

A FIELD RESEARCH STUDY EXPLORING THE
RELATIONSHIPS AMONG FACTORS IN NEW PRODUCT DEVELOPMENT
AND THE SUCCESS OF NEW PRODUCTS

Sharon M. Bruns
Professor of Accounting
404 Hayden Hall
Northeastern University
Boston MA 02115
s.bruns@neu.edu
phone: 617-373-4648
fax: 617-373-8814

Julie H. Hertenstein
Associate Professor of Accounting
404 Hayden Hall
Northeastern University
Boston MA 02115
j.hertenstein@neu.edu
phone: 617-373-4711
fax: 617-373-8814

Marjorie B. Platt
Professor of Accounting
404 Hayden Hall
Northeastern University
Boston MA 02115
m.platt@neu.edu
phone: 617-373-4647
fax: 617-373-8814

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Abstract

While considerable research has been undertaken to study how technical factors, marketing factors and formal NPD structures and processes affect new product success, little if any research exists which relates the role of accounting and finance NPD members and their expertise, or the use of financial measures, to new product success. This field research study uses in-person interviews and a detailed, structured interview protocol to gather both quantitative data and responses to open questions. The preliminary results confirm earlier findings on the importance of technical factors (technical personnel and expertise) and marketing factors (marketing personnel and expertise) to new product success. It also confirms that the multifunctional team structure was used for all NPD teams, and that all NPD projects used a formal, multistage process. Moving beyond findings that confirm earlier research, we further find that successful projects are more likely to use outwardly focused, market oriented metrics like profit margin, sales, and sales growth whereas less successful projects were more inwardly focused, comparing development cost to budget. In addition, while the timing of the involvement of the accounting/finance personnel did not differ between the successful and less successful projects, what distinguished the successful from less successful projects were the types of contributions made by these personnel. When participating on the more successful projects, their contributions were more proactive and flexible, for example, adapting financial models to fit the project situation, estimating a target cost for the product, or developing capital budget proposals for project capital expenditures. By contrast, when part of a less successful project, accounting/finance personnel were more reactive, for example, they were more likely to check costs developed by others. Thus, effective new product development needs the combination of financial skills and expertise and the ability to apply these skills in a thoughtful and innovative way.

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We are conducting a large field research study which examines many factors involved in new product development (NPD). While considerable research has been undertaken to study how technical factors, marketing factors and formal NPD stages affect how firms create and maintain value from NPD, little if any research exists which relates the role of accounting and finance members on NPD teams to new product success. This study seeks to explore this issue in depth and to extend prior research by specifically examining the relationships between financial personnel, financial analysis and project performance measures and new product outcomes.

Field research methodology was chosen in order to gather in-depth insight into actual products which were both successful and less than successful. Field studies frequently are used to generate hypotheses, rather than to test them, because of sample size and generalization issues. We have sought to mine the benefits of field research while maintaining the ability to suggest relationships between factors. In addition, we have designed a detailed interview protocol which is administered personally by at least one of the three researchers to major participants in each project studied. This structured protocol uses Likert-type scale answers to provide for quantitative data, but also provides the interviewee the opportunity to elaborate on the details of issues of interest in each product. Our ultimate sample goal is at least forty projects.

The following sections of this paper (1) detail the prior research relevant to this research project; (2) state our primary research questions; and (3) elaborate on our research methodology and present preliminary results from the project.

Literature Review

Research in NPD has focused on how organizational resources, structures, systems and processes are associated with superior new product performance (Cooper, 1996; Hertenstein and Platt, 2001; Mizik and Jacobson, 2003). While much of the literature has emphasized the importance of creating value through the introduction of new products, there has also been research into the appropriation of that value to forestall competition. (Mizik and Jacobson, 2003). Further, Hertenstein and Platt (in press) emphasize the importance of preserving value by efficiently managing resources associated with value creation and appropriation.

Value Creation

Much research into value creation focuses on the impact of major functions of the NPD process on new product success. The factors that have been found to be most important in influencing new product outcomes are technology and marketing resources, including personnel, their skills and expertise, the proficiency of their performance and the timing of their participation. Typically, research has shown that increases in technology and marketing resources are associated with greater success in new product outcomes (Calantone and di Benedetto, 1988; Cooper and Kleinschmidt, 1987; Montoya-Weiss and Calantone, 1994; Zirger and Maidique, 1990).

Accounting/finance personnel, skills, and expertise may also influence new product success. Their impact on new product success tends to focus on the use and impact of “upfront” business analysis, which may include such things as forecasting costs and sales, calculating discounted cash flow or return on investment analyses, or conducting a detailed profitability analysis or review of product, marketing and

distribution costs (Cooper and Kleinschmidt, 1986, 1987; Montoya-Weiss and Calantone, 1994). Most studies report that some early financial analysis is related to new product success. However, less is known about the relationship between accounting/finance personnel, their skills, expertise, proficiency and the time of their participation and new product success, and more research is required. (Hertenstein and Platt, 2001).

Resources or skills alone will not ensure a successful new product. A well-designed, repeatable NPD process is also necessary to achieve new product success by ensuring that critical tasks and analyses will be performed. (Cooper and Edgett, 1996; Cooper and Kleinschmidt, 1995; Rochford and Rudelius, 1997). Cooper and colleagues characterize a high quality NPD process as one that is complete, focuses on quality execution, emphasizes up-front homework, is flexible, forms a sharp, early definition of the product before development, and involves tough go/kill decision points.

Just as key up-front homework is critical to new product success, so is early involvement of key personnel in the NPD process. Early involvement of marketing personnel in the NPD process yielded substantial returns to new product success (Hise, O'Neal, Parasuraman and McNeal, 1990). Researchers have also found that early involvement of other key players in NPD results in greater success, including production personnel (Fitzgerald, 1997a, b; Larson, 1988), component suppliers (Fitzgerald, 1997a,b; Harbour, 1991), and procurement engineers (Carbone, 1996; Minahan, 1998). Hertenstein and Platt (2001) argue that including a representative from the accounting/finance function early in the NPD process is most likely associated with more successful new product outcomes.

One powerful way that firms can control NPD outcomes is through the structure and specific membership of NPD teams (Takeuchi and Nonaka, 1986). In particular, Takeuchi and Nonaka point out that separate, functional teams handing off work in a sequential process is not as effective as an integrated team approach for NPD. Empirical research has shown that effectively integrating the R&D and marketing functions increases the chance of new product success (Griffin and Hauser, 1992; Hise, et. al., 1990; Pinto and Pinto, 1990; Song, Neeley and Zhao, 1996; Souder and Chakrabarti, 1978).

Extending the notion that integration and collaboration among the key players, R&D and marketing, are necessary for new product success, Moenaert and Souder (1990) model information transfer and sharing among functional areas represented on NPD teams. Further, Rochford and Rudelius (1992) report that a surprising number of functional areas do not contribute or use information from other team members in many parts of the NPD stage-gate process.

Value Appropriation

Mizik and Jacobson (2003) indicate that creating value is but a first step for the firm to undertake in order to realize that value. Once value has been created through innovating, producing, and delivering products to market, the firm must be able to “restrict competitive forces so as to be able to appropriate some of the value it has created in the form of profit” (Mizik and Jacobson, 2003, p. 63). Many aspects of marketing are aimed at appropriating value, including advertising, reputation and brand effects, and customer switching costs. Value appropriation affects not only the amount of the

advantage that a firm is able to capture, but also the length of time that the advantage persists. (Mizik and Jacobson, 2003).

Other factors that influence whether a firm appropriates the value it has created include use of a cross-functional, dedicated accountable team with a strong leader and top management support (Cooper and Kleinschmidt, 1994); and solid up-front or predevelopment homework, which includes such tasks as initial screening, preliminary technical and market assessments, detailed market studies and detailed business and financial analysis (Ali, Krapfel and LaBahn, 1995; Cooper and Kleinschmidt, 1994). Rapid time-to-market has also been identified as important to appropriating value. This can be affected by rapid design transfer strategy (Nobeoka and Cusumano, 1997), recognized organizational commitment and top management support (Mabert, Muth and Schmenner, 1992). Another key driver of fast-paced product development is having a customer-focused, market-oriented new product effort (Cooper and Kleinschmidt, 1994).

Value Preservation

While others have focused on value creation and value appropriation, Hertenstein and Platt (in press) believe it is also important to focus on a third element, value preservation. Whereas value creation is largely about making the right product, value preservation is about making the product right. Fundamentally, the value the company ultimately realizes from its innovation is the difference between its revenues, and its costs, where costs represent the resources consumed for the innovation. By carefully managing and controlling the resources associated with the product, value is preserved. Resources must be broadly conceived, including, for example, resources or costs

associated with development, capital investment, packaging, distribution, advertising, selling and customer service as well as manufacturing or product costs.

Preserving value and controlling product cost begin early in the NPD process with up-front analysis, which includes not only preliminary assessment of the market and technology, but also financial analysis which provides a preliminary estimate of the potential value of the opportunity. Related to this preliminary financial analysis is often the establishment of a target cost. Target costing helps companies to attain adequate margins, hence preserving the value realized by the company (Boer and Ettl, 1999); however Davila and Wouters (2004) indicate that when factors such as technology, time-to-market, or customer needs are more pressing than competing on cost, firms may use alternative practices to manage costs during product development.

Finally, measures are carefully monitored not only throughout the product development process, but through product launch and commercialization to ensure ongoing value preservation. Several studies report consistent findings regarding the specific measures used to assess new product performance (Hertenstein and Platt, 1997; Hultink and Robben, 1995; Mahajan and Wind, 1992; Page, 1993). While most of these studies reported measures most frequently used, Hertenstein and Platt (1997) reported measures most emphasized during product development. The performance measures consistently found to be used by firms monitoring new product performance include profit, revenue, market share, ROI, and customer-related measures such as meeting customer needs or customer satisfaction. Interestingly, among the most frequently used or emphasized metrics are several traditional financial measures that speak to value preservation such as profit, profit margins and ROI.

Hertenstein and Platt (1997) found that key financial measures ranked up with the key non-financial measures in terms of the actual importance placed on those measures during product development. Further, Davila (2000) indicates that better cost information during product development is positively associated with better financial performance of the product. Accounting/finance expertise, in the form of accounting/finance members of the product development team, is also viewed as making a valuable contribution to the product development effort (Hertenstein and Platt 2000; Mabert et al., 1992).

Nonetheless, there is evidence that financial analysis is not done as frequently as might be surmised nor emphasized as much as it should be. Hertenstein and Platt (1997) found that key product development personnel believed that even more importance should be placed on financial measures than was actually being placed on them during product development. There also seems to be a large drop in the proportion of companies that report conducting financial analysis early in the product development process versus those who report doing it later (Cooper and Kleinschmidt, 1986; Rochford and Rudelius 1992). One reason for this might be the lack of participation by accounting/finance personnel in product development teams, especially the lack of participation throughout the entire product development process (Trygg, 1993). Another obstacle is the lack of financial information relevant to innovation and new product development maintained in the typical accounting system. For example, companies lack cost, revenue, and profitability data by individual product (Griffin, 1993; Meyer, Tertzakian and Utterback, 1997) and they do not consistently maintain such key information as manufacturing engineering, retooling or market introduction costs (Meyer et. al., 1997).

Research Questions

We want to replicate a few key earlier findings concerning the relationship between new product success and the deployment and proficiency of critical functional resources, including primarily technology (R&D) and marketing resources, as well as the use of a well designed and monitored new product development process and the use of multifunctional NPD teams. Replication is important to establish credibility of the study's findings. Thus, we will address the following research questions:

- R1. What is the relationship between the adequacy of technology, marketing and other functional area resources and new product success?
- R2. What is the relationship between using a well designed NPD process and new product success?
- R3. How does NPD team organizational structure relate to new product success?

This study seeks to identify factors that differentiate successful from less successful NPD projects. If a company works to preserve the value of its NPD effort, then projects identified as having greater commercial success should be associated with greater financial success than less successful projects. Hence, we will examine:

- R4. What is the relationship between commercial success and new product financial success?

Prior research has suggested that customer driven, market oriented products are more likely to be successful. Other factors that may create a competitive advantage and thus capture a stronger market position include superior quality, cost reduction, and improved ease of use. We will address:

- R5. What is the relationship between competitive advantage and new product success?

This study extends knowledge about NPD team structure by examining the particular composition of the teams and the quality of each team member's contribution to the project. Thus, we examine the following research questions:

R6. What specific functional areas are represented on NPD teams?

R7. How does team composition relate to new product success?

R8. What is the relationship between the quality of each team member's contributions to the NPD effort and new product success?

Prior research has indicated that firms with successful new product outcomes tend to include key development personnel (e.g., marketing, industrial design) on new product development teams from inception (Hise et. al., 1990). Hertenstein and Platt (2001) also have suggested that the same may be true for accounting/finance personnel involved with new product development efforts. Thus, we will address the following research question:

R9. Does earlier inclusion of the accounting/finance person on the NPD team lead to greater new product success?

While prior literature has discussed and gathered some evidence of the effect of accounting/finance personnel, expertise and skills on new product success, the effort has led to general and sometimes vague inferences. In this study we systematically address the impact of the deployment and proficiency of accounting/finance efforts on new product outcomes. Thus, we will address the following research questions:

R10. What is the relationship between the specific tasks or analyses performed by accounting/finance members for the NPD team and new product success?

Finally, management control of the NPD process typically includes monitoring the progress of the development project as well as determining the performance of the product after launch using both financial and non-financial performance measures. We address the following research questions concerning performance measurement:

R11. What is the relationship between performance measures used to assess progress during the development process and new product success?

R12. What is the relationship between performance measures used to evaluate product outcomes and new product success?

Methodology

This study analyzes individual new product development projects. We contacted individuals who worked in companies that design and manufacture tangible products to seek their company's participation in the study. We asked each participant to supply at least two new product development projects for study, one deemed commercially successful and one considered not (or less) successful.¹ For each project, we interviewed, in person, the project manager or another significant contributing member of the development team.

The data collection effort for this research project is ongoing. Thus, this paper reports preliminary findings from eleven projects – eight successful and three less successful projects. These eleven projects represent six companies. The companies span a variety of industries, including food products, medical instruments, and electronics.

A structured interview protocol was used to elicit information about the characteristics of the new product developed, the market for the new product, measures of final product success, the use of and implementation of a standardized new product development process, the new product development team structure and contributions by individual members of the team, how the project was assessed during development and resources available for the project. The interview consisted of mostly closed questions; subjects were asked to respond with a number on a Likert-type scale or with a Yes/No answer. The interview also included some open questions to elicit further discussion on key points such as factors that lead to a successful or unsuccessful project launch, specific examples of strategic influences on the project and which performance measures addressed key strategic goals. In addition, respondents often elaborated on their responses

¹ We requested at least two projects per company but some companies respond with only a single project.

to closed questions and researchers probed for information that was complete and in context. In such instances, the respondent's comments were noted.

At the beginning of the interview, the project manager described the new product that was developed and indicated its level of commercial success. Specifically, the project manager indicated whether the new product was killed (never went to market), went to market but failed commercially, went to market and was a moderate commercial success or went to market and was a strong commercial success. We define projects that are successful as the latter two response options: a moderate or strong commercial success. However, we define projects as less successful if they were killed or failed commercially.

Despite asking contacts for at least one project that was successful and one that was not, most of the projects on which we have collected data are considered to be successful (6 vs. 3). This may result from the fact that managers are more comfortable talking about successes than failures. Another two projects were launched relatively recently, so it is not possible to determine their ultimate commercial success. However, based on the fact that each of these products had favorable initial customer response and that they were exceeding initial financial targets, these two projects were included with the successful projects. Thus, we are reporting on a total of eleven projects, eight of which we categorize as reasonably successful and three of which we define as less successful.

Because of the small number of project interviews completed to date, the results presented are preliminary at best. To compare factors that differentiate successful from less successful new products, median values are presented for comparison.

Acknowledging the small sample size, no statistical tests will be presented at the current time. We expect to double or triple the number of project interviews by the end of the calendar year.

Results

Table 1 contains the median values, except where noted, of responses to selected closed (Likert-scaled or yes/no) questions in the interview protocol. Only those questions that elicited a different nominal median response between the successful and less successful projects are presented in Table 1. Despite the preliminary nature of the study, the results point to some provocative findings regarding the use and deployment of critical resources, including accounting/finance personnel and skills, for the development of new products as well as the benefits provided by the new product to customers.

Replication of Previous Findings [R1 – R3]

As shown in Table 1, the rated adequacy of marketing people and skills differed between the successful and less successful projects. There was no difference in the median rating for technology or engineering resources. A negative correlation was found between product innovativeness and adequacy of R&D resources ($r = -.38$), thus the results concerning R&D adequacy and new product success may be mediated by the degree of innovativeness of the new product.

All project teams, regardless of commercial success, were organized as multifunctional teams. Earlier research had found differences, but over time, many companies adopt “best practices” and surely multifunctional NPD team structure is one such practice. While all projects used a formal new product development process,

managers of more successful projects more strongly agreed that top management provided guidance and direction for the project, consistent with past research which has found that strong senior management support leads to the greater likelihood of new product success (Cooper & Kleinschmidt, 1994). Further, based on responses to the proficiency of each stage in the NPD process, it appears that several early stages that fall into “up-front homework” including initial screening and preliminary market assessment, had higher medians for successful projects as compared to less successful projects. Prior research has reported that better upfront homework is related to better new product outcomes (Ali, et. al. 1995; Cooper & Kleinschmidt, 1994). Overall, these findings are reasonably consistent with previous research.

Product Financial Success [R4]

Distinct from the degree of commercial success is the question of financial success of a new product. The projects that respondents defined as more commercially successful were more likely considered a financial success, took fewer years to recoup the initially outlay, were perceived as generating greater dollar sales and profits as compared to the firm’s other recent new products and were more strongly perceived to have exceeded sales and profit expectations. Thus, projects that managers deem as commercially successful actually achieved financial success as well.

Competitive Advantage [R5]

The final outcome of the NPD process is a product that either did well or not so well in the market. The project managers of more successful projects rated the following aspects of their new product higher than managers of less successful projects:

- unique feature, attributes or benefits to the customer

- permits customer to reduce costs
- permits customer to use product more easily

In contrast, managers of less successful projects indicated that their product was priced considerably higher than competing products or was first to market.

These results are consistent with the responses to the open question which asked, “What are some of the most important factors that can lead to a successful product launch?” The primary themes identified in response to this question related to the customer and market. They were: understanding the market, gathering good market information, understanding the customer, and getting the price (cost) right. Nearly every respondent identified some variation of one or more of these themes. A few also mentioned good execution and fit with technology/platforms as important factors.

As shown in Table 1, the market benefits obtained by more successful projects may be due, in part, to the product being close to the company’s existing technologies, products or product platforms, or markets. Also, project managers indicated that successful new product projects more closely fit the company’s strategy. Thus, successful projects may be those that meet customer needs, can successfully leverage existing strengths and are aligned with the company’s mission or goals. These findings are consistent with our earlier discussion of the relationship between customer driven, market oriented products and effective value appropriation.

New Product Development Process [R2]

Despite the fact that all projects used a formal new product development process, there were interesting differences between successful and less successful projects. Specifically, managers of more successful projects rated the proficiency of ten stages within the NPD process as higher, ranging from idea generation to detailed market study

to development to detailed financial analysis to trial sell, as shown in Table 1. What most of these stages have in common is a greater proficiency of planning and analysis. These findings are also consistent with responses to questions about the nature of the product which further suggest that for the successful projects, the upfront homework or planning had been done more thoroughly or competently. Specifically, project managers indicated that the target market was better defined, that the product concept was better defined and that the product specifications were clearer for successful projects than for less successful ones.

Performance Measures used during the NPD process [R11, R12]

All project managers indicated that they used some set of performance measures to assess the project at various stages of development, and it is notable that most projects used multiple measures – including multiple financial measures – during new product development. Those measures that were more likely to be used by more successful projects include profit margin, sales or sales growth, and cannibalization of existing products. By contrast, the one measure that was more likely to be used by less successful projects was comparing the development cost to budget. It appears that of those performance measures that differ between the two types of projects, the more successful projects use outwardly focused, market oriented metrics whereas the less successful projects focused inwardly on a project-specific variance measure which may not be very informative about ultimate commercial or financial success.

Availability of Corporate Resources [R1]

Prior literature has focused on the importance of adequate resources, defined not only as monetary resources, but as personnel from various functional areas, their

expertise and skill sets, for new product success (Hertenstein and Platt, 2001). In this study, as mentioned above, marketing resources were more highly rated for successful projects than less successful projects. In addition, the same was true for accounting/finance, and production and financial (monetary) resources.

By contrast, management resources were more highly rated for less successful projects than successful ones. This last result does not appear to fit with the overall pattern of results taking shape for successful projects. It may be an anomaly; it can be explored in future interviews and reexamined when more projects become available for analysis.

The fact that managers indicated that financial resources – the dollars available for the project – were more than adequate for successful projects, but less so for less successful projects is consistent with the results reported above that for successful projects, the product better fit the company's strategy and that top management provided more guidance. Senior management likely recognized that these projects better fit the company's strategy, and thus have the potential to achieve greater commercial and financial success particularly given that they have greater senior management guidance. Hence, they may be willing to allocate greater financial resources to these projects.

New Product Development Teams [R3, R6 – R10]

As discussed above, virtually all teams in this study were organized as multifunctional teams which included members from a variety of key functional areas, a finding consistent with prior research (Hertenstein and Platt, 2001). The findings of this study suggest that successful projects were more likely to include representatives from R&D and Sales than less successful projects. Further, program managers of successful

projects rated the quality of the marketing member's contribution to the team higher and rated the overall effectiveness of the teamwork higher.

We asked specifically about the use and contributions of accounting/finance people on NPD teams. In this study, the timing of the involvement of the accounting/finance members did not differ between the more successful and less successful projects. In each case, about half of the teams had accounting/finance members who were involved from the outset, and about half the teams involved accounting/finance members on an as needed basis. What distinguished the successful from the less successful projects were the contributions of the accounting/finance members, as shown in Table 1. When part of a successful project, accounting/finance members tended to do the following:

- adapt financial models to fit the project situation;
- estimate target cost for the project, initially and throughout the process;
- develop the capital budget proposal for capital expenditures required for the project; and
- place a stamp of credibility on analysis done by others.

By contrast, when part of a less successful project, accounting/finance personnel were more likely to check costs developed by others. These results suggest that the real value of the accounting/finance member of the new product development team is not when the person joins the team, but what expertise skills and analysis they bring to the table.

From the open questions and respondents' elaborations, we gain further insight into role and contributions of accounting/finance personnel. Project teams clearly experience a need for this expertise. The respondent for one moderately successful project which did not include financial personnel indicated, "There were big debates on

financial analyses, especially around the allocation of overhead.” This respondent also complained, “The initial cost target was not accurate.” Respondents for two of the successful projects provided insights about the accounting/finance contributions, adding a comparative perspective. One respondent indicated that a dedicated financial analyst had been assigned to their division for about two years, stating, “We now focus more on growth in sales and market share, growth in profits, and on the cost of development.” This respondent also enumerated several tasks that the dedicated financial analyst handled including determining (with marketing) the numbers to present to the investment board, time allocation for projects, testing budgets, and capital budgeting, and volunteered that the financial analyst was “very helpful” especially in the time allocation.

The second respondent for a successful project compared his experience to that on the less successful project. He indicated,

Accounting/finance was involved from the outset and continuing throughout the process. We had a lot more involvement. We did a lot more cost tradeoffs up front. This really enabled the project team to answer “What If?” questions relating to the financial impact of design choices. They [accounting/finance person] built a cost model that reflected designers’ choices. The model [incorporated] information from product design that enabled marketing to trade off features with their cost impact. This model helped with credibility. They also analyzed the impact on the firm. In this case, there were two businesses involved, so it required combining and analyzing two business proposals. This effort was non-trivial.

In contrast, for the less successful products that were actually killed and never went to market, respondents reported no accounting/finance involvement or slight (less than 5% of their time) accounting/finance involvement. In the first case, the team did not conduct a preliminary financial analysis and they were not focused on how the product would make money; they just focused on a “cool” technology/product. In the second

case, the financial person was only brought in after the initial product and market analysis, “When the project looked good, we brought in the financial expertise more on the cost side.”

In some instances, respondents reported that personnel other than accounting/finance personnel conducted significant financial analyses. But in at least one case involving a successful project, the respondent indicated that financial person was only minimally involved, and the team leader, marketing team member, and other team members did a lot of financial analysis because:

The financial person ... was not very effective. A key reason is that the financial person was not very flexible, proactive, or creative, and tried to impose the old business model on disruptive products.

Thus, while the statements of respondents above indicate that financial skills and expertise appear to add value to new product development projects, more than “plain vanilla” financial expertise may be required. While financial skills and expertise can be provided by non-financial personnel, it is possible, if not likely, that non-financial personnel do not possess a sufficient degree of expertise. On the other hand, financial personnel who use a rigid, cookbook approach to financial analysis may not bring sufficient skill and creativity to new product development to provide value, especially for non-traditional or disruptive products. Effective new product development needs the combination of financial skills and expertise, and the ability to apply these skills in thoughtful, innovative, and insightful ways.

Conclusion

We have presented preliminary results of a field study currently in progress which examines how many factors – especially the role of accounting and finance personnel and expertise – related to new product success. Despite the limitations of a small sample, the results are interesting and promising. In those areas where we replicate prior research such as the deployment and proficiency of technology and marketing resources, a structured NPD process, and the use of multifunctional NPD teams, our results are largely consistent with earlier findings, thus providing credibility for this study and the preliminary sample.

This study extends prior literature by assessing the relationship between the use of performance measures – especially financial measures – and new product outcomes, and by systematically addressing the impact of the deployment and proficiency of accounting/finance personnel on new product outcomes. We find that successful projects are more likely to use outwardly focused, market oriented metrics like profit margin, sales, and sales growth whereas less successful projects were more inwardly focused, comparing development cost to budget. In addition, while factors such as marketing and technology expertise, a new product's fit with the firm's competitive strategy, and understanding the market and the customer clearly are factors that are critically important to the success of new products, this study provides provocative findings about the use and contribution of accounting/finance personnel and expertise. While the timing of the involvement of the accounting/finance NPD team members did not differ between the successful and less successful projects in the data gathered to date, what distinguished the successful from less successful projects were the types of contributions made by

accounting/finance personnel. Their contributions were more proactive and flexible when participating on the more successful projects, for example, adapting financial models to fit the project situation. In contrast, on the less successful projects they tended to be reactive, checking work done by others. The need for proactive, creative and flexible accounting/finance personnel was echoed in the open discussions with project managers, as well. Thus, new product development projects not only need accounting and financial analysis skills, but they also need individuals who are flexible and creative, able to adapt to unique and changing situations, and apply their skills in innovative ways.

Table 1.
Medians of More Successful as Compared to Less Successful New Product Projects

Question ²	More Successful New Product Projects (n = 8)	Less Successful New Product Projects (n = 3)
<i>Required resources for project</i>		
Our company's marketing skills and people are more than adequate	5	4
Our company's finance/accounting skills and people are more than adequate	5.5	5
Our company's management skills and people are more than adequate	5	6
Our company's production skills, people and facilities are more than adequate	5.5	5
Our company's financial resources (\$\$) are more than adequate for the project	6.3	5
<i>New product development process</i>		
Top management provided guidance/direction for the project	6	4
<i>Proficiency of new product development stages³</i>		
Idea generation	6	5.5
Initial screening – first decision to begin project	6	5
Preliminary market assessment	6	5.5
Detailed market study	5.5	5
Detailed design brief	6	4
Decision to develop – to move into a full fledged project	6.5	5
Development	5	4.3
In-house product tests	6	5
Detailed financial analysis	5	3.5
Trial sell	7	2

² Most responses were on a 7 point Likert-type scale where 1 = strongly disagree and 7 = strongly agree

³ Responses to these questions were on a 7 point Likert-type scale where 1 = the stage was a total disaster and 7 =the stage worked perfectly

Question	More Successful New Product Projects (n = 8)	Less Successful New Product Projects (n = 3)
<i>Measures of product financial success</i>		
Product was a financial success [Yes = 1/No = 0]	1	0
Years to recoup the initial financial outlays for the product [median years]	1.70	3.30
Dollar sales of this product were far greater than those of recent new products	4	2
Profitability of this product was far greater than that of recent new products	6	2
New product's sales exceeded its sales objective	4	1
New product's profits exceeded its profit objectives	5	2
<i>Competitive advantage</i>		
Compared to competitive products, product offers a number of unique features, attributes and benefits	6	5
Product permits customer to reduce costs, compared to what he is now using	4	3
Product permits the customer to use the product more easily, compared to what he is now using	5	3
Product will be priced considerably higher than competing products	4.5	5
We will be first into the market with this type of product	4.5	6
Product benefited from its closeness to company's existing products/product platforms	6	2
Product benefited from its closeness to company's existing markets	6	3
Product benefited from its closeness to company's existing technologies	6.3	4
Product fits the company's strategy well	6	5
Target market well defined	6	2
Customers' needs, wants and preferences well defined	6	5
Product concept well defined	7	5
Product specifications very clear	7	5

Question	More Successful New Product Projects (n = 8)	Less Successful New Product Projects (n = 3)
<i>Market</i>		
Potential customers have a great need for this class or type of product	6	4
<i>Performance Measures used during the development process</i>		
Profit margin [percentage]	100%	67%
Sales or sales growth [percentage]	100%	67%
Cannibalization of existing products [percentage]	88%	0%
Development cost compared to budget [percentage]	63%	100%
<i>New product development teams</i>		
Likelihood of R&D on team [percentage]	75%	33%
Likelihood of Sales on team [percentage]	63%	33%
Quality of contribution of marketing member of team	5.5	4
In summary, teamwork on project was effective	6	5
<i>Contribution of accounting/finance person on team</i>		
Check costs developed by others [percentage]	17%	67%
Place “stamp of credibility” on analysis done by others [percentage]	67%	33%
Adapted financial models to fit the project situation [percentage]	67%	33%
Estimated target cost for the project, initially and throughout the process [percentage]	50%	33%
Developed capital budget proposal for capital expenditures required for project [percentage]	50%	33%

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