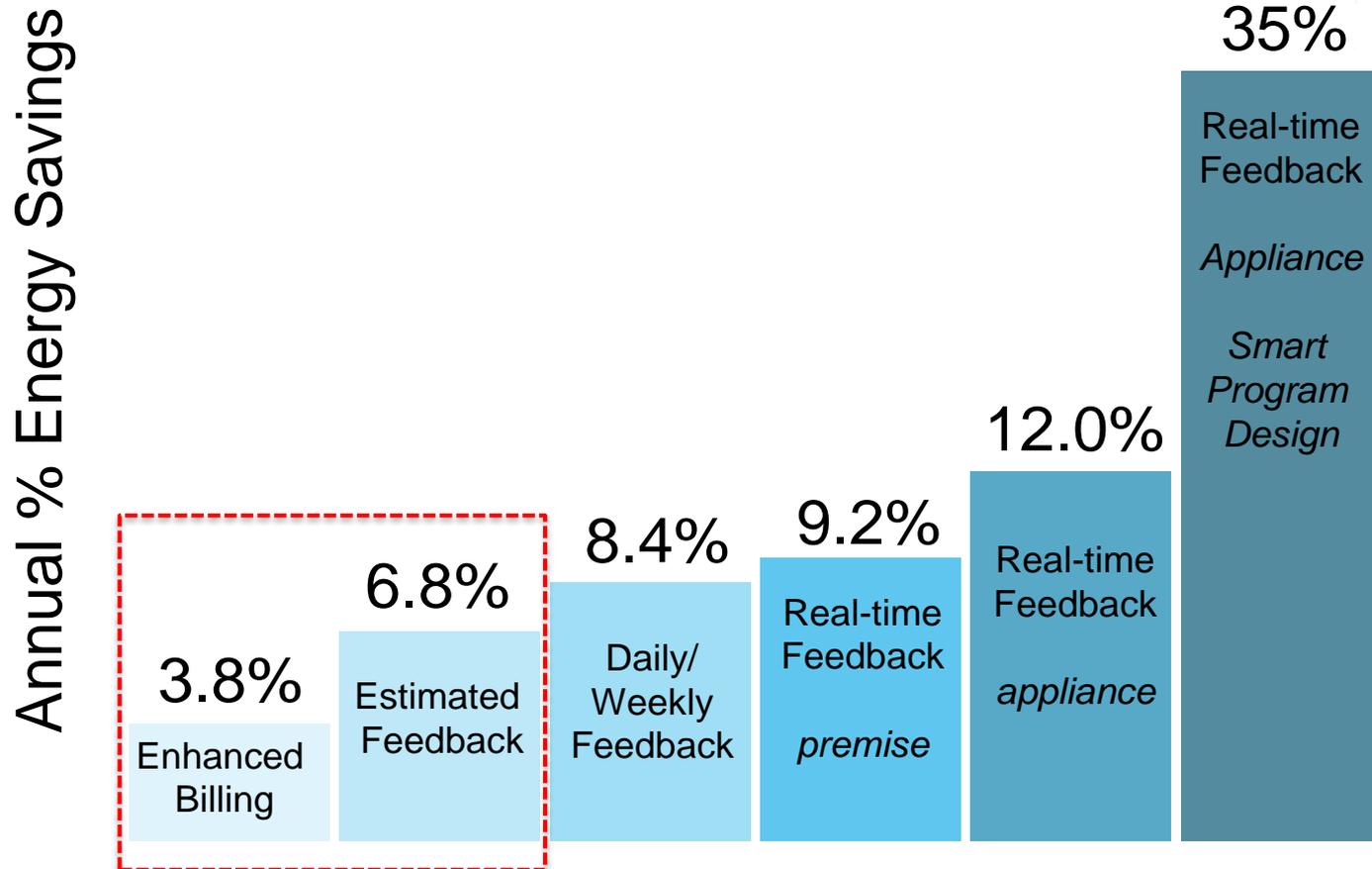
Industrial Building Home



EMS Revenue (USD Million)



Management systems are not maximally effective



Customer inaction driven by...

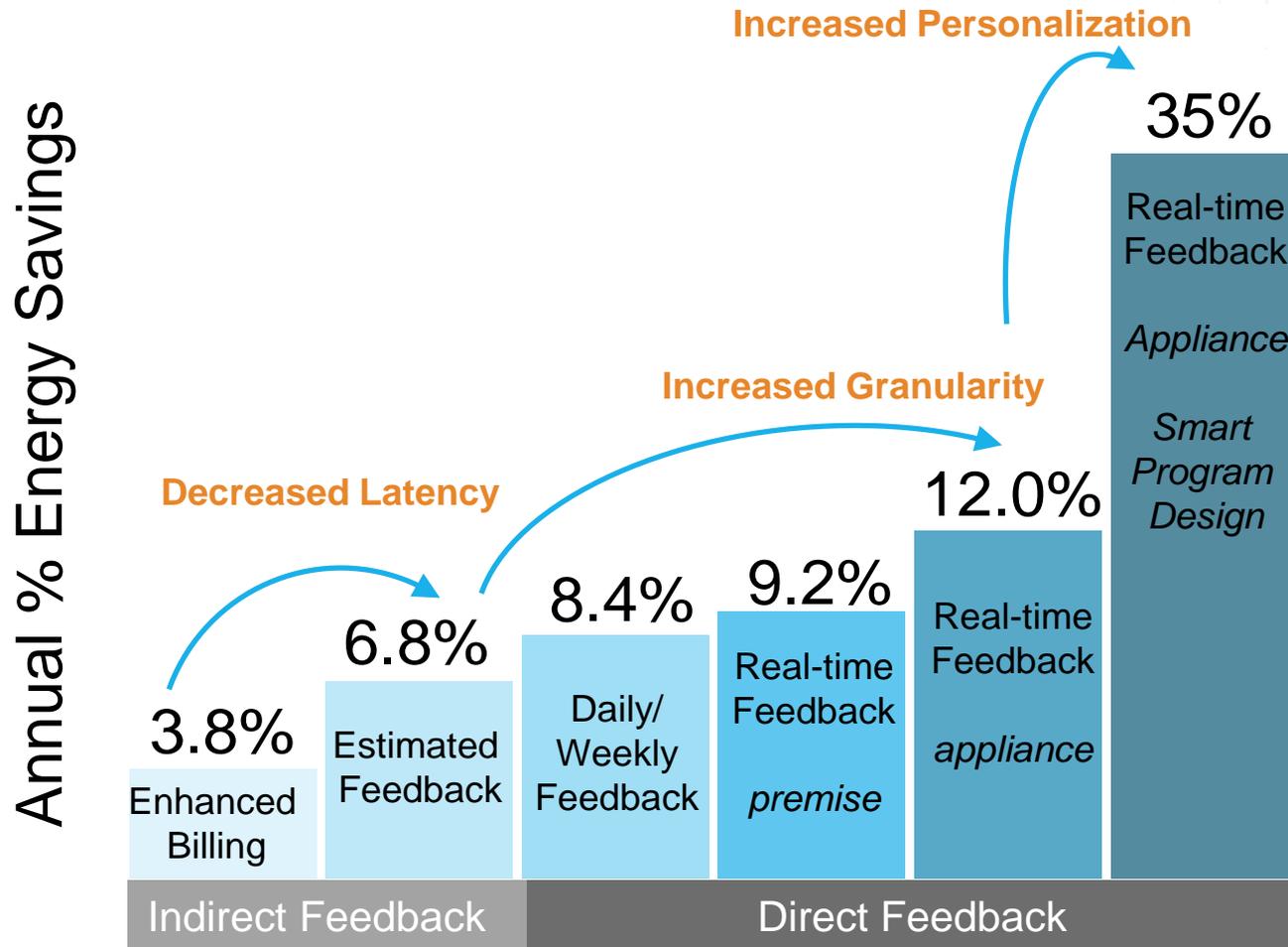


- ▶ Lack of understanding (of products/services)
- ▶ Lack of time (to shop or set up)
- ▶ Lack of money (to invest)
- ▶ Lack of relevance (to daily life)

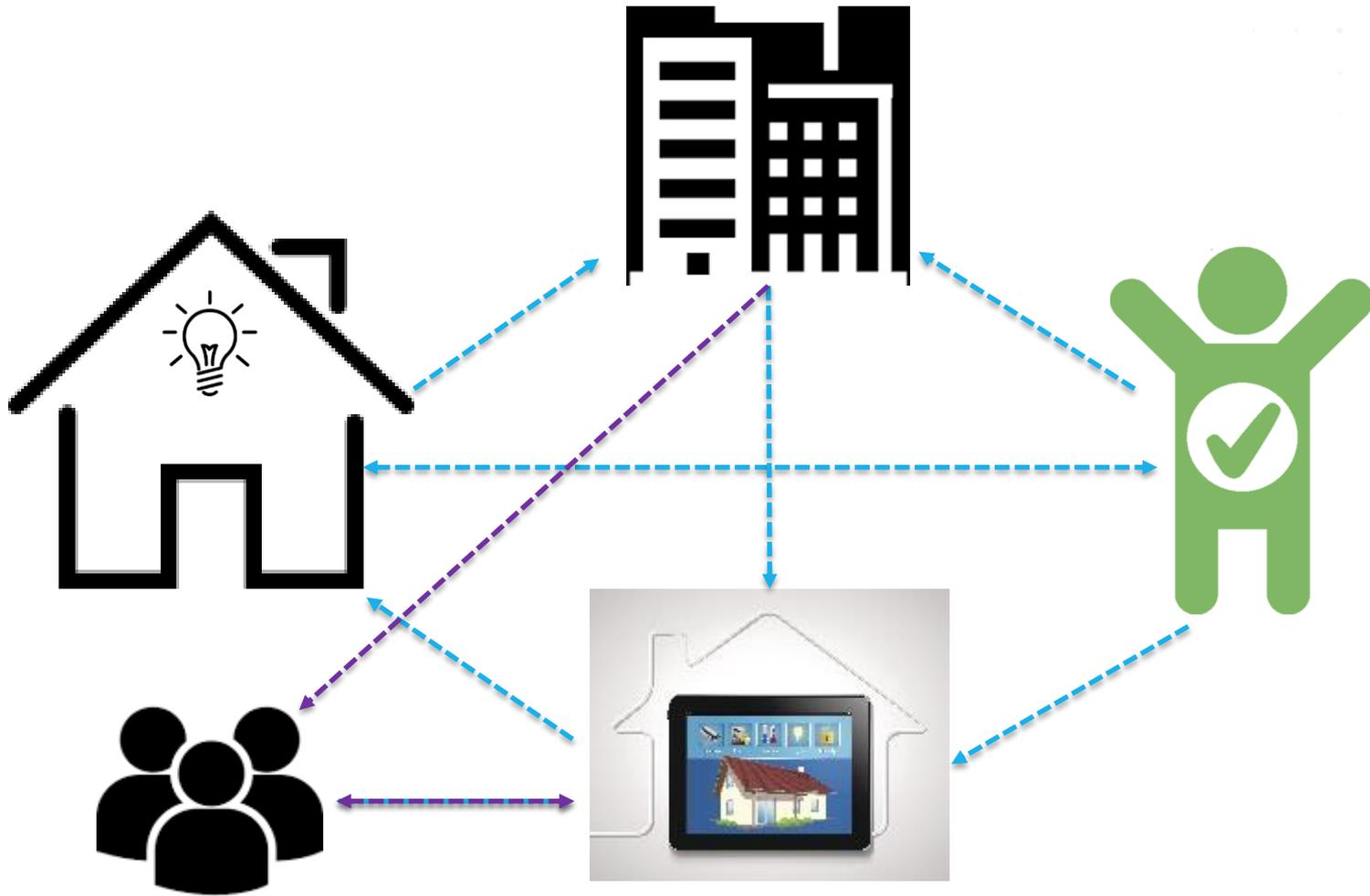


Design a better system

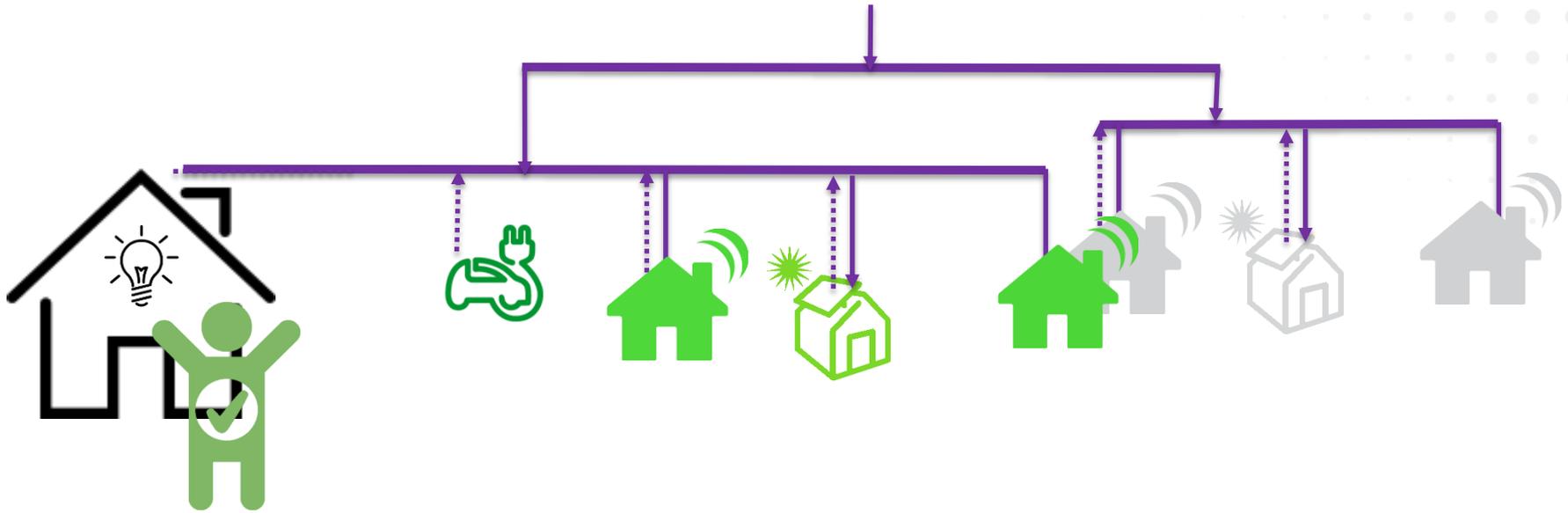
Better feedback provides better results



Fix the breakdown in information transfer



Impact extends beyond the customer



Research Opportunities

User sensing
Open access data
BEMS adaptability