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Scaling a Circular Business Model Through an Innovation Platform to Implement Sustainable Technology Into the Supply Chain: A Case Study

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Recently, social enterprises have been recognized for their synergistic relationship with sustainable development. Despite the increasing attention of academics and policy makers on social enterprise, most published literature is theoretical and conceptual. Therefore, the purpose of this study was to empirically examine the social and environmental sustainability practices of the selected social enterprise Fashion for Good and their impacts on global change and, further, to explore their contributions to advancing the United Nations Sustainable Development Goals (UN SDGs). A qualitative method was adopted using document analysis and in-depth interview techniques. Circular economy and the UN SDGs were employed as conceptual frameworks. Fashion for Good facilitates collaboration between brands and innovative tech companies by offering an Innovation Platform that encourages brands to implement sustainable technologies, leading to systemic change in the fashion supply chain. The findings revealed that Fashion for Good's social sustainability program consists of the Innovation Platform, including the Accelerator Program, the Scaling Program, and the Good Fashion Fund, and the Global Expansion Program. Its environmental sustainability program includes the Sustainable Museum. This study expands our knowledge of how a social enterprise creates value in businesses aligned to the circular economy and makes impacts on global social and environmental changes. Additionally, it provides academics and practitioners with insights on how a social enterprise strategically achieves its mission and, further, contributes to the UN SDGs.

Keywords: circular economy, environmental sustainability, innovation platform, social enterprise, social sustainability, technology, fashion industry, UN Sustainable Development Goals

Introduction

A circular economy (CE) as a driver for sustainability has recently drawn growing attention from academics, practitioners, and policy-makers (Brandao, Lazarevic, & Finnveden, 2020). The CE model was created in response to the traditional linear, or "take-make-waste," economy models that dominate many industries (Geissdoerfer, Bocken, & Hultink, 2016). The CE follows a regenerative design and seeks to reduce the consumption of finite resources and end the paradigm of infinite growth (Kircherr, Reike, & Hekkert, 2017);

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it represents the most advanced manifestation of a paradigm shift toward sustainability (Prieto-Sandoval, Jaca, & Ormazabal, 2018). Kircherr et al. (2017) emphasized that the take-make-waste model is particularly prominent in the fashion industry. According to Kerr and Landry (2017), 92 million tons of textile waste is generated globally per year with the estimation of 134 million tons per year by 2030. Annually, in the US alone, nearly 3.8 billion pounds of textile waste—approximately 85 percent of the clothing Americans consume—is sent to landfills as solid waste. This irresponsible, overflowing production and consumption system with extremely high waste generation and emissions requires immediate attention for change. The linear model results in not only environmental destruction but also economic loss. In addition, labor abuses and gender inequality continue to plague the global fashion industry requiring social reform (Brooks, 2007). Thus, it is important for consumers to be educated as responsible global citizens with sustainability literacy (Kim, Fiore, Payne, & Kim, 2021).

In response to the aforementioned challenges, the European social enterprise Fashion for Good (FFG), selected for this case study, has actively called for the fashion industry's transformation of its business models to a restorative and regenerative circular approach called "Good Fashion." FFG believes that what the industry lacks for "Good Fashion" are the resources, tools, and incentives to put it into relentless practice (Khanna, 2021). Thus, the mission of FFG is "to bring together the entire fashion ecosystem through our Innovation Platform and as a convenor for change" (About us, n.d.). Although FFG holds an optimistic view for this change, numerous action plans for a circular economy must be implemented to achieve it: for example, the effective use of materials for reduced environmental impacts, a paradigm shift in production and consumption systems, adoption of new technologies, and the implementation of new business models and policies (Brandao et al., 2020). The establishment of a circular fashion depends on the holistic transformation of the fashion system by creating an enabling environment for ecosystem change (Accenture Strategy, 2019).

Along with the search for more desirable business models and practices, attention to social enterprise (SE) has increased (Zahra, Rawhouser, Bhawe, Neubaum, & Hayton, 2009), and the potential for contribution to advancing the United Nations Sustainable Development Goals (UN SDGs) has been recognized (Hudon & Huybrechts, 2017). Although research on SE has increased in recent years, most published literature is still theoretical (Centobelli, Cerchione, Chiaroni, Vecchio, & Urbinati, 2020; Diaz Lopez, Bastein, & Tukker, 2019). In the case of empirical studies, many of them focused more on the individuals who started the social enterprises rather than their best practices (Bornstein, 2007). Therefore, the purpose of this study was first, to examine the social and environmental sustainability practices of FFG and their impacts on global change through an empirical case study and, further, to explore how the enterprise contributes to advancing the UN SDGs. The research questions were as follows: first, what are FFG's social sustainability practices and their impacts on global social change? Second, what are FFG's environmental sustainability practices and their impacts on environmental protection? Third, what metrics are used to measure and evaluate the impacts? Fourth, what are the barriers in implementing sustainable standards along the supply chain? Fifth, what were the impacts of the pandemic on FFG? Sixth, what are the opportunities and threats to FFG? Seventh, what are the contributions of FFG to advancing the UN SDGs? This study expands academics' and practitioners' knowledge about how a social enterprise creates value in businesses aligned to the circular economy and makes impacts on global social and environmental changes. It also provides insights on how an SE strategically achieves its mission and, further, contributes to the UN SDGs.

Literature Review

Sustainable Development Goals (SDGs) and Social Enterprise (SE)

Sachs (2015) argued that the call for SDGs was a historic move to forward a new global agenda bringing together the world community, including governments, businesses, non-governmental organizations (NGOs), scholars, students, and civil society. The 193 countries of the UN General Assembly adopted 17 SDGs on September 25th, 2015 to achieve by 2030 (Bebbington & Unerman, 2018). The goals embrace the three pillars of sustainable development: economic development, environmental sustainability, and social inclusion (Sachs, 2015). Sachs emphasized that setting goals will help mobilize epistemic communities, networks of expertise, and stakeholder networks, including community leaders, government ministries, politicians, international organizations, NGOs, the scientific community, foundations, and donor organizations collaborating toward a common goal. He argued that this type of multi-stakeholder connectivity is critical for the multidimensional, complex global challenges of sustainable development while the United Nations Educational, Scientific and Cultural Organization (UNESCO) (2021) claimed that urgent action is required to confront the unprecedented, interrelated challenges the world is facing, particularly with climate change, a loss of biodiversity, extreme poverty, and inequality, and other environmental, social, and economic challenges.

Scholars believe that SEs, businesses trading for a social purpose, will be instrumental in ensuring the timely completion of the SDGs (Rai, Brown, & Ruwanpura, 2019). They combine innovation, entrepreneurship, and social purpose and seek to be financially sustainable by generating revenue from trading (Dees & Anderson, 2003). Their social mission prioritizes social benefit over financial profit. Many SEs focus their mission and vision on the SDGs (Wanyama, 2016). They aim to be linked to other organizations, locally and nationally, on the basis of mutual cooperation between the social enterprise and the wider local and regional economy (Wanyama, 2016). While these goals are important targets for all countries, industries, and businesses to work toward, social enterprises and the fashion industry are uniquely positioned to reform their production cycles to reach these goals (Osterman, Nascimento, & Carneiro, 2021).

Qiao and colleagues (2015) conducted a case study revealing that additional premiums generated by the sale of fair-trade goods resulted in additional community expenditures on healthcare and education. Because these are investments in community facilities, individuals who are outside of the fair-trade framework can still have benefit from them. The social premium for these goods allows for the payment of school fees and supplies, offers sufficient income so that children will not have to forgo school to begin working, and provides families with the ability to upgrade their water and sanitation facilities (Raynolds, Murray, & Taylor, 2004). This helps advance SDGs 3 (good health and well-being) and 4 (quality education). Additionally, the consistency provided by the business model allows for long-term contracts between local artisans and enterprises and encourages further development by reducing the producer's risk in investment (Raynolds et al., 2004). By promoting investment and ensuring proper wages and prices, this type of social enterprise helps to achieve SDG 8 (decent work and economic growth). Many industries, including the fashion industry, must make significant changes to their production and business models by following the framework of the CE and the Triple Bottom Line if SDGs 9 (industry, innovation and infrastructure) and 12 (responsible consumption and production) are to be achieved (Crespo, Migues-Alvarez, Arce, Cuevas, & Muguez, 2017).

Circular Economy (CE) and the Fashion Industry

According to Geissdoerfer et al. (2016), CE is defined as "a regenerative system in which resource input

and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops. This can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling." (p. 759). As the definition illustrates, circular principles are based on first, designing out waste and pollution; second, regenerating natural systems; and third, extending the lifetime of materials (Ellen MacArthur Foundation, 2021). CE differs from other sustainability approaches by proposing restorative and regenerative systems (Ghisellini, Cialani, & Ulgiati, 2016) with strategies based on resource and material efficiency (Nußholz, 2017), design, and closed loop systems (Murray, Skene, & Haynes, 2017). Consequently, new production technologies are essential to implement a circular manufacturing system. Furthermore, businesses must use more local resources and reduce the use of transportation related emissions (McMeekin & Southerton, 2012).

Good progress on CE has been made and disruptive start-ups are adopting a wide range of circular models while established brands and retailers have been slower in acting with obstacles of large-scale adoption (Bruinsma, 2021). There are significant barriers to adoption, including the perceived risk of sales reduction, operational complexity of new models, and a lack of clear evidence on long-term financial viability (Rizos et al., 2016). Kirchherr et al. (2018) argued that the four main barriers to the CE in Europe are cultural, regulatory, market, and technological barriers. They stated that the major cultural reason is an unwillingness to engage with the circular economy among both businesses and consumers. For regulatory barriers, they discovered that very few policies aiming to help the CE transition exist in Europe. Among the market-oriented barriers, they noted that there is little standardization as far as what constitutes the CE among practitioners, virgin materials are still incredibly inexpensive, and startup costs are high. Lastly, they pointed out that practitioners claim the lack of technologies to implement CE in addition to data on impacts and circular designs following the theoretical framework, particularly among large organizations, halts their movement.

The fashion industry has posed some of the most daunting challenges to the achievement of the SDGs, particularly with respect to its carbon footprint (Bick, Halsey, & Ekenga, 2018; Kim & Fairley, 2021), irresponsible overproduction resulting in overconsumption (Carrone, 2020; Kim, 2010; Radhakrishnan, 2020), and labor injustices for the mostly female workforce (Brooks, 2007). The World Resources Industry and the Apparel Impact Institute (Aii) estimated that the apparel sector's share comprises approximately 2 percent (1.025 gigatonnes [Gt] of carbon dioxide equivalent [CO_2 e]) of annual global greenhouse gas (GHG) emissions in 2019, with most impact in the raw material and processing steps of the supply chain (Ley, Perkins, van Mazijk, Gaines, & Hugill, 2021). They also identified six interventions that deliver over 60 percent of the necessary reductions to align with a 1.5℃ scenario: increasing sustainable materials and practices, accelerating the development of innovative materials, maximizing material and energy efficiency, removing coal in manufacturing, and shifting to completely renewable electricity (Sadowski, Perkins, & Mcgarvey, 2021). Brands and retailers must implement and scale CE models and coordinate their decarbonization efforts with key value chain partners. Policy makers also have a crucial role to play in promoting decarbonization across the industry, and consumers' ethical consumption as well as investors' responsible decisions in their investments play important roles.

Method

A qualitative method was adopted for this case study, employing document analysis and in-depth interview techniques. First, a highly recognized and impactful European social enterprise focusing on the fashion industry, Fashion for Good (FFG) was selected. Second, an instrument was developed for a semi-structured interview with

36 questions. Third, various documents were collected concerning FFG, including published articles in the newspapers, magazines, and journals; its annual reports; and contents available on its website and social media sites (e.g., Facebook, Tweets, LinkedIn, and Instagram). Fourth, a virtual in-depth interview was conducted with FFG's Director of Asia Program (DAP), a key employee for social sustainability at FFG, by the authors via Zoom for about one hour in January of 2021. She is female, 35 years of age, and has worked at FFG about three years leading the expansion into different regions, with a particular responsibility for the Asia Expansion—a regional program in South Asia, including India, Sri Lanka, Bangladesh, and Pakistan and, more recently, expanding into Southeast Asia, including China, Vietnam, Cambodia, and Taiwan, set up completely virtually without offices in any of these places except in India. The Zoom interview was recorded and transcribed before the analysis. For the data analysis, open coding and the constant comparative methods (Strauss & Corbin, 1990) were employed. Additionally, the diverse data analyzed characterizes a triangulation of evidence sources. Particularly, testimonies from innovative startups on their collaborative experience with FFG, collected from the FFG website, were included to provide diverse perspectives.

Case: Fashion for Good

Evolution From Its Inception to the Present

Fashion for Good (FFG), headquartered in Amsterdam, Netherlands, was founded in 2017 by the Laudes Foundation, one of the most prominent foundations in fashion and sustainability (About us, n.d.). The foundation recognized that while there are numerous technologies available to drive sustainability in the fashion supply chain, not many brands can transform their supply chains themselves due to a reluctance to work. That was the motive for creating FFG as an innovation platform, a pre-competitive safe space for large brands and retailers to come to test and scale innovations, which will become the future of the industry (Khanna, 2021). FFG is registered as an ANBI by Dutch law, which is roughly equivalent to a public benefit corporation in the US (ANBI, n.d.). FFG connects brands, retailers, innovators, producers, suppliers, funders, and non-profit organizations to work on their shared goal of making the fashion industry a force for good (About us, n.d.). Through its innovation platform, FFG selects the most promising innovators from across the globe, supports the development of their solutions, helps them get the funding for their growth, and connects them with FFG's corporate partners in pilot projects to scale those proven technologies and business models for wider adoption by the industry (Khanna, 2021). Through collaboration and innovation, FFG aims to reimagine how fashion is designed, made, worn, and reused (Culture and background, n.d.). Its programs are supported by founding partner Laudes Foundation; co-founder William McDonough; and corporate partners Adidas, C&A, Chanel, Bestseller, Galleries Lafayette Group, Kering, Otto Group, Levi Strauss & Co., PVH Corp., Stella McCartney, Target, and Zalando (Accenture Strategy & FFG, 2019).

Target Market and Value Creation

According to the Director of Asia Program (DAP) (2021), the enterprise is comprised of two verticals. The first vertical is the B2B innovative platform that supports entrepreneurs to start and scale their business and helps brands and manufacturers see how the new technologies operate before they are applied to the entire supply chain. The innovative platform is further divided into four programs: first, the Accelerator Program provides entrepreneurs with both the necessary business skills and the targeted introduction to successful headway in the fashion industry (The Accelerator Programme, n.d.). Second, the scaling program promotes growth and wide

adoption of the selected entrepreneurs' companies and products (The Scaling Programme, n.d.). Third, the South Asia Innovation Program focuses on aiding entrepreneurs in South Asia by providing them with funding and sustainability experts and introducing them to new investors (Asia Innovation Programme, n.d.). Fourth, the Good Fashion Fund (GFF) is an investment fund designed to increase the adoption of innovative solutions in the fashion industry (Good Fashion Fund, n.d.). According to the DAP (2021), their B2B customers are characterized as the following:

> Our B2B customers are the big brands and manufacturers that particularly have sustainability and innovation in their DNA. Every organization has a journey of sustainability, and on the part of sustainability, these partners that we work with are much more mature. They have the capability to work towards change. They are the ones that we engage with mostly because they proactively engage in our programs and proactively engage with the technologies and help with the scaling of that.

The second vertical is its B2C Sustainable Museum focused on the unsustainability of the fashion industry and how to address these changes (Museum, n.d.). It is the world's first interactive museum for sustainable fashion innovation (Museum, n.d.). The customers for the museum are

> … usually people who have interest or a little bit of inclination and knowledge towards sustainability and want to learn more about how they can make different decisions to become more sustainable, so they will be our ideal customers. I think they are just more aware consumers who are looking to be more aware and find out more about their own impact on the world. (Khanna, 2021)

The DAP (2021) commented,

> We are sort of matchmaking different actors or different players of industry. I think a good analogy here is the three legs of a stool. So one leg would be innovation, the other, brands, and the third, manufacturers, which kind of sums up the aspects of the fashion industry and Fashion for Good sits in the center and brings them all together.

Organizational Location and Leadership/Management Style

FFG is globally located, with its physical museum in Amsterdam, Netherlands. Its second regional office is located in India. According to the DAP (2021), FFG "operates as a relatively flat organization with layers in its structure" and "a total of 35 people." "The overall management style is flexible, and everyone has a voice. It has a very open culture as is the typical social enterprise. Everyone has equal responsibility and equal voice while larger strategy decisions are made at the top."

Social Sustainability Programs and Their Impacts

FFG's social sustainability program broadly consists of the Innovation Platform and the Global Expansion Program, currently focused on Asia. The Innovation Platform focuses on scaling sustainable technologies and business models that have the most potential to transform the industry. It provides support to innovators tailored to their business maturity through the following three key programs: the Accelerator Program, the Scaling Program, and the Good Fashion Fund.

Innovation platform: The accelerator program. The Accelerator Program provides 10-15 promising startup innovators from around the globe with the expertise and funding necessary for their growth (Khanna, 2021). The intensive Accelerator Program does not charge fees or require equity. FFG seeks innovations in the following key areas: raw materials, processing, manufacturing (cut-make-trim), retail and use, end-of-use, transparency and traceability, waste management, worker empowerment, and packaging. These innovations facilitate the rethinking of every step a product is made from materials and business models designed for renting

and reselling to technologies that "close the loop" so that used clothes can be turned into new ones. FFG believes that doing good is not simply doing less bad; it is about creating technologies and systems that actively benefit us all, offering an opportunity for a regenerative closed loop system that reduces waste. Fashion startups with emerging technologies that base the business model innovation for CE tend to prefer developing innovative closed-loop systems, enabling new sustainable materials creation, and enhancing efficiency to reuse waste. In implementing circularity in the fashion industry, CE supply chain management and value chain integration are identified as key factors (Osterman et al., 2021).

Innovation platform: The scaling program. The Scaling Program aims to enhance the growth and adoption rate of selected innovators. It supports companies that have a product ready for the market to grow toward commercial scale. FFG evaluates innovators based on a comprehensive range of criteria, including scalability, impact potential, maturity, team, and business strategy. The program "supports innovations that have passed the proof-of-concept phase, with a dedicated team that offers bespoke support and access to expertise, customers, and capital" (Khanna, 2021).

Innovation platform: The good fashion fund. The Good Fashion Fund (GFF) invests in the adoption of disruptive and highly-impactful technologies and circular innovations in the fashion production industry in Asia (mainly India, Bangladesh, Vietnam), such as the use of safe and recyclable materials, clean and less energy, and closed-loop manufacturing. This fund was created to address the gap between currently existing sustainable solutions and a lack of capital available to scale these technologies to build a restorative and regenerative fashion supply chain. This means, for example, that the use of safe and recyclable materials, reduced water usage and efficient wastewater technologies, use of clean and less energy, closed-loop manufacturing, and creating fair jobs and growth as well as improved labor conditions. The example technologies include waterless dyeing, effluent treatment plants, recycling, upcycling, digital printing, low liquor washing, sustainable finishing, and CMT Automation.

Global expansion program: Asia. FFG opened the global expansion program "South Asia Innovation Program" in Mumbai, India, in 2020 then expanded to Southeast Asia. This program provides long term USD debt to manufacturers in the apparel supply chain in Asia (mainly India, Vietnam, and Bangladesh), enabling them to invest in impact technology and delivering economic growth and social and environmental improvements through good fashion practices. In terms of social impacts, FFG focuses on empowering women and making labor sourcing more ethical (e.g., worker's rights and safe and healthy working conditions). It has given grants equitably to many different partners and enterprises and hired many female high-ranking officials.

Environmental Sustainability Programs and Their Impacts

FFG's environmental sustainability program includes the Sustainable Museum—Fashion for Good Experience. The museum opened in 2018 and focuses on how to make changes to unsustainable fashion (Museum, 2021). It is an interactive tech museum for the future of fashion, telling the stories behind the clothes visitors wear and how their choices can have a positive impact on people and the planet (Annual Report, 2020). The museum offers various educational and service programs. For example, the Journey of a T-shirt program explores the value chain of a cotton T-shirt from farmer to consumer, learning about the production processes. In November of 2022, the museum held an upcycle or repair event in collaboration with Gemeente Amsterdam, New Order of Fashion, and Stadspas Amsterdam. An upcycle artist Valentine Tinchant and a tailor Atilla Kiliç from Tailors of Amsterdam repurposed clothing items that visitors brought to the event free of charge (Rewear & Repair, 2022, November 21). In addition, while many of 35 employees work remotely, the headquarter of FFG

was designed to reduce heating and electricity use. It also houses a co-working space—a Circular Apparel Community—that creates open-source resources like its Good Fashion Guide about cradle-to-cradle clothing, which pays less for heat (About us, n.d.).

Performance Measurement

The criteria or metrics used to measure and evaluate FFG's environmental and social sustainability performance include The Five Goods and the Life Cycle Assessment. According to the DAP (2021),

> We measure impact in so many different ways, such as performing life cycle assessments. We also personally created a framework of five points: we call it Good Materials, Good Economy, Good Energy, Good Water, and Good Lives. Most of the fashion industry impacts fit into this Five Goods framework. When we review technologies that come into the program and make a difference in the industry, we review them by this five-point format because these are key challenges of the industry.

According to William McDonough, co-founder of FFG, The Five Goods represents an accountability framework with the promise of social, economic, and environmental prosperity, transferring business models from take-make-waste to take-make-renew-restore. The details of The Five Goods are shown in Table 1 below.

Table 1

The Five Goods

Practice	Features
Good Materials	Safe, healthy, and designed for reuse and recycling
Good Economy	Growing, circular, shared, and benefiting everyone
Good Energy	Renewable and clean
Good Water	Clean and available to all
Good Lives	Living and working conditions that are just, safe, and dignified

For the measurement of social sustainability, the DAP (2021) mentioned,

> We measure the technical readiness level (TRL) of all of our technologies on our platform which is about 115. We also measure our collective impact and the TRL increase for every innovator annually, so the consolidated TRL increase becomes our own sustainability increment for the year because we are supporting them. We don't have our own unique product, so when the innovators go through our programs, the collectivity of that is what we consider our social impact. We also map out the next few years of what we think our social impact will be to other innovators, forecasting how much growth we could give them.

Additionally, the GFF uses the Higg Index, a widely adopted environmental index for the apparel industry assessment. A key objective of the fund is to contribute to the improvement of workers' rights, working conditions, and gender equality within the industry, starting with the demonstration of improvement within GFF's investees. FFG works with Fair Wear Foundation to implement, measure, and monitor the improved social conditions for the long term of its investment (Good Fashion Fund, n.d.)

Barriers in Implementing Sustainable Standards Along the Supply Chain

Many barriers in instituting a sustainable chain were mentioned, but the four key barriers were identified as the lack of knowledge, capacity, financing, and relationships between brands and manufactures. The DAP (2021) mentioned,

> We try to fill the lack of knowledge by creating knowledge. With some capacity, as a traditional system that has been going on for hundreds of years, historically this industry has not been used to working with technology. So there is definitely

> a low capacity to work with innovation, and they also work with very small margins, especially the manufacturers, so where would that appetite to test come in? Last, I think partnerships in between brands and manufacturers can be a barrier. They need to work together with technology adoption. If a manufacturer does it and a brand does not buy the new technologies from them, they are going to run out of business.

Financing the Model

FFG finances the model with foundation grants, membership fees from brands and manufacturers, and museum tickets. The enterprise is not profit-focused, so it uses any surplus profit to help reduce the costs for the brands they work with and to reinvest into the innovation platform (Khanna, 2021).

The Impacts of the Pandemic

According to the DAP (2021),

> For us, the pandemic has had a relatively positive impact; for the fashion industry, not so much, but for the sustainability agenda, yes. The sustainability agenda became more important after the first six months of the pandemic because suddenly brands and manufacturers started looking at whether they should try to gain a competitive advantage or go back to business as usual, and suddenly, if you look at more sustainable technologies, maybe that is a path to recovery and a competitive advantage. A lot of sustainable technologies that existed suddenly started getting adopted because that was the need. For example, you saw this industry going through this massive deceleration phase because they did sampling on a physical basis; now, suddenly without any transportation and movement in the market, they had to go into digital sampling. They had to create and adopt new tools very quickly for digital sampling, which had existed for many years. We had been pushing this agenda for many years, but they were not getting adopted because the need was not there. Suddenly, with the coronavirus, the need arose and people had to adopt this technology; they did not have an option. So in certain parts of the supply chain or certain types of technology, it has been very positive; in certain other parts, it has been very negative with new material development being halted. In the long run, I think we will look at this as a positive change, but maybe, in the short run, it has been quite mixed. However, a lot of the technology that needed to become part of the supply chain has become part of the supply chain because of the pandemic.

As indicated in the previous section, technology has been identified as the most frequently mentioned barrier for implementing CE into a supply chain, thus, the pandemic accelerated the fashion industry's transition to CE value chains.

Opportunities and Threats to FFG

According to the DAP (2021), the opportunities and threats FFG sees to its business in the next five years were as follows:

> [There are] lots of opportunities. I think the whole world generally is moving toward rethinking how economics is driven. Traditionally, business had a two-dimensional consideration: business and profits. Now, almost all businesses are thinking multidimensionally about environment, society, justice, all of that, so I think there is massive opportunity for any new company as well as social enterprises like ours to expand and work with multiple players--in solidifying that multidimensional aspect of business. I think social enterprises are best educated and in the best position to bring that to the industry … I think threats are purely financial because a lot of organizations cannot maintain their membership fees or their grant funding. As far as our impact, social enterprises do not have a sustainable business model because they are mostly grant driven, so the threat is obviously of not being able to continue the world bettering and being shut down much earlier on without actually completing the agenda we set out to complete.

Similarly, Demirel, Li, Rentocchini, and Tamvada (2017) argued that cost structure is an essential dimension for the success of business model innovation for CE, considering the challenge of startups to monetize the operation and obtain an economic return, particularly if they operate in technological innovation areas of sustainability.

The Contributions of FFG's Social and Environmental Sustainability Practices to Advancing the UN SDGs

FFG's environmental and social performance contributes to advancing a significant number of UN SDGs. The relevant SDGs for their performance are noted next to each of The Five Goods: Good materials (SDGs 9—industry, innovation and infrastructure, 12—responsible consumption and production, 13—climate action), Good economy (SDGs 8—decent work and economic growth, 9—industry, innovation and infrastructure), Good energy (SDG 7—affordable and clean energy), Good water (SDG 6—clean water and sanitation), and Good lives (SDGs 3—good health and well-being, 4—quality education, 5—gender equality, 8—decent work and economic growth, 10—reduced inequalities).

Discussion and Conclusions

As revealed in the findings, FFG facilitates collaboration between brands and innovative tech companies by offering an Innovation Platform that encourages brands to implement sustainable technologies, leading to systemic change in the fashion supply chain. Technology has been most frequently pointed out as a barrier in previous studies (Kirchherr et al., 2017); thus, FFG's focused effort addresses the most urgent need in scaling circular economies. The pandemic also played a positive role in fueling the adoption of technology by forcing its need. This type of effort for multi-stakeholder connectivity is critical to tackle the multidimensional, complex challenges of scaling CE.

Through the Innovation Platform and Sustainable Museum, FFG's social and environmental sustainability practices have made big impacts on global change. By scaling sustainable technologies and transforming business models to a restorative and regenerative circular model "Good Fashion" has the potential to transform the industry. FFG attributes the industry's lack of "Good Fashion" to the lack of resources, tools, and incentives to put it into relentless practice, so the establishment of circular fashion depends on the holistic transformation of the fashion system by creating an enabling environment for ecosystem change (Accenture Strategy & FFG, 2019). As is its mission, FFG brings together the entire fashion ecosystem through its Innovation Platform and plays a role as a change-maker.

FFG's effective performance and meaningful impacts are evidenced by the testimonials of the innovative tech startups collaborating with it. According to the CEO of Nature Coatings,

> The support we have received from Fashion for Good through the Accelerator—and now the Scaling Program—means so much to us. The Accelerator helped us shift our business model and focus in order to help us get into the market faster and the Scaling Program provides validation from the market place that our pigment is needed. We hope to have pilot programs with brand partners in place and even completed by the end of the program. (FFG Website, n.d.)

The CBO of Sonovia commented,

> Our hopes for the Scaling Program are to run trials with the biggest companies in the industry (Fashion for Good's corporate partners) and to be able to quantify our positive environmental impact. This is a fantastic opportunity to work with a group of amazing people that give their best to make the world a better place.

The CEO of Ambercycle commented, "The textile industry is on the brink of an incredible transformation. The Scaling Program of Fashion for Good builds the invaluable setting necessary to translate scientific breakthroughs into technologies that usher in this transformation."

Osterman et al. (2021) argued that if the circular economy is to truly replace the linear economy, better measurements must be developed. Other previous studies (Kim & Fairley, 2021; Kim & Han, 2022) also pointed

out that metrics for more systematic and quantitative measurements should be developed to evaluate SEs' social and environmental impacts. FFG's creation of its own metrics, The Five Goods as well as employing Life Cycle Assessment reveals its relatively advanced stance, compared to other SEs; however, constant efforts for further developments of systematic, quantitative, and thorough metrics and their refinements are still required for SEs as a whole.

Significant changes in public policies are also necessary to scale CEs: enhancing enforcement mechanisms for instituted policies, increasing financial support from governments for small-sized startups, and implementing government policies promoting the adoption of new sustainable technologies (McDowall et al., 2017). FFG's DAP's comments (2021) echo these changes:

> A lot of the technologies that are coming in now that are focused on how to create a sustainable supply chain require a lot of government support and polity-policy push … In Europe, we need a lot of policies to be put into place in each of these geographies and push for this confirmation.

In conclusion, large-scale implementation of circular business models is urgent to facilitate a CE in the fashion industry. Brands and retailers should better understand each model and enhance strategies for successfully scaling new circular economies. The improvements of technologies and infrastructure, the increasing emergence of start-ups, consumer behavior changes, advanced circular design practices, and new policies are creating an enabling environment for established brands to pursue CE initiatives. As its mission, FFG brings together the entire fashion ecosystem through its Innovation Platform and plays a role as a change maker, significantly contributing to many of the UN SDGs.

This study examined how a social enterprise, FFG, creates value by promoting a CE. It investigated the global impacts of the enterprise's social and environmental sustainability practices as well as how they are measured. It also explored the barriers hindering the implementation of sustainable supply chains and the opportunities and threats to the enterprise. Lastly, it examined the contributions of FFG to advancing the UN SDGs. This study enhances academics' and practitioners' knowledge about a social enterprise's sustainability practices and its impacts through empirical data. In addition, it provides them with insights on how a social enterprise strategically achieves its mission, addresses its shortcomings and, further, contributes to the UN SDGs. The limitation of this study is that a single case study of a European SE cannot be generalized for all SEs in the fashion industry. In the future, empirical studies with larger data are suggested, and comparative studies between countries or between developed and developing countries would be beneficial.

References

About us. (n.d.). Fashion for Good Website.

Accenture Strategy & Fashion for Good. (2019). The future of circular fashion: Accessing the viability of circular business models. https://fashionforgood.com/wp-content/uploads/2019/05/The-Future-of-Circular-Fashion-Report-Fashion-for-Good.pdf

Accenture Strategy. (2019). The circular advantage: Moving from insight to action. Preview to the *Circular advantage handbook*. Accenture Strategy. https://thecirculars.org/content/resources/The_Circular_Advantage.pdf

ANBI. (n.d.). ANBI Foundation.

Bebbington, J., & Unerman, J. (2018). Achieving the United Nations sustainable development goals: An enabling role for accounting research. *Accounting, Auditing & Accountability Journal, 31*(1), 2-24.

Bick, R., Halsey, E., & Ekenga, C. C. (2018). The global environmental injustice of fast fashion. *Environmental Health, 17*, 92.

Bornstein, D. (2007). *How to change the world: Social entrepreneurs and the power of new ideas* (updated ed.). Oxford: Oxford University Press.

Brandao, M., Lazarevic, D., & Finnveden, G. (2020). *Handbook of the circular economy*. Cheltenham: Edward Elgar Publishing.

Brooks, E. (2007). *Unraveling the garment industry*. Minneapolis: University of Minnesota Press.

Bruinsma, M. M. (2021). Drivers and barriers for the adoption of the reuse business model (Master's thesis, Utrecht University, Netherland, 2021).

Carrone, N. P. (2020). Traceability and transparency: A way forward for SDG 12 in the textile and clothing industry. In Gardetti, M. A., & Muthu, S. S. (Eds), *The UN sustainable development goals for the textile and fashion Industry* (pp. 1-19). New York: Springer.

Centobelli, P., Cerchione, R., Chiaroni, D., Vecchio, P. D., & Urbinati, A. (2020). Designing business models in circular economy: A systematic literature review and research agenda. *Business Strategy and the Environment, 29*(4), 1734-1749.

Crespo, B., Migues-Alvarez, C., Arce, M. E., Cuevas, M., & Muguez, J. L. (2017). The sustainable development goals: An experience on higher education. *Sustainability, 9*(8), 1353.

Culture and Background. (n.d.). Fashion for Good Website.

Dees, G., & Anderson, B. B. (2003). For-profit social ventures. *International Journal of Entrepreneurship Education, 2*(1), 1-26.

Demirel, P., Li, Q. C., Rentocchini, F., & Tamvada, J. P. (2017). Born to be green: New insights into the economics and management of green entrepreneurship. *Small Business Economics, 52*, 759-771.

Diaz Lopez, F. J., Bastein, T., & Tukker, A. (2019). Business model innovation for resource-efficiency, circularity and cleaner production: What 143 cases tell us. *Ecological Economics, 155*, 20-35.

Ellen MacArthur Foundation. (2021). What is the circular economy? https://www.ellenmacarthurfoundation.org/circular-economy/whatis-the-circular-economy

Fashion for Good. (2020). *Fashion for Good Annual Report.*

Geissdoerfer, M., Bocken, N. M. P., & Hultink, E. J. (2016). Design thinking to enhance the sustainable business modelling process—A workshop based on a value mapping process. *Journal of Cleaner Production, 135*, 1218-1232.

Geissdoerfer, M., Savaget, P., Bocken, N., & Hultink, E. (2017). The circular economy—A new sustainability paradigm? *Journal of Cleaner Production, 143*, 757-768.

Ghisellini, P., Cialani, C., & Ulgiati, S. (2016). A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner Production, 114*, 11-32.

Good Fashion Fund. (n.d.). The Fashion for Good Website.

Hudon, M., & Huybrechts, B. (2017). From distant neighbors to bedmates: Exploring the synergies between the social economy and sustainable development. *Annals of Public Cooperative Economics, 88*(2), 141-154.

Kerr J., & Landry, J. (2017). *Pulse of the fashion industry—Global fashion agenda*. The Boston Consulting Group. https://www.globalfashionagenda.com/publications-and-policy/pulse-of-the-industry

Khanna, P. (2021). An interview with Priyanka Khanna , the Director of Asia Expansion Program, by Eundeok Kim and Andrew Fairleyon January 29, 2021.

Kim, E. (2010). The influence of sustainability and social responsibility on fashion trends. *International Journal of Costume and Fashion, 10*(2), 61-71.

Kim, E., & Fairley, A. (2021). The impacts of social and environmental sustainability practices of European social enterprises in the fashion industry in tackling global social problems: A multi-case study. In *Proceedings of the international society for quality-of-life studies virtual conference*, 23-27 August 2021.

Kim, E., & Han, H. (2022). Advancing sustainable development through gender equality and economic development: A case study of Nest. In *Proceedings of the international conference on sustainable development*, European Center of Sustainable Development, 7-8 September 2022.

Kim, E., Fiore, A. M., Payne, A., & Kim, H. (2021). *Fashion trends: Analysis and forecasting* (2nd ed.). London: Bloomsbury Plc.

Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling, 127*, 221-232.

Ley, K., Perkins, L., van Mazijk, R., Gaines, R., & Hugill, R. (2021). *Unlocking the trillion-dollar fashion decarbonization opportunity: Existing and innovative solutions*. Oakland: Apparel Impact Institute.

McDonough, W., & Braungart, M. (2002). Design for the triple top line: New tools for sustainable commerce. *Corporate Environmental Strategy, 9*(3), 251-258.

McDowall, W., Geng, Y., Huang, B., Bartekova, E., Bleischwitz, R., Turkeli, S., Kemp, R., & Domenech, T. (2017). Circular economy policies in China and Europe. *Journal of Industrial Ecology, 21*(3), 651-661.

McMeekin, A., & Southerton, D. (2012). Sustainability transitions and final consumption: practices and socio-technical systems. *Technology Analysis Strategy and Management, 24*(4), 345-361.

Murray, A., Skene, K., & Haynes, K. (2017). The circular economy: An interdisciplinary exploration of the concept and application in a global context. *Journal of Business Ethics, 140*, 369-380.

Museum. (n.d.). The Fashion for Good Website.

Nußholz, J. L. K. (2017). Circular business models: Defining a concept and framing an emerging research field. *Sustainability, 9*, 14-17.

Osterman, C. M., Nascimento, L. D. S., & Carneiro, A. (2021). Business model innovation for circular economy in fashion industry: A startups' perspective. *Frontiers in Sustainability, 2*, 766614.

Prieto-Sandoval, V., Jaca, C., & Ormazabal, M. (2018). Towards a consensus on the circular economy. *Journal of Cleaner Production, 179*, 605-615.

Qiao, Y., Halberg, N., Vaheesan, S., & Scott, S. (2015). Assessing the social and economic benefits of organic and fair trade tea production for small-scale farmers in Asia: A comparative case study of China and Sri Lanka. *Renewable Agriculture and Food Systems, 1*(3), 1-12.

Radhakrishnan, S. (2020). Sustainable consumption and production patterns in fashion. In Gardetti, M. A., & Muthu, S. S. (Eds.), *The UN sustainable development goals for the textile and fashion industry* (pp. 59-75). New York: Springer.

Rai, S. M., Brown, B. D., & Ruwanpura, K. N. (2019). SDG 8: Decent work and economic growth—A gendered analysis. *World Development, 113*, 368-380.

Rankin, C. P., & Matthews, T. L. (2020). Patterns of B-corps certification: The role of institutional, economic, and political resources. *Societies, 10*(3), 72-84.

Raynolds, L. T., Murray, D., & Taylor, P. L. (2004). Fair trade coffee: Building producer capacity via global networks. *Journal of International Development, 16*(8), 1109-1121.

Rewear & Repair. (2022, November 21). Fashion for Good Instagram. https://www.instagram.com/p/ClOXomiI2Ny/?hl=en & Fashion for Good Facebook.

Rizos, V., Behrens, A., van der Gaast, W., Hofman, E., Ioannou, A., Kfyeke, T., … Topi, C. (2016). Implementation of circular economy business models by small and medium-sized enterprises (SMEs): Barriers and enablers. *Sustainability, 8*, 1212.

Sachs, J. D. (2015). *The age of sustainable development*. New York: Columbia University Press.

Sadowski, M., Perkins, L., & Mcgarvey, E. (2021). Roadmap to net zero: Delivering science based targets in the apparel sector (working paper). Resources Institute. https://apparelimpact.org/wp-content/uploads/2021/11/21_WorkingPaper_RoadmapNetZero_.pdf

Strauss, A., & Corbin, J. M. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. London: Sage Publications.

The Accelerator Programme. (n.d.). The Fashion for Good Website.

The Asia Innovation Programme. (n.d.). The Fashion for Good Website.

The Scaling Programme. (n.d.). The Fashion for Good Website.

UNESCO. (2021). UNESCO world conference on education for sustainable development. ahttps://en.unesco.org/sites/default/files/esdfor2030-berlin-declaration-en.pdf

Wanyama, F. O. (2016). Cooperative and the sustainable development goals: A contribution to the post-2015 development debate. International Labor Organization Enterprise Department Cooperatives Unit Geneva.

Zahra, S. A., Rawhouser, H. N., Bhawe, N., Neubaum, D. O., & Hayton, J. C. (2009). Globalization of social entrepreneurship opportunities. *Strategic Entrepreneurship Journal, 2*(2), 117-131.