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SUSTAINABLE PRODUCT SERVICE SYSTEMS: A NEW APPROACH TO SUSTAINABLE FASHION

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ABSTRACT

Consumption patterns in the fashion industry which aim at decoupling economic success from resource consumption lack a system-based approach in relation to sustainability. While negative environmental impacts of products of fashion continue to be reported in the literature, these have not been radically addressed with respect to system-based sustainable business models such as S.PSS. The purpose of this study was to explore how companies in the fashion industry in Botswana and Kenya could benefit from adopting sustainable Product Service System as their business strategy, leveraging on their existing practices. The study adopted a single exploratory case study with multiple units of analysis and data was analysed using thematic analysis to allow inductive development of themes. From the main results, common benefits include strategic positioning, cost savings, income generation and employment creation. The authors conclude by recommending modelling of S.PSS offerings that leverage on the identified benefits.

Key Words: consumption, environmental impacts, fashion products, environmental impacts, S.PSS

1. INTRODUCTION

Fashion consumption is a highly resource-intensive and wasteful practice. Sustainability on the other hand discourages wasteful consumption (Dissanayake and Sinha, 2012). The quest for newness by fashion consumers which often leads to fashion change (Horn and Gurel, 1981), makes sustainability an interesting challenge. Fast changing fashion trends, affordable prices and mass production systems have led to unsustainable consumption behaviour and disposal of waste products (Niinimäki, 2012), requiring a reversal and proactive approach through sustainable innovation. The concept of sustainable innovation has been discussed under various terminologies varying from, for example, environmental innovation, eco-innovation, cradle-to-cradle, service innovation, eco-design, design for environment, sustainable design, design for sustainability, service design, whole system design and system design for sustainability (Hellström, 2007; Charnley et al, 2010; McDonough and Brangart, 2002; Cox and O'Connor, 2005; Vezzoli et al, 2014; Bhamra et al, 2013; Bhamra and Lofthouse, 2007; Curedale, 2013; Baines and Lightfoot, 2013). Sustainability in the fashion business is still an emerging agenda and authors such as Armstrong and Lang (2013) and Pears and Fletcher (2012) have recognised the importance of investigating on how sustainability could be achieved (Dissanayake and Sinha, 2012).

The current rate of material extraction for industrial activities poses a threat for our future generations to meet basic needs. Dependency on finite resources rapidly being exploited to meet increasing needs of an increasing population, satisfied by individual product ownership is a true picture of unsustainable consumption (Evans et al., 2009). Revolutionary new technologies are not necessarily the answer to all problems caused by our industrial systems but new revolutionary ways of thinking which embody effective use of resources, optimised use of available technology and collaborative ways of creating value in a systemic manner (UNEP, 2011). The concept of sustainable innovation aims at aiding manufacturers make significant savings from eco-efficient practices to eco-effective strategies involving closed-loop processes that consider the entire product life cycle (Sustainability Learning Centre, 2013). Sustainable innovation concepts and strategies are essential in addressing environmental and social concerns with financial targets when looked at as a whole, making it a fit into the triple bottom line philosophy of environment, people and profits (Evans et al., 2009). In the fashion industry, one such sustainable innovation strategy being explored is Sustainable Product Service System (Armstrong et al., 2015; Armstrong et al., 2016)

A Product Service System business strategy that is based on continuous life cycle improvement taking into account the product and service life cycles (Tan and McAloone, 2006) is called Sustainable Product Service System. The concept is representative of a holistic approach to sustainable innovation. Through this strategy fashion design companies and fashion houses can undergo servitization to redefine value creation in non-product terms (Baines et al., 2007; Tomiyama, 2001). According to Tomiyama (2001) the benefit of this process of servitization is in intensifying service contents of offers to arrive at environmentally conscious design and manufacturing and create more added values in future advanced societies. Tomiyama (2001) describes service as an activity that requires mainly service channels to deliver and amplify services and service contents to be delivered. This description portrays service as an intangible value that requires an environment, provider, consumer and a product to facilitate its provision (Tomiyama, 2001).

PSS is categorised as product-oriented, use oriented and results oriented (Mont, 2000; Manzini and Vezzoli, 2003; Tukker, 2004). PSS have been looked at mostly in large companies (Kang and Wimmer, 2009; Morelli, 2003; 2006; Manzini and Vezzoli, 2003) with recent attention growing in SMEs (Kowalkowski, Christian and Gustafsson, 2013; Hernandez-Pardo, 2012), as an extension of contribution towards developing service oriented value and sustainability practices in manufacturing SMEs. PSS depends on different entities connected together to serve a particular purpose (Charnley et al, 2011). Interactions between different stakeholders with different needs at different stages of the value chain require that the PSS provider possess certain capabilities to facilitate design and delivery of value.

2. THEORETICAL BACKGROUND

Sustainable innovation business models support the argument on growth which is not based on high volumes of production, but on business sophistication led by design innovation in redefining what value means. Product Service Systems (PSS) innovation business models can be viewed as an integration of new product development and new service development (De Lille et al, 2012). By simultaneously addressing product and service components of value creation, PSS aims to shift the business focus "from designing (and selling) physical products only, to designing (and selling) a system of products and services which are jointly capable of fulfilling specific client demands, while re-orienting current unsustainable trends in production and consumption practices" (Manzini and Vezzoli, 2003, p851).

Moreover, Vargo, Maglio and Akaka (2008) introduced two types of value creation: value-in-exchange and value-in-use. Value-in-exchange underscores the entity's output and price, thus creating an advantage for the firm and its users through the exchange of goods and money. Value-in-use is attained when customers use the firm's products and services. Value-in-exchange suggests that product sales are the major income channels for firms whereas services are subsidiaries that add value to those products. Add-on services such as free home delivery, guarantee extension, and repair can create feedback and extra value on products (Chen, 2018). Contrary, value-in-use turns product sales into functional sales or operational services, where customers only pay for the use/operation of products rather than buying the products and this decouples economic success from material consumption (Baines, 2007) for instance hire wedding gowns or mink coats.

A business application of S.PSS in developing countries may act as a catalyst to facilitate the growth of the solution-based economy, by-passing the stage characterised by individual ownership of mass produced goods towards the more advanced service-economy (Manzini & Vezzoli, 2000). The success of S.PSS hinges on its capability to provide human satisfaction through eco-efficient solutions (Vezzoli, Kohtala and Srinivasan, 2014). S.PSS in the fashion industry includes services such as maintenance, renting, upgrading, redesigning, swapping or lending.

S.PSS in fashion may provide the industry with a mechanism to increase factors such as product quality and longevity and at the same time providing alternative consumption models that decrease unnecessary consumption and facilitate material recycling. This study explores sustainable Product service system benefits for fashion practitioners in Botswana and Kenya. Armstrong and Land (2013) report that some companies for instance, Del Forte, Patagonia, Avelle's Bag, among others have implemented the S.PSS business model in apparel design and this include: re-design and take-back recycling services as well as renting designer handbags, jewellery, sunglasses and other fashion accessories. Another important feature of S.PSS design and delivery is the intensive involvement of users in the process. This relationship has the prospect to raise users' awareness about environmental issues of products and services and their socio-economic and ecological impacts. The engagement of users can motivate users to practice S.PSS processes to attain the sustainability agenda.

In order to define S.PSS benefits for fashion companies in Botswana and Kenya, it is necessary to first understand the industry players studied and how current sustainability practices in the industry are being implemented. The following sub-section describe how this process was achieved.

3. METHODOLOGY

A focus on understanding industrial practice was vital, since defining, characterising and designing a S.PSS for an industry is a complex undertaking. A single exploratory case study with multiple units of analysis was deemed appropriate for this research enquiry to allow proximity to the phenomena being researched (Dyer and Wilkins, 1991), because of the informal nature of some businesses being researched. The units of analysis were businesses in the fashion industry in developing economies of Botswana and Kenya. Ten purposeful sampled companies in Botswana and eight in Kenya participated in the study. Semi-structured interviews were used to collect data. The focus of the semi-structured interviews were to find out what sustainability initiatives fashion practitioners undertook, determine how fashion practitioners translated sustainability initiatives into income generating initiatives and identify drivers and barriers for adopting such initiatives and identify opportunities in possible sustainability initiatives that could contribute to the development a S.PSS business model.

3.1 Participants

Botswana's fashion design companies interviewed were mainly new start-ups which had 3 to 5 years in operation and they has less than 6 employees. However, in Kenya, the majority of companies were mature businesses which had more than 10 years in business and employed less than 25 employees. Out of ten companies who participated in the Botswana study, only four had relevant professional qualifications in fashion design and the rest came from other fields such as accounting, engineering, political science, etc. Of the eight companies interviewed in Kenya, four had relevant professional qualifications in fashion design and the rest in other fields. Of all the eighteen interviews conducted in both countries, only two companies in Botswana had their vision and mission, which recognised sustainable fashion design.

3.2. Data analysis

Qualitative interview data was analysed using thematic analysis (Braun and Clarke, 2006). The analysis was divided into the following: (a) defining the samples for analysis, and (b) developing a coding system which involved naming and grouping data into themes. That is, similar properties were grouped together to form a theme. "The crucial requirement is that the themes are sufficiently precise to enable different coders to arrive at the same results when the same body of material is examined" (Silverman 2001, p123). Quantitative data were analysed using descriptive statistics which include measures of central tendency.

4. RESULTS

From the results, common benefits in the two contexts of Botswana and Kenya which can result from current practices should S.PSS be adopted as a business strategy include strategic positioning, cost savings, income generation from waste material and employment creation. In Botswana, companies can also increase their market size while in Kenya they can have consistent supply of affordable resources.

4.1. Strategic positioning

There was a generally interest in mind-set change towards developing sustainable fashion practices around S.PSS as a business strategy that can serve as a differentiator. A S.PSS strategic approach to business development was seen as a possible route to contributing to diversifying markets and producing customised offerings. This is further substantiated by the SMEs professional qualifications, opening up opportunities for strategic competitiveness. The small company sizes also make knowledge exchange programmes manageable since there are not many internal structures

and processes to vet decisions. Company visions in both Botswana and Kenya also had a lot of similarities supporting strategic positioning through collaborative knowledge exchange. For example, participants expressed that:

“To have a leading design outlet and agency, establishing a reputation for innovative fashion solutions that alter people’s perceptions, transforms behaviour and builds lasting relationships with brands” – BW2

“To transform Africa’s fashion and empower young designers to great heights” – K1

The position of SMEs on strategy development is clear even though there is no mention of it. A deliberate intention towards sustainable fashion strategy development is possible as a result of these commitments. Almost all companies’ visions in both contexts had clauses in their visions speaking to a leader in innovative and high quality fashion products as evidence of their desire to explore innovative business strategies.

4.2. Costsavings

The cost savings benefit was viewed by almost all fashion houses as a possibility to achieve sustainable fashion. The alignment of this view to their understanding of sustainable product service system demonstrated that if implemented, S.PSS could save the fashion houses costs. Most fashion houses understood S.PSS as a way of proving essential end use functions, creating environmentally friendly products at affordable prices and aligning to international practice as stated below:

“Combination of strategies to minimise total environmental impacts over the whole life cycle of a product or ability to use something without either buying it or owning it” – BW6

“Sustainable fashion is the in thing; our clients would be happy to be part of an internationally recognised system. Therefore, it would result in more clients and more sales” – K5

Cost saving opportunities for S.PSS strategies became eminent in light of raw material costs and use of waste material for down cycling of used apparel for both up-cycling and down cycling in exploring new markets and expanding existing markets. The reported possibilities were in terms of giving products a second life through remanufacturing, material recycling for creative use in new products and minimising waste through systematic way of cutting materials and amount used in products. Operationalization of these initiatives appeared to be tied to professional training in fashion design, which most companies do not have.

4.3. Incomeneration

Sustainable PSS business models emerged around the concept of extended producer responsibility in very few fashion houses in both Botswana and Kenya. The care labels attachment to clothing concept proposed by among others BW3 and K2 is meant to extend the life cycle of the product and the provider-customer relationship in providing care services. Taking care of the apparel this way gives the providers control and income generation activities throughout the life cycle of the product so that additionally, they are also able to recover the material for recycling activities. However, most fashion houses in both Botswana and Kenya suggested low end product-oriented PSS models based on repair, product maintenance and consultancy as services attached to the sold product. Income generation activities are still skewed towards selling the product.

4.4. Employmentcreation

Even though companies’ commitment to employment creation was also evident in their visions, there seem to be disparities in definition of futuristic market segments. This definition is important as a strategic alignment to S.PSS means expansion of related markets, hence more jobs in the same direction. Market segments interested in purchasing sustainable products were not well subscribed for in Botswana fashion houses when compared to the situation in Kenya. Most Kenyan fashion houses accommodated this type of market segment as a result of a better awareness of what sustainability meant. Notwithstanding a similar understanding of sustainability in Botswana, the fashion houses defined all other market segments except green consumers.

5. DISCUSSION

The fashion industry in Botswana and Kenya viewed S.PSS in terms of employment creation, income generation, cost savings and strategic positioning of their companies. Though, there were highlights of understanding S.PSS within their industry, there was little evidence which showed that there were implementing the principles of this concept. The underlining theme of the findings is that companies were still interested in selling products instead of services or a combination of the two. This shows that a lot of education still needs to be done in raising awareness and assisting the fashion industry with appropriate methods that can help them to implement S.PSS. For example, researchers can co-create S.PSS business model in apparel design include: re-design and take-back recycling services. Using the co-creation method will enable the fashion industry to have ownership of business model created. This is a new concept which will take time to have a lot of buy-in. However, it is encouraging that the fashion industry in the two countries were receptive to embrace new changes to the industry.

6. CONCLUSION

This study has demonstrable implications on benefits of sustainable PSS. The adoption of S.PSS as a business strategy creates huge benefits for the fashion houses studied as well as the end-users especially the increasing population

of green consumers. However, there is a huge untapped market of green consumers in Africa which fashion practitioners operating SMEs should fully exploit with innovative S.PSS. The concept of fair trade needs to be promoted rigorously to enlighten both producers and consumers on fairly traded products and services in order for them to promote and support the same. This should contribute to better treatment and dignity of workers, impacting on social sustainability, which is directly related to the reported employment creation benefit. Environmentally, such initiatives as repair, maintenance and reuse will ensure product longevity and keep products in use for a longer period of time. These are initial and easy to relate with, opportunity for modelling S.PSS offerings for product-oriented PSS. The success of these models will heavily depend on design of the apparel to be adaptable to various contract conditions under a particular model. Indigenous knowledge and materials combined with common African values of sharing and collaborative consumption in the two contexts will create attachment and sense of pride, thus reducing the extraction rate of non-renewable resources. Economically, it is clear from the benefits that fashion businesses want to reduce costs and maximise profits through S.PSS models. A case of contribution to GDP for fashion houses will have to be put forward to policy makers for them to incentivise fashion businesses willing to be proactive S.PSS providers.

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