XONΔ PARTNERS

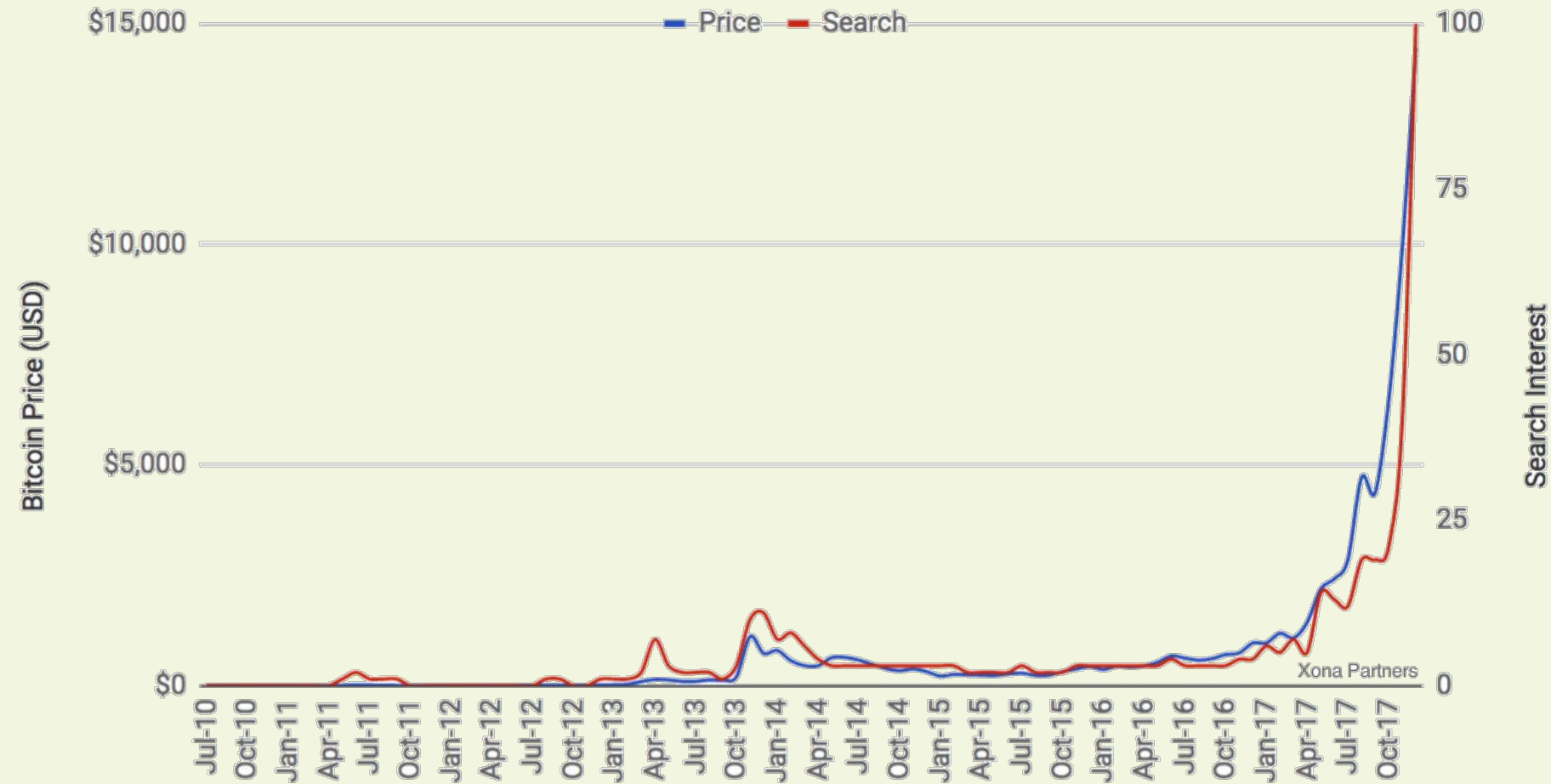## Blockchains
Intersec with the Internet and Telecom

January 2018

Overview

› Blockchains as platform to build decentralized applications on a peer-to-peer basis has the potential to unleash powerful transformation in multiple industry verticals.

› The Internet and telecom sectors include many areas where blockchains present an alternative technology. Which applications have merit, and which don't?

› This is an area that Xona Partners has been investigating due to its far-reaching consequences.

› In this overview, we highlight blockchains in the Internet and Telecom space.

Bitcoin Hype

› Bitcoin future is uncertain, but blockchains is here to stay

› Critical thinking, beyond the hype, is sorely lacking

Easy access to information over the Internet accelerates hype bubbles

Blockchains is NOT Bitcoin

› Bitcoin uses blockchains as an <u>open ledger</u> to store transactions
  – The latest block linked to the preceding ones using digital signatures

Do not confuse bitcoin with blockchains:

› Blockchain ≍ Protocol
  – HTTP or SMTP

› Bitcoin ≍ Application
  – Web browser, or email

Application layer: Bitcoin

Protocol layer: Blockchains

To decentralize, or not to decentralize — that is the question!

Decentralization:
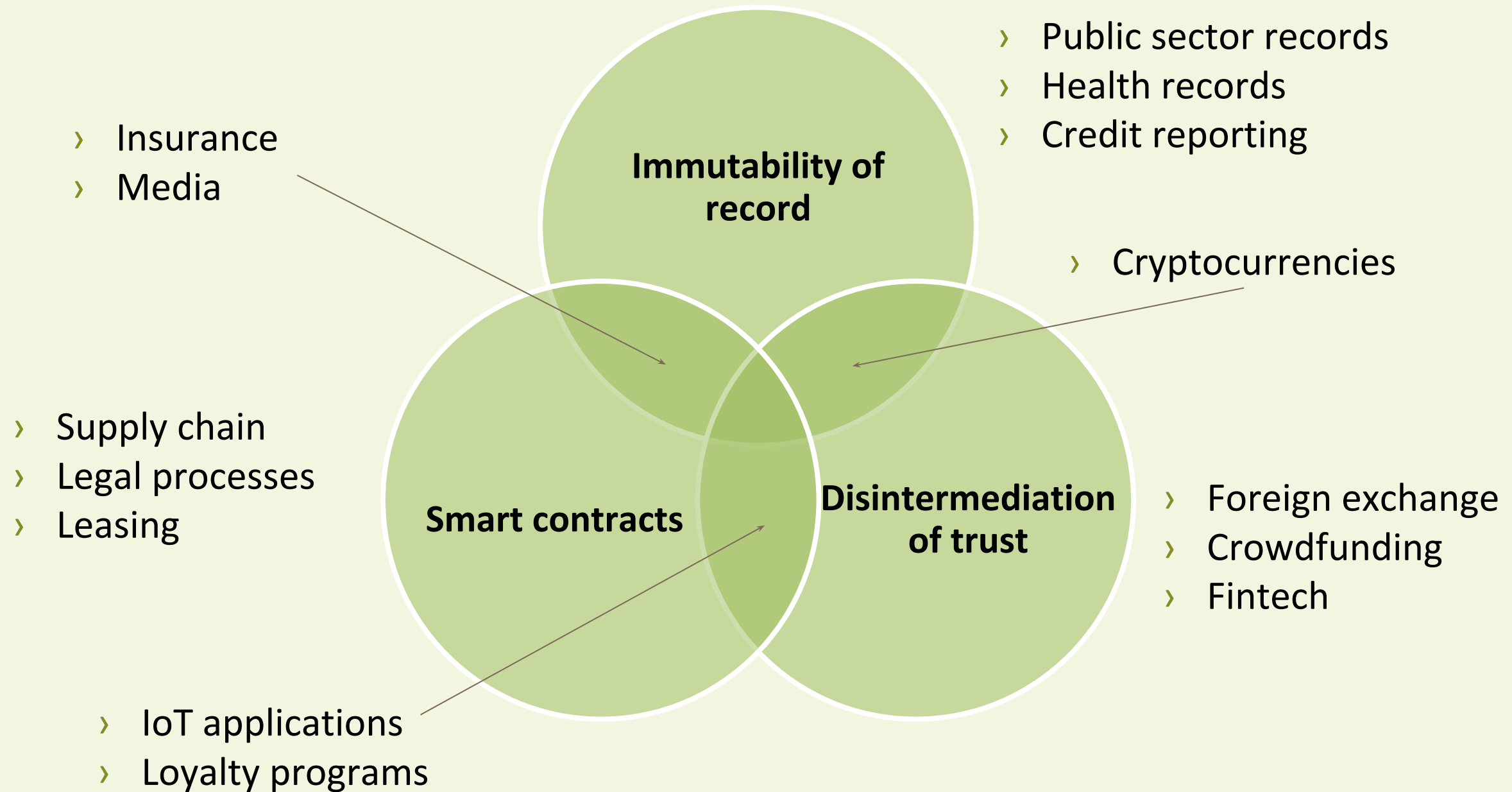
Technology alternative to human institutions

Legal

Financial

Social

What problems are we trying to solve?
What problems could we be introducing?

Characteristics and Applications of Blockchains

› Insurance
› Media

› Public sector records
› Health records
› Credit reporting

Immutability of record

› Cryptocurrencies

› Supply chain
› Legal processes
› Leasing

Smart contracts

Disintermediation of trust

› Foreign exchange
› Crowdfunding
› Fintech

› IoT applications
› Loyalty programs

6

State of the Telecom and Internet Ecosystem

Internet

Network effect leads to data monopolies

Quarter ending Sep. 30, 2017

*Source: Xona Partners*
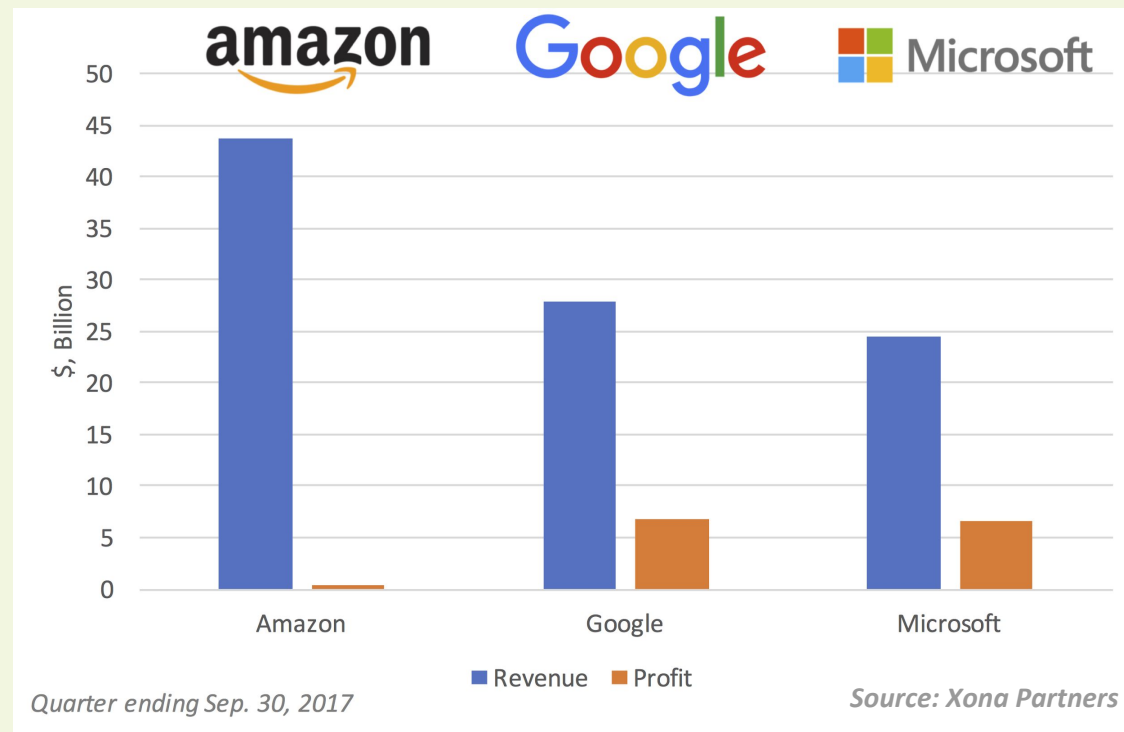
Telecom

Heavy infrastructure spending, mass is critical, consolidation leads to monopolies
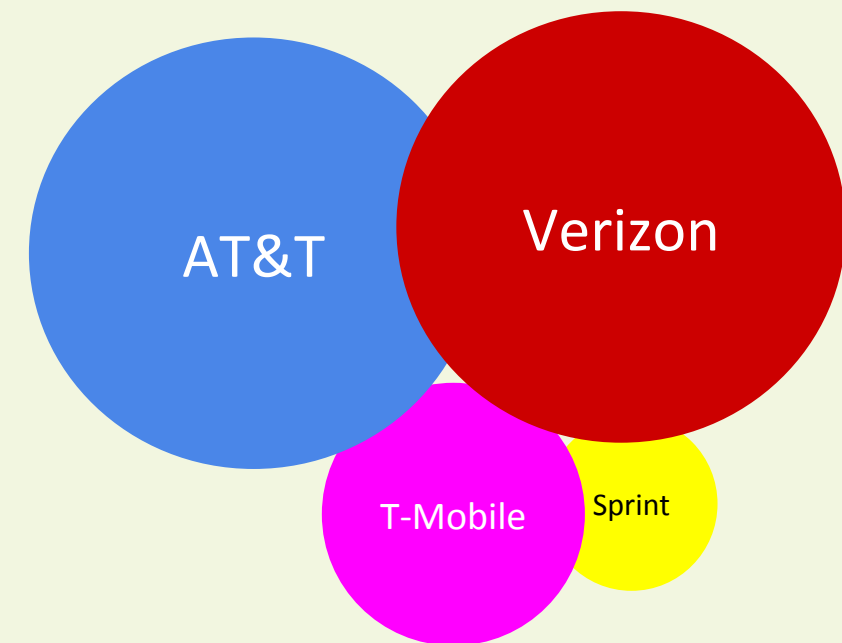
Questions

For purpose of illustration, these are some of the questions we are interested to answer:

1. What Internet and telecom applications could benefit from blockchains?
2. Which applications are likely to get implemented first?
3. What parameters make successful blockchain use in the Internet and telecom possible?
4. What are the implementation tradeoffs and considerations?
5. Which platforms are most suited for Internet and telecom applications and for what reasons?
6. Who is investing in blockchain technology for the Internet, telecom and IoT?
7. What investments in Internet/IoT/telecom-related blockchain are focused on?
8. What are the objectives of leading blockchain consortia and which to follow?
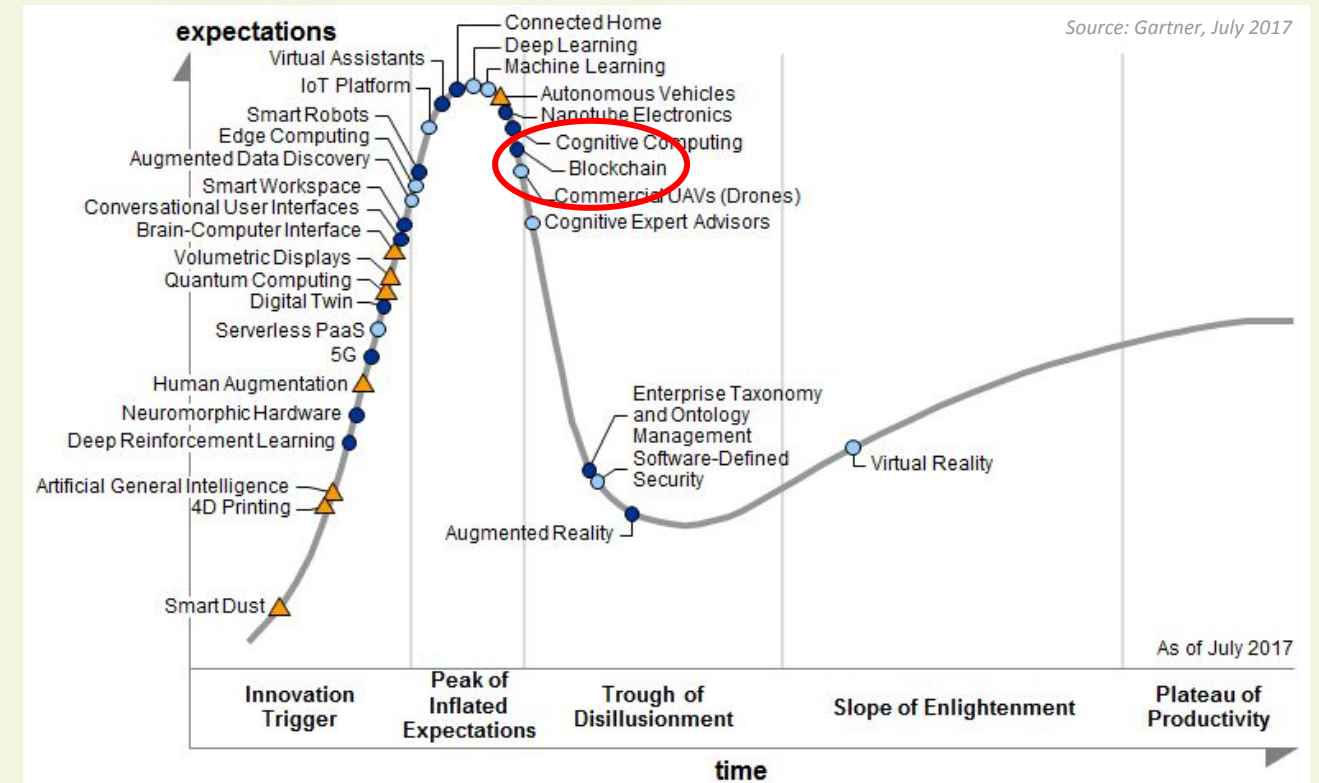
Blockchains came onto the scene in 2009 as the technology that powers bitcoin. Blockchains technology has since spread to enable applications in many other industry verticals outside of finance.

Applications of Blockchains in Telecom / IoT

› A few examples to illustrate the potential of blockchains in IoT applications
  – Among the many cited applications, some are likely to benefit while blockchains may never be used in others

Asset Transactions and Micropayments
Low blockchain-based transaction cost enables micropayments for digital assets such as music, games, gift cards, loyalty cards, etc. It also enables payments for IoT enabled services such as asset leases/rentals

Smart Contracts
Details of transaction elements among multiple parties are securely stored in blockchains and processed automatically as each milestone is fulfilled

Smart Cities
Blockchains are transparent and auditable allowing for smart charging among other services

Healthcare
Secure electronic healthcare storage and transmission on permissioned blockchains

Identity Management
blockchain-based identity management platform to enable authentication across devices, apps and organisations

Applications of Blockchains in the Internet

Applications of blockchains in the Internet infrastructure focused on the topics below. But are these mostly random attempts to find problems to solve? After all, other solutions to these challenges exit which have failed for different reasons.
In this case, what could be the low-hanging fruit for blockchain applications in the Internet infrastructure?

Alternative DNS
Applications of blockchains to Internet distributed services such as naming, address allocation, etc.
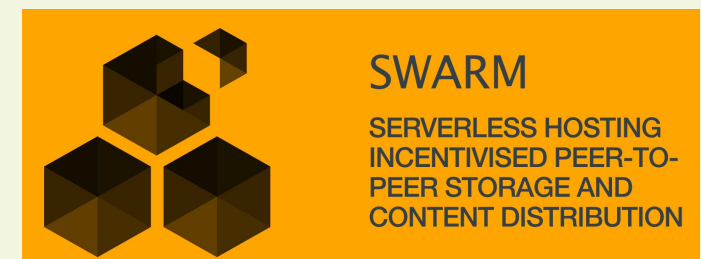
IP Address Allocation
Application of blockchains to GP/BGP/Multicast routing and to P2P traffic distribution models

PKI and Digital Certificates
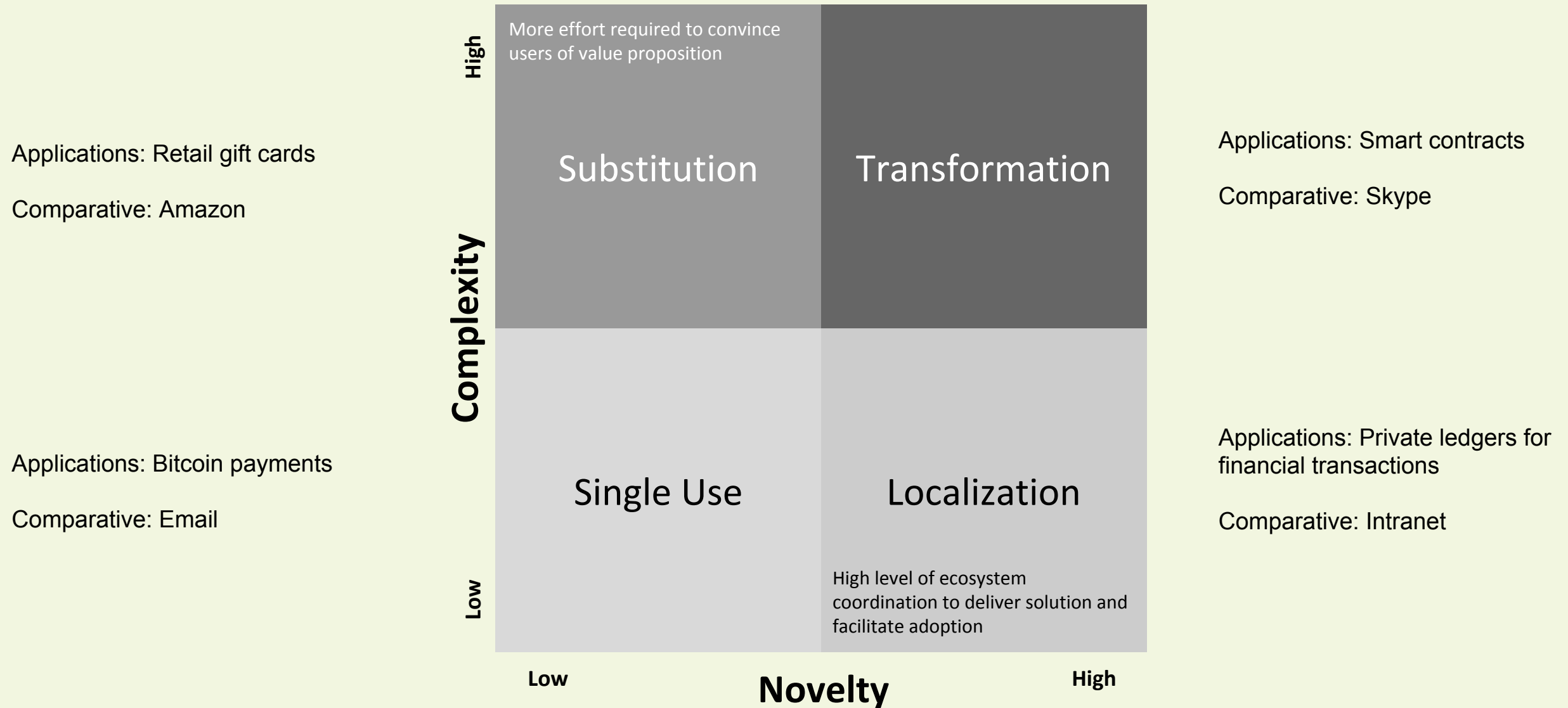Blockchains as a complementary and alternative model to PKI based security infrastructure
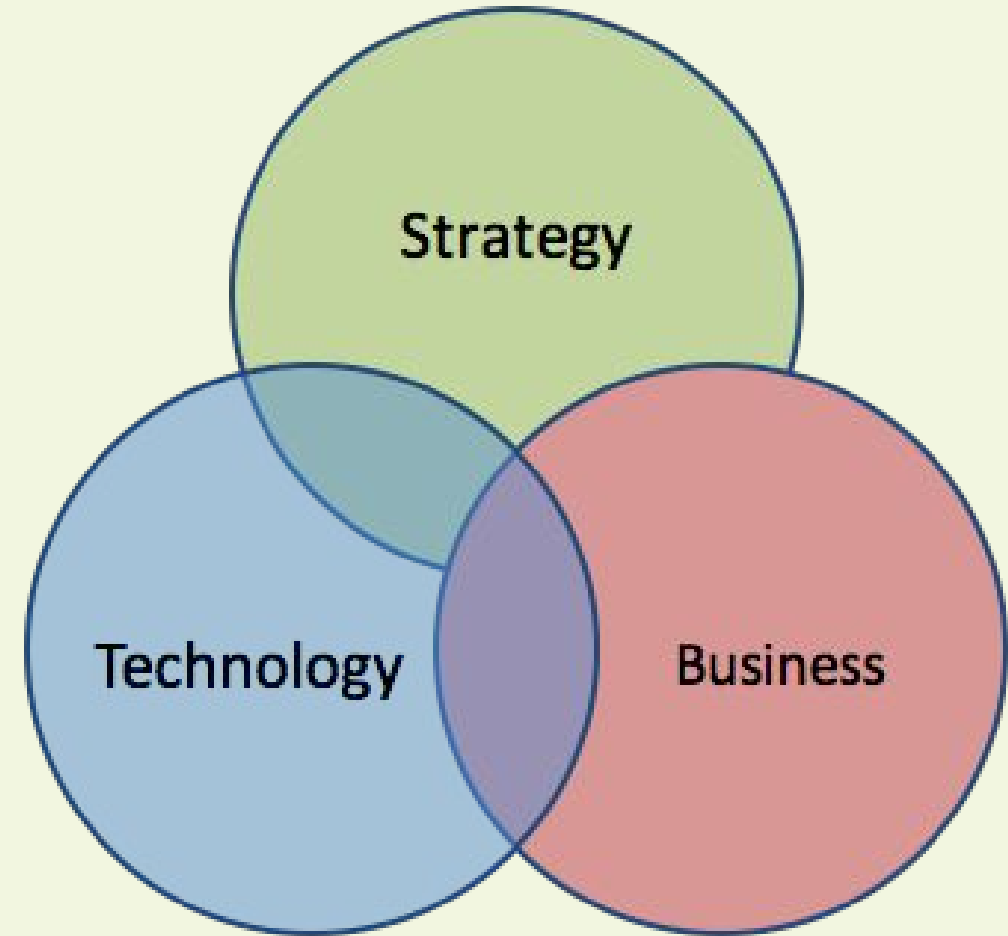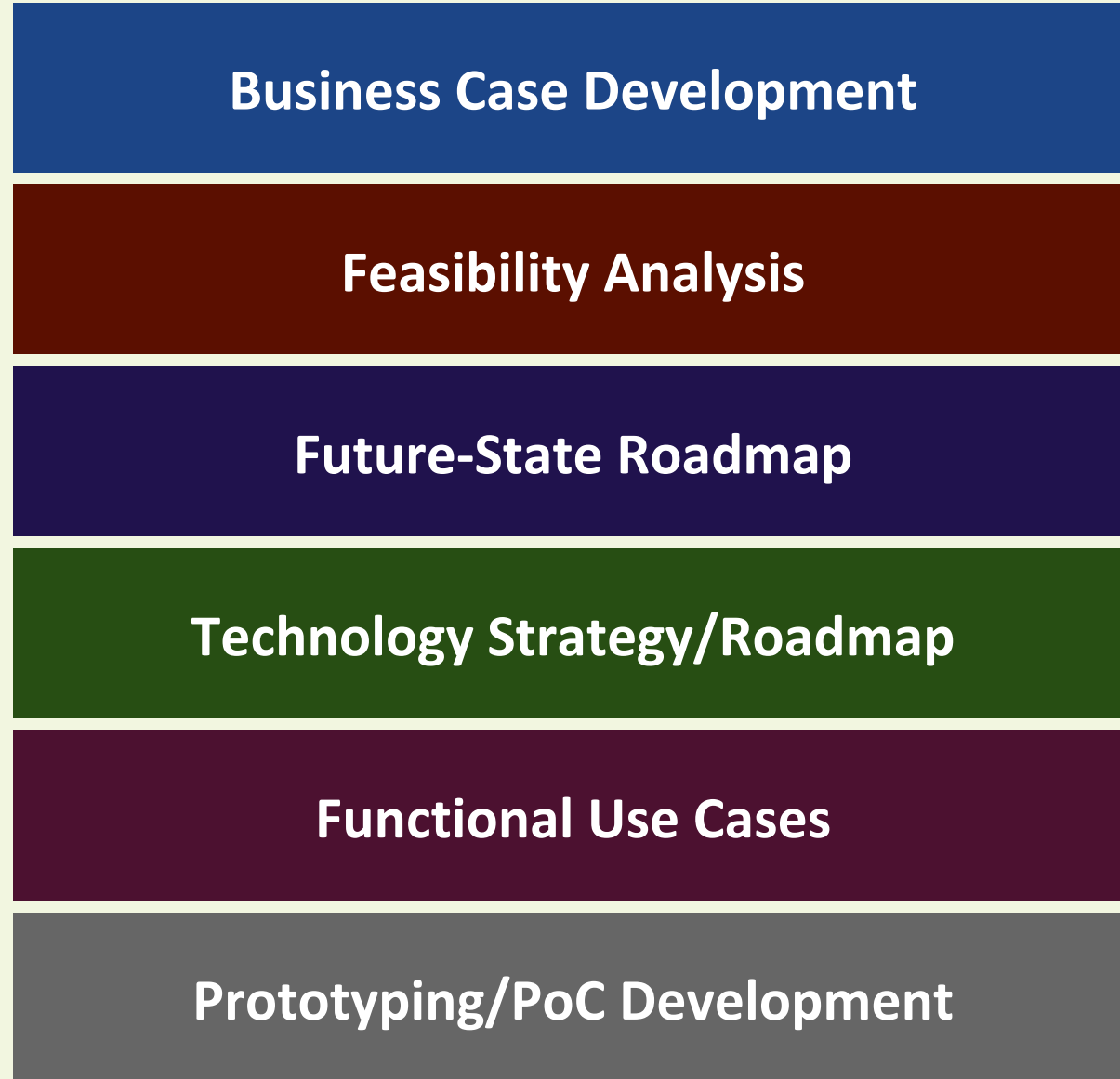
ens
ethereum
name service

IPFS

golem WORLDWIDE SUPERCOMPUTER

SWARM
SERVERLESS HOSTING
INCENTIVISED PEER-TO-PEER STORAGE AND CONTENT DISTRIBUTION

Blockchains Speed of Adoption Framework
Is blockchain a transformative or disruptive technology?

Applications: Retail gift cards

Comparative: Amazon

Applications: Bitcoin payments

Comparative: Email

Applications: Smart contracts

Comparative: Skype

Applications: Private ledgers for financial transactions

Comparative: Intranet

Complexity

High

Low

More effort required to convince users of value proposition

	Substitution	Transformation
	Single Use	Localization

High level of ecosystem coordination to deliver solution and facilitate adoption

Novelty

Low — High

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Xona Blockchain Services

Business Case Development

Feasibility Analysis

Future-State Roadmap

Technology Strategy/Roadmap

Functional Use Cases

Prototyping/PoC Development

Strategy

Technology

Business

Xona eXponent Workshops: Blockchains

eXponent workshops leverage Xona Partners knowledge base to enable executives in technology companies to acquire knowledge in adjacent technologies that could impact their business. We provide factual insights into emerging technologies to differentiate hype from reality and to assess threat and opportunity.

About Xona Partners

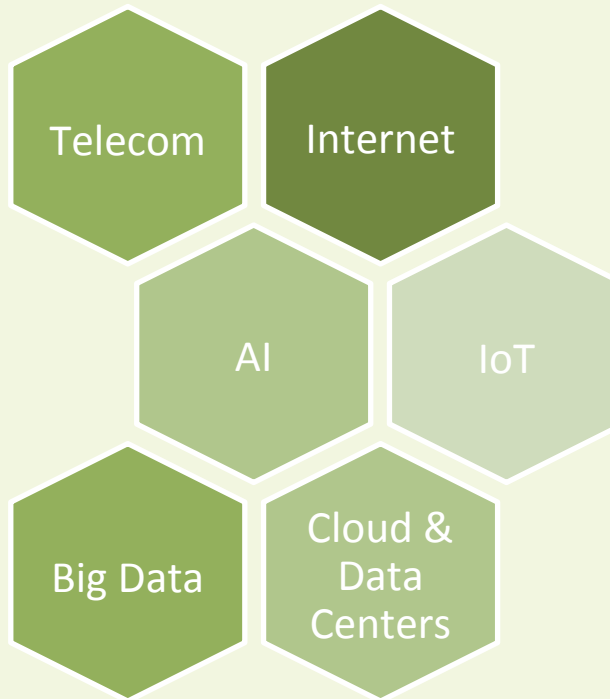## Boutique Advisory Firm Specialized in Developing New Technology Ventures

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