DIGITAL INNOVATION TRAJECTORY AND CULTURAL SHIFT IN THE FASHION INDUSTRY

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KEYWORDS

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ABSTRACT

In this current landscape of rapid technological advancements, interwoven with a shift in the demands of customers, the need for a new lens to decipher new cultural and industrial patterns is emerging in the Fashion industry. However, previous frameworks, addressing the impact of digital transformation in the sector, overlook the central human element within digital processes.

This paper introduces a classification of digital technologies that have significantly influenced the fashion industry's digital transformation. We aim to link these technologies with the value they offer from a customer-centric perspective. As technology continues to advance, brands gain improved access to data that allows them to create tailored and unique digital consumer experiences. This capability empowers fashion brands to offer consistent, personalized interactions across physical and digital touchpoints, making customers feel recognized and valued, regardless of the channel. In response, fashion companies are reshaping their Customer Relationship Management (CRM) and Customer Service processes, with the aim to upgrade customer interactions and unify data silos within their organizations to leverage data more effectively.

Trailblazers within the industry are pushing beyond physical limitations, integrating Artificial Intelligence (AI) and Augmented Reality (AR) innovations into their shopping journeys. These innovations inspire consumers to shop in a whole new way, offering memorable and sharable experiences that foster brand loyalty. This shift in focus towards credibility and authenticity in brand narratives aligns with the customer's desire for uniqueness.

In the fashion industry, the expansion of digital touchpoints transcends physical boundaries, extending experiences and products beyond the limits of materiality.

However, which technological innovations have the most significant impact in terms of the value they bring to users? This study adopts a qualitative and quantitative research methodology, incorporating focus groups for Generation Z, sentiment analysis, and observational research. Additionally, C-suite interviews provide invaluable insights into the dynamic roles industry players undertake, from experimental inception to seamless business integration.

This paper seeks to establish a concrete link between human adoption driven by perceived value and digital transformation. The objective is to provide updated digital transformation frameworks that align with today's customer needs, such as transparency, traceability, trust, authenticity, education, and a sense of community. In conclusion, this research provides industry players, customers, and students with a more deeper understanding of future investments and a clearer insight into the evolving landscape of customer perceived value in the fashion industry.

INTRODUCTION

According to Statista, revenue in the Luxury Fashion segment represents US$111.50 Billion in 2023 and the market is projected to grow annually by 3.39% , CAGR 2023-2028. (2023, Statista Market Insights). In terms of channels, the share of online sales, which represented 20% in 2022, will grow to 33% by 2030. Moreover, Millennials and Generation Z are currently driving 65% of the global Fashion Luxury sales growth, and Generation Z and Alpha will represent together 30% of the global sector spending by 2030. (2023, Bain & Company). Hence, it is crucial for industry players to adopt a customer-centric approach to successfully orchestrate their customer experiences across channels, both online and offline. This behavioural shift requires a different perspective and a cultural alignment with customers, thinking about the value provided beyond selling.

This study has threefold objectives. First, to update the industry digital transformation roadmap with the latest enabling technologies in the Fashion Luxury sector. Second, to analyze the value provided by these technologies from a next-generation consumer's point of view.Third, to prioritize innovative technologies based on their perceived value and link them with the major cultural shifts in our time. Hence, this paper addresses the following research questions: RQ1:What is the impact of innovative technologies in today's customer journey? RQ2: How can brands keep customers at the center of their digital innovation efforts? RQ3: How future consumers perceive and value technology in the fashion luxury industry? Following the introduction, this paper is organized as follows: literature review, study research framework, classification of innovative technologies, analysis and findings and work to date, proposed future developments and conclusion.

LITERATURE REVIEW: TECHNOLOGY ADOPTION THEORIES EVOLUTION

This study is based on a systematic literature review of digital transformation over the past decades, beginning with the available Technology Adoption frameworks, such as the Technology Adoption Lifecycle framework by Geoffrey A. Moore (Fig.1). However, the applicability of this framework to Fashion Luxury industry consumers is limited due to today's expanded channels and accessibility, including the influence of Social Media on the prevailing attitudes and cultural values of each generation. Therefore, this study introduces a new variable: the perceived value of technology from the customer's point of view, challenging the traditional representation of this process with a bell curve.

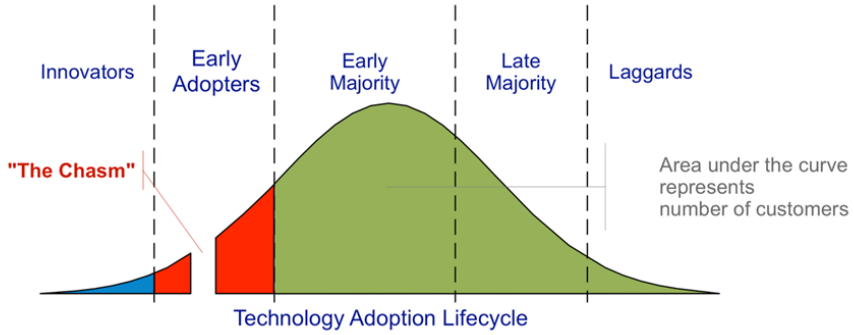

Fig. 1 - Technology Adoption Lifecycle, Geoffrey Moore

Despite the valuable contributions to the previous literature, none of the frameworks analyzed holistically address the perceived value of innovative technologies from a customer-centric perspective. This dimension is a key driver for the success of a digital transformation initiative in the Fashion Luxury industry. In addition to this, there is an urgent need to update digital touchpoints and, consequently, their enabling technologies. This update aims to better interweave perceived value of technology and gain a wider outlook of the cultural behavior shift among younger generations of fashion shoppers, shifting from a pure transactional perspective to a cultural value dimension.

RESEARCH METHODOLOGY

This study combines qualitative and quantitative research methods. I organized three Focus Groups, targeting each eight representatives of Generation Z Fashion Luxury consumers in European region. Additionally, to contextualize the study, I conducted interviews through personal contacts with ten C-suite executives within the industry at global level. This approach allowed me to gain insights into the real-world challenges faced by industry players and obtain a clear understanding of their trajectory. The selection of interviews adheres to three criteria (Table 1), with each criterion assigned a weighted score on a scale from 1 (not at all important) to 5 (very important) to indicate its importance.

	Selection Criteria	Description	Weight
A	Digital Maturity Assessment	Evaluation of the current digital maturity level based on digital and social presence, e-commerce capabilities, use of technology in their internal processes.	5
B	Business Objectives	Digital Transformation roadmap with clear business objectives.	4
C	Tech-Enhanced Experiences implemented	Assessment of how likely the brand is experimenting with innovative technologies.	3

Table 1 – Criteria for Fashion Executives' interviews (Source: Author)

THE STUDY RESEARCH FRAMEWORK

How do we determine the value of technology from a customer point of view that goes beyond the mere technological adoption? Does it imply a cultural shift in the way consumers perceive and interact with fashion? For instance, Augmented Reality allows customers to virtually try on products, creating an immersive and personalized shopping experience, supporting a more conscious buying behaviour. However, what impact does this technology have on the end-user, and what kind of benefits do they regularly see in using this technology? This study serves as the starting point for creating a contemporary and holistic research framework that can comprehensively evaluate the role of technology in improving customers' lives and aligning with their cultural beliefs, providing additional benefits. As a preliminary step, a review of customer needs according to the fundamental Maslow's Hierarchy has been extremely useful. (Table 2).

	Traditional Technologies	Corresponding Life Improvement / Needs Potentially Fulfilled
1	Technological Access	Basic information, Communication
2	Cybersecurity	Safety, protection
3	Social Connections Platforms, Video Conferencing	Sense of Belonging in addition to physical connections (Community)
4	Social Media, Online Presence	Online Reputation, Self-Expression
5	E-Learning Platforms	Self-Actualization, Personal Growth
6	Innovation and Entrepreneurship	Self-Fulfilment
7	Global Reach and Connection	Transcendence, beyond physical limitations

Table 2 – The Role of Technology and its impact on Maslow's needs
(Source: Author's elaboration on Maslow's Hierarchy)

Additionally, upon reviewing more contemporary models such as the Customer Experience Hierarchy of Needs, as well as the User Experience (UX) Hierarchy of Needs, (Gothelf, J., & Seiden, J., 2013), along with the Engagement Funnel, we observe that all these models are frequently used and applied in a business context. They primarily focus on the impacts of technology in terms of usability, simplicity, performance, and experience without specifically

addressing the perceived value for customers.

THE VALUE FOR CUSTOMERS (VFC) FRAMEWORK

The Value for Customers (VFC) (Fig.2) results from the combination of two factors influencing value generation: Weighted Life Improvement (WLI) and Weighted Needs Fulfilment (WNF). The combined value is determined by averaging these two weighted values. Weighted Life Improvement measures how much that specific technology contributes to enhancing the overall quality of life for customers adopting it. This includes factors highlighted by Gen Z participants in the focus groups, such as timesaving (W3), convenience (W4), and simplifying their lives (W5). Weighted Needs Fulfilment identifies the degree to which the technology satisfies specific customer needs, based on Maslow's Hierarchy.

The Value for Customers (VFC) =

(The Weighted Life Improvement + The Weighted Needs Fulfilment) / 2

Fig. 2 - (Source: Author)

INNOVATIVE TECHNOLOGIES CLASSIFICATION IN THE FASHION LUXURY INDUSTRY THROUGH THE LENS OF CUSTOMER-CENTRICITY

Brands now have an extensive and unprecedented access to consumer data, allowing them to understand shopping patterns and future preferences. However, achieving customer-centricity requires a clear, holistic approach that goes beyond the transactional dimension and breaks down data silos. This approach supports the creation of value for customers rather than just for companies (Fig.3).

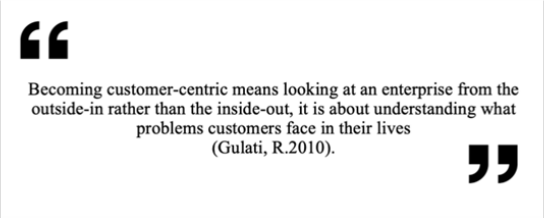

Fig. 3 - Customer-centricity (Source: Gulati, R. 2010)

CLASSIFICATION OF INNOVATIVE TECHNOLOGIES IN THE FASHION LUXURY INDUSTRY

Followings initial interviews with C-Suite Executives, this study focused on nine (9) technologies that brands are investing in (Table 3). I evaluated for this study and analysed these technologies in more detail, as outlined below.

N.	Technologies Evaluated in the Fashion Luxury Industry
1	AI-Powered Chatbots
2	AI-Powered Virtual Stylists
3	Virtual Try-on
4	Customization Tools
5	3D Body Scanning
6	Metaverse
7	AR Retail Experiences
8	Blockchain-based Traceability
9	Blockchain-based Authentication

Table 3 - Technologies Evaluated in the Fashion Luxury Industry (Source: Author)

The first technology under analysis is AI-Powered Chatbots: automated conversational assistants powered by Artificial Intelligence. These Chatbots address key customer service issues, providing information about returns or delays in delivery.

The second technology examined is the AI-Powered Virtual Stylist. These Virtual Stylists offer customers data-drive advice and ideas on outfits, facilitating more informed purchase decisions (Fig.4).

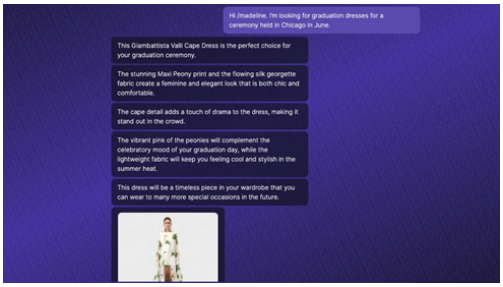

Fig. 4 - AI-powered Virtual Stylist

Virtual Try-on (Fig.5) represents the third technology analysed. Enabled by Augmented Reality, it allows customers to virtually try on clothing and accessories. This feature provides customers with an initial idea of how items look on them, offering a more immersive and engaging experience.

The fourth technology focuses on Customization Tools. These tools can be used independently or integrated into a Virtual Try-On application, enabling personalization at scale, and allowing customers to customize their products individually.

Fig. 5 -Virtual Try-On Ace Sneakers

The fifth technology addresses the Size and Fit problem in online purchases through 3D Body Scanning. This technology enables more accurate measurements, reducing the likelihood of returns due to poor fit.

Moving to the sixth technology, it is related to the Metaverse. The Metaverse is a 3D-enabled digital space utilizing Virtual Reality, Augmented Reality, and other advanced technologies. Customers can enter this space through avatars, connecting, interacting, shopping, and playing.

The seventh technology analysed is Augmented-Reality (AR) applied to Retail Experiences and Window Displays. Customers are immersed in a dynamic “Augmented” Brand storytelling, interacting with the AR animation content displayed, or virtually exploring products in the store window.

The eighth and ninth technologies are enabled by Blockchain. Recent technological advancements allow customers to verify the authenticity of products through Blockchain or access traceability information, such as the origin of the product and “made in” (Fig.6).

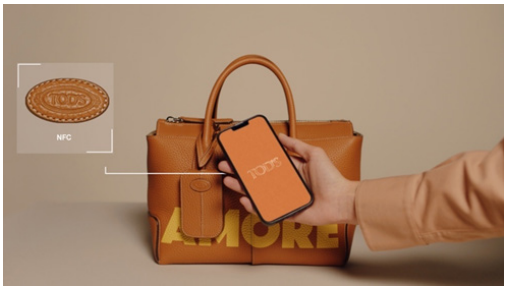

Fig. 6 - Authentication powered by Aura Blockchain

ANALYSIS AND FINDINGS TO DATE

Based on the analysed technologies in the Fashion Luxury Industry (Table 3), I conducted Focus Groups with Generation Z participants to investigate the value creation for them provided by each specific technology in terms of Life Improvement and Needs Fulfilment. To discuss how these criteria align with the study’s overarching goal of determining the most significant value of technology for customers, I illustrated the patterns identified in the analysis process (Table 4).

N.	Technologies Analysed	Perceived Value of Technologies (Insights from Focus Group discussions)	Life Improvement (LI), Needs Fulfilment (NF) (Evaluated Criteria)
1	AI-Chatbot	AI-powered chatbots provide useful information to potentially solve pain points in the customer journey, facilitating a connection with the brand. Instant access to information is valuable for saving time and make the overall experience smooth.	Instant Information, Timesaving, Direct Connection
2	AI-Virtual Stylist	AI-Virtual Stylists can contribute to life improvement by addressing the need for personalized fashion advice, empowering self-expression, and fulfilling customers' desires for individuality within their communities.	Online Reputation, Self-Expression
3	Virtual Try-on	Virtual Try-on technologies contribute to self-expression and self-actualization by allowing users to immediately experiment with different products, colours, and styles. This technology fulfils the desire for a more personalized and immersive shopping experience, enabling users to try on items virtually before making a purchase.	Self-Expression, Self-Actualization
4	Customization Tools	Customization technologies can empower customers to tailor products and services according to their individual preferences, fulfilling their desire for items that resonate with their uniqueness.	Self-Expression, Self-Fulfilment, Individuality
5	3D Body Scanning	3D Body Scanning technologies can contribute to self-actualization by providing customers with tailored measurements during their shopping journey, fulfilling the need for personalized services based on their own body data.	Self-Actualization, Personalization
6	Metaverse	The Metaverse can contribute to a sense of community belonging, fulfilling users' needs for collaboration, interaction, and engagement, allowing them to share experiences in a virtual immersive environment.	Sense of belonging, Social Connection and Collaboration
7	AR Retail Experiences (AR Retail and Windows display)	AR Retail Experiences can augment traditional retail spaces with an immersive storytelling, visually engaging customers, and inspiring them with the brand and product experience.	Trascendence and Inspiration, Experience
8	Traceable Technologies (Blockchain)	Blockchain-driven traceable technologies can enhance security, trust, and contribute to personal growth and education by providing a transparent and traceable product story. Blockchain technology fulfils customers' needs for reliable and data-driven information.	Security, Trust, Personal Growth, Education, Transparency
9	Authentication Technologies (Blockchain, NFT)	Blockchain and NFT technologies can fulfil the need for product authenticity throughout the value chain and pre-ownership, enhancing user confidence and trust.	Autenticity, Trust, Safety, Protection

Table 4 - Perceived Value of Technologies (Live Improvement and Need Fulfilment Criteria) (Source: Author)

At the core of this study is a fundamental question: which technological innovations bring the most significant value to customers? To answer this question, the framework analysis has been validated through feedback from the Focus Groups participants. Specific responses or reactions were assigned a particular weight for the Life Improvement and Needs Fulfilment criteria, with each criterion receiving a weighted score on a scale from 1 (not at all important) to 5 (very important) to indicate its importance.

The final step of the analysis involved applying the Value for Customers (VFC) Framework (Fig.2), aiming to establish a concrete link between human adoption, driven by perceived value, and the evolutionary landscape of digital transformation.

As a finding, the prioritization of technologies with the Value for Customers (VFC) Framework assigns the highest value to Instant Information, Timesaving and Direct Connection, Online-Reputation and Self-Expression, as well as Authenticity, Trust, Safety (Table 5).

Priority	Technologies	Life Improvement, Needs Fulfilment (Evaluated Criteria)	VFC* (Weighted Score)
1	AI-Chatbot	Instant information, Timesaving, Direct Connection	4
2	AI-Virtual Stylist	Online Reputation, Self-Expression	4
3	Authentication Technologies (Blockchain, NFT)	Autenticity, Trust, Safety, Protection	4
4	Virtual Try-on	Self-Expression, Self-Actualization	3
5	3D Body Scanning	Self-Actualization, Personalization	3
6	Metaverse	Sense of belonging, Social Connection and Collaboration	2
7	AR Retail Experiences (AR Retail and Windows display)	Trascendence and Inspiration, Experience	2
8	Traceable Technologies (Blockchain)	Security, Trust, Personal Growth, Education, Transparency	2
9	Customization Tools	Self-Expression, Self-Fulfilment, Individuality	2

Table 5 - Technology impact on the *Value for Customers Framework (VFC) (Source: Author)

The prioritized criteria offer a holistic view of the customer experience. Information, Online-Reputation, Self-Expression, Authenticity, Trust, and Safety are elements that collectively contribute not only to enhance the customer experience, but also to pave the way for a long-term business growth that aligns with evolving cultural values in the demand.

FUTURE DEVELOPMENTS

This phase of the study took place between July and November 2023. Further steps could involve extending focus groups beyond Europe, covering regions like the US and Asia, to provide a broader perspective. Moreover, continuous monitoring of the adoption rate of classified technologies could add solid data to this study. For instance, we haven't considered amplifying the classification of "mixed technologies", such as the combination of Augmented Reality (AR) with Generative Artificial Intelligence (AI).

CONCLUSION

The primary goal of this study is to present an updated Digital Transformation Framework that aligns with the evolving values of today's consumers, going beyond the usability aspects of technology adoption to include a cultural shift in adoption. In conclusion, this study contributes to a broader and contemporary understanding of the perceived cultural value of technology for customers in the Fashion Luxury industry. By delving into the cultural impact of technological innovations, industry players, academics, and students gain insights for future investments and a clearer perspective on upcoming opportunities.

REFERENCES

Altagamma (2023) Osservatorio Altagamma, Altagamma. [online]. Available at: https://altagamma.it/osservatorio-2023/ [Accessed 30/11/2023].

Aura Consortium. (2023) 'Tod's Joins Aura Blockchain', Aura Consortium, Available at: [https://auraconsortium.com/

news/tods-joins-aura-blockchain [Accessed 30/11/2023].

Edelkoort, L. (2016, December 05). Fashion is Old Fashioned. Interview by Robert Cordero. BoF. Available at: https://www.businessoffashion.com/articles/retail/li-edelkoort-anti-fashion-manifesto-fashion-is-old-fashioned/

Gothelf, J., & Seiden, J. (2013). Lean UX: Applying Lean Principles to Improve User Experience. Eric Ries Series Editor, 73(9), 115-121.

Gulati, R. (2010). Inside Best Buy's customer-centric strategy. Harvard Business Review, [online]. Available at: https://hbr.org/2010/04/inside-best-buys-customer-cent.html, [Accessed 30/08/2023].

IBM, (2023) 'Blockchain', IBM, Available at: https://www.ibm.com/topics/blockchain [Accessed 09/11/2023]

Kimmerly, W. (2023). Enterprise Transformation to Artificial Intelligence and the Metaverse. Mercury Learning and Information, 112(8), 123-131.

Maslow, A. H. (2001). A Theory of Human Motivation. Psychological Review, 50(4), 370-396.

Moore, G. (2002). Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers. Harper Business Essentials, 67-75.

Moore, G. (2018). How to Cross the Chasm: An Interview with Geoffrey Moore. [Online video]. Available at: https://www.youtube.com/watch?v=4RFBdcJRdbA [Accessed 14/10/2023].

Osterwalder, A., & Pigneur, Y. (2010). Business Model Generation. Wiley, 21-34, 110-114.

Preuss, S. (2019) Gucci Introduces AR Technology for Its Ace Sneakers, Fashion United. Available at: https://fashion-united.uk/news/retail/gucci-introduces-ar-technology-for-its-ace-sneakers/2019070244009 [Accessed 15/10/2023].

Ryder, B. (2023) Kering Taps The Power Of AI, NFTs With New Tech-First Fashion Marketplace, Jing Daily, Available at: https://jingdaily.com/kering-ai-nft-fashion-marketplace/ [Accessed 15/10/2023].

Schirtzinger, W. (2023, January 12). Crossing the Chasm Summary. High Tech Strategies.
Available at: https://www.hightechstrategies.com/crossing-the-chasm-summary/ [Accessed 10/09/2023].

Statista (2023) Market Insights: Consumer Luxury Goods, Statista, Available at: https://www.statista.com/outlook/cmo/luxury-goods/luxury-fashion/worldwide [Accessed 05/11/2023].