ELECTRIC POWER RESEARCH INSTITUTE

Blockchain in Utilities

2019 Electric Utility Insights

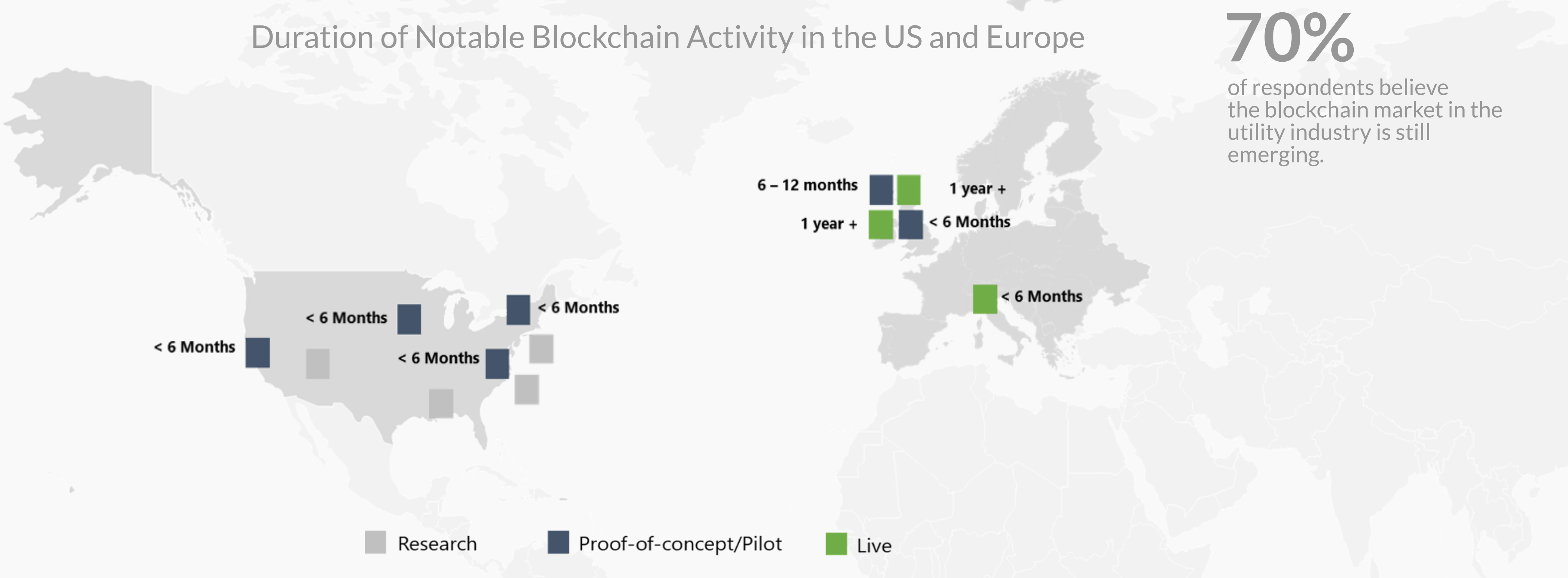
Utilities focused on business model innovation, enhancing customer value, and strengthening security are experimenting in the blockchain space. A recent survey by EPRI's Utility Blockchain Interest Group (UBIG) and Indigo Advisory Group details the intriguing perspectives of utilities and regional transmission operators (RTOs) on promising and nascent applications in the utility industry; protocols that govern and serve as the backbone of the technology; and the potential barriers, advantages and benefits of blockchain across the utility value chain.

16 Respondents

15 utilities
1 regional transmission operator

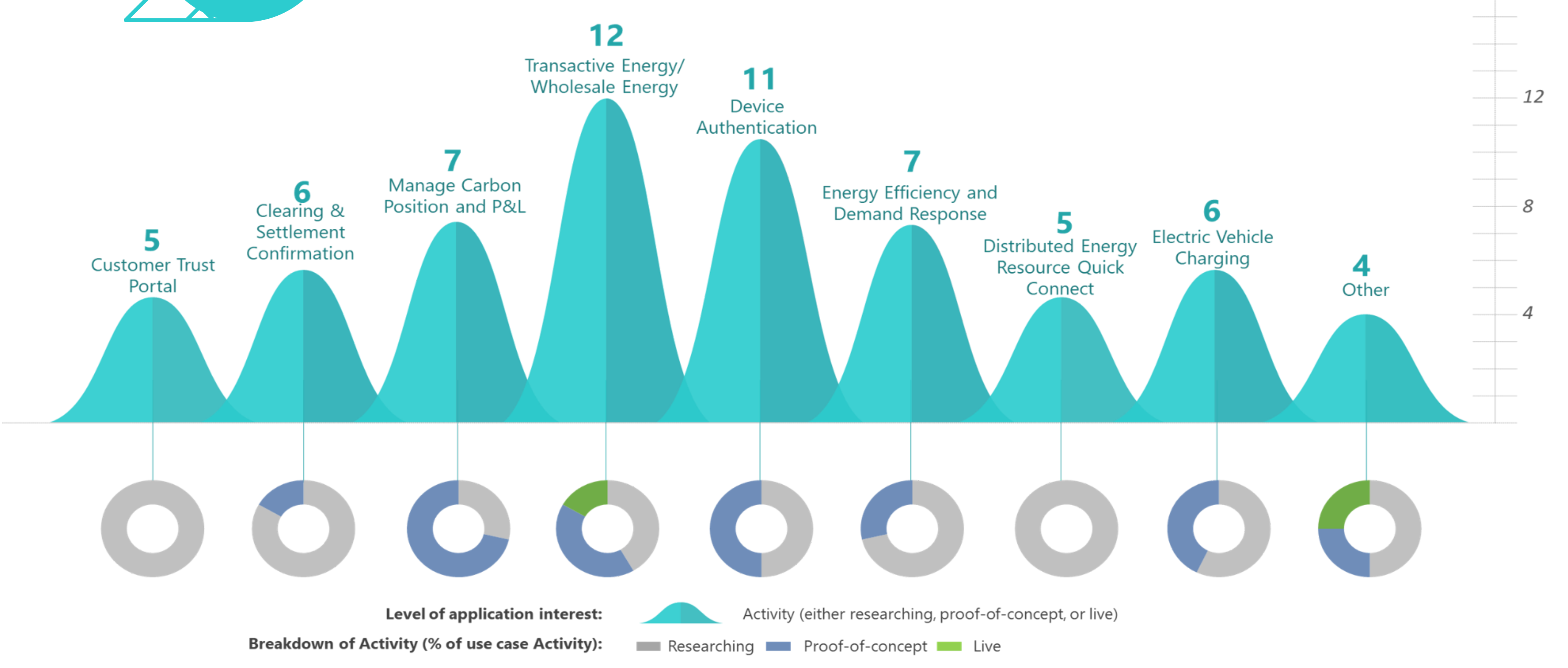
18 Questions

Duration of Notable Blockchain Activity in the US and Europe



70%
of respondents believe the blockchain market in the utility industry is still emerging.

01 Application Analysis



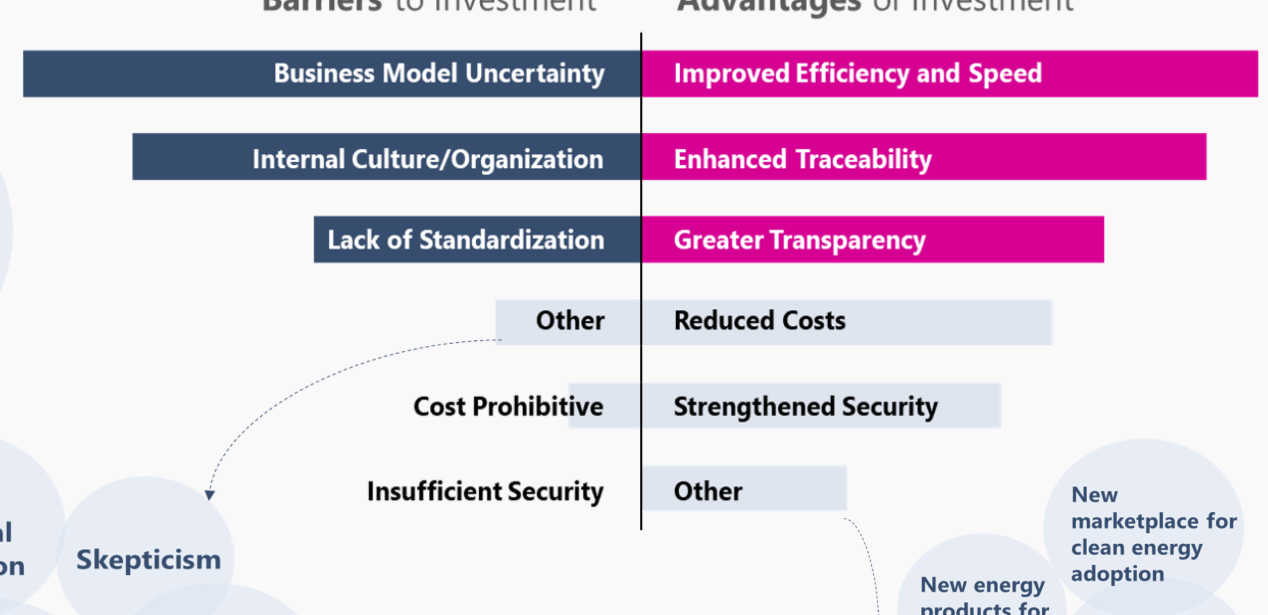
Respondents noted additional research, proof-of-concept, or live applications, including peer-to-peer solar, natural gas settlement, customizable power hedging products for enterprise customers, SCADA protocols, low-carbon fuel standard, and asset management.

Staff

2.2 Average number of full-time equivalent (FTE) dedicated to blockchain

0 TO 28 The amount of FTEs dedicated to blockchain initiatives by each surveyed utility and RTO

02 Barriers and Advantages



77% of respondents believe the energy industry lacks appropriate standards.

Lack of technical education

Skepticism

Lack of demonstrable successes in utility sector

Costs to replace legacy systems

New marketplace for clean energy adoption

New energy products for customers

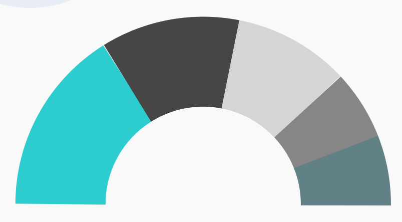
Business model experimentation

Although barriers exist, utilities are cautiously optimistic that blockchain can provide value to their organizations.

The most challenging benefits to quantify

Regulated return on investment and customer engagement are reported as the most difficult benefits to quantify when building a business case for future blockchain investment.

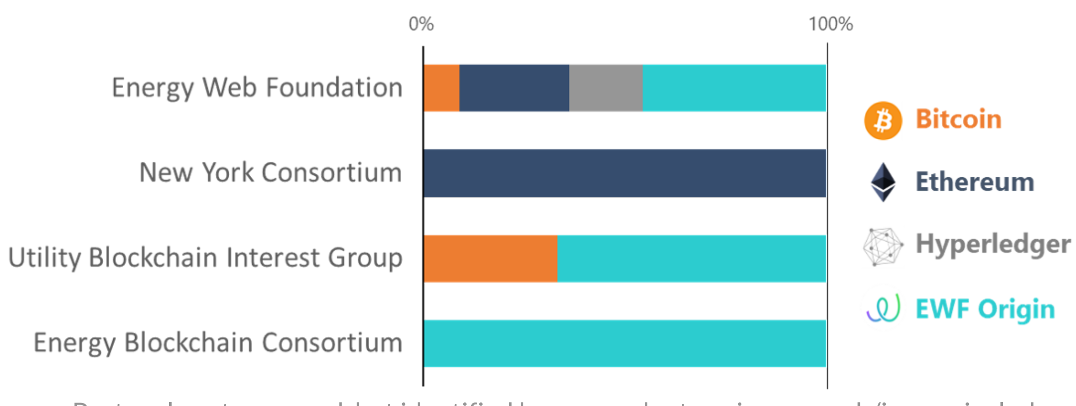
Quantifying cost, including integration, and savings related to 'transparency' of data and reporting, can also prove challenging.



03 Protocols and Consortia

Utilities are actively testing blockchain across a number of protocols.

While survey results indicate substantial collaboration across the consortia, blockchain technology testing is typically driven from within the organization.



Protocols not surveyed, but identified by respondents as in-research/in-use, include Quorum, EOS, and Stellar. Respondents did not report experience with R3's Corda, Ripple Consensus Network, Symbiont Distributed Ledger, or Iota.

04 Key Utility Insights

Northeast US Utility

"It is the notion of being able to build customer-related processes that are cross-organizational, cross-jurisdictional that makes blockchain compelling. It is about the longer-term application – the infrastructure, data, process and how this benefits the customer at end of the day."

US RTO

"Blockchain will not be the end of utilities and RTOs – we are not a believer in disintermediation. The human element and physical parameters of the network show us it is not just about technological elements."

European Utility

"Blockchain is sociological as well as technological; it is a movement. Simply put, blockchain is a shared database with which we can trust the value proposition. Customers want more choice, transparency and control."

The following organization, under contract to the Electric Power Research Institute (EPRI), prepared this product:
Indigo Advisory Group

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