



Blockchain in Coffee Certification: Opportunity or New Risk?



Tropentag
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A two-round Delphi study on feasibility, power and equity in coffee sustainability certification

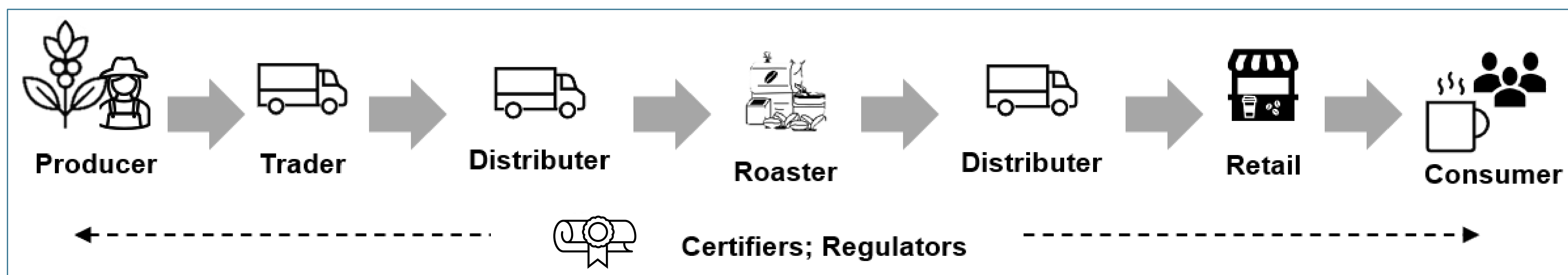
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Introduction & Motivation

- Producers in the Global South face **volatile prices, power asymmetries** and tightening **regulations** like the EUDR [1, 2]
- Certification promises** fairer market access, but is often costly, opaque and skewed toward downstream actors [2, 3]
- Blockchain** is discussed as a promising technology for robust evidence system [4]
- Evidence** on blockchain's value for equity and small actor inclusion stays **scarce**, despite a decade of pilots [4]

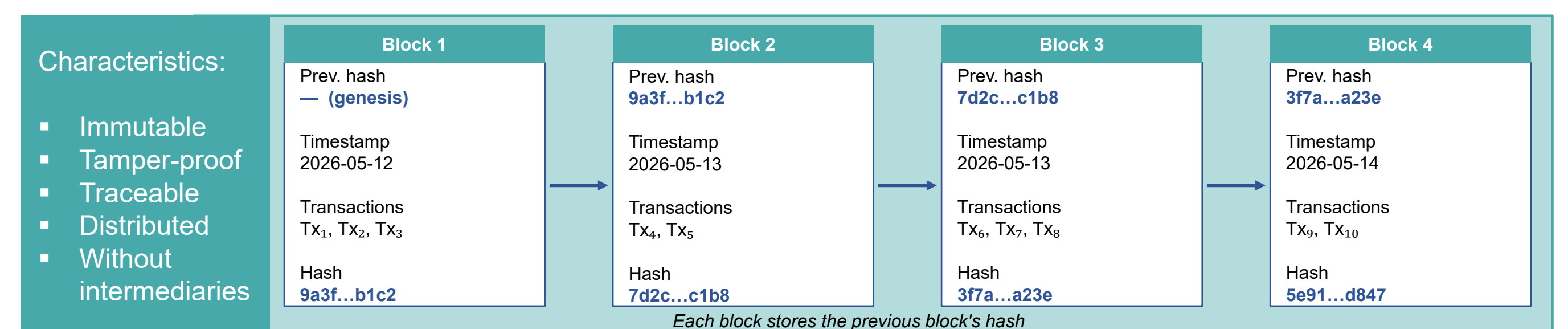
Coffee Value Chain



Research Goal

Investigate the **feasibility, stakeholder acceptance, economic, and social implications** of blockchain for sustainability certification in the coffee value chain.

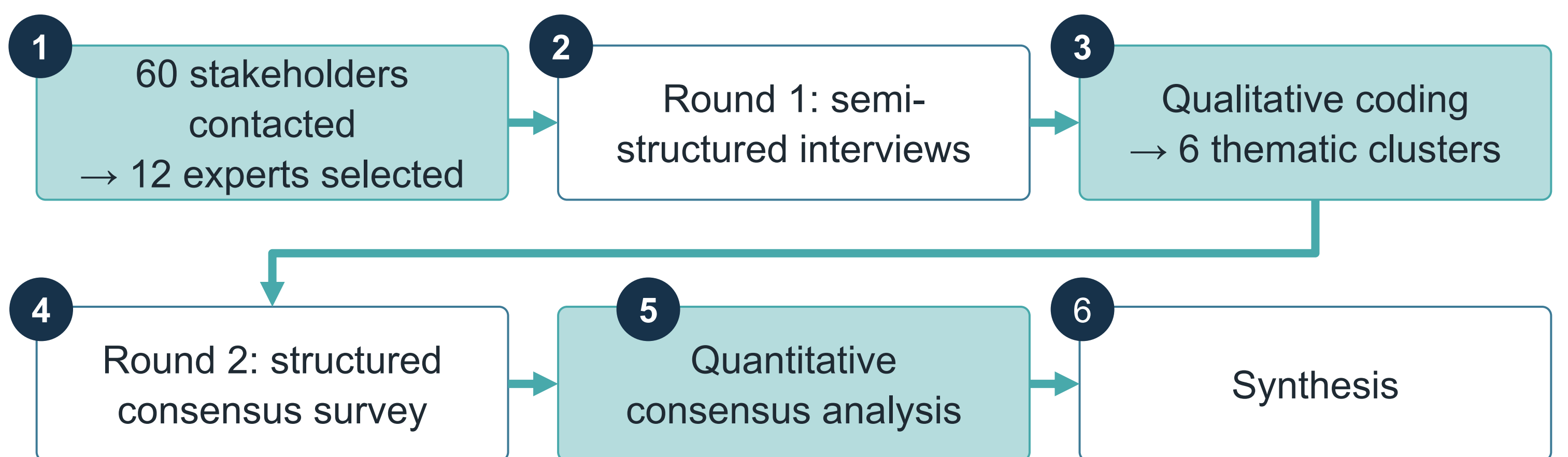
Blockchain



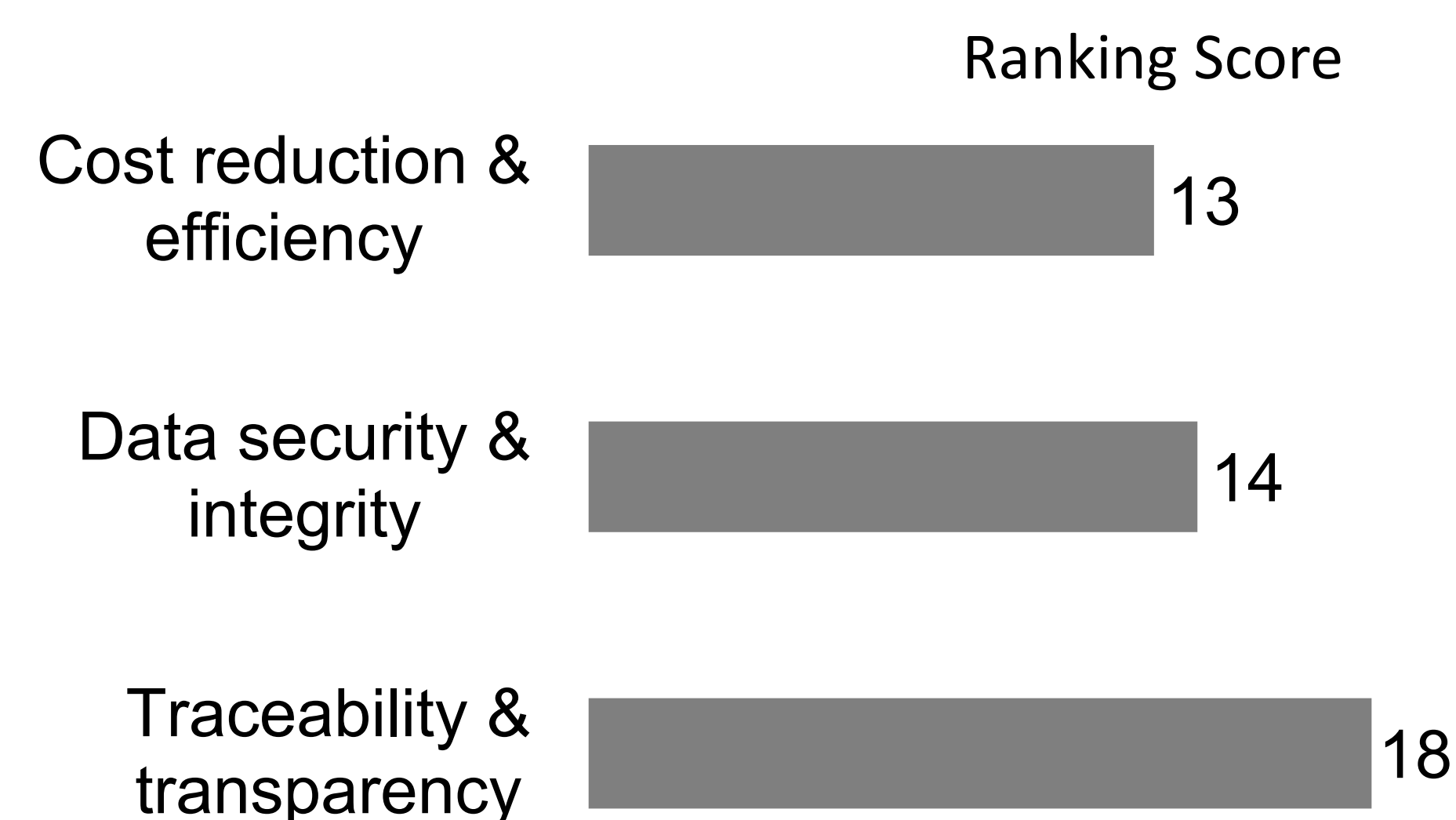
Method: Two-Round Delphi Study

- Structured, anonymous**, multi-round process for building expert consensus [5-8]
- Expert Panel:** 1 sustainability/NGO representative, 4 Technology Providers, 3 Coffee Roasters, 4 Academic Researchers
- Round 1:** semi-structured interviews with 12 experts, 306 coded statements, 6 themes
- Round 2:** online survey rating 29 statements, 1–5 agreement scale
- Very high expert retention:** (91.7% response rate in second round)

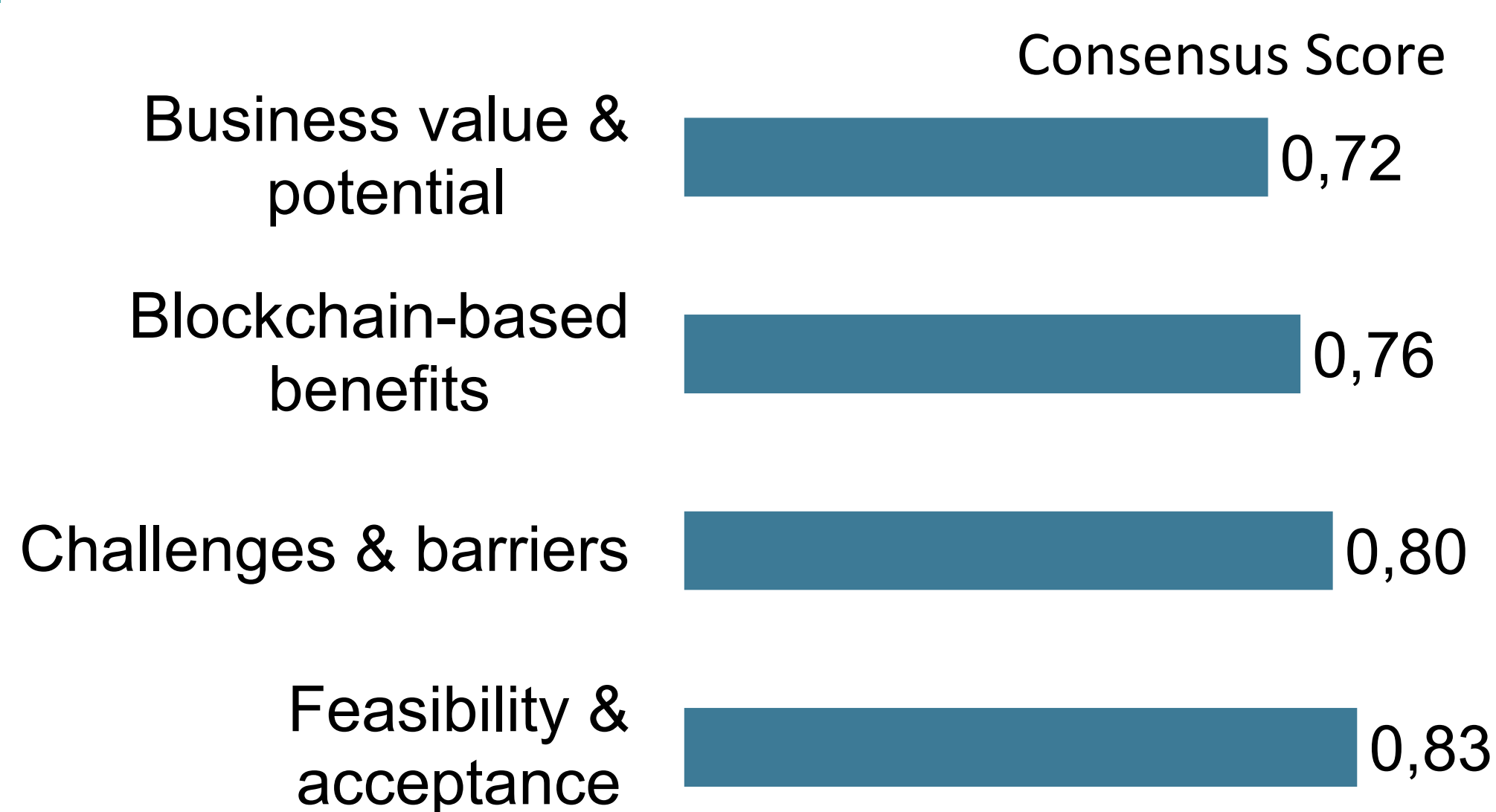
Delphi Process



Top-Ranked Benefits (Round 1)



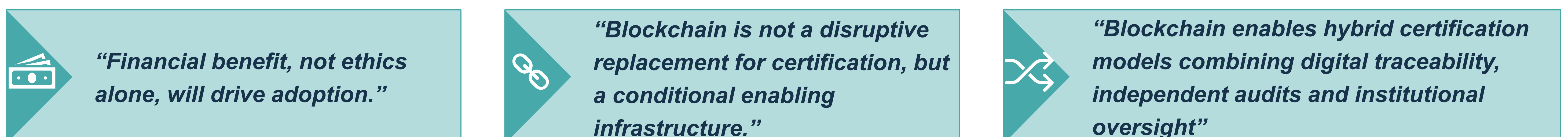
What Experts Agree On (Round 2)



What Holds Adoption Back

- High implementation **costs**
- Digital **exclusion** of smaller producers → reproduction of **power asymmetries**
- Industry fragmentation limits **interoperability**

Key Take-Aways



Potentials



References:
[1] Bager, S. L. & Lambin, E. F. (2020). Sustainability strategies by companies in the global coffee sector. *Business Strategy and the Environment*, 29(8), 3555–3570.
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[4] Samoggia, A., Fantini, A. & Ghelfi, R. (2025). The promised potential of blockchain technology for transparency and fairness in agri-food chains: Insights from the coffee sector. *Frontiers in Sustainable Food Systems*, 9, 1401735.
[5] Okoli, C. & Pawlowski, S. D. (2004). The Delphi method as a research tool: An example, design considerations and applications. *Information & Management*, 42(1), 15–29.
[6] Hsu, C.-C. & Sandford, B. A. (2007). The Delphi technique: Making sense of consensus. *Practical Assessment, Research & Evaluation*.
[7] Khodyakov, D., Grant, S., Kroger, J. & Bauman, M. (2023). *RAND Methodological Guidance for Conducting and Critically Appraising Delphi Panels*. RAND Corporation.
[8] Schreier, M. (2012). *Qualitative content analysis in practice*. SAGE.