The Potential of Blockchain Technology for Collaboration among Countries

Jefferson Bicca Charczuk[a], *Kerley* Silva[a]*, *Marco Tulio* da Silva Lima[a]

[a] Federal Data Processing Service (Serpro), Brazil

Submitted: 31 January 2025, Revised: 26 March 2025, Accepted: 21 April 2025, Published: 22 May 2025

Abstract. In today's interconnected world, cooperation between countries is crucial, whether to deal with challenges or opportunities in the economic, social, technological or environmental perspective. This document proposes a workshop regarding the potential use of blockchain technology to foster international cooperation among different countries, to address opportunities and challenges. Cross-border collaboration is often hindered by inefficiencies, lack of transparency, and trust issues between nations. Blockchain technology, characterized by its decentralized, transparent, and immutable nature, has the potential to change the way countries collaborate, offering new opportunities for more efficient, secure, and trusted cooperation.

Keywords. Blockchain, Public Sector, Collaboration, Cooperation, Opportunities, Challenges.
Workshop, DOI: https://doi.org/10.59490/dgo.2025.1009

1. Introduction

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There are different ways in which blockchain can be potentially used by the public sector (Alexopoulos et al., 2019; Alketbi et al., 2018; Berryhill et al., 2018; Koster and Borgman, 2020; Olnes, Ubacht and Janssen, 2017). Some of the ways that the technology can support collaboration among countries are the following:

a) Enhancing Cross-Border Trade and Economic Cooperation

One of the most promising applications of blockchain for international collaboration lies in trade and supply chain management (Rukanova et al., 2021; Vanany, 2020; Westerlund et al., 2021; Zhang et al., 2021). Traditional international trade systems are often burdened by paperwork, delays, and inefficiencies in customs clearance, payments, and documentation. Blockchain can streamline these processes by providing a secure and transparent record of every transaction, from the manufacturer to the end consumer. This model enables and open the possibility to create standards, allowing interoperation which also aligns a common language between different actors.

Through blockchain-based platforms, countries can potentially reduce intermediaries, minimizing the risks of fraud. For example, blockchain can track goods in real-time as they cross borders, providing a transparent record that ensures compliance with international trade regulations, improving customs efficiency, and enhancing trust between trading partners.

b) Blockchain for Cross-Border Payments

Blockchain's potential to transform cross-border payments is another area with implications for international cooperation. Crypto economic models using blockchain enable payments, investments, lending and borrowing, allowing the representation of assets as tokens, that can be traded in digital exchanges (Zutshi et al., 2021). Remittances, international business payments, and the global movement of capital often suffer from high transaction costs, slow processing times, and the involvement of many intermediaries. Blockchain can reduce intermediaries, thereby reducing costs and making financial flows faster and more transparent.

Countries can collaborate on creating a stable infrastructure for international economic cooperation, allowing for the easier exchange of money across borders. Blockchain can provide the security and efficiency needed to support these digital currencies, ensuring that international transactions are both faster and more reliable.

c) Secure Data Sharing for Global Challenges and Cooperation

International cooperation often requires the exchange of data across borders, whether for education, security, environmental monitoring, or scientific research. Blockchain can provide a secure and transparent means for data sharing between countries, reducing the risks of data manipulation.

For example, blockchain could be used to track climate change data shared between nations, creating an immutable record of emissions reductions, resource usage, or conservation efforts. This would ensure that all participating countries are held accountable to their commitments under global or regional agreements. By ensuring that data cannot be altered or tampered with, blockchain increases transparency and trust among nations.

At its core, blockchain technology offers a decentralized and trustless system. Countries can collaborate through blockchain technology, leveraging open-source solutions to enhance mutual growth. By sharing knowledge and resources, they can create more efficient, transparent systems. Together, they can unlock new opportunities for innovative solutions. Even when countries don't fully trust each other, blockchain enables them to work together without relying on a central authority or intermediary. With blockchain, nations can collaborate on projects, share information, and exchange resources in a way that ensures transparency, accountability, and security.

d) Blockchain in International Governance and Accountability

International governance often involves complex negotiations between countries with differing interests, values, and political systems. Blockchain can help facilitate these discussions by providing a decentralized platform for governance where decisions are made collaboratively, transparently, and with accountability. Furthermore, blockchain can help in creating standards and protocols that can be adopted by different countries, ensuring interoperability and alignment of interests (Koller and Douglas, 2023).

One of the most innovative uses of blockchain in the context of international collaboration is its potential to transform voting systems (Jafar, Aziz and Shukur, 2021). Blockchain-based voting systems could be used to ensure that international bodies make decisions based on real-time input from all participants. Blockchain could also enhance transparency in international aid distribution, making it easier to track how funds are allocated, how they are spent, and whether they reach their intended recipients.

For example, in humanitarian aid scenarios, blockchain can help to track donations, ensuring that funds are used appropriately and reach the right beneficiaries. This would increase trust in among civil society and organizations and foster stronger collaboration between nations in solving crises such as disaster relief.

Blockchain-based voting could also be used in global referendums on pressing issues like international trade agreements and collective measures from different dimensions, such as environmental, social, technological and economical. By leveraging blockchain's security and transparency features, global and decentralized models of governance could become more inclusive and trusted by citizens around the world.

2. Workshop Proposal

a) Goal: to identify international challenges, analyse pain points and to map the potential use of blockchain.

b) Participants: Government representatives, tech developers, policymakers, international organizations, corporations, civil society, business leaders, researchers and students. By engaging in open dialogue, stakeholders from different backgrounds can share valuable insights, which can help shape more effective and adaptable strategies for implementing blockchain in an international context. The diversity of thought also enables the identification of potential challenges that may arise in different cultural, economic, and regulatory environments, allowing for more informed decision-making.

c) Steps:

- Brief presentation: regarding the workshop goals and about the potential of blockchain in the international context.
- Identification of international challenges or needs: Identification of common challenges, needs and inefficiencies that affect multiple countries. These challenges should be suitable for blockchain's unique features (e.g., transparency, security, tokenization, decentralization and standardization). At the end, the challenges will be organized according to PESTLE framework.
- Analysis of pain points: Dive deep into some of the specific needs and pain points of the different countries. Examination of the bottlenecks and inefficiencies in the international issues selected. Assessment regarding where is trust between parties lacking, as well as where decentralization or tokenization may be suitable.
- Map the potential use of blockchain: Explore how blockchain's capabilities can address some of the pain points identified. Map each challenge or need and align it with potential blockchain use cases. Use a value vs. feasibility matrix to prioritize ideas. The matrix should plot potential blockchain applications based on their feasibility (technical, regulatory, etc.) and value to stakeholders.

3. Conclusion: Blockchain as a Catalyst for Cooperation among Nations

Blockchain's potential to enhance international collaboration is promising and multifaceted. By offering secure, transparent, and decentralized systems, blockchain can help address some inefficiencies and trust deficits that currently exist between countries in areas such as trade, education, finance, governance, and environmental protection. As nations continue to face global challenges, as climate change and economic inequality, blockchain technology provides a powerful tool to foster more effective, transparent, and equitable international cooperation.

By embracing blockchain, countries can take a significant step toward more cohesive, accountable, and trustworthy partnerships. The time to explore its potential is now, as the future of international collaboration hinges on the willingness to innovate, adopt new technologies, and build a more connected world.

Therefore, it is expected that the workshop and discussions will consider the diverse perspectives of the participants to explore the use of blockchain technology in an international context. The exchange of different visions allows participants to deepen their understanding of blockchain's potential and limitations across various regions and sectors.

Moreover, the workshop can encourage cross-border collaboration, breaking down barriers and promoting the development of solutions that benefit many parties. This collaborative environment accelerates innovation, with participants more likely to create interoperable systems that can operate seamlessly across jurisdictions. The shared goal of maximizing blockchain's positive impact on different segments brings people together, fostering stronger partnerships and networks that extend beyond the duration of the workshop.

In conclusion, we expect that the workshop with diverse perspectives on blockchain may pave the way for more strategies that address different challenges and opportunities, while unlocking the technology's potential in an international context.

Acknowledgement

- **Contributor Statement***:
  - Jefferson Bicca Charczuk: Software, Resources, Validation, Writing – Review & Editing
  - Kerley Silva: Conceptualization, Data Curation, Investigation, Methodology, Resources, Writing – Original Draft, Writing – Review & Editing
  - Marco Túlio da Silva Lima: Project administration, Supervision, Writing – Review & Editing
- **Use of AI***: During the preparation of this work, the author(s) used ChatGPT in order to explore different ideas and techniques regarding the workshop. After using this tool/service, the author(s) reviewed, edited, made the content their own and validated the outcome as needed, and take(s) full responsibility for the content of the publication.
- **Conflict Of Interest (COI)***: There is no conflict of interest.

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Appendix A

The proposed steps for the workshop may be updated according to the number of participants. The workshop consists of two sessions, each lasting 1 hour and 30 minutes.