BUILDING CONCEPTUAL BRIDGES BETWEEN BLOCKCHAIN AND SUPPLY CHAIN SUSTAINABILITY

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ABSTRACT

This text has the work to create a theoretical bridge between blockchain technology and supply chain sustainability. The blockchain is changing the world regarding safer and decentralized information management, and this contributes to introducing a new paradigm in sustainability in the supply chain. Because the blockchain eliminates the need for trusted third parties and creates digitally a decentralized trusted entity. So we did a theoretical essay to present the relationship between these concepts. So one of the properties that blockchain can build a relationship with is the sustainability in the supply chain as we can see in the arguments of this article, it is blockchain implementation that can be useful for supply chain sustainability, there are still few uses to support this claim.

KEYWORDS

Blockchain, Theoretical Bridges, Sustainable Supply Chain

1. INTRODUCTION

Sustainability in modern Supply Chains is inherently complex, comprising multi-level entities, geographically disjointed in the Chain. Bridging the new Blockchain technology with Sustainability in the Supply Chain can help with traceability, where it is becoming an increasingly urgent requirement and a key differentiator in many industrial Supply Chains, including the agri-food sector (Costa et al. 2013) and high value goods (Maurer, 2017), which are the riskiest. Luxury and high value items, the basis of which today depends on paper, on certificates and receipts and can easily be lost or altered.

In this context, Blockchain can help the Sustainability in the Supply Chain Management, through the Blockchain, we can be sure of the origin of the products we are consuming, so the whole chain is transparent.

The Blockchain provide distributed and transactional accounting functionality that can operate without the need for centralized and reliable authority. Updates recorded on ledger are unchanging and the cryptographic time stamp allows for serial recording Blockchain's robust and decentralized functionality is very attractive for use with global financial systems, but can easily be expanded to contracts or operations, such as global Sustainable Supply Chain Management tracking.

The SSCM consists of the strategic and transparent integration of the social, environmental and economic objectives of the companies that make up the supply chain, as well as the interrelated key business processes of these components, for the improvement of economic, social and environmental performance through a long-term relationship and the sharing of information (Wolf, 2014).

This theoretical essay proposes a link between the two aborted themes, Blockchain and SSCM by proposing a joint analysis model for these concepts.

In general, the Constructing a Brig model proposition may allow the identification of the relationships between Blockchain and SSCM, contributing to supply chain transparency and theoretical gap identified between these relationships.

2. DISCUSSION

The article is proposing to build a conceptual bridge between the new blockchain technology in sustainability in the supply chain, to present if there is a possible application of this innovation that is changing the technology world, relatively new in several areas mainly in the supply chain, explaining its relevance in the universe and how the supply chain can be more sustainable.

The research method adopted in the development of this article is a theoretical essay. Blockchains as distributed, immutable, transparent and shared by a community can also influence chain networks. Sustainable supplies, thus being a possible construction of convergence between both. Tracking possible social and environmental conditions that may represent environmental, health and safety issues are an important application focus for Blockchain. (Adams, Kewell and Parry, 2018).

Sustainable Supply Chain Management (SSCM) contributes to the relationships between the focal company, its suppliers and customers being based on the dimensions of the triple bottom line, which proposes the strategic direction of organizations meet the economic and environmental dimensions and achieve sustainable development.

SSCM promotes integration between chain components, contributing to the increased environmental performance, reducing waste and operating costs. However, it is clear that chain organizations only adopt these practices identify the simultaneous occurrence of financial or operational benefits (Beske and Seuring, 2014).

Blockchain technology emerged in 2008 as a central component of cryptocurrency like bitcoin. Blockchains provide distributed and transactional accounting functionality that can operate without the need for centralized and reliable authority. The updates Ledger recordings are unchanging and the cryptographic time stamp allows for serial recording. The robust and decentralized functionality of blockchains is very attractive for use with global financial systems, but can easily be expanded to contracts or operations,

such as global supply chain tracking. This described how to use cryptographic signatures for documents with

date and time; Anderson (2018) proposed a decentralized storage system from the which registered updates could not be deleted; and described how to encrypt sensitive information to protect log files on untrusted machines (Sbcoaching, 2018).

The “bridge building” metaphor between the blockchain and the sustainability of the supply is in identifying a point of convergence between these two theories. It will be presented the concept of each one below explaining what is the sustainability in the chain of supply, and the new blockchain technology.

Today's supply chains rely heavily on energy management systems. Centralized, sometimes disparate and independent, information that is within the organizations; for example enterprise resource planning systems that have your own pitfalls.

Blockchains as distributed, immutable, transparent and reliable databases, shared by a community can also influence supply chain networks thus being a possible construction of convergence between them. O tracking of possible social and environmental conditions that may pose problems environmental, health and safety is an important application focus for the blockchain (Adams, Kewell and Parry, 2018).

A blockchain-based supply chain provides better rights assurance human rights and fair work practices. For example, a transparent record of the history of the product assures buyers that the products being purchased are supplied and manufactured from sources that have been found to be ethically sound and sustainable. Smart contracts may be especially capable of tracking and controlling rules autonomously, sustainable terms and regulatory policy enforce or govern corrections.

The business dimensions of the supply chain are not just important for sustainable supply chains, but expanding the focus to the environmental and This has resulted in a more generalized perspective on the supply chain. At promising features of blockchain technology can be a panacea for such complexity on the tripod of sustainability: economic, social and environmental.

Thus, a bridge between them captures and identifies a sustainable supply, which chains can exemplify the breadth of blockchain construction. This way you can support data collection, storage and management, supporting products and supplies information in the chain. A bridge that can be very interesting in this context is that of identification by radio frequency (RFID) blockchain technology to equip a traceability foods in the food system in real time.

Blockchain can detect unethical suppliers and counterfeit goods because all information may only be recorded by authorized actors; these can cause serious damage. Social This means that your business depends on suppliers and vice versa. This scenario which everyone is accustomed to has a problem: it is very easy to adopt irregular conduct or track record or contrary to the mission, vision and values defined by its organization.

This technology validates and exposes all stages that make up logistics, recording any issues that occur along the way. This information cannot be modified, which increases safety. Due to encryption, changes can only be performed by a hacker. Even so is virtually impossible because it would be necessary to break the encryption of all blocks of network on all computers at the same time.

3. CONCLUSION

With so little research on this subject, it is difficult for parties to understand exactly how blockchain technology can be used in your business sustainability in the supply chain.

There is considerable opportunity for a better understanding of this new technology and your application to go beyond the traditional web-based information and integration system in sustainability in the supply chain. I encourage the academy to examine and build upon research proposal identified and the emerging digitization and research of the supply.

Understand all the implications of blockchain technology on chain sustainability supply will require transdisciplinary efforts. Professional organizations need to be involved and work with the academy to develop standards and provide practical measurement of performance in implementing blockchain technology.

In this article, it provides a discussion between bridging the blockchain and Technology supply chain sustainability has been the subject of extensive research lately, but hardly in connection with sustainability in the supply chain. So one of the properties that blockchain can build a relationship with is the sustainability in the supply chain as we can see in the arguments of this article, it is blockchain implementation that can be useful for supply chain sustainability, there are still few uses to support this claim.

In addition to an overview of blockchain technology and its sustainability applicability supply chain still needed a lot of in-depth study for organizations obstacles to the adoption of blockchain technology. More people are interested in new ways to feel safer. With so little research on this subject, it is difficult for stakeholders to understand just like blockchain technology could be used in your specific business in the sustainability in the supply chain.

To better understand the technology and possibly generate new implementations, they will benefit from the development of a universal evaluation model that has not yet been exist. Allowing the creation of shared, secure and decentralized records, autonomous digital contracts (smart contracts) and reliable and secure networks. Besides that, supports peer-to-peer transactions reducing the role of intermediaries in the network. There is considerable opportunity for a better understanding of this new technology and your application to go beyond the traditional web-based information and integration system in sustainability in the supply chain.

One of the limitations of this article is that it is only theoretical. Needing a deeper approach to exploring this theme. What about quantitative research methods for better results and greater possibility for discussion. For future research, we encourage the academy to examine and build upon research proposal identified and the emerging digitization and research of the supply. Understand all the implications of blockchain technology on chain sustainability supply will require transdisciplinary efforts. Professional organizations need to be involved and work with the academy to develop standards and provide practical measurement of performance in implementing blockchain technology. No doubt there is a substantial amount of work in this area for future research directions.

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