Blockchain technology – why does it matter?

An introduction to the potential for blockchain to change or improve the world

Dr. Thomas Struck
Blockchain offers a new radical computing paradigm that promises to deliver new decentralized operating and market structure models that challenge conventional processes across industry and society.

Blockchain technology is gaining increased attention from enterprises, vendors and mainstream media as the "next big thing." To many observers, it appears that the era of blockchain is inevitable, and is a global-scale, technology-driven, business transformation that will eventually have an impact equivalent to that of the World Wide Web, or of the internet itself.

This presentation offers a brief introduction to the disruptive potential of blockchain. It shows results of Gartner research into current application and offers recommendations for end-user organizations.
What is the potential of Blockchain?

Where do we stand?

What to do?
A blockchain is a distributed, shared, encrypted, chronological, irreversible and incorruptible database with a consensus mechanism (permissioned/permissionless), that adds value by enabling direct interactions between users.

- Mechanism for adding trust in an untrusted environment
- An irrevocable record of significant data and events, such as monetary transactions, property records, or other valued assets
- Not just a passive data record, but can optionally add dynamically programmed behavior to events
- Create and exchange multi-various assets and forms of value
Three generations of global-scale transformation

- **The Internet of Data**
  - Any node on global-scale network can send a packet of data to any other node

- **The Internet of Content**
  - Any node can send a chunk of content (a web page)

- **Internet of "Money"**
  - Any node can send value
Blockchain is envisioned by some as a means to create a new and better world (just like the internet)

Elinor Ostrom … proposed that a Commons can create value if a set of rules are consistently applied and respected by all of its members.

Mike Maples, Jr. “Crypto Commons” https://blog.usejournal.com/crypto-commons-da602fb98138
## Research Position: The World Wide Ledger emerges to support a programmable economy and society

<table>
<thead>
<tr>
<th>Focus</th>
<th>D-Marketing</th>
<th>D-Business</th>
<th>Adaptive</th>
<th>Autonomous</th>
<th>Programmable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exploit &quot;nexus&quot; to drive greater efficiency</td>
<td>Extend potential customers from people to things</td>
<td>Smart things become a major &quot;customer&quot;</td>
<td>Smart, autonomous things become the primary &quot;customer&quot;</td>
<td>Smart autonomous things enable new forms of value and interaction</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Optimize interactions</td>
<td>Build new business models</td>
<td>Maximize retention of and relationships with things</td>
<td>Maximize retention of and relationships with things</td>
<td>Enable new economic systems</td>
</tr>
<tr>
<td>Entities</td>
<td>People Business</td>
<td>People Business Things</td>
<td>People Business Things</td>
<td>People Business Things</td>
<td>People Business Things</td>
</tr>
<tr>
<td>Disruptions</td>
<td>Deeper customer relationships, analytics</td>
<td>Creation of new value and new nonhuman customers</td>
<td>Smart things act as proxies for people or businesses</td>
<td>Smart things act as proxies for people or businesses</td>
<td>Smart things act for themselves</td>
</tr>
<tr>
<td>Technologies</td>
<td>BI Big data Social</td>
<td>Sensors 3D printing Smart machines</td>
<td>Goal setting Smarter machines Robotics Automation</td>
<td>Goal seeking Self-optimizing algorithms Decentralized Autonomous Organizations</td>
<td>World Wide Ledger, Blockchain, AI, IOT, SSID</td>
</tr>
</tbody>
</table>
Blockchain will create $3.1 trillion in business value by 2030, but ...

Phase 1: Irrational exuberance, few high-profile successes (2018 to 2021)

Phase 2: Larger focused investments, many successful models (2022 to 2026)

Phase 3: Large-scale economic value added globally (2027 to 2030)
Where do we stand?
# Current blockchain initiatives tend towards optimization

New businesses that rely on a blockchain foundation. Business model may not be new.

- Synereo — Content rights & social platform
- OpenBazaar — b2c marketplace
- Gnosis — prediction market platform

New markets based on digital assets created from non-digital ones (both physical and virtual).

- Royal Mint, CME — digital gold
- NYIAX — advertising contracts
- China carbon carbon credit

Efficiency improvements in transactions and interactions.

- DTCC — derivatives clearing and settlement
- Maersk — container shipment and trade
- IBM — supply chain

Records management by one entity, for self or for a community.

- Estonia — Proxy voting
- Georgia — Land title
- Dun & Bradstreet — DUNS Number
For all the hype, blockchain barely registers in list of game changer technologies

<table>
<thead>
<tr>
<th>Q: Which technology area do you expect will be a game changer for your organization?</th>
<th>Top Performers (n = 230)</th>
<th>Typical Performers (n = 2,329)</th>
<th>Trailing Performers (n = 276)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artificial intelligence/machine learning</td>
<td>40%</td>
<td>25%</td>
<td>24%</td>
</tr>
<tr>
<td>Data analytics</td>
<td>23%</td>
<td>25%</td>
<td>21%</td>
</tr>
<tr>
<td>Cloud (excluding XaaS)</td>
<td>12%</td>
<td>10%</td>
<td>14%</td>
</tr>
<tr>
<td>Digital transformation</td>
<td>10%</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>Mobile (including 5G)</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>RPA</td>
<td>6%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Internet of Things</td>
<td>6%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>Blockchain</td>
<td>5%</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>Automation</td>
<td>3%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

8 other technology areas registered less than 2%
Is reality slowly (or suddenly) setting in?

From “Hype Cycle for Blockchain Business, 2018,” 27 July 2018 (G00357811)

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What to do?
## Recommendations for end-user organizations

<table>
<thead>
<tr>
<th>Educate, experiment and extend to the broader ecosystem</th>
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<tbody>
<tr>
<td><strong>Set realistic expectations</strong> — the technology, legal, regulatory, and cooperative platforms and frameworks are all nascent</td>
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<tr>
<td><strong>Experiment</strong> but don’t build the case on production-ready blockchains</td>
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<td>Understand <strong>decentralized nature of technology</strong> — undertake proofs-of-concept to absorb the concept of radical decentralization</td>
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<tr>
<td><strong>Think strategically and implement tactically</strong> — select a limited narrow-scope use case for real deployment on a chosen platform</td>
</tr>
<tr>
<td><strong>Prepare to migrate</strong> away from your deployed system — because every platform technology will be obsolete in 18 to 24 months</td>
</tr>
</tbody>
</table>
Recommended Gartner Research

► **Market Guide for Blockchain Platforms**
  Adrian Leow, Rajesh Kandaswamy and Others (G00354340)

► **Blockchain Status 2018: Market Adoption Reality**
  David Furlonger and Rajesh Kandaswamy (G00355300)

► **Blockchain-Based Transformation: A Gartner Trend Insight Report**
  Rajesh Kandaswamy and David Furlonger (G00352362)

► **Blockchain Trials Across Industries Show a Market in Transition**
  Stephanie Stoudt-Hansen and Others (G00352760)

► **Hype Cycle for Blockchain Technologies, 2018**
  David Furlonger and Rajesh Kandaswamy (G00340388)