

M&V 2.0 WORKSHOP

NEEP Annual Meeting

Michelle A. Marean

Wednesday, March 30–31, 2016

White Paper

Changing EM&V Paradigm – Landscape of New Tools & Data Analytics

A Review of Key Trends and New Industry Developments, and Their Implications on Current and Future EM&V Practices

prepared by



Ungraded

What's new?

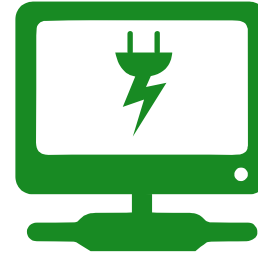


Energy analytics

Software

Potential to analyze higher volume & higher frequency data collection

Cloud-based platforms & products for rapid high-volume processing



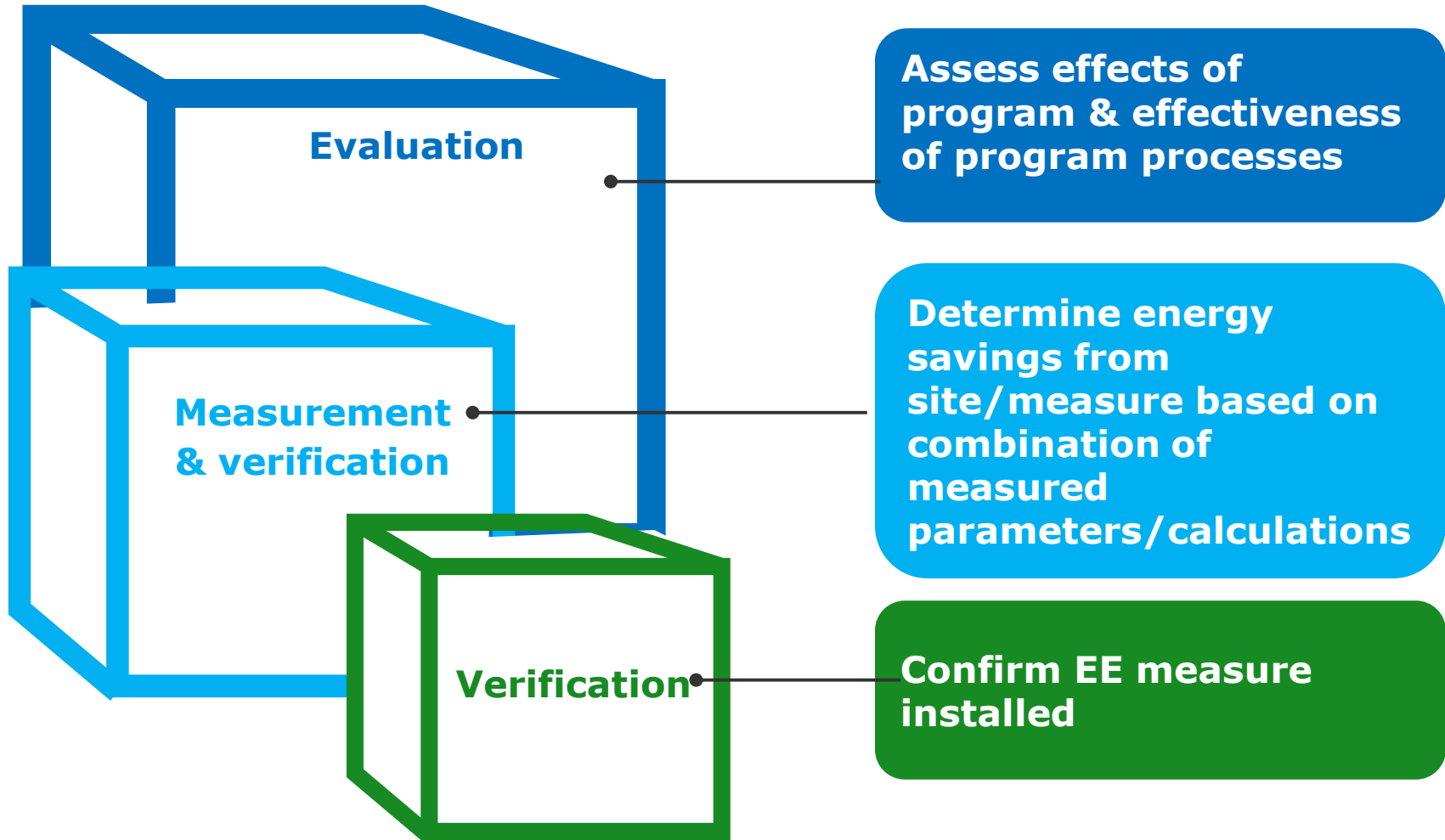
Improved data collection tools & more data availability

Hardware

Smart meters, smart thermostats, NILM, HEMS

New ways to collect data
Potential to increase amount & types of data collected

What are E M & V?



Ungraded

Analysis tools

Term

New key features



**Expanded
energy analytics**

- **Tools, systems and technology to take advantage of high volume data**
- Combine predictive & conventional analytics
- Machine learning
- Big data
- Cloud platform for high-volume processing



**Automated
M&V**

- **Automated processing of whole premise consumption data**
- High-volume
- Cloud platform
- Rapid turnaround
- Machine learning
- Software as a Service –SaaS

Ungraded

Data collection

Term

New key features



AMI

- Large-scale, high-volume interval data
- 2-way communication



**Smart(er)
thermostats
and HEMS**

- Machine learning
- Behind the meter
- 2-way communication, monitoring, feedback
- Cloud platform

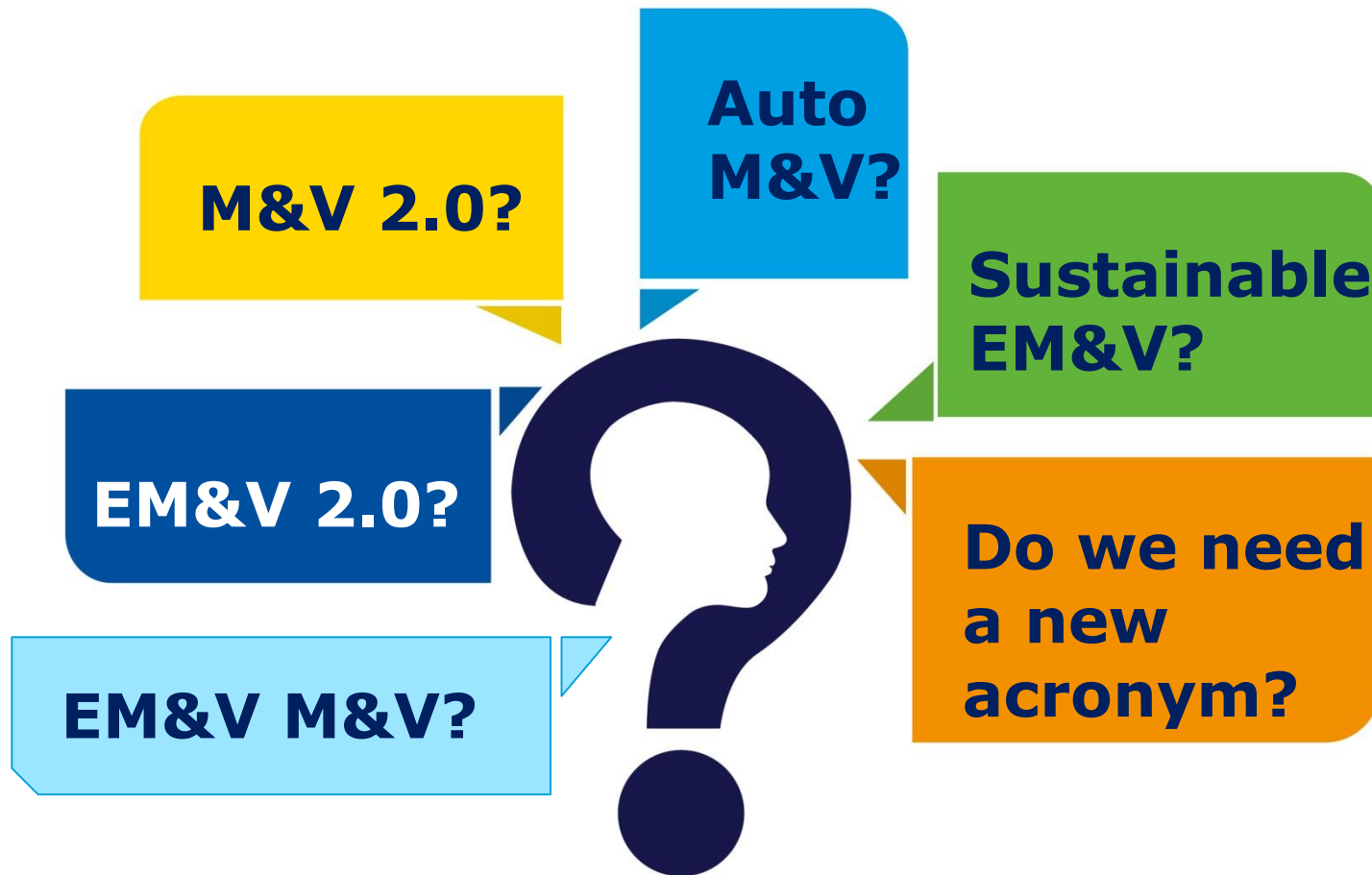


NILM

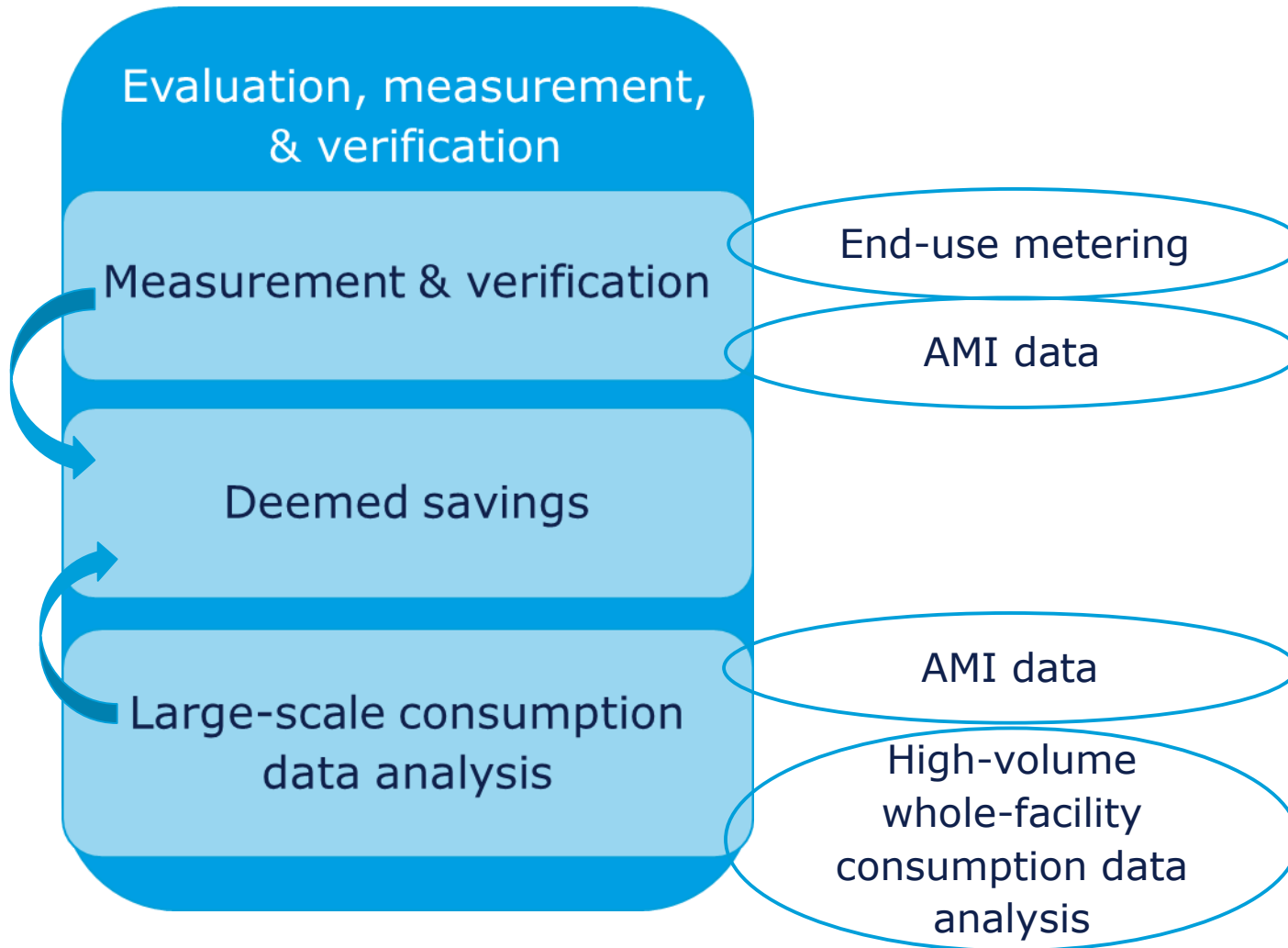
- Non-intrusive load monitoring
- Behind the meter
- End-use metering at high frequency at appliance level

Ungraded

What do we call these new approaches?



Where do new tools fit into evaluation?



Ungraded

Understanding & engaging customers

- Advanced data collection & analysis tools/systems offer new opportunities

Delivery

- Project ID, feedback, engagement, problem solving

Evaluation

- Early results, finer resolution, segmentation



Privacy?



Ungraded

merci dakujem nar et thanks
asante cheers nar gracias
Thank You
grazie to danke merci

Thank you!