

The Role of Customer Relationship Management to Strengthen Customer Satisfaction Using Product Innovation and Customer Value as Intervening Variable

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Abstract. The main goals of this study is to examine two main points: (1) CRM's effect on CS; and (2) PI and CV's possible mediating role in these interactions. The poll, conducted for customers of an Indonesian building material retailer, used a purposive sample of 170 respondents. Structural equation modelling (SEM), which uses the PLS SEM application package, is the analytical method used. The study's primary conclusions show that CRM has a positive and significant impact on PI and CV. As a result, CRM has a big impact on CS in the building material retail sector. More significantly, the mediation investigation demonstrated that PI and CV act as mediators in the link between CRM and CS. In conclusion, this study adds a great deal by showing that PI and CV have a significant positive connection.

Keywords: CRM, CS, PI, CV

1 Introduction

In today's fast-paced environment, achieving a comprehensive CRM becomes difficult. Developing a comprehensive CRM becomes challenging in the fast-paced world of today. With the increasing use of mobile technology, information, and communication technologies (ICTs) have become essential for improving company efficiency. Indonesia's internet penetration rate, which has increased rapidly to 78.18%, serves as evidence of this [1]. Every industry, including the building materials industry, has seen remarkable ICT improvements [2]. The country's emerging economic growth is reflected in the construction materials industry. Homeowners have been using prefabricated concrete bricks more frequently in recent years [3] factor that contributes to increasing business productivity in the era of expanding mobile technology utilization. Indonesia's internet penetration rate, which has increased rapidly to 78.18%, serves as evidence of this [1]. As a result of the predicted

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increase in demand for these bricks, numerous producers of concrete products have begun to compete to provide prefabricated concrete bricks that can meet the expectations of customers everywhere, including Indonesia. Plastic trash can be used to make prefabricated concrete bricks [4].

Numerous studies have been conducted on the connection between CRM and CS. Nevertheless, no studies have been done on how long-term CRM affects CS, PI, and CV. Prior research has examined the significance of CRM within the banking [5], video game [6], automotive [7], and tourist sectors. However, another may argue that CRM is being cited as an essential part of CS [8]. According to the researchers, this is the first study to examine CRM in the building material retailing sector. Consequently, the industry of merchants of building materials has been recognized as essential to the advancement of the circular economy, which is why the academics want to look at it.

CRM has not been included in any previous studies on the building material industry; instead, the majority of research has concentrated on the following topics: production capacity [9], procurement process [10], building design [11], building information modelling, and product quality [12]. The primary objective of this study is to investigate the effects of long-term CRM in the building material retail market. In the retail building material sector, CRM research is regarded as a revolutionary development that offers theoretical benefits to CS, PI, and CV.

2 Literature Review

2.1 Customer Relationship Management

CRM has become a vital instrument for supporting business successes due to the dynamic nature of the sector and technology breakthroughs. Studies have indicated that maintaining good customer relationships by implementing CRM will increase companies' ability to compete in the market [13]. CRM is an effective marketing strategy used by companies to respect the values of their clients, keep their relationships with them strong, and make money. CRM makes the most of employee knowledge by utilizing technology to capture key business components and aid in the optimization of service operations. The study examines the use of PI and the CRM system by small and medium-sized enterprises. Moreover, previous study also found a connection between PI and CRM in another investigation [14].

Earlier study shows a significant connection between CS and certain CRM aspects [15]. This study shows that when CRM is implemented properly, CS will increase. A successful CRM will lead to CS, which in turn promotes loyalty and good word-of-mouth, based on the author's analysis. Therefore, previous study found a significant correlation between CRM and CV [16]. The results show that recommendations for long-term engagements with clients through CRM are required in order to further boost CV and foster market competitiveness [6]. Furthermore, the research was extended through the development of a conceptual framework for CRM that enhances the creation of value for clients [17]. This demonstrates how CV and CRM are related. The following are the study's hypotheses based on this interpretation:

Hypothesis 1: CRM is significantly and favorably affect PI.

Hypothesis 2: CRM is significantly and favorably affect CS.

Hypothesis 3: CRM is significantly and favorably affect CV.

2.2 Product Innovation

In addition, innovation is the ability of businesses to turn their data into new insights [18]. Product invention is the first stage of the product life-cycle management process. This critical stage, which establishes the parameters for product features and production costs, will have a significant impact on the firm's future competitive position. Product portfolio renewal has long been thought of as a potential use for PI. PI encourages companies to introduce new items to the market and pushes them to upgrade their technological capabilities. However, PI known as the process of creating a unique selling point, superior product offering, or dependable product for market share. Companies that improve their PI portfolio will produce CV. This illustrates the relationship between the PI and CV. The impact of PI on CS is significant and provide more benefit for substantial association [19]. This study demonstrated how critical it is for businesses to continuously identify, handle, and evaluate PI considering their target market if they want to enhance CS. It is clear from this how the PI and CS are related. These interpretations lead to the following hypotheses of the investigation:

Hypothesis 4: PI is significantly and favorably affect CV.

Hypothesis 5: PI significantly and favorably affect CS.

2.3 Customer Value

A consumer defines CV as the benefits they experience from certain services that result from interactions, integration, and resource sharing. CV is typically conceptually positioned between a company's resources and the market outcomes that constitute the business's financial goal [20]. People view technology as a tool that makes CV possible. The process of generating new value while including the input of pertinent customers is known as the CV on co-creation. Furthermore, a study by Dananjoyo et al. (2020) focuses at the direct and indirect impacts of the CV and CS [21]. The study found a substantial positive association between CS and CV. This demonstrates the connection between the CV and CS. Based on this interpretation of the findings, the following hypothesis have been put out:

Hypothesis 6: CV significantly and favorably affect CS.

2.4 Customer Satisfaction

According to Odunlami (2014), CS is the measure of a customer's level of contentment or dissatisfaction depending on how well a product performs in comparison to their expectations [22]. Furthermore, another study shows that CS is the perspective that customers have about products or services after they use them [23]. Consequently, when clients receive products or services that above their expectations, CS is reached. Additionally, CS would most likely lead to clients planning to repurchase the products or services [24]. This interpretation of the data has led to the formulation of the following hypothesis:

Hypothesis 7: CRM significantly and favorably affect CS mediated by PI.

Hypothesis 8: CRM significantly and favorably affect CS mediated by CV

3 Research Method

3.1 Sample Profile

The proposed study model was examined using the quantitative research methodology. The customers of an Indonesian building material merchant were selected for the study using purpose sampling as the unit of analysis. One hundred seventy of the 180 clients have gotten

the survey and sent it back. As a result, 94.4 percent of respondents are showing up. Male respondents make up 54.7% of the sample, while female respondents make up 45.3%, according to Table 1. 13.5% of participants are between the ages of twenty and twenty-nine; 38.2% are between thirty and thirty-nine; 27.6% are between forty and forty-nine; and the remaining 20.7% are beyond fifty. More than two transactions had been made by the great majority of respondents, or around 92.9%.

Table 1. Respondents Demographics

<i>Respondents</i>	<i>Frequency</i>	<i>Percent (%)</i>
<i>Gender</i>		
Female	77	45.3
Male	93	54.7
<i>Age (years)</i>		
20 – 29	23	13.5
30 – 39	65	38.2
40 – 49	47	27.6
> 50	35	20.7
<i>Purchase Experience (times)</i>		
> 2	158	92.9
< 2	12	7.1

3.2 Research Instrument

Consumer of Indonesian retailers of building materials took part in a survey. In our research, we used the purposive sampling technique to look at the perspectives of customers who had dealt with sellers of building materials. The study's primary requirement was that participants have to be nationals of Indonesia. A seven-point Likert scale, with responses ranging from strongly disagree (1) to strongly agree (7), was used to evaluate the research constructs. Three indicators are used to quantify PI, three indicators are used to measure CV, and three indicators are used to measure CRM [14]. Accordingly, CS makes use of eight indications [25]. There are 17 indications in total that require further investigation.

3.3 Tool of Data Analysis

The two different techniques of partial least squares SEM (PLS-SEM) and covariance-based SEM (CB-SEM) are commonly used to examine the relationships between variables in a research model. A route modelling software with sufficient statistical power to evaluate a small sample size is PLS-SEM. Moreover, multivariate normality assumptions are not a need for PLS-SEM. Furthermore, PLS-SEM offers a succinct summary of the direction and strength of relationships, as well as the significance of particular markers in elucidating latent variables. In order to produce accurate outcomes, CB-SEM is dependent on multivariate normality requirements and a sizable sample size. For this investigation, PLS-SEM with Smart PLS 3.0 is employed. Scientists frequently use the Smart PLS program because it is generally acknowledged to be more successful than traditional regression analysis.

4 Results and Discussions

In this research, structural equation modelling, or SEM, was applied to evaluate hypotheses using the Smart PLS program. The information was supplied by a user of an Indonesian building material retailer. Table 2 showed the factor loading, CA, rho_A, CR, and AVE values. All four of the study's constructs met the requirements, with factor loading values more than 0.60 while reliability larger than 0.70. The study's findings indicate that the values of the constructs (CA, rho_A, and CR) for the following variables were more than 0.70: CRM (0.851, 0.882, 0.817), PI (0.824, 0.870, 0.846), CV (0.821, 0.817, 0.863), and CS (0.841, 0.861, 0.827). It indicated that the values of the constructs were reliable. The fact that the AVE values were higher than 0.50 further demonstrated the unidimensionality of the reflecting structures. Conversely, an AVE of less than 0.50 is negligible and indicates that there might be more substantial issues than just a lack of justification for the buildings. As so, the convergent validity and internal consistency dependence of the empirical model are recognized.

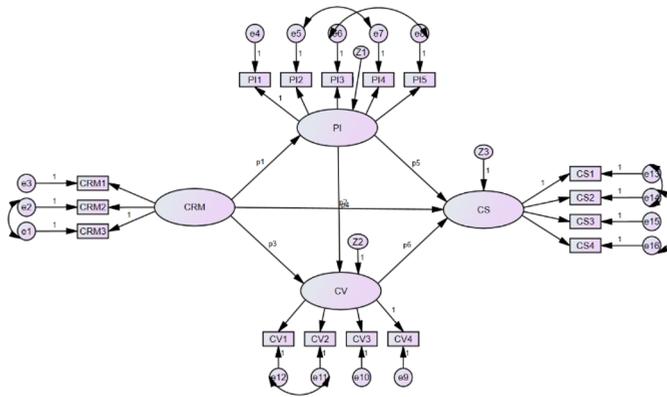


Figure 1. Research Model

Furthermore the findings of the discriminant validity analysis of the observed model were presented in table 3. state that the cut-off values were less than 0.70 for each of the four constructions. As needed by the Fornell-Larcker criterion, the results demonstrated values that were greater than the correlations between the variables. In other words, the empirical model satisfied the requirements for discriminant validity. The model fit was evaluated in detail using the saturated model, which incorporates d_{ULS} , d_G , SRMR, and Chi-Square. The model is competent, but it might be greatly improved, according to the fit values (SRMR = 0.074, NFI = 0.739, d_{ULS} = 1.095, d_G = 0.458, and Chi-Square = 371.172, respectively) presented by the finding.

The findings presented in Table 4 indicate that CRM significantly influences PI (T test = 4.758, β = 0.354), CS (t test = 12.674, β = 0.714), and CV (T test = 4.712, β = 0.365). It suggests a positive correlation between CRM and PI, CS, and CV. Overall, the results of the study support H1, H2, and H3. Additionally, the data indicates that CS is significantly impacted by both PI (t test = 4.168, β = 0.357) and CV (t test = 1.732, β = 0.439). The data indicates a positive correlation between PI and CV on CS. This result suggests support for hypothesis H5 and H6. The study's conclusions thus show that PI on CV is significant (t test = 3.862, β = 0.296). It shows that H4 is supported and that there is a positive correlation between PI and CV. Table 4's t-value, > 1.65 for one-tailed tests (t test = 8.419, β = 0.628), indicates a substantial indirect effect for PI in the relationship between CRM and CS. As a result, the relationship between CRM and CS has a significant indirect effect on CV (t test =

10.568, $\beta = 0.527$). PI and CV so act as a mediator between CRM and CS, thereby boosting H7 and H8.

Table 2. The Measurement of Internal Consistency and Convergent Validity

<i>Variables</i>	<i>Factor loading</i>	<i>CA</i>	<i>rho A</i>	<i>CR</i>	<i>AVE</i>
Customer Relationship Management (CRM)		0.851	0.882	0.817	0.581
CRM1	0.672				
CRM2	0.798				
CRM3	0.867				
Product Innovation (PI)		0.824	0.870	0.846	0.560
PI 1	0.850				
PI 2	0.685				
PI 3	0.877				
Customer Value (CV)		0.821	0.817	0.863	0.527
CV 1	0.619				
CV 2	0.748				
CV 3	0.863				
Customer Satisfaction (CS)		0.841	0.861	0.827	0.546
CS 1	0.860				
CS 2	0.749				
CS 3	0.778				
CS 4	0.791				
CS 5	0.739				
CS 6	0.654				
CS 7	0.812				
CS 8	0.743				

Note : CR= Composite Reliability, CA= Cronbachs Alpha, AVE= Average Variance Extracted

Table 3. Discriminant Validity

<i>Constructs</i>	<i>CV</i>	<i>CS</i>	<i>PI</i>	<i>CRM</i>
<i>Fornell-Larcker criterion</i>				
CV	0.754			
CS	0.795	0.785		
PI	0.723	0.767	0.794	
CRM	0.736	0.786	0.701	0.729
<i>Latent variable correlations</i>				
CV	1.000			
CS	0.769	1.000		
PI	0.729	0.764	1.000	
CRM	0.735	0.786	0.703	1.000

The results of the study indicate that CRM is one of the variables that can positively affect PI. The results of this investigation align with previous research conducted by [26], which indicated that the CRM system had an effect on PI. Additionally, the research by Shofiah et al. (2017) shows that CRM significantly affect PI [14]. The findings from the research indicate that, among other variables that might affect CV, CRM has a positive effect on CV. There is a strong correlation between CRM and CV, and the findings of this study are in line with previous research findings [16]. Long-term connections with clients through CRM to enhance CV even further and create competitiveness in the sector.

Table 4. The Direct and Indirect Relationship

<i>Hypotheses</i>	<i>Original sample</i>	<i>Standard deviation</i>	<i>T statistics</i>
<i>Direct effects</i>			
CRM → PI	0.354	0.071	4.758
CRM → CS	0.714	0.062	12.674
CRM → CV	0.365	0.089	4.712
PI → CV	0.296	0.093	3.862
PI → CS	0.357	0.078	5.903
CV → CS	0.439	0.064	9.179
<i>Indirect effects</i>			
CRM → PI → CS	0.628	0.075	8.419
CRM → CV → CS	0.527	0.084	10.568

Furthermore, even though PI is just one of several variables that can affect CV, it has a favourable relationship with CV. But after businesses improved their PI portfolio, CV production would be feasible. It has been shown that PI significantly improves CV. The results of our study demonstrate that PI, one of the variables that can affect CS, has a positive effect on CS. These conclusions are corroborated by the investigation's findings. The current study demonstrated the substantial relationship between PI and increased compatibility and benefit, both of which can lead to CS. Furthermore, the second study shows that consumers are exposed to new products more frequently, that CS will eventually increase, and that there is a positive correlation between PI and CS. Finally, one of the factors that can have an effect on CS is CV, and CV has a favourable relationship with CS. As such, our study shows that there is a substantial positive association between CV and CS.

5 Conclusion

The results results of the research indicate that CRM has a substantial and positive impact on PI. It implies that the higher the CRM, the better the PI. CRM has a notable and beneficial impact on CS, indicating a link between the two. It implies that the higher the CRM, the better the CS. CRM has a positive and substantial impact on CV. It implies that the higher the CRM, the better the CV. PI has a strong and favourable impact on CV, indicating a link between the two. It implies that the higher the PI, the better the CV. Since PI has a significant and positive influence on CS, there is a link between PI and CS. It implies that when PI increases, the CS gets better. As a result, there is a relationship between CV and CS since CV significantly and favourable affects CS. It implies that the higher the CV, the better the CS.

Although this study greatly advances our knowledge of CRM in the building material retailing industry, we also need to be mindful of its inherent limits. The primary site of the study was Indonesia, a nation included in the developing countries classification. It should be noted that the findings of the current study may not match those from industrialized nations. Consequently, further consideration is needed. This implies that more research in a developed nation with a distinct cultural context is necessary.

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