

# Technology & Innovation

**IDEAS FOR DISCUSSION  
TO FURTHER DIGITAL ENERGY PROGRESS**

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SEPTEMBER 2017**

accenture<sup>></sup>strategy

# DISTRIBUTED/DIGITAL ENERGY RISING

**Solar** installations in US reach 42.3 GW in 2017.  
68% annual average growth in the last 10 yrs.  
Solar PV prices fall 53% in 5 yrs.  
Solar is top source of new electric capacity in 2016.

- SEIA

C&I **microgrid** global capacity to reach 448 MW in 2017

Growing at a 31.8% CAGR  
Expected to reach 5,389 MW by 2026

- Navigant

**Battery** tech reaches \$300 per kWh today  
Was \$1000 per kWh in 2010  
Expected to reach \$ 120 per kWh by 2030

- Bloomberg New Energy

94% of utilities in 2017 perceive a compelling reason to invest in renewable energy.  
Consensus is that the future is a cleaner, **distributed grid**.

- Utility Dive

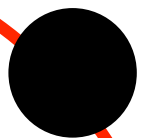
60 GW of global **wind** capacity installations expected in 2017.  
Global total expected to rise to 800 GW by 2021, with Asia leading the charge.

- GWEC

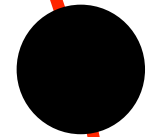
Global **smart electric meter** market reached \$6.5B USD in 2016  
Expected to reach \$11B by 2024

- Frost & Sullivan

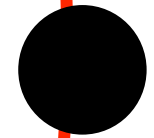
# RISKS/BARRIERS/OBSTACLES



**Cyber-Physical Security**



**Privacy**



**Performance**



**Safety**

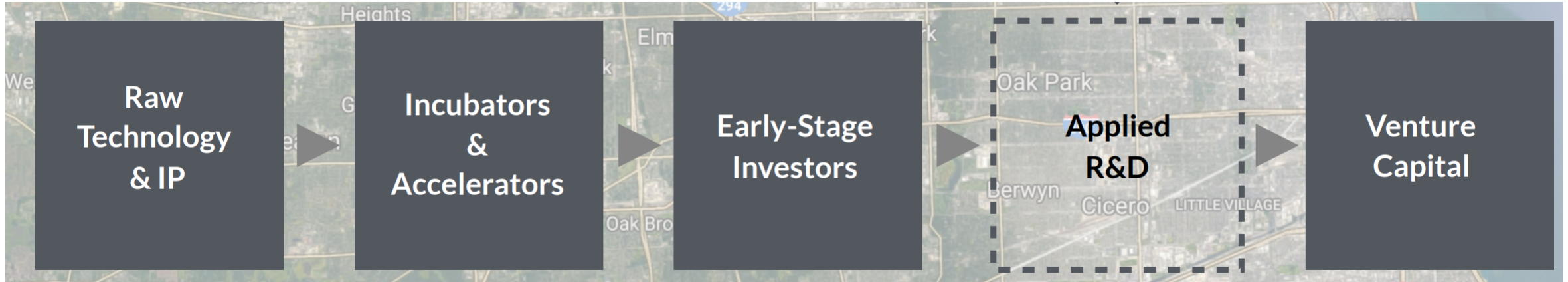


**Reliability**



**Interoperability**

# NEED FOR APPLIED R&D / TESTING



- Faster societal progress requires an open, transparent research effort in the field
- All the right players need to be involved (e.g. standards & codes bodies, academics, start-ups, insurers, financiers, regulators, utilities, etc.)
- Requires a “neutral” venue, with appropriate industry know-how
- Customer engagement mechanism, especially low-income demographic

# UTILITIES: DIGITAL OPPORTUNITIES

We have expanded the depth of services we offer across the entire value chain – driven by our rotation to the New (~50%)





# **OBSERVATIONS FROM CLIENT INTERACTIONS SINCE SEPTEMBER 2015**

- Huge acceleration in interest in technology
- Cloud now often assumed but potential not clear
- Huge diversity in understanding.  
Many executives only see the trees
- Major increase in concern about societal impact of technologies
- Fledgling focus on data
- Hardly any understanding of AI – wishful thinking about Watson
- Anxious to get going on no regret moves, AI and IoT pilots but often lack a cohesive framework

# HIGH PRIORITY RESEARCH FOCUS AREAS

- Existing market reform to make DER competitive (e.g. Capacity Markets)
- Potential for new financial architecture to facilitate DR
- Continued experiments w/ Front of Meter Storage

