

# A framework for closed-loop supply chain adoption by small, medium and micro enterprise fashion retailers in South Africa



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**Background:** The implementation of closed-loop supply chain strategies is increasing as the focus grows on the sustainability challenges of the fashion industry. However, their implementation is more widely adopted and researched from the perspectives of larger retailers in developed economies outside of Africa, limiting the widespread applicability of their findings to stakeholders in developing countries such as South Africa.

**Aim:** The study explored and proposed a decision support framework for the potential coordination of closed-loop supply chain strategies by small, medium and micro enterprise (SMME) fashion retailers in South Africa.

**Setting:** This research study was conducted in South Africa with stakeholders in the Western Cape, KwaZulu-Natal, Gauteng and Limpopo provinces.

**Methods:** This descriptive, qualitative research approach used purposive sampling, in the form of judgment sampling, to select 14 participants. The interviews were then transcribed and transferred to Nvivo™ software to identify and analyse themes within the data.

**Results:** The findings revealed that while some SMMEs would consider or were already considering adopting closed-loop strategies, various challenges and limitations existed related to the sizes of their businesses, their restricted relationships with supply chain stakeholders and their operation in an African developing country. A decision support framework was established, which considers this context and could aid in the implementation of circular strategies by such retailers.

**Conclusion:** Despite resource limitations, opportunities exist for SMME retailers to adopt closed-loop supply chains and become globally competitive, following international focus on accountability and sustainable consumption. The decision support framework is suitable for such stakeholders to facilitate collaborative efforts towards achieving end-to-end sustainability.

**Keywords:** closed-loop supply chain management; sustainability; SMMEs; developing economies; fashion.

## Introduction

In recent years, the social and environmental sustainability of the global fashion industry has been under scrutiny. This is largely because of the emergence of fast fashion in the production and supply of apparel, accessories and footwear (Aftab et al. 2018:217). These strategies have allowed stakeholders to maximise profits by promptly and consistently providing consumers with affordable and trendy fashion products that meet their temporary requirements (Joy & Peña 2017:35), and hence, have short life cycles (Seifert et al. 2015:9). Excessive purchasing of these products results in an increase in post-consumption waste disposal, and in a significant amount of used fashion redirected to developing countries, where local industries cannot compete with their low prices (Bick, Halsey & Ekenga 2018:2). Products that are not sold may lead to an increase in waste disposed into local landfill (Bick et al. 2018:2; Brooks & Simon 2012:1268).

To alleviate some of the consequences of the fashion industry's modern business models, the concept of closed-loop supply chain management (CLSCM) has emerged (Ashby 2018:2). This system, which can contribute to economic, social and environmental sustainability, involves extending the forward-driven supply chain to include the activities of reverse logistics. These are employed to collect unwanted used products from consumers for value recovery through reprocessing and redistribution. Romero and Rossi (2017:14) suggest a selection of reprocessing

options, including repairing, refurbishing, re-manufacturing and recycling. Hvass and Pedersen (2019:348) propose that used products of the focal retailer's own brand can be redistributed to its customers. Alternatively, a used product's life cycle can be extended through being donated or sold to secondary reuse or recycling markets, which helps to manage the waste generated after consumption (Kumar & Kumar 2013:156–157).

The formal and informal activities of small, medium and micro-sized enterprises (SMMEs) in the fashion industries of developing countries in Africa have considerable social and economic importance. They offer skilled and unskilled employment to vulnerable groups, particularly women, and help to develop and expand industries and economies (African Development Bank Group 2018:1–14). However, studies that examine the use of CLSCM strategies frequently overlook SMMEs in these developing countries (e.g. Hvass & Pedersen 2019:348). In addition, while the fashion industry has unique features that have inspired studies in a wide range of disciplines, the literature on CLSCM tends to focus on implementation in the electronic and automobile industries (e.g. Hong et al. 2015:12).

### Research problem

South Africa's fashion industry contributes significantly to its economic activity. In 2020, the Retail Clothing, Textile, Footwear and Leather supply chain made an estimated R74 billion contribution to gross domestic product (South African Government News 2020:7). Small, medium and micro enterprises have emerged as recognisable contributors to this. However, the recent local presence of global brands such as H&M and Zara, has compromised this position (Crotty 2017:1). The implementation of agile practices by these brands has made them international leaders (Gabrielli, Baghi & Codeluppi 2013:206; Ndlendele 2017:3), with some pioneering the adoption of retailer-facilitated CLSCM in the industry (Hvass 2013:111).

Closed-loop supply chain management strategies offer innovative opportunities for SMMEs to establish a globally recognisable competitive advantage through creating opportunities for additional supply chain stakeholders to participate in their reverse logistics activities and establishing additional markets for recovered products (Bhatia et al. 2020:2; Chow & Li 2018:235). This can provide jobs, improve lives and ultimately reduce poverty levels. In addition, following the South African Revenue Service's (SARS) attempts to eliminate illegal imports of used products (Tswana 2017:5–8), reprocessing can create an alternative to the used products directed to the country from developed countries. With potential future increases in the cost of sourcing scarce natural resources appearing inevitable (Matthews 2015:6), this system could also be essential for SMMEs to develop more robust supply chain systems through reclaiming resources that already exist on the market.

The implementation of CLSCM strategies by SMMEs in South Africa could also have practical contributions to the government's agenda to achieve sustainable economic development. South Africa aspires to achieve this through its National Strategy for Sustainable Development and Action Plan (Department of Environmental Affairs 2019:4) and its National Development Plan (NDP) (South African Government 2021:1–3). Through its NDP, the objective of the South African government was to eliminate poverty and decrease inequality by 2030. As SMMEs contribute approximately 39% to the earnings of the formal business market, a subsidiary aim is to ensure that SMMEs provide 90% of the 11 million jobs needed to achieve this (Bhorat et al. 2018:2; Small Enterprise Development Agency 2016:33). This makes it essential to examine how SMME retailers can extend their traditional roles to achieve economic, social and environmental sustainability.

### Research purpose and objectives

Through an evaluation of three recovery strategies, this study explores the possible collection, reprocessing and redistribution of used fashion by SMME fashion retailers in South Africa. This would merge the activities of primary and secondary markets and create a localised and integrated system for recovering and circulating the used fashion products. This study also considers the limitations experienced by the SMMEs, which can impact their adoption of sustainable practices. Kumar et al. (2019:7), for example, argue that SMMEs may appreciate the importance of sustainable practices but often do not have the resources or expertise to implement them. In view of this, this study further provides insights into the opportunities for adoption and offers a decision support framework that can assist in their implementation of CLSCM.

Following the above, the objectives of this research are as follows:

- to evaluate the opportunities for CLSCM adoption and coordination by SMME fashion retailers in South Africa
- to assess the risks associated with CLSCM adoption and coordination by SMME fashion retailers in South Africa
- to develop a decision support framework for CLSCM adoption by SMMEs in South Africa.

### Literature review

An SMME, in South Africa, was formally recognised by *The National Small Business Act, (102 of 1996)* as follows:

[A] separate and distinct business entity, together with its branches or subsidiaries, if any, including cooperative enterprises, managed by one owner or more predominantly carried on in any sector or sub-sector of the economy. (Department of Small Business Development 2019:1)

Under this Act, SMMEs are categorised based on their size, number of full-time staff and the total turnover for the year (Bruwer & Coetzee 2016:201). Small, medium and micro enterprises perform an important function in the economy,

offering employment, and thereby decreasing poverty and supporting South Africa's economic growth (Cant & Rabie 2018:231).

Although many countries rely on the economic activities of SMMEs, few studies explore the contributions made by these enterprises towards the sustainability of various industries. Kumar et al. (2019:15) argue that these businesses are more influenced by sourcing based on price and quality, rather than on the sustainability contributions of their purchases. Despite this, Ashby and Smith (2014:3) reveal that their strategies are often closely connected to what the owner values and is interested in, especially in the absence of shareholder pressure. The authors further explain that SMMEs are more flexible and able to establish strategic relationships with their supply chain partners. Fetter (2019:154) proposes that the participation of SMMEs in sustainability is essential because of new regulations that can result in pressure from supply chain partners.

Several studies have evaluated the challenges that SMMEs experience when adopting new strategies. These are likely to hinder the successful implementation of CLSCM. Bvuma and Marnewick (2020:5), for example, recognise the inability to access financial support as a challenge that can potentially restrict their operations. Donga, Ngirande and Shumba (2016:61) add that a lack of skills can hinder owners, with an estimated 70% of founders not receiving training before establishing their businesses. Kumar et al. (2019:7) conclude that the resulting lack of expertise can limit the adoption of sustainable practices. Macro-economic factors that include legislation and the crime rate in the country can also present a challenge to SMMEs (Rusu & Roman 2016:143).

### Closed-loop supply chain management

The concept of CLSCM has evolved to challenge the primary objectives of traditional supply chain management: efficiency and profit. This system involves the strategic integration of additional activities into the traditional supply chain. Hvass (2016:41) describes these as:

- **Collection:** In order to sustain CLSCM systems, the constant acquisition of used products from consumers is essential (Huang et al. 2013:511). O'Reilly and Kumar (2015:498) claim that there are several recovery channels for this front-end activity, including door-to-door collections and in-store drop-off points. Savaskan, Bhattacharya and Van Wassenhove (2004:245) and Chow and Li (2018:233) suggest that retailers could facilitate the collection of used products more successfully because of their proximity to consumers and the convenience they offer. However, Chen et al. (2020:2) explain that there is limited research on retailer facilitated CLSCM systems, despite their increasing popularity in practice. Arguments such as this motivated this study.
- **Reverse logistics:** Govindan and Soleimani (2017:371) explain that upon collection, used products are taken to a recovery facility where they are tested and sorted to

determine the most suitable and efficient method for each product's recovery. Researchers, such as Wu and Kao (2018:538), acknowledge the need for enhancing technologies to improve product recovery. This is essential as Hedegård, Paras and Gustafsson (2016:5) reveal that reprocessing can impact the value of a used product.

- **Re-marketing:** Marketing has been thoroughly explored in forward-driven supply chains. However, research is limited for the redistribution of recovered products, a gap identified by researchers such as Abbey et al. (2015:489) and Wang et al. (2013:867). Shekarian (2020:7) highlights the use of promotional and advertising activities to encourage consumption of recovered products. However, Reimann, Xiong and Zhou (2019:512) acknowledge that this should be strategic to prevent cannibalisation of new product sales where both product types are sold in the same location.

Studies present different motivations for stakeholder interest in establishing CLSCM. Hvass (2016:81) proposes that some stakeholders may want to encourage loyalty and unique engagement with their consumers. Hvass (2016:85) adds motivation connected to the desire to incorporate more environmentally sustainable practices, while Govindan, Soleimani and Kannan (2015:604) argue that the adoption of CLSCM is fundamental for economic purposes. Few proponents report on the social benefits of these systems, which may improve lives and reduce poverty through the creation of employment (Ahi & Searcy 2015:2885).

### Closed-loop supply chain management in the fashion industry

As public interest in more sustainable practices in the fashion industry's supply chain has increased, so has the academic literature on the subject. Most focuses on improving the internal operations of forward-driven supply chains (e.g. Bottani et al. 2019:361–362). This has resulted in a dearth of literature that examines the post-consumption involvement of stakeholders, with many of the scholarly conversations on CLSCM focusing on implementation by the electronic and automobile industries (Hong et al. 2015:12).

Studies (e.g. Hvass & Pedersen 2019:348) reveal that CLSCM facilitates the merging of both primary and secondary markets of the fashion industry. Recovered products may be redistributed to secondary markets to expand their life cycles. Small, medium and micro enterprise stakeholders in South Africa's fashion industry frequently operate in either of these markets, with secondary markets especially common in sub-Saharan Africa. This trade of used fashion has traditionally catered for price-sensitive consumers in this region (Hoang 2015:42; Tóta 2015:24), but is commonly disconnected from primary retailers and does not require their direct participation or contribution.

Reprocessing options for the fashion industry are similar to those in other industries. However, only three recovery methods were considered in this study:

- **Reuse:** Products in a condition for reuse are prepared for redistribution. This would be challenging in uncertain circumstances, such as those discussed by Dissanayake and Sinha (2015:6), if stakeholders cannot control at what stage used products are recovered in their life cycles. However, studies on the existing operations of the secondary markets of used fashion, for example, by Tóta (2015:24) reveal that this risk of obsolete designs may not be an issue in the context of emerging economies.
- **Recycling:** O'Reilly and Kumar (2015:498) explain that recycling occurs when the value can no longer be extracted from a used product. In order to preserve natural resources, recycled materials can be used in the manufacturing of new fashion (Roos et al. 2019:11–12). This study investigates the collection of used fashion for recycling by secondary industries.
- **Re-manufacturing:** Unlike recycling, re-manufacturing does not produce raw materials from used goods. According to Dissanayake and Sinha (2015:3), the value of the re-manufactured end-product may be greater than that of the initial product. Sinha, Muthu and Dissanayake (2016:6) suggest that re-manufacturing can differ in the fashion industry when compared to other industries. A re-manufactured product's functions, identity and design do not have to match the initial product. For example, a dress can be re-manufactured into a skirt.

The reviewed literature shows that there is an increase in studies on CLSCM. However, a comparison of academic databases shows that implementation is relatively new in the fashion industry, and mainly focuses on European and Asian markets, and excludes stakeholders in Africa. A study, such as this, is essential to allow SMME stakeholders to assess the opportunities that these systems provide.

## Research methodology

### Research design

A descriptive, qualitative research design was used as the authors were seeking to describe certain characteristics of the phenomenon under investigation (Grover 2015:1; Tshuma & Mafa 2013:115). Due to the exploratory nature of the study, this design was used to seek an in-depth understanding of the various opportunities and challenges that may be experienced by SMMEs looking to adopt CLSCM strategies.

### Sampling

A comprehensive list of the SMMEs active in the fashion industry in South Africa does not exist. Hence, a non-probability, purposive sampling method was used to select enterprises to be included in the study. Initially, an extensive, online search for potentially suitable, locally based retailers was conducted. Small, medium and micro enterprises from all nine provinces of South Africa associated with new or

used clothing, bags, accessories or shoes, were considered for the study, but only stakeholders from four provinces agreed to participate: Gauteng, KwaZulu-Natal, the Western Cape and Limpopo. It was found that there was a greater online presence of stakeholders in Gauteng, KwaZulu-Natal and the Western Cape, than those in other provinces. These provinces are also notable contributors to the country's textile and apparel manufacturing activities (Business Partners 2014:2). This is reflected in the sampling.

A sample of 14 stakeholders agreed to participate in the study. The sample predominantly included SMME retailers, the focus of this study, with one Cut, Make and Trim (CMT) and one non-profit organisation providing some additional insights. Only those that were based in South Africa, and had an awareness of the current activities of the industry were asked to participate. The CMT was selected as it provides services to SMME retailers. The non-profit organisation was included as it supports sustainability in the fashion industry, including that which is conducted by SMMEs. Saturation was reached after nine interviews, at which point it was found that no significantly new information could be gathered with the inclusion of additional participants. Five more interviews were conducted to confirm saturation.

Using judgment sampling, possible participants were approached based on their strategic positioning to respond to the study's questions. This resulted in a selection of business owners as the most suitable candidates who would have holistic insights into the current and future operations of their business, especially regarding their business' sustainability efforts. While not an owner, the participant from the non-profit organisation held the highest position within the organisation as the country coordinator.

The profiles of the participants and the organisations they represent are summarised in Table 1. Because of participants' discomfort with disclosing their annual turnover, the size of organisation was only determined by the number of full-time employees, despite some stakeholders also relying on additional part-time employees. Based on the Department of Small Business Development's (2019) definition, stakeholders were classified as follows:

- Micro: 0–10 full-time employees
- Small: 11–50 full-time employees
- Medium: 51–250 full-time employees.

### Data collection

The data were collected using in-depth semi-structured interviews to allow the additional responses provided by participants to guide the interview. Four types of interview guides were used based on the four types of participants: primary retailers, secondary retailers, CMT and non-profitable organisation. While the interview guides each had similar themes, it was decided that this approach would allow for more informative and relevant responses. The interview guides were divided into five sections and included

**TABLE 1:** Profile of study participants and organisations.

Participant	Gender	Type of business	Location	Participant position	Size of organisation	Methods of operation
P1	Female	Custom-made and ready-to-wear designs	Durban	Owner/Fashion designer/Seamstress	Micro	Physical store, markets, social media
P2	Female	Fashion and decor	Durban	Owner/Director	Micro	Markets and online store
P3	Female	Bespoke fashion	Durban	Owner/Head designer	Micro	Physical store
P4	Male	Lifestyle apparel	Cape Town	Founder/Director	Small	Physical stores and online store
P5	Female	Women's clothing	Rustenburg	Owner	Micro	Social media and markets
P6	Female	Secondhand clothing	Beaufort West	Owner	Micro	Social media
P7	Male	Asian streetwear	Durban	Owner	Small	Online store
P8	Male	Bohemian fashion	Cape Town	Owner	Medium	Physical stores and online store
P9	Female	CMT manufacturer	Durban	Owner	Micro	Physical location
P10	Male	Clothing and footwear	Musina	Owner	Small	Physical store
P11	Male	Non-profit organisation	Cape Town, Durban and Johannesburg	Country coordinator	Multi-national	Remote voluntary outreach
P12	Female	Vintage clothing	Durban	Owner	Micro	Social media
P13	Female	Vintage and secondhand clothing	Johannesburg	Owner	Micro	Social media
P14	Male	Activewear	Durban	Owner	Small	Online store

CMT, Cut, Make and Trim.

a list of between 22 and 25 questions. The sections were based on the research objectives, with many of the questions established after a review of literature pertaining to the opportunities and challenges of adopting CLSCM. Themes in the literature were identified from key authors such as Hvass (2016:85), Abbey et al. (2015:489) and Wang et al. (2013:867).

Eleven of the interviews were conducted using telephonic and web-conferencing applications and recorded using a digital voice recorder with an average duration of 36 min. However, three other participants expressed a preference for providing written responses to the interview questions because of work time constraints. These participants were provided with detailed information about the study, along with definitions of key terms used in the questions. Upon receiving each of the written responses, contact was made with participants to probe further where responses were unclear, or where there was opportunity for participants to elaborate on their responses.

## Data analysis

The interviews were transcribed using Otter™ software, and listened to several times to edit for errors in the individual transcriptions. The transcripts were then transferred to Nvivo™ software in order to conduct a thematic analysis. Initially, each of the responses to the individual related questions were grouped. Themes were then found in the responses, with each emerging theme coded.

## Ethical considerations

This study was approved by the Humanities and Social Sciences Research Ethics Committee in the University of KwaZulu-Natal Research Office (HSSREC/00000711/2019). To address ethical considerations, gatekeepers' letters were received from the organisations participating, and an ethical certificate was received from a reputable organisation. Prior to data collection, participants were requested to complete an informed consent form, which explained the objectives of the

study and mentioned how participant privacy would be maintained. Participants were also audio recorded with their permission. The transcripts are to be locked in a safe place for a period of 5 years and will not be used for other studies. The study also acknowledges any additional secondary literature used by the researchers.

## Findings

Four themes were identified in the analysis, each with their own categories. Table 2 presents them according to their relationship to each of the research objectives. Each of the themes is then discussed in the sections that follow.

### Theme 1: Ethical consumption behaviours

According to participants, the implementation of sustainable supply chain practices is in its infancy in developing countries. Reasons included a low level of consumer demand for accountability and limited available resources. One of the participants suggested that accountability was not as important for SMMEs as it was for larger organisations that have a greater sustainability impact. Studies by authors such as Fetter (2019:154) suggest that such perceptions are common. Despite this, all participants agreed that sustainability does currently play some role in their operations. This opposes arguments by Kumar et al. (2019:15) that portray SMMEs as more motivated by price and quality, rather than sustainable sourcing. However, these findings are consistent with Ashby and Smith's (2014:3) conclusions that SMMEs are more strategically positioned to implement sustainable practices. Participant views of consumer familiarity and expertise with ethical consumption were probed and resulted in the exploration of three categories.

### Category 1: Ethical purchasing decisions

Responses provided insight into whether sustainability had a role in consumer purchasing decisions. This was useful in order to anticipate consumer responses to CLSCM systems, if adopted by the SMMEs. One of the participants noted that

**TABLE 2:** Link between research objectives, themes and categories.

Research objective	Themes and categories
RO1: To evaluate the opportunities for CLSCM adoption and coordination by SMME fashion retailers in South Africa.	Theme 1: Ethical consumption behaviours Category 1: Ethical purchasing decisions Category 2: Disposal of used fashion systems Category 3: Consumer familiarity and expertise with CLSCM systems Theme 2: Perceived benefits of product recovery and redistribution Category 1: Competitive advantage Category 2: Sustainability benefits Category 3: Diverse catalogue
RO2: To assess the risks associated with CLSCM adoption and coordination by SMME fashion retailers in South Africa.	Theme 3: Perceived risks of product recovery and redistribution Category 1: Providing incentives Category 2: Diverting business from other stakeholders Category 3: Consumer uncertainty
RO3: To develop a decision support framework for CLSCM adoption by SMMEs in South Africa.	Theme 4: Closed-loop adoption by SMMEs in the South African market Category 1: Limitations of size of business Category 2: Recommendations for closed-loop adoption by SMMEs

RO, research objective; CLSCM, closed-loop supply chain management; SMMEs, small, medium and micro enterprises.

consumers were more concerned with the quality and brand of a product, rather than its social and environmental effects. However, some of the other participants explained that ethical consumption did have a role in the purchasing decisions of consumers in their markets. Some participants mentioned that Generations Y and Z were more likely to consume ethically, and to hold other stakeholders accountable. Claude, Malek and Runnvall (2018:14) argue that this is because of these generations' exposure to social media and other platforms that offer information about products and services:

'...I would say it does for the majority of our consumers. We do have quite a [sic] educated consumers in terms of ethical consumption and our consumers like to support local...'  
(Participant 4, Male, Founder, Lifestyle apparel)

### Category 2: Disposal of used fashion

Participants discussed the extent to which SMMEs should be held accountable for consumer disposal of their products, and The responses varied. While some participants did not believe they should have a role, others believed that this would help to alleviate the industry's environmental impact:

'As a retailer you can only do so much. Unfortunately, once the product is with the consumer you have no power or control over it...'  
(Participant 2, Female, Owner, Fashion and decor)

'They should be held very accountable, but it also goes into how as a country or as the industry how much do you uphold your sustainability or ethical standards? So I think the bar can only be set as high as the law is willing to set it.'  
(Participant 3, Female, Owner, Bespoke fashion)

### Category 3: Consumer familiarity and expertise with closed-loop supply chain systems

As product knowledge comprises familiarity and expertise, participants were asked to discuss these in the context of CLSCM systems. According to participants, the most commonly recognised recovery method is reuse. A participant mentioned that the popularity of used fashion occurs mainly among price-sensitive consumers. This is not surprising as studies have found that this method is used extensively in sub-Saharan Africa (e.g. Norris 2015:185; Tóta 2015:24)

because of its economic benefits to consumers, and its employment opportunities for informal markets. However, the environmental benefits of reusing are what attract younger consumers. Similarly, another participant also identified younger consumers as having more access and more interest in the reuse market. Liu and Hei (2021:19) and Brantemo, Carlstedt and Wilhelmsson (2020:39) suggest that this could be a result of the affordability of such items. Another participant observed that the promotion of recovered materials by local brands is increasing consumer familiarity:

'Brands like Sealand gear are educating the South African consumer on recycled products ... There are amazing local brands that are using re-manufactured processes and South Africans are supporting these local brands.'  
(Participant 11, Male, Country coordinator, Non-profitable organisation)

## Theme 2: Perceived benefits of product recovery and redistribution

The participants discussed the potential benefits they could derive from the recovery of used fashion.

### Category 1: Competitive advantage

Participants identified the establishment of a competitive advantage through implementation, echoing Hvass' (2016:81) perceptions that CLSCM systems can engage consumers in innovative and unique ways. The assumption that this approach is still in its infancy in Africa can bring about this competitive advantage, especially as sustainability becomes a focus for many stakeholders, globally:

'You save the environment and then you also position yourself to be in a place where you can compete when the systems are completely put in place, because that is where companies or industries are headed or forced to head anyway.'  
(Participant 3, Female, Owner, Bespoke fashion)

### Category 2: Sustainability benefits

Participants identified the sustainability benefits of implementing CLSCM systems. One of the participants explored how the adoption of additional activities in the supply chain could result in the creation of employment and technological development as product lifecycles are extended. Other participants also noted the financial benefits of re-manufacturing, and this focus is not new. Govindan et al. (2015:604), for example, argue that the implementation of CLSCM was fundamentally financial, as stakeholders could be profitable through extracting the most value out of used products. One of the participants added that consumers could also share in these financial benefits. Another participant mentioned the savings that could result from re-manufacturing used fashion, instead of sourcing new materials. Such arguments of sustainable practices occur frequently in the literature (e.g. Matthews 2015:6). One other participant observed that opportunities could exist to sell used products to external stakeholders that can recycle them:

'[... W]ouldn't it then create another branch or way for employment? "Cause you have all these clothes coming in and

those clothes need to be sorted...”.' (Participant 3, Female, Owner, Bespoke fashion)

Participants discussed how CLSCM systems could improve social and environmental sustainability. According to some participants, CLSCM strategies can extend a product's lifecycle. Similar to arguments presented by key emerging authors in CLSCM in the fashion industry (e.g. Hvass 2016:85), a few other participants explained that these strategies present an opportunity to have a positive effect on the environment:

'Benefits are doing our bit to lessen our carbon footprint. An ethical approach means we are happy and our staff is happy and our customers are happy.' (Participant 9, Female, Owner, CMT manufacturer)

### Category 3: Diverse catalogue

While research on the marketing of the recovered products is sparse, studies such as Abbey et al. (2015:492) and Wang et al. (2013:867) have created a foundation for the assessment of consumer perceptions. Although these studies focus on re-manufactured products in developed countries, with limited or no analysis of those of the fashion industry, this article adds to such literature by providing insight into the possible perceptions in an African developing country. Participants discussed the benefits of providing consumers with a diversified catalogue that includes both new products and recovered (re-manufactured or secondhand) products. They observed that not only would these provide more options for profit generation but they also anticipated that they would be well received by their consumers, with one participant attributing this to consumer familiarity with vintage fashion and recycling. Other participants explained that their business currently offered such a catalogue, and that such would appeal to their market's sustainability consciousness. Some participants added that a diversified catalogue provides them the opportunity to reach different markets:

'It's something that we are actually working on at the moment. I think consumers need to be made aware of what is available for them and make a choice ... as we have a lot of people who desire one over the other.' (Participant 2, Female, Owner, Fashion and decor)

## Theme 3: Perceived risks of product recovery and redistribution

Although the existing literature fails to acknowledge risks that can be experienced by SMMEs in the fashion industries of African developing countries, many of the risks identified in this article have appeared in international studies, such as Lehr, Thun and Milling (2013:4106) and Ramani and Giovanni (2017:1010). These were arranged into three categories.

### Category 1: Providing incentives

Studies by Dissanayake and Sinha (2015:6) suggest that variability in the quality and quantities of products collected may compromise the success of the system. Participants discussed the benefits of providing incentives, such as coupons and in-store discounts, to increase the quantities of

products returned for recovery. These findings are consistent with those of Hong et al. (2015:12) who found that Lexmark, a printing company, experienced an increase of between 30% and 50% in the return rate of its Opra-S toner cartridges after offering incentives to consumers. Participants further identified how such financial incentives would encourage consistent participation. The recognised risks of providing financial incentives included collecting a large amount of used fashion that the SMME may struggle to reprocess and a reduction of profits. These insights were new as similar findings were not found in the existing body of knowledge:

'If you are giving coupons or discounts then obviously we will lose revenue.' (Participant 4, Male, Founder, Lifestyle apparel)

### Category 2: Diverting business from other stakeholders

One of the participants, as a CMT, discussed the potential drawbacks of recovering used fashion, particularly those that could constrain their business if they produced less garments. Another participant also expressed that retailers seeking to profit from used fashion could affect stakeholders that have been benefitting from donations of used fashion. As the existing literature mostly excludes the social drawbacks of extracting value from used fashion products, this perspective was especially useful for understanding additional concerns that could limit adoption:

'There's so many people that are in need. So if we turn it around and say give it to us, and we resell it, we're actually cutting off the donation ... maybe it's good in Switzerland, where they have no place for it, but I don't see why we need to make money again from our clothing....' (Participant 8, Male, Owner, Bohemian fashion)

### Category 3: Consumer uncertainty

While some of the SMME retailer participants had already incorporated some sustainable strategies into their businesses, they noted how the redistribution of recovered used fashion could cause some uncertainty among their consumers. One participant discussed how a diversified product offering could cause a loss in the loyalty of the business' consumer base. Another explored how providing a diverse catalogue could either be widely accepted by their business' consumers or rejected, which could result in an accumulation of unsold used fashion. Much of the literature that covers uncertainty within consumers, for example, O'Reilly and Kumar (2015:503) attributes uncertainty to a lack of information.

One participant also noted that it could happen that consumer uncertainty would be low and there would be a greater attraction to used fashion than the new fashion. This might result in a cannibalisation of the sales of new products, which has been of interest to some researchers. Kwak and Kim (2016:051701) note that if processed successfully, re-manufactured products could appear better than those that are new. As a result, the risk of reducing the market share of new products has been identified by authors such as Ramani and De Giovanni (2017:1010). However, a study of 3000 respondents located in the United Kingdom, United States

of America and China was conducted by Farfetch (2020:7). The study concluded that the markets for used products and new products are often separate reducing the risk of cannibalisation. It is important to note that the study by Farfetch (2020:7) did not take into account the price-sensitive nature of many consumers in Africa that could influence them to prefer the more affordable product.

Some participants noted that the recovery and redistribution of some used fashion may be regarded 'unsanitary' or may evoke feelings of 'discomfort' among consumers. Such feelings of discomfort and 'disgust' as referred to by Abbey et al. (2015:490) are not uncommon as many consumers may have negative associations of used products, particularly due to their previous ownership:

'Although it's not second hand off the person and while you might have washed it, but it's that mental aspect to it...'  
(Participant 7, Male, Owner, Asian streetwear)

#### Theme 4: Closed-loop adoption by small, medium and micro enterprises in the South African market

The participants were asked to identify the CLSCM strategies that would be most suitable for their businesses or for implementation in the South African market. To the researchers' knowledge, such information is new to the body of knowledge. The responses were varied and are summarised in Table 3.

##### Category 1: Limitations of size of business

Retailers identified limitations in time and resources and also acknowledged limited control of their business' supply chain processes. Some participants explained that there are restrictions with the number of staff employed in an SMME and the resulting multiple roles each staff member would have in the business would initially put a strain on the successful implementation of CLSCM. This is consistent with Bvuma and Marnewick's (2020:5) findings that a

limited presence of resources can hinder the adoption of strategies. It was also established that implementing sustainable strategies would require significant financial resources that may not be readily available. Retailer participants also observed that they had limited control over the supply chain processes conducted by their supply chain partners because of their businesses' small sizes, challenging end-to-end implementation. To the researchers' knowledge, such insight into the limitations of a lack of control over supply chain processes has not been investigated in detail by studies on SMMEs in South Africa's fashion industry:

'Unless we have our own CMTs that work directly for us, they won't be as accepting to the reusing or re-purposing of garments, as they can make a lot more money from doing a full production run'. (Participant 4, Male, Founder, Lifestyle apparel)

##### Category 2: Recommendations for closed-loop adoption by small, medium and micro enterprises

Participants also made recommendations for how CLSCM can be more successfully adopted by SMMEs in South Africa. Participants observed the importance of maintaining the quality of the products they offered consumers, particularly regarding the reused or re-manufactured fashion to encourage more sales and reduce potential uncertainty. Participants also shared a general opinion that educating and engaging consumers would encourage their participation in CLSCM systems. Because of their sizes, participants further recommended that SMMEs would benefit from collaborating with other stakeholders in order to ease adoption. Some participants also suggested collaborations with larger fashion brands, while another participant recommended collaborations with government and other private stakeholders:

'So if there's a way for the gap to be closed with the small markets, and small brands are able to work with the bigger brands...'. (Participant 1, Female, Owner, Custom-made and ready-to-wear designs)

**TABLE 3:** Closed-loop supply chain strategies that are most suitable for small, medium and micro enterprises in South Africa.

Participant	Type of organisation	Selected strategy	Extract from the data
P1	Custom-made and ready-to-wear designs	Reuse and re-manufacturing	'So reusing or re-manufacturing, I think, would be more of a benefit to a brand, like myself.'
P2	Fashion and decor	Recycling	'Recycling would be ideal for me'
P3	Bespoke fashion	Recycling	'At the moment i would definitely say recycling and reuse. Only because they are so much easier to manage...'
P4	Lifestyle apparel	Reuse and recycling	'I would say it would be a mixture of reusing and recycling'
P5	Women's clothing	Reuse	'I think at the moment, the cheaper one <b>for me would be reuse...</b> '
P6	Secondhand clothing	Re-manufacturing	'I think it would definitely be <b>re-manufacturing of clothing items</b> '.
P7	Asian streetwear	Reuse	'I think maybe more the reusing of material'.
P8	Bohemian fashion	Recycling	'We are not manufacturing... I think it's <i>great if you can recycle fabrics...</i> '
P9	CMT manufacturer	Recycling or re-manufacturing	'Recycling or re-manufacturing <b>because the set up costs are minimal</b> '.
P10	Clothing and footwear	Re-manufacturing	'I would opt to remanufacture used fashion into new fashion. It would take less effort and would be more profitable in the long run
P11	Non-profit organisation	Recycling and re-manufacturing	'... <i>definitely recycle, because we have a lot of clothing that goes into landfill, and re-manufacturing. Those two, 100%. I mean all three, actually, yeah. But I think recycling a big thing, because we do have a lot of waste</i>
P12	Vintage clothing	Not disclosed	'... I guess getting the people <b>[customers] more involved</b> '.
P13	Vintage and secondhand clothing	Re-manufacturing	'... maybe just reworking some of the <b>items...</b> '
P14	Activewear	Reuse or re-manufacturing	'Reuse or remanufacture. I did sort of like both of them'.

CMT, Cut, Make and Trim.

Participants also identified additional limitations and recommendations for adoption.

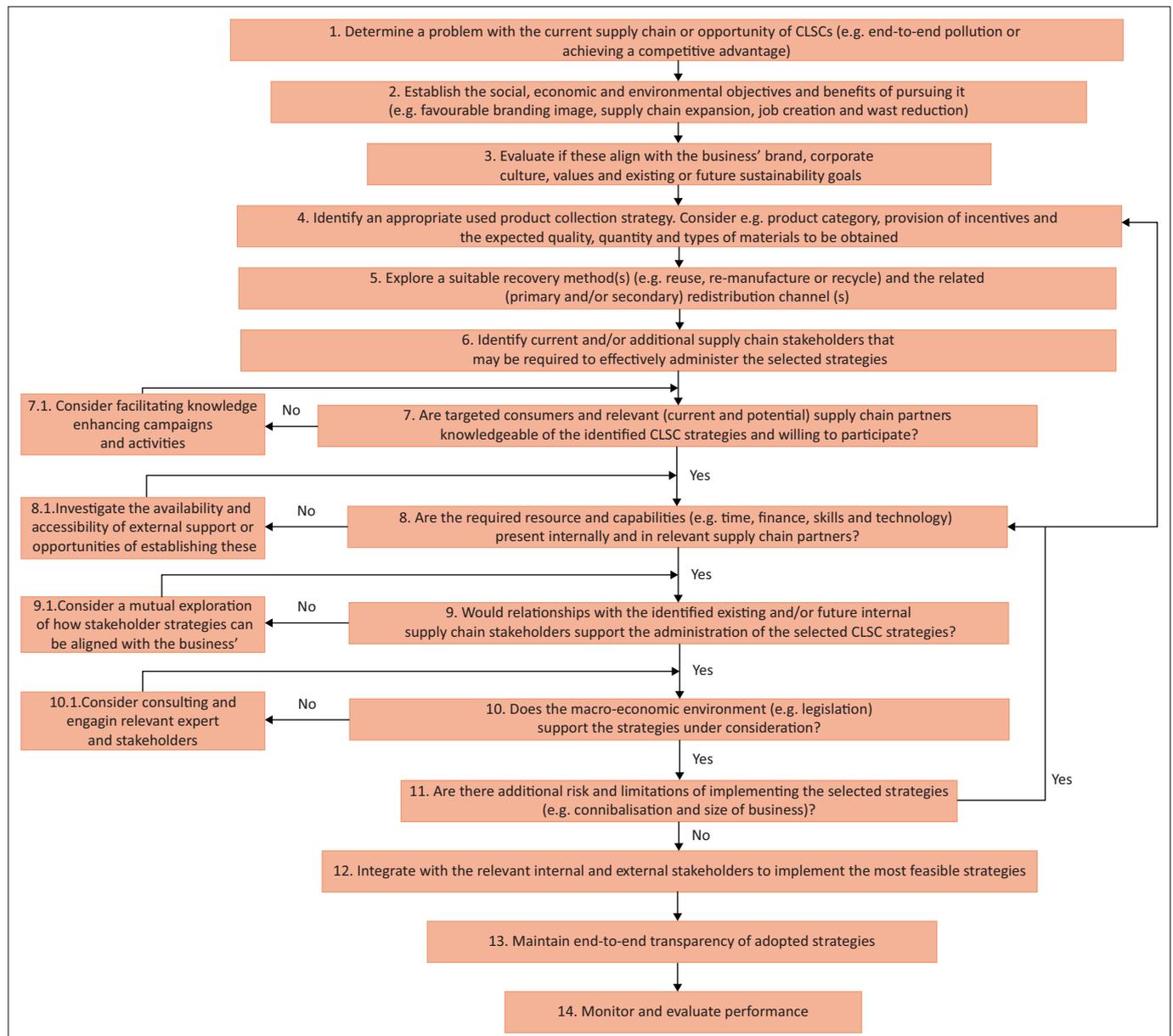
One of the participants mentioned collaborations with organisations that can donate used fashion. Another participant, as a vintage clothing business owner, preferred to collaborate with small primary retailer businesses to facilitate the collection of used products as they argued that large retailers are more likely to greenwash, which could negatively impact the business' image as a sustainable brand:

'I'd rather collaborate with a local, small scale business...'  
(Participant 12, Female, Owner, Vintage clothing)

### Decision support framework for small, medium and micro enterprises adoption of closed-loop fashion supply chains in South Africa

A decision support framework (see Figure 1) based on the findings of this research is proposed. The framework consists of 14 steps designed to aid SMME retailers to make

appropriate decisions concerning the adoption of CLSCM. Decision-makers are advised to begin the process by establishing a reason for implementation by identifying a problem or opportunity related to their business' economic, social or environmental impact. Without a reason for adoption, motivation to implement strategies may be limited. The framework also invites decision-makers to the strategies implemented align with the business' existing ones to allow for more seamless integration. It also identifies that some businesses may only be able to participate in product collection for redistribution by secondary markets, without distributing the re-processed products within their own outlets. This allows for flexibility, and shows that primary retailer facilitated systems can enable the growth of secondary markets, limiting concerns associated with a reduction in donations, or the preservation of secondary and even informal markets. However, it is highlighted that a suitable



CLSC, closed-loop supply chain.

**FIGURE 1:** A decision support framework for small, medium and micro enterprises' adoption of closed-loop fashion supply chains in South Africa.

recovery method should be selected in conjunction with a suitable redistribution method to ensure a holistic analysis of how the system will operate.

The framework further acknowledges that various stakeholders should be engaged, including supply chain stakeholders, consumers, and the government. Without the participation of all stakeholders, the implementation of CLSCM practices may have temporary benefits, prove to be too costly to manage, or may not be aligned with stakeholder objectives. The framework also highlights actions that can be taken where the operating environment is not yet conducive to implementation, or where there are limited resources. This is a unique contribution as it has previously been established that no studies were identified that provide such considerations in the African context. Maintenance of transparency in reporting is also recommended in recognition of consumer desire for more transparency of practices.

## Recommendations

Recommendations are based on the findings and are captured in the decision support framework. It is recommended that SMMEs should establish the types of CLSCM strategies that would align with their businesses. In addition, to support the circular activities of SMMEs, legislation to encourage the safe disposal of used fashion should be developed that would provide an incentive for all stakeholders to be engaged and involved. It is also suggested that collaboration with similar sized supply chain stakeholders could enable more strategic and transparent endeavours towards successful adoption. Finally, to decrease the pressure on their resources, gradual implementation is recommended at a rate that is manageable and sustainable.

## Limitations and recommendations for future research

There were some limitations of the study. Only participants from four provinces agreed to participate. However, the study did include three major contributing regions of South Africa's fashion industry. This presents an opportunity for future research to be conducted in other provinces within South Africa to establish any similarities and differences in the findings.

As its focus was on retailers, the study also failed to explore the perceptions of more supply chain stakeholders that could be involved in the implementation of CLSCM practices. Despite this, it is believed that this study presents a basis for future studies to explore the perceptions of other supply chain stakeholders. Future studies can also consider giving a comparison of the implementation of CLSCM practices coordinated by SMME retailers, with those coordinated by larger retailers, to assess the variances.

Although the authors believe that this study is a foundation for research on the development of CLSCM practices in African developing countries, the sample of participants was

derived from one country, thereby limiting generalisability. This presents an opportunity for research that provides a comparison of other African fashion industries to determine perceptions across the continent.

While a framework was provided in this article, its application to stakeholders across all parts of South Africa needs to be tested and validated to assess its applicability to other provinces in South Africa, and to other countries in Africa.

## Conclusion

The study's first research objective was as follows: '[t]o evaluate the opportunities for CLSCM adoption and coordination by SMME fashion retailers in South Africa'. The findings from the data show that opportunities do exist as consumers in South Africa have a level of familiarity and expertise with the products and services of CLSCM. This could potentially make them more open to adopting re-manufactured fashion. The findings also reveal that the affordability, brand and quality of a reused or re-manufactured product would more likely influence consumer adoption than its social and environmental impact.

In order to further evaluate whether opportunities for adoption exist, with reference to the first research objective, it was essential to establish any perceived benefits of the system. Participants noted how the implementation of such systems could allow SMME retailers to be more innovative and provide a competitive advantage because of growing demand globally for more sustainable operations. The sustainability benefits of CLSCM were also explored by some participants. Particular reference was made to how such systems could enable the creation of employment as more partners would be required to facilitate the additional activities.

Under the second research objective, the risks of CLSCM were explored. Some of the SMMEs, for example, identified how the provision of financial incentives for used product returns could result in an increased volume that the retailers may not be able to reprocess, affecting profits. Although initial responses appeared to be favourable, some retailers were concerned that implementation could result in consumer uncertainty and divert business from other stakeholders that benefit from donations in the existing secondary market for used fashion.

The third research objective was as follows: '[t]o develop a decision support framework for CLSCM adoption by SMMEs in South Africa'. In order to achieve this, it was essential to also establish which strategies were most suitable, along with potential limitations and recommendations to consider. Despite identifying limitations to implementation, the SMME retailer participants suggested CLSCM recovery methods that would be most suitable for their businesses. The responses were mixed but all the methods studied were variously favoured. Some retailer participants acknowledged that re-manufacturing would be easier to implement if their business

had more control of their supply chain processes. Participants anticipated that engaging consumers and providing them with more information and transparency of the system's processes would encourage more adoption. Some participants recommended that financial support and collaboration with other stakeholders could help to ease adoption.

The findings were integrated into a decision support framework for the adoption of CLSCM by SMMEs in South Africa. The framework, which includes 14 steps, can be used to begin the process of establishing the most feasible strategies to adopt. This tool, along with the findings of this study, consider the potential limitations and encourage the engagement of additional stakeholders to enhance the success of the system. This fills a gap in the literature, as no similar studies were identified that offer such a framework for implementation by SMMEs in an African developing country.

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The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

### Authors' contributions

C.M. conceived and conducted the study and wrote the original draft. R.H.S. supervised the study, and reviewed and edited the manuscript. Both the authors discussed the results and contributed to the final manuscript.

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### Data availability

The data that support the findings of this study are available from the corresponding author, R.H.S., upon reasonable request.

### Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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