Notice warning concerning copyright restrictions

The copyright law of the United States (title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted material.

Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction.

One of these specific conditions is that the photocopy or reproduction is not to be ``used for any purpose other than private study, scholarship, or research. ''If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of ``fair use,'' that user may be liable for copyright infringement.

This institution reserves the right to refuse to accept a copying order if, in its judgment, fulfillment of the order would involve violation of copyright law.

© Copyright at UMD
http://libguides.d.umn.edu/content.php?hs=a&pid=97624
Many of the designations used by manufacturers and sellers to distinguish their products are claimed as trademarks. Where those designations appear in this book and Basic Books was aware of a trademark claim, the designations have been printed in initial capital letters.

A CIP record for this book is available from the Library of Congress.

Copyright © 2001 by Robert G. Cooper

Originally published by Perseus Publishing
Published by special arrangement by Basic Books,
A Member of the Perseus Books Group

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher. Printed in the United States of America.

For more information on the concepts and tools introduced in this book, please visit the Product Development Institute Inc. at www.prod-dev.com

Books published by Basic Books are available at special discounts for bulk purchases in the U.S. by corporations, institutions, and other organizations. For more information, please contact the Special Markets Department at the Perseus Books Group, 11 Cambridge Center, Cambridge, MA 02142, or call (800) 255-1514 or (617)252-5298, or e-mail j.mccrary@perseusbooks.com.

Text design by Jeff Williams
Set in 10.5 pt. New Caledonia

First printing, March 2001
EBA 04 05 06 15 14 13 12 11
Winning Is Everything

In war, there is no second prize for the runner-up.
Omar Bradley, U.S. General

New Products Warfare

Corporations everywhere are engaged in a new products war. The battlefields are the marketplaces around the world for everything from consumer electronics to new engineering resins, from potato chips to electronic chips, from software to hardware, and now e-commerce products.

The combatants are the many companies who vie for a better position, a better share, or new territory on each battlefield or marketplace. They include the large and well-known combatants—the IBM's, GE's, and Intel's, as well as an increasing number of foreign players—Siemens, Nokia, and Sony. More recent entrants have gained prominence in the past few decades because of new product victories: Apple with computers, Glaxo with pharmaceuticals, Nortel Networks with telecommunications and networking equipment.

The weapons are the thousands of new products developed every year in the hope of successfully invading chosen marketplaces. Sadly, most new product attempts fail. Increasingly, the quest is for weapon superiority—seeking product differentiation in order to secure a sustainable competitive advantage. Positioning plays a key role too, as combatants deploy their troops to secure an advantageous position on the battlefield. They use tactics such as frontal assaults, outflanking, and even attempts to reposition the enemy.

The combatants have their shock troops who lead the way into battle—the sales teams, advertising people, and promotional experts. The cost of these shock troops is enormous (more is spent per day on product innovation in the G5 countries than was spent in the entire Gulf War, beginning to end!). But the
Winning at New Products

battle is often decided by the unsung heroes—the infantry—the many engineers and scientists in R&D labs and engineering departments around the world—less glamorous and less visible, but at the heart of almost every victory.

The combatants have their generals—the senior executives who plan and chart direction and attempt to define a business and technology strategy for their firm. The generals speak in terms of strategic thrusts, strategic arenas, and the need for strategic alignment. Sadly, many generals haven’t really grasped the art of new product or technology strategy very well. So, as is often the case with ill-defined strategy, the battle is won or lost tactically in the trenches by the shock troops and infantry.

In the past few decades, the new products war has become a global confrontation. We’ve seen the advent of global product mandates. There are no longer national borders; domestic markets have become the enemy’s international market.

As with recent wars, there are new ingredients for success: advanced technology, superior intelligence, and rapid mobility. Technology makes possible weapon superiority, and those combatants who have wisely invested in technology reap the benefits. Intelligence—market information and competitive intelligence—enables the most effective deployment of weapons and resources and often means the difference between winning and losing. And mobility or speed enables lightning strikes designed to seize windows of opportunity or to catch an enemy off guard.

As in any war, there are winners and losers. The winners are those firms, such as Pfizer, 3M, and Hewlett-Packard, who have an enviable stream of new product successes year after year. There are losers as well: General Motors, who for the past few decades failed to launch new products that captured the consumer’s interest (whereas Chrysler, once on the verge of bankruptcy, glowed victorious with winners such as the Sebring, Chrysler 300M, Concorde, and PT Cruiser and, in earlier years, the Neon and the famous Minivan). Sometimes the defeat is so great that the combatant collapses and simply disappears. Such was the fate of Coleco, the once-giant computer games producer that misfired badly with new products in the home computer market and failed to launch the new generation of computer games, while others, such as the makers of Nintendo and Sega, succeeded.

As the twenty-first century begins, this product innovation war looms as the most important and critical war the companies of the world have ever fought. Winning this war is everything: It is vital to success, prosperity, and even survival of these organizations. Losing the war, or failing to take an active part in it, spells disaster: The annals of business history are replete with examples of companies that simply disappeared because they failed to innovate, failed to keep their product portfolio current and competitive, and were surpassed by more innovative competitors. Forty percent of the major corporations that existed in America in 1975 no longer exist today!
Speed and Change

In winning at new products, as in warfare or war games, the goal is victory—a steady stream of profitable and successful new products. On this new product battlefield, the ability to mount lightning attacks—well-planned but swift strikes—is increasingly the key to success. The common denominators across businesses today are speed and change. Markets and technologies are changing more quickly than ever. Thus speed is the pivotal competitive weapon: The ability to accelerate product innovation—to get new products to market ahead of competition and within the window of opportunity—is more than ever central to success. And so this book is about more than success; it’s about how to get successful products to market, but in record time.

There are major payoffs to speeding products to market:

- **Speed yields competitive advantage.** The ability to respond to customers’ needs and changing markets faster than competition and to beat competitors to market with a new product often is the key to success. But too much haste may result in an ill-conceived product, which has no competitive advantage at all.
- **Speed yields higher profitability.** The revenue from the sale of the product is realized earlier (remember: money has a time value, and deferred revenues are worth less than revenues acquired sooner), and the revenues over the life of the product are higher, given a fixed window of opportunity and hence limited product life.
- **Speed means fewer surprises.** The ability to move quickly to market treats change as an opportunity rather than a threat. For example, the product as originally conceived is more likely to meet market requirements; and the short time frame reduces the odds that market conditions will dramatically change as development proceeds. Contrast this with a seven-year development effort incurred by some U.S. auto companies: market requirements, market conditions, and the competitive situation are likely to change considerably during the project.

So speed to market is a preoccupation throughout this book—but not at the expense of managing the project properly. I will never recommend cutting corners or executing in a sloppy fashion in order to save time—it just doesn’t pay off. In short, speed is important, but it is only one component of our overarching goal of profitable new products.

**Strategy and Tactics**

Books about warfare or war games highlight both strategy and tactics. So does this book.
• **Strategy.** The art of determining strategic direction for product innovation is a question of identifying and selecting strategic arenas or battlegrounds. We will look at how to define the areas of strategic focus or strategic thrust, how to determine what markets, products, and technologies to invest in, and, in light of these decisions, how to devise the best attack plan.

• **Tactics.** Without tactics, strategy is nothing but words; tactics are the tools by which strategy is implemented. This too is a major theme of this book. Having decided on the strategic arena or battlefield, what does one do to win the battle? How does one plan and mount a swift attack? The tactical questions result in a game plan consisting of a set of moves or maneuvers designed to move a new product project from the discovery or idea stage to a successful launch—quickly and effectively.

Although strategy and tactics are military concepts, they are terms increasingly used in sports arenas. Indeed, a sports or game analogy is often the more appropriate one when developing new product strategy and tactics, so terms such as “game plan” and “new product game” are common in this book.

Logically, strategy precedes tactics. But in this book, I reverse the order of presentation: We first tackle the tactical issues—the challenges at the new product project level. And toward the end of the book, we focus on the “big picture”—a product innovation strategy or direction for the firm. Why this sequence? First, most problems lie within the tactical or implementation arena at the project level. Second, tactics, or the game plan, are more concrete, easier to visualize, and certainly more “actionable”—you can see improvements more quickly here.

**New Products: The Key to Corporate Prosperity**

New product development is one of the riskiest, yet most important, endeavors of the modern corporation. Certainly the risks are high. You and your colleagues have all seen large amounts of money spent on new product disasters in your own firm. But then, so too are the rewards.

New products currently account for a staggering 33 percent of company sales, on average. That is, one-third of the revenues of corporations are coming from products they did not sell five years ago. In some dynamic industries, the figure is 100 percent! (Here, a “new product” is defined as new if it has been on the market for five years or less, and includes extensions and significant improvements.) The message is simple: Either innovate or die!

Countless corporations owe their meteoric rise and current fortunes to new products. For example:

• JVC, hardly a household word several decades ago, pioneered the VHS format for home VCRs.
• Glaxo, once a mid-sized British pharmaceutical house, rose to number two in the pharmaceutical world on the coattails of a single anti-ulcer drug.

• The development of IBM’s DOS operating system helped a start-up company unknown in 1982 to prosper. With one success under its belt, Microsoft struck again with various releases of its popular Windows operating system and became the corporate giant it is today. But it’s hard to believe that it started with a new product in only 1982.

The Best Really Shine

The percentages cited above are only averages and thus understate the true potential. What CEO wants to be average! A handful of companies do far better than average, according to a recent best practices study, and thus become the benchmark firms. These 22 percent of firms—the Best—are compared to the Rest.

• The Best have 49.2 percent of sales derived from new products (versus 25.2 percent for the Rest).

• The Best see 49.2 percent of profits derived from new products (versus 22.0 percent for the Rest).

• The Best start with 3.5 ideas to achieve one winner (versus 8.4 ideas for the Rest).

The point is that stellar performance is attainable in new products warfare. These firms model the way.

New products are also very profitable, on average. A study of 203 representative new product launches in U.S. businesses reveals that approximately two-thirds are considered to be commercial successes. And these winning products do exceptionally well (see Figure 1.1):

• Return on investment is astounding: The average ROI for successful new products is 96.9 percent.

• New products pay off very quickly: The average payback period is 2.49 years.

• New products achieve an excellent market position: The average market share in their defined target markets is 47.3 percent.

Averages don’t tell the entire truth because, as might be expected, a handful of very big winners skew the results. So consider the median values, which are almost as impressive:

• 50 percent of successful new products achieve a 33 percent ROI or better.
Half of successful new products yield a return-on-investment of 33% or better, a payback of 2 years or less, and a market share greater than 35%.


- Half of successful new products have a payback period of two years or less.
- Half of successful new products achieve a market share in excess of 35 percent.

Not all the new ventures studied are winners, however; these exceptional performance results must be tempered with the costs of failure. In the study, about one-third were unsuccessful launches. But even factoring in these losses, product development must be considered a very profitable undertaking overall.

**Huge Amounts at Stake**

Research and development expenditures are also impressive. In the United States, R&D expenditures in 1999 amounted to $236 billion for the year, or about 2.7 percent of the gross domestic product (GDP). In 1999 alone, U.S. R&D spending grew by a whopping 7 percent! Industrial R&D, now at $157 billion, grew even faster at 9%.  

---

6 / Winning at New Products

**FIGURE 1.1 Profitability of New Products: Successes Versus Failures**
Table 1.1 R&D Spending By Industry (US)

<table>
<thead>
<tr>
<th>Industry</th>
<th>R&amp;D Spending ($billions)</th>
<th>R&amp;D as a Percent of Sales (%)</th>
<th>R&amp;D as a Percent of Profits (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All industry</td>
<td>127.9</td>
<td>4.4</td>
<td>50.7</td>
</tr>
<tr>
<td>Aircraft &amp; Aerospace</td>
<td>4.8</td>
<td>3.4</td>
<td>60.9</td>
</tr>
<tr>
<td>Automotive (motor vehicles)</td>
<td>18.0</td>
<td>4.2</td>
<td>49.8</td>
</tr>
<tr>
<td>Chemicals</td>
<td>5.9</td>
<td>5.8</td>
<td>52.5</td>
</tr>
<tr>
<td>Communications Equipment</td>
<td>10.6</td>
<td>12.1</td>
<td>415.4</td>
</tr>
<tr>
<td>Computers &amp; Office Eqipt.</td>
<td>18.6</td>
<td>6.7</td>
<td>105.4</td>
</tr>
<tr>
<td>Computer Services</td>
<td>8.9</td>
<td>11.8</td>
<td>65.6</td>
</tr>
<tr>
<td>Electronic Components</td>
<td>8.7</td>
<td>10.3</td>
<td>97.8</td>
</tr>
<tr>
<td>Electrical Equipment</td>
<td>3.4</td>
<td>2.1</td>
<td>19.6</td>
</tr>
<tr>
<td>Food</td>
<td>1.0</td>
<td>0.7</td>
<td>6.7</td>
</tr>
<tr>
<td>Furniture &amp; Wood Products</td>
<td>0.6</td>
<td>1.7</td>
<td>29.0</td>
</tr>
<tr>
<td>Glass, Stone &amp; Clay Products</td>
<td>0.5</td>
<td>2.2</td>
<td>50.7</td>
</tr>
<tr>
<td>Instruments</td>
<td>7.9</td>
<td>6.8</td>
<td>73.7</td>
</tr>
<tr>
<td>Machinery (non-electrical)</td>
<td>5.4</td>
<td>3.2</td>
<td>49.7</td>
</tr>
<tr>
<td>Metal Products (fabricated)</td>
<td>0.8</td>
<td>1.6</td>
<td>19.1</td>
</tr>
<tr>
<td>Metals – Primary</td>
<td>0.5</td>
<td>0.8</td>
<td>13.5</td>
</tr>
<tr>
<td>Paper</td>
<td>1.7</td>
<td>2.0</td>
<td>23.2</td>
</tr>
<tr>
<td>Petroleum &amp; Coal</td>
<td>1.8</td>
<td>0.6</td>
<td>12.9</td>
</tr>
<tr>
<td>Pharmaceutical</td>
<td>20.3</td>
<td>12.3</td>
<td>56.1</td>
</tr>
<tr>
<td>Phone &amp; Telecommunications</td>
<td>1.7</td>
<td>2.0</td>
<td>15.4</td>
</tr>
<tr>
<td>Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polymers &amp; Rubber</td>
<td>0.7</td>
<td>2.4</td>
<td>35.0</td>
</tr>
<tr>
<td>Textiles</td>
<td>0.09</td>
<td>1.8</td>
<td>27.7</td>
</tr>
</tbody>
</table>


Certain industries, noted for their growth and profitability in recent decades, spend heavily on R&D. For example, the pharmaceutical industry spends 12.3 percent of revenues on R&D; communications equipment is next, averaging 12.1 percent of sales on R&D; Computer services and electronic components are close behind at 11.8 percent and 10.3 percent of sales respectively (see Table 1.1 for an industry breakdown). Incredibly, some industries spend more on R&D than the entire annual profit for that industry, for example, communications equipment and computers and office equipment.

**Impact on Investment Value**

Why is product innovation so central to corporate success? Why is the world speeding up so much when it comes to new products? One factor is the financial market, which seems to dominate corporate behavior so much these days. An annual Fortune survey rates top U.S. corporations on a number of criteria, including “value as a long-term investment.” Using data supplied by Fortune, I studied various predictors of investment value. The results were provocative. *The single strongest predictor of investment value is “degree of innovativeness of the company.”* The conclusion is that not only is product innovation important to remain competitive in the firm’s marketplace, but it also seems to be important to financial markets—in determining the worth or value of the company as a long-term investment—and hence to the cost of capital to the firm.
The same annual *Fortune* survey lists the top ten most admired companies in America. They are an enviable group: GE, Coca Cola, Microsoft, Dell Computer, Intel, and Merck, to name a few. Their average return on investment is a staggering 45.4 percent over the five years 1993–1998, almost double the average for the S&P 500 firms. Coincidentally, all of the most admired companies are at or near the top of their industry in terms of innovativeness. Another *Fortune* article, "Secrets of the Most Admired Companies," explored what distinguishes these most admired companies. Their secret: New ideas and new products are the key. These admired businesses all possess a common quality: “That ingredient is innovation, and all the top companies embrace it passionately.”

**Drivers of Innovation**

New products are clearly the key to corporate prosperity. They drive corporate revenues, market shares, bottom lines, and even share prices. But why is the innovation game speeding up so much, and why is so much more emphasis being placed on product innovation track records? Here are four innovation drivers identified by senior executives.

- **Technology advances.** The world’s base of technology and know-how increases at an exponential rate, making possible solutions and products not even dreamed of a decade or so ago. What was science fiction in *Star Trek* in the 1960s—for example, hand-held computers or flip-top portable communicators—is suddenly a technological reality today.

- **Changing customer needs.** Marketplaces are also in turmoil, with market needs and wants and customer preferences changing regularly. The company that seemed omnipotent only a few years ago suddenly falls from favor with the consumer. And witness the flurry of mergers and acquisitions in the communications, entertainment, and Internet sectors in recent years, as major corporations scramble to keep pace with fluid marketplaces. In other markets, customers have come to expect new products with significant improvements. Consumers have become like kids in a candy shop—we see what is possible, and we want it.

- **Shortening product life cycles.** One result of the increasing pace of technological change coupled with changing market demands has been shorter product life cycles. A study done by A. D. Little shows that product life cycles have been cut by a factor of about four over the past fifty years (see Figure 1.2). Your new product no longer has a life of five to ten years; within a few years, sometimes even months, it is superseded by a competitive entry, rendering yours obsolete and necessitating a new product. This has placed a great deal of pressure on businesses. For example, in one leading electronics firm in the United States, as product version number 1 is hitting the market, its replacement, product
version 2, is already in the development phase, and product version 3 is waiting in the wings for a go-to-development decision.

- Increased world competition. We now have access to foreign markets like never before, but at the same time, our domestic market has become someone else’s international market. This globalization of markets has created significant opportunities for the product innovator: the world product targeted at global markets. It has also intensified competition in every domestic market. Both factors have sped up the pace of product innovation.

A quick review of all four drivers of product innovation reveals that none are likely to disappear in the next decade or two. Technology advances will continue to occur; so will changes in market needs and demands; world trade and globalization of markets marches on; and competition will drive life cycles to become even shorter. Product innovation will be even more critical to corporate prosperity in the years ahead than it has been in the recent past.

**Suggestion:** If you haven’t already done so, conduct a review of the strategic role—past, present, and future—of new products in your company. Key questions include:

- What is your historical level of R&D spending as a percentage of sales? Has it been going up or down? How does it compare to your competitors’ or industry level (see Table 1.1)? Why is it higher or lower?
- What proportion of your current sales comes from new products introduced by you in the past five years? What is the projection or objective for the future? What will your portfolio of products look like in five years?
- Where will your sales growth come from? What proportion is from new products? From new markets? From growth in existing markets? Or from increased market share?
- Are the answers to the three questions above consistent with each other? Are you investing enough in R&D and new products to yield the results that you want?

In addressing the first question above, some managers ask, “*what is the appropriate level of R&D or technology spending for my firm?*” There are no easy answers here. Remember that technology spending is by no means the sole determinant of new product performance or even sales generated by new products. There are many factors that make a new product effort a success. Indeed, using R&D spending as a measure of new product development activities may be misleading. R&D spending typically accounts for less than 40 percent of a firm’s total expenditure for product innovation.
More food for thought: In one of our studies on innovation strategies, R&D spending as a percentage of company sales was indeed found to be the strongest predictor of the company's new product sales (also expressed as a percentage of company sales). This comes as no surprise. But the level of R&D spending explained only 16 percent of this revenue performance! Many other factors also determined performance. Finally, different strategies or means of introducing new products may not require similar levels of R&D spending. Such low-R&D approaches include acquiring technology from others, purchasing components and materials, and licensing products and technologies.

High Odds of Failure

New products are critical to long-term success. They keep your current product portfolio competitive and healthy and, in many firms, provide you with long-term and sustainable competitive advantage. The dilemma is that product innovation is a crapshoot: Boasting a steady stream of successful new products is no small feat.

The hard realities are that the great majority of new products never make it to market. And those that do face a failure rate somewhere in the order of 25 to 45 percent. For example, the Product Development and Management
Association (PDMA) claims that new products currently have a success rate of only 59 percent at launch, up only 1 percent since 1990. These success rate figures vary from study to study, however, depending on the industry and on how one defines a “new product” and a “failure.” Some sources cite the failure rate at launch to be as high as 90 percent. But these figures tend to be unsubstantiated and are likely wildly overstated. According to Crawford, who has undertaken perhaps the most thorough review of these often-quoted figures, the true failure rate is about 35 percent. Our own studies concur: In a review of the new product performances of 122 industrial product firms, the average success rate of fully developed products is 67 percent. But averages often fail to tell the whole story; this success rate varied from a low of zero percent to a high of 100 percent, depending on the firm!

Regardless of whether the success rate is 55 or 65 percent, the odds of a misfire are still substantial. Worse, the figures cited above don’t include the majority of new product projects that are killed along the way and long before launch, yet involved considerable expenditures of time and money.

The attrition curve of new products tells the whole story. One study reveals that for every seven new product ideas, about 4 enter development, 1.5 are launched, and only 1 succeeds. Another investigation paints an even more dismal picture: For every 11 new product ideas, 3 enter the development phase, 1.3 are launched, and only 1 is a commercial success in the marketplace (see Figure 1.3). The most recent PDMA survey reveals a seven-to-one ratio. The bad news continues. An estimated 46 percent of all the resources allocated to product development and commercialization by U.S. firms are spent on projects that are canceled or fail to yield an adequate financial return. This is an astounding statistic when one considers the magnitude of human and financial resources devoted to new products. But a minority of firms (30 percent) do achieve an enviable 80 percent success rate; that is, 80 percent of the resources they spend on innovation go to new product winners. These few firms show that it is possible to outperform the average, and by a considerable margin.

**Suggestion:** How well is your company faring in the new product game? Do you even know? (Most companies cannot provide statistics on success, fail and kill rates, or on resources spent on winners versus losers.)

*Keep score in the new product game.* Key statistics to track include the following:

- success versus failure rates at launch
- attrition rates: what percent of projects continue at each stage of the process?
- proportion of resources devoted to winners versus losers versus killed projects
Beating the Odds

In many ways, new products are much like a steeplechase horse race: Relatively few new product projects succeed. About ten horses leave the starting gate and must clear various hurdles, hedges, or jumps along the way. And only one horse in ten crosses the finish line as the winner. The racetrack gambler tries to pick the one winning horse but, more often than not, places his or her bet on the wrong one.

But new product management is even more risky than a horse race. True, the odds of picking a winner at the outset are somewhere in the order of ten to one. But the size of the bets is considerably greater—often in the millions of dollars. And unlike the gambler, the new product manager cannot leave the game—he or she must go on placing the bets, year after year, if the company is to succeed. Once into the game, it is difficult to quit!

Faced with these kinds of odds, why would anyone want to play the new product game? Don’t forget that there are some important differences between a horse race and new products. First, the payoff from a winning new product can be enormous—enough to more than cover all your losses. Second, and perhaps
more subtle, the way the bets are placed is different. At a racetrack, all bets must be placed before the race begins. But in new products, bets are placed as the race proceeds. Imagine the horse race where bets could be placed after the horses clear each hedge or gate! Suddenly the odds are changed dramatically in favor of the shrewd gambler.

The new products race, then, is really more like a game of five-card stud poker than a horse race. In five-card stud, after each card is dealt, the players place their bets. Toward the end of each hand, the outcome—who will be the winner—becomes clearer; at the same time, the betting and the amounts at stake rise exponentially.

Many an amateur poker player has sat down with a professional, assuming that he had equal odds of winning. True, each player has the same odds of being dealt a winning hand; the cards are dealt randomly. But over the long term, the professional will always win—not because she gets better hands, but because of how she bets, knowing when to bet high, when to bet low, and when to fold and walk away. The trick is in the betting!

Unfortunately, too many companies play the new products game like the amateur poker player. They start with an equal chance of winning. But because they don’t count cards (that is, don’t gather much information about the project, but operate on hunch and speculation instead) and lack solid betting criteria (that is, have poor or nonexistent decision rules for making go/kill decisions), they lose to the professional. And so the odds of losing—especially for the amateur player—are exceptionally high.

The first point of these analogies is to show that new products is a very complex game. It entails high risks, low odds of picking a winner, large amounts at stake, and an incremental betting process, with additional and increasing bets placed as the race proceeds. The second point is that effective betting is one key to winning. We all have the same odds of being dealt a good hand, but it’s how we bet—the information we gather and the betting rules or criteria we use—that makes the difference between winning and losing.

What’s New About a New Product?

Serious players keep score in the new product game. But in order to keep score, one must have a definition of what counts as a new product. One of the problems with some of the scores cited above is that they include different types of new products. For example, the attrition rates for truly innovative new products are much higher than for extensions and modifications of existing company products.

Defining Newness

There are many different types of new products. “Newness” can be defined in two senses:
new to the company, in the sense that the firm has never made or sold this type of product before, but other firms might have
• new to the market or “innovative”; the product is the first of its kind on the market

Categories of New Products

On the two-dimensional map shown in Figure 1.4, six different types or classes of new products are identified.15

1. New-to-the-world products. These new products are the first of their kind and create an entirely new market. This category represents only 10 percent of all new products. Well-known examples include the Sony Walkman, the first home compact disc player, 3M’s Post-It Notes, and more recently the Palm Pilot.

2. New product lines. These products, although not new to the marketplace, nonetheless are quite new to the particular firm. They allow a company to enter an established market for the first time. For example, Canon was not the first to launch an office version of a laser printer; Hewlett-Packard was, with its LaserJet. When Canon did introduce its version, it was clearly not an innovation, but it did represent a new product line for Canon, with all the investment that entailed. About 20 percent of all new products fit into this category.

3. Additions to existing product lines. These are new items to the firm, but they fit within an existing product line that the firm already produces. They may also represent a fairly new product to the marketplace. An example would be Hewlett-Packard’s introduction of its LaserJet 7P, a smaller and considerably less expensive version of its laser printers that is suitable for home computers. The printer is a new item within the LaserJet line, and its small size and low cost made it somewhat novel or “new to the market.” Such new items are one of the largest categories of new product—about 26 percent of all new product launches.

4. Improvements and revisions to existing products. These “not-so-new” products are essentially replacements of existing products in a firm’s product line. They offer improved performance or greater perceived value over the “old” product. These “new and improved” products make up 26 percent of new product launches. For example, Kennametal is a world leader in the supply of industrial consumable tools, such as drill bits. Many product development efforts at Kennametal amount to making relatively small changes or improvements to their existing tools that respond to a changing customer requirement or a competitive threat.

5. Repositionings. These are essentially new applications for existing products and often involve retargeting an old product to a new market segment or for a different application. For years, aspirin (or ASA, as it is
known in some countries) was the standard headache and fever reliever. Superseded by newer, safer compounds, ASA was in trouble. But new medical evidence suggested that aspirin had other benefits. Now aspirin is positioned not as a headache reliever but as a preventer of blood clots, strokes, and heart attacks. Repositionings account for about 7 percent of all new products.

6. Cost reductions. These are the least “new” of all new product categories. They are new products designed to replace existing products in the line, but they yield similar benefits and performance at lower cost. From a marketing standpoint, they are not new products; but from a design and production viewpoint, they could represent significant change to the firm. They represent 11 percent of all new product launches.

Most firms feature a mixed portfolio of new products. The two most popular categories, additions to the line and product improvements or revisions, are common to almost all firms. By contrast, the “step-out” new-to-the-world products and the new-to-the-firm product lines constitute only 30 percent of all new product launches, but they represent 60 percent of the products viewed as “most successful.”

Sadly, many firms stay clear of these two more innovative categories: 50 percent of firms introduce no new-to-the-world products, and another 25 percent develop no new product lines. This aversion to “step-out” and higher-risk products varies somewhat by industry, with higher technology industries launching proportionately more products that are innovative.

More recent data from industrial product firms in moderate-to-high technology businesses are shown in Figure 1.5 and compared to industry at large (PDMA survey). Note the importance of the two most innovative product categories to the moderate-to-high technology industries; they constitute a total of 58 percent of new products launched, compared to 30 percent in all industry.

**Suggestion:** Review the new products that your business has introduced in the past five years. Make a complete list. Then categorize them according to the six types in Figure 1.4. Questions to consider include the following:

1. What is the split of projects by type (draw a percent breakdown pie chart, as in Figure 1.5)? Does it differ much from the all-industry averages shown in Figure 1.5? Why?
2. What is the breakdown by project type in terms of total resources spent; that is, to which types of projects has your money and effort been devoted?
3. What is the breakdown by sales and profits; that is, which types of products or projects are generating the revenues and profits? What is the success rate by type?
4. Is your current breakdown or split the desirable one? What should be the split of new products by type? (You might use Figure 1.5 as the benchmark.)

**Performance and Innovativeness**

One of the problems with reading too much into the new product success and performance data cited above or found in your own firm is that *performance depends to a large extent on the types of products and projects undertaken.* As you reviewed your own new product performance by type, were the innovative ones more successful, or was it better to avoid breaking new ground? Two conflicting schools of thought might have emerged. The first is that innovative new products are more successful: They provide more opportunities for sustainable competitive advantage and often open up more significant market opportunities. Although the most innovative categories—new-to-the-world and new product lines—represent only 30 percent of the launches, they account for 60 percent of the most successful products!18

The other school of thought is the “play it safe” school. The product innovator, because he or she is first into a market, often makes many mistakes. The number two entrant can learn from these mistakes and succeed where the pio-
neer failed. In addition, less innovative products can usually be developed and launched a little faster because the pioneering products show the way.

So what types of new products, in terms of innovativeness, are the most successful? Our own research has pursued this theme of innovativeness and its impact on success rates. To simplify things, consider just three classes of new products in terms of innovativeness:

- **Highly innovative products**, namely, new-to-the-world products and innovative new product lines to the company (these represent 30 percent of the cases we studied).
- **Moderately innovative products**, consisting of new lines to the firm, with products that are not as innovative (that is, not new to the market), and new items in existing product lines for the firm (47 percent of cases).
- **Low innovativeness products**, consisting of all others: modifications to existing products; redesigned products to achieve cost reductions; and repositionings (23 percent of cases).

The impact of product innovativeness on new product success is not nearly as straightforward as expected; failure rates do not necessarily steadily increase (or steadily decrease) with increasing innovativeness. Figure 1.6 shows the results: a U-shaped relationship between product innovativeness and three key meas-
Military principles are based on facts—facts gathered by military historians and strategists who have studied countless wars and battles since the beginning of time. This book and its prescriptions are also very much fact-based. Since the 1970s, my colleagues and I have investigated more than 2000 new product launches and hundreds of companies. The goal: to uncover what winners do differently from losers, what the common denominators of successful new products and businesses are, and what distinguishes the top performers.

**NewProd Studies:** Some of our studies have focused on individual new product projects—more than 2000 projects, some successes and some failures. Multiple gauges of product performance—profitability, market share, meeting objectives, and so on—were measured. Similarly, characteristics of the project—from the nature of the market to how well the project team executed key activities—were captured. These were then correlated with success in order to identify those factors that distinguish the big new product winners.

**Benchmarking Studies:** Other studies looked at the business unit or company, rather than individual projects, and asked the broader question, Why are some businesses so much better at new products than others? In the most recent study, business units' new product performances were gauged on ten metrics (for example, percentage of sales from new products, and return on investment for R&D spending), which were then reduced to two key dimensions: profitability and impact. The drivers of business units' new product performance were then identified.

The success factors uncovered at the project level are somewhat different from those found at the business-unit level. But in both types of studies the fundamental question was the same: What makes a winner?

The success factors uncovered at the project level are somewhat different from those found at the business-unit level. But in both types of studies the fundamental question was the same: What makes a winner?

![Graph showing success rates, ROI, and market share for different levels of innovation.](image)

**Features of performance—success rate, return on investment (ROI), and market share.** Here, success rates, ROIs, and market shares for each of the three innovation categories are shown as horizontal bars.

The results are clear: Innovative products do well; so do non-innovative ones. The problem lies within the huge middle category—moderately innovative products—whose performance lags far behind the other two groups.

The success rate (the percentage of products meeting the firms' financial criteria) is greatest for highly innovative products: 78 percent are successful. Success rates are almost as high for low innovativeness products as well (68 percent). But the success rate drops to 51 percent for the middle group—the moderately innovative products.

A similar U-shaped pattern is also evident for ROI—this time, highest for low innovativeness products (124 percent), followed by highly innovative products (75 percent), but dropping to a mean ROI of 31 percent for moderately innovative products.
New product performance can be assessed in other ways as well: for example, obtaining market share, meeting sales and profit objectives, and opening new windows of opportunities for the business. These alternative gauges of performance also show similar and striking U-shaped relationships with innovativeness. This curved pattern is true across the board and not just for one or a few measures of performance.

The message is this: First, *success rates and new product performance do depend on the product type or newness of the product*. So when you keep score, be sure to develop different innovativeness categories of new products. Second, the fact that highly innovative products do so well is a provocative finding; it helps to dispel some myths about what types of projects are more successful and should encourage management to rethink their "short pass" or short-term strategy.

Don't simply make the assumption that highly innovative products are too risky for your company and that they have a negative performance. On average, they do very well! Perhaps it's time to have a hard look again at tackling more innovative projects.
An Introduction to the Game

In this chapter, you have seen that winning at new products plays a critical role in determining company fortunes. You have also witnessed some of the risks in product innovation; developing new products is like a horse race with high odds of failure and significant rates of attrition. The key is on how you place your bets! Keeping score is an important facet of the game, so I have laid out a scheme to help categorize new products so that the scores are more comparable. And finally, you saw some par values or norms for these scores for different types of new products—from the truly innovative to the not-so-new—and witnessed the debunking of some old myths.

In the next chapter, we take a look at the hard evidence. Our research into new product practices over the past twenty-five years has been widely published and has yielded perhaps the most thorough database on new product winners and losers—over 2,000 launches in about 450 companies in Europe and North America. And from observing these many successes and failures, we learn the keys to winning at new products. Additionally our benchmarking studies—where we looked at the best-performing businesses versus the rest—yield many insights into best practices and key success drivers. These investigations—both at the project level and also at the business unit level—provide the foundation for the book’s findings.

We begin our voyage in Chapter 2 with a look at the reasons why new products fail, and what goes wrong with product innovation. This is perhaps a negative way to start, but it’s the right place; the hope is that we can learn from our past mistakes—that we are not doomed to repeat the same mistakes year after year.

Chapter 3 explores new product successes and pinpoints what separates the winners from the losers. Here we see that there are clear patterns to success and that new product success is both predictable and controllable. Chapter 4 integrates what we have learned into fifteen key lessons for new product success—the critical success factors, which we then build into our game plan for winning.

Chapters 5 through 10 deal with tactics or process: the development and implementation of a Stage-Gate™ new product process for driving new products to market successfully and quickly. The newest version of the Stage-Gate process—a beginning-to-end product innovation road map—is introduced in Chapter 5, where the critical success factors and best practices are translated into an operational blueprint for action. Chapter 6 deals with Discovery—coming up with breakthrough new product ideas. Chapter 7 lowers the microscope on the “fuzzy front end”—the up-front stages of the process, where success or failure is largely decided. Chapter 8 deals with portfolio management and picking the winners; it focuses on the gates or decision points in the process, where we look at ways to improve your “betting practices”—improving your odds of picking the right projects and also the right balance of projects.
Chapters 9 and 10 follow the process as we move through development, testing, and market roll-out.

Chapter 11 looks at implementation issues. First we consider results—specifically, what results businesses achieve that have implemented Stage-Gate™ new product processes. Most important, you gain insights into how to handle the difficult job of the design and implementation of Stage-Gate within your business.

The final chapter deals with strategy. We stand back and look at how the tactics or new product process fits into the larger picture. This is the master strategy for new products. In which arenas should you play the game? How should you enter each? How should you allocate your resources? What strategic or key initiatives should you undertake?

So read on! First, discover the critical success factors in the next few chapters, and then explore how they can and should be built into your modus operandi in your business so that you, too, can be a big winner at new products.