Doodlage: Reinventing Fashion Via Sustainable Design

Sheetal Jain

Abstract Doodlage, a fashion and lifestyle brand, was originated in 2012 with a simple notion to create exclusive eco-friendly items, with high-style quotient. Kriti Tula, founder of Doodlage, perceived this idea when she noticed massive stack of textile waste while doing her internship at an export house. The brand was born from her love for planet. She thought of reinventing the rejected fabrics and put them to better use. As she was aware of the fact that fashion industry is a major contributor to textile waste that ends up in landfill, she decided to start upcycling this waste to create sustainable fashion. The concept of upcycling provides Doodlage an opportunity to reprocess waste, recover intrinsic value through recycling, and optimize the end-of-life processes toward zero-waste systems. Doodlage tries its best to minimize its production waste, and whatever is left is reused in making bags and home furnishings. The brand emphasizes on developing sustainable business practices at each stage of the fashion supply chain from procurement of raw materials to the disposal of clothes by the consumers.

This case study focuses on the company – *Doodlage* – and *The Four Actions Sustainable Fashion Value* (FASFV) *framework* that emphasizes on elimination, reduction, creation, and rise of specific value proposition factors for transition toward sustainable fashion economy**.** The FASFV framework can be applied as an audit instrument to help fashion companies to develop sustainable business practices at each stage of the fashion value chain.

Keywords Circular economy · Fashion · India · Sustainable · Upcycle · Zero waste

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Introduction

The current fashion industry is linked with a linear model, which is based on take-make-dispose rationale (Ellen MacArthur Foundation 2013a, b). Therefore, there is a need for a new economic model, "circular economy," that emphasizes on the notion of restoration and regeneration in place of traditional end-of-life concept (Ellen MacArthur Foundation 2013a, b). In this study, author developed "The Four Actions Sustainable Fashion Value" (FASFV) framework that emphasizes on elimination, reduction, creation, and rise of specific value proposition factors for transition toward sustainable fashion economy**.**

This paper presents the company, "*Doodlage*," a fashion and lifestyle brand, born with a philosophy to create sustainable upcycled clothing, to protect the mother earth. The FASFV framework is used as a tool to analyze how "Doodlage" works on the principle of building sustainable fashion model throughout its value chain, from sourcing environment-friendly fabrics to innovative designing and from green packaging to offering repair services to customers to prolong end-of-product life.

Methodology

This paper adopts a qualitative exploratory research design to get an in-depth understanding of the relatively unexplored area. Present research uses case study method since it has been found appropriate for sustainability research as argued by Evans (2011: 61) "given the nature of much sustainability research, which looks at cutting-edge ideas, projects and practices, the case study method offers a methodological approach that allows the researcher to make confident claims of potentialities, causality or development."

This case study was conducted in two phases. In the first phase, bibliographic compilation on the given subject was done. In the second phase, data about case company was collected through trade media as well as through semi-structured interviews with founder and designers.

Current State of Fashion Industry

Fashion has been defined as "…a broad term that typically encompasses any product or market where there is an element of style that is likely to be short-lived" (Christopher et al. 2004:367). The fashion industry is the second most polluting industry worldwide. The industry is projected to consume 25% of the world's carbon budget by 2050 (Ellen MacArthur Foundation 2017). With two billion more people ready to join the global middle class by 2030 (World Economic Forum 2018), these challenges will continue to grow unless fundamental changes are made

in the operating structure of the fashion industry. Today, people buy much more clothes than they use. Fast fashion business models dominate, and a lot of clothes are either stored in wardrobes or are being dumped (Rydberg 2016). "There is an unhealthy 'throwaway' consumer culture that fosters overconsumption and waste. Consumers are becoming increasingly accustomed to cheap, poor-quality fashion that they can throw in the garbage after a few washes" (Gjerdum Pedersen and Reitan Andersen 2013: 3).

In the last 15 years, production of clothes has almost doubled (Remy et al. 2016), mainly due to the growth of middle-class population and increased per capita sales across the globe. There has been a rise in "fast fashion" phenomenon with rapid turnaround of new styles and increased number of collections offered every year at lesser prices. It is projected that more than half of fast fashion produced is disposed of in less than a year (McKinsey and Company 2016). The present clothing system of manufacturing, distributing, and using clothes functions in linear way which puts pressure on resources, environment, and its ecosystem (Ellen MacArthur Foundation 2017). Each year, less than 1% of materials used to produce clothing is recycled into new clothes, leading to a loss of more than USD 100 billion worth of materials (Ellen MacArthur Foundation 2017). Around 92 million tons of waste is produced by the fashion industry every year and is expected to further rise by around 60% between 2015 and 2030 (Boston Consulting Group (BCG) and Global Fashion Agenda (GFA) report 2017). The major chunk of textile waste ends up in a landfill or is incinerated.

Transition toward Circular Economy: A Sustainable Future

The present socioeconomic system is based on a linear economy, wherein companies create products and consumers use and dispose (Michelini et al. 2017). The linear model suffers unnecessary material losses like excessive energy use, end-of-life waste, and erosion of ecosystems. Therefore, there is a grave call for new economic model – "circular economy" – which brings the notion of restoration and regeneration in place of traditional end-of-life concept (Ellen MacArthur Foundation 2013a, 2013b).

Moving from current linear economic system of "take-make-use-dispose" to closed-loop circular economy (CE) requires embedding the 3R principles (reduce, reuse, and recycle) into production and consumption process (Zhu and Qui 2007). In CE, the life of a product is elongated through reuse, repair, remanufacture, refurbish, redistribution, and recycling, thereby increasing resource efficiency and reducing the need for new products and virgin raw material. It involves incorporation of strategies that stimulate new consumption patterns and establish new business models (Shikaleska et al. 2017). Reformation is required at each phase of value chain starting from product design phase to production, distribution, and consumption. It is vital to reinvent how items are designed and produced, rethink how items are used

and consumed, and redefine how items are reused and recycled (Moorhouse and Moorhouse 2017).

As per a recent Accenture Strategy Report (2018), with about two-thirds of consumers across the globe preferring to purchase goods from firms that are purpose driven, it becomes imperative for businesses to relook at their business models and make it more sustainable and eco-friendly in order to survive in long term (Kim 2010). Advanced technology, infrastructure developments, new circular design practices, changing consumption patterns, and growing regulatory pressure are building ecosystem where established fashion brands can pursue circular economy initiatives (Accenture and Fashion for Good Report 2019).

Circular Business Models for Sustainable Fashion Economy

Osterwalder and Pigneur (2010, p.14) described business model as "The rationale of how an organization creates, delivers, and captures value." A sustainable business model is defined as a business model that builds a competitive advantage through superior customer value and contributes to the sustainable development of the organization as well as society (Lüdeke-Freund 2010). Transformation in business models is required to attain systematic change toward sustainability (Gardetti and Muthu 2015).

Osterwalder and Pigneur (2010) pointed nine basic elements of a business model, namely, customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structure. These nine building blocks can be combined in innovative ways to develop circular business model in fashion industry. The Ellen MacArthur Foundation (2013a, b) and Nguyen et al. (2014) indicated four value-generating principles that firm could adopt when designing their circular fashion business models. First, the "power of the inner circle" is concerned about keeping products alive and using it for as long as possible by original owner through repair and maintenance. Second, the "power of circling longer" refers to keeping items in as many consecutive cycles as possible and prolonging the time of each cycle. Third, the "power of cascaded use" refers to the idea of reusing products and materials within and between industries. For instance, apparel can first be reused in the clothing industry as a secondhand apparel and then can be used in the furniture industry as upholstery. Lastly, the "power of pure circles" highlights the significance of unadulterated material steams, since this is the key to conserving the quality of the materials for many consecutive cycles.

Accenture (2014: 13–14) identified five different types of circular economy models, namely, circular supplies, resource recovery, product life extension, sharing platforms, and product as a service. First, the *circular supplies* business model is about phasing out scarce resources by using fully renewable, recyclable, or biodegradable resources. Second, *resource recovery* is regarding seizing embedded value at the end of one product life cycle to feed into another through innovative recycling and upcycling services. The third business model is product life extension which is

concerned with extending the life cycle of products by repair, upgrade, or remanufacture. Fourth, the sharing platform business model promotes collaboration among the product users. Lastly, the *product as a service* business model provides products through lease or pay-for-use arrangements.

Fashion industry can adopt these business models and contribute in the shift toward sustainable fashion economy.

Stubbs and Cocklin (2008: 103) stated that "Understanding of sustainable business models and how sustainable development is operationalized in firms is weak." Schaltegger et al. (2011: 12) further pointed that "Neither theoretical nor empirical research offers sufficient answers to the question what a sustainable business model might be." Therefore, this study aims to bridge this lacuna in the existing literature. It tries to explore the potential for building sustainable business model for fashion industry through the analysis of a fashion startup, "Doodlage," founded by young entrepreneur Kriti Tula, to offer sustainable, upcycled clothing, with a notion to save planet. Doodlage was selected for analysis since it incorporates principles of sustainable design concept throughout its business model, from sourcing environment-friendly fabrics to innovative designing and from green packaging to offering repair services to customers to prolong end-of-product life.

The Four Actions Sustainable Fashion Value (FASFV) Framework

This study dwells on The Four Actions framework developed by Kim and Mauborgne (2005). The study emphasizes on elimination, reduction, creation, and rise of specific value proposition factors for transition toward sustainable fashion economy (Figure 1). The following section will discuss how each action will result in creating value in fashion industry.

Eliminate "Single-Use" Economy

The present system of production, distribution, and consumption of clothing works entirely in a linear way. Huge quantities of nonrenewable resources are extracted to produce garments that are used only for a short period after which the resources are mainly lost to landfill or incineration (Ellen MacArthur Foundation 2017). The environmental footprint is growing due to pollution and waste.

The main concept embraced in circularity is to significantly reduce the production and consumption of raw materials in combination with a strategy to repair, recycle, and reuse resources from waste (Ho and Choi 2012). Designing and producing garments of superior quality and providing access to them via new business

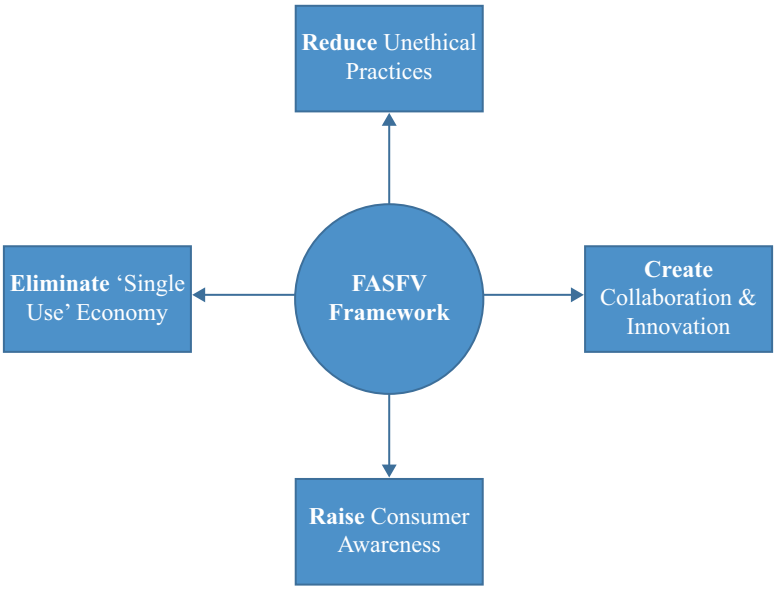

Fig. 1 The Four Actions Sustainable Fashion Value (FASFV) Framework. (Source: Designed by author adapted from Kim and Mauborgne (2005))

models would help shift the perception of clothing from being a disposable product to being a durable item (Ellen MacArthur Foundation 2017).

Sustainable fashion concept has led many designers to rethink innovative ways to design. Material is the starting point to embrace changes in fashion industry. Varied natural fibers, such as soybean, banana, corn, bamboo, and hemp, and biodegradable artificial fibers are required to be adapted by designers to minimize the burden on the environment. Brands should design with the end use in mind. They should think about how a product will be cycled at the end of use (Segran 2019). There is a need for paradigm shift in the way products are procured, designed, manufactured, distributed, consumed, and disposed. Sustainability and closed-loop thinking should be positioned at the heart of each business model (Preston 2012).

Reduce Unethical Practices

Palomo-Lovinski and Hahn (2014, p.87) argued "Sustainable practices in clothing have not, thus far, created a significant impact…and that the fashion industry continues to work in an inefficient manner that creates massive waste and exploits workers." All through the value chain, fashion uses various resources from the planet and society that often result in negative impacts (Hvass 2016). For example, key social concerns linked with fashion production are use of child labor, unfair wages, unhealthy working environment, and exposure to harmful chemicals (Krüger

et al. 2012; Allwood et al. 2008). In Bangladesh, majority of garment workers work for 14–16 h shift for each day with wages of USD 68 for a month (Stotz and Kane 2015). Although various initiatives have been taken to address these social issues, still unethical practices remain part of the fashion industry (Hobbes 2015).

Furthermore, there are various environmental issues that occur along the fashion supply chain, like unwarranted use of energy, water, and toxic chemicals (Hvass 2016). For example, to produce a pair of jeans, 3625 liters of water, 3 kg of chemicals, 400 MJ of energy, and 16 m^2 of harvested land are required (Deloitte 2013). To address these unethical practices and achieve sustainable fashion economy, Huber (2000) pointed three strategies: sufficiency, efficiency, and ecological consistency. Sufficiency focuses on reduction in resource use through alteration in consumption patterns (Lüdeke-Freund 2009). It supports business model that enable longevity, repair, resell, lease, and other forms of sustainable fashion consumption (Jain and Mishra 2020; Tukker and Tischner 2006). Efficiency emphasizes on the process of production and use of materials with objective to minimize environmental impact linked with production of each unit of output. Ecological consistency deals with products based on cradle-to-cradle material and design choices so that materials stay in circular material flows (McDonough and Braungart 2013).

Stahel (1994) pointed that reuse and recycling strategies for waste minimization would result in a more sustainable and resource-efficient society. Hethorn and Ulasewicz (2008) stated, "*New* concepts are needed that embrace a rethinking of the process of garment creation, use, and disposal, re-creation, or reuse with the focus on extending the life span of products and the meaning they bring." With growing concern among consumers regarding the influence of their purchases on people and planet, organizations need to realize the benefits and unexploited economic potential of efficient use of waste (Moorhouse and Moorhouse 2017). The focus should be to design with minimal waste. Zero-waste fashion design addresses ineffectiveness in use of fabric by reframing fabric waste and exploring opportunities to discover it in new forms (Rissanen and McQuillan 2016).

Create Collaboration and Innovation

Transformation of fashion industry requires system-level change with an unprecedented degree of commitment, collaboration, and innovation. There is a need to adopt comprehensive, broad, and integrated approach to design and production in order to create sustainable design and innovation across the complete industry (Rosen and Kishawy 2012). Innovation offers the means to build a new reality. Fourth Industrial Revolution (4IR) technologies will permit track ability and traceability of garments beyond the point of sale, thereby allowing authentication, resale, and material recovery (Lacy et al. 2018).

Establishing new or closer collaboration with stakeholders within or beyond the traditional supply chain is key in creating sustainable fashion economy (Neergaard et al. 2009). For example, Sustainable Apparel Coalition, with members such as

Nike, Marks & Spencer, Patagonia, Levi Strauss, Walmart, etc., can exert pressure on suppliers by requesting more ethically produced items (Rydberg 2016) like organically grown cotton and new materials with lower environmental impact.

Collaboration provides various benefits to partners through resource sharing, product or service innovation, or access to new markets (Googins and Rochlin 2002). Collaboration plays a vital role in current reuse and recycling initiatives of fashion (Hvass 2016). For example, fashion companies partner with charity organizations to facilitate the collection of used clothes or defective collections. Similarly, fashion brands implement in-store take-back schemes in collaboration with third-party partners. For example, Danish fashion brand, Jack and Jones, partners with the global textile and shoe collection company I:CO to collect used clothing and shoes and give them new life through reuse or recycling (Hvass 2016).

Raise Consumer Awareness

Research suggests that customers are unaware of the need for garment recycling and there is general lack of knowledge among consumers regarding varied textile reuse and recycling possibilities (Joung 2014; Ekström and Salomonson 2014). Fashion companies need to get closer to their consumers in order to understand, influence, and satisfy them. A new approach is required to build customer relationship that aims to make customers involved and responsible partners in the value chain processes (Lüdeke-Freund 2009). For example, Patagonia's Common Threads Initiative requests customers to take a pledge and become partners in the initiative to reduce consumption and keep the products out of landfills while providing various services that equip consumers to reuse and recycle their products (Hvass 2016).

Ethical consumption requires customers to purchase less, use products for longer duration, and generate less waste (Jain 2019; Tilikidou and Delistavrou 2004). This calls for radical transformation in present consumption practices, such as from consumption of resource-intensive products to high-value services (Sustainable Consumption Roundtable 2006). Several product-service system (PSS) business models have recently emerged (Reim et al. 2015), for example, the Albright Fashion Library in New York provides apparels and accessories on membership basis for reasonable fees. Product swapping and consultancy services have also arisen, such as ClosetDash, where the consumers can pay on an hourly basis, for getting one-on-one styling advice in person or online. These services facilitate consumers to learn to use already available clothes in different ways rather than buy new ones (Armstrong et al. 2015). However, a shift from ownership to use-oriented economy needs significant change in consumer lifestyles, values, and daily routines (Billharz and Cerny 2012).

Today, consumers demand for newness, variation, and style in fashion. Therefore, new business models like rental, recommence, sharing, etc. can cater to these demands in an environment-friendly way. These models require radical shift in consumer behavior to achieve scale. As per Accenture and Fashion for Good Report (2019), retailers can overcome this challenge by incentivizing consumers to act dif-

ferently (e.g., discount vouchers for resale) and ensuring effortless customer experience through investment in the front-end customer interfaces as well as garment collection and delivery capabilities.

Although, in the past few years, consumers' awareness toward eco-friendly clothing has grown, their buying decisions are still hardly governed by sustainability criteria. There are numerous obstructions in adopting sustainable clothing (McNeill and Moore 2015). Consumers, in general, do not have knowledge of the outcomes of the production in the fashion industry (Bhaduri 2011). Therefore, fashion companies should develop a system to provide information to consumers regarding the materials used in producing garments, the people involved in the manufacturing of the clothes, and the environmental impact of the production. They should work toward making the entire value chain transparent.

The Four Actions Sustainable Fashion Value (FASFV) Framework: An Audit Instrument

The FASFV framework can serve as an audit instrument for fashion companies to ensure development of sustainable business practices throughout design, production, and consumption processes (Table 1).

Table 1 The Four Actions Sustainable Fashion Value (FASFV) Framework: An Audit Instrument

Eliminate (E)	Raise (R)
• eliminate traditional business models with take-make-use-dispose orientation.	• raise consumers' knowledge on
	– buying ethical clothes
	– prolonging product life cycle through repair and reuse
	– proper garment care during washing, drying, etc.
	– recycling possibilities (e.g. donation boxes)
Reduce (R)	**Create (C)**
• reduce unfair trade practices	• create innovative business models
• reduce use of toxic materials, chemicals and water consumption	• create innovative man-made fibers
• reduce use of resource intensive fibers like cotton	• create recycling infrastructure
• reduce waste by:	• create skill development programs for workers
– shortening production cycles	• create collaboration with suppliers and customers
– designing for longevity	• create technology for value chain transparency
– designing for waste minimization	

Source: Designed by author adapted from Kim and Mauborgne (2005)

Doodlage (Case Company)

Doodlage is a fashion and lifestyle brand championing zero material wastage by upcycling fabric scraps into other products like accessories, bags, and even garment tags. Kriti Tula, founder of Doodlage, believes in "conscious fashion." The brand works on the principle of creating sustainability at all levels from cutting of a garment to using eco-friendly dyes and fabrics to ethical packaging. Doodlage has been featured among top 8 Asian sustainable fashion brands by *Harper's Bazaar*. Based on the information collected from the founder and the designers through semi-structured interview, this study determines processes utilized by Doodlage for its upcycled fashion collection (Fig. 2). The process is divided broadly into six heads:

1. Research: Research is an integral part of Doodlage. It conducts extensive research related to fabric sourcing, market trends, colors, style, and design inspiration. The brand also continuously explores the possibilities of working with new innovative alternative fabrics which have minimum impact on the environment. In the past, they have incorporated organic cotton, corn fabric, eucalyptus fabric, recycled wool, and recycled cotton polyester in their collections as they consume lesser resources for production or recycle existing material to create new fabrics.
2. Material Sourcing: Key source of material for Doodlage is industrial scrap such as misprints, post-cutting waste, etc. from large garment and fabric manufacturers. The brand mainly focuses to collect and use natural fabrics which are 100% cotton waste. Obtaining adequate quantity of source materials and sorting of the

Fig. 2 Upcycled Clothing. (Source: https://www.doodlage.in/)

source materials remains a key challenge for the company. The brand believes in experimenting with new ethical alternative materials. It works to spread awareness about sustainable fabric options to other designers so that the burden can be eventually shifted from cotton which is a high resource-consuming fabric. With the ever-increasing global population, the idea of the brand is to encourage a shift in the material mix toward less land-intensive inputs.

3. Design Process: Each garment is carefully designed to ensure durability. It believes in "zero-waste design" philosophy. The brand turns industrial scrap into stylish, well-made unique items. Since the design is based upon the raw material available at a particular point of time, therefore, each piece produced by the company is one of a kind. That is the reason for naming the company as "Doodlage" – which is based on the word "doodle."

   "Everyone might not be able to create art, but doodling comes naturally. Every individual has a personal style of creating doodles. This concept of individuality is evident in our pieces given the nature of our raw material," said Kriti, explaining the name of the company.
4. Production: Doodlage has its production house in Lado Sarai, New Delhi. Its team comprises of pattern makers and artisans skilled in handwork, stitching, and embroidery. The brand works to streamline each collection to reduce overproduction and mainly focuses on producing upon orders. It emphasizes on creating limited edition collections which are designed based upon availability of raw material. Its range of collection includes everything from classic shirts to contemporary jumpsuits. It produces 200–300 pieces every month by upcycling and reusing 600–900 m of fabric. In addition, upcycling is a labor-intensive and slow process which involves a lot of efforts in fixing fabric issues. Hence, products are priced on the higher side.
5. Retail: Doodlage sells high-quality products with an objective of "design for longevity." It uses both online and offline platforms to market its offerings. It has its own website to showcase its products to the target audience. Its collection is also available in 40 designer stores across the country. Doodlage collaborates with various larger brands to promote its label. It has partnered with Goonj, an NGO that also shares the "zero-waste" philosophy. Goonj has a mission to provide reusable sanitary pads to women in rural India, and Doodlage contributes to it.
6. Consumers: Doodlage aims to bring conscious change among the consumers whose final decision is mainly driven by prices. Most consumers opt to buy lower-priced new items as it offers a false sense of value to buyers. But they are often unethically produced and have short life span. The brand encourages its clients to care for their garments, repair it, and dispose it ethically. It provided awareness about how post-purchase care with respect to washing, drying, and ironing can bring huge difference in keeping clothes in good shape for longer period of time. Each new customer gets a postcard talking more about the impact of fashion. Each customer is facilitated with a repair kit to enable them to extend their product life. The brand thrives on the motto of "Care with love, repair with a purpose." Target customers range between the age of 18 and 45 who care for

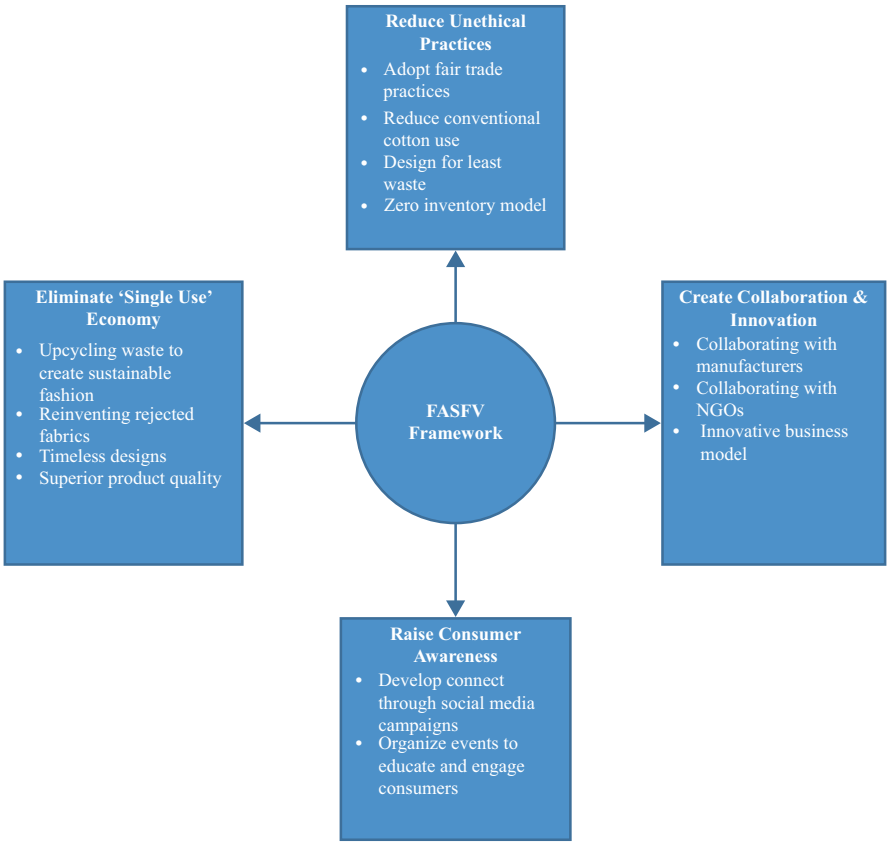

Fig. 3 Analysis of Value Creation Process of Doodlage (Case Company) through FASFV Framework. (Source: Designed by author)

the environment and look for product longevity and product design. Their price range for apparel starts from around $ 60 and goes up to $ 200.

Doodlage works on the principle of building sustainable fashion across the value chain from sourcing and procurement to design and production and from distribution to disposal. The process is analyzed through the FASFV framework (Fig. 3).

Eliminate "Single-Use" Economy

Doodlage believes in creating quality garments which can be worn and re-worn again and again unlike fast fashion. It has built standards and practices for designing clothes that can be effortlessly reused or recycled. It has established mechanisms to make apparel value chain more transparent. Ninety percent of material utilized by

Doodlage is fabric waste, and ten percent is sustainable alternative fabrics. Technological advancements in fabrications allow the brand to look for ethical options. By working with fabrics that are discarded during production process, the brand saves resources that would go into creating virgin fabric, as well as it reduces waste that is generated by the industry.

Kriti explains, "Brands need to understand the potential of new fabrics and learn how to work with them. There is need for movement that is away from consumption of conventional cotton."

Reducing Unethical Practices

Doodlage tries its best to minimize its production waste, and whatever is left is reused in making bags and home furnishings. A major source of fabric for Doodlage is the discarded textiles from large manufacturers, unused post-cut fabrics, end-of-the-line fabric wastages, unsold stock, rejected hand-dyed and hand-woven fabrics, and dead stock. Doodlage believes in ethical design strategy of "design for waste minimization." It develops mood board, sketches, color palette, and designs, with key consideration to utilizing textile waste as source materials in each of their collections. It uses patchwork,[1] paneling, embroideries, and pattern cutting techniques which enables best use of available fabrics (Fig. 4). The brand relies on the philosophy of design for slower consumption; therefore, no surplus is produced. It works on zero inventory model and creates new pieces as per orders only.

In addition, Doodlage believes in fair trade practices. It ensures that each individual in the value chain is paid a fair wage. Further, the brand uses leftover fabric for creating packaging bags, and compostable plastic is used for shipping products.

Creating Collaboration and Innovation

Doodlage continuously looks for creating world-class, sustainable, product range through collaboration with various organizations. While most of their fabrics comes from big manufacturing units, they are always open to collect fabric wastages from small cottage industry as and when the opportunity approaches.

"One such visit to Jaipur we chanced upon a godown full of block printed fabrics that were essentially testers and of no use to the retailers. We bought it and it worked beautifully," says Kriti.

It has partnered with Brahmakarma, a textile and accessory brand creating block printed sarees. Doodlage reuses the rejected sarees stock to create contemporary designs for existing Brahmakarma clients. It also collaborates with Fabindia, which

[1] Technique of creating smaller pattern pieces

Fig. 4 Patched panel overlap jacket. (Source: https://www.doodlage.in/)

focuses on spreading handmade, conventional Indian crafts to consumers in India and abroad. It sources rejected fabrics from various dyers and printers working with Fabindia to develop its new collection called "Re Fab."

Further, the brand is trying to organize garment collection drives and collaborates to create repair center pop-ups as a part of this initiative.

Raising Consumer Awareness

Doodlage sincerely works toward overcoming the greatest hurdle of creating consumer demand for their sustainable fashion items. It actively interacts, involves, and engages with consumers through social media platforms to understand their preferences and accordingly design its new collection. Online presence helps the brand to effectively communicate its ethos to the clients through regular updates about its products, the raw materials used, and processes followed to produce it, the artisans behind the products, etc. Events are organized regularly to help consumers understand the importance of upcycling and encourage them to incorporate sustainable practices toward fashion in their lifestyle.

Kriti says, "Sustainable fashion would not be possible unless consumers are aware."

Figure 5 outlines Doodlage's sustainable fashion business model.

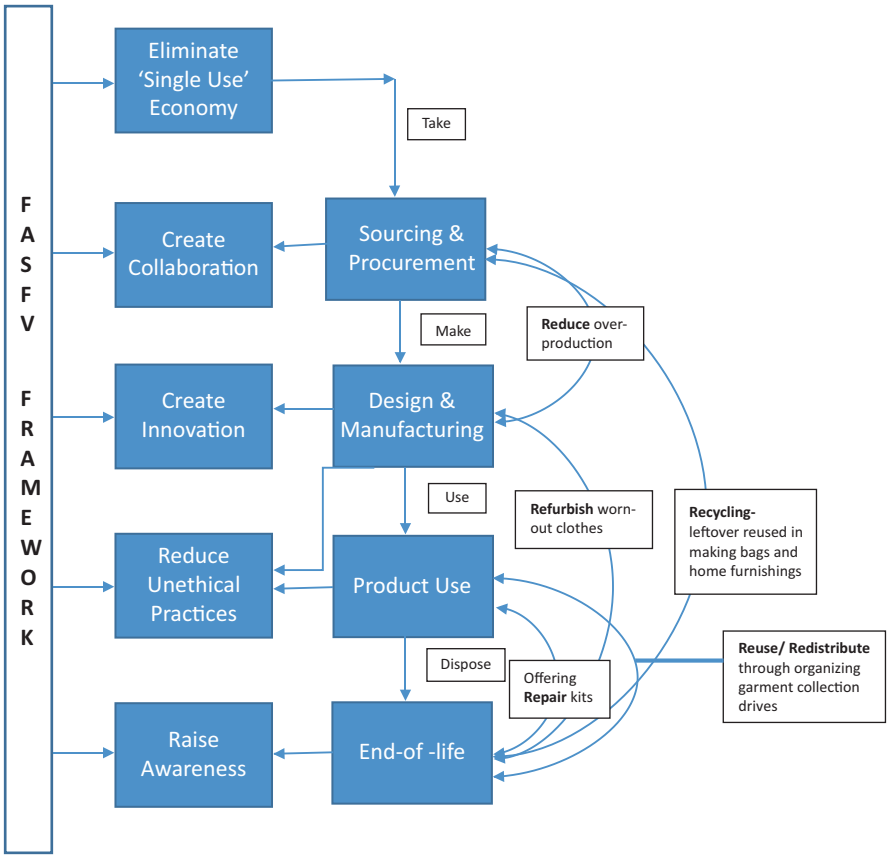

Fig. 5 Doodlage Sustainable Fashion Business Model. (Source: Designed by author)

Doodlage: Road Ahead

Doodlage seeks to transform consumption patterns of consumers who believe in "single-use" way of living. It plans to open repair cafes in the next 5 years which would aim to inculcate a culture of thrift among the millennials. In addition, it aims to tag its garments so that clients can know how individual products were produced along the entire value chain. In future, the brand also seeks to provide "green dry-cleaning" options which do not use harmful chemical solvents. It will continue to reach out to other brands and work together to create demand for responsible dyes.

Further, Doodlage aims to cater to the mass market by making it a more affordable brand. It envisions sustainable consumption to become a "norm" in the society. The brand plans to expand its presence through opening physical stores and develop convenient in-store garment collection system to encourage consumers to drop off unwanted products. The idea is to increase textile collection and recycling rates and decrease waste.

Conclusion

Fashion industry is one of the world's most polluting industries (Shen et al. 2017). The characteristics of fast fashion business model – high volume, rapid lead times, and low prices (Caro and Martínez-de-Albéniz 2015) – generate sustainability issues in relation to society and environment (Securing and Müller 2008; Krause et al. 2009). Therefore, sustainable value creation approach is required where efforts are put on "exploring how to create the value that benefits multiple stakeholders including the environment and society, but not without sacrificing shareholders' benefits" (Yang et al. 2017: 2).

In this study, author developed the *Four Actions Sustainable Fashion Value* (FASFV) framework as an audit instrument for fashion companies to ensure development of sustainable business practices throughout procurement, design, production, and consumption processes. It comprised of the following four value proposition factors for transition toward sustainable fashion economy. *First*, "eliminate single-use economy" – sustainability and closed-loop thinking should be positioned at the heart of each business model. The key concept of circularity lies in the significant reduction of production and consumption of raw materials in blend with a strategy to repair, recycle, and reuse resources from waste (Ellen MacArthur Foundation 2017). *Second*, "reduce unethical practices" – companies must address social and environmental issues that occur along the fashion supply chain, like unfair wages, hazardous working conditions, and unwarranted use of energy, water, and toxic chemicals. *Third*, "create collaboration and innovation" – establishing new or closer collaboration with stakeholders within or beyond the traditional supply chain is key in creating sustainable fashion economy. *Fourth*, "raise consumer awareness" – brands need to develop a new approach to build customer relationship that aims to make customers aware and involved and responsible partners in the value chain processes.

Sustainable practices should be encouraged at each stage of consumer purchase process from buying superior quality textiles to lengthening the product life cycle by carefully using, repairing, refurbishing, reusing, and recycling material that cannot be further used (Dahlbo et al. 2017). There is a need to shift consumer's mindset from quantity to quality (Vehmas et al. 2018). Consumers can be motivated to purchase sustainable fashion through providing them proper education and communication (Goworek et al. 2013) as most of the buyers lack knowledge about the environmental and societal impact of their purchases. For instance, information regarding how much water is consumed in regular T-shirt compared with eco-friendly T-shirt can be provided. Celebrities can also play a significant role in not only promoting the ethical brands but also being part of these brands as designers, entrepreneurs, and advocates (Moorhouse and Moorhouse 2017). Social media platforms can be explored more intensively to reach out target audience (Han et al. 2017). Consumers should also be made aware about the end-of-the-garment life cycle. They could be incentivized for "product take-back system." Advertising cam-

paigns, vouchers, and educating employees who can inform consumers about such schemes are required for taking such system forward.

Through applying a circular business model, Doodlage develops a sustainable fashion value chain to translate the principles of knowledge, purpose, and timeliness into unique ethical products (Ricca and Robins 2012:53; Jain and Mishra 2019). Table 2 illustrates Doodlage's present CE practices and its future goals.

Table 2 Doodlage's present CE practices and its future goals

Business Model Pillars and Building Blocks	Present CE Practices	Future Goals
Product		
Value proposition	• products created from alternative sustainable fabrics (e.g. banana fabric; recycled cotton)	Create 'repair cafes' for consumers to:
	• new collection developed from textile waste	– extend product life
	• timeless designs	– refurbish their worn-out clothes
	• superior product quality	– offer discount coupons on resale
	• prolong product life span through repair and maintenance assistance	– design for disassembly, recycling and re-design
Customer Interface		
Target customer	• consumers between age 18 and 45	• create consumers as suppliers and co-creators of value
	• consumers who care for environment	
	• consumers who look for product longevity and enduring designs	
Distribution channel	• present in 40 fashion stores in India	• expand presence through opening their own physical stores
	• direct reach to consumers through e-store	
Customer relationships	• develop connect through social media campaigns	• incentivize consumers for 'product take-back system'
	• organize events to educate and engage consumers	
Infrastructure management		
Value configuration	• obtaining adequate quantity of source materials	• develop convenient in-store garment collection system
	• sorting of the source materials	• green dry cleaning services
	• no waste philosophy	• create responsible dyes
	• empowering low income craftsmen	

(continued)

Table 2 (continued)

Business Model Pillars and Building Blocks	Present CE Practices	Future Goals
Key capabilities	• entrepreneurial vision	• embrace new technologies and innovation in the business model
	• organizational commitment towards environment	
	• promoting traditional handicrafts	
	• innovative business model	
Partnerships	• partnership with manufacturers (e.g. fabindia; Brandless)for unused post-cut fabrics, dead stock, rejected stock, end-of-the-line fabric wastages	• expand partnership for knowledge and resource sharing
	• partnership with NGOs (e.g. Goonj)to give its smaller scrap to create items for women in rural India (e.g. reusable sanitary napkins)	
Financial aspects		
Cost structure	• costs incurred in scrap collection, sorting, remaking, selling	• create cost efficiencies
Revenue model	• premium pricing strategy for their sustainable garment range	• pricing to cater mass market
	• Price range between $ 60 and $ 200	

Source: Designed by authors (adapted from Osterwalder, 2004)

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