

Circular Economy Adoption: Government Funding And Business Innovation Towards Net Zero Waste And Sustainable Performance Of Msmes In Bali Province

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Abstract

Business innovation through the adoption of a circular economy is an effort to increase the contribution of MSMEs in achieving sustainable performance. Still, the obstacles MSMEs face are related to the government's funding support, which is often influenced by budget politics. This study aims to analyze the adoption of a circular economy, government funding, and business innovation to achieve net-zero waste and sustainable performance among creative MSMEs in Bali Province. This type of research is quantitative, data collection using a questionnaire with a Likert scale of 1-5 and random sampling techniques. The population comprises 390 MSMEs. The research data were analyzed using Structural Equation Modeling. This research utilizes net zero waste and sustainable performance as endogenous variables, and examines circular economy, funding, and business innovation as exogenous variables. The circular economy, government budget funds, and business innovation have a positive and significant impact on sustainable performance. Net-zero waste can moderate the effect of the circular economy on sustainable performance. Still, it cannot mitigate the impact of government budget funding and business innovation on sustainable performance.

Keywords: circular economy, business innovation, funding, net zero waste, sustainable performance.

1. INTRODUCTION

The world is currently experiencing a crisis of ecological awareness, where consumerism leads humans to engage in consumption activities without restraint. Ultimately, this behavior presents a business opportunity for producers to maximize their profit. The impact is the unavoidable damage to the earth and even extreme weather changes that occur due to human indiscipline (Alfarizi, 2023). The current development concept has yet to fully maximize the reduction of irresponsible behavior from consumers and producers. Therefore, the Sustainable Development Goal (SDG) is expected to serve as an adaptive development model for human life, particularly by avoiding exploitative practices. One alternative concept that emerged in the implementation process by prioritizing sustainability is the Circular Economy, which is the answer to the mainstream economic concept that has so far been the economic development model used throughout the world (Daubaraitė & Startienė, 2015) (Bahena, 2024). The conventional economic model that has been moving in one direction (linear economy) through take, make, and dispose is starting to be abandoned because it is considered to be one of the causes of the environmental crisis (Sillanpää & Ncibi, 2019).

The waste problem remains a complex issue nationwide. The volume of waste in Bali Province in 2021 reached 915.5 thousand tons, equivalent to approximately 4,900 tons per day. This phenomenon has raised concerns for various parties, as it impacts all sectors, including the development sector in Bali. The increase in the volume of waste in Bali is directly proportional to the massive consumption activities of the community (Suasih et al., 2024). The impact on the environment is very significant, so strategic steps are needed to overcome the waste problem by changing people's lifestyles (Ardiyanto et al., 2024). Starting from these problems, the application of the circular economy principle is necessary to address the root of the issue through the Zero Waste Cities program in Bali. This program is strengthened by Regulation No. 47 of 2019 of the Governor of Bali Province concerning Source-Based Waste Management. However, the zero waste cities program has been implemented in several areas in Bali Province; along the way, it still

needs to be improved in the field due to the lack of community participation (Muliarta, 2023). It takes a lot of effort to change people's lifestyles through circular patterns (Muliarta et al., 2023).

All business sectors are encouraged to transform towards innovation by ensuring environmental sustainability, reducing resource pollution and waste, and achieving economic, environmental, and social efficiency (Mio et al., 2022). Micro, Small, and Medium Enterprises are currently encouraged to adopt business models based on sustainable development, competitive advantage, and environmental efficiency. However, the problem is that MSMEs are businesses with a very competitive environment and still have philosophical constraints of resources that are not yet optimal, so they must focus on innovation and circularity that are oriented towards sustainability to ensure their survival (Rasheed & Siddiqui, 2022)

This study aims to analyze the adoption of a circular economy, government budget support, business innovation towards net-zero waste, and the sustainable performance of MSMEs in Bali Province. Previous studies have not fully revealed the role of the government, especially budget allocation, in encouraging MSMEs to adopt sustainable roles through circular economic innovations integrated into business models (Cavicchi & Vagnoni, 2022); (Uii & Sugarindra, 2023); (Sarfraz et al., 2021). Several regions in Bali Province have implemented a circular economy, and it is expected to become one of the regions focusing on developing sustainable MSMEs as part of the Green Economy vision.

2. LITERATURE REVIEW

Legitimacy Theory by (Dowling & Pfeffer, 1975) is adopted by companies and community values. This theory focuses on the interaction between companies and society. Building a corporate strategy can utilize community legitimacy, especially in efforts to position oneself in an increasingly advanced society. Sustainable business encompasses not only environmental aspects but also other key concerns, including economic, social, legal, and behavioral considerations that impact the company. In addition, implementing sustainable business practices encourages companies, especially manufacturers, to seek alternative, more environmentally friendly raw materials.

Resource-based View (RBV) is a critical theory that improves our understanding of outsourcing decisions (Hitt et al., 2016). In particular, RBV Theory can assist in analyzing organizational capabilities, linking outsourcing to organizational performance and, in turn, competitive advantage. In general, the Resource View is used to analyze organizational capabilities relative to competitors and suppliers in the context of outsourcing (Ismail et al., 2020).

Zero waste was originally a waste management concept that later became one of the solutions to the waste problem that occurred (Zaman, 2022). This behavior emphasizes the balance in the relationship between humans and nature, highlighting the need for humans to develop ecological awareness. Zero waste behavior is also often associated with the concept of a circular economy, a concept that applies waste processing with the process of reducing, reusing, recycling, recovering energy, and final disposal (Nkomo, 2019). Zero-waste behavior is considered essential in supporting a circular economy. Zero waste covers all human activities. So that all areas of life and all human activities can apply this principle. The expected benefits of this Zero Waste concept are supporting economic sustainability, environmental carrying capacity, and social carrying capacity. Net Zero Waste is a concept that aims to achieve zero waste sent to the Final Disposal Site (TPA). This means that net zero achieves a balance between the amount of waste produced and the amount of waste recycled or processed, without producing waste that cannot be processed (Saleh et al., 2020) Achieving net zero waste means reducing, reusing, and repairing used goods, adding value to them so that they do not need to be disposed of in landfills.

Sustainable Performance is the harmonization of environmental and financial objectives in the implementation of core business activities to maximize value. Commitment to environmental sustainability drives leadership, investment, and operational expertise to create value and deliver superior business performance for partners and society. Actual sustainability performance is important because it is viewed as a corporate strategy that utilizes the best business techniques for current and future needs (Dočekalová et al., 2015). Along with the growing concerns of stakeholders and managers about environmental sustainability and existing social conditions, there has been a shift in the form of financial report disclosure to the use of sustainability report disclosure (Rosati & Faria, 2019). Sustainability performance is a form of accountability and communication of how company activities contribute

positively or negatively to sustainable development (Spallini et al., 2021). Sustainability performance is assessed as a unity between the social, economic, and environmental objectives of a company's activities, which can increase company value (Nigri & Baldo, 2018). Companies strive to achieve long-term benefits by engaging in sustainable activities that are integral to the company's core strategy.

The concept of a circular economy emphasizes the importance of creating a closed cycle where used materials can be recycled and reused in the production process (Jawahir & Bradley, 2016). It contrasts with the linear economic model that produces large amounts of waste and uses natural resources unsustainably. In a circular economy, products are designed to be recycled, and unused materials are transformed into inputs for other production processes (Suzanne et al., 2020). The circular economy creates a more sustainable model of production and consumption. Raw materials are retained in the production cycle for longer and can be reused, resulting in reduced waste. The circular economy is not just about improving waste management through recycling, but also encompasses a wide range of interventions across all sectors of the economy, including resource efficiency and reducing carbon emissions.

A business is required always to make its best decisions to ensure the company's survival. The literature on business financing decisions focuses on the choice between equity and debt, which is mainly discussed in the capital structure literature (Orlova et al., 2020). Management plays a role in determining the capital structure or business funding policy. Decision-making on this funding policy is very important for a business because of the difficulty of implementing and determining the ideal capital structure for a business (Dada & Ghazali, 2016). The government can provide funds sourced from APBN revenues, allocated to regions, mainly for MSMEs, to equalize economic capacity between regions and fund regional needs in implementing decentralization.

Innovation is creating or developing a new product, process, or idea that can improve industry performance. In an industry, innovation capability integrates the organization's core capabilities and resources to drive innovation successfully to achieve optimal organizational performance (Rumanti et al., 2022; Della Corte et al., 2019). The industry's ability to innovate also reflects the ability to continuously transform knowledge and ideas into new products, processes, and systems for the benefit of the organization and its stakeholders (Chen et al., 2018). Therefore, innovation is considered a valuable asset for an industry, providing and maintaining a competitive advantage, and implementing strategies to improve organizational performance.

3. Hypothesis Development

Circular economy innovation has become a new trend in the business world, enabling the achievement of sustainable development goals. The circular economy innovation approach is considered a solution-based approach to achieving economic growth that is limited by environmental constraints (Jabbour et al., 2019). To achieve sustainable development, a circular economy has emerged as an attractive alternative. The circular economy offers a different approach to managing natural resources by minimizing waste and extending the life of products through more efficient production practices (Gusmerotti et al., 2019). This concept shifts the traditional view of resources from raw materials that are processed into consumer goods, which are then discarded after use, to a sustainable cycle in which materials can be recycled and reused in the production process.

H₁: Circular Economy Adoption Affects Sustainable Performance of MSMEs in Bali Province

The government has provided People's Business Credit (KUR) assistance of up to IDR 450 trillion. The government also encourages access to funding, financial facilities, and support for MSMEs to participate in the DigiPay ecosystem (purchase of government goods/services) or other e-commerce ecosystems. Integrating innovative business practices and circular economy integration in MSME regulations with government budget support can be an innovation trend that drives business efficiency and profit in the economy, and the social environment (Alfarizi, 2023); (Tang et al., 2022)

H₂: Government budget funds affect the sustainable performance of MSMEs in Bali Province.

Business units, including MSMEs, are currently trying to engage in sustainability-oriented innovation through innovative business model practices and circular economy innovations to achieve economic, environmental, and social efficiency within the company (Auwalin et al., 2022; Koval et al., 2022). These

innovative practices aim to promote closed-loop production and eco-efficiency in operations, innovate business structures, improve production and consumption efficiency, and apply the concept of circular invention.

H₃: Business innovation affects the sustainable performance of MSMEs in Bali Province.

The presence of the net-zero waste program focuses on environmentally friendly waste management by prioritizing sustainable principles and justice for the community (Pietzsch et al., 2017). The Zero Waste Cities program in Bali is expected to enhance the sustainable performance of the MSME sector. Active community participation is crucial for achieving a sustainable movement that has a positive impact on both society and the environment. Thus, the waste problem can be resolved, and the principle of a circular economy can be achieved, including business activities in MSMEs (Ilham, 2023).

H₄: Net-zero waste moderates the influence of circular economy adoption on the sustainable performance of MSMEs in Bali Province.

The opportunity for Indonesian MSMEs to compete with other large businesses must be accompanied by government funding, given that the MSME sector plays a crucial and strategic role in the national economy. This is evident in the increasing trend of MSMEs, their growing contribution to GDP, and the rising employment absorption. Companies' environmental management and environmental protection can be motivated by government regulations. The government is also advised to improve environmental practices and prevent damaging actions through the use of subsidies and taxes (Abdmouleh et al., 2015). In line with that, (Martínez & Poveda, 2022) Demonstrate that financial support from policymakers is crucial for micro and small businesses to achieve sustainable economic growth and implement environmentally friendly practices, such as effective environmental management.

H₅: Net-zero waste moderates the effect of government budget funds on the sustainable performance of MSMEs in Bali Province.

Sustainable performance (Auwalin et al., 2022) is viewed from both the profit side and the social and environmental aspects. Companies utilize their capabilities to leverage resources and explore business opportunities (Ilham, 2023). Understanding the current innovative ecosystem is very important for a sustainable business. In implementing it, medium and large companies can maintain sustainability and achieve readiness among all stakeholders, ensuring the company is always prepared to respond to business transformation.

H₆: Net-zero waste moderates the influence of business innovation on the sustainable performance of MSMEs in Bali Province.

4. METHODOLOGY

This study uses a quantitative description, and data were collected using a questionnaire based on a 1-5 Likert scale, referencing primary sources. This study was conducted in the Province of Bali. The research population comprises the entire population of MSME actors in the Province of Bali, consisting of 54,569 individuals. By setting a margin of error = 5%. Sample selection using the Slovin formula obtained 390 MSME actors in the province of Bali. The research data were analyzed using Structural Equation Modeling with WarpPLS 7.0 software. The dependent variable used in this study is sustainable performance. The independent variables are adopting a circular economy, government budget funds, and business innovation, with net zero waste as a moderating variable. The research aims to gather evidence that sustainable performance influences the circular economy, government budget allocation, and business innovation, all of which are mediated by net-zero waste.

Table 1. Sample Presentation

Questionnaires Criteria	Observations Number
distributed	390
not returned	0
returned	390
could not be processed	0
could be processed	390

Table 2. Questionnaire Indicators

Variable	Definition	Indicator
Circular Economy (X1)	An economic system or model that aims to generate economic growth by maintaining the value of products, materials, and resources in the economy for as long as possible, thereby minimizing social and environmental damage caused by the linear economic approach (Ionescu et al., 2017)	1. Raw material efficiency 2. Procurement of environmentally friendly products 3. Maintaining the surrounding natural area 4. Recycling 5. Waste utilization
Government budget funds (X2)	Financial contributions provided by ministers, heads of institutions, and/or regional heads according to their respective authorities, based on laws and regulations, to improve financial feasibility Provision of Priority Infrastructure Cooperation between the Government and the Private Sector (Hashim, 2014)	1. Budget planning based on Law 2. Budget design 3. Procurement 4. Implementation 5. Supervision
Business Innovation (X3)	The ability to compile, develop, deliver, and scale new products, services, processes, and business models for customers (Parmar et al., 2014)	1. Creating new products 2. Creating product processes 3. Product development 4. Product process improvement
Sustainable Performance (Y)	The ability of an organization to achieve its goals in an economically, socially, and environmentally responsible manner (Kraus et al., 2020)	1. Accountability 2. Environmental protection 3. Contribution to sustainable development 4. Performance evaluation
Net Zero Waste (Z)	Concept and approach that aims to reduce or even eliminate waste production through changes in lifestyle, consumption behavior, and production practices (Hamid et al., 2020)	1. Reduce (waste reduction) 2. Reuse (reuse) 3. Recycle (waste recycling) 4. Recover (recovering waste that can be reused) 5. Disposal (final disposal)

Research model:

$$Y = \gamma_1 X + \gamma_2 M + \gamma_3 XM + \varepsilon$$

where,

Y: Endogenous variable

X: Exogenous variable

γ : Coefficient of influence of exogenous latent variable on endogenous latent variable

M: Moderation variable

5. ANALYSIS RESULTS

The use of WarpPLS 7.0 as a data analysis technique in the study is based on the moderating variable test, which assesses whether it is feasible for each indicator in each variable. The outer test and inner model test are used to prove the large or small influence of the path coefficient of an exogenous variable on an endogenous variable (Kock, 2020). The following is a WarpPLS test in a study that obtained results from outer model and inner model information.

1. Evaluation of the Outer Model Test (Measurement Model)

Testing the validity and reliability of the outer model as a test of a research instrument. The convergent validity and discriminant validity instruments are used to measure validity. Convergent validity refers to the relationship between the reflective indicator score and the latent variable score.

Table 3. Convergent Validity

Variable	Indicator	X1	X2	X3	Z	Y
X1	X1.1	0.768*				
	X1.2	0.782*				
	X1.3	0.767*				
	X1.4	0.733*				
X2	X2.1		0.883*			
	X2.2		0.934*			
	X2.3		0.846*			
	X2.4		0.753*			
X3	X3.1			0.762*		
	X3.2			0.827*		
	X3.3			0.905*		
Z	Z1				0.731*	
	Z2				0.739*	
	Z3				0.773*	
Y	Y1					0.719*
	Y2					0.716*
	Y3					0.712*
	Y4					0.678*

Source: processed data

*P-Value=<0.001 (Valid)

This validity meets the criteria if the loading value is ≥ 0.5 and 0.6. It is known that the combined loadings and cross-loading values have met the requirements, so the validity is met.

Table 4. Convergent Validity

Z*X1		Z*X2		Z*X3	
Z1*X1.1	0.733	Z1*X2.1	0.800	Z1*X3.1	0.730
Z1*X1.2	0.843	Z1*X2.2	0.864	Z1*X3.2	0.822
Z1*X1.3	0.838	Z1*X2.3	0.749	Z1*X2.3	0.873
Z1*X1.4	0.726	Z1*X2.4	0.755		
Z2*X1.1	0.861	Z2*X2.1	0.901	Z2*X3.1	0.886
Z2*X1.2	0.827	Z2*X2.2	0.882	Z2*X3.2	0.924
Z2*X1.3	0.694	Z2*X2.3	0.705	Z2*X3.3	0.897
Z2*X1.4	0.696	Z2*X2.4	0.782		

Z3*X1.1	0.801	Z3*X2.1	0.798	Z3*X3.1	0.727
Z3*X1.2	0.844	Z3*X2.2	0.845	Z3*X3.2	0.845
Z3*X1.3	0.751	Z3*X2.3	0.705	Z3*X3.3	0.897
Z3*X1.4	0.707	Z3*X2.4	0.751		

Source: processed data
P Value=<0.001 (Valid)

Reflective indicator measurement based on cross-loading against its latent variables to test discriminant validity. Discriminant validity for questionnaires can be proven by comparing the average variance extracted value on each latent variable to the correlation between the related latent variables and other latent variables. The requirement for the square root of the average variance extracted (AVE) value must be greater than the correlation of the related variables; then, it is said that discriminant validity has been met.

Table 5. Discriminant validity

<i>Correlations among l.vs. With sq. rts. of AVEs</i>								
	X1	X2	X3	Z	Y	Z*X1	Z*X2	Z*X3
X1	0.771*							
X2		0.721*						
X3			0.800*					
Z				0.780*				
Y					0.779*			
Z*X1						0.785*		
Z*X2							0.703*	
Z*X3								0.756*

Source: processed data

Table 5 demonstrates that the AVE requirement value for each variable, based on data from 390 respondents, is greater than the correlation between latent variables in the same column. It means that discriminant validity is acceptable. Then, the reliability test is required to determine the feasibility level of each variable in this study. Reliability measurement is required through two instruments: composite reliability and Cronbach. Composite reliability is said to be a value that measures the stability and consistency of a combined measurement. The questionnaire has good composite reliability if the composite reliability value meets the requirement of ≥ 0.7 . For the Cronbach alpha value, the requirement is ≥ 0.5 to 0.6 , which is considered a sufficient value in reliability.

Table 6. Latent variable coefficients

	X1	X2	X3	Z	Y	Z*X1	Z*X2	Z*X3
Coefficients:								
R-squared					0,586			
Adjusted R-squared					0,576			
Composite reliability	0,755	0,809	0,842	0,772	0,719	0,779	0,795	0,799
Cronbach's alpha	0,767	0,784	0,718	0,704	0,713	0,769	0,723	0,718
Average variances extracted	0,637	0,620	0,639	0,662	0,661	0,635	0,653	0,609
Full collinearity VIFs	1,378	1,132	1,269	2,034	2,882	1,544	1,336	1,432
Q-squared					0,392			

Source: processed data

Table 6 shows that the composite reliability value of each variable exceeds 0.7, and the Cronbach's alpha value is above 0.5, indicating that all variables meet the reliability requirements. The R-squared value in the study is 0.586, indicating that the independent variables and moderating variables can explain 58.6%

of the variation in sustainable performance variables. In comparison, other variables influence the remaining 41.4%. The full collinearity VIF value, as a test result, must be small (<3.3) under the condition that the model is free from vertical collinearity problems. Table 6 proves that the full collinearity VIF value requirement is accepted. In measuring the Q-square coefficients, the condition is used in the assessment of predictive validity, which can be negative and greater than (> 0), where Table 6 shows that the value of 0.392, which means greater than (> 0), so that it is said to be valid.

Hypothesis testing is conducted to address the issues raised in this study, as well as to interpret the findings of the data analysis. Hypothesis testing is performed within the research framework to analyze and evaluate the direct and indirect relationships between exogenous variables and endogenous variables, utilizing a moderation model. The level of significance of this hypothesis test is determined by examining the value of the p-value. The study is declared good on the condition that the structural model meets the required standards (Kock, 2015) Table 7 contains test items and standard inner model test values used to measure the model's strength.

Table 7. Model Fit and Quality Indices

Model Fit and Quality Indices	Criteria Fit	Index
Averages:		
Path coefficient	$p < 0.05$	0,165*
R-squared		0,386*
Adjusted R-squared		0,376*
Block VIF	acceptable if ≤ 5 , ideally ≤ 3.3	1,316*
Full collinearity VIF		2,751*
Tenenhaus GoF	small ≥ 0.1 , medium ≥ 0.25 , large ≥ 0.36	0,400**
Ratio:		
Sympson's paradox	acceptable if ≥ 0.7 , ideally = 1	1,000*
R-squared contribution	acceptable if ≥ 0.9 , ideally = 1	1,000*
Statistical suppression	acceptable if ≥ 0.7	1,000*
Nonlinear bivariate causality direction		0,800*

Source: processed data

* Fulfilled

** Fulfilled, large category

Based on the output results of Table 7, it is known that the fit and quality indices model for all criteria from the APC, ARS, AARS, AVIF, AFVIF to GoF values have met the requirements so that the structural model can be accepted and can be used as an analysis.

6. RESEARCH RESULTS

Figure 1 shows a direct relationship between the variables studied, where the output results are in the form of a model and the results of the path analysis test. The output results from Table 8, in the form of path coefficient values, are used to determine the magnitude of the influence of direct and indirect relationships (moderation). The output results of WarpPLS 5.0 are stated as the analysis results whose data have been standardized. The results of the direct influence test in this study, shown in Figure 1 and Table 8, are interpreted as follows: (1) The path coefficient value from the circular economy to sustainable performance is 0.330, and the p-values <0.001 which means highly significant, so it is stated that the circular economy has a positive and significant effect on sustainable performance. (2) The path coefficient value from the government budget fund to sustainable performance is 0.197, and the p-values <0.001 , which means highly significant, so it is stated that the government budget fund has a positive and significant effect on sustainable performance.

1. The path coefficient value from business innovation towards sustainable performance is 0.251, and the p-value is <0.001 , which indicates a highly significant effect. Therefore, it can be stated that business innovation has a positive and significant impact on sustainable performance.

2. The path coefficient value from net zero waste moderating the circular economy's impact on

sustainable performance is 0.152, and the p-value is <0.001, indicating a highly significant result. Therefore, it can be stated that net zero waste moderates the influence of the circular economy on sustainable performance.

3. The path coefficient value from net zero waste moderating the government budget fund on sustainable performance is 0.025, and the p-values are 0.310 > significance level 0.05, so it is stated that net zero waste cannot moderate the influence of the government budget fund on sustainable performance.

4. The path coefficient value of net zero waste moderating business innovation on sustainable performance is 0.036, and the p-value is 0.240 > significance level 0.05, so it is stated that net zero waste cannot moderate the influence of business innovation on sustainable performance.

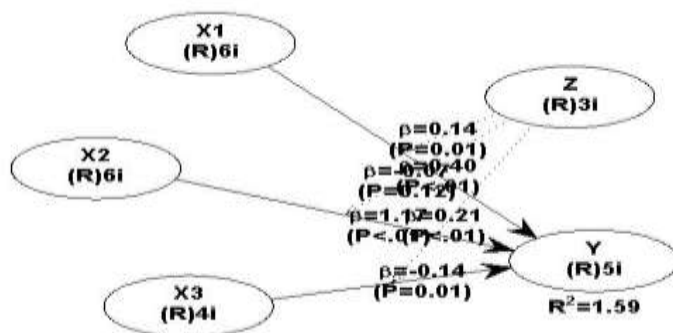


Figure 1. Results of the direct effect and indirect effect analysis tests

Variable	Criteria	
	Path coefficients	P Values
Circular Economy (X1)	0,330	< 0,001***
Government Budget Fund (X2)	0,197	< 0,001***
Business Innovation (X3)	0,251	< 0,001***
Circular Economy*	0,152	< 0,001***
Net Zero Waste (Z*X1)	0,025	0,310*
Government Budget Fund *	0,036	0,240*

* Hypothesis testing decision, obtained p-value ≤ 0.10 then weakly significant, p-value ≤ 0.05 then significant and p-value ≤ 0.01 then highly significant

6. DISCUSSION

Based on the results of the study, the first hypothesis is accepted, which means that the circular economy has a significant positive effect on sustainable performance, which is in line with research conducted by (Chowdhury et al., 2022; Le et al., 2022; Dey et al., 2022; Nudurupati et al., 2022; Siddik et al., 2023). Their research stated that implementing a circular economy in a business can achieve sustainable business performance in the country market, especially in developing countries. Sustainability encourages responsible resource management. It helps reduce and mitigate wasteful spending while simplifying processes to increase efficiency. This makes MSME businesses more attractive to customers seeking high-quality products and services, as well as investors interested in positive long-term business growth. A circular economy can encourage resource optimization, reduce raw material consumption, and recover waste by recycling or turning it into new products. The circular economy can reduce the use of materials, redesign materials and products to be more resource-efficient, and reuse waste as a resource to produce new materials and products (Singh & Prakash, 2016). So that the circular economy can generate economic growth developed by MSMEs by maintaining the value of products, materials, and resources in the economy for as long as possible, thereby minimizing the social and environmental damage caused by the old linear economic approach, implementing the circular economy principle can reduce the volume of waste in Bali and preserve the environment.

Furthermore, the results of the following study showed that the results of the second hypothesis were accepted, which means that government budget funds have a significant effect on sustainable

performance, according to research conducted by (Hussain et al., 2018; Alshehhi et al., 2018). It can be said that with government budget support, every business or MSME can effectively avoid waste and pollution by modifying its existing business model to a more innovative one, promoting ecological practices, and adopting a circular economy to achieve sustainable development goals (Rehman et al., 2022). Without government budget support, implementing sustainability initiatives, environmental practices, or promoting the social responsibility of MSMEs in the community is challenging. In contrast, an efficient financial position can support the implementation of business practices that are more desirable for MSMEs. The same is true for non-financial support, which is also crucial for the smooth functioning and performance of MSMEs, ensuring their survival in a competitive environment (Anwar & Li, 2021). In the province of Bali, government incentives and favorable policies, such as low taxes, production cost subsidies, and equipment assistance, encourage MSMEs to adopt sustainability initiatives and green practices, aiming to achieve economic, environmental, and social efficiency.

The results of the third hypothesis study show that this hypothesis is accepted, which means that business innovation has a significant positive effect on sustainable performance; this is in line with research conducted by (Rauter et al., 2019); (Schaltegger et al. 2016) that business innovation is significantly positively related to sustainable performance. MSMEs that can implement sustainable innovation can increase energy efficiency, utilize more environmentally friendly materials, meet customer needs, and participate in a circular economy, thereby encouraging operational efficiency and business sustainability. Through technological and process innovation, MSMEs can increase production efficiency, reduce waste, optimize resource use, and reduce environmental impacts (Alraja et al., 2022). This means that when developing a sustainable innovation, business owners must consider certain aspects, such as integrating environmentally friendly materials and processes, promoting social responsibility, and involving stakeholders. Sustainable and environmentally friendly innovations not only help reduce the environmental impact on the business but can also have a positive impact on profits (Rosca et al., 2017). Environmentally friendly products require less energy to produce, thereby reducing production costs. Furthermore, the results of the moderation study indicate that the four hypotheses are accepted, suggesting that net-zero waste can moderate the impact of the circular economy on sustainable performance. This study is in line with that expressed by (Kurniawan et al., 2023) and (Fatimah et al., 2020). The sustainable aspect of the economy aims to improve people's welfare and help them realize a better life in the long term. The implementation of a circular economy will be able to encourage innovation in waste management and the creation of new technologies (Zhang et al., 2019). This creates new business opportunities and spurs the growth of related economic sectors, such as the recycling industry, waste processing, and energy recovery from waste. In an era increasingly concerned with environmental issues, MSMEs implementing circular economy practices have a competitive advantage. They can meet the demands of more environmentally conscious consumers and comply with strict regulations regarding waste management and environmental protection (Tjahjadi et al., 2020). Thus, implementing a circular economy can enhance the competitiveness of companies and provide access to global markets that are increasingly prioritizing sustainable products and services. By reducing the amount of waste generated and optimizing the use of resources, implementing a circular economy can significantly reduce the negative impact on the environment (Rathore & Sarmah, 2020). The zero waste cities program implemented in Bali is expected to benefit all sectors. Active participation from the Balinese people is crucial to achieving this sustainable movement and having a positive impact on society and the environment. Thus, the waste problem can be resolved, and the principle of a circular economy can be achieved.

The results of the subsequent moderation study showed that the five hypotheses were rejected, which means that net zero waste could not moderate the influence of government budget funds on sustainable performance. The results of this study are those stated by (Shahbaz et al., 2020) and (Song et al., 2015). The existence of government budget support for MSMEs allows businesses to implement environmentally friendly practices for sustainability (Lamoureux et al., 2019). However, many MSMEs always face obstacles, one of which is digitalization; these MSMEs have limited ability to adopt digital technology and digital literacy, which, of course, affects the less than optimal operational efficiency and low productivity, and have not been able to reach a broader target market (Riyadi et al., 2023). This results in the funds

provided by the government needing to be utilized optimally by MSMEs. In addition, MSMEs remain hesitant to invest in environmental sustainability within their businesses, an area that still requires improvement (Musa & Chinniah, 2016).

The results of the subsequent moderation study on the sixth hypothesis showed no conformity, indicating that the hypothesis was rejected, as net zero waste could not moderate the influence of business innovation on sustainable performance. It is in line with research conducted by (Veleva et al., 2017) and (Su et al., 2022). Every business is required to be able to innovate products by selecting environmentally friendly materials and producing them through responsible processes (De Medeiros et al., 2014). It means that companies identify the materials used in their products and the impacts of using these materials. Indirectly, it will be possible for every business to modify its production processes and techniques by utilizing environmentally friendly machines, renewable energy sources, and other sustainable practices. Of course, this requires high costs and commitments, making it difficult for every business to implement, especially for relatively small-scale businesses or MSMEs. The limitations of MSMEs make it difficult for them to implement sustainable practices.

CONCLUSION, IMPLICATIONS, AND LIMITATIONS

The study's results, which utilize three independent variables and one moderating variable, reveal differences between the study's findings and the hypothesis tested. The independent variables, including the circular economy variable, the government budget fund variable, and the business innovation variable, have a positive and significant impact on sustainable performance. Then, regarding the indirect effect, specifically the moderating variable in the form of net zero waste, the research results differ, indicating that net zero waste can moderate the impact of the circular economy on sustainable performance. At the same time, net zero waste cannot moderate the effect of the government budget fund variable and the business innovation variable on sustainable performance.

Climate change, air pollution, and deforestation are among the most significant environmental challenges facing the world today. The existence of MSMEs is expected to enable businesses to develop environmentally friendly concepts that help reduce environmental impacts (Yacob et al., 2019). It means that MSMEs currently not only focus on profits for business continuity but also need to develop environmental care for future generations. MSMEs must utilize resources optimally to support sustainable business performance, incorporating a circular economy, net-zero waste, and product innovation to reduce waste and consider the long-term impacts on society and the surrounding environment. This certainly requires policies, regulations, and socialization, as well as funds that the government must budget to support sustainable practices for these MSMEs. The limitations of this study is limited to MSMEs in the province of Bali, and therefore, it does not represent all MSMEs in Indonesia.

ACKNOWLEDGEMENT:

The author would like to thank Universitas Pendidikan Ganesha, Directorate of Research and Community Service-Directorate General of Research and Development, Ministry of Higher Education, Science, and Technology, Republic of Indonesia, for the funding provided through Applied Research-Output Model with Contract number 100/C3/DT.05.00/PL/2025 dated May 28th, 2025.

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