



## Antecedents and Consequences of Product Innovation: A Meta-Analytic Review

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## Antecedents and Consequences of Product Innovation: A Meta-Analytic Review

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### Abstract

*Building on the meta-analytic model suggested by Montoya-Weiss et al., Journal of Product Innovation Management, 11(5), 397-417, (1994), this study proposes a framework for product innovation to identify what strategies determine the drivers and outcomes of product innovation. Specifically, this meta-analytic study identifies key antecedents and consequences of product innovation and also examines the relationship between the antecedents and consequences of product innovation. A firm's size and firm's age were found to be the strongest determinants of product innovation, and new product sales was the most critical outcome of product innovation efforts. The model proffered in this study will motivate hypotheses to be examined by future researchers. The model also helps managers to identify the key drivers of product innovation.*

## **Antecedents and Consequences of Product Innovation: A Meta-Analytic Review**

### **THE IMPORTANCE OF PRODUCT INNOVATION**

Innovation matters. In the realm of consumer products, it impacts profitability and growth, and can help organizations succeed – even during harsh economic times. Consumers have become increasingly demanding and they expect more choice than ever before. According to a 2015 Nielsen report on new product innovation, about 63% consumers say, that they like when organizations offer new products and about 57% consumers agreed that they purchased a new product during their last trip to the grocery store. According to the Nielsen Global New Product Innovation Survey (2015), in Western Europe, 12,000 innovations were launched in four markets across 17 product categories between 2011 and 2013. In the U.S., there have been more than 20,000 launches since 2008. In India, there were more than 10,500 new launches in the FMCG sector in 2014. Competition is not the only hurdle. Manufacturers must also contend with growing media fragmentation, evolving retail distribution channels and tightening budgets, among other obstacles. As a result, the vast majority of new product introductions are taken out of distribution before the end of their launch year. Of over 60,000 new SKUs introduced in Europe over the last years, just over half (55%) made it to 26 weeks, and only 24% lived to reach a full year.

Parallel to its commercial success, product innovation (PI) has garnered interest from marketing researchers (Utterback and Abernathy 1975; Chandy and Tellis 1998; Danneels 2000; Krishnan and Ulrich 2001; Evanschitzky et al. 2012), all of whom have tried to investigate product innovation and new product development using a wide variety of lenses. This particular research in product innovation is unique however, and fairly recent; a meta-analysis on determinants of new product performance was conducted by Montoya-Weiss et al. (1994) and shows only 47 empirical studies related to the domain of new products. In another study, Evanschitzky et al. (2012) found 204 articles, focusing specifically on a meta-analytic review of the “success factors of product innovation”, between 1999 and 2011 – a little more than a decade; however, the focus in the study was only on the success factors of product innovation. We contend that a greater proportion of new products fail to succeed and empirical evidence of the same has been cited by the Nielsen Global New Product Innovation Survey (2015) which highlights that out of over 60,000 new SKUs introduced in Europe over the last few years, just over half (55%) made it to 26 weeks, and only 24% lived to reach a full year. Hence, we can conclude that research in product innovation has a broad scope but is

still fragmented. In the domain of product innovation, researchers have focused on a multitude of aspects, such as marketing strategy, market orientation, performance, success factors, incumbency and organizational size, and technology adoption. However, despite these developments, research indicates that manufacturers find it more difficult to conclusively comprehend and confidently determine what factors actually drive product innovation in a firm and their corresponding consequences (Calantone, et al. 2010).

We believe that the concepts and the comprehension of the drivers and consequences of product innovation may be useful to researchers and managers alike in justifying the need to constantly invest in innovation, the interpretive barriers to successful product innovation, and the inter-departmental collaboration needed to achieve the same (Dougherty 1992). The product innovation concept is intimately associated with developing new definitions of concepts such as new product success (NPS), new product development (NPD), and new product performance (Cooper 1979; Cooper and Kleinschmidt 1995; Montoya-Weiss et al. 1994) and past research has also identified the above constructs that aid in product innovation efforts to achieve the objectives of customer satisfaction, loyalty, and customer retention. Various academic extensions of product innovation have been identified, such as radical, incremental, architectural and modular innovation (Henderson and Clark 1990).

Although a plethora of literature exists in product innovation in both B2B and B2C contexts, literature providing a holistic and comprehensive set of factors that drive and emanate from the exercise of innovating a new product has emerged only in the last two decades and still remains fragmented in terms of the variables being investigated. A comprehensive model is needed to identify the various aspects of product innovation that have been investigated and those that need further scrutiny. This paper takes a meta-analytic approach to discover what works and what does not in the realm of new product innovation. We employ the meta-analytic model proposed by Montoya-Weiss et al. (1994) as the basis for understanding how the new product performance may be applicable in product innovation. We chose Montoya-Weiss et al. (1994) model as it is predicated on a comprehensive meta-analysis of extant literature in the domain of new product performance and identifies the key concepts that could potentially impact product innovation. In the study by Montoya-Weiss et al. (1994), 47 manuscripts on product performance were analysed, and each of these studies mandatorily satisfied two criteria, namely, that a dependent variable

measuring the performance of a new product was identified and that one or more explanatory factors (independent variables) were identified as determinants of new product performance; additionally, Montoya-Weiss et al. (1994) identify 16 correlations, from the 12 studies that had correlation results, to calculate the pair-wise estimates. In our study we adapt this model to product innovation and identify the key antecedents and consequences being researched in the domain. Our study sets out to (a) conduct a thorough review of the empirical studies pertaining to product innovation; (b) identify what strategies help to drive product innovation; (c) identify the consequences of product innovation; and (d) identify the potential gaps that would motivate hypotheses for further research.

### **A MODEL OF PRODUCT INNOVATION**

Among the various factors affecting product innovation, Montoya-Weiss et al. (1994) identify a set of 18 factors. They classify these 18 factors impacting new product performance into four categories of antecedents, namely, market environment, new product strategy, development process execution, and the organization. From the perspective of moderating variables, though Montoya-Weiss et al. (1994) propose the potential moderating effect of geographic region and the type of innovation on the relationship between the factors and performance, they do not expand on these propositions because the moderating effect of these factors are not completely addressed in the extant literature. Based on this theoretical model, Montoya-Weiss et al. (1994) conduct a meta-analysis to finally develop the causal model. We used this meta-analytic framework as the basis for our research. Based on our meta-analysis of empirical research in product innovation, we identify the following relational model for the antecedents and consequences of new product innovation (Fig. 1).

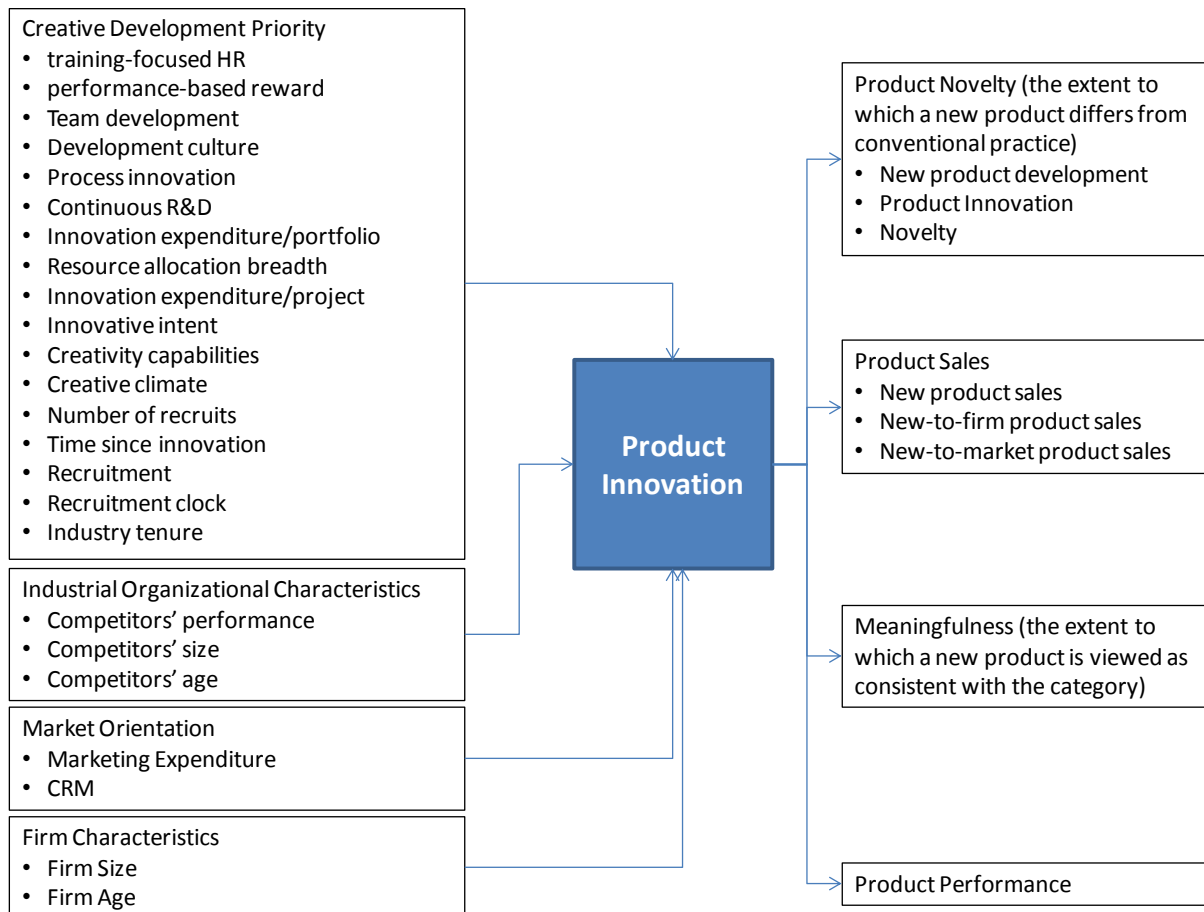


Figure 1

We identify 33 constructs in our product innovation framework. Twenty-five antecedents are further classified into creative development priority, industrial organization characteristics, market orientation, and firm characteristics antecedents. Finally, we identify eight consequences of product innovation that are classified into novelty, new product sales, meaningfulness, and product performance. The definitions of the various constructs are presented in.

## METHOD

We conducted a literature search in various scientific databases in order to identify studies pertaining to product innovation. Ebsco, Elsevier Science Direct, Proquest, and Google Scholar search engines were used to search abstracts and keywords. We searched for each construct present in the model offered by Montoya-Weiss et al. (1994) along with one of the following search terms: new product success, new product development, and new product performance. The initial search generated 117 empirical studies that were examined for the constructs. To be included in the analysis, each study needed to meet the following criteria:

the study was conducted in the domain of product innovation, the study reported the sample size, and the study reported the Pearson correlation coefficient or a test-statistic that can be converted to correlation. Based on these criteria, a total of 94 correlations were identified from the last two decades (1995–2015).

Empirical studies on product innovation have used multiple constructs and variables with similar definitions. To organize them as per Montoya-Weiss et al. (1994) framework, we coded, using standard procedures, the various antecedents, mediators, and consequences according to the definitions offered by Montoya-Weiss et al. (1994). Statistics were coded based on the results reported in each study and included sample size, means and standard deviations, correlation values, F-tests, and t-tests. Out of the 117 empirical studies identified originally, we used 94 relationships in the model. The final list of studies used in the empirical analysis is available on request.

The first step in the analysis involved converting the effect size values to correlations ( $r$ ). Correlation was taken as the primary metric as it is a scale-free measure and is easy to interpret. In order to include as many effect sizes as possible, we included studies using regression and structural equation modelling (SEM) (Peterson and Brown 2005). To convert coefficients of regression ( $\beta$ ) we used the formula  $r=0.98\beta+0.05\lambda$ , where  $\lambda$  equals to 1 when the coefficient is non-negative and 0 when it is negative (Peterson and Brown 2005). For SEM  $r$ -values, we took direct effect  $r$ -values as is. Where there were indirect effects present, we incorporated the same and calculated the total effect size. As Figure 2 illustrates, a frequency distribution of the relevant 84 correlations between antecedents of product innovation and consequences of product innovation indicates that the correlations range from  $-.200$  to  $.630$ . The correlation frequency is not exactly normally distributed ( $Z_{\text{Skewness}} = 0.855$ ,  $p > .05$ ;  $Z_{\text{Kurtosis}} = 1.178$ ,  $p > .05$ ;  $M = .13651$ ).

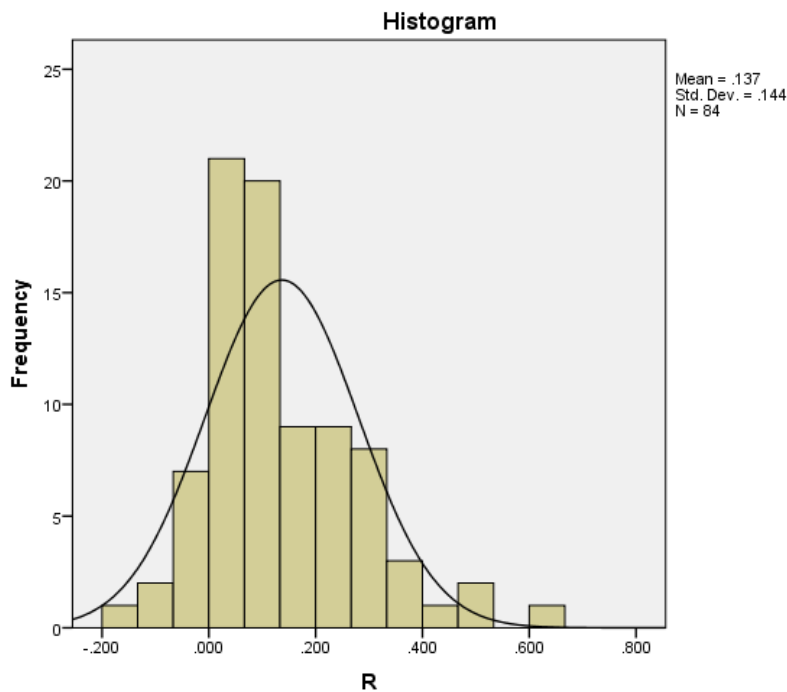


Figure 2

The effect sizes across studies were integrated by applying the Schmidt and Hunter's Bare Bones approach (2004) that accounts for sampling error to the r-values. While Hunter and Schmidt suggest that the Bare Bones approach may be deficient, other researchers have demonstrated that applying corrections for all artefacts can be inaccurate especially when the number of studies is small (Spector and Levine 1987). Since we identified very few studies (1–2 in some cases) for some relationships in our model, a more conservative approach was necessary (Allen et al. 2004).

While r-values were corrected for sampling error, they were not corrected for measurement error. Durvasula et al. (2012) recommend that researchers should report disattenuated effect sizes. This is because disattenuating effect sizes increases the effect sizes and, assuming reliabilities are about equal, all effect sizes will increase by about the same amount. This we think will result in increasing the cut-off values for categorizing the effects into small, medium, and large but not change the category to which the effect size is assigned. No corrections were made for other artefacts; these corrections are generally required when researchers wish to aggregate the studies and analyse the multivariate causal model.

Product innovation as an area of study is a moderately young field in the domain of marketing. The objective of this study was to examine whether the constructs and relationships pertaining to product innovation are of relevance, and to develop a framework



indicating the key relationships being examined by researchers, which would motivate hypotheses to be examined by future researchers (Janiszewski et al. 2003). At this stage of research in product innovation, a quantitative summary of the existing body of research can be a relevant contribution to literature. Schmidt et al. (1985) state that – “Even with small numbers of studies and small N’s, meta-analysis is still the optimal method for integrating findings across studies. In the absence of such interim meta-analyses, psychologists would likely base judgments on the findings of individual studies or non-quantitative (i.e., narrative) reviews of the literature—both of which are much more likely to lead to error. Thus, such meta-analyses are, in fact, very desirable” (p. 749).

In the Hedges and colleagues’ method (Hedges & Olkin, 1985; Hedges & Vevea, 1998), if  $r$  is being used, effect sizes are first converted into a standard normal metric, using Fisher’s (1921)  $r$ -to- $z$  transformation, before calculating a weighted average of these transformed scores (in which  $r_i$  is the effect size from study  $i$ ). Fisher’s transformation is given by:  $z_{ri} = \frac{1}{2} \ln\left(\frac{1+r_i}{1-r_i}\right)$  and the reverse transformation by  $r_i = \frac{e^{2z_{ri}} - 1}{e^{2z_{ri}} + 1}$ . To remove the slight positive bias found from Fisher-transformed  $r$ ’s, the effect sizes can be transformed with  $r - \left[\frac{r(1-r^2)}{2(n-3)}\right]$  before the Fisher transformation is applied. In the fixed-effects model, the transformed effect sizes are used to calculate an average in which each effect size is weighted by the inverse within-study variance of the study from which it came,  $z_r(\text{bar}) = \frac{\sum_{i=1}^{i=k} (w_i z_{ri})}{\sum_{i=1}^{i=k} (w_i)}$ , where the summation happens over ‘ $k$ ’ number of studies in the meta-analysis. When  $r$  is the effect size measure, the weight  $w_i$  is the sample size  $n_i$  less 3 i.e.,  $w_i = n_i - 3$ . The resulting weighted average is in the  $z$ -metric and should be converted back to  $r$  using equation  $r_i = \frac{e^{2z_{ri}} - 1}{e^{2z_{ri}} + 1}$ .

## RESULTS

Following Lipsey and Wilson’s (2001) proposal for analysing the magnitude of effect sizes ( $r < 0.10$  as small;  $r = 0.25$  as medium, and  $r > 0.40$  as large effect size), we present our results in Table 1. We find that the antecedents of product innovation have small-to-medium mean effects for the integrated effect size (corrected for sampling). Among the identified antecedents, 41 effect sizes were found to be significant. The significant antecedents identified were training-focused HR, performance-based reward, team development, development culture, firm size, process innovation, continuous R&D, marketing expenditure,

innovation expenditure/portfolio, resource allocation breadth, innovation expenditure/project, innovative intent, customer relationship management, creativity capabilities, creative climate, organizational age, number of recruits, time since innovation, recruitment, recruitment clock, and industry tenure.

<b>Relationships Identified</b>	<b>r-value</b>
Creative Development Priority → Product Novelty	0.027
Creative Development Priority → Product Sales	0.094
Creative Development Priority → Meaningfulness	0.277
Industrial Organizational Characteristics → Product Novelty	0.103
Industrial Organizational Characteristics → Product Sales	0.120
Industrial Organizational Characteristics → Meaningfulness	0.075
Market Orientation → Product Performance	0.320
Market Orientation → Product Sales	0.252
Market Orientation → Product Novelty	0.040
Firm Characteristics → Product Novelty	0.005
Firm Characteristics → Product Sales	0.393
Firm Characteristics → Meaningfulness	0.090

Table 1

Within the creative development priority antecedent, training-focused HR, performance-based reward, team development, development culture, process innovation, continuous R&D, innovation expenditure/portfolio, resource allocation breadth, innovation expenditure/project, innovative intent, creativity capabilities, creative climate, number of recruits, time since innovation, recruitment, recruitment clock and industry tenure were found to be significantly related to novelty, new product sales and meaningfulness; in the industrial organization characteristics antecedent, competitor fund size, performance and age were found to be significantly related to novelty; in market orientation antecedent, marketing expenditure and customer relationship management were found to be significantly related to new product sales and product performance; and finally, within the firm characteristics antecedent, firm size, organizational age, and fund family size were found to be significantly related to new product sales and novelty.

Similarly, for outcomes of product innovation we were able to identify primarily four categories of outcomes (i.e., consequences): product novelty, meaningfulness, and performance. Product novelty was significantly related to creative development priority, firm characteristics and industrial organizational characteristics; meaningfulness was significantly related to creative development priority; product sales was significantly related to creative development priority, firm characteristics, and market orientation; finally, product performance was significantly related to market orientation. We found small to medium effect sizes for these relationships. In the following sections we discuss the various constructs and relationships in light of our findings.

### **ANTECEDENTS OF PRODUCT INNOVATION**

In their meta-analysis Montoya-Weiss et al. (1994) classify the 18 factors impacting new product performance into four categories of antecedents, namely, market environment, new product strategy, development process execution, and the organization, and each of these are linked to the product performance variable. In our study we were able to identify 25 antecedents.

The 17 creative development priority antecedents are training-focused HR, performance-based reward, team development, development culture, process innovation, continuous R&D, innovation expenditure/portfolio, resource allocation breadth, innovation expenditure/project, innovative intent, creativity capabilities, creative climate, number of recruits, time since innovation, recruitment, recruitment clock and industry tenure.

Training-focused HR refer to training-focused HR practices develop the necessary human resources to achieve competitive advantage (Lau and Ngo 2004). Lau and Ngo (2004), suggest that an HR system which emphasizes extensive training, performance-based reward, and team development is necessary to create an organizational culture that is conducive to product innovation; they argue that a developmental culture is the missing link in-between HR system and innovation outcomes and that performance-based reward represents a commitment to employees, while developmental culture emphasizes flexibility and change and concerns growth, creativity, and external adaptation. Resource allocation in innovation project portfolios influences the type of projects a firm pursues, how many, and for how long. Decision making typically occurs at successive points along the firms' product

innovation process (Kester et al., 2011; Schmidt, Sarangee, and Montoya, 2009). Innovative intent describes the overall ambition associated with the portfolio of product innovation efforts, ranging from only minor improvements to existing products to novel forays into new market segments. By breadth Klingebiel et al. (2014) imply the parallelization of innovation efforts, indicating a strategy of providing initial funding to several different projects. In new product development, resources are spread across a number of projects, covering various aspects of potential future customer preferences (Hauser et al., 2006; Sorenson, 2000). The argument for breadth is that the more projects, the more aspects covered and, therefore, the higher the probability of at least some innovation success. Klingebiel et al. (2014) further state that "Firms vary in the degree of innovative ambition associated with their product development portfolios. Some firms concentrate on projects that closely relate to their existing products while others engage in a higher proportion of projects that are distant from their established knowledge and capability base (Hauser et al., 2006; Shane and Ulrich, 2004). A firm in the latter category might intend to bring out novel products, enter new product categories or expand into new market areas." Cheng et al. (2013) cite in their article that an online brand community (OBC) comprises of people who share common interests and who enjoy communicating with others via the Internet in order to share information, ideas, and goals without placing any limitations on geographical boundaries (Muniz and O'Guinn, 2001). Cheng et al. (2013) further argue that first, the creative climate of OBCs happens to be a firms' key driver of new product creativity; next, the firms' creativity capabilities build the creative climate for OBCs deployment mechanism; and finally, the interaction between creative climate and creativity capabilities is likely to increase new product creativity. As such they are able to identify creativity capabilities as fundamental building blocks that enable firms to enhance new product creativity in the OBCs. In connection with overcoming resource constraints on product innovation by recruiting talent, Rao and Drazin (2002) hypothesize that: (a) the younger an organization, the higher the probability of its recruiting talent from rivals, (b) the greater an organization's formal external connections, the higher the probability of its product innovation, (c) The younger an organization, the higher the probability of its recruiting talent from rivals, (d) the fewer an organization's external linkages, the higher the probability of its recruiting talent from competitors, (e) the younger an organization, the greater the industry tenure of the recruits it hires from competitors and the fewer an organization's linkages with other organizations, the greater the industry tenure of the recruits it hires from competitors, (f) the fewer an organization's linkages with other

organizations, the greater the industry tenure of the recruits it hires from competitors, (g) recruitment by an organization increases the probability of its product innovation, (h) the greater recruits' industry tenure, the higher the probability of product innovation in the hiring organization and the higher the performance of the organizations from which recruits are hired, the higher the probability of product innovation in the hiring organization, (i) the larger the organizations from which recruits are hired, the higher the probability of product innovation in the hiring organization and the older the organizations from which recruits are hired, the higher the probability of product innovation in the hiring organization, (j) the younger an organization, the greater the effect of recruits' characteristics on its product innovation, and finally, (k) the fewer an organization's linkages with other organizations, the greater the effect of recruits' characteristics on its product innovation. The above showcases an evidence of the importance of creative human resource availability in augmenting the likelihood of product innovation within an organization. Marketing expenditure and maintenance of relationships with customers, both of which are self-explanatory, have been classified under the category of market orientation, while the industrial organizational characteristics such as the competitor's fund size, age and performance also acted as a driver of product innovation.

### **CONSEQUENCES OF PRODUCT INNOVATION**

Similar to the antecedent classification, we have categorized the eight identified outcomes into product novelty, new product sales, product performance and meaningfulness outcomes. Product novelty has been defined as "the extent to which a new product differs from conventional practice" (Cheng et al. 2013) and we have conceptualized this category to include all forms and kinds of product innovation and new product development, depending on the available empirical evidence from extant research. The category of product sales includes three categories, namely all new product sales, all product sales that are new in the market and all product sales that are not new to the market but are new relative to the company's existing portfolio of products. While the third category, product performance refers to the performance of new products, the final factor meaningfulness is defined as "the extent to which a new product is viewed as consistent with the category" (Cheng et al. 2013).

## DISCUSSION

There are two specific contributions of our study. First, it synthesizes and empirically measures how antecedents and consequences impact one another. Second, it provides some non-intuitive findings specific to product innovation. For example, "meaningfulness" is found to be an important outcome rather than an antecedent of product innovation. Similarly, new product development that intuitively appears to be an obvious outcome of product innovation is only supported by weak empirical values of effect sizes. Also, given the exponential growth and adoption of technology, product innovation is one of the next few frontiers in marketing. Our study provides a framework for future empirical research as well as meta-analysis in what is a growing field.

The nature of the relationships explored in product innovation is a general indicator of the focus of researchers in this moderately new field. We find that empirical research in product innovation has revolved around an understanding of industrial organizational dynamics and firm specific idiosyncrasies, and the most commonly studied features in this domain are market orientation of firms, creative intent and creative environment within firms, HR prioritization of creative expectations of the firm, and market orientation. Product innovation, until recently, has been primarily focused on new product development processes, factors contributing to new product success and performance of new products. The last two decades, however, shows a shift in focus—with the advent and adoption of e-commerce, marketing efforts are being directed toward new technology adoption and the simultaneous focus on product innovation. A comparison of our analysis with that of Montoya-Weiss et al. (1994) indicates that, as in traditional marketing, influence of production innovation strategies on outcomes is at least as important as the factors that drive new product performance. Furthermore, as theorized by Montoya-Weiss et al. (1994), the relative effectiveness of the different antecedents could potentially vary across moderators such as type of innovation and geographical location of the firm engaging in innovation. However, since Montoya-Weiss et al. (1994) do not specifically focus on the factors affecting product innovation but instead focus on the factors affecting new product performance, there could be potential gaps in research. For example, more empirical studies may be conducted to study the influence of product innovation strategies on the moderators discussed above. Our analysis also reveals that new product sales were most strongly related to firm size and firm age. However, further investigation is required to verify the strength of the relationships; this

indicates the importance of investigating all the product innovation outcomes in order to better understand the impact of product innovation strategies.

More investigation is required to understand the impact of product innovation on consequences such as meaningfulness, and on dyadic consequences such as cooperation and consumer co-creation. We discovered that little research exists to link product innovation efforts in the hi-tech context and manufacturing business context to meaningfulness, cooperation and consumer co-creation. The growing popularity of online social media offers a new platform for marketing managers to relate to their customers in all types of consumer co-creation efforts. A recent exploratory study by Jung et al. (2013) suggests that online social networks could provide new product innovation opportunities and add value to the business. There is scope to develop more innovative ways to engage consumers on these platforms and identify metrics to monitor online social media activity.

We also found that little agreement exists on the various causal relationships reported in empirical research. Researchers have explored either the antecedents and consequences of new product performance or the antecedents and consequences of new product success in isolation. Our model identifies the various concepts that have already been investigated and can be used as the basis to design empirical research to study the various causal relationships, in order to improve the effectiveness of product innovation research and provide greater agreement in the literature. However, the presence of a model should not limit research entirely. During our initial analysis we categorized antecedents and consequences in different generic buckets. This shortcoming may be addressed later through further scrutiny.

Another issue identified was that of definitions and scales. It is possible that different definitions have been developed by different researchers to measure similar and in some cases the same construct. The definitions were either borrowed from literature or were developed specifically for the study. The first step in identifying a comprehensive nomological framework and for greater agreement in the product innovation literature requires that we adopt consistent definitions and develop measures possessing cross-cultural validity.

Future researchers could examine how principles of pricing interact with product innovation, specifically with the different types of product innovation such as radical, incremental, architectural and modular innovation (Henderson and Clark 1990) and the valence of the impact on the customer related consequences of product innovation such as new product sales performance.

## **MANAGERIAL IMPLICATIONS**

Our study provides important guidelines pertaining to strategic interventions by managers, specifically for manufacturing businesses; however, these determinants and consequences of product innovation are subject to further research and empirical refinement and validation. On the basis of our findings, we conjecture and suggest that businesses seeking to commercialize more breakthrough innovations should focus on a strong market orientation, businesses wishing to match their competitors with comparable products should direct their attention toward a strong competitor orientation, and businesses seeking to extend existing product lines should focus on a strong inter-functional coordination, especially with effective aid from the human resource department. However, businesses should note that while emphasizing one aspect of market orientation over another may favour development of one new product type, it will probably limit development of another. The potential trade-offs should be carefully weighed while developing a market-focused strategy (cf. Lukas 1999; cited in Lukas and Ferrell 2000, p. 245).

## **LIMITATIONS AND FURTHER RESEARCH**

The suggested model borrows from both empirical and theoretical research conducted in the domain of product innovation. Several relationships such as pricing→new product sales, new product sales→revenues, market orientation→type of innovation→new product sales etc. and others could not be empirically tested due to unavailability of data; they provide scope for further research. Also, we found that in most studies, the focus is on only one or two causal relationships with different definitions for constructs and variables. This indicates that there is a need to consolidate definitions and scales of the various concepts being examined.

Further, our model is a collation of the various concepts and constructs identified from the literature available; it may not be exhaustive or exclusive. The keywords used in searching for articles were the same as the ones identified by extant literature; topic and title



searches yield different results. Montoya-Weiss et al. (1994), in their meta-analysis, identified several constructs in product innovation that leaves scope for further research.

Future researchers could examine the role of dyadic antecedents such as cooperation and consumer co-creation in the context of product innovation. Consumer co-creation and cooperation, which could include the degree of cooperation between two the manufacturer and consumer, are both critical variables for managers focusing on developing, introducing and investing in the appropriate kind of context-dependent product innovation. Product characteristics such as price and involvement level are expected to affect the product innovation construct and require further examination.

Our framework can help researchers and managers to identify some of the critical aspects of product innovation. It could help researchers to develop better models through empirical investigation and managers to increase their customer base and to improve their return on investment on their efforts in product development and product conceptualization.

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