

Blockchain Workshop/Conference

26 April 2018

Blockchain for Energy trade

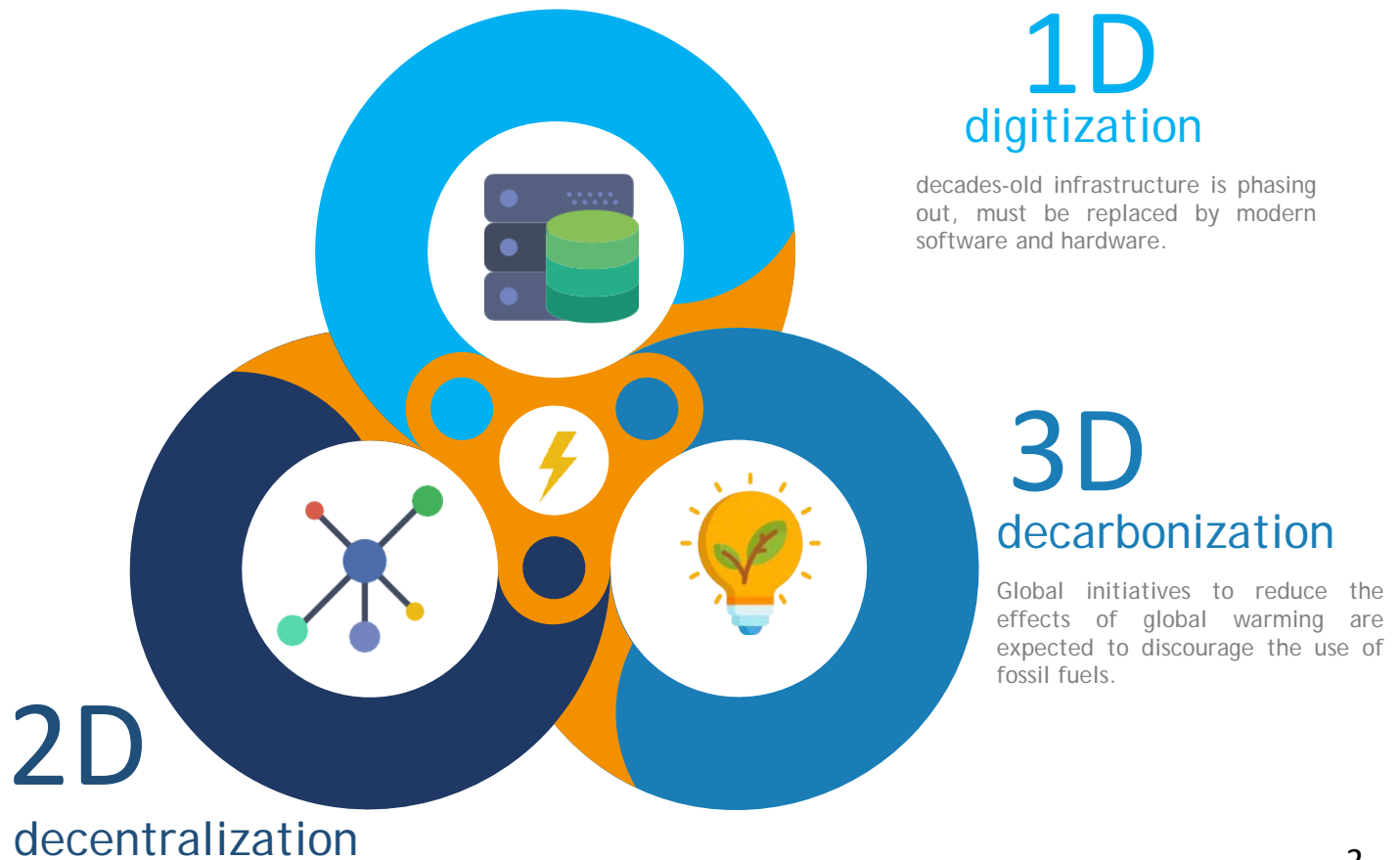
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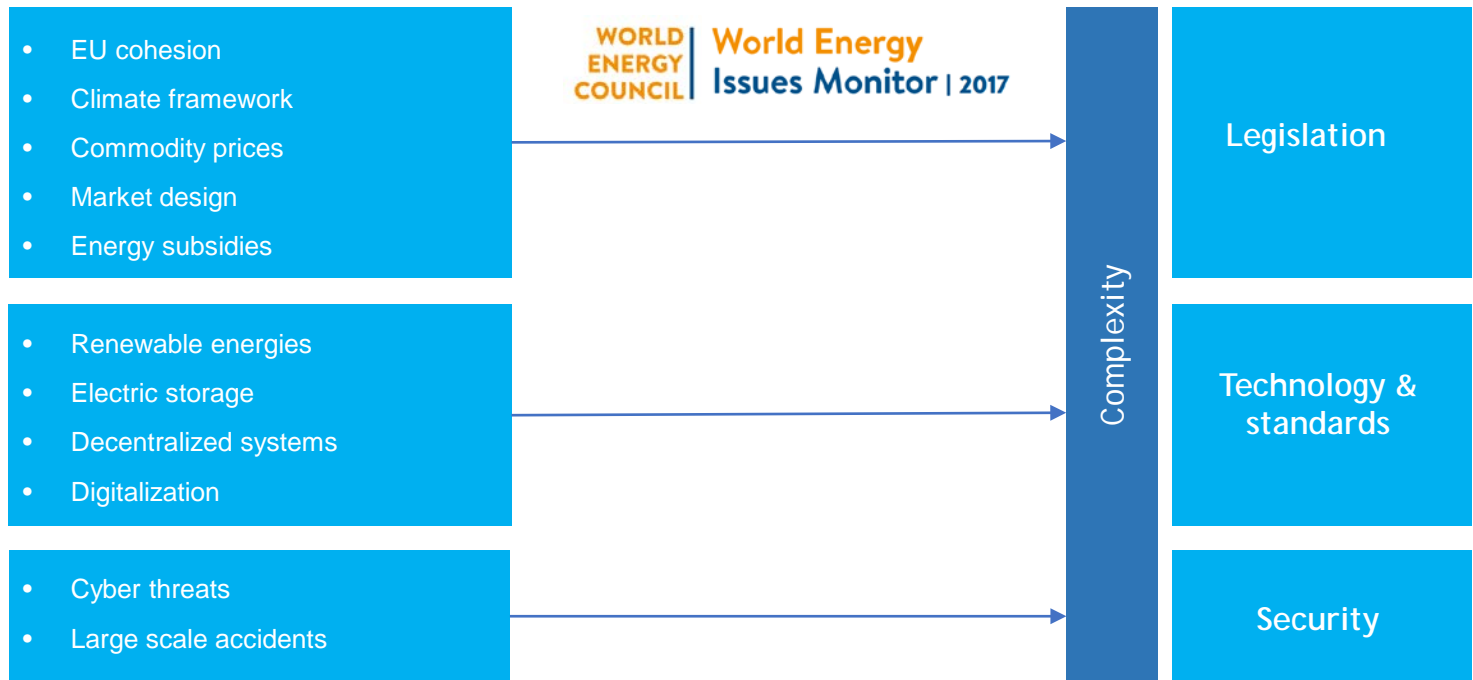


Changes on the energy industry: The 3Ds



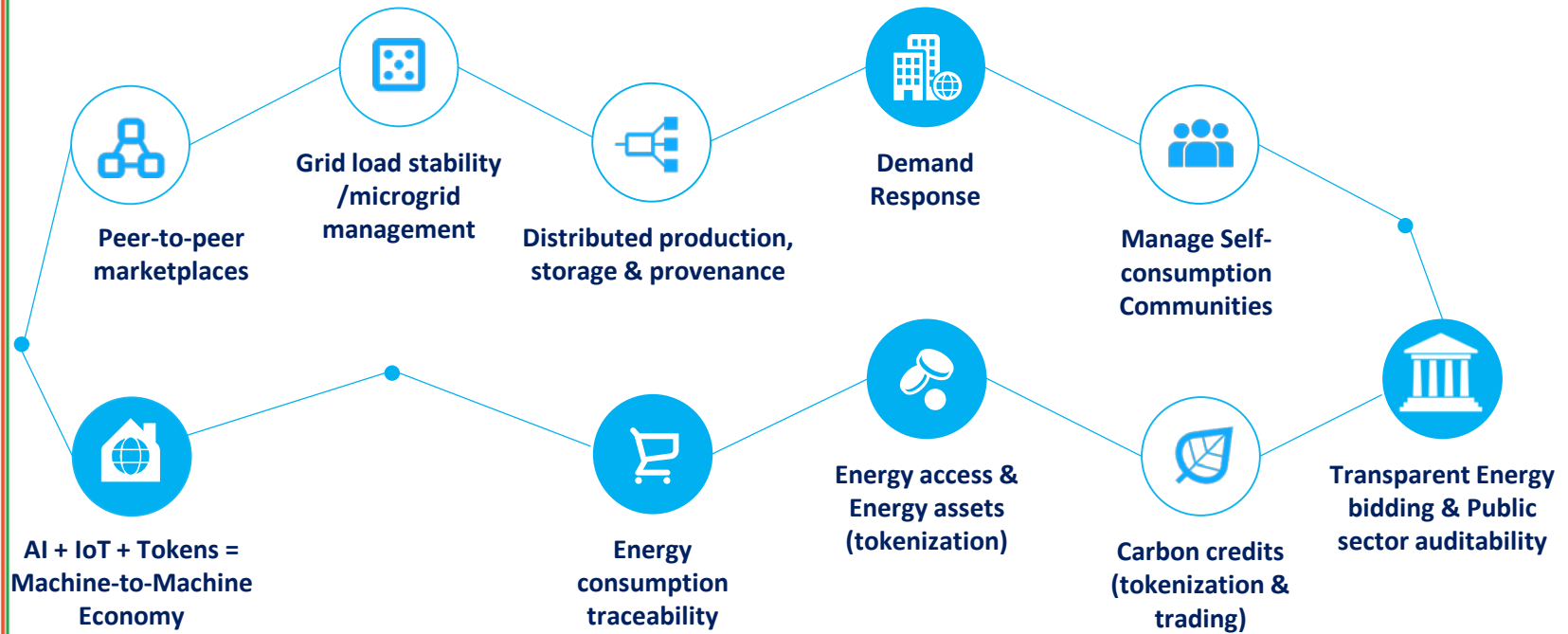
Energy priorities are focused on complexity of issues

A survey by the World Energy Council gathered energy industry leaders to identify the challenges they struggle with

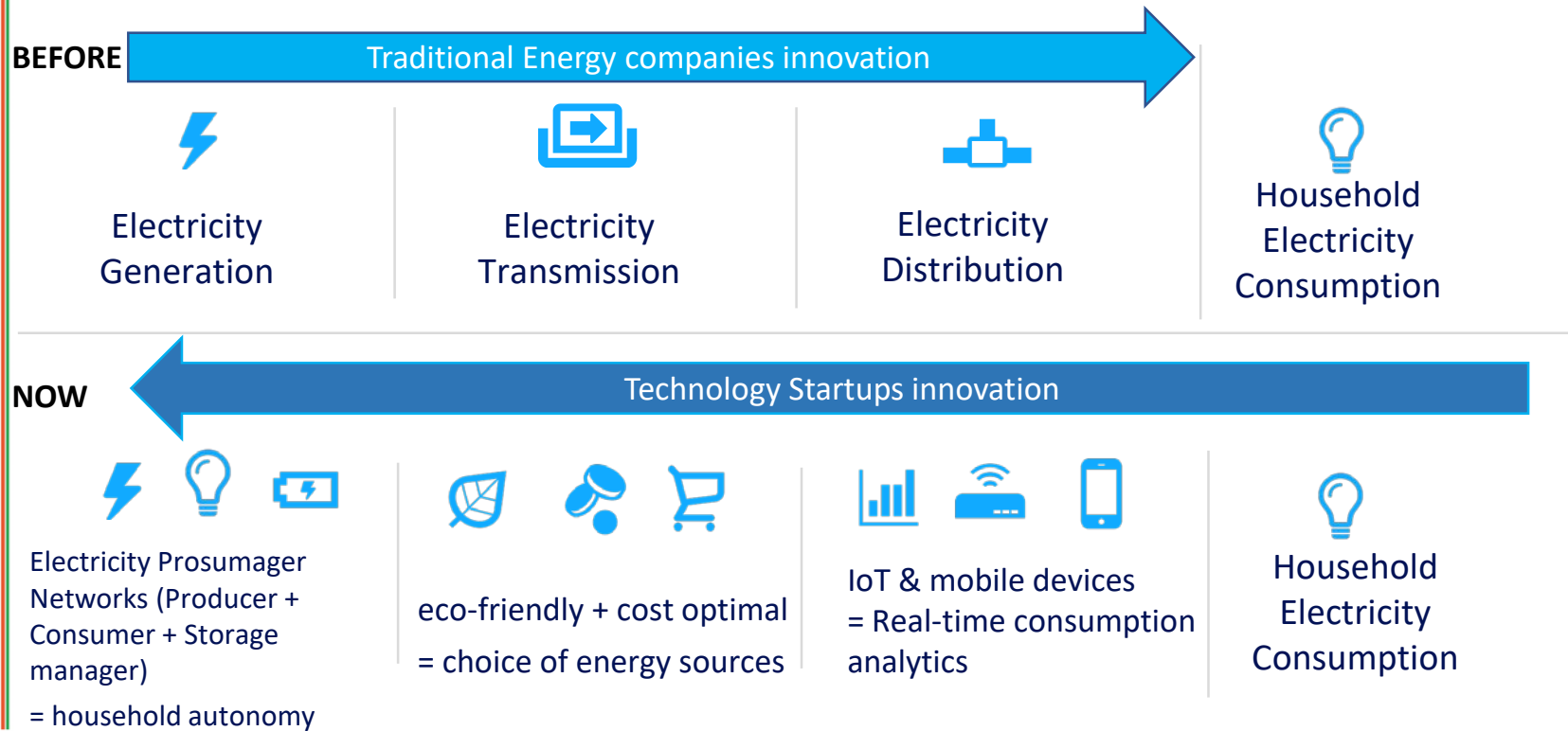


Source: <https://www.worldenergy.org/wp-content/uploads/2017/04/1.-World-Energy-Issues-Monitor-2017-Full-Report.pdf>

General use cases of blockchain in Energy



Innovation in utility companies vs technology startups



Blockchain features with direct impact on energy markets

- 1. Peer-to-peer (disintermediated) access to electricity trading orders on local, national and international markets.**
2. Fault tolerant network and automatic replication of critical trading data and information.
- 3. Smart contracts that automate the processing of electricity trading data, production/consumption data, price agreements, administrative and legal paperwork.**
4. Cryptographically secured identities to ensure legally binding agreements.
- 5. ERC-20 tokens that commoditize energy production/consumption.**



Opportunities to use blockchain for energy trading(1/2)

- 1. Blockchain-enabled IoT and smart contract-enabled peer-to-peer energy marketplaces.**
2. Blockchain-enabled IoT and smart contracts to enable M2M energy economy.
3. Establish a sectoral energy blockchain network as infrastructure for future energy applications.
- 4. Blockchain smart tokens to record, transfer and avoid double spending of "Carbon Credits" on energy trading markets.**

Opportunities to use blockchain for energy trading(2/2)

5. Blockchain smart contracts for auditable, automated pricing and billing in energy trading.
6. **Blockchain smart contracts to reduce administrative costs of self-consumption energy communities and encourage zero-net-energy buildings.**
7. **Blockchain-enabled IoT and smart contracts to manage demand side response cooperatively in order to increase the flexibility of the grid.**
8. Scalable fast, IoT-friendly blockchain networks to allow semi-connected devices to use pay-as-you-go energy financed by micro-transactions.



Challenges of using blockchain for energy trading

1. **Governance, intent and regulatory frameworks for national and cross-border energy trading.**
2. **Electricity consumption and customer data: Data ownership, personal privacy, the General Data Protection Regulation.**
3. Intellectual property, partner & energy price agreements embodied in smart contract code.
4. **Electricity trading transactions and standards as part of the interoperability of blockchains and the inter-industry token exchange.**
5. Daily transactions costs for electricity trading, micro-transactions and the problem of scalability for energy retailers and the end-consumer.

Thank you

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<http://blockchain.swisscom.com>

