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Influence of marketing strategy on NPD performance: Role of customer perceived value and product characteristics

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Abstract

Marketing strategy maybe one of the major causes of new product development (NPD) project success. However, many organizations ignore adequate marketing strategy leading to a poor NPD performance. The primary purpose of this research was to investigate the associations among implementation of brand marketing strategy, customer perceived value (CPV), and NPD performance. The second objective was to determine whether the impact of customer perceived value on NPD project performance was moderated by productcharacteristics.

Keywords

1. Introduction

As the strategy of a firm relates to the firm's aspirations to achieve a desired position in its competitive external environment, the strategy of a project relates to the project's aspirations to achieve a desired position in its competitive stakeholder environment [1]. Additionally, development of project strategy is the stage where projectriskassessmentsare undertaken and the specific project execution methods are analyzed. Success during the subsequent phases of a project is highly dependent on the level of effort expended during this stage [2]. Brand

marketing strategy is a direction for a product that contributes to success of the new product development (NPD) project. Many studies have shown that brand marketing strategy may contribute to project performance [3,4]. Thus, implementation of brand marketing strategy is critical to the success of NPD projects. The development of brand marketing strategy is one of the major tasks during NPD project planning.

While project strategy is widely accepted in product development, empirical evidence that supports the importance of brand marketing strategy in new product development is lacking. This study attempts to fill the gap in the literature by identifying the roles of customer perceived valueand product characteristicsin the relationship between brand marketing strategy and new product development success. This research employed questionnaire survey for data collection. In order to explore the benefits of implementation of brand marketing strategy, an industry-wide survey was used to investigate NPD projects in the Taiwanese high-tech industry.

2. Development of research hypotheses

As indicated by the review of literature, strategy formulation plays an important role on a project. It is an important component of effective project management. The problem related with strategy adoption is one of the main reasons for project failures. However, most of the project strategies were difficult to identify and some were not clear and well organized. The causes of poor performance often originated in poor management particularly at the front-end during strategy formulation, rather than poor downstream execution [3]. If a problem is detected during strategy formulation, many other problems are minimized in the following phases.Thus, front-end is often cited as one of the most important, but difficult, phases of a project [5]. The results of previous studies indicated a correlation between strategy adoption and project performance[1,3,6]. Marketing strategy is often cited as one of the most important factor influencing customer perceived value[7,8]. A review of the literature also indicated that customer perceived value may improve NPD performance[9,10].Based on the relevant literature, the following hypotheses were postulated and tested:

H1: Implementation of brand marketing strategy positively influences NPD project outcomes.

H2: Implementation of brand marketing strategy positively influencescustomer perceived value.

H3: Customer perceived value positively influences NPD project outcomes.

H4: Customer perceived valuemediates the relationship betweenbrand marketing strategyand NPD project outcomes.

Above previous studies indicated that strategy implementation may play an important role in the performance of a project. In other words, projects can be made more successful by adopting various strategies. Additionally, prior research has indicated that product characteristics may play a moderating role in the relationship between practice use and project success [11-14]. Based on the previous research, the following research hypothesis was developed:

H5: Product characteristics moderate the relationship between customer perceived value and NPD project outcomes.

3. Methodology

3.1. Survey design and construct measurement

The items used to measure brand marketing strategy were based on [15,16]. On the other hand, the scales developed by [17] were adapted to evaluate customer perceived value. Additionally, items used to rate NPD performance were based on the surveys developed by[18].

3.2. Content validity

Content validity refers to the extent to which a measure represents all facets of a given concept. The content validity of the survey used in this study was tested through a literature review and interviews with new product development practitioners. The industry interviews encompassed 2 NPD practitioners. The refined assessment items were included in the final survey. Finally, copies of a draft survey were sent to three professors to pre-test for the clarity of questions. Their insights were also incorporated into the final version of the survey.

4. Results and analysis

4.1. Regression analysis results

The regression results of these models are presented inTable 1. When quality value was used as the dependent variable (Model 1), two independent variables were identified to be significant: product strategy and service strategy. The results of Model 3 suggest that brand positioning strategyand product strategy may contribute to service value. The multiple coefficient of determination (R squared) was 0.528. In other words, the independent variables, brand positioning strategyand product strategy, explained 52.8 percent of the variation in the dependent variable, service value.

Table 1. Regression analysis results for brand marketing strategy and customer perceived value

Independent variable	Quality value (Model 1)	Price value (Model 2)	Service value (Model 3)	Reputation (Model 4)
Promotion strategy	-0.054	-0.008	0.161	0.316*
Brand positioning strategy	-0.096	0.247	0.244*	-0.199
Product strategy	0.470***	0.247	0.572***	0.133
Service strategy	0.378**	0.171	-0.069	0.097
F-statistics	12.793***	6.177***	16.786***	2.078
R squared	0.460	0.292	0.528	0.122
Variance-inflation factors	<2	<2	<2	<2

Three regression models weredeveloped using the fourcustomer perceived value dimensions as independent variables and eachof the threeNPD performance measuresas a dependent variable in each model.The regression results of these models are presented inTable 2. As shown in Table 2, when market performance was used as the dependent variable (Model 1), two independent variable was identified to be significant: price value and reputation value. The findings indicate that price valueand reputation value are significantly related to market performance. The results of Model 2 suggest that quality value, price valueand reputation value contribute to overall benefit. The results of Model 3 show that levels of quality valueand reputation value are associated with customer satisfaction.

Table 2. Regression analysis results for customer perceived value and NPD performance

| Independent variable	Marketing performance (Model 1)	Overall benefit (Model 2)	Customer satisfaction (Model 3)
Quality value	0.193	0.309*	0.353*
Price value	0.378**	0.338**	0.198
Service value	-0.058	0.057	-0.054
Reputation value	0.314**	0.209*	0.264*
F-statistics	13.815***	18.413***	10.894***
R squared	0.479	0.551	0.421
Variance-inflation factors	<2	<2	<2

4.2.Moderating role of product characteristics

Cluster analysis was used in an exploratory mode to develop an objective classification of projects.In order to identify homogeneous projects clusters with the same kinds of perceptions of customer perceived value, a K-means cluster analysis was performed on the basis of the four dimensions of customer perceived value. The cluster analysis has identified two clusters for customer perceived value, with the cluster mean values of discriminating variables given in Table 3. The first cluster was labeled projects with high levels of customer perceived value. The second cluster consists of projects with low levels of customer perceived value.

Table 3.Discriminating variables of customer perceived value

Variable	Projects with high customer perceived value		Projects with lowcustomer perceived value		t-statistic	p-value
	Number	Mean	Number	Mean		
Quality value	35	5.75	30	4.60	7.595	0.000
Price value	35	5.80	30	4.67	7.631	0.000
Service value	35	5.62	30	4.50	5.481	0.000
Reputation value	35	5.50	30	4.48	5.581	0.000

The projects were examined by clustering them on the basis of differences in perceptions of customer perceived value. The study reveals two segments for customer perceived value. On the other hand, these subject projects were categorized according to 7seven data class variables: team size, innovation level, time availability, product complexity, environmental uncertainty, project duration, and project budget. Thus, for example, to test for the moderating influence of project budget on the relationship between customer perceived value and NPD performance in terms of overall benefit, 2 (customer perceived value) x 3 (project budget) analysis of variance (ANOVA) were performed. The two-way ANOVAs were utilized to determine the joint effects of customer perceived value and project budget on overall benefit. The results indicate a significant interaction of customer perceived value (CPS) and project budget (PB) for overall benefit, $F = 3.308$, $p < 0.05$. The results suggest that project budget have a moderating effect on the relationship betweencustomer perceived value and overall benefit.However, there is no significant result for the other data class variables. Figure 1 shows the relationship between customer perceived value and overall benefit at different project budget. The analyses suggest that projects with high and low budget were more likely to obtain benefit when they experience a high level of customer perceived value than projects with medium budget.
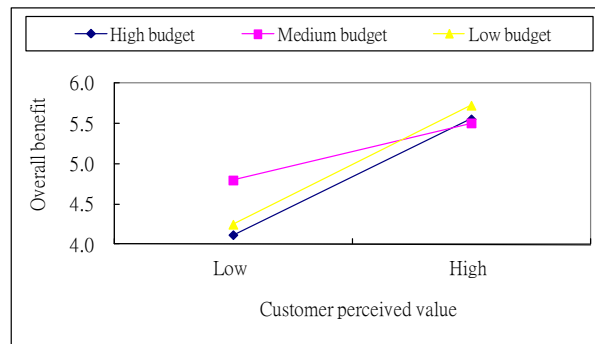
Figure 1.Project budget in the relationship betweencustomer perceived value and overall benefit

5. Conclusions

While the diverse benefits of project strategy have received substantial attention, empirical evidence that supports the importance of brand marketing strategy in new product development projects is lacking. The primary purpose of this study was to determine the relationships among brand marketing strategy,customer perceived value, and NPD performance. The second objective was to determine whether the impact of customer perceived value on NPD performance was moderated by product characteristics.

The results suggest that implementation of brand marketing strategy contributes significantly to customer perceived value. In addition, customer perceived value has a significant effect on NPD performance. The testing also supports a role for customer perceived value as a mediator in the relationship between brand marketing strategyimplementation and NPD performance. The findings also indicate that project budget have a moderating effect on the relationship between customer perceived value and NPD performance. Specifically, projects with

high and low budget were more likely to obtain benefit when they experience a high level of customer perceived value than projects with medium budget.

The research results offer guides to new productdevelopment process. Findings from this study are helpful to project planners in deciding whether to adopt brand marketing strategy in new product development process. Project planners can use the research results to modify their current process. However, one limitation of this study is its cross-sectional design. An objective for future study is to determine how brand marketing strategy is changing over time. Survey with a longitudinal design may be needed to gain deeper insights into the benefits of brand marketing strategy.

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