

# Product Development Practices for Meeting Financial Objectives

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## 1 Introduction

This paper reports product development practices that separate the most successful product development programs from the rest. A detailed understanding of best product development practices is important because product development is fundamental to corporate success (Clark & Fujimoto, 1991; Eisenhardt & Tabrizi, 1995; Eppinger & Chitkara, 2006). Teams from the Massachusetts Institute of Technology and McKinsey and Company have collaborated to investigate practices used for 112 product development projects at 57 firms in the medical device, industrial, and high-tech industries. Preliminary results suggest that certain practices are particularly important for influencing project outcomes.

Our research is consistent with and contributes to best practices reported previously by the Product Development and Management Association (PDMA) (see Barczak, Griffin, & Kahn, 2009; Griffin & Page, 1996; Page, 1993). As this previous research has shown, best practices in product development evolve. For example, the 1990 PDMA study found that successful firms differentiated themselves from the rest by having well defined New Product Development (NPD) processes and new product strategies (Page, 1993). The second study, conducted in 1995, found that successful firms measured their product development efforts and outcomes, did qualitative market research, and used engineering design tools such as CAD (Griffin & Page, 1996). The third study, completed in 2003, found that successful firms put more emphasis on portfolio management, use a wide variety of software tools, have supporting organizational mechanisms and processes in place, and use formal processes for generating ideas (Barczak, Griffin, & Kahn, 2009). The findings presented here contribute additional understanding of practices that lead to successful product development.

Researchers and practitioners often investigate product development from the perspectives of cost, schedule, and performance. There are many more ways to evaluate product development processes and outcomes (Cooper, 1979). Griffin and Page (1996) identified over 75 different product development metrics documented in the literature. Some researchers categorize these metrics into firm level, project level, or product level metrics (e.g. Montoya-Weiss & Calantone, 1994); others categorize them into financial and non-financial metrics (e.g. Hart, 1993). This paper presents our work on correlating product development practices with a broad set of financial metrics.

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## 2 Methods Summary

The unit of analysis in this study is the product development project. We used a detailed survey to gather data about 112 such projects from 350 executives at 57 firms around the world in the high-tech, industrial, and medical device industries.

The survey requests information about 143 product development practices and 17 performance metrics. The metrics span the financial and operational spectrum from project internal rate of return to project morale. The practices are measured using a 1 through 6 Likert scale, 6 indicating that the executive agrees that the specific practice was used extensively for the project. Each outcome metric is measured using a 1 through 5 increasing ordinal scale describing distinct outcomes, with a 3 generally indicating that the project met its goals with respect to the metric, and a 5 indicating that the project exceeded all expectations.

We assess the correlation between the 143 practices and the 17 performance metrics in order to identify practices that associated significantly with better outcomes. A practice is coded as significant for financial success if it is statistically correlated with at least 3 of the 6 financial metrics with a p-value less than 0.05 and sample greater than or equal to 30.

## 3 Results

Table 1 presents practices that correlate positively with financial metrics. The practices are listed under their respective themes from the survey. For instance, the cost reduction theme captures the “Business plan addresses full lifecycle costs and impact” and “Sub-teams have an understanding of subsystem cost targets, and review progress toward cost reduction goals” practices.

Table 1: Practices that Correlate with Financial Metrics

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| <b>Cost Reduction Dimension</b>  |
| Business plan addresses full lifecycle costs and impact  |
| Sub-teams have an understanding of subsystem cost targets, and review progress toward cost reduction goals |
| <b>Continuous Improvement Dimension</b>  |
| Demonstrate year-on-year improvements in outcomes from continuous improvement efforts                      |
| <b>Knowledge and Information Sharing</b>   |
| Share information across functional boundaries   |
| Create representations of product and process knowledge to facilitate communication and knowledge sharing  |

The relative emphasis on the cost aspect of financial metrics was initially surprising to us since our financial metrics address the revenue aspects of profitability as well. We conjecture this may be the case because product development is typically a direct cost center and an indirect revenue center. Overall, these results suggest that significant improvement in product development capability can be achieved through efforts that are focused on specific product development practices. The practices to be emphasized depend on the nature of the corporate objectives.

#### 4 References

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