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Enhancing circular economy capability in Indonesian MSMEs: The role of sustainable supply chain design in the fashion and cosmetics industries

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ABSTRACT

Background: The circular economy is a potential concept for the implementation of MSMEs in Indonesia as one of the largest contributors to GDP in Indonesia. Through two of the five priority industries to implement circular economy, namely the fashion and cosmetics industries, this study aims to Analyzing the influence of supply chain relationship management on sustainable supply chain design. Then analyze the influence of sustainable supply chain design on circular economy capability of MSMEs in Indonesia. **Methods**: The research was conducted on 72 MSMEs in the fashion and cosmetics industry in Java and Bali, Indonesia, which have implemented at least one of the three 3R concepts (reduce, reuse, recycle). Data testing in this study used Partial Least Square - Structural Equation Modeling (PLS-SEM) as a method that is currently widely applied in many social science disciplines, including supply chain management. **Findings:** The results showed that supply chain relationship management has a positive effect on sustainable supply chain design in the fashion and cosmetics industry MSMEs. Furthermore, sustainable supply chain design has a positive effect on the circular economy capability of fashion and cosmetics industry MSMEs. **Conclusion:** In general, sustainable supply chain management can influence the circular economy capability of fashion and cosmetics industry MSMEs in Indonesia through the implementation of green supply chain management. **Novelty/Originality of this article:** This study fills the gap in the literature by using PLS-SEM method to validate the link between supply chain relationship management and circular economy capability, which is still rarely applied to the MSME sector, especially in Indonesia.

KEYWORDS: circular economy; sustainable supply chain; supply chain relationship management; sustainable supply chain design.

1. Introduction

Currently 91.4% of the world economy is linear: extract and produce, consume, collect, and end up in landfill (Circle Economy, 2018; Bappenas et al., 2021). As time goes by, the population increases and people become more consumptive. If the economy continues to apply a linear system, then with more consumption, more demand, and more production. The energy required by the production process will generate carbon emissions. Excessive consumption, such as food, that is not consumed will become waste, which also emits carbon emissions. The more carbon emissions produced, the more it will affect the global climate.

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One of the industries that contribute the most carbon emissions in the world is the fashion industry. In 2015 the fashion industry was responsible for 1.715 million tons of carbon emissions, equivalent to 5.4% of the 32.1 billion tons of global carbon emissions (Khusainova, 2019). Most of the clothing produced is never sold or kept by the buyer, with 87% of the clothing produced being discarded or burned by the buyer (Ellen, 2018). The fashion industry is also one of the largest contributors to waste in Indonesia, where the amount of textile waste was recorded at 2.3 million tons in 2020 and is projected to increase by 70% by 2030 (Bappenas et al., 2021).

Apart from textiles, plastic packaging waste is also a problem in Indonesia with 5.4 tons of waste in 2020 and a potential 40% increase by 2030 (Bappenas et al., 2021). This waste is generated by the wholesale and retail trade sector, where three-quarters of plastic consumption in Indonesia comes from the use of single-use packaging (Bappenas et al., 2021). Indonesia is the second largest contributor of plastic waste in the world after China and four rivers in Indonesia are among the most plastic-polluted rivers in the world (Bappenas et al., 2021). Findings from Waste4Change suggest that in DKI Jakarta alone, residents produce as much as 0.69 kg/person/day2. In addition, many DKI Jakarta residents also choose to dispose of their household waste by burning (3.2%), illegal dumping (2.1%), and dumping in water bodies (1.14%) (Waste4Change, 2020). This problem has the potential to be solved by replacing the linear economy pattern with a circular one.

The government has been promoting and raising awareness on sustainability. One of the efforts made is to realize a circular economy. A circular economy is a restorative or regenerative industrial system that is intentional and designed to encourage restoration and the use of renewable energy or is a closed loop economic system where the process consists of: manufacturing, consumption, collection, recycling, and processing (Bappenas, 2021). According to the Ellen MacArthur Foundation, the three main principles of the circular economy are designing out waste and pollution, safeguarding the products and materials used, and regenerating natural systems (Ellen McArthur Foundation, n.d.).

In September 2021, the Coordinating Ministry for Economic Affairs of the Republic of Indonesia published a press release to encourage the circular economy in order to achieve Indonesia's Nationally Determined Contribution (NDC), which is to reduce Greenhouse Gas emissions by 29% by 2030 (Limanseto, 2021). However, it is unfortunate that in 2020 there were only 8.6% of the world's economy implementing circular economy (Circle Economy, 2018). So it is certain that the percentage of economic actors in Indonesia who implement a circular economy is much smaller and this is a challenge for the country.

Circular economy is a very potential thing for MSMEs in Indonesia. Based on data from the Ministry of Cooperatives and Small and Medium Enterprises (Kemenkop UMKM) in March 2021, the number of MSMEs reached 64.2 million with a contribution to GDP of 61.07% or IDR 8,573.89 trillion. MSMEs are able to absorb 97% of the total workforce, and can collect up to 60.42% of the total investment in Indonesia (Ministry of Finance of the Republic of Indonesia, 2021). MSMEs will play a better role in the implementation of circular economy as they are closer to end-users that could potentially generate waste. In addition, the implementation of circular economy can help MSMEs to make production efficiency, reducing large waste, and has the potential to save raw materials as it focuses on the 3R business model, reuse, recycle, and repurpose (Plant Chicago, 2020).

The concept of circular economy is aligned with the concept of sustainable supply chain management. The alignment can be seen in that its activities include managing the flow of materials, information and capital as well as cooperation between companies along the supply chain while considering the three dimensions of sustainable development, namely economic, environmental and social, derived from the needs of customers and stakeholders (Seuring & Müller, 2008).

Sustainable supply chain management (SSCM) is a comprehensive integration of social, environmental, and economic goals or the triple bottom line of a company (Ahi & Searcy, 2013). There are three angles that can be taken in implementing the concept of sustainable supply chain management. The first is green supply chain management (GSCM), which is a sustainability concept that emphasizes the environmental pillar. There are five important elements of GSCM, namely eco-innovation, internal environment management, sustainable purchasing, customer support for sustainability concerns, and internal environment management recovery of investment (Liu et al., 2017).

The implementation of sustainable supply chain management requires synergy between parties. Therefore, it is important to pay attention to supply chain relationship management (SCRM) which illustrates that companies can minimize negative environmental impacts in the production process with a network or supply chain relationship from upstream to downstream of good quality without excessive cost increases (Kumar et al., 2013; Pop et al., 2015). The synergy between these parties needs a blueprint or concept that can be implemented together. Sustainable supply chain design (SSCD) is a systematic approach to the creation and distribution of innovative products and services that minimizes resources, eliminates toxic substances, and produces zero waste to reduce greenhouse gas emissions throughout the product and service life cycle. With the design of the production process and clear and mutually supportive relationships between parties, sustainable supply chain management is possible.

The MSMEs that are the object of research are MSMEs from the cosmetics and fashion industries. The cosmetics industry produces waste in the form of disposable plastic packaging. The potential to reduce pollution from plastics could create 150,000 direct jobs and investment opportunities worth USD 13.3 billion between 2025 and 2040. While the textile sector in Indonesia is among the top 10 textile producing countries in the world, employing around 4.2 million people or more than 26% of employment in Indonesia's manufacturing sector (LCDI, n.d.). The textile and wholesale and retail (plastic waste) sectors are two of the five priority sectors for circular economy implementation in Indonesia. Therefore, it is important to know the potential circular economy capabilities in both sectors.

However, the adoption of circular economy practices in micro, small and medium enterprises (MSMEs) in developing countries is still at an early stage (Mishra et al., 2022) and there is still little research on MSME activities, innovations and strategies related to the circular economy, especially in emerging markets (Pereira et al., 2022).Currently, some MSMEs in the cosmetics and fashion industry in Indonesia have adopted sustainable business patterns, such as the use of environmentally friendly raw materials or reusing leftover production raw materials. This application is certainly based on a business model that wants to achieve sustainability and there is good synergy between parties in the supply chain that supports these MSMEs to achieve it. The efforts made by MSMEs to be more environmentally friendly may not yet reflect the capabilities of the circular economy as a whole, but its potential needs to be explored. Based on this introduction, the objectives of this research are as follows (1) analyzing the influence of supply chain relationship management on sustainable supply chain design; (2) to analyze the influence of sustainable supply chain design on circular economy capability of MSMEs in Indonesia.

2. Methods

2.1 Research model

This study uses a conclusive research design that aims to test hypotheses and relationships between variables. This research is also descriptive research that aims to explain characteristics and is cross-sectional, only conducted in one period of time. The survey method was used to collect data from MSMEs in Indonesia. Sampling using purposive sampling design to MSMEs in the cosmetics and fashion industry. Furthermore, the survey results were processed using the PLS-SEM method with SmartPLS software.

The research model used in this study was adopted from the framework used in previous studies, namely the research of Bag et al. (2022) on the influence of eco-innovation on green supply chain management, circular economy capabilities and performance in SMEs and Zeng et al. (2017) related to institutional pressure, sustainable supply chain management, and circular economy capabilities as empirical evidence from eco-industrial park companies in China. However, this study only adopts the direct effect of green supply chain management on circular economy capability as an adoption of the research of Bag et al. (2022) and the influence of supply chain relationship management and sustainable supply chain design on circular economy capability as adopted by Zeng et al. (2017).

In this study, there are two independent variables, namely green supply chain management and supply chain relationship management. The implementation of green supply chain management in a business will directly affect the circular economy implementation capability. In addition, good supply chain relationship management will also directly affect circular economy capability or can affect circular economy capability with the mediation of sustainable supply chain design variables. The research model can be seen in figure 1.

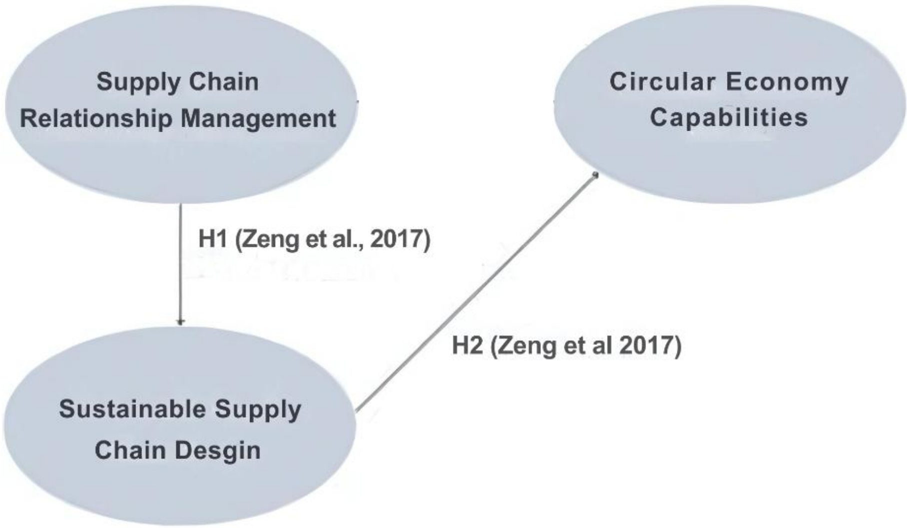

Fig. 1. Research model framework

2.2 Research hypothesis and data collection method

In line with the research objectives, two hypothesis models were obtained in this study. Basically, supply chain management needs to have a sustainable supply chain network design and supplier choice. This allows supply chain management to improve circular economy capabilities (Xiong et al., 2015). This supply chain relationship is the basis of SSCD that is oriented towards green targets. Previous studies suggest that SCRM can play a decisive role in the successful implementation of green production or sustainable manufacturing in developed countries, according to the design of sustainable supply chain management (Miocevic & Biljana, 2012, Sjoerdsma & Weele, 2015). Hence, the importance of SCRM and SSCD in SSCM practices and promoting circular economy capabilities, the hypothesis is as follows.

The researcher collected primary data with an online survey through questionnaires distributed to respondents. The unit of analysis was Indonesian MSMEs in the cosmetics and fashion industries that have implemented at least one 3R concept. The target respondents were managers, owners, or those who understand supply chain management. The cosmetics and fashion sector was selected because it generates textile and plastic waste, two of the top five types of waste in Indonesia (Bappenas et al., 2021).

Respondents were limited to micro (labor <10 people), small (11-50 people), and medium (51-300 people) businesses operating in Java and Bali. This study requires a minimum of 59 respondents to achieve a 5% significance level with a minimum R^2 of 0.25 and three arrows to the construct variable (Hair, 2014). Respondent selection was conducted using screening questions. Meanwhile, secondary data used to support the research was obtained from various sources such as books, journals, articles on the internet from trusted sources.

2.3. Questionnaire data analysis method (wording test)

This research began by translating the questionnaire as a replication of the previous research questionnaire into Indonesian. To ensure that the translated questionnaire could be understood by the respondents, a wording test was conducted on several target respondents. The target respondents in this wording test were at least five respondents with characteristics that match the target respondents in the main research. Respondents in this wording test were asked to read the questionnaire in the form of a Google Form, where before conducting the wording test there was a screening question to ensure the characteristics of the respondents as needed.

After the respondents were willing, the respondents were given questions in two languages, namely Indonesian and English as a form of comparison and reference for the respondents. In addition, there is a description below the question to support respondents to better understand the question. Respondents are provided with two answer options, "TRUE" if the respondent understands the question in Indonesian and "other" if the respondent does not understand the question and recommends or makes suggestions regarding the choice of words better. Feedback from respondents was used to change the wording of the questionnaire that would be administered to target respondents in the main study.

2.3.1 Data analysis method

The research began with translating the questionnaire questions from the previous study into Indonesian. A diction meaning test was conducted to ensure the questions were easy for respondents to understand, to check for writing errors, and to find ambiguities. A total of five respondents with characteristics according to the main target were asked to read the questionnaire on Google Form. They were asked to answer "TRUE" if they understood the question or choose "other" if there was any ambiguity, and to suggest more appropriate words. Furthermore, frequency distribution analysis was used to count respondents and describe the percentage of values (Mikalef, 2020). This method records the classification of respondents based on business profiles such as MSME size, business area, and industry category.

The stage after distribution analysis is Structural Equations Modeling (SEM), with Partial Least Square-Structural Equations Modeling (PLS-SEM) used to analyze the relationship of latent variables and indicators simultaneously (Hair et al., 2019). This method is suitable for small samples and is applied in various social science disciplines, including supply chain management. This study measures four latent variables, namely green supply chain management, supply chain relationship management, sustainable supply chain design, and circular economy capability of MSMEs, as well as 23 directly measured indicators.

2.3.2 Measurement model analysis

The purpose of measurement analysis is to verify the suitability of indicators in describing latent variables, by testing internal consistency (reliability), convergent validity, and discriminant validity. Cronbach's alpha and composite reliability are used for internal consistency (minimum value of 0.7 or 0.6 for exploratory research). Furthermore, AVE is used for convergent validity (≥ 0.5) and outer loading (≥ 0.7) (Hair et al., 2019).

Discriminant validity is assessed using the heterotrait-monotrait ratio (HTMT), with HTMT above 0.90 indicating the absence of discriminant validity (Henseler et al., 2015). Structural analysis describes the relationship between latent variables. Collinearity is measured through variance inflation factor (<3), while R^2 assesses endogenous variables and Q^2 assesses the predictive ability of the model (Hair et al., 2019). Path coefficients indicate the direction and strength of the variable relationship, with values close to 0 indicating a weak relationship (Franke et al., 2019).

3. Results and Discussion

3.1 Research context

This research focuses on MSMEs in Java and Bali, particularly in the cosmetics and fashion industries, which have the potential to support the circular economy due to their proximity to end-consumers and the ease with which they can recycle or reuse raw materials (Bappenas et al., 2021). Java Island accounts for 63.11% of Indonesia's total micro and small industries, with Central Java, East Java and West Java Provinces as the three main regions in terms of the number of MSMEs (Dihni, 2022). This research targets two of the five main sectors of the circular economy according to the LCDI, namely textiles and trade.

The textile sector generated 2.3 million tons of waste in 2019 and plays an important role as an employment provider in Indonesia, employing around 4.2 million people, and is the focus of the export strategy (Bappenas et al., 2021). Meanwhile, the wholesale and retail trade sector generates 6.8 million tons of waste per year. The amount of waste along with the total consumption of plastic from packaging is a major problem, especially in the cosmetics industry, which is a major source of waste experienced online sales growth of up to 80% during the pandemic (Ministry of Industry of the Republic of Indonesia, 2021).

3.2 Data analysis results

Prior to the main survey, a wording test was conducted with seven respondents (six fashion business owners and one cosmetics business owner) who had implemented the 3R concept. Out of 23 indicators, five indicators received feedback. Evaluation was conducted on several indicators of green supply chain management (GSC2 and GSC5), supply chain relationship management (SCR3 and SCR5), and one indicator of sustainable supply chain design (SCD2). All circular economy capability indicators were well understood by respondents. The results of this evaluation were used to revise the questionnaire language, which was then approved by the supervisor before being used in the main survey. Furthermore, the descriptive analysis showed the minimum, maximum, mean of each indicator, standard deviation, and variable mean of each research survey response. The minimum and maximum values are the lowest and highest answer choices of each variable. The results of the descriptive analysis of the N value (total respondents) of 72 are summarized in the following Table 1.

The Sustainable Supply Chain Design (SSCD) variable has an average value that almost reaches a value of 4, namely 3.980. Only indicators SCD1 (our company emphasizes environmentally friendly production technologies and processes), SCD2 (our company attaches great importance to environmentally friendly product design), and SCD6 (our company designs or optimizes ways to recycle waste) have a mean value around 4, while other indicators have an average value of 3. Indicators SCD3 (our company optimizes the location of logistics facilities to reduce demand for logistics needs), SCD6 (our company designs or optimizes ways to recycle waste), and SCD7 (our company provides recycling, sorting, and waste management centers) have high standard deviation values indicating that these three variables have a wide variety of answers between the values of 1 and 5, while other indicators have a more narrowed distribution of data.

The Circular Economy Capability variable has the lowest mean value compared to other variables, at 3.820. Only indicators KES1 (our company is committed to reducing raw material and energy consumption) and KES2 (our company takes the initiative to improve the energy efficiency of production equipment) have mean values above 4. However, almost all indicators, except KES1, have high standard deviation values. This shows that the distribution of the data is diverse. From the overall value of the table, it can be concluded that only the green supply chain management variable has answers that tend to be positive (strongly agree) while other variables are still scattered and diverse, seen from the minimum value, the majority of which are still at 1 and the maximum value at 5.

Table 1. Descriptive analysis results

Variables	Indicator	Min	Max	SD	Indicator Mean	Variable Mean
Supply Chain Relationship Management (SCRM)	SCR1	2.000	5.000	0.855	4.069	3.833
	SCR2	1.000	5.000	0.844	4.153	
	SCR3	1.000	5.000	0.986	3.486	
	SCR4	1.000	5.000	0.965	3.986	
	SCR5	1.000	5.000	1.013	3.472	
Sustainable Supply Chain Design (SSCD)	SCD1	1.000	5.000	0.864	4.444	3.980
	SCD2	2.000	5.000	0.666	4.528	
	SCD3	1.000	5.000	1.003	3.722	
	SCD4	1.000	5.000	0.870	3.722	
	SCD5	1.000	5.000	0.841	3.958	
	SCD6	1.000	5.000	1.054	4.167	
	SCD7	1.000	5.000	1.373	3.319	
Capability Economy Circular	KES1	2.000	5.000	0.862	4.250	3.820
	KES2	1.000	5.000	1.048	4.111	
	KES3	1.000	5.000	1.145	3.778	
	KES4	1.000	5.000	1.146	3.861	
	KES5	1.000	5.000	1.394	3.264	
	KES6	1.000	5.000	1.204	3.653	

3.3 Measurement model analysis

The survey results were then processed using SmartPLS software. The research variables tested are reflective, where the indicators are manifestations of the variables. Measurement model analysis is measured by three components, namely internal consistency, convergent validity, and discriminant validity.

Table 2. Outer loading value before removal

Variables	Indicator	Outer Loading Value
Supply Chain Relationship Management (SCR)	SCR1	0.681
	SCR2	0.702
	SCR3	0.668
	SCR4	0.768
	SCR5	0.850
Sustainable Supply Chain Design	SCD1	0.752
	SCD2	0.732
	SCD3	0.722
	SCD4	0.677
	SCD5	0.226
	SCD6	0.821
	SCD7	0.732
Circular Economy Capabilities	KES1	0.775
	KES2	0.673
	KES3	0.760
	KES4	0.790
	KES5	0.627
	KES6	0.658

Before measuring these three components, outer loading is one of the factors that can be considered. First, factor loading. The first step is to pay attention to the outer loading or factor loading value which shows that each indicator explains more than 50% with an outer loading value of> 0.70 (Hair, 2019). For exploratory research, the tolerable factor loading value ranges from 0.5 to 0.7. The following is the outer loading value for each indicator.

This study tries to remove indicators with an outer loading value below 0.6. Hair (2014) suggests that indicators that have an outer loading value between 0.40 and 0.70 can be removed if the removal can increase the composite reliability value. The GSC1 indicator with the question 'the company prioritizes green purchasing' on the green supply chain management variable with a value of 0.511 and SCD5 on the sustainable supply chain design variable with the question 'our company considers the dealer's ability to provide environmentally friendly products and packaging' has a very low value (0.226). Measurement and structural model analysis were then calculated from the model that had removed the GSC1 and SCD5 indicators.

Furthermore, there is an internal consistensy test which is useful for determining the reliability of the tested variables, the higher it indicates the more reliable the variable is. The measurement is based on the Composite Reliability value which must be> 0.70 and the recommended Cronbach's Alpha is> 0.70. Based on the test results in Table 3 the four variables tested in this study are reliable. In the green supply chain management variable, it can still be said to be reliable because the composite reliability value is above 0.70 and Cronbach's Alpha is not required to be 0.70 but only recommended (Hair et al., 2019).

Table 3. Internal consistency test

Variables	Composite Reliability	Cronbach's Alpha
Supply Chain Relationship Management (SCRR)	0.853	0.800
Sustainable Supply Chain Design (SCD)	0.880	0.838
Circular Economy Capability (CEC)	0.863	0.809

This study also conducted a convergent validity test which measures the extent to which convergent constructs can explain the variance of their items or in other words aims to measure the relationship between constructs and latent variables. The convergent validity measure uses the average variance extracted (AVE) which must be ≥ 0.5, which means that the construct can explain at least 50% of the variance of its items (Hair et al., 2019). Table 4 shows that the convergent constructs and latent variables are interconnected and the constructs can explain the variance of their items.

Table 4. Convergent validity test

Variables	Average Variance Extracted (AVE)
Supply Chain Relationship Management (SCR)	0.540
Sustainable Supply Chain Design (SCD)	0.552
Circular Economy Capability (KES)	0.513

Furthermore, the discriminant validity test measures the extent to which a construct is empirically different from other constructs in the structural model. Henseler et al. (2015) proposed the heterotrait-monotrait ratio (HTMT) which is the mean value of item correlations across constructs relative to the mean of the average correlations for items measuring the same construct. Henseler et al. (2015) suggested that HTMT values above 0.90 indicate that discriminant validity does not exist. In other words, if the correlation of each variable that is not worth 1 is said to have good validity. Table 5 shows that in this study, each variable is considered valid.

Table 5. HTMT values

	GSCM	KES	SCRM	SSCD
KES	0.803			
SCRM	0.714	0.420		
SSCD	0.710	0.662	0.648	

3.4 Structural model analysis

Structural model analysis aims to get an overview of the relationship between latent variables. Standard assessment criteria, which must be considered are R^2 which is the value of the coefficient of determination, Q^2, and significance using the path coefficient. Before analyzing the structural model, it is necessary to conduct a collinearity test to ensure that it does not make the regression results biased (Hair et al., 2019). The measurement uses the Variance Inflation Factor (VIF) where the ideal value is below 3.0. The results of this test show the inner VIF value, which is the result of calculating the relationship between each variable. The results show that the inner VIF value does not exceed the ideal value, which means that the results do not lead to bias.

Furthermore, there is a coefficient of determination (R^2) test that measures endogenous constructs, which is a measurement of the predictive power in the sample. The higher the R^2 value means that the prediction in the sample is getting stronger. Hair et al. (2019) provides guidelines around R^2, where if R^2 is 0.75 it is said to be substantial, 0.50 is said to be moderate, and 0.25 is said to be weak. Table 6 shows the R^2 and R^2 adjusted obtained by the Circular Economy Capability (KES) and Sustainable Supply Chain Design (SSCD) variables. The numbers in the table show that the R^2 value of the circular economy capability variable and sustainable supply chain design is in the medium range.

Table 6. R^2 Value

	R^2	R^2 Adjusted
KES	0.470	0.447
SSCD	0.349	0.340

The last structural test is predictive relevance (Q^2). This test is performed using the blindfolding technique in SmartPLS. The blindfolding technique removes single points in the data matrix, relates the removed points to the mean and estimates the model parameters (Hair et al., 2019). The Q^2 measurement is not a measure of out-of-sample prediction, but rather combines aspects of out-of-sample prediction and in-sample explanatory power (Hair et al., 2019). Its value should be greater than zero for a particular endogenous construct to indicate the predictive accuracy of the structural model for that construct. The cross-validated redundancy approach is used in this study to calculate the Q^2 value using the default Omission Distance(D) value, which is 7. Table 7 shows that the model and endogenous latent variables in this study have predictive relevance due to endogenous variables that are valued at more than 0, namely the Circular Economy Capability variable with 0.211 and the Sustainable Supply Chain Design (SSCD) variable with a value of 0.179.

Table 7. Predictive relevance test results (Q^2)

	SSO	SSE	Q^2 (=1-SSE/SSO)
KES	432	340.76	0.211
SCRM	360	360	
SSCD	432	354.62	0.179

3.5 Hypothesis testing

After analyzing the measurement and structural models, the final step is to analyze the significance of each research variable using the bootstrapping technique in SmartPLS. Bootstrapping settings are as follows: subsample of 5000, one tailed research type, and significance level of 0.05. Variables can be called significant if the T-value is $\geqslant$1.645. In addition, the P-value is used to measure the significance of the effect on the variable. The requirement to be considered significant is P-value <0.05. Table 8 illustrates the results of the direct path coefficient using the bootstrapping technique.

It is known that the sustainable supply chain design (SSCD) variable significantly positively affects the circular economy capability (KES) with a T-value of 2.304 and a P-value of 0.011. The supply chain relationship management (SCRM) variable significantly positively influences the sustainable supply chain design (SSCD) variable with a high T-value of 8.644 and a P-value of 0.000. In this direct path measurement, the supply chain relationship management (SCRM) variable has no effect on the circular economy capability variable, as seen from the T-value of less than 1.65 (value 0.855) and the P-value exceeding 0.05 (value 0.196).

Table 8. Direct path value

	Original Sample	Sample Mean	Standard Deviation	T-Value	P-Value
SCRM → SSCD	0.591	0.622	0.068	8.644	0.000
SSCD → KES	0.414	0.461	0.180	2.304	0.011

In addition, the indirect path value was also measured, measuring the indirect effect of the tested variables. From the results of the calculation, it can be concluded that although the supply chain relationship management (SCRM) variable does not directly affect the circular economy capability (KES) variable. Furthermore, it is known that the variable indirectly affects circular economy capability through the mediating variable of sustainable supply chain design (SCD) with a T-value of 2.176 and a P-value of 0.015. The following table shows the results of hypothesis testing based on the direct path coefficient value specifically against the T- value of each correlation relationship in this study, as well as its comparison with the results of the reference research hypothesis.

Table 9. Summary of research hypotheses

Hypothesis	Hypothesis Statement	Reference Research Results	Research Results
H1	Supply chain relationship management positively influences sustainable supply chain design.	Accepted	Accepted
H2	Sustainable supply chain design positively influences capability circular economy	Accepted	Accepted

Based on Table 9., it can be seen that of the four hypotheses in the study, there are three calculations that support the accepted hypothesis as follows. H1 (Supply chain relationship management positively influences sustainable supply chain design), and H2 (Sustainable supply chain design positively influences circular economy capability). These hypotheses are determined based on the results of bootstrapping calculations, the components of which are the path coefficient, T value, and P value.

H1: Supply chain relationship management positively influences sustainable supply chain design.

The hypothesis that supply chain relationship management positively influences sustainable supply chain design is accepted, with a T-value of 8.644 and a P-value of 0.000. The T-value in the relationship between the two has the highest significant value compared to other variable relationships. The results are in line with the findings of Zeng et a. (2017) which show that supply chain relationship management positively affects the sustainable supply chain design of eco-industrial park companies in China.

Zeng et al. (2017) said that relationships or cooperation with suppliers that can offer environmental. In other hand social benefits are the basis for implementing sustainable supply chain design and enable the provision of environmentally friendly products or services to customers. This research agrees with previous researchers, where sustainable supply chain design (SSCD) which models the supply chain network to maximize long-term benefits in the three pillars of sustainability requires a combination of effective suppliers, manufacturers, and distributors.

H2: Sustainable supply chain design positively influences circular economy capabilities

The hypothesis that sustainable supply chain design positively influences circular economy capabilities is accepted, with a T-value of 2.304 and a P-value of 0.011. This hypothesis has the same end result as the study by Zeng et al. (2017) on eco-industrial park companies in China, indicating that MSMEs also have high potential to implement more environmentally friendly production designs. SSCD in this study considers several factors, namely efforts to use more environmentally friendly technology, environmentally friendly design, use of more efficient logistics modes and facilities, and efforts to implement waste sorting and recycling processes.

Judging from the high standard deviation value of each indicator in sustainable supply chain design, it can be said that not all MSMEs that are the unit of analysis of this study are able to implement all of them, but at least some can be applied. The original path value of 0.414 from the relationship between the sustainable supply chain design variable and circular economy capability shows that if MSMEs implement a sustainable supply chain in their supply chain, it will affect 41.4% of their circular economy capability. With a sustainable supply chain design, it is easier for MSMEs to implement the 3R concept in their business.

3.6 Effect of supply chain relationship management on sustainable supply chain design

Supply chain relationship management positively influences sustainable supply chain design, as evidenced by the T-value of 8.644 and P-value of 0.000. Although supply chain relationship management (SCRM) cannot directly influence the circular economy capabilities of MSMEs, the relationships between business owners and suppliers, distributors, and dealers or retailers are the parties that support sustainable business patterns. In this study, the manifestation of the sustainable supply chain design (SSCD) variable consists of environmentally friendly production technology and processes, environmentally friendly product design, location of logistics facilities, transportation modes, dealers' ability to sell products, recycling efforts, and availability of recycling or sorting places. All of these indicators require external parties, so to realize sustainable supply chain design, there needs to be contributions from certain parties.

In this study, indicators relating to the ability of dealers to provide environmentally friendly products and packaging were removed, due to the limited number of dealers or sellers that have business models that emphasize sustainability. In addition, if MSMEs from these two industries only sell their products through more sustainable sellers, their consumer reach becomes narrower. If MSME players place their products with certain dealers or retailers, the packaging of the products will depend on the terms of the seller.

For the cosmetics industry, sustainable design can be applied starting from the production process. The majority of MSMEs in this study use natural raw materials so as to minimize the danger of chemical waste. The reuse concept described by the Ellen McArthur Foundation consists of two types, namely refill (consumers can refill the same product) or return (packaging is returned to the manufacturer). In this study, MSMEs tried to implement the concept of return, some implemented it by encouraging consumers to send their packaging back through expeditions, some worked with offline retailers who provided dropbox points for consumers to put packaging waste in the box. These efforts can be successful thanks to the incentives provided by the MSMEs themselves, as a means to maintain consumer loyalty as well.

As for the fashion industry, the technology used is still traditional, especially for MSMEs that sell their clothes in the form of woven fabrics. The majority try to prevent overproduction so that there is no deadstock. However, there are also MSMEs that specialize in utilizing deadstock products to make new products. Unlike the cosmetics industry, which can return product packaging for recycling, the fashion industry utilizes the patchwork produced during production. The scheme of returning used clothing to the manufacturer is almost non- existent, but it does not rule out the possibility that used clothing can be resold by consumers with the concept of thrift shops or warehouse washing.

Regarding the use of logistics facility locations and transportation modes, MSMEs have limited ability to control them. This is because MSMEs in both industries place their products on various platforms, so the location of logistics facilities must adjust to the location of the cooperating dealers. The ability to choose the mode of transportation is also limited, due to limited capital, MSMEs will utilize third-party delivery services that are more affordable.

3.7 Effect of sustainable supply chain design on circular economy capability

Sustainable supply chain design positively influences circular economy capability, as seen from the T-value of 2.304 and P-value of 0.011, which indicates the significance of the effect. As a configuration model that enables the creation of long-term benefits in the three pillars of sustainability, sustainable supply chain design (SSCD) has a concept that is aligned with the 3R concept in the circular economy: reduce, reuse, and recycle (Ghisellini et al., 2016). Some of the indicators in this study, as a manifestation of the concept of sustainable supply chain design, can encourage every business not to make the final stage of production a waste, but a restoration. Efforts to use technology and create more environmentally friendly products can be realized by applying the concepts of reduce (reducing waste of raw materials), reuse (utilization of deadstock in the fashion industry), or recycle (recycling cosmetic packaging).

Of the three concepts in the circular economy (3Rs), the majority of MSMEs in this study seek to reduce resource use in their production processes. This is reflected in the screening question on the questionnaire, where 91.7% seek to reduce waste, pollution or resources in production. This condition is also supported by the survey results, which show that the majority of MSMEs are committed to reducing the consumption of raw materials and energy with the percentage of answers strongly agreeing by 48.6% and agreeing by 31.9%. In addition to the commitment to reduce raw material and energy consumption, the majority of MSMEs also take the initiative to improve the energy efficiency of their production equipment, as evidenced by the percentage of strongly agreeing 45.8% and agreeing 30.6%. For the cosmetics industry, one of the efforts made is to reduce the use of chemicals and switch to natural ingredients. As for the fashion industry, the majority minimize production to prevent stock accumulation.

On circular economy indicators related to reuse, the approaches of the two MSME industries are different. Efforts to use packaging raw materials repeatedly can only be applied by cosmetics industry MSMEs. Some MSMEs have made efforts to collect packaging bottles for reprocessing or to give them to parties who can process them better. As for the fashion industry, product packaging only comes from protective packaging for shipping, making it impossible to implement a packaging return program.

What can be done by fashion industry MSMEs is the recycling of waste generated by the manufacturing process, reflected in the condition of patchwork fabrics that can be modified into proper clothing. This has been done by several MSMEs that specifically issue exclusive collections resulting from the reutilization of fabric waste. This reflects the efforts of fashion industry MSMEs to reprocess fabric waste into a new product that has selling value. Meanwhile, for cosmetic industry MSMEs, the waste generated by the manufacturing process cannot be reused, only the packaging. The realization of a closed loop pattern in the production process of fashion and cosmetics industry MSMEs is supported by the concept or design of sustainable supply chain management. Therefore, it can beIt concluded that sustainable supply chain design can influence the circular economy capabilities of MSMEs in the fashion and cosmetics industry in Indonesia.

4. Conclusions

This study analyzes the influence of sustainable supply chain management (SSCM) on circular economy capability to demonstrate the consistency of SSCM capability in achieving economic benefits accompanied by the reduction of resource consumption and waste emissions through a closed-loop pattern of material and energy use. The SSCM concept combines sustainable development and supply chain management which requires strategic integration of the economic, environmental and social objectives of the enterprise; and considers the long-term economic benefits of the enterprise and the entire supply chain with system coordination of all aspects of the organization. Specifically, this research seeks to find the factors that most influence MSMEs specifically the fashion and cosmetics industry in implementing the circular economy concept.

The research results obtained in this study can be presented as follows. First, supply chain relationship management has a positive effect on sustainable supply chain design in fashion and cosmetics industry MSMEs. Second, sustainable supply chain design has a positive effect on circular economy capability of fashion and cosmetics industry MSMEs. In general, sustainable supply chain management can directly influence the circular economy capabilities of MSMEs in the fashion and cosmetics industry in Indonesia through the implementation of green supply chain management, supply chain management that emphasizes eco-friendly production conditions, and the implementation of sustainable supply chain design. The relationship between parties in supply chain management will affect circular economy capability only if there is a sustainable supply chain design. This is due to the limitations of MSMEs in influencing the parties involved in their business. With this, it can be concluded that MSMEs in the fashion and cosmetics industry in Indonesia have the potential for improve its circular economy capabilities.

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Author Contribution
This research was conducted collaboratively by T.M.N. was responsible for conceptualization, methodology, investigation, as well as writing—preparation of the original draft. Meanwhile, R. D. K. contributed to the writing—reviewing and editing, as well as supervising.

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