

BUILDING SUPPLY CHAIN TRANSPARENCY WITH HYPERLEDGER FABRIC

BURBERRY & BLOCKCHAIN

(BURBERRY, 2023)

**BUSINESS STRATEGY
2024 FASHION SCHOLARSHIP FUND CASE STUDY**

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EXECUTIVE SUMMARY

Blockchain integration with Burberry allows the company to understand where improvements in sustainable practices can take place, and how greatly the company impacts external viewers. With this integration, internal stakeholders of the company will be able to achieve full supply chain transparency, allowing the company to analyze lead times and sourcing operations.

By understanding where each SKU travels and how all raw materials are sourced, Burberry has the opportunity to become one of the most openly sustainably operated fashion brands. Stakeholders can dig deep into the ethical implications of raw materials, pushing past the dilemma of unethical sourcing that so many competitors face. With this integration, Burberry will also have full supply chain transparency, ensuring that every SKU is tracked from the start with no room for data manipulation. With the visualization of lead times, the brand will be able to analyze flaws in the procurement process and has the ability to move forward and decrease travel lengths for SKUs. This will ultimately decrease carbon emissions while simultaneously making the brand more efficient.

CURRENT STRATEGIES

Current



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- Eliminating plastic packaging
- Trialing circular business model
- Sustainable manufacturing processes
- Committed to having 100% certified & traceable key raw materials by 2030
- 3rd party certification & traceable raw materials with less mono-use packaging

- Implement separate blockchain network so that full ownership goes to Burberry
- Focus on a blockchain strategy that doesn't use data mining to decrease environmental footprint and strengthen sustainable goals
- Consider blockchain network that spans over entire lifecycle of product, even after customer ownership to understand where waste goes

Improvements



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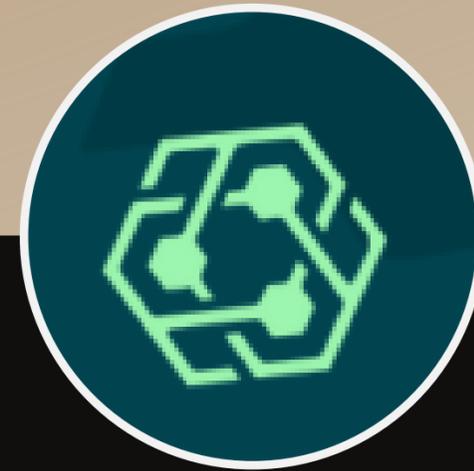
CORDA VS. HYPERLEDGER FABRIC

Cutting-edge blockchain platforms.



Corda

- Open-source platform
- Designed for businesses
- Privacy + scalability features
- Developer-friendly
- Free



Hyperledger Fabric

- Open-source platform
- Has already been used in traceability cases and has proven worthy
- Privacy + scalability features
- Operates globally
- \$0.073/hour
- Ideal for Burberry because of global operations and desire for excellence

INITIATIVE SWOT

Brand	Strengths	Opportunities	Weaknesses	Threats
Burberry	1. Eliminating plastic packaging	1. Raw materials traceability by 2030	1. Current strategy with IBM is not fully immersed into company system	1. Most recent partnership with IBM limits ownership of network
	2. Sustainable manufacturing process in place	2. Trialing circular business model	2. Unclear if co-IBM system uses data mining	2. Unclear what scope of partnership is
Louis Vuitton	1. Current blockchain solution covers entire lifecycle of product	1. Provides LV Diamonds certificate with blockchain information	1. Not a privately owned blockchain network	1. Narrow focus on diamond traceability rather than widespread products
	2. Blockchain uses no data mining and less energy	2. Publicly share suppliers for increased transparency	2. Unclear if customers can contribute to network if product moves past them	2. Uses same network as competitors
Gucci	1. Public supplier list updated every 6 months	1. Accepts cryptocurrency as payment, related to blockchain	1. Lack of blockchain integration within supply chain	1. Lack of relationships with college students and recent college grads
	2. Publish supplier of raw materials for multiple materials	2. Expansion of MRSL audit technology	2. Unclear if third-party reviews take place for sustainable efforts	2. Unclear what plan for traceability is in comparison

BURBERRY & BLOCKCHAIN

Purpose

The implementation of Hyperledger Fabric within Burberry's supply chain will allow Burberry to take complete control of their own supply chain transparency and sustainable responsibility. It is an internal process with external results intended to increase supply chain transparency, accelerate process improvement, and promote sustainable practices.

Strategy

The strategy is to implement a blockchain network into Burberry's supply chain using Hyperledger Fabric, allowing stakeholders and customers to see raw materials sourcing, as well as SKU movement and lifecycle. Data will be stored with AWS QLDB, and pushing forward customers will be able to contribute to the blockchain network if they choose. Lead times, sourcing positions, and emissions data will be taken from the blockchain network to increase efficiency and maximize sustainable potential, crafting a more sustainable supply chain and ethical sourcing process.

Benefits

Data can be analyzed and used to transform the supply chain and sourcing process, leaving Burberry with less carbon emissions and decreased lead times. This integration will leave Burberry with full control over their supply chain and blockchain network.

INTEGRATION

1. Identify use case

- Burberry has traceable raw materials initiative
- Company's target market has a deep care for sustainability

2. Develop Proof of Concept

- Develop prototype: begin process with one SKU to see how it will scale out
- PoC should help answer questions of: what problems does this solve? How will this impact operations?

3. Choose blockchain platform

- Hyperledger Fabric: most suitable for this type of company, high-end data security, necessary scalability features

4. Build & test blockchain solution

- Continue to align with sustainability goals already set in place by Burberry

INTEGRATION

5. Network operation

- Construct first block, serves as foundation of network (important to include data validation, timestamps, cryptographic hash)

6. Blockchain deployment

- Allow stakeholders to access and use network for operations
- Set up cloud system to build on hybrid solutions & data tracking

7. Choose ideal consensus protocol

- Define rules deciding how to agree on validity of transactions
- Recommendation: Delegated Proof of Stake (energy efficient with elected validators)

8. Build blockchain ecosystem

- Agree on terms of engagement
- Embrace collaboration and transparency

CONSUMER PROFILE

The target market for Burberry is women with measurable disposable income. Burberry consumers are invested in fashion and luxury, and are typically of the millennial age-range or older. The company has recently been targeting millennials because of their care for the environment, and Burberry will continuously aim to inspire and excite their customer with designs made to last.



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CONSUMER IMPACT

With millennials being on Burberry's radar, the company understands that customers have a desire to see their own impact on the planet. By implementing a radically more transparent supply chain, customers can understand the environmental impact of their purchase. This integration will also allow customers to feel more confident in their purchases, as they can see if their products are really made to last based on the length of the blockchain.



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STAKEHOLDER DEVELOPMENT

	1. Development	2. Implementation	3. Maintenance
Department	Legal	Supply Chain	Information Technology
Role	Develop terms and conditions for blockchain use and determine consensus protocol.	Integration of blockchain platform in materials sourcing & spearhead operational development for strategic sourcing.	Continuous improvement of blockchain sourcing for updates sustainability standards.
Interacting Departments	Operations, Information Technology, Public Relations, Finance	Sourcing, Information Technology, Legal, Finance	Legal, Supply Chain/Operations, Finance
Collaborative Role	Maintaining structure of blockchain program in compliance with adjusting regulations	Build foundation of blockchain system to increase transparency	Secure corporate data
Timeframe	6-8 months	12 months (continuous)	Continuous

STAKEHOLDER IMPACT

	Legal	Supply Chain	Information Technology
Impact	Increased workload and corporate definitions, deeper understanding of technological boundaries and restrictions	Increased transparency and visual mapping, reduction of carbon emissions with more efficient transportation methods	Increased team size and new roles
Timeframe	Measurable prior to integration, impacted heavily by initial integration and is continuous thereafter	Instant impact with implementation of blockchain, ongoing measurable impact post-implementation	Measurable prior to integration, greatest impact is pre-launch, ongoing measurable impact throughout implementation process
Growth	Expansion of responsibilities and knowledge on technological boundaries and restrictions	Individual SKU tracking and raw material transparency, customer contributions and upcycling documentation	Expansion of team and responsibilities, greater focus on data security and corporate privacy

ESTIMATED FINANCIAL INVESTMENT

Annual Expenditure Breakdown				
	Expense	Amount	Monthly	Annually
Labor	Developer	3	\$20,000	\$240,000
	Elected Validator	4	\$26,000	\$312,000
	Blockchain Architect	1	\$4,500	\$54,000
	System Architect	1	\$4,500	\$54,000
	Quality Engineer	2	\$8,500	\$102,000
Labor Total			\$63,500	\$762,000
Software + Hardware	Hyperledger Fabric	1	\$12.56	\$150.67
Software + Hardware Total			\$12.56	\$150.67
Server Uptime	AWS QLDB NA	1	\$73.06	\$876.72
	AWS QLDB EU	1	\$73.06	\$876.72
	AWS QLDB ASIA	1	\$73.06	\$876.72
Server Uptime Total			\$219.18	\$2,630.16
Total			\$63,731.74	\$764,780.83

The development and integration of blockchain into Burberry will cost the company roughly \$764,780.83 annually. A large sum of this cost will be put towards labor and hiring the needed specialists in order to put this plan into motion. The additional expenses include the Hyperledger Fabric software needed to implement blockchain, as well as AWS Quantum Ledger Database servers for transaction storage. Multiple AWS QLDB servers are required because Burberry is a global corporation.

KEY PERFORMANCE INDICATORS

	Indicator 1: Textile Waste	Indicator 2: Consumer Interaction	Indicator 3: Carbon Emissions
Definition	Amount of textile and fabric waste that does not get reused or recycled	Number of consumers who interact with the blockchain	Amount of tCO2 emitted from Scope 1 & 2 with a market basis
Measurement Application	Discarded items, clothing in landfills	Counting amount of clicks onto database for viewing	tCO2 emissions
Rationale	Assess environmental impact	Assess consumer impact and engagement	Assess environmental impact
6 Month Goal	12 tons	7,000	2,800 [^]
5 Year Goal	10 tons	15,000	2,000 [^]

Burberry Blockchain is a largely internal project with external goals. The KPIs focus on environmental impact and sustainable compliance, as well as customer engagement. The metrics should be tracked on a regular basis to ensure validity and accuracy.

PLANS TO SCALE



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If successful, this initiative should be implemented across the entire company, and all SKUs should begin being tracked with Hyperledger Fabric. Additionally, Burberry can go even further by digging into their archives and analyzing their reverse supply chain to inform customers of where previous SKUs have originated from. The company can also allow customers to contribute by extending the blockchain if they happen to donate the piece or upcycle it.

This proposal falls into the sector of 'environmental' within ESG. With increased supply chain transparency, not only can customers analyze where products come from and if they are made from sustainable materials, but stakeholders can also understand transportation lengths and look to maximize efficiency, ultimately decreasing carbon emissions with improved lead times. This proposal also touches on the 'social' aspect of ESG, because supply chain transparency allows stakeholders to determine if the materials within the products have been ethically sourced from fairly treated workers.

RISKS & REWARDS

One of the biggest risks that the Hyperledger Fabric implementation may lead to is lack of interest from the public. The process of integration requires an overall sense of risk, with rewards being processed through KPIs. Risk can be mitigated by ensuring that consumers are aware of the implementation and that transparency takes place both internally and externally.

1. Initial Hyperledger Fabric integration
2. AWS QLDB transparency

Low Risk/High Reward	1	High Risk/High Reward
2	Low Risk/Low Reward	High Risk/Low Reward

APPENDIX

Blockchain is a quickly evolving resource that has the ability to transform sourcing and procurement for generations to come. The resource “can greatly improve supply chains by enabling faster and more cost-efficient delivery of products, enhancing products’ traceability, improving coordination between partners, and aiding access to financing” (Gaur). It provides real-time shared data that cannot be manipulated; once data enters the blockchain, it can never be erased or altered (IBM). This creates full supply chain transparency. All stakeholders and contributors see the same single version of the blockchain network, which allows for maximized efficiency and minimized energy usage (IBM). With blockchain, contracts can be stored within the chain to define terms and conditions, minimizing instances of miscommunication and streamlining all processes (IBM). Limited as a members-only platform, blockchain is safe and reliable. The desire to implement blockchain with Hyperledger Fabric stems from the fact that they are a global leader in the blockchain market, already proving their success and reliability in previous projects. With multiple special interest groups and current projects, Hyperledger Fabric seemed like an obvious choice for a brand as global as Burberry.

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