Sustainability Transparency and Trustworthiness of Blockchain: A Comparison of Generations X and Y Fashion Customers

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Introduction: The fashion industry struggles to maintain healthy environmental and social conditions while keeping the economic benefits (Eder-Hansen et al., 2017). Currently, lots of fashion companies try to find the balance in three aspects of sustainability including economic, environmental, and social values. Furthermore, they see the importance of dispersing their sustainability initiatives to their customers as it can increase positive brand image, buying behavior, and brand loyalty. One way to inform fashion customers about the sustainability is through transparency of information (Fu et al., 2018). The blockchain technology, presenting data in a transparent and incontrovertible format, is relatively new, but provides the potential application for fashion companies. Blockchain data on consumer perceptions regarding sustainability can support and validate growth in this application. In turn, this application could potentially lead to a revolutionary change in consumer culture. Thus, this study aims to investigate consumer interaction with blockchain data and the effect this have on sustainability initiatives. Specifically, this study examines message effectiveness, trust, and knowledge of sustainability regarding the blockchain, and how these are related to purchase intention for Generations X and Y.

Literature Review: Blockchain technology creates and distributes a digital ledger in a decentralized, peer-to-peer network. This allows the supply chain to be authenticated, information to be validated, and assets to be exchanged without an intermediary (Furlonger & Uzureau, 2019). Recognizing that customers may be hesitant to trust claims made by a company or may not understand the claims made, it would be beneficial to focus on bridging these gaps to secure a large market of conscious customers (Ma et al., 2017). The SOR model was used as a theoretical framework as we examine the effects of the developed stimulus, blockchain information on

Figure 1. The Theoretical Framework for the Study

internal states and behaviors (Figure 1) (Mehrabian & Russell, 1974). Especially, Generations X and Y were studied as they are technology early adopters and care about sustainability (Kraut et al., 2006).

H₁: There will be generational differences on the levels of a) message effectiveness, b) trust in claims made by the company, and c) knowledge of sustainability initiatives for blockchain.

H₂: The effects of a) message effectiveness, b) trust in claims made by the company, and c) knowledge of sustainability on purchase intention will be different by generations.

Method: A quantitative research method was employed for this study. An online survey was administered by the panel company, Qualtrics. The sample size consisted of a total of 200 respondents with 99 respondents from Gen X and 101 respondents from Gen Y. While previous research found that age had little to no relationship with environmental sustainability (Wiernik, Ones, & Dilchert, 2013), this research was conducted in this manner to include a wide range of current fashion customers. The blockchain concept was explained first and the created blockchain image was presented to research participants (Figure 2). Then they answer questions followed by this. A two-tailed t-test analysis was used to test H₁ and the multiple regression analyses were used to test H₂.

Figure 2. Blockchain Information

Results: Gen X found the claims of the blockchain more effective than Gen Y. Also, Gen X put more trust in the claims made by a company than Gen Y. Additionally, the knowledge gained had a significant difference as Gen X considered the blockchain to provide more information than Gen Y (Table 1).

Table 1. The Independent T-Test Results for Blockchain Impact

	Generation X		Generation Y		t-test
	M	SD	M	SD	
Effectiveness	4.28	0.71	4.02	0.83	-2.315*
Trust	4.13	0.72	3.93	0.67	-2.039*
Knowledge	4.19	0.67	3.95	0.76	-2.270*

Note: * p < 0.05

The purchase intention for a product promoted by a blockchain for Gen X individuals was significant ($df = 98$, $R^2 = 0.406$, $F = 21.687$).

However, the purchase intention was only affected by knowledge of blockchain for Gen X ($\beta = 0.482$, $p < 0.01$) (Table 2). The purchase intention for Gen Y individuals was also significant ($df = 100$, $R^2 = 0.588$, $F = 46.051$). This was affected trust ($\beta = 0.298$, $p < 0.01$), and knowledge ($\beta = 0.485$, $p < 0.01$) for Gen Y (Table 3).

Table 2. Blockchain Characteristics and Purchase Intention for the Generation X

	df	R ²	F	β	t-value	Sig.
Purchase Intention	98	0.406	21.687			0.000***
Effectiveness				0.028	0.243	0.808
Trust				0.170	1.458	0.148
Knowledge				0.482	3.493	0.001**

Note: ** indicates p < 0.01, and *** indicates p < 0.001

Table 3. Blockchain Characteristics and Purchase Intention for the Generation Y

	df	R ²	F	β	t-value	Sig.
Purchase Intention	100	0.588	46.051			0.000***
Effectiveness				0.049	0.521	0.604
Trust				0.298	3.076	0.003**
Knowledge				0.485	4.497	0.000***

Note: ** indicates p < 0.01, and *** indicates p < 0.001

Discussion: Gen X fashion customers perceived the blockchain information more effective and trustful than Gen Y fashion customers. This finding contributes to the understanding of a sustainability tool's role on a shopper in the retail setting by supporting the SOR model, particularly highlighting the differing needs of sustainability shoppers, as found in the literature (D'Souza et al., 2019). Also, interestingly, the relationship between the blockchain and purchase intention is only influenced by knowledge for Gen X, whereas the trust and knowledge of the blockchain influenced the purchase intention for Gen Y. These results further contradict the

findings in Wiernik, Ones, and Dilchert (2013) study by defining the strengths of each promotional tool for each generation. Furthermore, these relationships contribute to a better understanding of how generational shoppers perceive sustainability tools.

Implications and Future Research: Blockchain data can impact shoppers as it is backed with more information, can show the impact of sustainability initiatives on the supply chain, and can increase company transparency. These increases can provide businesses with a new marketing tool that will help differentiate them from a saturated market. As consumers try to make conscious decisions based on the effect their purchase will have on the environment and society, businesses should try to position themselves within the consumer's moral interests. Additionally, businesses working with blockchain data will be able to identify inefficiencies in their supply chain, which can help determine if any necessary changes should be made. This can also be a great opportunity for business to highlight a specific part of their supply chain or product that may differentiate them from their competitor. As this research shows, blockchain may not automatically be adopted by consumers, so companies must determine how to best integrate this technology and data into their retail settings to be powerful tools.

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