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Product Innovation Best Practices Series

# NPD: Practices The Dark Side of Time and Time Metrics in Product Innovation

Reference Paper # 16

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# NPD Practices: The dark side of time and time metrics in product innovation

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Authors Robert Cooper and Scott Edgett examine how time and time metrics are having a negative impact on the new product development process today, and what you can do to counteract these pressures - and at the same time enhance your new product process.

With budget cutbacks and short term profit goals, companies are finding that time and time metrics sometimes backfire in the NPD world. For example, in one engineered products firm, the goal was to cut cycle time by half. At first glance, the goal was an admirable one, but the results were unexpected: projects floundered, project scopes were cut back, and NPD profits suffered dramatically. Another case: In an effort to boost short term profits, the senior executive in a major electronic components company declared that the goal was to do "more with less;" sadly that really meant "doing less," and so their new product initiatives were understaffed and underfunded; and predictably, results suffered.

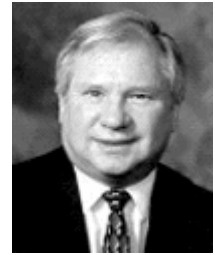
Both examples are all too common illustrations of how a preoccupation with time and time metrics is having significant and negative effects on product development. This emphasis on time manifests itself in two sets of metrics:

- Short term profitability, where the focus is on quarter-to-quarter financial results; and
- Time to market metrics, which have become increasingly important because of an ever increasing need to reduce cycle time and speed up projects.

Both types of metrics are time related, both are interconnected, and both have taken their toll on effective product development in recent years. Let's look at each to understand what can and should be done to correct the situation.

## Short-term profits, inadequate resources

The emphasis on quarterly results and "making the numbers" has created major product development resource deficiencies in too many firms. Our ongoing bench-marking study reveals the magnitude of the problem.\* Exhibit 1 on this page shows resource availabilities for product development across various key functional areas in over 400 businesses.



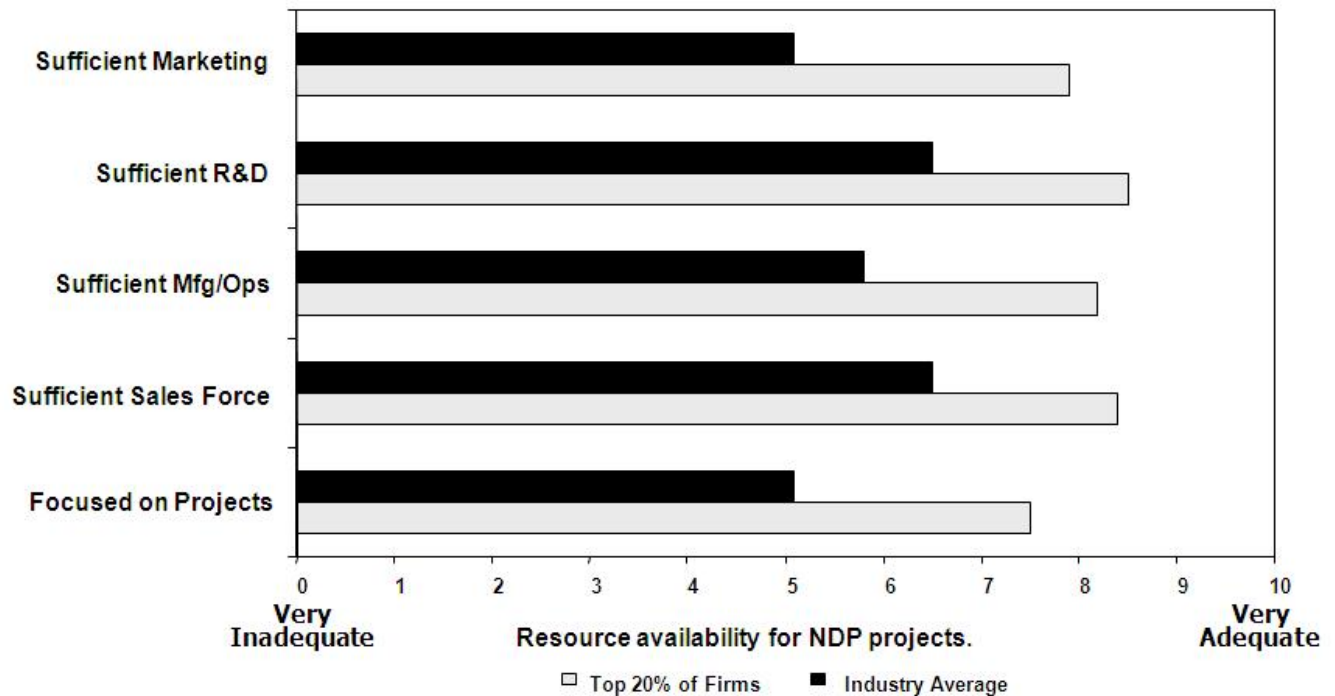
*Dr. Robert Cooper*



*Dr. Scott Edgett*



## Exhibit 1: NPD Resource Adequacy by Functional Area



Top performing businesses are selected on the basis of multiple new product performance metrics. Source: Ongoing ProBE benchmarking study.

Here, a score of 10 means "adequate resources" and zero denotes "far less than adequate." While resources are weak across the board, note that the weakest area is Marketing with a mean "adequacy score" of only 5.1 out of 10. The same study shows, however, that the 20 percent best-performing firms suffer far less from major resource deficiencies; resource availability and businesses' new product performance are closely linked. This product development resource deficiency is the result of -

- A short term focus,
- The operating metrics used to gauge business's performance in terms of immediate financial and operating results, and
- The goals that business unit executives must meet.

This preoccupation with short-term financial results has "hollowed out the corporation," according to senior management in many companies. That is, in the interest of cutting costs, head counts have been reduced so much that that's nobody left to do the work, certainly the kind of thoughtful work required for effective product development.

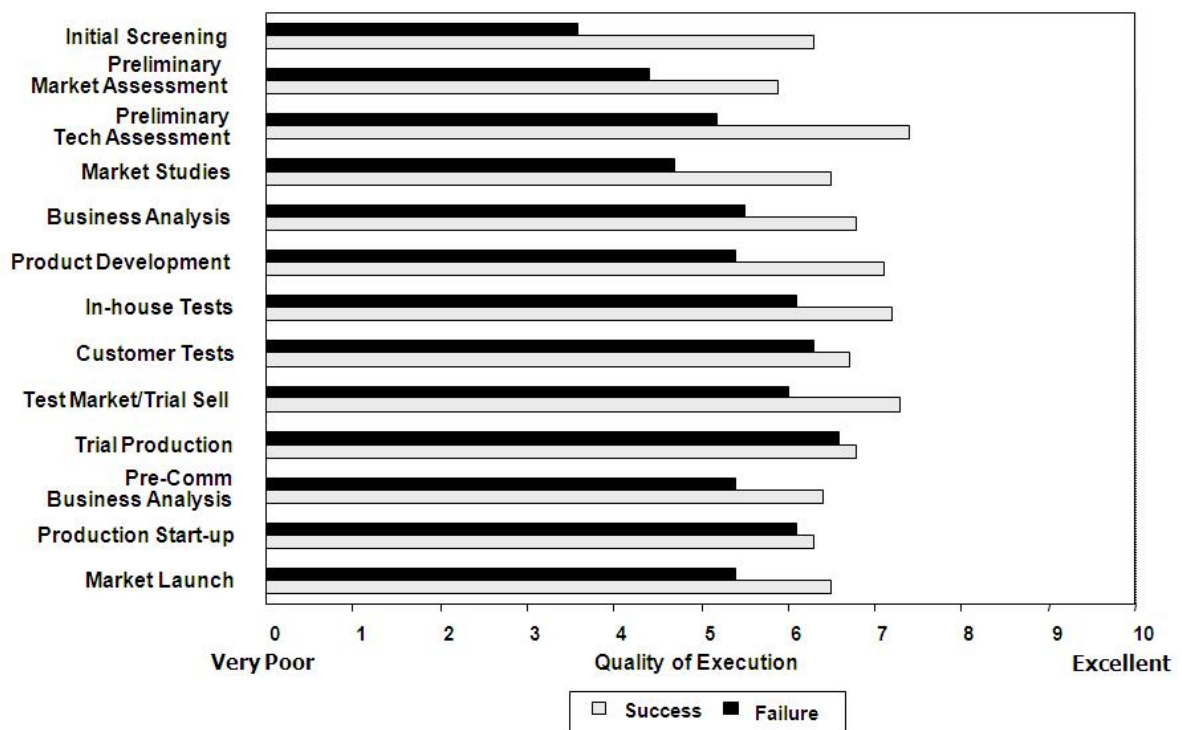
For example, one general manager of a rapidly growing business unit in a major corporation summed it up this way: "My business grew 20 percent last year. In order to do so, I had to add people. Now I am being harassed by Head Office because I did not meet some of the operating numbers - my operating costs and ratios went up. But still I delivered 20 percent higher profits than the year before. The way I'm measured is all wrong!"

## "Soft areas" hit worst

The worst hit functions are the "softer areas" of product development, such as Marketing, Business Development and even Process Engineering or Manufacturing, as shown in Exhibit 1. And the results are predictable: Many of the prescribed activities undertaken by Marketing and Manufacturing people on projects are treated as discretionary, that is, they are done in haste, resulting in poor quality of execution, or are left out altogether.

Exhibit 2 reveals serious deficiencies in the new product process, with quality of execution being substandard in many key project tasks. These weaknesses are particularly evident in the fuzzy front end of projects: Project screening, the up-front homework, voice of customer research, and marketing and manufacturing inputs are noticeably lacking, and the situation seems more serious today than 15 years ago! Even worse, these discretionary activities are the very ones that make the difference between winning and losing: They are the critical success drivers!

**Exhibit 2: Quality of Execution in Key NP Process Activities**



Successful projects had better quality of execution conducted in the earlier part of the NPD process. The data is based on an ongoing ProBE benchmarking study of hundreds on new product projects in over 400 firms.

## Speed to market, moving too fast

The second time-related problem is rushing projects through the development pipeline too quickly. Senior people have become speed freaks, demanding unrealistic cycle time reductions. The motto seems to be: Time-to-market divided by two (TTM/2). Why are senior people doing this? There are a number of reasons such as:

- Speed to market is an admirable goal, and there are many apparently valid reasons why cycle time reduction should be a priority:
- Speed yields competitive advantage: The first in wins! There is conflicting evidence on this, however. Often the number two entrant learns from the mistakes of the pioneer, and ends up making more money.
- Speed yields higher profitability. Again there is mixed evidence. Our studies show only a modest positive connection between profitability and timeliness - on-time performance and time efficiency. A recent study by Abbie Griffin at the University of Illinois shows no positive link between time-to-market and profits.
- Speed means fewer surprises: There is much less likelihood that the market has changed if one gets to market quickly. Another, perhaps less valid, reason for stressing speed, is the desire of senior executives to get the revenue of a new product into this year's bottom line. Again, this is the result of how the executive is measured. The point is: Speed is important, but not as vital as one might have assumed. And, for some projects, speed is not the overriding goal. The impact of rushing projects to market or moving quickly has become evident a number of ways such as the following:
- Not only are there not enough people to work on projects because of resource constraints, but now there is not even enough time to do the needed work. Instead, the project stages and tasks must be compressed, and quality of execution suffers again.
- Next, the resource problem becomes even worse, as the business tries to cope with accelerating projects, which translates into more projects in a given time period.
- Often the knee-jerk solution - either consciously or unconsciously - is to do easier and faster projects. This leads to selecting more trivial projects, as the decision rule becomes: Pick low hanging fruit.
- Even the potentially great projects are "dumbed down" or "de-featured," as the project team decides to omit key activities and along with important product features and functionality in order to meet the sacred timelines. And so these projects do not yield the big results they should.

## **Two solutions**

Here are some ways that we have found managers can deal with the twin pressures of time and time metrics:

### **#1 - Different metrics, more resources**

The fact that all businesses within the corporation are measured with the same yardstick fails to recognize that some are cash cows, and should be milked accordingly. Others are indeed stars, and ought to be given some greater leeway regarding shortterm results and traditional operating metrics. To put it another way: Not all business units are the same, nor should they be measured and resourced according to the same formula. One must look to strategic planning, both at the corporate level and at the business unit level, to see which businesses should be allowed more resources. If there is opportunity for new product development, and if the new product goals of the business unit are aggressive ones, then the necessary resources must be in place, and the performance metrics adjusted accordingly. For select business units,

put less emphasis on short term results, and more on growth metrics such as percentage of sales derived from new products or percentage revenue growth in the business.

Resource capacity analysis is yet another solution. It begins with the new product goals of the business. For example, look at percentage of sales to be derived from new products. Then translate these goals into numbers of major and minor launches each year. These numbers are then translated into numbers of projects per development stage, and finally into resource requirements by functional area.

For example, a resource capacity analysis at a major chemical company revealed that R&D resources, that is, the technical people, were just about right for the ambitious new product goals across all the businesses. The company employed about 2000 scientists, of which about 50 percent of their time was devoted to new products, that is 1000 FTEs (full time equivalents). A stage-by-stage analysis revealed, that for every four scientists, there should be about one FTE working on the business side of the projects: marketing, voice of the customer, business analysis, launch. This would suggest about 250 FTEs in marketing/business roles available for projects. But a head count across the corporation revealed only 60 such people, and they had on average only 10 percent of their time available for project work. Six FTEs was a far cry from the demand of 250! This resource capacity analysis revealed why so many marketing/business tasks were poorly done, or not done at all, in most projects, and set senior management attempting to correct this gross imbalance.

If additional resources are seen as the solution, then consider establishing "ring fenced" resources. That is, set up a crossfunctional product innovation group charged **only with product development**. The problem is that, for most people outside of R&D, product development is an add-on job, that is something to do on top of an already busy schedule. And so the product development tasks never get done. With a ringfenced or dedicated group including technical, marketing and manufacturing people, product development becomes their full time job, and there is a much higher likelihood of seeing high quality, on-time projects. Even traditional businesses, such as the Flat Glass Business Unit at PPG Industries, are trying this approach in order to kick-start product development.

## **#2 - Better use of your limited resources and time**

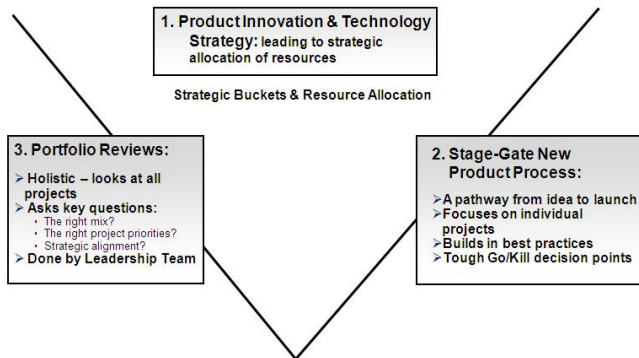
If one cannot secure more resources, make better use of the resources one has! The solution is to focus resources on your most rewarding projects: More judicious selection of new product projects is one way to make better use of your resources. Our analysis of firms' portfolio of projects reveals not only too many projects, but many projects that are low value to the company. Senior management must learn to drown some puppies: To say no to some projects, especially the marginal value ones. On average, we kill about 50 percent of all the projects in a typical business's new product pipeline whenever we undertake a rigorous portfolio analysis. Next, the business must be more astute at selecting the right projects, or, more correctly, the right set of projects. The solution is to introduce tough Go/Kill decisions, where projects really do get killed; and the company finally moves towards effective portfolio management.

## Tough Go/Kill decisions mean –

Having established, consistent and clear Go/Kill decisions points in your new product process which typically has five gates. (See Exhibit 3 on this page),

- Using agreed-to criteria for making Go/ Kill decisions in the form of a scorecard.
- Having the right senior people at the gate reviews.
- Having the right information available to enable timely decisions, that is, visible deliverables requirements for each gate.

Exhibit 3: Three Components of an Effective NP System



Portfolio management takes gating one step further, and ensures that one has the right balance of projects and a portfolio that mirrors the strategic priorities of the business, as shown by the Portfolio Review process shown on the left side of Exhibit 3.

A second way to maximize the use of existing resources is to spend less time on "fix and repair" activities. In short, because the project was hurried in the first place, much goes wrong as the project approaches launch. And thus the project consumes many more resources than anticipated. In one telecommunications software business we worked with, 80 percent of development resources were being spent on fixing products that had already been launched! This is higher than in most firms, but many businesses spend an unacceptably high proportion of development resources on fix-and-repair activities.

The message is to emphasize doing it right the first time: A quality job usually saves time and resources in the long run. It's false economy to cut corners on key tasks, especially in the early phases of a project. As a Kodak time-to-market study concluded, "An extra year spent at commercialization will save at least one month of up-front homework."

To ensure best practices and quality of execution, companies should consider implementation of a world-class new product system, as in Figure 3. This system includes:

- An effective new product process or Stage-Gate™ to provide a best-practices pathway from idea to launch as show in Exhibit 3, lower right; and an
- Effective portfolio management as shown on the left in Exhibit 3;
- Both driven by a solid product innovation strategy for this business as shown in the center of Exhibit 3.

Such a system will integrate the key elements of a new product process, effective project selection, portfolio management, and your business's new product strategy - elements that have been found to yield superior new product results.

It will also help your company resist the temptation to let time metric pressures dilute, water down or in other ways impede your new product development process.

*\*This ongoing benchmarking study into firms' new product practices and performance, called ProBE, to date has a database that contains results from over 2000 businesses. The study was first reported in a number of journals, including the PDMA's Journal of Product Innovation Management (JPIM) in 1995.*





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