Digital and Virtual Fashion as an Opportunity for Sustainable Concept

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Abstract: Sustainable digital transformation in the global textile and clothes value chain is a way to substantially change business performance through durable digitization techniques. With this digital transformation, manufacturers are seeking higher productivity, reduced labor costs, and environmental sustainability, among other business improvements, catalyzing the demand for a more automated and connected industry. Sustainable digital transformation in the global textile and clothes value chain is a way to substantially change business performance through durable digitization techniques. The purpose of this study is to identify the impact of digitalization on the fashion industry. The study is based on primary quantitative data that have been collected from 54 managers within the retailing industry from all continents. The study results show that the impact of digital transformation is positive for profit, operating costs and revenues and the rise of technology has changed consumer behavior.

Keywords: Digitalization; Fashion industry; Software; Sustainability

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1. INTRODUCTION

Digital technologies provide opportunities for retailers to acquire new customers, engage better with existing customers, reduce costs and improve employee motivation. The digital age presents opportunities for retailers to bring in greater levels of operational efficiency and customer centricity in their business models. The competition is increasing not between individual retailers but the wider constellation of alliances that the retailer builds within their network. Decision makers following the fast-fashion business model seem to have been reluctant to go online because fast fashion has traditionally been based on consumers’ making regular visits to the stores to see new arrivals.

The clothing industry is a high involvement product category, related to personal ego and products that need to be seen, felt, touched and tried on because they are difficult to evaluate. Fashion has been historically highly based on “design driven” business models, where many organizations were created upon networked resources. In fact, the traditional fashion model often started from a designer-centered vision, where a designer and manager could create their brand sourcing and integrate existing manufacturing systems, locally based (Bertola & Teunissen, 2018). Within this perspective the potential impacts of digital technologies in creating fashion “smart networks” is quite high, considering the whole set of technologies currently available which goes from interaction, co-working and knowledge exchange platforms until on-site production business models enabled by digital manufacturing (Ustundag & Cevikcan, 2017).

The decision makers following the fast-fashion business model have been reluctant to go online, because fast fashion has traditionally been based on consumers making regular visits to the stores to see what new items have arrived. Digital transformation with the help of digital technologies such as analytics, manufacturer software, mobile applications, cloud computing

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and data management are enabling shifts that are resulting in total cost reduction and changing shopping experience. Digital Transformation is an environment where everything for an organization is connected (Fitzgerald et al., 2013), creating digital imperatives for companies to create transformation through technology impacting Customer Experience, Operational Improvement and Business Model Change thus covering an organization’s Supply side, Demand side and Operations. Whereas in the past, producers dictated the supply, today’s markets are increasingly influenced by individualized consumer demands. Digital and traditional channels are increasingly approaching, and consumer power is rising. Fashion brands are also faced with change in customer expectations: higher quality, individualized products, prompt delivery and comprehensive pre- and post-purchase services, free shipping, and regular updates (Johnson et al. 2008). Therefore, the value of information about consumers and analytics will grow.

People are demanding sustainable products, and trends such as ethical consumerism and corporate social responsibility are taking an important role and for retailers the ability to create economic value and ethical values coincide (Arvidsson, 2011). Because of the prominent position that retailers occupy in the market, they have become a key element to promote and consolidate changes in market processes (Maloni & Brown, 2006). Retailers can gain competitive advantages by incorporating sustainability issues (Reuter et al. 2010) and corporate responsibility. There are many benefits for retailers of adopting the concept of sustainability commercial practices like savings, the attraction of new customer segment, improving reputation and greater commitment by workers. Digital technologies enable more information about habits, behaviors and trends available for decision making process. Digital technologies enable integration of Business and IT, impact Customer Experience, and Operational Processes. This results in increased cost reductions, higher productivity and higher revenues. The transition from physical to digital and enterprise integration also impact the sustainability aspects of doing business.

2. IMPACTS OF DIGITAL TECHNOLOGIES ON FASHION

The potential impacts of digital technologies in creating fashion “smart networks” are quite high, considering the whole set of technologies currently available which goes from interaction, co-working, and knowledge exchange platforms until on-site production business models enabled by digital manufacturing. There are plenty of smart mirror technologies already in use in Fashion Retail: Mirow, OAK Labs, SenseMi, and AdvanMirror. These smart mirrors can show what other sizes of that product are currently available and provide you with stylists’ suggestions of which other items you can wear this product with. These technologies generally work with RFID tags, so they would be able to incorporate another layer of data that contains the journey of the garment securely stored on Blockchain. SenseMi’s innovative Smart Mirror is trending in the retail market and with reason because it can make the user experience even more realistic and the virtual dressing room is both a nobility factor and a convenience. Customers are swapping virtual clothes models to find and choose the one they most like, and the future is already here.

Augmented reality (AR) is commonly used in the description, planning and real-time operation monitoring, fault diagnostic and recovery, and training related to industrial products and processes (Doshi et al. 2017). In the shopping experience, AR can be housed in a custom-built mobile app. Users can download the app to unlock their journeys through AR and to access events, timetables, and competitions. Virtual reality (VR) is becoming a powerful channel for many brands which want to interact with their consumers. This technology provides a computer-gen-
erated 3D environment feeding a brain with the set of stimuli that they expect – this is a true experience. It is expected that VR will become popular like mobile and social media, but current prices are really high. For retailers, it could be useful virtual stimulation of store environment, dressing room, product display, and layout. One of the first major fashion retailers, Tommy Hilfiger deploys VR headsets in stores and customers can try it in a 360-degree experience. Gap unveiled AR dressing room and customers can try garments virtually. Artificial intelligence track customer online journeys with algorithms and help them to find an appropriate product. AI is also real-time communication through Chatbot service or robots inside stores which can help customers to find items (Reuter et al. 2010). One of the most popular AI is Amazon’s Echo Look (2017) which serves as a style assistant to help customers decide what to wear.

3. METHODOLOGY

In this study we started with a research process that should explore the influence of digital technologies on the fashion industry and the opportunity for more cost reduction and sustainability. Focusing on digital technologies fashion industry is changing to a virtual fashion and new online experience and can be more competitive. Fashion retailing seems quite open to incorporating new technologies in its purchase buying processes which changes the previous purchase experience with using the senses. The implementation of industry 4.0 includes the creation of a new architecture of the entire company ecosystem, where all data and information are collected and exchanged at any level of the organization (vertical hierarchy) and at any stage of the process throughout the entire value chain (horizontal network), enabling the creation of a real-time virtual duplication of the whole system.

The survey was conducted by sending Google Forms questionnaires to managers in the manufacturing and fashion retail companies. The sample was 60 respondents. The survey used a questionnaire with 7 questions. The questionnaire consists of two sections: the first part presents a general group of questions that should provide us with the necessary information about the respondents (gender, age group and level of education), while the second part relates to managers’ perceptions about using of digital technologies in the fashion industry. The online questionnaire was sent to organizations targeted for the retail, fashion, and sustainability industry, with a high response rate. The targeted sample was 60, where we received a response rate of 73% for the direct e-mails during the first round, and during the second round of direct e-mails, we received a response rate of 90%. The sample size of 54 responses came from all continents, although 46 answers were from Europe. We have not found anything in the research that would contradict to use the total response rate from all continents in the findings section. Therefore, the finding section will analyze the impact of digitalization in the (fashion) retail industry on a more global level vs. only European.

4. RESULTS AND FINDINGS

The main objective of this study is to:
1) identify the importance of digital marketing technologies in retail and manufacturing companies,
2) find in which area digital investments are made and have a positive effect, and
3) explore how sustainability goals are integrated into business strategy.
Two main topics should be analyzed more deeply: digital transformation and sustainability. When we asked if digital transformation will have a positive impact on the retail industry, the question was asked in a Likert Scale rating scale question format to measure how people feel about digital transformation. Thus we have the answer in both percentages as well as a maximum likelihood estimate. Results have shown that 37% of respondents stated that they strongly agree with this statement and 48.1% agree, while only 1.9% disagree. It is related to previous research that technological revolution can provide businesses with competitive advantages like improvement of the relationship between the business and customers by enabling a higher level of connectivity. Consequently, looking into investments in digital transformation and if respective companies have invested in this, 68.5% stated that they have. We asked the question with a yes or no answer to determine which of the participants will be required to answer questions about investments. The data collected in the section on investments were only for the respondents that answered yes in question 8. The Google Forms questionnaire was built in a way to only has relevant answers. We have in this section 37 respondents where the respondent’s company did invest in digital transformation. Based on the results of this question the highest investments are made in Sales, followed by Customers Service and R&D.

![Figure 1. In which area digital investments are made](Source: Own research)

Technologies enabling digital transformation include Cloud, Connected Devices, Data Analytics, Connected enterprise and Manufacturer software. The results of question 12 show that majority of the companies are working on technology devices and technical aspects within their companies today. The total is not equivalent to 100% as they could choose several answers. The highest response was on Cloud on Data Analytics.

![Figure 2. Technologies that fashion companies work with](Source: Own research)
The main challenge identified by all respondents for digital transformation is lack of vision and leadership and lack of skilled professionals showing that 57.7% of the data collected see this as the biggest risk. The question was asked to choose one or more challenges that are appropriate.

![Figure 3. Challenges of digital transformation for those that invested](source: Own research)

In the section on sustainable development, we asked questions in order to identify the trend of companies and if the 17 Sustainable Development Goals (SDGs) developed by the UN are taken into account. In all the data collected from the 54 respondents, all answers were higher on yes for involvement in sustainable development. If the company has a long-term target for the future, 37 people responded affirmably.

![Figure 4. Impact of digital technologies on sustainability](source: Own research)

All data collected show that the impact of digital transformation will be positive for both profits, operating costs and revenues.

5. **CONCLUSION**

The impact on digital transformation will play a key role for the future of the fashion industry and also is an opportunity for the sustainable concept. Throughout the research, results and findings show that there is a clear indication that the movement to a digital transformation must happen and not just e-commerce and online shopping. Modern business conditions in the Fashion retailing sector are characterized by intense changes in the business environment and the need for flexible and rapid adaptation to market conditions and competitive structure.
The latest technological revolution, primarily in the field of IT and telecommunications, has led to changes in the way of business, formation and definition of business strategies, organizational structures and education of all participants of business transactions. Fashion retailing organizations evaluate the results and success of their business activities in the financial markets, production processes and sales of wardrobe, where the basic measurement parameter is quality and long-lasting sustainable relationship with clients. The fashion industry is changing at the pace of technology and digitalization. Companies like Walmart, Amazon or Nike are acquiring tech startups specializing in AI, VR, AR, blockchain, etc. Regarding Fashion retail, IBM has teamed up with Tommy Hilfiger and The Fashion Institute of Technology (FIT) Infor Design and Tech Lab on a project called Fashion retailing, and the new concept of using digital technologies is a new form of banking organization business in the World market that is based on a marketing approach to the environment and is part of e-commerce.

The research has collected relevant literature focusing on fashion retailing and digital technologies that lead to digital transformation. The study is based on primary quantitative data that have been collected from 54 managers within the retailing industry from all continents. The study results show that the impact of digital transformation will be positive for profit, operating costs and revenues and the rise of technology has changed consumer behavior. Also, changes must be made in the area of sustainability and everything will change to fit a new digital world. The study results also show that digital transformation will have a positive impact on the retail industry. Digital transformation impacts every aspect of the business and is creating a new paradigm for fashion retailers that will pay more attention to the concept of sustainability in its future development.

REFERENCES