

# Smart Systems Growth Opportunities: Blockchain

2017 trends are continuing to drive new IoT innovations - read our update and assessment of the Blockchain Opportunity



smart  
systems  
design

**Harbor  
Research**

**T**he worlds of sensors, controls, computing and communications are each changing rapidly, while at the same time converging into an entirely new smart systems competitive arena. The forces at work in these sectors make strategic decision-making extremely difficult. The velocity of change in the marketplace conspires with the number of variables in play to overtax many managers' ability to make confident and informed decisions.

This has two crucial effects on strategists: First, they need better market intelligence methods and frameworks for strategic decision-making. Second, while they are more likely to consult with outside advisors, they also need new, more efficient and effective modes of interaction with them.

The Internet of Things is creating significant discontinuities in the marketplace. Knowing which use cases and applications to focus on, which business model to pursue, and which market relationships to create are becoming increasingly important for maintaining a competitive market position in today's rapidly evolving marketplace.

### **SMART SYSTEMS RESEARCH**

Harbor Research publishes its Smart Systems Growth Opportunities Update twice annually for senior decision makers in technology innovators, OEMs, services providers and investors. Through a combination of research and interviews with industry participants, we build a unique view into currently evolving smart systems and IoT growth opportunities. If you're interested in learning more about how we help executives identify and develop new growth opportunities, contact us.

### **WHAT IS CATALYTIC STRATEGY?**

While many companies continue to use traditional approaches to strategy development and some even succeed in this way, Harbor has seen over and over that the biggest winners are those that take firm control of their growth strategy and shape their competitive arenas. These are the companies we call "catalytic." Just as a chemical catalyst hastens the rate of a chemical reaction, companies with catalytic strategies shape their worlds at rates that take the competition's breath away.

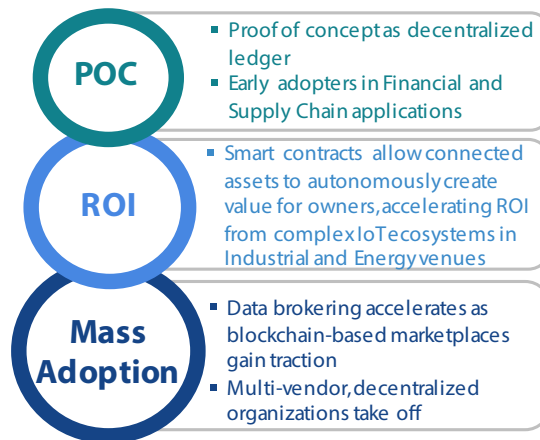
## Blockchain

### Pilots Begin To Shift To Real Deployments

#### Market Overview

Collecting and acting upon diverse data streams created by complex systems of devices, systems and people is the Holy Grail of the IoT. Realizing this opportunity is challenged by a continued reliance on a centralized client/server computing model in which devices are identified, authenticated and connected through cloud servers. Transmitting and analyzing data from billions of connected devices that are themselves managed and secured from a central server introduces significant costs as well as exposure to cybersecurity risks.

#### Industry Adoption Characteristics

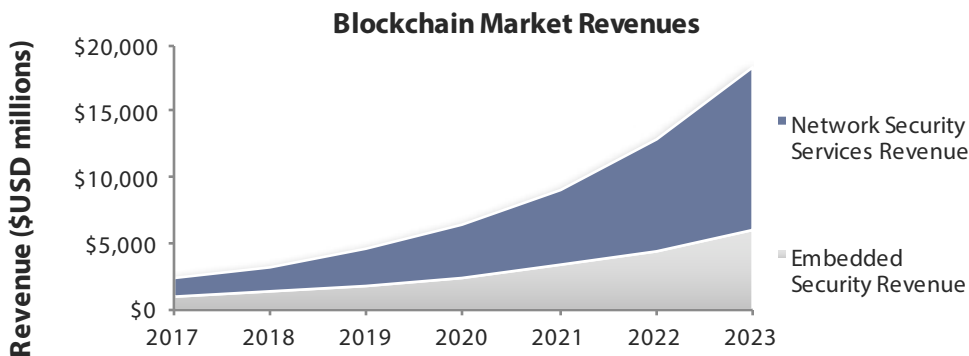


A truly decentralized IoT requires an information architecture built upon distributed device management and end nodes capable of coordinating and carry out transactions autonomously. Maximizing the IoT opportunity requires widespread access to aggregated datasets for permissioned users to create value in myriad ways. Blockchain has the potential to provide this foundation for a decentralized, trust-agnostic IoT.

#### What does the Blockchain Offer?

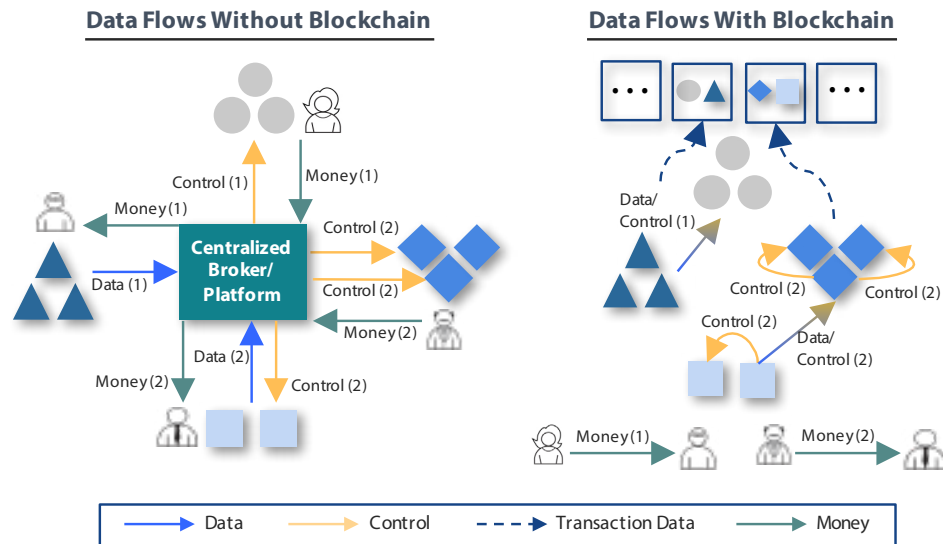
Blockchain technology is a decentralized, digital ledger that holds a record of every transaction made by participants. Every transaction – the transfer of funds, sharing of data, or services rendered - is verified by multiple parties. This highly redundant verification system provides a level of resiliency and trust necessary for distributed data usage and value creation. This verification schema ensures that data elements (the “blocks”) added to the dataset (the “chain”) cannot be altered, making certification of data provenance, path and ownership less vulnerable to fraud.

While proof-of-concept and pilot implementations have used the technology as a secure, centralized database, increasing interest in the ability of the method to serve as a foundational element in securing the IoT will lead to widespread adoption.



## Blockchain

### Market Challenges and Ecosystem Dynamics



#### Supply Chain

- » The Linux Foundation's open-source Hyperledger Project, led by IBM, has demonstrated proof-of-concept of a blockchain's ability to replace existing tracking schemes in food supply chains
- » Working with Wal-Mart, the Hyperledger Project team is leveraging the blockchain to connect origin details, processing data and shipping temperatures to each item that ends up on shelves to quickly and accurately remove compromised food items from circulation

#### Data Brokering

- » Terbine is enabling a data marketplace with the blockchain at its core, tracking data usage and transactions to monetize participation
- » By incentivizing users to share data, they seek to overcome one of the biggest challenges to unlocking machine learning for the masses

#### Energy

- » LO3 Energy and Siemens have partnered to demonstrate the ability of blockchain to underpin a smart micro-grid pilot in Brooklyn
- » As decentralization becomes the norm in power grids, enabling control over localized generation and consumption is critical for reliable operations
- » The pilot is demonstrating how tokenization of surplus production and consumption enables local markets to form that maximize the efficiency of energy systems

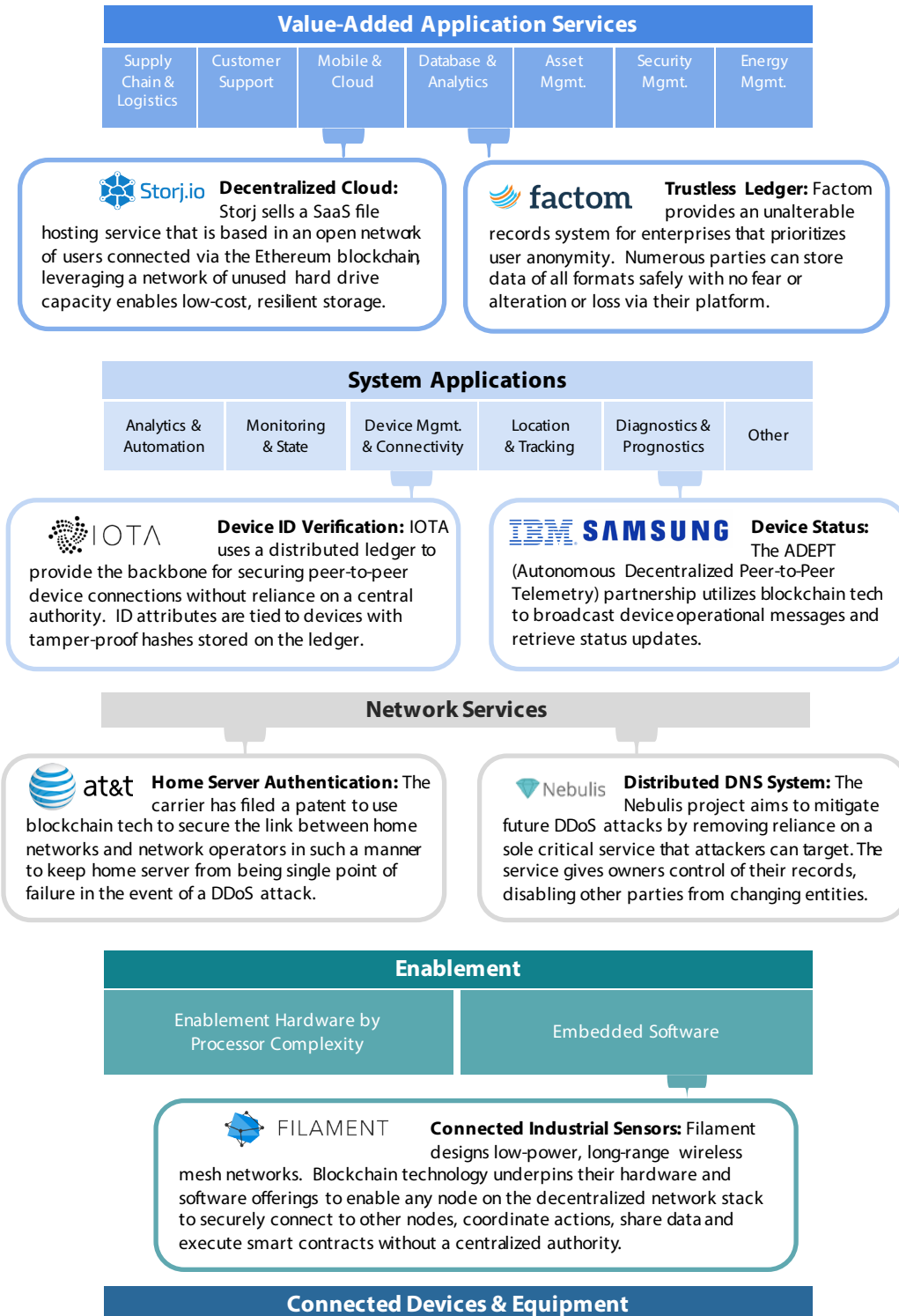
#### Healthcare

- » Alphabet's AI-outfit DeepMind is building a distributed ledger to track health care records in the UK
- » The ledger will provide hospitals and eventually patients an immutable record of who has accessed patient data and what it was used for

## Blockchain

### Key Players Informing The Opportunity

#### Blockchain is Impacting All Aspects of The IoT Tech Stack...



## ABOUT HARBOR RESEARCH

An internationally recognized research, technology, and business development consulting firm, Harbor Research has predicted, tracked, and driven the development of the Internet of Things since our inception in 1984. While our history is long, our strategy is simple: capture and create value by combining accurate data discovery and analysis with creative systems-thinking. It is this mindset that has given us the privilege of working with some of the greatest companies in the world. Today, we continue to work with C-level executives and top management of some of the world's most consistently successful companies and innovative startups. In the same way that the market has flexed and grown over the years, our services and experience have grown to make us the premier service organization you see today. We work with clients in a variety of ways including consulting, advisory, research and content development, thought leadership and workshop facilitation.

### THOUGHT LEADERSHIP

We provide our clients with rigorous analysis and insight to support critical new business design and development decisions. Our research, content and modeling provides an ideal context for discovery, ideation and planning.

### UNIQUE PROCESSES

Our strategy and business development services deliver creative innovation tools, practical methods and applied problem solving. Our highly interactive mode focuses on clients' specific needs and helps create unique strategies and early resolution to high-priority business issue.

### VIBRANT COMMUNITY

Building new ventures for the Internet of Things requires new and very different modes of design and development – organizations will need to push the boundaries of collaboration to include many new and unfamiliar participants.

If you or your colleagues would like to learn more:

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## Custom and Configured Research Interactions Help Support Strategy



### Player Profiles, Ecosystem Maps, Analysis and Database

Harbor Research has completed 500 player profiles on top companies in the IoT market including mapping their customer, competitor, investor and partner ecosystems.



### Smart Systems Market Model and Forecast

Harbor's proprietary smart systems device demographics database and model helps strategic business developers evaluate opportunities, make decisions around pricing models and craft marketing and sales strategies.



### Research Briefs, Data Books and Playbooks

Harbor's research on markets and technologies within the overall Smart Systems and the Internet of Things arena that provide a forward-looking, distinct perspective on new market and technology growth opportunities. [Explore our editorial calendar for our latest research](#)



### Market, Technology and Event Briefings

Briefings provide your team a download on current market dynamics and trends, emergent technologies, or a company's movements.



### Strategic Business Reviews

Clients will have the opportunity to attend a collaborative session with analysts from Harbor Research on a bi-annual basis. These discussions address strategic questions about market, technology and player opportunities your team is focused on.



### Focused Market Intelligence Tracking

We employ proprietary algorithms to scour news sites, blogs, trade publications and social media feeds for curate information about markets, technologies players and events all organized against our Smart Systems and IoT taxonomy.



### On-Going Queries and Analyst Support

Acting "on-call", our analysts will pull and aggregate specific data, profiles or explanations in configured responses to answer your specific questions and meet your unique needs.



### Configured Research and Analysis

Recognizing that many clients have needs that reach beyond published reports, Harbor conducts "configured" research and analysis on topics that are emerging across the landscape providing updates based on specific areas clients are focused on.



### Custom Market Modeling and Forecasting

We have designed our market map and forecast model for configured and custom modeling. Leveraging our extensive device segment coverage, clients can create custom forecasts to look at quantifiable elements beyond shipments and associated revenues.