



# Business model innovation of Blockchain-based energy trading platforms – *work in progress*

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# Key observations and research questions – beyond the Blockchain hype

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## Observations

- Underlying business models of Blockchain-based energy trading and clearing platforms are **not yet clearly defined**
- Reality diverges from the founders' vision of implementing energy-related Blockchain applications – **very few live sites**
- **More pragmatic perspective** on the actual capabilities and weaknesses of the technology
- Two types of platforms emerging:
  - **Consortia** such as VAKT or the Energy Web Foundation, which include startups, utilities and multinationals, banks, sometimes even NGOs
  - Individual companies pursue and provide integrated solutions for specific markets (**Blockchain-as-a-service**)

## Research questions

- In which fields do executives see the greatest potential and hurdles for implementing Blockchain solutions in the energy sector?
  - ⇒ **Quantitative global survey** among professionals in jobs related to the energy sector
- How do business models in energy applications and platforms differ between single providers and consortia?
  - ⇒ **Qualitative interviews** with providers from the energy sector, and non-energy firms, in particular finance/ fintech

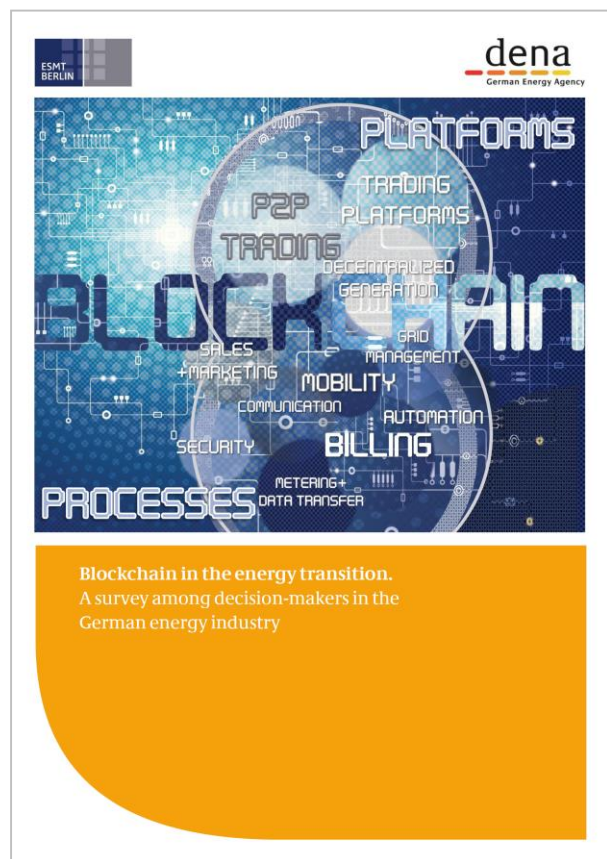
## Research output (beyond IAEE)

- Integrated in a research project called ETIBLOGG (Energy Trading via Blockchain-Technology in the Local Green Grid), funded by the German Federal Ministry of Economic Affairs and Energy



# Quantitative analysis: Follow-up of joint dena/ESMT study in 2016

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Blockchain in the energy transition. A survey among decision-makers in the German energy industry, with A. Kuhlmann and P. Richard. Dena/ESMT publications (2016)

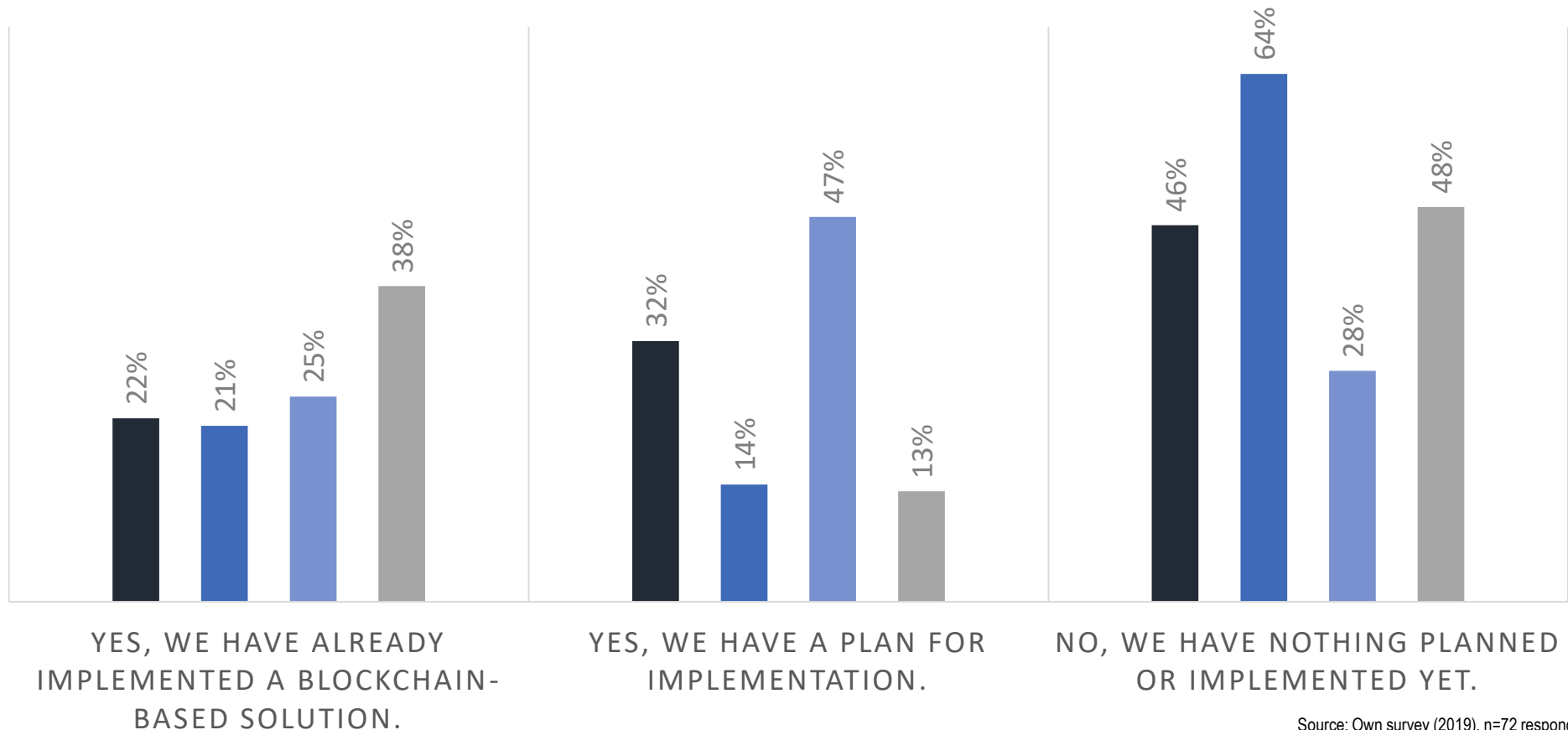


# In 2019, less than 25 percent of respondents have implemented Blockchain in their businesses

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## HAS YOUR COMPANY OR ORGANIZATION ALREADY TAKEN STEPS TO IMPLEMENT BLOCKCHAIN-BASED SOLUTIONS?

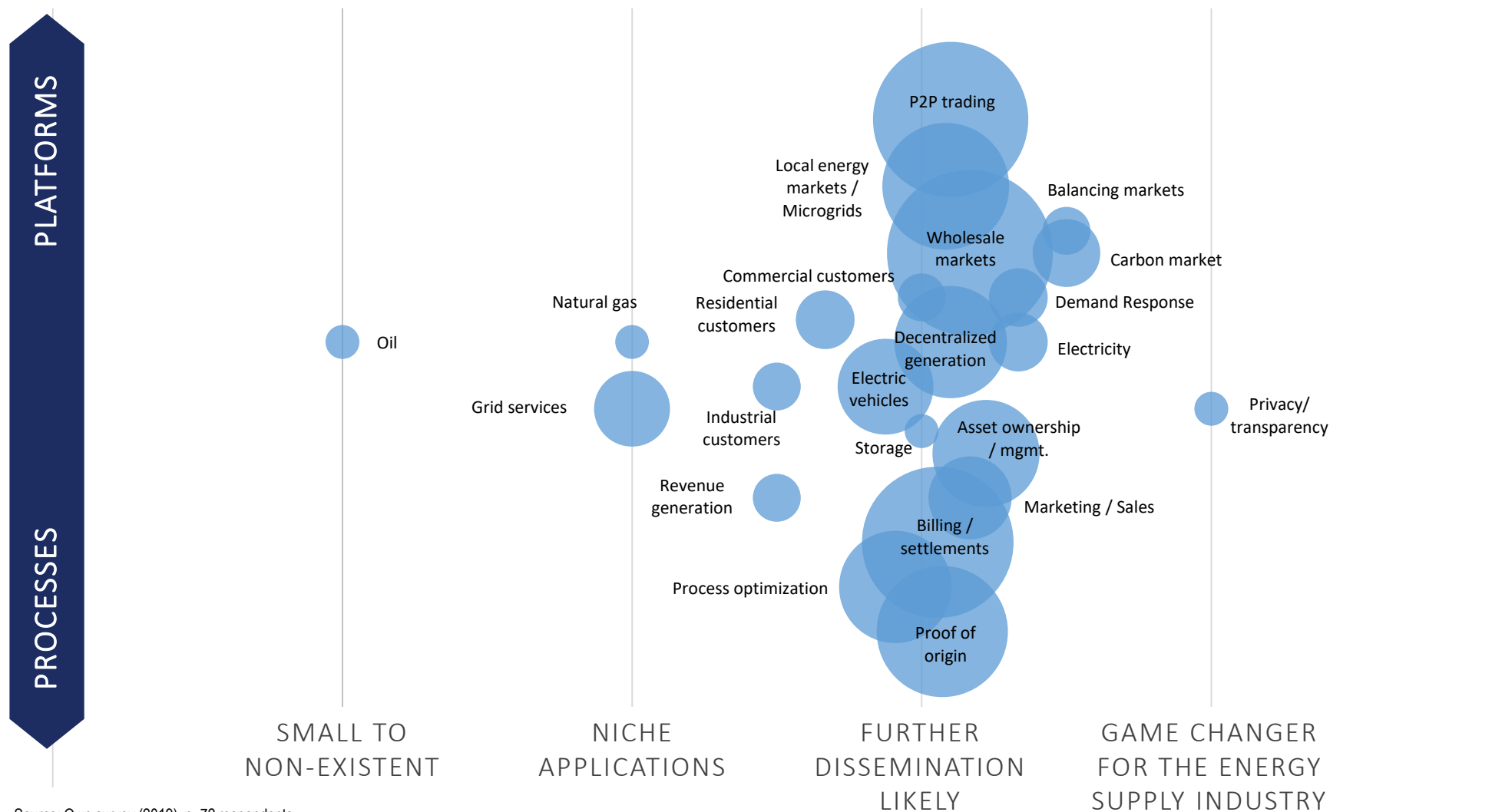
■ All responses (2019)
■ USA & Australia (2019)
■ DACH region (2019)
■ Germany (2016)



Source: Own survey (2019), n=72 respondents

# The potential of Blockchain is evenly distributed between platforms/ marketplaces and process optimization – with further dissemination expected

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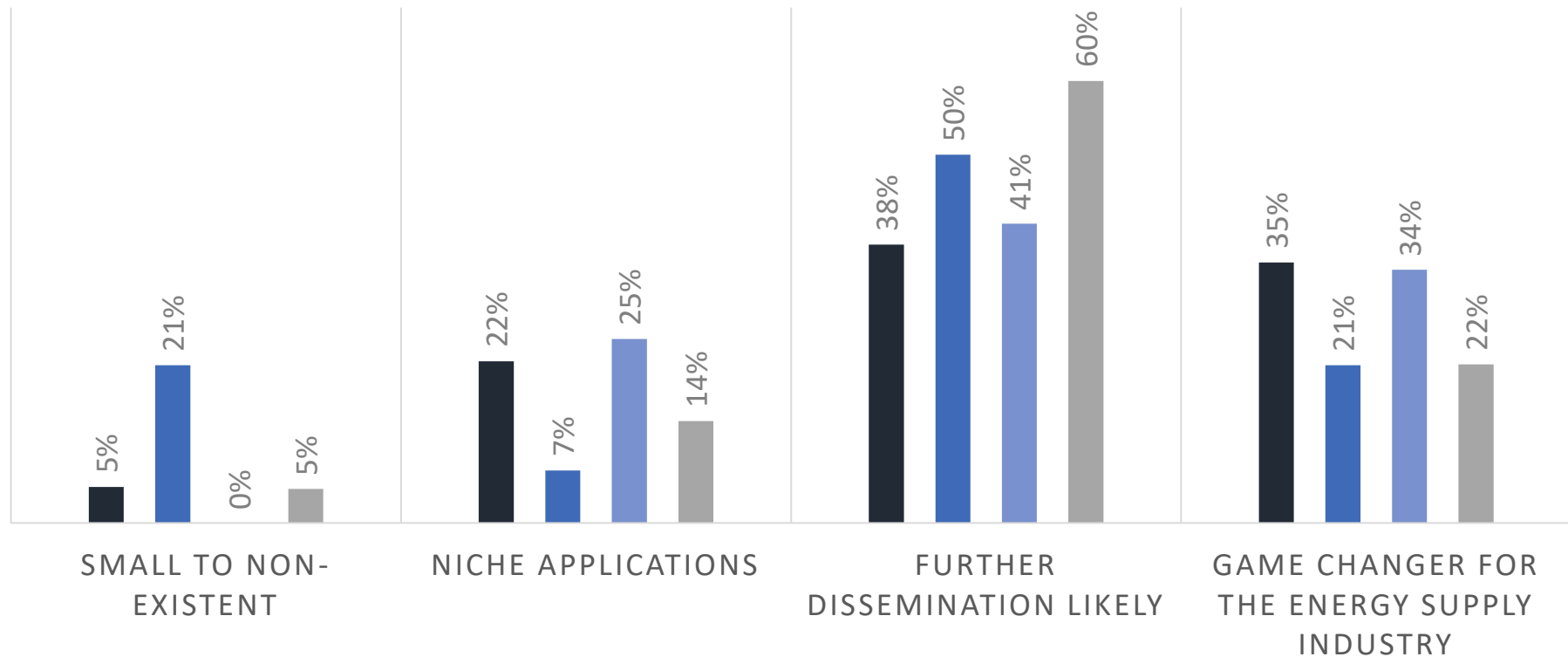
Source: Own survey (2019), n=72 respondents

# Yet, compared to 2016, a higher number of respondents consider Blockchain a game changer, but skepticism in Australia and the USA

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## HOW HIGH DO YOU ESTIMATE THE POTENTIAL OF BLOCKCHAIN IN THE ENERGY SECTOR?

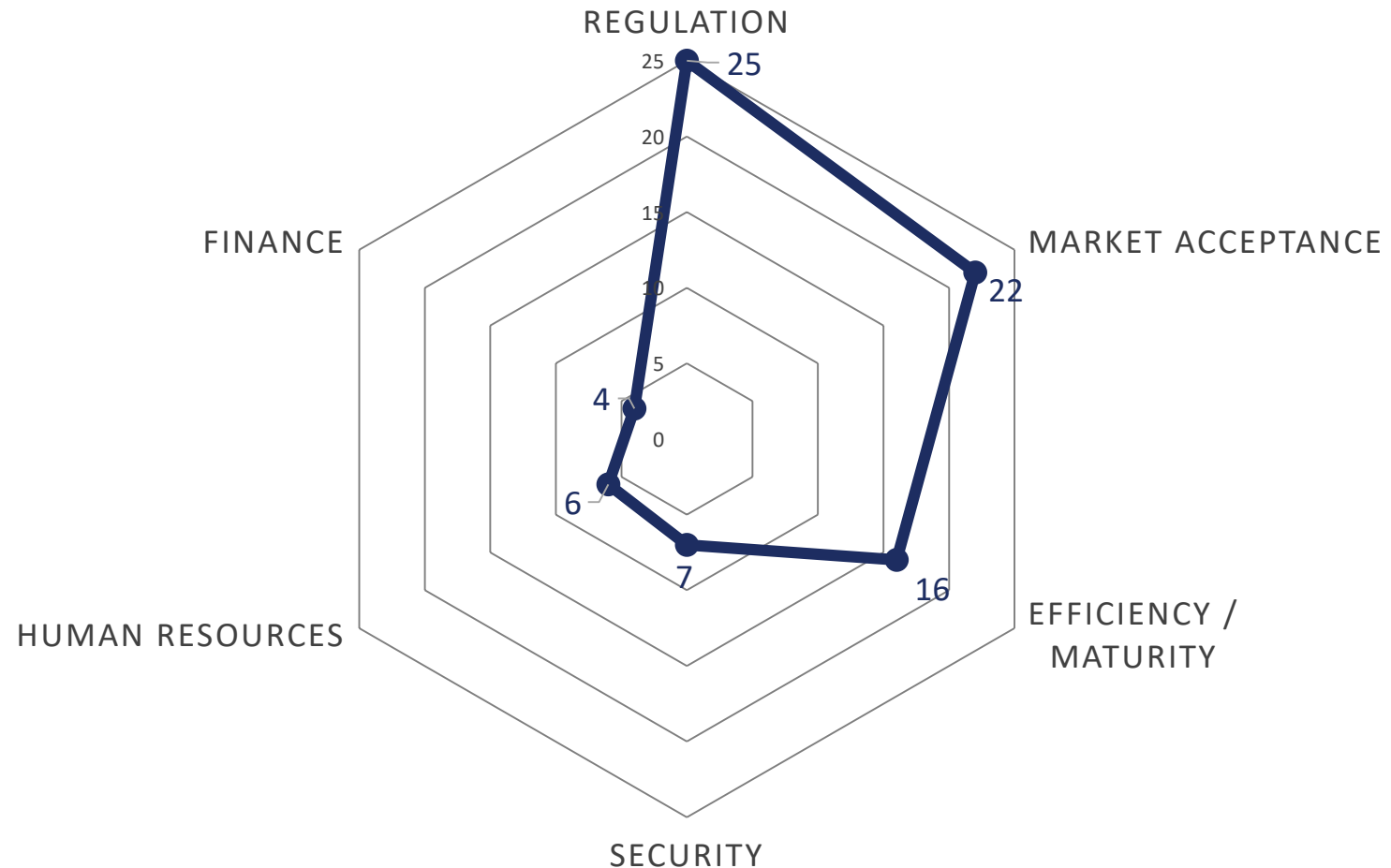
■ All responses (2019)   ■ USA & Australia (2019)   ■ DACH region (2019)   ■ Germany (2016)



Source: Own survey (2019), n=72 respondents

# Regulation, market acceptance and efficiency/ maturity are perceived as the greatest hurdles for Blockchain in the energy sector

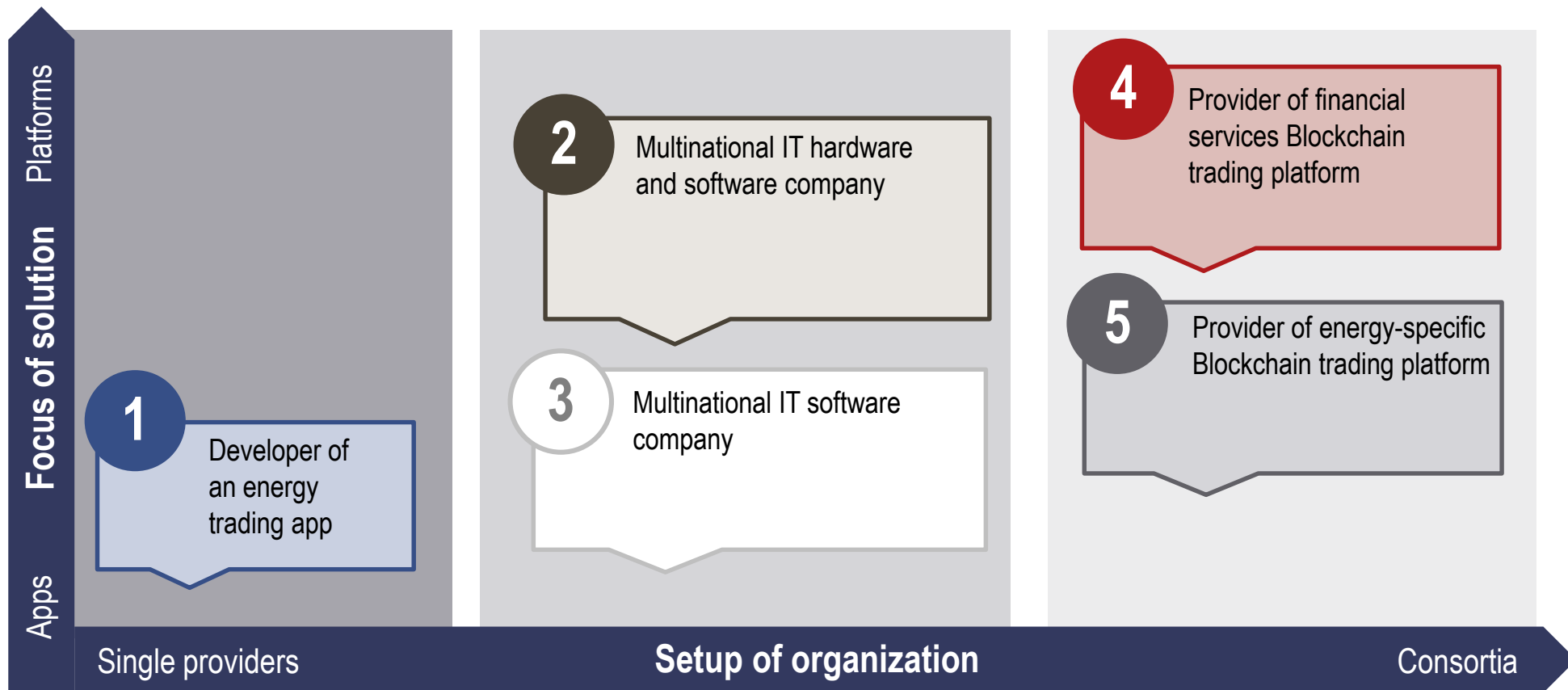
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Source: Own survey (2019), n=72 respondents

# Qualitative interviews with key decision-makers in energy-related, financial and multi-sector Blockchain applications to shed light on the business models pursued

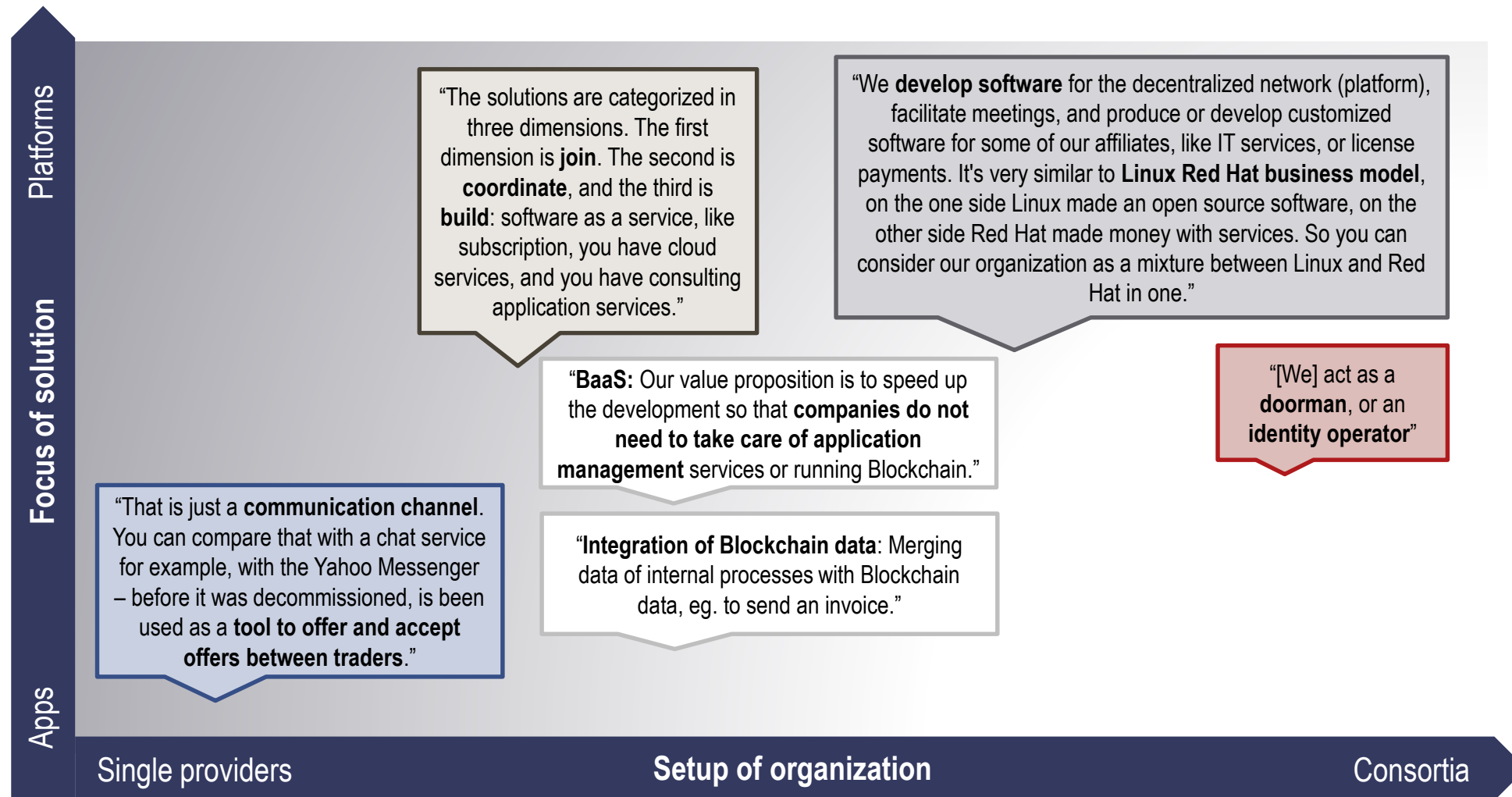
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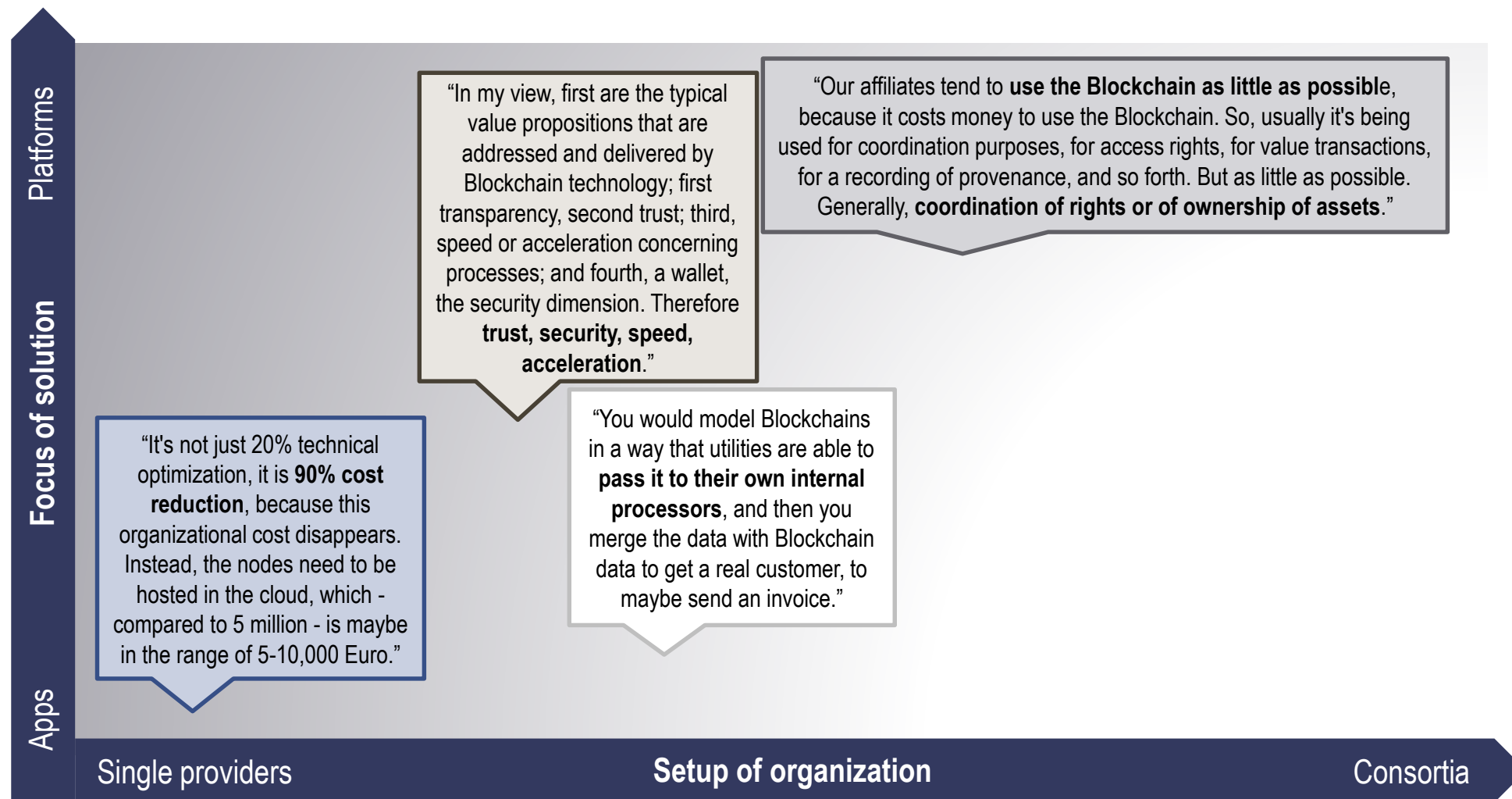
# Value propositions range from Blockchain-as-a-Service for individual companies up to platform provision

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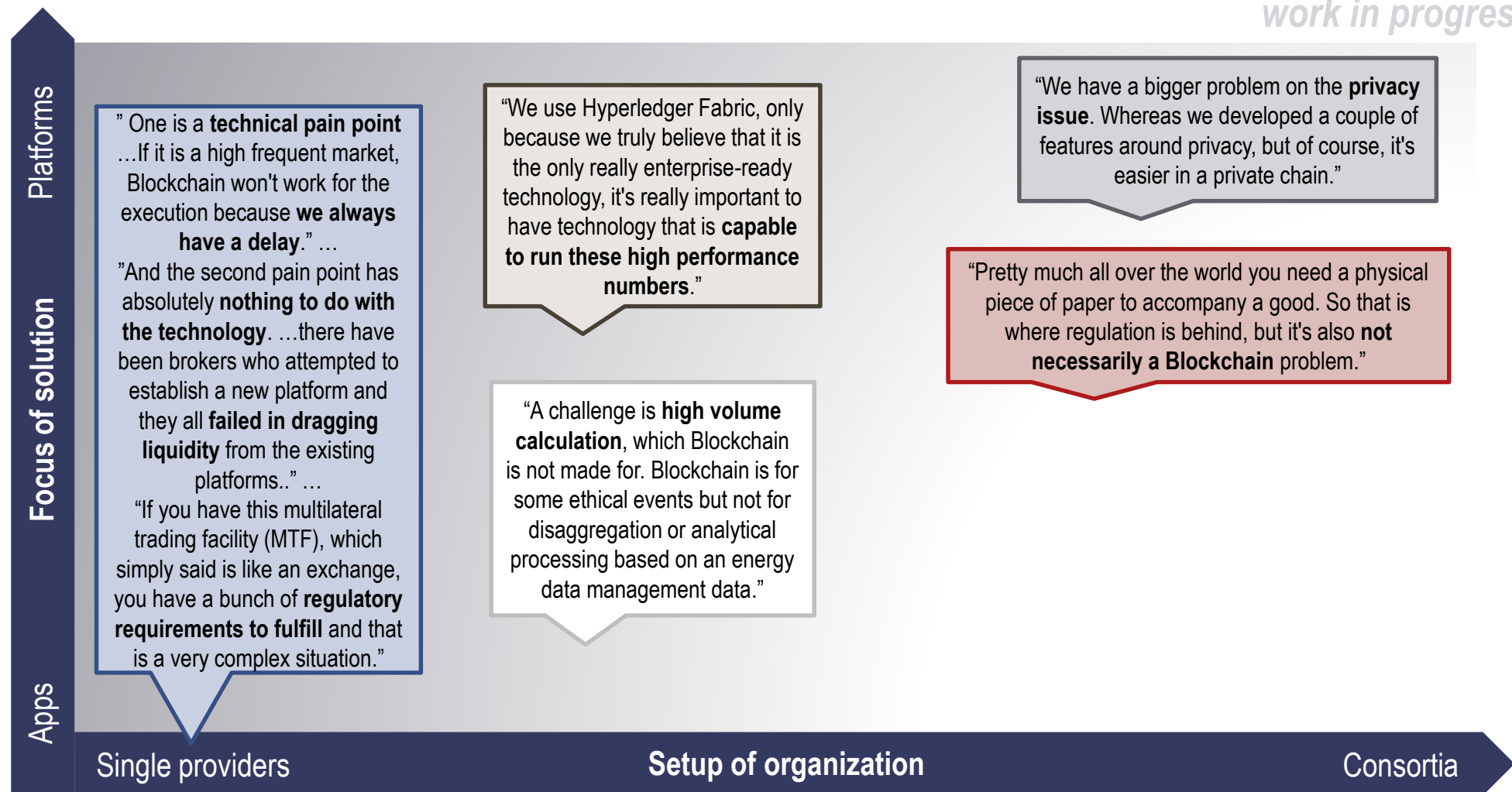
# Blockchain is used as communication channel, as transparent access to critical data for all market participants and to reduce organizational cost

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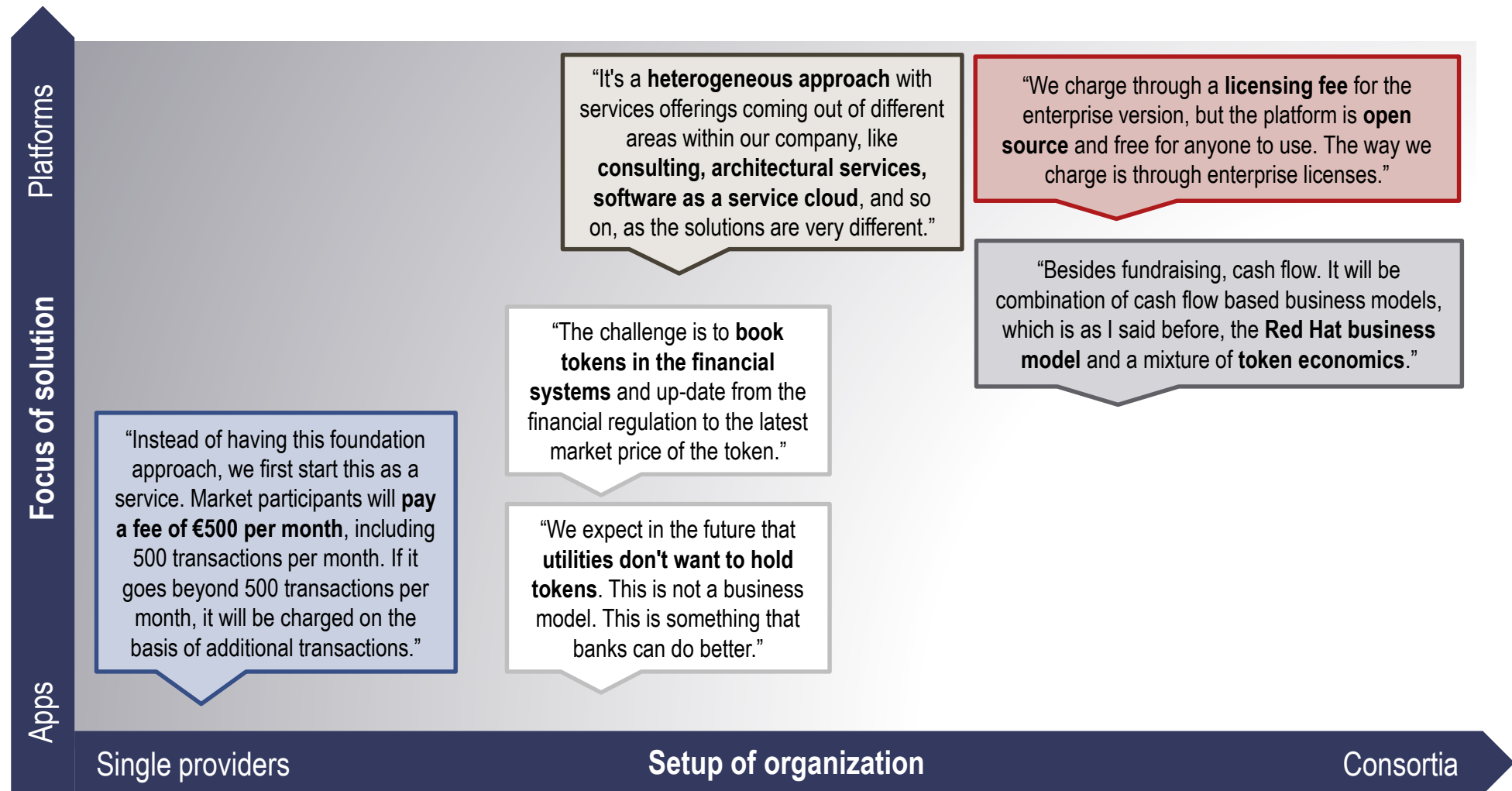
# Major hurdles in energy-related Blockchain applications range from technology, market acceptance, regulation, calculation, privacy up to integration of tokenization to ECR system

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# Financing models mirror classical IT-pricing up to tokenization

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# Key insights of quantitative and qualitative field research

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## Potential and timing

- Blockchain apps and platforms to become commercially deployed in 1-4 years in the energy sector  
⇒ **Pilot projects and first applications already on the market**

## Business models

- Business model convergence between platforms and apps  
⇒ **Platform providers offer app services (Red Hat/ Linux model)**  
⇒ **Blockchain-as-a-Service providers create platforms with key stakeholders and clients**

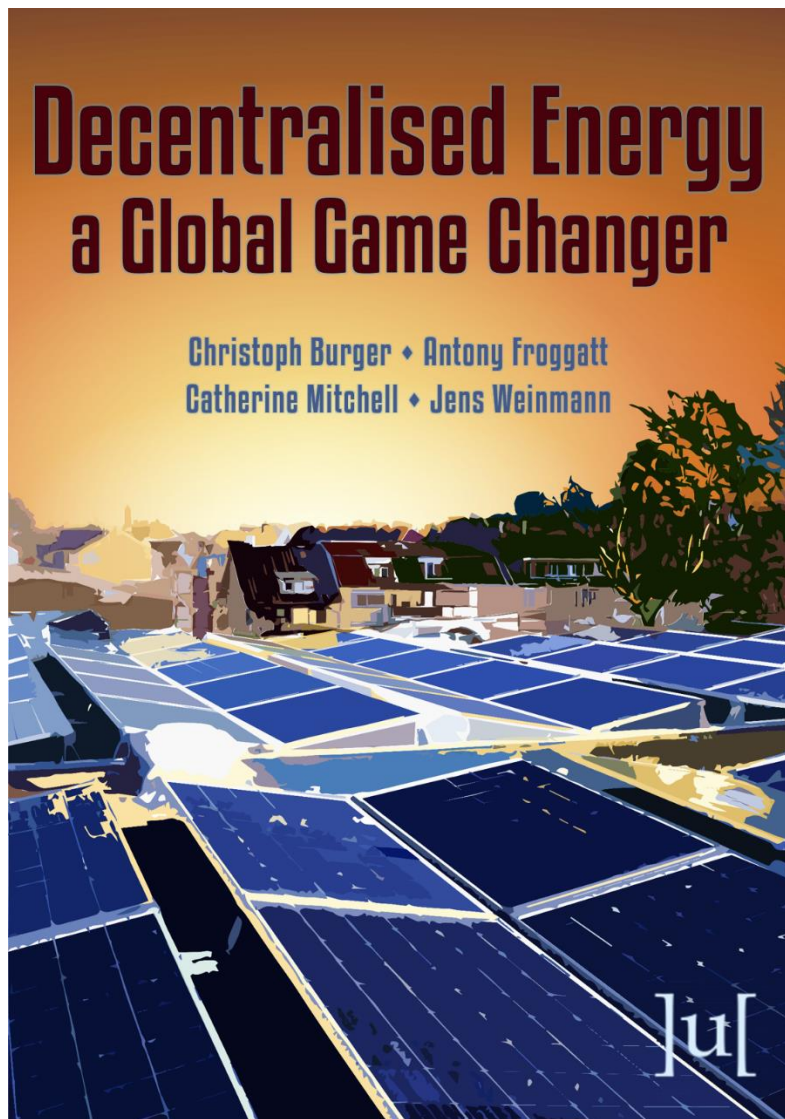
## Potentials and hurdles

- Potential of Blockchain is evenly distributed between platforms/ marketplaces and process optimization
- Regulation, market acceptance and efficiency/ maturity are perceived as the greatest hurdles
- Blockchain-as-a-Service solution from single over consortia to platform applications most advanced with no regulatory and market hurdles seen
- Blockchain platforms with tokenization with many regulatory and market hurdles

## Comparison with other industries

- Finance sector more advanced than energy in terms of implementation  
⇒ **May be related to the physical/ technical/ regulatory context of energy as a public infrastructure service**

## Upcoming book to analyze governance and business models on a global scale



### Contents

1. Introduction: The rise of decentralized renewable energy generation
2. Regulatory and policy incentives – establishing governance of decentralized energy systems  
Country analysis: Australia, China, Denmark, Germany, India, Italy, California and New York  
Decentralised Energy: a Global Game Changer, Ubiquity Press (forthcoming)
3. Business models beyond subsidies – which core competencies are needed?  
Case analysis: Envio Systems, Timo Leukefeld, Entelios, SOLshare, Mobisol, Solarkiosk, Power Ledger
4. The three phases of the energy transformation – top-down and bottom-up
5. Global game changer – leading the future

# ESMT

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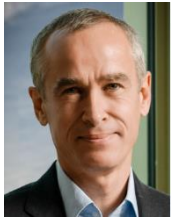
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thank you