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# Influence of subjective interpretation, causation, and effectuation on initial venture sale<sup>☆</sup>

Vinit Parida<sup>a,b,\*</sup>, Nerine Mary George<sup>a</sup>, Tom Lahti<sup>c</sup>, Joakim Wincent<sup>a,c</sup>

<sup>a</sup> Luleå University of Technology, 971 87, Luleå, Sweden

<sup>b</sup> University of Vaasa, P.O. Box 700, Vaasa, Finland

<sup>c</sup> Hanken School of Economics, 00101, Helsinki, Finland

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## ABSTRACT

This study investigates the influence of subjective interpretations of strategy-relevant cues, specifically, perceived control/uncontrol and perceived gain/loss, on the relationship between causation or effectuation approach and the likelihood of initial venture sales. The results support the greater likelihood of initial sales when the entrepreneur increasingly relies on causation (albeit at low to medium levels) and has a greater perception of control. Similarly, perceived gains (instead of losses) strengthen the positive relationship between effectuation and initial sales. These results extend previous research on influence of the perceptions of control/uncontrol and gain/loss by supporting the influence of such subjective interpretations for strategic decision making. Furthermore, this study responds to recent calls for research on the different interpretations of the same environmental conditions and the resulting consequences for entrepreneurs.

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## 1. Introduction

Few studies to date have examined the influence of differences in subjective strategic interpretations of environmental conditions on venture performance (Krueger, 2000; McMullen & Shepherd, 2006). Larger and older firms generally rely on established information-processing processes, whereas among entrepreneurs in the same industry, interpretations of the environment may differ according to their beliefs, knowledge, or previous experience, which then provide different frameworks for such interpretations (Dutton & Jackson, 1987). Top management team (TMT) studies have researched how such interpretations trigger and sustain belief structures, as well as facilitate sense-making processes, involved in validating the relationship between environmental interpretation and reality (Sims & Gioia, 1986). This perspective may be particularly relevant to understanding the strategic decision-making approach that entrepreneurs use at venture founding to realize early sales.

Strategic issue theory states that even when exposed to the same industry conditions, individuals often construct radically different beliefs regarding how potential trends and events will influence a company's strategic situation (Daft & Weick, 1984). Specifically, this study

integrates Daft and Weick's theory regarding differences in subjective interpretations when making strategic decisions with Sarasvathy's (2001a) framework of causation and effectuation strategic approach. In this integration, this study focuses on the moderating role of two major strategic interpretations: strategic environment as either leading to 1) gain/loss or 2) being controllable/uncontrollable (Dutton & Jackson, 1987). Causation strategy is part of planning, which promotes entrepreneurs to better understand the value of a possibility when they have relevant knowledge, whereas effectuation logic highlights that entrepreneurs and stakeholders create and exploit unanticipated opportunities (Sarasvathy, 2001a). Thus, subjective interpretations, in turn, will provide direction toward a set of boundaries for how influential causation and effectuation are in leading to initial sales.

In the past, researchers have heavily debated the use and influence of causation or effectuation for entrepreneurs establishing new ventures (Dew, Sarasvathy, Read, & Wiltbank, 2009b; Sarasvathy, 2001a). According to Sarasvathy (1998), causation and effectuation can be considered the two foundational approaches that entrepreneurs use to make decisions in establishing a venture. The present study examines in what way an entrepreneur's subjective interpretation (control/uncontrol or gain-loss) of strategically relevant cues in the venture environment influence the likelihood of applying causation or effectuation to influence initial venture sales. Seemingly, no prior study has focused on how differences in founders' subjective strategic interpretations influence the effects of distinct strategy approaches in decision making. Building on recent studies of causation and effectuation, scholars have just begun to “determine the circumstances under which each approach

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\* Corresponding author at: Luleå University of Technology, Luleå, Sweden.  
E-mail address: vinit.parida@ltu.se (V. Parida).

is more appropriate for a particular individual” (Chandler, DeTienne, McKelvie, & Mumford, 2011, p. 376).

Growing evidence supports that reaching the initial sale is a challenging process because not even half of founders who register a venture succeed (Reynolds, 2007). Venture capitalists refer to this early stage as “death valley” because few ventures are able to generate initial revenue. In the formation stage of a venture, entrepreneurs have historically followed the advice of relying on causation strategic approach. However, many believe that this approach is unrealistic because entrepreneurs need to regularly act outside their predetermined plans (Fisher, 2012; Sarasvathy, 2001a). Entrepreneurs may benefit from applying effectuation strategic approach when they decide to start a venture by relying on experimentation and a step-by-step approach to change course as they move ahead (Chandler et al., 2011; Kalinic, Sarasvathy, & Forza, 2014; Sarasvathy & Kotha, 2001). Despite these discussions, scholars have yet to empirically examine whether causation or effectuation strategic approach is more effective for initial venture sales success. This is an important contribution to entrepreneurship literature (Fayolle & Liñán, 2014) because considerable research suggests that the success of a venture depends on initial actions and an understanding of whether the environment is control/uncontrol or presents an opportunity for gains/losses (Marion, Eddleston, Friar, & Deeds, 2015; Reynolds & Miller, 1992).

## 2. Theory and hypotheses

### 2.1. Role of subjective interpretation in strategic decision making

Entrepreneurs often take strategic actions in response to a subjective interpretation of an uncertain and complex environment. According to Dutton and Jackson (1987), individuals give meaning to ambiguous situations by categorizing them using strategic issue labels. The labels then serve as an address for a cognitive category. Such category-consistent information is easier to recall, and when individuals have incomplete information about situations or events, category-consistent information can fill these gaps. Categorization using strategic labels is useful in situations, such as new ventures, where information may have multiple and conflicting meanings. The interpretation of this information shapes the strategic response to the environment.

The present study posits that strategic issues research is of particular relevance for entrepreneurship because entrepreneurs typically face extensive ambiguity and uncertainty (i.e. reflected in incomplete and equivocal information) in pursuing their operations and tend to rely on cognitive biases and heuristics when interpreting their external environment (Alvarez & Busenitz, 2001). From such a perspective, categorizing situations provides a heuristic (a cue) that entrepreneurs can use to simplify information. Entrepreneurs tend to compare stimuli with prototypes that are idealized representations of the most typical member of a category and thus represent attributes with high cue validity (Baron, 2006).

Dutton and Jackson note that decision makers at the highest levels tend to interpret ambiguous environments as either opportunities or threats. According to this research, attributes with high cue validity for issues categorized as opportunities are “gains” and “controllable.” Similarly, attributes with high cue validity for issues categorized as threats are “losses” and “uncontrollable.” Interpreting the external environment as being controllable/uncontrollable and as gains/losses is relevant to how entrepreneurs execute and act using causation and effectuation logic. Controllable situations increase confidence in strategic actions, and greater perceptions of discretion in managing resources or resolving strategic actions. Conversely, uncontrollable situations relate to perceptions of less control of one’s actions and greater perceptions of strategic challenges (Jackson & Dutton, 1988). An issue labeled as a potential gain has an association with more risk-averse actions than one labeled as a potential loss (Chattopadhyay, Glick, & Huber, 2001). The argument claims that individuals subjectively value avoiding losses

more than experiencing gains. In other words, people risk more to avoid a loss of a particular amount than they risk to gain the same amount (Dutton & Jackson, 1987).

The following section integrates the theories on strategic interpretations with entrepreneurial strategic approaches, that is, causation and effectuation. The premise is that certain strategic interpretations work better with certain entrepreneurial decision making to increase the likelihood of initial sales. An entrepreneur’s perception of control/uncontrol moderates the relationship between causation and the likelihood of venture success. Similarly, the extent to which an entrepreneur labels an environment as representing gain/loss moderates the relationship between effectuation and the likelihood of venture success.

### 2.2. Perceived gain moderates the influence of effectuation on initial venture sales

Effectuation highlights that entrepreneurs and stakeholders create and exploit unanticipated opportunities (Dew, Read, Sarasvathy, & Wiltbank, 2011; Read, Song, & Smit, 2009a; Sarasvathy, 2001a). Effectuation supposes that neither demand nor supply exists and that both must be the result of entrepreneurial intervention in the marketplace (Dew, Read, Sarasvathy, & Wiltbank, 2009a; Sarasvathy, Dew, Read, & Wiltbank, 2003). Effectuation requires flexibility because conditions may suffer alterations owing to extensive uncertainty. In accordance with the principle of leveraging environmental contingencies, entrepreneurs using effectuation are also less likely to feel discouragement of the setbacks that unexpected contingencies cause (Read et al., 2009a; Wiltbank, Dew, Read, & Sarasvathy, 2006). Indeed, with effectuation, the success of a venture is endogenous to the entrepreneurs’ actions and those of their stakeholders, rather than exogenous, relying on factors that require the perception of greater control through the lens of causation (Dew et al., 2009b; Sarasvathy, 1998). Building on the aforementioned arguments, this study suggests that the choice of effectuation approach increases the likelihood that an entrepreneur will achieve initial sales.

Entrepreneurs who are effectual thinkers begin by defining an affordable loss. Thereafter, they use their means and those of their key stakeholders to find creative ways to generate economic gains (Dew et al., 2009b; Sarasvathy, 2001a). This gain is contingent on their actions rather than on the environment. Entrepreneurs who follow effectuation principles are more likely to work effectively when they subjectively label the external environment as “an opportunity to gain” as opposed to “a potential to lose a great deal.” As they focus on avoiding loss, these entrepreneurs can effectively mitigate downside risk (Dew et al., 2009a). Hence, they act on the principle that a potential loss should always be small in magnitude; thus, in the context of gain/loss perception, entrepreneurs perceive lower losses and higher gains—leading to the pursuit of creating and exploiting opportunities by perceiving higher gains. Furthermore, the effectual approach sometimes defines new ventures as experiments. Effectual entrepreneurs that perceive a situation as a potential gain might be better able to reject experiments with potential losses and choose the affordable ones (Chandler et al., 2011).

Drawing on insights in Krueger and Dickson (1994), this study poses that entrepreneurs that subjectively interpret a situation as a potential gain can leverage effectuation better than those who interpret the situation as a potential loss. Sarasvathy et al. (2003) highlight that effectuation presupposes that entrepreneurs have the required beliefs with regard to the tasks in starting a business and solving problems in the face of extensive environmental uncertainty and substantial ambiguity when bringing influential stakeholders on board. This idea implies that effectual entrepreneurs who interpret a situation as a potential gain are likely to leverage effectuation better in realizing favorable venture outcomes (Dew et al., 2009b; Read, Dew, Sarasvathy, & Song, 2009b). Following this reasoning, this study posits that entrepreneurs’ propensity to interpret an environment as an opportunity for gain

rather than loss moderates the predicted positive relationship between effectuation strategy and likelihood of the venture startup success.

**H1.** Perceived gain (loss) strengthens (weakens) the positive relationship between effectuation and achieving initial venture sales.

### 2.3. Perceived control moderates the influence of causation on initial venture sales

Causation requires planning, where predicting an environment is a means to alleviate uncertainty. Causation thinking allows entrepreneurs to better understand the value of a possibility when they have relevant knowledge (McMullen & Shepherd, 2006). Through the causation approach, entrepreneurs often search among information channels that are local (Dew et al., 2011) and readily available such as an inner circle of friends, confidants, trade publications, and trade shows.

While causation thinking could be a viable strategic approach, previous studies indicate that using causation may constrain entrepreneurs' progress in their ventures. Chwolk and Raith (2012) suggest that causation increases the probability of new venture failure. This suggestion is in line with the statement in Read et al. (2009b), p. 9 that "many people fail in getting something done because they analyze too much." Sarasvathy et al. (2003) indicate that causation often fail to predict where the markets will be or what new markets will emerge, thus suggesting a negative association between causation approach and initial sales. In addition, Honig, Davidsson, and Karlsson (2005) demonstrate that the learning strategies associated with causation do not correlate with progress in creating a new organization. Thus, reasons exist to assume an overall negative relationship between causation and the likelihood of achieving initial venture sales.

In contrast, Sarasvathy (2001a, 2001b) holds the view that in certain situations, causation can provide entrepreneurs an advantage for early success. However, limited studies have empirically examined circumstances under which the causation approach is beneficial (Chandler et al., 2011). This study proposes the moderating effects of perceived control and lack of control because causation relies on the possibility of predicting environments (Wiltbank et al., 2006). As Wiltbank, Read, Dew, and Sarasvathy (2009a) and Wiltbank, Sudek, and Read (2009b) stress, the step-by-step process and completion of a causation approach depend on the subjective interpretation of accurate predictions. Such predictions focus on which strategic goals will maximize value and which resources and capabilities most effectively lead to accomplishing the goals. Complementing causation approach assumes that the environment that is not perfectly controllable may render ineffective activities. Thomas, Clark, and Gioia (1993) find that managers who are more likely to engage in environmental scanning are more likely to interpret a situation as controllable. Specifically, as Gartner, Shaver, and Liao (2008) highlight, such entrepreneurs tend to perceive that exploiting an opportunity relies on the internal challenge of coping and adjusting through a planning process. Entrepreneurs that perceive their environments as controllable feel more confident in their decision making and actions under increasing levels of causation logic. In summary, this study posits that the perceived level of environment control exerts as a positive moderator for the relationship between causation and initial venture success.

**H2.** Perceived control (uncontrolled) strengthens (weakens) the positive relationship between causation and achieving initial venture sales.

## 3. Data and methods

### 3.1. Sample and data collection

The data for the predictors comes from a survey of company founders. The data for outcome variable on whether a venture realized

sales come from an archival source. The sampling frame focuses on single-founder Swedish ventures that appear in the governmental register in 2012 and had no employees at founding. By drawing on ventures founded in 2012, this study reduces period and cohort effects. One of the key benefits of focusing on a Swedish sample is that Swedish government regulations require the reporting of performance outcomes (e.g., sales). The sample represents sole-founder firms in order to limit heterogeneity in perceptions of being control/uncontrol, and gain/loss among employees and the founding team. Furthermore, in single founder firms, the effectuation and causation-related behaviors and perceptions of external environment are directly realized and not confounded by venture teams.

Seven academic researchers and six CEOs of ventures in the manufacturing industry participate in a pilot test of the questionnaire. The sample comprises a random selection of 1400 single-founder ventures started in 2012 with no employees from the database *Infotorg Företag*, the source of archival performance data. The CEO at each venture received the cover letter and questionnaire. After the initial mailing, the sample firms received two more reminder letters. From the sample of 1400 startups, we received complete responses from 149 firms and matched these firms with the archival financial information. No significant differences exist between responding and non-responding firms in terms of startup equity and industry SIC (4-digit classification of high-tech sectors). Based on pairwise deletion in the full model, there are 104 cases with full information.

### 3.2. Variables

**Likelihood of sale.** As the first sale is an important milestone for ventures (Delmar & Shane, 2003; Murphy, Trailer, & Hill, 1996; Reynolds & Miller, 1992), using a 3-year window, the study assigns 1 to ventures that had sales during this time period, and 0 otherwise. Among the ventures in the sample, only 16.20% had sales during their first 3 years after founding.

**Predictor variables.** The causation and effectuation scales follow Chandler et al. (2011). The causation scale was a nine-item, seven-point scale ranging from *not at all* to *a large extent* ( $\alpha = 0.86$ ), and the effectuation scale was an eight-item, seven-point scale ranging from *not at all* to *a large extent* ( $\alpha = 0.72$ ).

Following Thomas and McDaniels (1990), the survey asked the founder to list at least five strategic challenges related to commercialization that the firm faced and to rank them. Then, in reference to these strategic challenges, founders responded to items related to strategic information processing and labeling (gain/loss and control/uncontrol). The gain-loss scale was a 10-item, seven-point scale ranging from *not at all* to *a large extent* ( $\alpha = 0.80$ ) and the control/uncontrol scale was a five-item, seven-point scale ranging from *not at all* to *a large extent* ( $\alpha = 0.66$ ).

**Controls.** To limit the effects of rival explanations, the study controls for gender (1 = male; 0 = female), founder's age, number of business started previously, and Bricolage (8 items [1—strongly disagree to 7—strongly agree];  $\alpha = 0.84$ ) (Senyard, Baker, Steffens, & Davidsson, 2014).

## 4. Results

Table 1 displays the mean, standard deviation, and pairwise correlations. To ensure sampling representativeness, the sample weights follow 2-digit industry SNI (Swedish standard industrial classification) code; specifically, we use *pweight* option in logit specification in Stata 14 (DuMouchel & Duncan, 1983). H1 proposes that with increasing effectuation, the perception of gain (instead of loss) leads to a higher likelihood of sales (Model 2:  $\beta = -0.66$ ,  $p = 0.104$ ; Model 3:  $\beta = -1.07$ ,  $p < 0.05$ ). Fig. 1(a) shows that a higher perception of gain increases the likelihood of sales under increasing effectuation logic. H2 proposed that with increasing causation, higher perceived levels of

**Table 1**  
Mean, standard deviation, and correlations.

		Mean	SD	1	2	3	4	5	6	7	8	9
1	Achieved first sale (= 1; else = 0)	0.15	0.36	1.00								
2	Gender	0.82	0.39	0.13	1.00							
3	Age	47.49	12.03	-0.10	0.26	1.00						
5	Number of firms started previously	3.05	2.82	-0.04	0.20	0.32	1.00					
8	Bricolage	5.40	0.84	-0.10	-0.10	0.02	0.20	1.00				
9	Causation	4.46	1.13	-0.24	-0.19	0.17	0.06	0.16	1.00			
10	Effectuation	4.32	0.95	-0.17	-0.13	0.03	0.07	0.33	0.38	1.00		
11	Control/uncontrol	3.65	0.71	-0.17	-0.11	0.06	0.08	0.18	0.28	0.32	1.00	
12	Gain/loss	4.71	0.76	-0.17	-0.26	0.02	0.10	0.38	0.35	0.38	0.60	1.00

Notes.  
N = 104 based on casewise deletion in model 3 of Table 2.  
All pairwise correlations at |0.20| or above are significant at \*p < 0.05 or below (two-tailed).

control lead to higher likelihood of sales (Model 3:  $\beta = 0.68, p < 0.10$ ). In Fig. 1(b), under increasing causation, gains from a higher perceived level of control decline. However, from low to medium levels of causation, perceptions of higher control are beneficial.

**5. Discussion and conclusion**

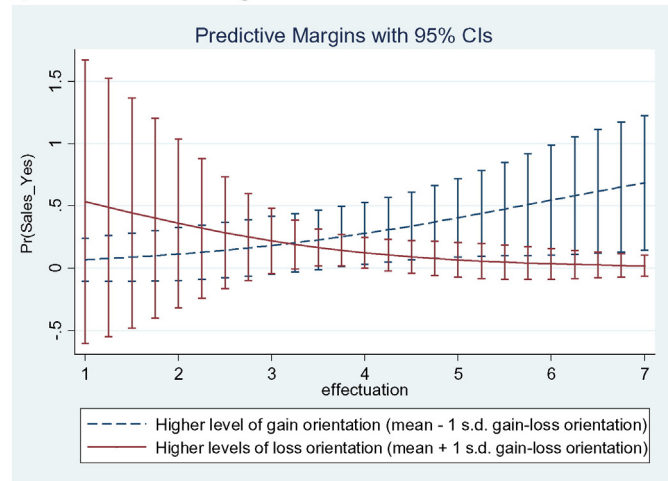
This study examines how the subjective interpretation of strategic cues in the environment under a causation or effectuation influences the likelihood of achieving initial venture sales. Two hypotheses suggest

that (H1) perceived environment controllability strengthens the influence of causation on initial venture sales, however, from low to medium levels of causation; and (H2) perceived gains in the environment strengthens the positive influence of effectuation on initial venture sales.

Although few studies have focused on the implications for entrepreneurship of subjective strategic perceptions of environmental conditions (Krueger, 2000; McMullen & Shepherd, 2006), the literature recognizes this area of inquiry as important to entrepreneurship research (Petrakis, Kostas, & Kafka, 2015). Building on Dutton and Jackson's (1987) study, the present study proposes that entrepreneurs can interpret an ambiguous environment as either an opportunity or a threat. This idea leads to categorizing the external environment as providing opportunity for "gain" or "control." The subjective interpretation of strategic cues, such as perceived control/uncontrol and gain/loss, will determine the relevance of how entrepreneurs leverage causation and effectuation. Thus, this research attempts to integrate theory on strategic and entrepreneurial interpretation with that of causation and effectuation frameworks.

The results support H1, which means that a higher perception of control increases the likelihood of initial sales from low to medium levels when entrepreneurs interpret the environment using causation. The explanation is that perceptions of the environment as controllable mitigate entrepreneur concerns about its uncertainty and ambiguity. We call on future work to assess why high levels of causation and control are associated with decreasing likelihood of sales. H2 argues that

a) Moderation effects of gain/loss



b) Moderation effects of control/uncontrol

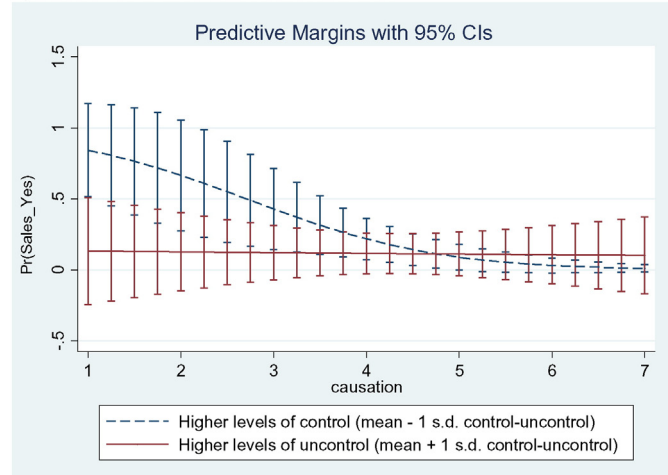


Fig. 1. Interaction plots.

**Table 2**  
Logistic regression.

	(1)	(2)	(3)
Gender	0.62 (1.03)	0.55 (1.00)	0.66 (0.93)
Age	-0.02 (0.03)	-0.03 (0.03)	-0.02 (0.03)
Number of firms started previously	-0.02 (0.08)	0.07 (0.08)	0.07 (0.08)
Bricolage	-0.38 (0.43)	0.03 (0.49)	0.21 (0.50)
Effectuation		3.05 (1.69)*	4.97 (2.27)****, ****
Control/uncontrol		-0.66 (0.78)	-3.42 (1.85)*
Causation		-0.64 (0.34)*	-3.07 (1.42)**
Gain/loss		1.95 (1.40)	3.62 (1.84)**
Effectuation × Gain/loss (H1)		-0.67* <sup>§</sup> (0.41)	-1.07 (0.54)**
Causation × Control/uncontrol (H2)			0.68 (0.39)*
_cons	1.00 (2.54)	-5.12 (5.40)	-4.45 (4.31)
N	116	104	104

Notes. standard errors in parentheses; \* p < 0.1; \*\* p < 0.05; \*\*\* p < 0.01; \*\*\*\* p < 0.001; <sup>§</sup> p = 0.104.



the higher the perceived gain, the more positive the influence of effectuation and the likelihood of achieving initial sales. The underlying reasoning for this implies that entrepreneurs who interpret the environment as having potential gain also prefer and benefit from effectuation versus those who interpret the environment as a having potential loss.

Testing these hypotheses offers novel theoretical perspectives about why entrepreneurs are more or less effective in using causation and effectuation and how interpretation of the environment seems to be the key to leveraging effectuation or causation. The present study addresses the call for research that goes beyond just examining direct influences on causation and effectuation (Dew et al., 2009a; Honig et al., 2005; Sarasvathy, 2001a, 2001b), identifying when one approach is more beneficial than another for early venture sales.

Finally, this study contributes to the entrepreneurship literature by using initial sales as an important milestone (Delmar & Shane, 2003; Murphy et al., 1996; Reynolds & Miller, 1992). The initial sale hinges on how an opportunity turns from an idea to success in the market and with early customers (Dimov, 2007, 2010). This empirical testing holds relevant implications for other studies contributing to the debate on the use and influence of causation and effectuation on performance outcomes.

The interpretation of the results require considering two major limitations. First, because this study builds on data from Swedish manufacturing ventures, the potential to generalize the findings has limitations. Although the manufacturing industry is relevant to studying the proposed conceptual framework, the ventures in this study tend to be highly sensitive to the external environment. The influence of subjective interpretations by founders in other ventures from other industries could provide further validation or expand this contribution. Second, using the initial likelihood of sale is a novel dependent variable and provides a clear contribution in the present study. However, future studies should take a longitudinal perspective toward sales over the first 3 or 5 years due to the lag-effect and other reasons (e.g., market acceptance of the product).

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