



Moderating Role of Feedback Methods in Customer-Centric Innovation Adoption: Evidence on Micro and Small Enterprises in Cavite, Philippines

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Received: Feb 15, 2025

Revised: Feb 28, 2025

Accepted: July 9, 2025

Online: July 31, 2025

Abstract

Micro and small enterprises (MSEs) play a crucial role in the Philippine economy, with a significant presence in regions such as Cavite. For these enterprises to achieve and maintain competitiveness, integrating customer-centric innovation is a fundamental necessity. This study examines the impact of customer feedback methods on the behavioural intention to adopt customer-centric innovation among micro and small enterprises (MSEs) in Cavite, Philippines. Using a predictive-causal research design and Partial Least Squares Structural Equation Modelling (PLS-SEM), the study examines the relationships between customer ideas, organisational beliefs and values, enterprise resources, feedback methods, and behavioural intention to adopt customer-centric innovation. Data were gathered from 125 purposively selected micro and small enterprises (MSEs) located within municipalities of Cavite, utilising a validated instrument designed by the researchers. Results confirm the positive impact of customer ideas, organisational beliefs and values, and resources on innovation adoption intention. Generally, the study reveals a moderating role of feedback methods. While feedback strengthens the link between customer ideas and the intention to adopt customer-centric innovation, it negatively impacts the relationship between enterprise resources and the intention to adopt customer-centric innovation. The study highlights the importance of strategically designed, lean, and actionable feedback mechanisms for MSEs, emphasising the need for alignment with business size and resource availability. These findings contribute to the literature on innovation management in developing economies and offer practical insights for entrepreneurs and policymakers supporting MSEs.

Keywords: *Behavioral Intention, Customer Feedback, MSEs, Moderation Analysis, PLS-SEM*

INTRODUCTION

In today's competitive global market, innovation is crucial for all businesses. For micro and small enterprises (MSEs), especially in developing areas such as Cavite, Philippines, customer-centric innovation is crucial for survival and growth. Customer-centric innovation refers to the development of new products, services, or processes designed to meet customers' needs, preferences, and behaviors (Akbar, 2024; Selden & MacMillan, 2006). This approach enhances customer satisfaction and fosters loyalty, allowing businesses to thrive in dynamic environments. Customer-centric innovation depends heavily on effective feedback mechanisms, which are crucial for the success of MSEs. Different feedback methods, from traditional surveys to modern digital tools like social media analysis, influence how MSEs understand customer needs and drive innovation (Okeke et al., 2024). These methods shape customer participation, impacting the quality of innovation and business performance (Bekata & Kero, 2024; Camacho et al., 2019). Customer orientation and relationship orientation are key drivers of firm innovativeness, ultimately leading to business growth (Tuominen et al., 2022). Customer involvement in innovation varies from information sourcing to co-development, with each approach utilizing customer knowledge in distinct ways, and is also impacted by technological capabilities (Cui & Wu, 2016). Feedback

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methods play a vital moderating role in the adoption of customer-centric innovation by MSEs, connecting customer insights with innovation processes. Effective feedback enables MSEs to align products with market demands, as customer feedback provides crucial insights into consumer behavior (Okeke et al., 2024). Understanding the needs of the target market and the competitive dynamics is essential for successful product development, making customer involvement critical. Ignoring customer input can jeopardize the success of new products (Cooper, 2019; Pilch, 2024).

Cavite, a province located just south of Metro Manila, serves as an interesting context for examining the dynamics of customer-centric innovation adoption among MSEs. The region is characterized by a vibrant entrepreneurial ecosystem, with a significant number of micro and small enterprises operating across various sectors, including retail, food service, and manufacturing. The challenges these enterprises face, such as limited resources, lack of access to advanced technologies, and varying levels of business acumen, make exploring effective feedback methods particularly relevant. Furthermore, the socio-economic context of Cavite, marked by a blend of urban and rural characteristics, provides a unique backdrop for understanding how customer-centric innovation can be effectively implemented in diverse settings. Existing research on MSEs inadequately addresses how feedback mechanisms are used to integrate customer knowledge, facilitate interdepartmental collaboration, and co-create value (Gremyr et al., 2022). A study by (Gavirneni et al., 2025) highlights how MSEs benefit from customer feedback to improve their products; however, in developing regions such as Southeast Asia, MSEs often struggle to develop and utilize effective feedback systems. Limited resources compel them to rely on informal customer interactions rather than formal methods (Bruton et al., 2013). This is problematic for innovation, as research rarely examines how customer feedback influences MSE innovation (Bennett, 2025).

Additionally, even when MSEs gather customer feedback, they often lack the technical skills to turn it into practical product improvements (Loo et al., 2023; Tan et al., 2011). This research gap hinders understanding of how organizations can enhance their feedback systems to drive innovation and strengthen customer relationships. Furthermore, studies on customer feedback often focus on developed countries, limiting their applicability to MSEs in developing nations with different technological and resource constraints (Stremersch et al., 2024; Contractor et al., 2018). Comprehensive models explaining the stages of knowledge absorption and their impact on service design are lacking. The influence of industry-specific factors on customer knowledge integration also requires further exploration (Storey & Larbig, 2018). The moderating role of feedback methods in the relationship between customer-centric innovation and its adoption is a relatively underexplored area in the existing literature. While previous studies have examined the importance of customer feedback in innovation processes, there is a lack of empirical evidence specifically focused on MSEs in developing countries.

Hence, this study represents a critical area of inquiry for MSEs in Cavite, Philippines. As these enterprises navigate an increasingly complex and competitive landscape, understanding how to leverage customer feedback effectively will be essential for fostering innovation and ensuring long-term sustainability. This study aims to fill the existing gap in the literature by providing empirical evidence on the relationship between feedback methods and the adoption of customer-centric innovation. By doing so, it seeks to contribute to the broader understanding of innovation management within the context of micro and small enterprises in developing countries. Ultimately, the findings of this research have the potential to inform both academic discourse and practical applications, providing valuable insights for entrepreneurs, policymakers, and support organizations alike.

LITERATURE REVIEW

Customer Feedback

Analyzing customer feedback helps identify recurring issues, solve business problems, and improve products and services. Increasing consumer awareness drives demand for innovative products, making continuous product development improvements essential (Okeke et al., 2024). Direct consumer involvement has a positive impact on successful product development and financial performance (Guiné et al., 2020). Feedback is crucial for understanding customer sentiment, identifying areas for improvement, and making data-driven decisions to enhance customer experience (Tian et al., 2024). Feedback analysis enables organizations to understand customers, improve products, increase satisfaction, and drive business success. Customer feedback is a powerful tool for understanding and anticipating customer needs, which leads to continuous improvement and a competitive advantage. In today's competitive landscape, businesses strive to retain existing customers while acquiring new ones (Zeel & Shambu, 2022). Online customer feedback collection and analysis enable businesses to adapt and improve their products and services, thereby maintaining competitiveness. While customer feedback is crucial for quality improvements, understanding the various channels through which feedback is received is also important.

The Role of Customer Feedback on Product Innovation

Customer participation is vital for new product development (Saylan & Esmer, 2020). Continuously monitoring evolving customer needs and expectations requires building long-term, mutually beneficial relationships with customer. The goals of customer participation in industrial marketing include identifying customer needs, generating new ideas, facilitating product marketing, and minimizing costs. Products that fail to meet user needs will likely fail (Komandla, 2022). Integrating feedback should be an ongoing process throughout product development, from refining existing features to exploring new functionalities. Increased customer awareness enables companies to further enhance their offerings (Anuj & Seetharaman, 2022). Incorporating customer feedback ensures the improvement of product features, addresses existing product shortcomings, and leads to the development of superior products. To remain competitive and address diverse customer opinions, manufacturers must actively solicit and analyze customer feedback on products and services (Mourtzis et al., 2018). Following the product launch, companies should encourage customer feedback, which, after analysis, can inform future product design. Customer feedback is essential for understanding customer priorities, as companies cannot effectively meet customer needs without it (Jinal & Muley, 2022).

Hypothesis Development

Customers' Idea linked to Behavioral Intention to Adopt Customer-Centric Innovation

Customer ideas directly and significantly affect the behavioral intention to adopt customer-centric innovation. Customers possess unique insights into their needs and preferences, offering valuable information for organizations seeking to innovate (Stremersch et al., 2024). Actively soliciting and integrating this feedback enables businesses to develop products and services that are better aligned with market demands (Rademacher, 2023; Shah & Rai, 2022; Cao, 2022). Engaging customers in the idea generation process is crucial for achieving successful innovation outcomes (Dean & Zhang, 2024). Furthermore, incorporating customer ideas fosters increased satisfaction and loyalty by giving customers a sense of ownership (Dean & Zhang, 2024). For entrepreneurs, utilizing customer input directly leads to the generation of relevant, market-

resonant innovative ideas (Sapru, 2023; Shah & Rai, 2022). This integration of customer feedback also yields higher-quality outcomes, as entrepreneurs are better equipped to meet customer expectations, thereby strengthening their intention to adopt a customer-centric approach (Sapru, 2023).

H1: Customers' ideas directly affect the behavioral intention to adopt customer-centric innovation.

Organizational Beliefs and Values linked to Behavioral Intention to Adopt Customer-Centric Innovation

Organizational beliefs and values are crucial determinants of behavioral intentions in adopting customer-centric innovations. When an organization values customer engagement and prioritizes customer feedback, it fosters a supportive environment for this type of innovation (Pekovic et al., 2016). If entrepreneurs feel their organization supports innovation, they are more likely to promote new ideas, including those centered on the customer (Curtis et al., 2020). Studies have shown that organizations with cultures that value innovation and learning are more successful in implementing customer-centric innovations (Akbar, 2024; Bhowmick & Seetharaman, 2022; Taghizadeh et al., 2018). Because organizational values shape how people act and what they consider important, they directly influence whether people are willing to participate in and adopt customer-focused initiatives (Bourne, 2024).

H2: Organizational beliefs and values directly affect behavioral intention to adopt customer-centric innovation.

Enterprise Resources Linked to Behavioral Intention to Adopt Customer-Centric Innovation.

The availability of enterprise resources has a significant influence on entrepreneurs' behavioral intentions to adopt customer-centric innovation. Entrepreneurs who perceive their organizations as having abundant resources are more likely to be proactive in pursuing innovation (Agrawal et al., 2024). This proactive stance is essential for successfully adopting customer-centric innovation, as it requires both identifying customer needs and allocating resources to develop appropriate solutions (Okeke et al., 2024). Furthermore, organizations that dedicate sufficient resources to gathering and analyzing customer feedback are better positioned to adapt their products and services to meet evolving market demands (Gupta et al., 2017), thereby increasing the likelihood of successful customer-centric innovation adoption. While self-efficacy can influence resource perception and subsequent innovative behavior (Racela & Thourmrungrroje, 2019), the direct effect of enterprise resources on the behavioral intention to adopt customer-centric innovation is a key driver.

H3: Enterprise resources directly affect behavioral intention to adopt customer-centric innovation.

Moderating effect of feedback methods on Behavioral Intention to Adopt Customer-Centric Innovation

The moderating effect of feedback methods on the behavioral intention to adopt customer-centric innovation is complex, involving customer engagement and innovation strategies. Feedback mechanisms are crucial in shaping user intentions and behaviors, especially for customer-centric innovations. Feedback can enhance the relationship between goal-setting participation and innovative work behavior, suggesting constructive feedback boosts employee engagement with such innovations (Pramanik et al., 2022). Feedback can catalyze the adoption of innovation in customer-centric environments by aligning user expectations with organizational goals and fostering responsiveness and adaptability. Furthermore, different forms of customer participation,

like co-development and information provision, significantly moderate the relationship between innovation orientation and financial performance (Yuk & Garrett, 2023), indicating that active customer involvement can enhance the effectiveness of feedback mechanisms in driving innovation adoption. Moreover, the timing and frequency of feedback collection can also moderate its effectiveness. Continuous feedback loops that allow for iterative improvements in the innovation process can enhance customer satisfaction and strengthen their intention to adopt the innovation (Cooper & Sommer, 2016). Conversely, infrequent or poorly timed feedback collection may result in misalignment between customer expectations and the final product, thereby diminishing the likelihood of adoption (Ulrich & Eppinger, 2020).

H4: Feedback method moderates the relationship between customers' idea and behavioral intention to adopt customer-centric innovation.

H5: Feedback method moderates the relationship between organizational beliefs and values and behavioral intention to adopt customer-centric innovation.

H6: Feedback method moderates the relationship between enterprise resources and behavioral intention to adopt customer-centric innovation.

Research Framework

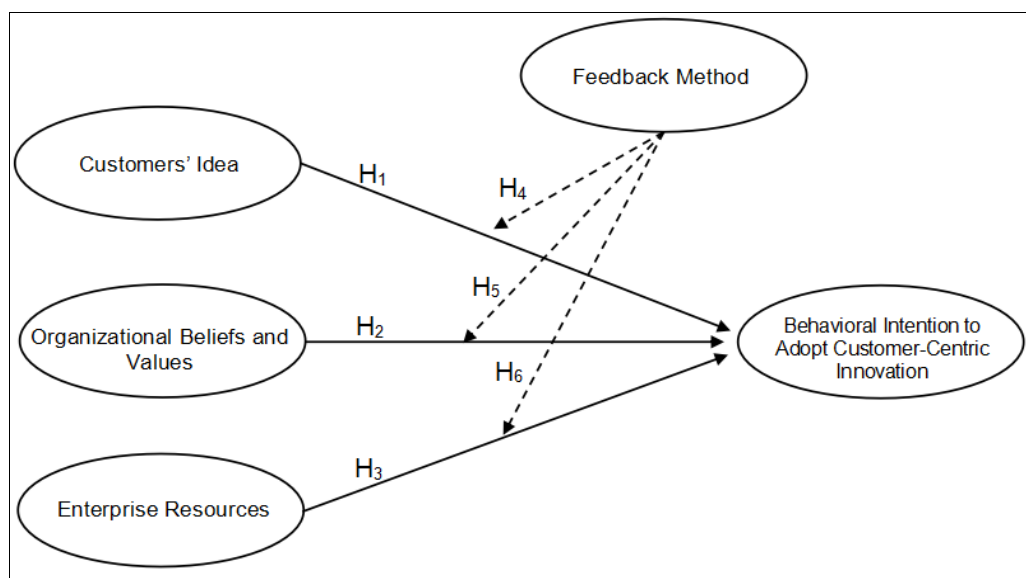


Figure 1. Research Framework of The Moderating Role of Feedback Method on Behavioral Intention to Adopt Customer-Centric Innovation

This model utilizes a multi-theoretical framework to explain the adoption of customer-centric innovation within organizations. Primarily, it draws upon contingency theory, emphasizing that the intention to adopt such innovation is not determined by any single factor but rather by the interplay of customer ideas, organizational beliefs and values, enterprise resources, and the feedback method. This aligns with contingency theory's focus on situational specificity, where the best approach depends on the unique combination of these factors (Donaldson, 2001). The model further illustrates the moderating effect of feedback methods, highlighting how the relationship between these variables and the outcome is contingent upon the specific method employed. Beyond contingency theory, the model integrates elements of other organizational theories to provide a more comprehensive understanding. The inclusion of enterprise resources reflects the resource-

based view (RBV), acknowledging the importance of valuable and unique resources in fostering innovation (Barney, 1991; Wernerfelt, 1984), although their impact remains context-dependent within this model.

Furthermore, the concepts of feedback method and customer ideas are connected to knowledge management (KM) theory, emphasizing the significance of knowledge acquisition and application in driving customer-centric innovation (Davenport & Prusak, 1998). Finally, organizational beliefs and values are closely linked to organizational culture theory, suggesting that a culture that prioritizes customer feedback and innovation is more likely to facilitate the adoption of customer-centric strategies (Schein, 2010). This integrated approach enhances the model's explanatory power and offers a more nuanced perspective on the factors influencing the adoption of customer-centric innovation.

RESEARCH METHOD

Research Design

The study used a predictive-causal research design to analyze and explain the interplay between customers' ideas, the enterprise resources, organizational beliefs and values, feedback methods and behavioral intentions to adopt customer-centric innovation. Arif & MacNeil (2022) emphasize that causal inference demands a structured approach to model selection and evaluation to establish direct relationships between variables. In this context, the study's focus on identifying cause-and-effect phenomena is crucial. While the predictive aspect enables forecasting of adoption behaviors, the causal component delves deeper, seeking to understand the underlying reasons for these behaviors. To strengthen this causal inference, the study leveraged Partial Least Squares Structural Equation Modelling (PLS-SEM). As highlighted by Chin et al. (2020) and Hair et al. (2021), PLS-SEM enhances causal prediction by applying robust model selection criteria. This statistical technique facilitates the examination of complex relationships between latent variables, enabling researchers to assess the strength and direction of causal pathways.

Participants of the Study

The study focused on owners and managers of officially registered (DTI) micro and small enterprises (MSEs) in select areas of Cavite, a crucial segment of the local economy. This selection was strategic, aiming to understand innovation adoption within a resource-constrained environment. As Table 1 reveals, the sample comprised predominantly sole proprietorships (51.20%), with most businesses having assets under Php 3,000,000 (65%) and employing 1-9 individuals (52.00%). The high proportion of relatively new businesses (52.00% under one year) and those operating for 6-10 years (47.20%) suggests a dynamic and evolving MSE landscape. Selecting these participants enabled the researchers to capture the perspectives of key decision-makers who directly influence the adoption of innovation by MSEs. Furthermore, by focusing on specific Cavite areas, the study controlled for regional variations, ensuring a more contextually relevant analysis of how these businesses innovate within their unique operational constraints. This targeted approach, coupled with the detailed demographic data, allowed for a nuanced understanding of the factors driving innovation adoption in Cavite's MSE sector

Table 1. Business Characteristics of The Participating MSEs

	Category	Frequency	Percentage
Type of Business Organization	Sole proprietorship	63	51.20%
	Partnership	40	32.00%
	Corporation	14	10.40%
	Cooperative	8	6.40%

	Category	Frequency	Percentage
Range of average asset size	Less than Php 3,000,000	65	52.00%
	Php 3,000,001 - Php 15,000,000	59	47.20%
Range of employees size	1-9 Employees	107	85.60%
	10-99 Employees	18	47.20%
Length of Business Operation	Less than a year	16	12.80%
	1 year - 5 years	54	43.20%
	6 year – 10 years	30	24.00%
	More than 10 years	25	20.00%

Sampling Design

The researchers selected participants for the study using purposive sampling, ensuring that the selected participants were drawn from this specific geographical and business context. The target participants were 180 micro and small enterprise owners from the municipalities of Tanza, Kawit, and Rosario, Cavite. However, only 125 completed responses were retrieved and collected, representing a response rate of 69.44%. [Kock and Hadaya \(2018\)](#) proposed the inverse square root and gamma-exponential methods as statistically rigorous alternatives to the traditional "10-times rule" for determining minimum sample size in Partial Least Squares Structural Equation Modelling (PLS-SEM). These techniques offer enhanced precision in sample size estimation. Notably, based on the calculated minimum sample sizes using the inverse square root and gamma-exponential methods, the minimum recommended numbers of participants were 117 and 104, respectively. This indicates that the actual number of participants was sufficient to detect statistical power.

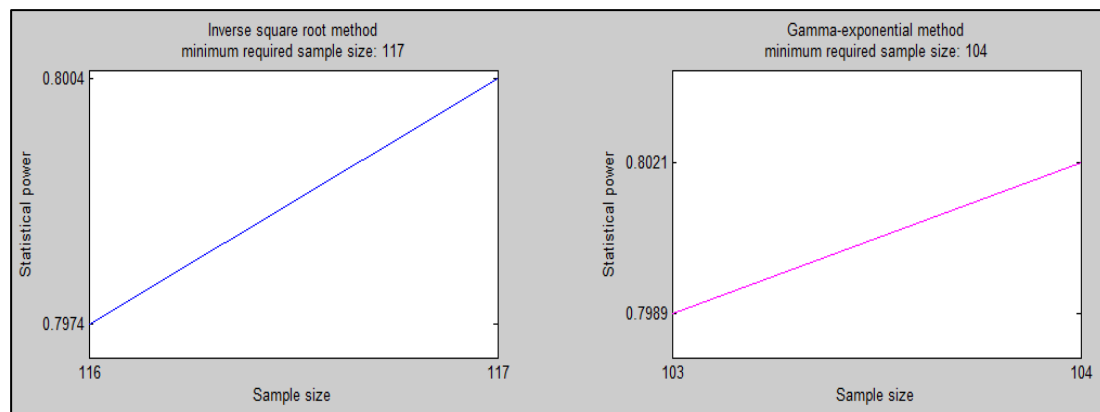


Figure 2. Recommended Sample Size Using Inverse Square Root Method and Gamma-Exponential Method

Research Instrument

Primary data collection was conducted using a physically distributed, self-administered survey. The self-made research instrument was developed using existing scholarly literature and validated by experts in business administration. The research instrument is divided into different parts which include questions assessing business characteristics, feedback methods, perceptions of customer ideas, organizational beliefs and values, enterprise resources, and the behavioral intention of MSEs to adopt customer-centric innovation. Indicators for each construct were derived from the relevant literature presented in Table 2.

Table 2. Scaled items

Constructs	Indicators	Sources
Customers' Idea	Customer feedback is essential for successful product development	Shah and Rai, (2022) ; Cao, (2022)
	Customer feedback helps to identify and address shortcomings.	
	Incorporating customer feedback can lead to more innovative products.	
	Customer feedback validates product concepts before launching time.	
	Customer feedback can help to reduce product development costs.	
Organizational Beliefs and Values	Our organization values customer feedback as the key to innovation.	Taghizadeh et al., (2018) ; Bhowmick and Seetharaman (2022)
	We believe that customer feedback can help us differentiate our products from competitors through innovation.	
	Our organization believes that incorporating customer feedback will lead to the success of our product innovation.	
	We believe that customer feedback is more valuable than expert opinions.	
Enterprise Resources	We have established a process for efficiently allocating resources to address customer feedback.	Okeke et al., (2024) ; Singh and Gupta (2023)
	We have the necessary resources to effectively integrate customer feedback into our product development process.	
	Our commitment to customer-driven product development is backed by resource allocation for implementing necessary changes.	
	Our resource allocation enables us to incorporate customer feedback into product development.	
Behavioral Intention to Adopt Customer-Centric Innovation	We intend to prioritize customer feedback in future product development projects.	Tian et al. (2024) Shah & Rai, (2022)
	We intend to use customer feedback to validate product concepts before launching them.	
	We intend to use customer feedback to measure the success of our product development efforts.	

Data Analysis

Partial Least Squares Structural Equation Modelling (PLS-SEM) was employed using WarpPLS 8.0 to analyze the study's constructs and estimate the parameters of the mediation model. PLS-SEM is a suitable method for analyzing complex models with multiple constructs and indicators, allowing for the examination of intricate relationships between variables ([Haji-Othman et al., 2024](#)). Its ability to handle both reflective and formative indicators makes it versatile for diverse research applications ([Nusrang et al., 2023](#)).

FINDINGS AND DISCUSSION

Feedback Method

Micro and Small Enterprises (MSEs) utilize a range of feedback collection methodologies. Focus groups represent the dominant approach, constituting 68.8% of employed strategies. While less prevalent, surveys (16%) and interviews (15.2%) also contribute to feedback acquisition within this context. The prevalence of focus groups as a primary feedback collection method among MSEs emphasize the importance of direct customer engagement in developing nations (Florentine, 2015; Teklehaimanot et al., 2022). MSEs also utilize other methods, such as surveys, to gather customer feedback (Dizon et al., 2019).

Table 3. Different Feedback Methods Used by Participating MSEs

Category	Frequency	Percentage
Survey	20	16%
Interview	19	15.2%
Focus Groups	86	68.8%
Total	125	100%

Descriptive results

Table 4 presents the participants' perspectives on the utilization of customer feedback for customer-centric innovation, with a focus on the role of customers' ideas in driving innovation. This finding reveals that the participants strongly agree that customer feedback is essential for achieving successful product development, as indicated by the strong mean of 4.79 (SD = 0.463). They also strongly acknowledge the crucial role that customer feedback plays in pinpointing and rectifying any shortcomings in their offerings (Mean = 4.78, SD = 0.522). Furthermore, participants recognize the potential for customer input to drive innovation, believing that incorporating it can lead to innovative products (Mean = 4.60, SD = 0.622). Importantly, they also see significant value in using customer feedback to validate their product ideas before committing to a full launch (Mean = 4.46, SD = 0.788). On the other hand, participants also acknowledge the potential for cost minimisation in product development through customer feedback (Mean = 4.18, SD = 1.132). Generally, the findings emphasize the deep-seated belief among participants that actively listening to and acting upon customer feedback is not only beneficial but also a fundamental aspect of their product strategy.

Table 4. Customers' Idea

Category	Mean	SD	Interpretation
Customer feedback is essential for successful product development	4.79	0.463	Strongly Agree
Customer feedback helps to identify and address shortcomings.	4.78	0.522	Strongly Agree
Incorporating customer feedback can lead to more innovative products.	4.60	0.622	Strongly Agree
Customer feedback validates product concepts before launching time.	4.46	0.788	Strongly Agree
Customer feedback can help to reduce product development costs.	4.18	1.132	Agree
Grand Mean	4.56		Strongly Agree

Legend: 4.20-5.00 Strongly Agree; 3.40 - 4.19 Agree; 2.60 - 3.39 Neutral; 1.80 - 2.59 Disagree; 1.00 - 1.79 Strongly Disagree

Table 5 presents the participants' perspectives on the utilization of customer feedback for customer-centric innovation, specifically regarding their organizational beliefs and values. The high mean scores for the first three statements, all interpreted as "Strongly Agree," underscore a shared belief that customer feedback is central to innovation (Mean = 4.26, SD = 0.815), aids in product differentiation from competitors (Mean = 4.40, SD = 0.741), and is crucial for the success of product innovation (Mean = 4.44, SD = 0.807). This suggests that the participants recognize the direct link between incorporating customer insights and achieving innovation outcomes, potentially leading to a competitive edge in the market. Regarding the belief that customer feedback is more valuable than expert opinions, the "Agree" interpretation (Mean = 3.98, SD = 1.184), with a slightly lower mean and higher standard deviation, suggests a nuanced view. Respondents generally value customer feedback but do not necessarily see it as entirely outweighing expert opinions, indicating an appreciation for both sources of information. Overall, the results indicate a robust organizational belief and value system that prioritizes customer feedback as a driving force in their pursuit of innovation. This suggests a customer-centric culture within these MSEs, where the customer's voice is highly regarded in shaping their innovation processes.

Table 5. Organizational Beliefs and Values

Category	Mean	SD	Interpretation
Our organization values customer feedback as the key to innovation.	4.26	0.815	Strongly Agree
We believe that customer feedback can help us differentiate our products from competitors through innovation.	4.40	0.741	Strongly Agree
Our organization believes that incorporating customer feedback will lead to the success of our product innovation.	4.44	0.807	Strongly Agree
We believe that customer feedback is more valuable than expert opinions.	3.98	1.184	Agree
Grand Mean	4.27		Strongly Agree

Legend: 4.20-5.00 Strongly Agree; 3.40 - 4.19 Agree; 2.60 - 3.39 Neutral; 1.80 - 2.59 Disagree; 1.00 - 1.79 Strongly Disagree

Table 6 presents the participants' perspectives on enterprise resources for utilizing customer feedback in customer-centric innovation. The findings indicate that participants agreed they have established processes for efficiently allocating resources to address customer feedback (Mean = 4.06, SD = 0.927) and possess the necessary resources to effectively integrate this feedback into their product development process (Mean = 4.08, SD = 0.930). This suggests an awareness and implementation of resource management practices aimed at leveraging customer input. Considerably, participants agreed that their commitment to customer-driven product development is supported by resource allocation for implementing necessary changes (Mean = 4.19, SD = 0.769), highlighting a perceived alignment between their strategic orientation and resource deployment. The highest mean score among the individual items (Mean = 4.27, SD = 0.883) was for the statement "Our resource allocation enables us to incorporate customer feedback into product development," which was interpreted as "Strongly Agree." This suggests that their organizations have generally implemented mechanisms aimed at effectively distributing their resources to act upon the feedback received from customers. In general, the participants perceive their enterprise resources as adequate and appropriately directed to support the utilization of customer feedback in driving customer-centric innovation.

Table 6. Enterprise Resources

Category	Mean	SD	Interpretation
We have established a process for efficiently allocating resources to address customer feedback.	4.06	0.927	Agree
We have the necessary resources to effectively integrate customer feedback into our product development process.	4.08	0.930	Agree
Our commitment to customer-driven product development is supported by resource allocation for implementing necessary changes.	4.19	0.769	Agree
Our resource allocation enables us to incorporate customer feedback into product development.	4.27	0.883	Strongly Agree
Grand Mean	4.15		Agree

Legend: 4.20-5.00 Strongly Agree; 3.40 - 4.19 Agree; 2.60 - 3.39 Neutral; 1.80 - 2.59 Disagree; 1.00 - 1.79 Strongly Disagree

Table 7 presents the participants' behavioral intention to adopt customer-centric innovation. Specifically, there is a firm intention among the participants to prioritize customer feedback in future product development projects (Mean = 4.44, SD = 0.837). This highlights a proactive approach towards placing customer input at the forefront of their innovation planning. Notably, they intend to utilize customer feedback to validate product concepts before launching them (Mean = 4.40, SD = 0.783), demonstrating a commitment to minimizing the risks of new product introductions by ensuring alignment with customer needs and preferences. The owners also strongly agreed on their intention to use customer feedback to measure the success of their product development efforts (Mean = 4.43, SD = 0.874). This signifies a belief in the value of customer input not only in the development process but also as a key metric for evaluating the outcomes of their innovation activities. They express a clear commitment to actively seeking, utilizing, and valuing customer feedback throughout their product development lifecycle, from initial concept validation to measuring the ultimate success of their innovations.

Table 7. Behavioral Intention to Adopt Customer-Centric Innovation

Category	Mean	SD	Interpretation
We intend to prioritize customer feedback in future product development projects.	4.44	0.837	Strongly Agree
We intend to use customer feedback to validate product concepts before launching them.	4.40	0.783	Strongly Agree
We intend to use customer feedback to measure the success of our product development efforts.	4.43	0.874	Strongly Agree
Grand Mean	4.42		Strongly Agree

Legend: 4.20-5.00 Strongly Agree; 3.40 - 4.19 Agree; 2.60 - 3.39 Neutral; 1.80 - 2.59 Disagree; 1.00 - 1.79 Strongly Disagree

Convergent Validity and reliability statistics

Table 8 presents the factor loadings and reliability statistics for the constructs in the study. The factor loadings, ranging from 0.647 to 0.923, demonstrate that the items strongly reflect their intended constructs. While a common guideline suggests a minimum loading of 0.70, values of 0.60 or higher are generally considered acceptable for retaining variables in factor analysis (Ximénez, 2006; Mueller, 1996). The calculated AVE values for the constructs —customers' idea (0.565), organizational beliefs and values (0.638), enterprise resources (0.748), and behavioral intention to adopt customer-centric innovation (0.797)—are considered acceptable. Generally, an AVE value of 0.50 or higher is considered acceptable, indicating that the construct explains at least half of the

variance in its indicators. AVE measures the variance a construct captures relative to its indicators, with values above 0.5 generally indicating acceptable convergent validity (Santos & Cirillo, 2021).

Meanwhile, the results of the calculated Composite Reliability (CR) and Cronbach's Alpha (CA) values were all above the recommended 0.7 threshold. These demonstrate strong internal consistency and reliability for all constructs, suggesting that the measured variables consistently reflect the intended underlying constructs. CA is often viewed as a lower bound for reliability, while CR provides a more accurate estimate when using structural equation modelling (Peterson & Kim, 2013). Generally, this shows that the questions used in the survey are reliable and valid measures of the concepts they are intended to represent.

Table 8. Factor Loading and Reliability Statistics

Constructs	Code	Loadings	AVE	CA	CR
Customers' Idea	1CI	0.711	0.565	0.802	0.865
	2CI	0.661			
	3CI	0.853			
	4CI	0.858			
	5CI	0.647			
Organizational Beliefs and Values	1OBV	0.851	0.638	0.810	0.876
	2OBV	0.758			
	3OBV	0.808			
	4OBV	0.775			
Enterprise Resources	1R	0.914	0.748	0.887	0.922
	2R	0.889			
	3R	0.798			
	4R	0.854			
Behavioral Intention to Adopt Customer-Centric Innovation	1INT	0.875	0.797	0.872	0.921
	2INT	0.923			
	3INT	0.879			

Discriminant Validity

Table 9 shows the correlations between the latent variables. The diagonal values (0.752 to 0.892) in the table represent the strength of the relationship between each construct and its indicators (square root of the Average Variance Extracted, AVE). Discriminant validity is demonstrated because these diagonal values are all higher than the correlations between different constructs. This confirms that the constructs are distinct and that the measures effectively differentiate between them. According to Fornell and Larcker (1981), discriminant validity is achieved if the square root of the AVE for each construct is greater than its correlations with all other constructs.

Table 9. Correlations Among Latent Variables With Square Roots of AVEs

	Customers ' Idea	Organizational Beliefs and Values	Enterprise Resources	Behavioral Intention to Adopt Customer- Centric Innovation
Customers' Idea	0.752	0.685	0.531	0.633
Organizational Beliefs and Values	0.685	0.799	0.600	0.644
Enterprise Resources	0.531	0.600	0.865	0.631
Behavioral Intention to Adopt Customer- Centric Innovation	0.633	0.644	0.631	0.892

Table 10 presents the Heterotrait-Monotrait (HTMT) ratios, which are used to assess discriminant validity. Discriminant validity is confirmed if HTMT values are below 0.85 (or 0.90) (Henseler et al., 2015). All HTMT values (0.632 to 0.765) are below 0.85, indicating that the constructs are distinct from one another. The strongest relationship is between Organizational Beliefs and Values and Behavioral Intention (0.765), while the weakest is between Customers' Idea and Enterprise Resources (0.632). These results support the discriminant validity of the constructs.

Table 10. HTMT Ratios

	Customers' Idea	Organizational Beliefs and Values	Enterprise Resources
Customers' Idea			
Organizational Beliefs and Values	0.847		
Enterprise Resources	0.632	0.712	
Behavioral Intention to Adopt Customer-Centric Innovation	0.759	0.765	0.723

(good if < 0.90, best if < 0.85)

Results of Fit Indices

Table 11 presents the model fit indices, which assess the overall model adequacy. The significant and positive Average Path Coefficient (APC = 0.233, $p < 0.001$) indicates meaningful and expected relationships between constructs. The significant Average R-squared (ARS = 0.534, $p < 0.001$) and Average Adjusted R-squared (AARS = 0.517, $p < 0.001$) indicate that the model explains a substantial portion of the variance in the dependent variables. Multicollinearity, assessed via the Average Variance Inflation Factor (AVIF = 3.255) and Average Full Collinearity VIF (AFVIF = 2.153), is not a concern, as both values are below the acceptable threshold of 5 (and ideally below 3.3). The Tenenhaus Goodness of Fit (GoF = 0.671) exceeds the criteria for a large effect size (0.36), indicating a good model-data fit. The Standardized Root Mean Squared Residual (SRMR = 0.095) and Standardized Mean Absolute Residual (SMAR = 0.078), both below 0.1, further support good model fit. These indices collectively suggest the model reasonably represents the relationships between the constructs.

Table 11. Fit Indices of The Model

Category	Results	Decision
Average path coefficient	(APC)=0.233, P<0.001	Significant
Average R-squared	(ARS)=0.534, P<0.001	Significant
Average adjusted R-squared	(AARS)=0.517, P<0.001	Significant
Average block VIF	(AVIF)=3.255	acceptable if ≤ 5 , ideally ≤ 3.3
Average full collinearity VIF	(AFVIF)=2.153	acceptable if ≤ 5 , ideally ≤ 3.3
Tenenhaus GoF	(GoF)=0.671,	small ≥ 0.1 , medium ≥ 0.25 , large ≥ 0.36
Standardized root mean squared residual	(SRMR)=0.095	acceptable if ≤ 0.1
Standardized mean absolute residual	(SMAR)=0.078	acceptable if ≤ 0.1

Results of Path Estimates

Table 12 shows the parameter estimates for direct and moderating effects. Hypotheses H1, H2, and H3, concerning the direct positive relationships between customer ideas, organizational beliefs and values, and enterprise resources respectively, and behavioral intention to adopt, are all supported ($p < 0.001$). Effect sizes (f^2) for these relationships range from 0.178 to 0.199, indicating small to medium effects. Regarding moderation, H4 (Feedback Methods moderating the Customer Ideas-Behavioral Intention relationship) is supported ($p < 0.001$). The positive path coefficient (0.241) suggests that feedback methods strengthen this positive relationship. H6 (Feedback Methods moderating the Enterprise Resources-Behavioral Intention relationship) is also supported ($p = 0.002$). However, the negative path coefficient (-0.230) indicates that prominent Feedback Methods weaken the positive relationship between Enterprise Resources and Behavioral Intention. H5 (Feedback Methods moderating the Organizational Beliefs and Values-Behavioral Intention relationship) is not supported ($p = 0.206$), as the path coefficient (0.061) is not significant. Effect sizes for the supported moderating effects are small (around 0.09).

Table 12. Parameter Estimates of Direct and Moderating Effects

Hypothesis	Path coefficient	SE	Effect Size (f^2)	P-value	Decision
Direct effect					
H1: Customers' Idea $\Rightarrow$ Behavioral Intention to Adopt	0.286	0.071	0.182	<0.001	Supported
H2: Organizational Beliefs and Values $\Rightarrow$ Behavioral Intention to Adopt	0.298	0.071	0.199	<0.001	Supported
H3: Enterprise Resources $\Rightarrow$ Behavioral Intention to Adopt	0.280	0.071	0.178	<0.001	Supported
Moderating Effect					
H4: Feedback Methods*Customers' Idea $\Rightarrow$ Behavioral Intention to Adopt	0.241	0.072	0.093	<0.001	Supported
H5: Feedback Methods*Organizational Beliefs and Values $\Rightarrow$ Intention to Adopt	0.061	0.072	0.026	0.206	Not Supported
H6: Feedback Methods* Enterprise Resources $\Rightarrow$ Behavioral Intention to Adopt	-0.230	0.074	0.094	0.002	Supported

Discussion of Direct Effects

The strong support for these hypotheses confirms the core tenets of many innovation and customer-centricity theories. The positive and significant coefficients indicate that businesses that actively solicit and value customer ideas, cultivate a culture that supports innovation and customer focus, and possess adequate resources are more likely to intend to adopt customer-centric innovation. This implies that organizations that actively solicit and incorporate customer ideas are more likely to be willing to implement customer-focused innovations. This aligns with the idea that customer input is a crucial driver of innovation ([Sapru, 2023](#); [Dean & Zhang, 2024](#)). Moreover, organizations that cultivate a customer-centric culture are more likely to have employees who are motivated to implement innovations that benefit customers. A customer-centric organizational culture, where customer needs are prioritized and customer participation in innovation is valued, has a positive influence on employees' intentions to adopt customer-centric innovation ([Akbar, 2024](#); [Bedarkar et al., 2016](#)). This value-driven culture motivates employees to generate innovative solutions that address customer needs ([Ge et al., 2022](#)). Ultimately, organizations that invest in providing adequate resources for innovation are more likely to have employees who are willing to implement customer-centric ideas. This finding is consistent with research demonstrating that organizations with cultures that value innovation and learning are more successful in implementing customer-centric innovations ([Akbar, 2024](#); [Bhowmick & Seetharaman, 2022](#); [Taghizadeh et al., 2018](#)). These studies highlight the connection between a supportive organizational culture and the successful implementation of customer-focused initiatives. [Bourne \(2024\)](#) argues that organizational values shape employee behavior and priorities, directly influencing their willingness to participate in and adopt customer-focused initiatives. Therefore, providing resources is not just about funding; it signals a commitment to customer-centricity, reinforcing the organizational values that drive employee engagement in such efforts.

Discussion of Moderating Effects

The significant and positive moderating effect suggests that the relationship between valuing customer ideas and the intention to adopt customer-centric innovation (H4) is amplified when effective feedback mechanisms are in place. This highlights the importance of collecting customer ideas and having systematic processes for gathering, analyzing, and acting upon that feedback. Theoretically, this aligns with the concept of feedback loops in systems theory. Effective feedback loops enable organizations to learn and adapt based on customer input, thereby strengthening the connection between customer ideas and actual innovation adoption ([Ballandies et al., 2022](#); [Cooper & Sommer, 2016](#)). Effective feedback mechanisms enable MSEs to capture, analyze, and utilize customer knowledge, driving innovation. However, the adverse moderating effect of complex feedback methods on resource-constrained MSEs highlights the need for KM systems that are accessible and actionable for these businesses.

The significant but negative moderating effect (H6) is a more nuanced finding. It suggests that the positive relationship between enterprise resources and the intention to adopt customer-centric innovation is weakened when feedback methods are more prominent. This finding supports contingency theory. While resource availability generally promotes innovation, as predicted by the resource-based view, findings demonstrate that the impact of resources is contingent upon the complexity of the feedback mechanism. Specifically, complex feedback can overwhelm limited resources, hindering innovation. This is particularly relevant for MSEs, which often operate with resource constraints. A study by [Hajikazemi et al. \(2018\)](#) suggests that complex feedback methods can strain these limited resources, making innovation appear overwhelming.

Additionally, focusing on short-term survival may lead MSEs to prioritize immediate needs over long-term innovation projects driven by complex feedback loops. Furthermore, a lack of

specialized skills can prevent MSEs from effectively utilizing the complex data generated by specific feedback methods (Bujáki & Vinogradov, 2024). Hence, for MSEs, the choice of feedback method is critical, and lean, agile, and readily actionable approaches are more likely to foster a positive intention to adopt customer-centric innovation.

The non-significant moderating effect suggests that the relationship between organizational culture and the intention to adopt customer-centric innovation (H5) is not significantly influenced by the presence of feedback methods. The findings suggest that a strong customer-focused organizational culture drives innovation, even when specific feedback methods are not in place (Okeke et al., 2024). Essentially, prioritizing customer needs within the company culture can be enough to stimulate innovation, regardless of formal feedback systems.

CONCLUSION

This study confirms the significance of customers' ideas, organizational beliefs and values, and enterprise resources in influencing an enterprise's behavioral intention to adopt customer-centric innovation. Valuing customer ideas, fostering a customer-centric culture, and possessing adequate resources all demonstrate significant positive relationships with this intention. However, feedback mechanisms play a nuanced role. While effective feedback can enhance the positive impact of customer ideas, complex or resource-intensive processes can hinder the influence of resources, particularly for micro and small enterprises. This highlights the importance of feedback methods and implementation for translating intentions into action. Notably, a strong customer-centric culture appears to be a powerful driver of innovation, regardless of the specific feedback mechanisms employed.

The findings of this study have several important theoretical implications and managerial implications. MSE managers should focus on building a customer-focused culture through training and clear communication. They should select feedback methods that align with their resources, favoring simple approaches. Customer ideas should be seen as valuable knowledge, requiring systems to gather and use them for innovation. Resources should be used efficiently, as their impact on innovation depends on the feedback methods used. Ultimately, a customer-centric culture is crucial for driving innovation, regardless of the feedback method employed. Theoretically, the findings reinforce the importance of customer input, organizational culture, and resource availability in driving customer-centric innovation. More importantly, these also shed light on the complex interplay between these factors, particularly the moderating role of feedback mechanisms. The negative moderating effect observed in H6 highlights the need for a balanced approach to innovation management. While feedback is essential, over-reliance on formal feedback processes, especially in resource-rich environments, can potentially hinder innovation.

Hence, MSEs should prioritize cultivating a strong customer-centric culture, actively soliciting customer input, and ensuring the availability of resources for innovation. Critically, feedback methods should be strategically designed, considering business size and resources, with lean, agile, and actionable methods being more suitable for MSEs. Prioritizing feedback that generates clear and actionable insights is also recommended.

LIMITATION & FURTHER RESEARCH

The study presents notable limitations. Primarily, the lack of longitudinal data hinders the ability to observe temporal shifts and establish strong causal relationships. Secondly, the generalizability of the findings is limited due to the potential for a narrow focus on a specific region or industry within developing nations. Lastly, despite aiming for a comprehensive model, the study acknowledges that it may not account for all the diverse and complex factors influencing customer-centric innovation. Future research should further explore this finding, perhaps by examining

different types of feedback mechanisms or considering the stage of the innovation process. Additionally, it is essential to investigate other contextual factors that may impact the adoption of customer-centric innovation, such as industry characteristics, the competitive landscape, and the regulatory environment.

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