



# Emerging Technologies

Technology Assessments | Innovation Analysis | Market Intelligence

# Our Proven Utility Tools and Resources to Manage the Transition

Focus on UtiliVATION



**UtiliAPP** - Methodology for prioritizing data and analytics investments across a utility



**UtiliVATION** - A series of innovation frameworks and market insights



**UtiliGRIDMOD** - Processes and tools to embark on large grid modernization programs



**UtiliPERFORM** - Suite of tools for utilities to become operationally excellent



**UtiliSME** – Utility strategy management, planning and execution services



# UtiliVATION – Innovation Management for Utilities



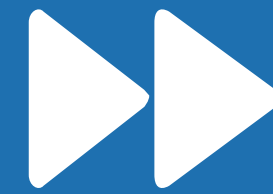
A comprehensive series of innovation frameworks and market insights

**Overview** – UtiliVATION is a series of frameworks and insights that provide innovation analysis and market intelligence for utilities and grid edge companies. We track, analyze and rate new developments. For utilities we provide analysis on VC, partnership and in house innovation models by having a true understanding of emerging technologies and opportunities across the value chain.

## Overview



## Approach



**Approach** – Our commercial availability analysis and market assessment approaches rapidly decreases the time a utility would take to deploy new innovative technologies. For utilities looking to embed innovation as part of their R&D and broader business, Indigo works alongside departments to develop innovation management capabilities and capture highest value opportunities.

**Tools** – UtiliVATION is a series of tools and methods that includes an innovation prioritization matrix and business case evaluation process. In addition, Indigo brings its repository of submarket trackers and commercial availability analysis to bear on each engagement.



## Tools

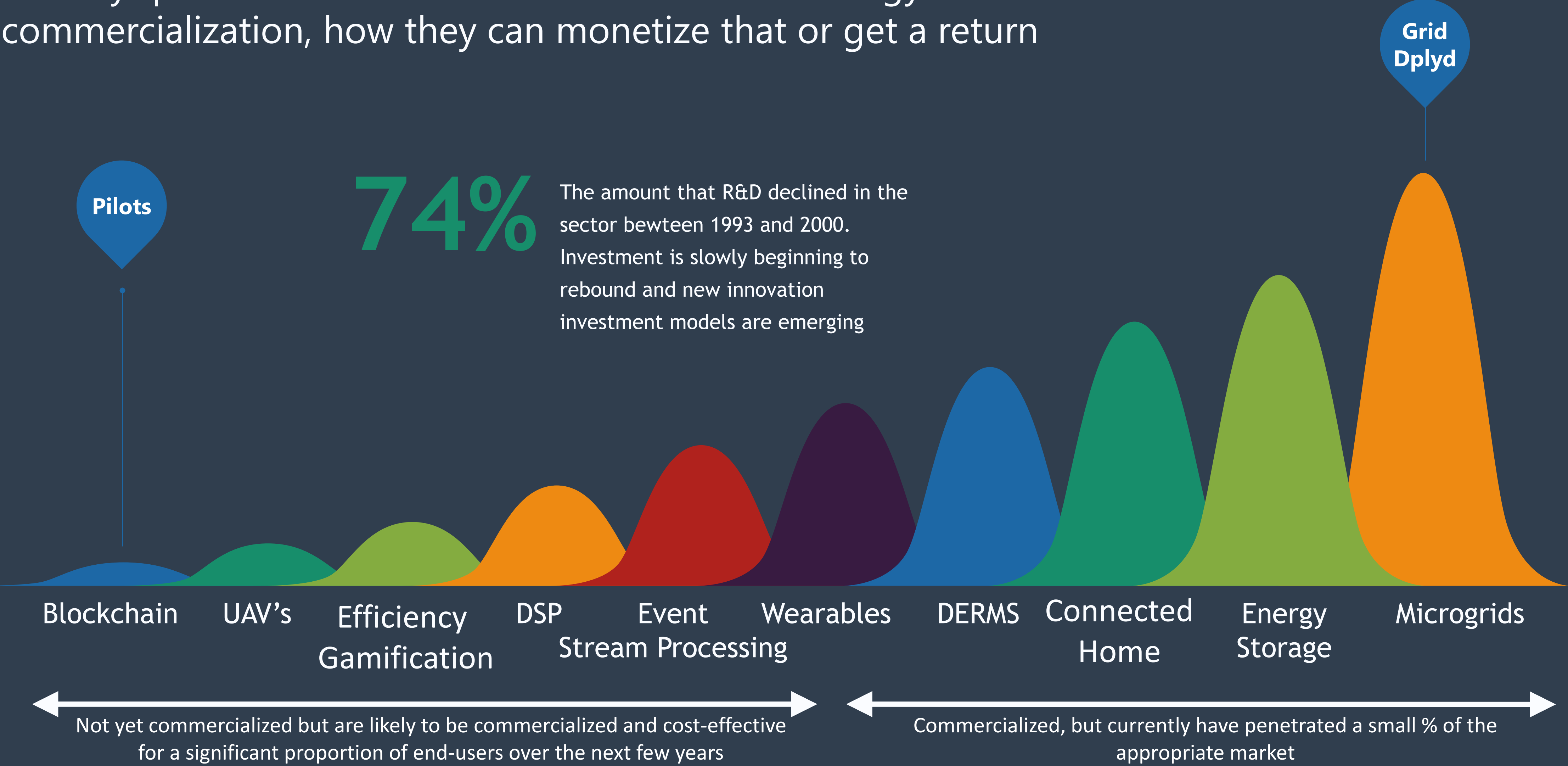


## Outcomes

**Outcomes** – The rapid deployment of innovative projects and initiatives including technical deployments, new ways of working and business model evaluation and integration. Outcomes also include the identification of investment and partnership opportunities for utilities and grid edge companies.

# What's Hype, What's for R&D and What's Ready for Deployment

The key question for utilities is even when a technology crosses the chasm to commercialization, how they can monetize that or get a return



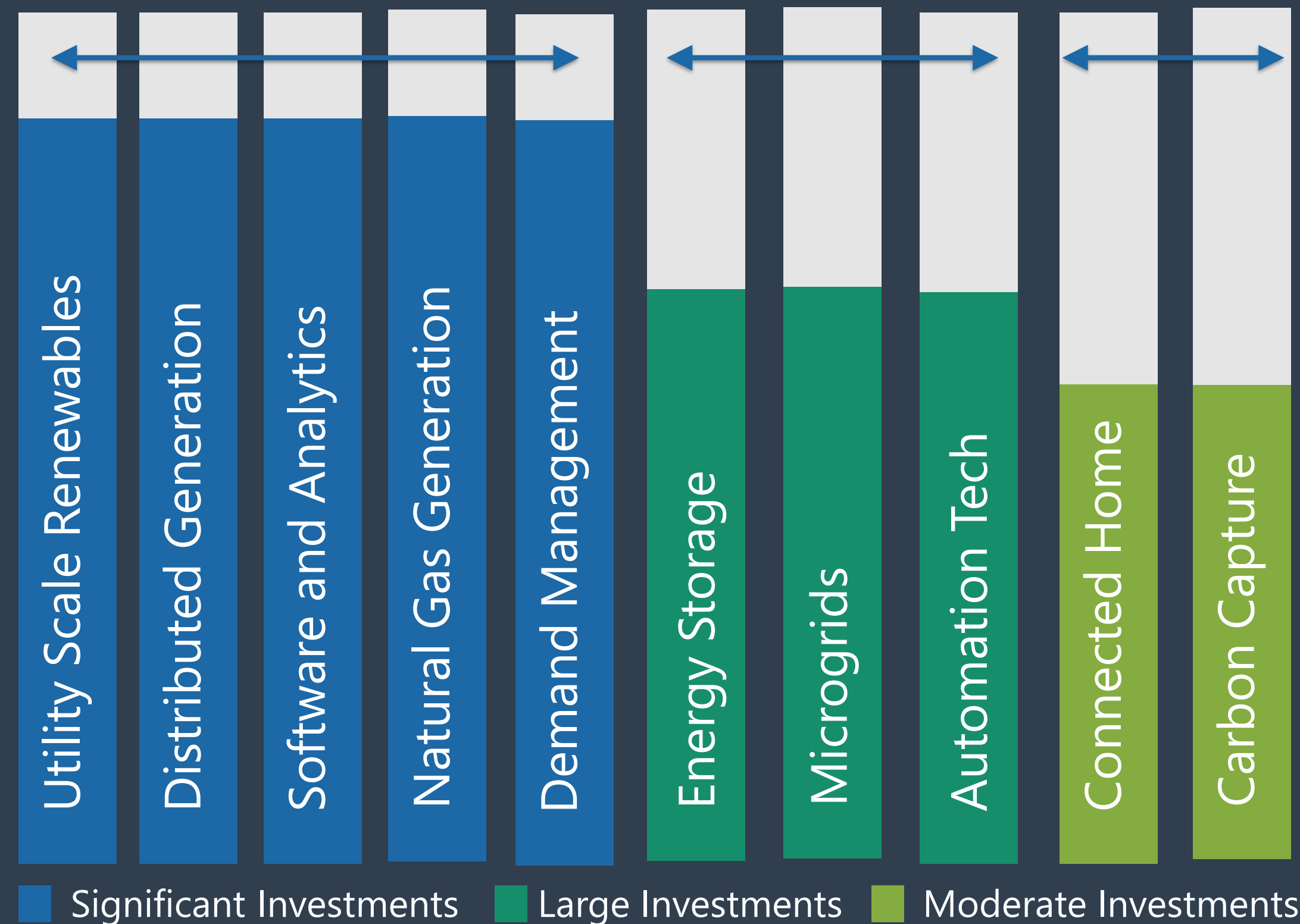


# New Technologies - Utilities are Increasing Investment

Investment patterns are emerging on both sides of the meter

## Driving Factors

- Grid security and business continuity
- Grid modernization and energy delivery
- Clean energy and fuel diversity
- Customer focused solutions
- Environmental policy adoption and fleet transition



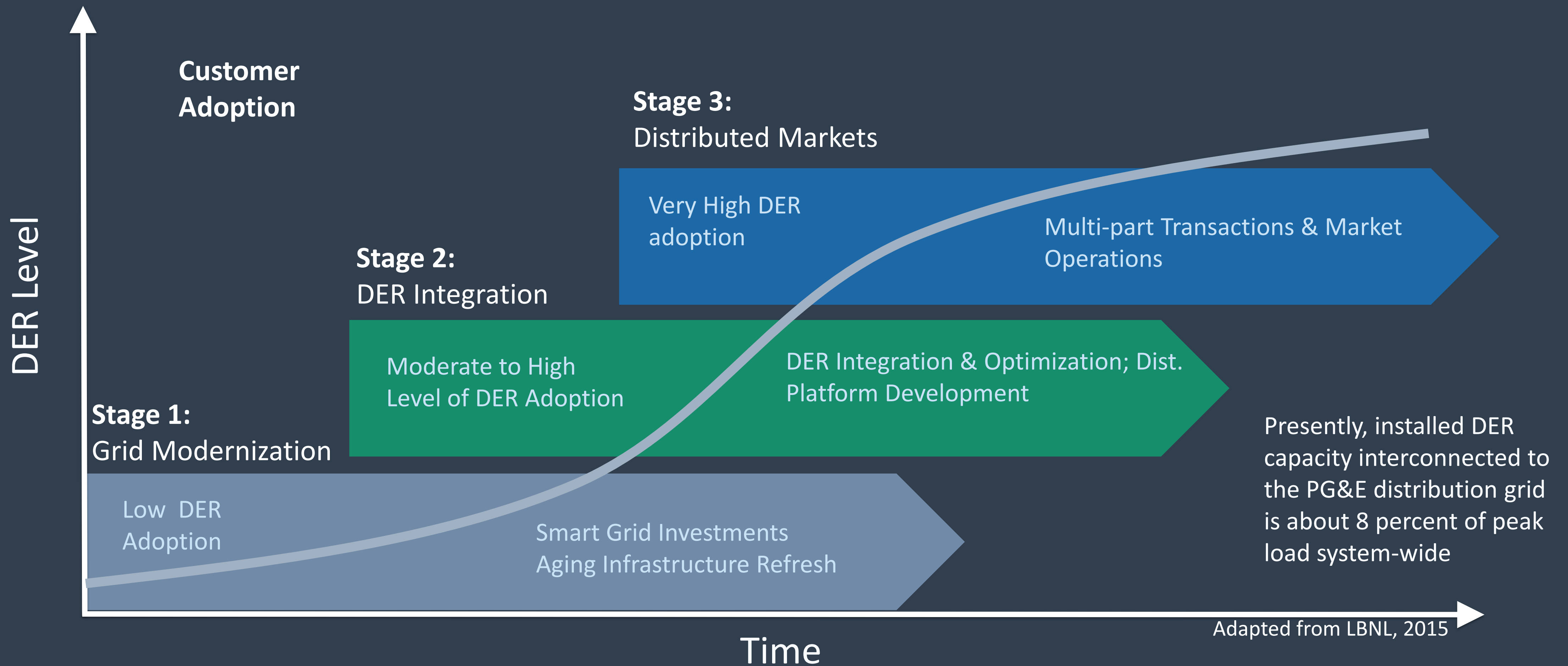
## Uncertain Factors

- Pace of technology change
- Ongoing regulatory uncertainty
- Increasing competition behind the meter
- Increasingly engaged customer segments
- Capability development

The pace of technology investment is accelerating across the industry. For example, as well as pursuing a grid edge investment strategy through its corporate venture arm, Exelon plans to invest \$25bn on critical infrastructure, smart grid technology and other reliability and customer service improvements at its utilities over the next five years to benefit its 10 million electric and gas customers. Across the country we are seeing similar large technology investments being made by power companies.

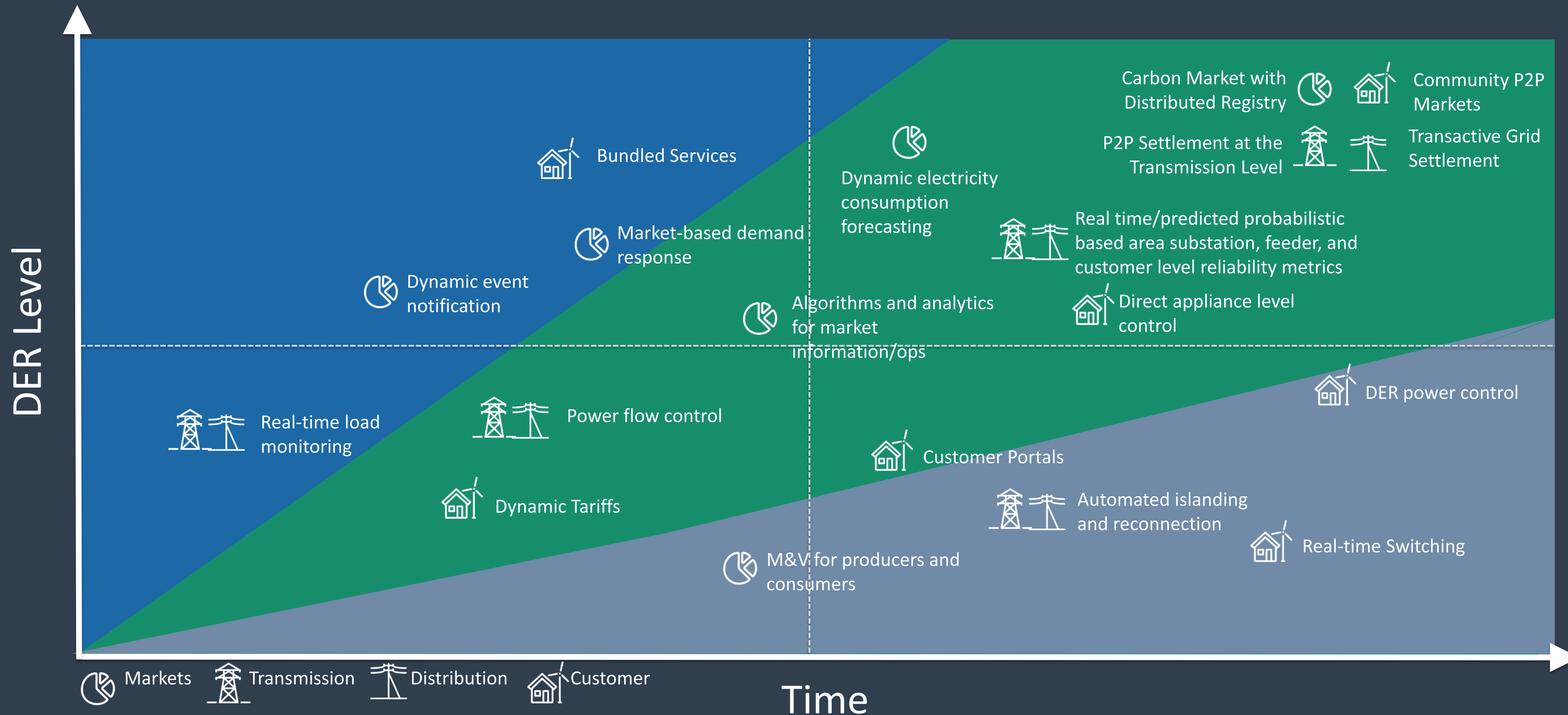
# Distribution system changes for DER transactions

High levels of DERs may provide an opportunity to optimize grid investments and improve overall power system performance and economic efficiency, however, significant coordination and investment is needed across aggregators, system operators and technical architecture design



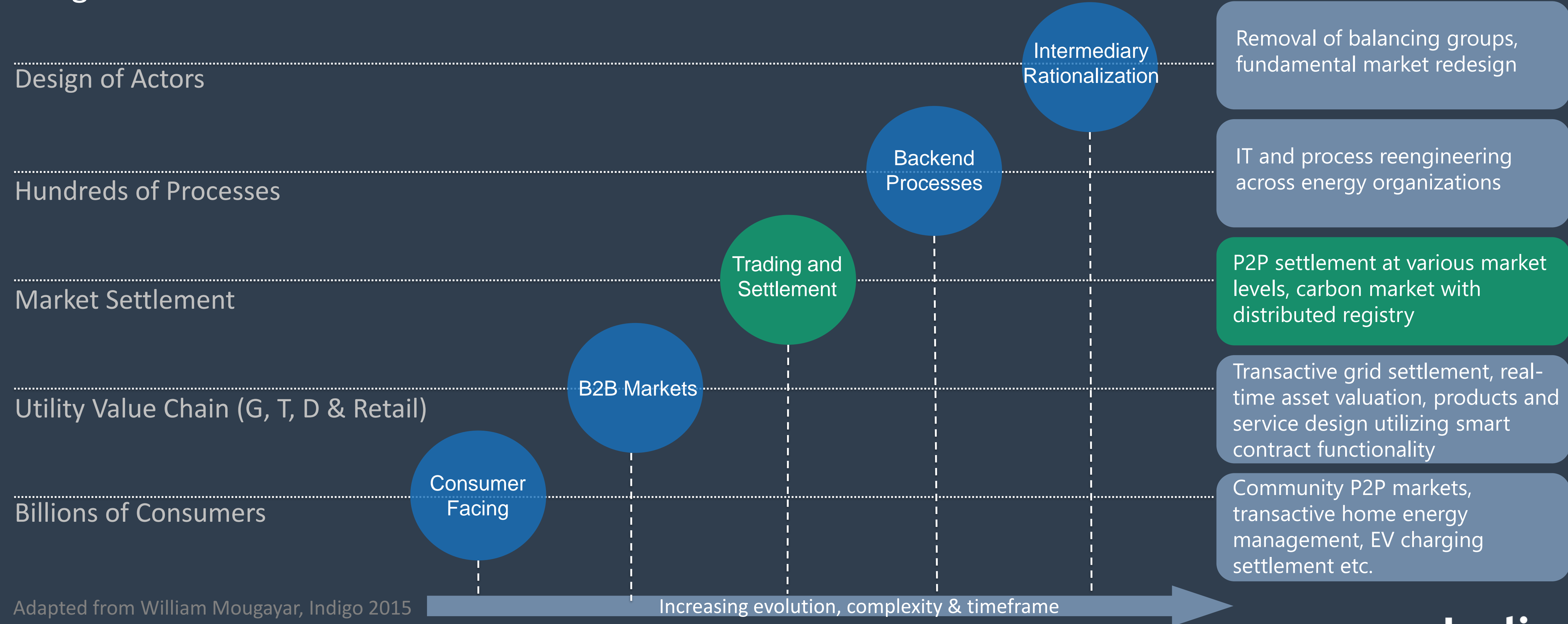
# Moving to a Transactive and Dynamic System

Many of the trends across the sector are converging on the idea of moving towards a transactive and dynamic energy system, where real time markets, peer to peer transactions and market animation are enabled by new technology developments



# GridChain - Technologies Accelerating the Transition

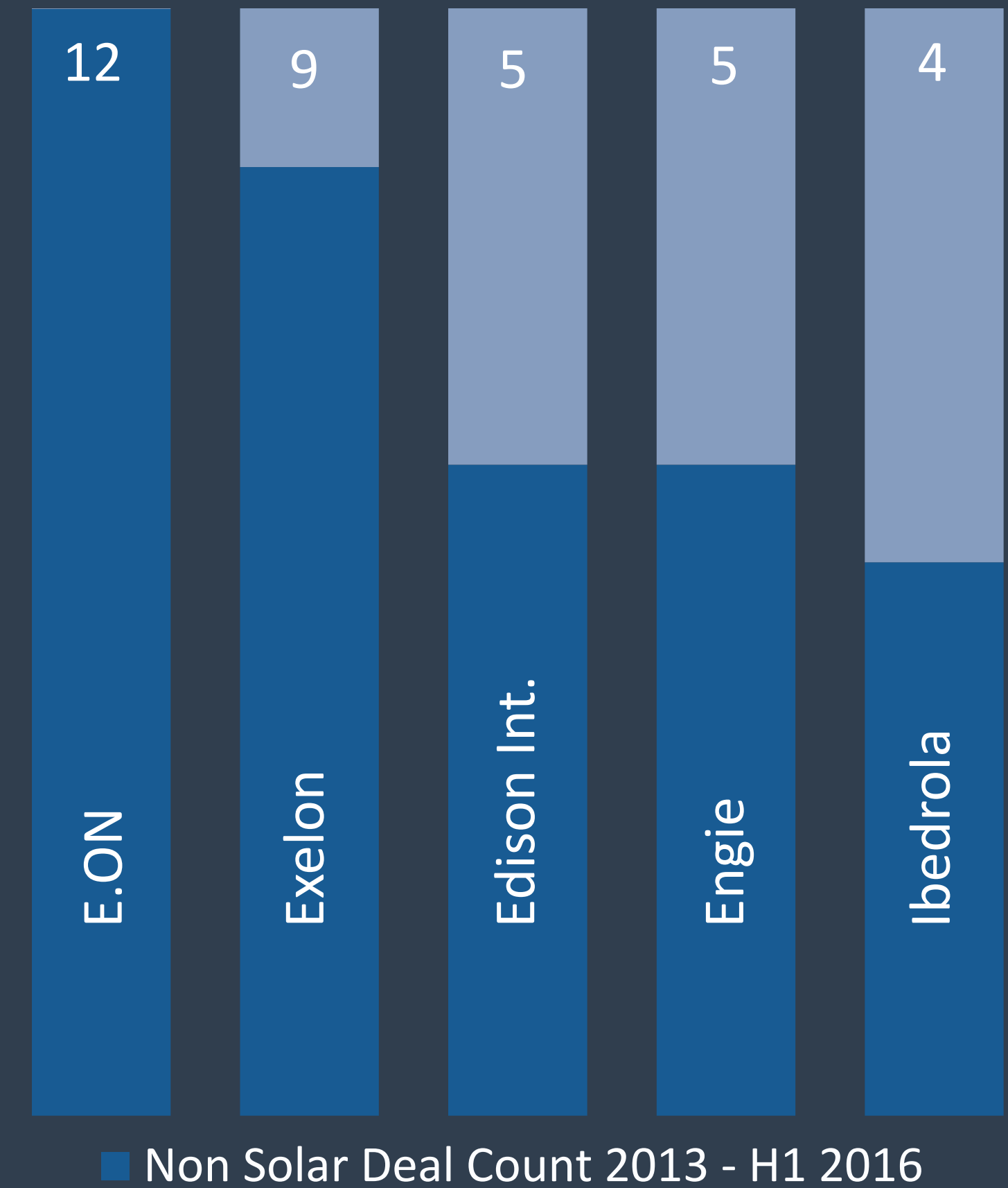
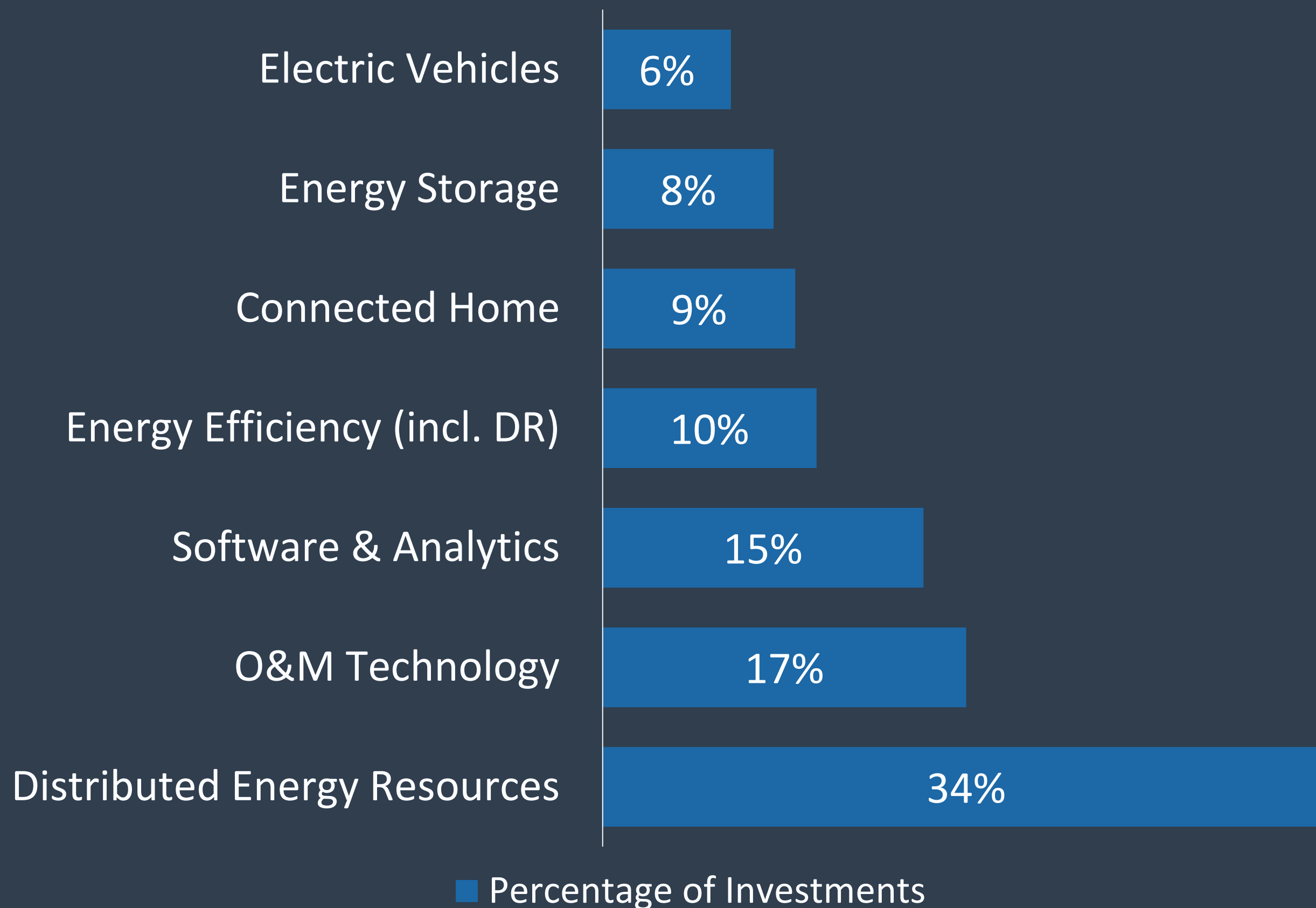
Examples of technology that may accelerate the transition can be found in early stage applications of Blockchain that are being explored globally. By leveraging P2P technology where both computers and people share a distributed ledger, networks of blockchains may interact over time to fundamentally change the market





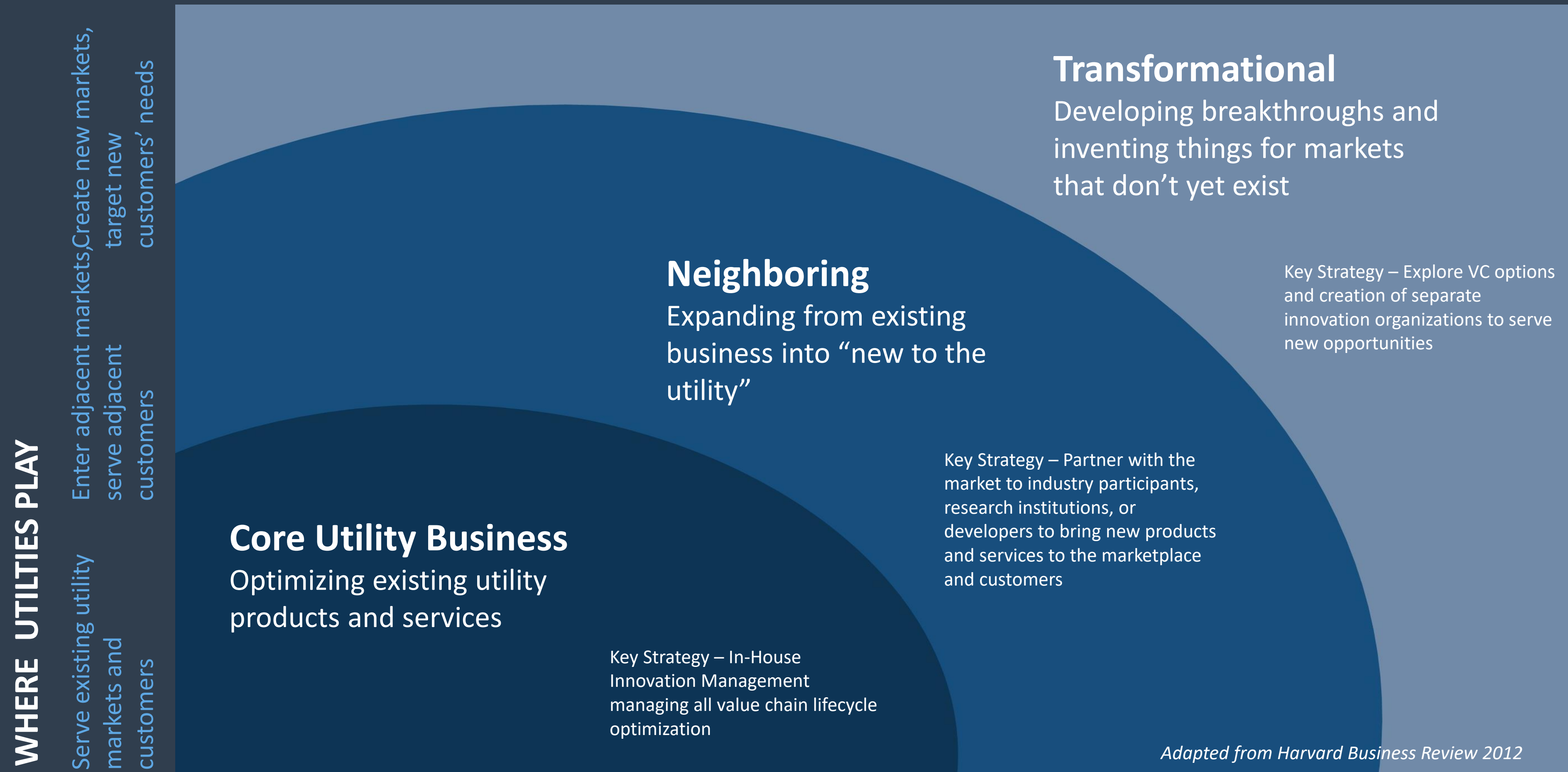
# Utilities Investing in Innovation at the Grid Edge

Indigo tracks and informs Utilities of investments and opportunities



Indigo's research shows that utilities continue to increase their capital investments in new energy technologies, business models and companies since 2013. Typically, as part of dedicated investment arms and in conjunction with other investors we are seeing utilities invest millions into startup funding rounds and taking stakes of 10 to 30 percent. The average joint utility investment round is \$19m. E.ON Venture Partners continues to be the most active utility fund. Across the board and over the past 4 years, investment counts peaked in 2015. 2016 is shaping up to be a similar year of activity with European Utilities increasingly making investments in US startups.

# Developing Innovative Capabilities for new Utility Paths to Growth



Utilities are consistently faced with developing the right strategy to allocate funds among growth initiatives. Understanding where a power company should play and how they can win will inform their market strategy, be that in-house, partnerships or VC options. Using proven frameworks to assess opportunity and risk for a utilities portfolio can provide a valuable starting point.

# Tactics for Growing Long-Term Utility Innovation



## Customers

Ensuring that customer segments are more actively engaged in energy, by assessing appetite for bundled services, new technology demonstrations and new products and services.

## Partners & Suppliers

Ensuring that partners understand and utilities influence product roadmaps. Engage with market leading vendors and provide data access to develop new products and services.

## Innovation Networks

Building communities of innovators in a utilities jurisdiction e.g. partnering with universities, startup incubators and other groups.

## R&D Providers

Where feasible leverage third party providers in particular domains to decrease product development and commercialization timeframes.



## Employees

Encourage that an innovation culture is fostered throughout the organization, enlist ideas, provide time and run idea rapid prototyping sessions.

## Innovation Mgmt. Team

Institute and empower an innovation management team to build out local partnerships and serve as an organizational conduit.

## Business Function Managers

Emphasize importance and empower culture of innovation among department heads.

## Research & Development

Ensure that funding, tools and research roadmap is aligned with the utilities aspirations and ease process of interactions with operations.

Ensuring that a utility has the right external and internal innovation strategy throughout a series of stakeholder 'tactics' coordinated by a broader innovation roadmap will serve utilities well in a transformational marketplace



# Indigo

ADVISORY



[insights@indigoadvisorygroup.com](mailto:insights@indigoadvisorygroup.com)



+212 203 6144



[www.indigoadvisorygroup.com](http://www.indigoadvisorygroup.com)



[@indigoadvisory](https://twitter.com/indigoadvisory)



[linkedin.com/company/indigo-advisory-group](https://www.linkedin.com/company/indigo-advisory-group)