A Circular Fashion Economy: Using Blockchain Technology for Supply Chain Transparency

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INTRODUCTION

The fashion industry has significant environmental and social impacts throughout its supply chain, facilitated by the industry's lack of transparency. To ensure the long-term stability of our planet, fashion brands must adopt circular models that aim to narrow, close, and slow down the rate of consumption, requiring a shift in mindset at both industry and consumer levels. While blockchain is already being utilized in other industries as a decentralized database for traceability, its adoption in fashion remains limited. Nevertheless, it is regarded as one of the best tools available to support supply chain transparency, and its application has the potential to revolutionize the way the industry operates.

RESEARCH OBJECTIVES

Q: How can BCT increase supply chain transparency and material traceability in a circular fashion economy?

This study aimed to...

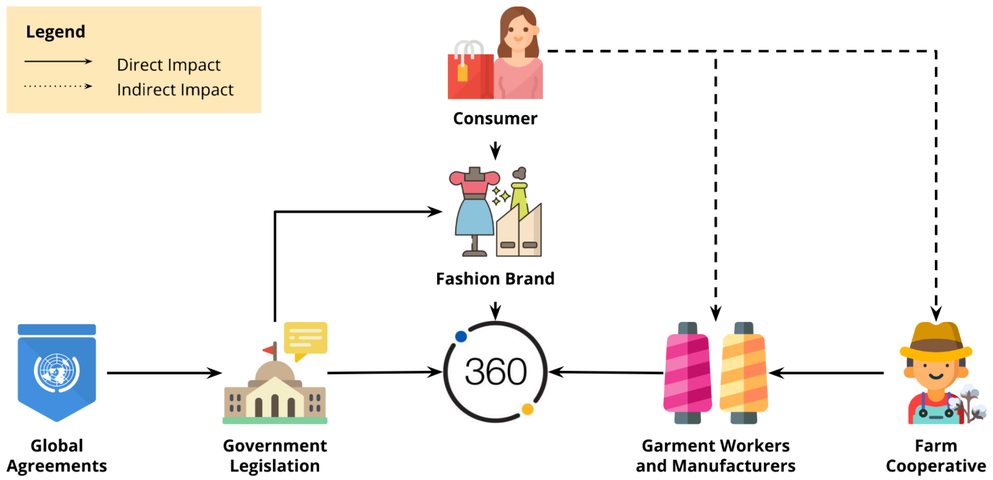
- build understanding on real-world applications of BCT in pursuit of a CFE, and
- discuss the barriers and enablers perceived by BCT companies working to increase supply chain transparency in fashion.

METHODOLOGY

Qualitative modes of inquiry were employed to collect data from ***exploratory interviews*** with a BCT company called Bext360, resulting in ***an in-depth case study*** that discusses:

- Bext360's positioning in the fashion industry,
- Bext360's role in a CFE, and
- the barriers and enablers of adopting BCT for supply chain transparency, as perceived by Bext360.

Bext360's Positioning in the Fashion Industry



Bext360's Role in a Circular Fashion Economy

Stage 1. Create and design
Track apparel from origin to retail with various markers (e.g., DNA tracers)

Stage 2. Use, rent, and resell
Track GHG emissions through product lifecycle for rental and reseller market actors

Stage 3. Recover and recycle
Track recyclables and securely store downstream supply chain data

RESULTS

Few fashion companies have fully implemented an end-to-end traceability system beyond pilot schemes. Just 5 years ago, Bext360 identified marker technology partners to link with its BCT and create an immutable method to trace organic cotton from origin to retail with Fashion for Good, a ***first*** in the fashion industry. From their experience, they have perceived the following enablers and barriers to BCT adoption:

Enablers

- ✔ Partnerships with third-party firms and NGOs
- ✔ Blockchain as a data management tool
- ✔ Increased demand from global leaders
- ✔ Co-benefits felt by supply chain actors

Barriers

- ⊘ Resource-intensive workflow customization
- ⊘ Deprioritization of supply chain transparency
- ⊘ Weak industry-government collaboration
- ⊘ Limited supply chain communication

DISCUSSION

- Legislators involved with drafting laws such as the New York Fashion Sustainability Act **must engage supply chain experts** who have the tools to enable traceability.
- An unintentional co-benefit of using BCT is that its ability to prove a product's environmental sustainability can also aid suppliers through third-payments.
- Fashion brands may wait until **legislation requires** them to trace their supply chains because setting up traceability systems costs more time than desired.
- The fashion industry's inability to prioritize transparency necessitates more sustainability-minded companies to lead by example. **Partnerships with third-party firms and NGOs** like Fashion for Good can enable fashion brands to adopt BCT for traceability.
- While these findings cannot be generalized due to the limited sample size, the research addresses a gap in understanding the practical barriers and enablers of implementing BCT for a CFE.

CONCLUSION

Every step of a CFE requires traceability to prove the environmental and social sustainability of each piece of clothing. As a secure and tamperproof data platform, **BCT is a promising tool** to enable the material traceability required for a CFE, but its use in the fashion industry is limited. Legislation and and cross-sector partnerships are necessary for fashion brands to invest in traceability.

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