
Benefits in Adopting Blockchain Technology in Fashion Products

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Innovative blockchain technology

Blockchain technology is a new type of evolving technology that utilizes a specific data structure consisting of a chain of hash-linked data blocks. A blockchain is a shared distributed ledger that digitally records and connects transactions in a chain that contains the entire history or origins of an asset. Only after a transaction has been validated by a consensus protocol is it included in the blockchain, and each log is encrypted for added protection (Baharmand, Maghsoudi, & Coppi, 2021). The concept of a distributed ledger is characterized by storing the data in various locations that are not managed or owned by a single body. It is the foundational technology of cryptocurrency. The information is stored in blocks that consist of a “header” and a “data” portion. The data portion carries the transaction, whereas the header section includes metadata of the block. A blockchain is created when each header section contains the hashes of the current and previous blocks. This system prevents unauthorized activities and changes. This method provides credibility to the entire procedure.

Despite that blockchain technology has been in place for many years, it has not been widely adopted in the fashion industry (Das, 2021). In addition, the benefits of adopting blockchain technology in the fashion industry has not been academically explored with an appropriate theoretical framework. In this study, we would like to explore how blockchain technology can help marketing fashion products by investigating potential benefits of adopting blockchain technology in the fashion supply chain, which may provide opportunities in creating a higher demand for sustainable fashion products and reduce the level of greenwashing, while increasing the level of environmental and social sustainability. As we consider the benefits of adopting blockchain technology, the Triple Bottom Line Theory (Ha-Brookshire, 2017) is utilized to provide a theoretical framework, investigating how blockchain technology can enhance the level of all three types of sustainability (i.e., environmental, social, economical). Some of the examples are as follows.

Benefits of Adopting the Blockchain Technology in the Fashion Industry

Consumers are becoming more aware of the environmental, social, and governance issues, and they are encouraged to adopt sustainable behaviors in all aspects of their lives, including making fashion choices (Euromonitor, 2023; Kell, 2018). However, the absence of accountability and lack of transparency are major problems that the fashion industry is facing, which has led to more customers questioning the practices implemented by many fashion companies. The industry has realized that voluntary participation to increase the level of

sustainability or to be involved in a circular economy will not be sufficient to slow down the climate crisis or the social issues. France has recently established a regulation to increase the transparency along the supply chain for fashion products, but many companies worldwide are still not ready to abide by such regulations or policies (Kent, 2023).

Environmental Sustainability

Environmental sustainability may be increased efficiently through adopting blockchain technology. Companies such as TextileGenesis use blockchain technology to create digital tokens providing timestamped records of physical flow of goods to increase the supply chain transparency (Textilegenesis.com). However, most fashion companies have not invested in the technology to inform customers about where the raw materials came from, as they have been focused on increasing the traditional economical bottom line.

Social Sustainability

In a similar token, it is possible to inform customers about who assembled the garment from which manufacturing facility in which country through blockchain technology. Companies such as Everlane pioneered transparency in social aspects by informing customers of the country of origins as well as manufacturing facilities they partnered with. However, this implementation can be efficiently scaled at individual product level through the adoption of blockchain technology.

Economical Sustainability

As Pucker (2022) stated, “Less unsustainable is not sustainable”, and in order to overcome this crisis, we need to provide a pragmatic solution to also increase the economic sustainability for fashion companies. In order to do this, it is imperative to create a higher demand for truly sustainable products from consumers. This can be facilitated through the adoption of blockchain technology. Customization, client retention, and client-specific experiences can be possible through “product passport” containing the item's entire history and origins, enabled by blockchain technology. Such a strategy can increase customers’ trust in a brand's reputation and values, which can lead to a positive long-term relationship with customers.

Need for Wider Adoption of Blockchain Technologies in Fashion

As described above, the fashion industry has its fair share of problems regarding the lack of sustainability. Blockchain technology can be used in the fashion industry to tackle the problem of lack of sustainability (Gerretsen, 2021). Ahmed and Berg (2022) reported that leveraging technology that helps inform consumers of where the products come from, how and where they were manufactured, will effectively fight greenwashing, a significant hindrance to manufacturing and consuming sustainable fashion products. The built-in credibility enabled in the blockchain can improve practices along the fashion supply chain where an increase in transparency may be beneficial; a potential for supply chain optimization as well as for an increased level of environmental and social sustainability along the supply chain. The adoption of such technology may ultimately help develop effective business strategies. In other words, using blockchain technology may provide a promising alternative to some of the current ineffective or even unethical practices and provide some solutions for issues that the current fashion industry is facing.

Need for Consumer Willingness to Adopt Blockchain Technology for Fashion Products

The researchers would like to propose conducting consumer behavior research to investigate the level of interest and willingness to adopt blockchain technology built in fashion products, as the industry slowly moves toward integrating such information technology into fashion product development. A conceptual framework and research methodology will be shared.

References

- Ahmed, I. & Berg, A. (November 30, 2022). State of Fashion 2023, *Business of Fashion*.
<https://www.businessoffashion.com/reports/news-analysis/the-state-of-fashion-2023-industry-report-bof-mckinsey/>
- Baharmand, H., Maghsoudi, A., & Coppi, G. (2021). Exploring the application of blockchain to humanitarian supply chains: insights from Humanitarian Supply Blockchain pilot project. [Application of blockchain to HSCs] *International Journal of Operations & Production Management*, 41(9), 1522-1543. <https://doi.org/10.1108/IJOPM-12-2020-0884>
- Das (2021). How is the blockchain and fashion industry perfect fit. *Blockchain Council*.
<https://www.blockchain-council.org/blockchain/how-is-the-blockchain-and-fashion-industry-a-perfect-fit/>
- Euromonitor (2023). Top Ten Trends of Global Consumers 2023.
- Gerretsen, I. (February 8, 2021). How blockchain can make fashion greener. CNN. Retrieved from <https://www.cnn.com/2021/02/08/business/textilegenesis-blockchain-fashion-spc-intl/index.html>
- Ha-Brookshire, J. (2017). *Global Sourcing in the Textiles and Apparel Industry* (2nd. ed.). New York, NY: Fairchild Books.
- Kell, G. (June 4, 2018). Can fashion be sustainable? *Forbes*,
<https://www.forbes.com/sites/georgkell/2018/06/04/can-fashion-be-sustainable/?sh=136f09dc412b>
- Kent, S. (January 13, 2023). Fashion isn't ready for the regulations coming for it. *Business of Fashion*, Retrieved from
https://www.businessoffashion.com/articles/sustainability/france-regulation-fashion-law-waste-recycling-transparency-louis-vuitton-gucci-zara-nike/?utm_source=newsletter_dailydigest&utm_medium=email&utm_campaign=Daily_Digest_130123&utm_term=FK3U5UJYIREQ5POJZQP2KBSLWA&utm_content=top_story_1_cta
- Kent, S. & Deeley, R. (November 18, 2022). 'Stop lying. Stop greenwashing.' - Key messages from COP 27. *Business of Fashion*,
<https://www.businessoffashion.com/articles/sustainability/sustainability-climate-emissions-cop27-united-nations-loss-and-damage-finance-greenwashing/>
- Kapfunde, M. (March 10, 2022). Blockchain in fashion, is it ready? Interline,
<https://www.theinterline.com/2022/03/10/blockchain-in-fashion-is-it-ready/#:~:text=The%20there%20is%20Alexander%20McQueen,entire%20label%20traceable%20on%20blockchain>
- Pucker, K.P. (January 13, 2022). The myth of sustainable fashion, *Harvard Business Review*,
<https://hbr.org/2022/01/the-myth-of-sustainable-fashion>
- Textile Genesis(n.d.). Textile Genesis, www.textilegenesis.com