

15 Introducing New Market Offerings

New-product development shapes the company's future. Improved or replacement products and services can maintain or build sales; new-to-the-world products and services can transform industries and companies and change lives. Companies that challenge industry norms and apply imaginative solutions will delight and engage consumers, as General Motors has done with OnStar.¹



Technology has always played an important role in the automobile industry, and breakthrough innovations can have enormous payoffs. General Motors has found a real winner in its OnStar technology, a creative blend of cellular technology, Bluetooth, GPS, speakers, and, most importantly, human operators. The in-car communication system provides both safety and convenience benefits, including hands-free calling, turn-by-turn navigation, stolen vehicle location assistance, and an Automatic Crash Response System that contacts the driver immediately if airbags have been activated and sends emergency medical assistance if needed. Two thousand advisers staff the call center 24 hours a day and can help drivers if they have a flat tire, run out of gas, need to find the nearest bank or pizza parlor, or just want the weather report or a phone number. An OnStar adviser can even unlock a car via satellite. More than 4.5 million GM owners were so satisfied with the service, which is backed by a strong ad campaign, that they signed up to pay for it after their six-month free trial expired. OnStar FMV ("for my vehicle") expands many of these benefits to non-GM cars for a sign-up fee and monthly charge by replacing the existing rear view mirror with a special OnStar mirror.

Marketers play a key role in new-product development by identifying and evaluating ideas and working with R&D and other areas in every stage of development. This chapter provides a detailed analysis of the new-product development process. Much of the discussion is equally relevant to new products, services, or business models.

New-Product Options

There are a variety of types of new products and ways to create them.²

MAKE OR BUY

A company can add new products through acquisition or development. When acquiring, the company can buy other companies, buy patents from other companies, or buy a license or franchise from another company. Swiss food giant Nestlé has increased its presence in North America by acquiring a variety of different brands such as Carnation, Stouffer's, Ralston Purina, Dreyer's Ice Cream, Jenny Craig, Gerber, Poland Springs, and PowerBar.³

But firms can successfully make only so many acquisitions. At some point, they need *organic growth*—the development of new products from within. Praxair, worldwide provider of industrial gases, achieved an ambitious goal of \$200 million per year of double-digit new annual sales growth only through a healthy dose of organic growth and a large number of smaller but significant \$5 million projects.⁴

For product development, the company can create new products in its own laboratories, or it can contract with independent researchers or new-product development firms to develop specific new products or new technology.⁵ Firms such as Samsung, GE, Diageo, Hershey, and USB have engaged new-product consulting boutiques to provide fresh insights and points of view.

TYPES OF NEW PRODUCTS

New products range from new-to-the-world items that create an entirely new market to minor improvements or revisions of existing products. Most new-product activity is devoted to improving existing products. Some recent product launches in the supermarket were brand extensions, such as Tide To Go Stain Eraser, Gillette Fusion ProGlide Styler, Dawn Power Clean, Crest 3D White Glamorous White Toothpaste, and Coconut Delight Oreo Fudge Cremes.⁶ At Sony, modifications of established products accounted for more than 80 percent of new-product activity.

It is increasingly difficult to identify blockbuster products that will transform a market, but continuous innovation can broaden the brand meaning and also force competitors to play catch-up.⁷ Armstrong World Industries moved from selling floor coverings to selling ceilings to decorating all interior surfaces. Once a running-shoe manufacturer, Nike now competes with makers of all types of athletic shoes, clothing, and equipment. Its innovative FuelBand measures a person's energy output during the day and allows it to be shared with others online; its sock-like Flyknit Racer shoes are environmentally friendly and create a wholly different running experience.⁸

Fewer than 10 percent of all new products are truly innovative and new to the world.⁹ These products incur the greatest cost and risk. And while radical innovations can hurt the company's bottom line in the short run, if they succeed they can improve the corporate image, create a greater sustainable competitive advantage than ordinary products, and produce significant financial rewards.¹⁰

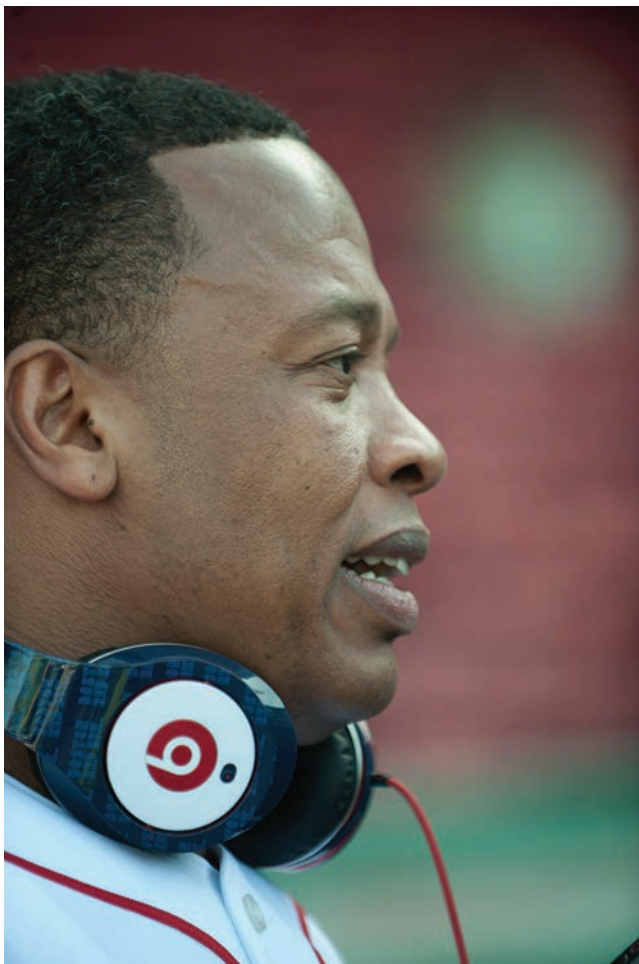
Keurig pioneered the one-cup-at-a-time pod-style brewing system that has swept homes and offices alike. For the speed, convenience, and variety offered, users are willing to pay 10 times the cost of a traditionally brewed cup of coffee, helping Keurig sales approach \$4 billion and its sales based revenue market share exceed 40 percent.¹¹ Another innovative new product that commands a premium is Beats by Dr. Dre headphones.¹²

BEATS BY DRE Born Andrew Young and a founding member of N.W.A and famed rap producer, Dr. Dre had made an indelible mark on the music scene before becoming an entrepreneur. His Beats by Dre headphones, launched in 2006 with music mogul Jimmy Iovine, have become a must for many music lovers despite costing \$300, nearly 10 times what ordinary ear buds sell for. Their appeal is in the thumping bass-heavy sound and sleek look, even if the reviews among audiophiles are somewhat mixed. With strong adoption among celebrity musicians and athletes—the headphones were seen everywhere at the 2012 Summer Olympic Games in London—Beats became as fashionable as they were practical and an essential modern lifestyle item. Beats by Dre has partnered with firms like Chrysler, HP, and HTC to build its sound technology in their cars, computers, and smart phones and has also introduced its own version of ear buds and other products. The company was acquired by Apple for \$3 billion in August 2014.

Companies typically must create a strong R&D and marketing partnership to pull off a radical innovation.¹³ The right corporate culture is another crucial determinant; the firm must prepare to cannibalize existing products, tolerate risk, and maintain a future market orientation.¹⁴ A keen understanding of customers is also paramount.¹⁵

Few reliable techniques exist for estimating demand for radical innovations.¹⁶ Focus groups can provide perspective on customer interest and need, but marketers may need a probe-and-learn approach based on observation and feedback of early users' experiences and other means such as online chats or product-focused blogs.

High-tech firms in telecommunications, computers, consumer electronics, biotech, and software in particular seek radical innovation.¹⁷ They face a number of product-launch challenges: high technological



Source: © epa european pressphoto agency b.v./Alamy

Beats by Dre's innovative features and design permits the brand to command a premium price in the marketplace.

Source: © epa european pressphoto agency b.v./Alamy



Google co-founder Sergey Brin is a strong supporter of innovative new products such as Google Glass.

uncertainty, high market uncertainty, fierce competition, high investment costs, short product life cycles, and scarce funding sources for risky projects.¹⁸ Successes abound, however. Google has launched a number of path-breaking products and is looking for more.¹⁹

GOOGLE Since its beginnings as the quintessential search engine, Google has launched a wide variety of products that earned its reputation as one of the most innovative companies and amassed a market cap exceeding \$300 billion. The company has introduced a series of related online products—notably gmail e-mail, Google+ social networking, and the Google Chrome enhanced browser. It has made a strong entry in the mobile market with its Android operating system and its acquisition of Motorola Mobility for \$12.5 billion. But not all new products are hits; some that seemed to miss their mark were Google Answers, Dodgeball, and Lively. Perhaps one of Google's most ambitious new products is Google Glass, a computer worn like eyewear with an optical display that allows the user to answer calls, record video, and take photos with voice activation, connect to a smart phone, post to social media, and perform Google searches, among other things. The company has been beta-testing the product with thousands of Glass Explorers, who are paying \$1,500 each for the opportunity to be an early adopter and pass along feedback. Google X, the internal group that developed Google Glass, is looking into other “out of this world” products, like self-driving cars and balloons that can transmit broadband Internet to remote regions from 12 miles in the air.

Challenges in New-Product Development

In retailing, consumer goods, electronics, autos, and other industries, the time to bring a product to market has been cut in half.²⁰ For instance, luxury leather-goods maker Louis Vuitton has implemented a new factory format dubbed Pégase so it could ship fresh collections to its boutiques every six weeks—more than twice as frequently as in the past—giving customers more new looks to choose from.²¹

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THE INNOVATION IMPERATIVE

In an economy of rapid change, continuous innovation is a necessity. Companies that fail to develop new products leave themselves vulnerable to changing customer needs and tastes, shortened product life cycles, increased domestic and foreign competition, and especially new technologies. Google, Dropbox, and Box update their software daily.²²

Highly innovative firms are able to repeatedly identify and quickly seize new market opportunities. They create a positive attitude toward innovation and risk taking, routinize the innovation process, practice teamwork, and allow their people to experiment and even fail. One such firm is W. L. Gore.²³

W. L. GORE Best known for its GORE-TEX high-performance fabrics, W. L. Gore has introduced breakthrough versions of guitar strings, dental floss, medical devices, and fuel cells—while constantly reinventing the uses of the polymer polytetrafluoroethylene (PTFE). Several principles guide the company's new-product development. First, it works with potential customers. Its thoracic graft, designed to combat heart disease, was developed in close collaboration with physicians. Second, Gore has a distinctly egalitarian culture; it lets employees choose projects and appoints few product leaders and teams. The company likes to nurture “passionate champions” who convince others a project is worth their time and commitment, and

Through different policies and processes, W.L. Gore has created an innovative culture that has produced numerous new product successes.

leaders have positions of authority because they have followers. The development of the fuel cell rallied more than 100 of Gore's 9,000 research associates. Third, all research associates spend 10 percent of their work hours on “dabble time,” developing their own ideas. Promising ideas are judged according to a “Real, Win, Worth” exercise: Is the opportunity real? Can we win? Can we make money? Fourth, Gore knows when to let go, though dead ends in one area can spark innovation in another: Elixir acoustic guitar strings were the result of a failed venture into bike cables. Even successful ventures may need to move on. Glide shred-resistant dental floss was sold to Procter & Gamble because Gore knew retailers want to deal with a company selling a family of health care products. The 10,000-person private company now has operations in dozens of countries around the globe and revenue of more than \$3 billion.

Innovation is about “creating new choices” the competition doesn't have access to, says IDEO's CEO Tim Brown. It isn't about brilliant people spontaneously generating new ideas, he argues, but about finding hidden assumptions and ignored processes that can change the way a company does business.²⁴

NEW-PRODUCT SUCCESS

Most established companies focus on *incremental innovation*, entering new markets by tweaking products for new customers, using variations on a core product to stay one step ahead of the market, and creating interim solutions for industry-wide problems. With the widespread adoption of smart phones, mobile apps are becoming a lucrative business, as the creators of Angry Birds video game have found, securing their leadership with continual innovation.²⁵



Source: Sarkkaniemi Adventure Park

Mobile app Angry Birds is so popular that there are even themed activity parks in some different countries.

ANGRY BIRDS

A spectacular success, Angry Birds has transcended its origins as a mobile app to become a cultural phenomenon and entrenched brand franchise. Created in Finland by Niklas Hed and commercialized by Rovio Entertainment, the video game uses a slingshot to hurl brightly colored birds at green pigs trying to take shelter. It scored 50 million downloads in its first year while becoming the top seller at the Apple App Store, spawning a series of sequels, RIO Seasons and Space, and two subsequent releases tied to *Star Wars*. Rovio has kept users interested in existing titles by continually adding new levels to the games—Angry Birds had 63 levels when it began, which grew to more than 360. Taking a page from Disney, the brand has been successfully extended within and outside entertainment, with toys, games, backpacks, fruit snacks, underwear, and more that have reached \$650 million in sales. Rovio—Finnish for “bonfire”—is worth an estimated \$9 billion. There is an Angry Birds television show, comic book series, and planned 3-D movie; its YouTube site has had more than 1 billion views. The brand has more than 400 partners, from Coca-Cola to Intel to Kraft. Rovio has also opened up retail stores in China and themed activity parks in Finland, China, and the United Kingdom.

Newer companies create *disruptive technologies* that are cheaper and more likely to alter the competitive space. Established companies can be slow to react or invest in these disruptive technologies because they threaten their investment. Then they suddenly find themselves facing formidable new competitors, and many fail.²⁶ To avoid this trap, incumbent firms must carefully monitor the preferences of both customers and noncustomers and uncover evolving, difficult-to-articulate customer needs.²⁷

What else can a company do? In a classic study of industrial products, new-product specialists Cooper and Kleinschmidt found that the number-one success factor is a unique, superior product. Such products succeed 98 percent of the time, compared with products with a moderate advantage (58 percent success) or minimal advantage (18 percent success). Another key factor is a well-defined product concept. The company carefully defines and assesses the target market, product requirements, and benefits before proceeding. Other success factors are technological and marketing synergy, quality of execution in all stages, and market attractiveness. Products designed with other countries and a global perspective in mind also tended to fare better.²⁸

NEW-PRODUCT FAILURE

New products continue to fail at rates estimated as high as 50 percent or even 95 percent in the United States and 90 percent in Europe.²⁹ The reasons are many: ignored or misinterpreted market research; overestimates of market size; high development costs; poor design or ineffectual performance; incorrect positioning, advertising, or

price; insufficient distribution support; competitors who fight back hard; and inadequate ROI or payback. Some additional drawbacks new-product launches face are:

- **Fragmented markets.** Companies must aim their new products at smaller market segments than before, which can mean lower sales and profits for each product.
- **Social, economic, and governmental constraints.** New products must satisfy consumer safety and environmental concerns and stringent production constraints.
- **Cost of development.** A company typically must generate many ideas to find just one worthy of development and thus often faces high R&D, manufacturing, and marketing costs.
- **Capital shortages.** Some companies with good ideas cannot raise the funds to research and launch them.
- **Shorter required development time.** Companies must learn to compress development time with new techniques, strategic partners, early concept tests, and advanced marketing planning.
- **Poor launch timing.** New products are sometimes launched too late, after the category has already taken off, or too early for sufficient interest to have gathered.
- **Shorter product life cycles.** Rivals are quick to copy success. At one time, Sony enjoyed a three-year lead on its new products, but Matsushita and others learned to copy them within six months, leaving Sony with barely time to recoup its investment.
- **Lack of organizational support.** The new product may not mesh with the corporate culture or receive the financial or other support it needs.

But failure comes with the territory, and truly innovative firms accept it as part of what's necessary to be successful. Silicon Valley marketing expert Seth Godin maintains, "It is not just OK to fail; it's imperative to fail."³⁰ Many Internet companies are the result of failed earlier ventures and experience numerous setbacks as their services evolve. Dogster.com, a social network site for dog lovers, emerged after the spectacular demise of Pets.com.³¹

Failure is not always the end of an idea. Recognizing that 90 percent of experimental drugs are unsuccessful, Eli Lilly looks at failure as an inevitable part of discovery and encourages its scientists to find new uses for compounds that fail at any stage in a human clinical trial. Evista, a failed contraceptive, became a \$1 billion-a-year drug for osteoporosis. Strattera was unsuccessful as an antidepressant but became a top seller for attention deficit/hyperactivity disorder.³²

Organizational Arrangements

Many companies use *customer-driven engineering* to develop new products, incorporating customer preferences in the final design. Some, such as SAP, have relied on organizational changes to help develop more successful new products.³³

SAP After a series of high-profile acquisitions of firms such as SuccessFactors, Sybase, and Ariba, business software leader SAP set out to create internal start-ups to pursue new business ideas in adjacent markets or just in markets where large companies typically did not operate. Hiring entrepreneurs from inside and outside its ranks, the company treated every project much like a typical start-up, making funding decisions like an investor at each stage of the new-product development process. In formulating their business ideas, the start-ups had to be cognizant of SAP's global footprint and the need to satisfy regulatory requirements around the world, but they could also tap into its strong relationships with clients. One success was the development of HANA, the company's real-time database analysis technology. HANA was designed to be a powerful computing platform, so SAP also enlisted the developer community to discover applications that could be part of that platform.

New-product development requires senior management to define business domains, product categories, and specific criteria. One company established the following acceptance criteria:

- The product can be introduced within five years.
- The product has a market potential of at least \$50 million and a 15 percent growth rate.
- The product can provide at least 30 percent return on sales and 40 percent on investment.
- The product can achieve technical or market leadership.

BUDGETING FOR NEW-PRODUCT DEVELOPMENT

R&D outcomes are so uncertain that it is difficult to use normal investment criteria when budgeting for new-product development. Some companies simply finance as many projects as possible, hoping to achieve a few winners. Others apply a conventional percentage-of-sales figure or spend what the competition spends. Still others decide how many successful new products they need and work backward to estimate the required investment.

TABLE 15.1 Cost of Finding One Successful New Product
(Starting with 64 New Ideas)

Stage	Number of Ideas	Pass Ratio	Cost per Product Idea	Total Cost
1. Idea screening	64	1:4	\$ 1,000	\$ 64,000
2. Concept testing	16	1:2	20,000	320,000
3. Product development	8	1:2	200,000	1,600,000
4. Test marketing	4	1:2	500,000	2,000,000
5. National launch	2	1:2	<u>5,000,000</u>	<u>10,000,000</u>
			\$5,721,000	\$13,984,000

Table 15.1 shows how a company might calculate the cost of new-product development. The new-products manager at a large consumer packaged-goods company reviewed 64 ideas. Sixteen passed the screening stage and cost \$1,000 each to review at this point. Half, or eight, survived the concept-testing stage, at a cost of \$20,000 each. Four survived the product-development stage, at a cost of \$200,000 each. Two did well in the test market, costing \$500,000 each. When they were launched, at a cost of \$5 million each, one was highly successful. Thus, this one successful idea cost the company \$5,721,000 to develop, while 63 others fell by the wayside for a total development cost of \$13,984,000. Unless the company can improve its pass ratios and reduce costs at each stage, it will need to budget nearly \$14 million for each successful new idea it hopes to find.

Hit rates vary. Inventor Sir James Dyson claims he made 5,127 prototypes of his bagless, transparent vacuum cleaner over a 14-year period before getting it right, resulting in the best-selling vacuum cleaner by revenue in the United States with more than 20 million sold and annual revenue of more than \$1.5 billion. He doesn't lament his failures, though: "If you want to discover something that other people haven't, you need to do things the wrong way...watching why that fails can take you on a completely different path." His latest successes: the Airblade, an energy-efficient hand drier for public restrooms, and the Air Multiplier, a bladeless table fan.³⁴

ORGANIZING NEW-PRODUCT DEVELOPMENT

Companies handle the organizational aspect of new-product development in several ways. Many assign responsibility to *product managers*. But product managers are often busy managing existing lines and may lack the skills and knowledge to develop and critique new products.



Source: © Adrian Sheratt/Alamy

Inventor Sir James Dyson acknowledges that he has endured many unsuccessful new product ideas on his way to finding a few successful ones.

Kraft and Johnson & Johnson have employed *new-product managers* who report to category managers. Westinghouse has used *growth leaders*—a full-time job for its most creative and successful managers.³⁵ Intuit uses a team of *innovation catalysts*—design-thinking coaches—to help managers work on initiatives throughout the organization.³⁶ Some companies have a *high-level management committee* charged with reviewing and approving proposals.

Large companies often establish a *new-product department* headed by a manager with substantial authority, access to top management, and responsibility for generating and screening new ideas, working with the R&D department, and carrying out field testing and commercialization. Eli Lilly put every department engaged in the process of turning molecules into medicine—from R&D staff to the team who seek FDA approval—under one roof to improve efficiency and cut development time.³⁷

Some firms open innovation centers in new geographical locations to better design new products for those regions. Diageo, purveyor of premium spirits, beers, and wine, opened such a center in Singapore to support the company's Asian growth initiatives.³⁸

CROSS-FUNCTIONAL TEAMS 3M, Dow, and General Mills have assigned new-product development to **venture teams**, cross-functional groups charged with developing a specific product or business. These “intrapreneurs” are relieved of other duties and given a budget, time frame, and “skunkworks” setting.

Skunkworks are informal workplaces, sometimes garages, where intrapreneurial teams work to develop new products. As it transforms itself from a PC company to a solutions company in the cyber-security and data center design and management business, Dell has established separate headquarters for its new units with marching orders to think entrepreneurially.³⁹

Communities of practice are often housed on internal Web sites where employees from different departments are encouraged to share knowledge and skills with others.⁴⁰ Japanese pharmaceutical maker Esai Co. has formed more than 400 innovation communities. One helped develop a jelly-like medication for Alzheimer's patients that is easy to swallow. Of the 29 innovation community projects commissioned by grocery retailer Supervalu, 22 were implemented over a 10-year period.⁴¹

Cross-functional teams can collaborate and use concurrent new-product development to push new products to market.⁴² Concurrent product development resembles a rugby match, with team members passing the new product back and forth as they head toward the goal. Using this system, Allen-Bradley Corporation (a maker of industrial controls) was able to develop a new device in just two years, down from six under its old system. Cross-functional teams help ensure that engineers are not driven to create a “better mousetrap” when potential customers don't need or want one.

CROWDSOURCING The Internet lets companies engage external participants in the new-product development process in rich and meaningful ways. Through **crowdsourcing**, these paid or unpaid outsiders can offer needed expertise or a different perspective on a task or project that might otherwise be overlooked.

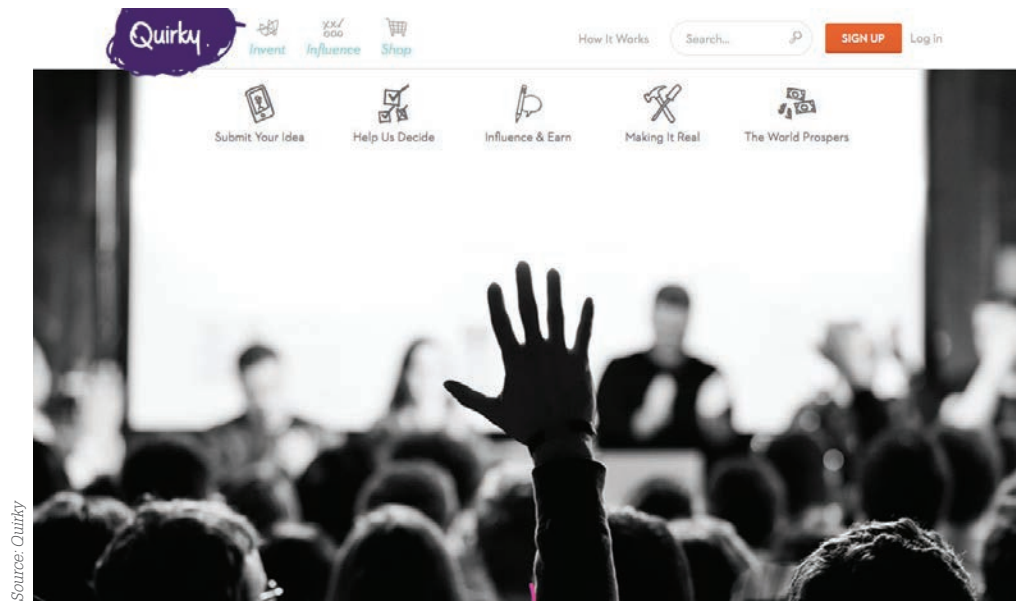
Companies such as Edison Nation and the Big Idea Group have sprung up to tap into crowdsourcing's possibilities.⁴³ Quirky combines its own design, branding, engineering, and sales teams with 864,000 online participants, forming a community for devising new products. The company sifts through thousands of submissions weekly to identify eight to ten ideas that merit greater scrutiny. For the chosen ideas, it will design, manufacture, and sell the product. Inventors and any members of the community who contribute to the design and branding get a cut.⁴⁴

As another example, P&G wanted to create a dishwashing detergent “smart enough” to reveal when the right amount of soap has been added to a sink full of dirty plates. With its formidable in-house research and development team stumped, the company went to InnoCentive, a spin-off of Eli Lilly, which handed the problem over to its global network of volunteer tinkerers—professionals, retired scientists, students, and others. As it happened, an Italian chemist working from her home laboratory had pioneered a new kind of dye that turns dishwater blue when a certain amount of soap is added. For \$30,000 in prize money, P&G had a solution.⁴⁵

STAGE-GATE SYSTEMS Many top companies use the *stage-gate system* to divide the innovation process into stages, with a gate or checkpoint at the end of each.⁴⁶ The project leader, working with a cross-functional team, must bring a set of known deliverables to each gate before the project can pass to the next stage. To move from the business plan stage into product development requires a convincing market research study of consumer needs and interest, a competitive analysis, and a technical appraisal. Senior managers review the criteria at each gate to make one of four decisions: *go, kill, hold, or recycle*.

For example, at Tata Steel, initial ideas generated by “trend scouting” become future pipeline developments and then, in turn, priority product and process developments and finally product and process implementations. About 50 to 100 ideas are generated for every one that makes it to implementation, and at any point in time, 50 to 70 priority product or process development projects are in the pipeline before the final-phase gate.⁴⁷

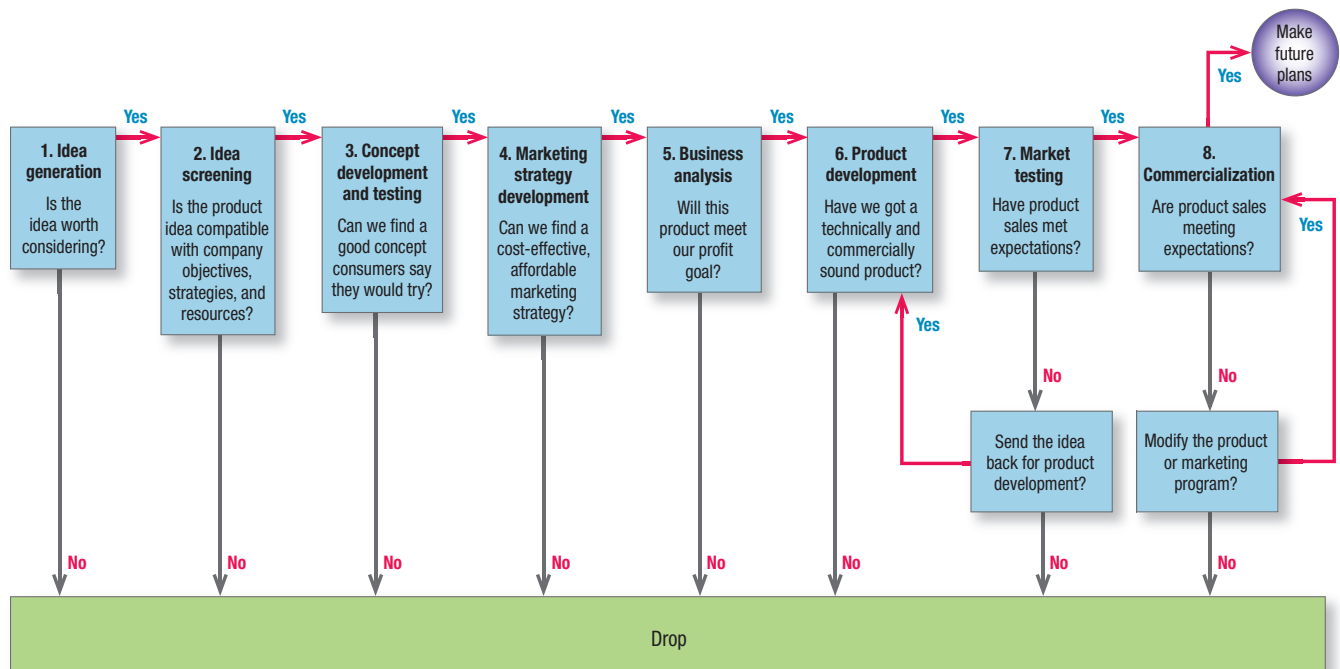
The stages in the new-product development process are shown in Figure 15.1. Many firms have parallel sets of projects working through the process, each at a different stage.⁴⁸ Think of the process as a *funnel*: A large number



Quirky uses crowdsourcing with a large online consumer panel and its own experts to help develop new products.

of initial new-product ideas and concepts are winnowed down to a few high-potential products that are ultimately launched. But the process is not always linear. Many firms use a *spiral development process* that recognizes the value of returning to an earlier stage to make improvements before moving forward.⁴⁹

Stage-gate systems make the innovation process visible to all and clarify the project leader's and team's responsibilities at each stage.⁵⁰ The gates or controls should not be so rigid, however, that they inhibit learning and the development of novel products.⁵¹ These systems have evolved over the years as users have made them more flexible, adaptive, and scalable; built in better governance; integrated portfolio management; incorporated accountability and continuous improvement; and adapted the process to include *open innovation* and input from sources outside the company at different stages.⁵²



| Fig. 15.1 |

The New-Product Development Decision Process

Managing the Development Process: Ideas

GENERATING IDEAS

The new-product development process starts with the search for ideas. Some marketing experts believe we find the greatest opportunities and highest leverage for new products by uncovering the best possible set of unmet customer needs or technological innovation.⁵³ New-product ideas can in fact come from interacting with various groups and using creativity-generating techniques.⁵⁴ (See “Marketing Memo: Ten Ways to Find Great New-Product Ideas.”)

INTERACTING WITH EMPLOYEES Employees can be a source of ideas for improving production, products, and services.⁵⁵ Consider what these three firms have done:

- Toyota reports its employees submit 2 million ideas annually (about 35 suggestions per employee), more than 85 percent of which are implemented.⁵⁶
- LinkedIn launched an in-house incubator that allows any employee to organize a team and pitch a project to a group of executives. The company has also created “hackdays”—one Friday a month when employees work on creative projects.⁵⁷
- Pricewaterhouse Coopers set up an *American Idol*-style innovation competition dubbed “PowerPitch,” in which the winning team received \$100,000 and the opportunity to implement their proposal for a new line of business that could eventually be worth \$100 million in revenue. Live chats and an online platform for discussion and voting led up to a five-team finale televised internally from the company’s New York City headquarters.⁵⁸

Top management can be another major source of ideas. Some company leaders, such as former CEO Andy Grove of Intel, take personal responsibility for technological innovation in the firm. New-product ideas can come from a variety of outside sources, as discussed below, however, their chances of receiving serious attention often depend on having an employee in the organization take the role of product champion.

INTERACTING WITH OUTSIDERS Encouraged by the open innovation movement, many firms are going outside their bounds to tap external sources of new ideas, including customers, scientists, engineers, patent attorneys, university and commercial laboratories, industrial consultants and publications, channel members, marketing and advertising agencies, and even competitors.⁵⁹ “Marketing Insight: P&G’s Connect + Develop Approach to Innovation” describes how P&G has made new-product development more externally focused.

marketing memo

Ten Ways to Find Great New-Product Ideas

1. Run informal sessions where groups of customers meet with company engineers and designers to discuss problems and needs and brainstorm potential solutions.
2. Allow time off—scouting time—for technical people to putter on their own pet projects. Google has allowed 20 percent time off; 3M 15 percent; and Rohm & Haas 10 percent.
3. Make a customer brainstorming session a standard feature of plant tours.
4. Survey your customers: Find out what they like and dislike in your and competitors’ products.
5. Undertake “fly-on-the-wall” or “camping out” research with customers, as do Fluke and Hewlett-Packard.
6. Use iterative rounds: a group of customers in one room, focusing on identifying problems, and a group of your technical people in the next room, listening and brainstorming solutions. Immediately test proposed solutions with the group of customers.
7. Set up a keyword search that routinely scans trade publications in multiple countries for new-product announcements.
8. Treat trade shows as intelligence missions, where you view all that is new in your industry under one roof.
9. Have your technical and marketing people visit your suppliers’ labs and spend time with their technical people—find out what’s new.
10. Set up an idea vault, and make it open and easily accessed. Allow employees to review the ideas and add constructively to them.

Source: Adapted from Robert G. Cooper, *Product Leadership: Creating and Launching Superior New Products* (New York: Perseus Books, 1998). Adapted with permission from the author. See also Robert G. Cooper and Scott J. Edgett, “Ideation for Product Innovation: What are the Best Methods?,” *PDMA Visions*, March 2008, pp. 12–17.

Pricewaterhouse Coopers has run an *American Idol* style innovation competition.

Source: © Mark Peterson 2011



marketing insight

P&G'S Connect + Develop Approach to Innovation

In the first decade of the 21st century, one of the corporations with the fastest-growing revenue and profit was Procter & Gamble. Fueling its growth were successful new products such as Olay Regenerist, Swiffer, Mr. Clean Magic Eraser, Pulsonic toothbrushes, and Actonel, prescribed for osteoporosis. Many of these reflected innovation in what then-CEO A. G. Lafley called “the core”—core markets, categories, brands, technologies, and capabilities.

To more effectively develop its core, P&G has adopted a “Connect + Develop” model that emphasizes the pursuit of outside innovation. The firm collaborates with organizations and individuals around the world, searching for proven technologies, packages, and products it can improve, scale up, and market on its own or in partnership with other companies. It has strong relationships with external designers, distributing product development around the world to increase what it calls “consumer sensing.”

P&G identifies the top 10 customer needs, closely related products that could leverage or benefit from existing brand equity, and “game boards” that map the adoption of technology across different product categories. It may consult government and private labs as well as academic and other research institutions, venture capital firms, individual

entrepreneurs, and suppliers, retailers, competitors, and development and trade partners, using online networks to reach thousands of experts worldwide.

P&G's three core requirements for a successful Connect + Develop strategy are:

1. *Never assume that “ready to go” ideas found outside are truly ready to go.* There will always be development work to do, including risky scale-up.
2. *Don't underestimate the internal resources required.* A full-time, senior executive will need to run any connect-and-develop initiative.
3. *Never launch without a mandate from the CEO.* Connect-and-develop cannot succeed if it's cordoned off in R&D. It must be a top-down, company-wide strategy.

P&G vets 4,000 submissions annually and actively solicits innovation ideas from a larger network of individuals and businesses with a past history of working with the company. Through Connect + Develop—and improvements in product cost, design, and marketing—P&G increased R&D productivity nearly 60 percent during the decade. The innovation success rate has more than doubled, and costs have fallen.

Sources: www.pgconnectdevelop.com; Lydia Dishman, “How Outsiders Get Their Products to the Innovation Big League at Procter & Gamble,” *Fast Company*, July 13, 2012; Bruce Brown and Scott D. Anthony, “How P&G Tripled Its Innovation Success Rate,” *Harvard Business Review*, June 2011, pp. 64–72; A.G. Lafley and Ram Charan, *The Game Changer: How You Can Drive Revenue and Profit Growth Through Innovation* (New York: Crown Business, 2009); Larry Huston and Nabil Sakkab, “Connect and Develop: Inside Procter & Gamble's New Model for Innovation,” *Harvard Business Review*, March 2006, pp. 58–66.

Customer needs and wants are the logical place to start the search.⁶⁰ Griffin and Hauser suggest that conducting 10 to 20 in-depth experiential interviews per market segment often uncovers the vast majority of customer needs.⁶¹ But other approaches can be profitable (see “Marketing Memo: Seven Ways to Draw New Ideas from Your Customers”). One marketer-sponsored café in Tokyo tests products of all kinds with affluent, influential young Japanese women.⁶²

marketing
memo

Seven Ways to Draw New Ideas from Your Customers

1. **Observe how customers are using your product.** Medtronic, a medical device company, has salespeople and market researchers regularly observe spine surgeons who use their products and competitive products to learn how theirs can be improved. After living with lower-middle-class families in Mexico City, Procter & Gamble researchers devised Downy Single Rinse, a fabric softener that removed an arduous step from the partly manual laundry process there.
2. **Ask customers about their problems with your products.** Komatsu Heavy Equipment sent a group of engineers and designers to the United States for six months to ride with equipment drivers and learn how to make products better. Procter & Gamble, recognizing consumers were frustrated that potato chips break and are difficult to save after opening the bag, designed Pringles to be uniform in size and encased in a protective tennis-ball-type can.
3. **Ask customers about their dream products.** Ask your customers what they want your product to do, even if the ideal sounds impossible. One 70-year-old camera user told Minolta he would like the camera to make his subjects look better and not show their wrinkles and aging. In response, Minolta produced a camera with two lenses, one for rendering softer images of the subjects.
4. **Use a customer advisory board to comment on your company's ideas.** Levi Strauss uses youth panels to discuss lifestyles, habits, values, and brand engagements; Cisco runs Customer Forums to improve its offerings; and Harley-Davidson solicits product ideas from its one million H.O.G. (Harley Owners Group) members.
5. **Use Web sites for new ideas.** Companies can use specialized search engines such as Technorati to find blogs and postings relevant to their businesses. P&G's corporate global Web site has a *Share Your Thoughts* section to gain advice and feedback from customers.
6. **Form a brand community of enthusiasts who discuss your product.** Harley-Davidson and Apple have strong brand enthusiasts and advocates; Sony engaged in collaborative dialogues with consumers to codevelop its PlayStation products. LEGO draws on kids and influential adult enthusiasts for feedback on new-product concepts in early stages of development.
7. **Encourage or challenge your customers to change or improve your product.** Salesforce.com wants its users to develop and share new software applications using simple programming tools; International Flavors & Fragrances gives a toolkit to its customers to modify specific flavors, which IFF then manufactures; LSI Logic Corporation also provides customers with do-it-yourself toolkits so customers can design their own specialized chips; and BMW posted a toolkit on its Web site to let customers develop ideas using telematics and in-car online services.

Source: From an unpublished paper, Philip Kotler, "Drawing New Ideas from Your Customers," 2013.

The traditional company-centric approach to product innovation is giving way to a world in which companies cocreate products with consumers. At BlankLabel.com, you can design your own unique shirt by specifying the cut, size, collar, buttons, cuffs, and pockets you want.⁶³

As noted above, companies are also increasingly turning to crowdsourcing to generate new ideas. One form of crowdsourcing invites the online community to help create content or software, often with prize money or a moment of glory as an incentive.⁶⁴ When Baskin-Robbins ran an online contest to pick its next flavor, 40,000 consumers entered. The winning entry—from a 62-year-old grandmother of four—combined chocolate, nuts, and caramel and was launched as Toffee Pecan Crunch.⁶⁵ One recent convert to crowdsourcing is Cisco.⁶⁶

CISCO The Cisco Internet of Things (IoT) Grand Challenge (formerly the Cisco I-Prize) is a worldwide initiative, aiming to bring the industry together and accelerate the adoption of breakthrough technologies and products that will contribute to the growth and evolution of the Internet of Things. Awards of U.S. \$250,000 in cash prizes are to be shared among three winners, and can be used to jump-start ventures. Cisco also provides winners with mentoring, training, and access to business expertise from Cisco and other supporting organizations. From the inception of I-Prize, Cisco's rationale for these challenges—which drew 2,500 entrepreneurs from 104 countries in its first iteration—was simple: "In many parts of the world, you have incredibly smart people with incredibly great ideas who have absolutely no access to capital to take a great idea and turn it into a business."

In the first year, high-potential technology start-ups aimed to meet five main criteria with their submissions: (1) Does it address a real pain point? (2) Will it appeal to a big enough market? (3) Is the timing right? (4) If we pursue the idea, will we be good at it? and (5) Can we exploit the opportunity for the long term? The public judged the entries online, where Cisco found the detailed comments even more useful than the actual votes. The winning entry in the first competition was a plan for a sensor-enabled smart-electricity grid. The second competition drew 3,000 participants from more than 156 countries. The winning entry was from a team of five university students from Mexico and based on the idea of a "Life Account" that gathered information about users through connected devices in the physical world and online data from the

virtual world. The next two IoT Grand Challenges targeted Russia where Cisco has massive investment plans. One of the winning Russian IoT Grand Challenge teams developed a system that uses a mobile phone as a mediator for transmitting data from sensors to healthcare systems and is compatible with all major mobile phone platforms, as well as more than 40 medical devices.

As the Cisco I-Prize has evolved into the form of the Cisco IoT Grand Challenge, submissions are now entered into one of six categories: Applications and Application Enablement, Analytics, Management, Networking, Security or Things. Each submission must map to one of a variety of industries Education, Energy, Healthcare, Manufacturing, Oil and Gas, Retail, Smart Cities, Sports and Entertainment or Transportation.

Besides producing new and better ideas, cocreation can help customers feel closer to the company and create favorable word of mouth.⁶⁷ Getting the right customers engaged in the right way, however, is critical.⁶⁸

Lead users can be a good source of input, even when they innovate products without the consent or knowledge of the companies that produce them. Mountain bikes developed as a result of youngsters taking their bikes to the top of a mountain and riding down. When the bikes broke, the youngsters began building more durable bikes and adding motorcycle brakes, improved suspension, and accessories. They, not bike companies, developed these innovations.

Some companies, particularly those that want to appeal to younger, leading-edge consumers, bring their lead users into their product-design process. Technical companies can learn a great deal by studying customers who make the most advanced use of the company's products and who recognize the need for improvements before other customers do.⁶⁹ In a business-to-business market, collecting information from distributors and retailers who are not usually in close contact can provide more diverse insights and information.⁷⁰

Not everyone believes a customer focus helps create better new products.⁷¹ As Henry Ford famously said, "If I'd asked people what they wanted, they would have said a faster horse." Some still caution that being overly focused on consumers who may not really know what they want, or what could be possible, can result in shortsighted product development and miss real potential breakthroughs.⁷² Apple and IKEA have reputations for incorporating user input with some caution, and others believe focusing on lead users leads to incremental and not breakthrough innovation.⁷³

STUDYING COMPETITORS Companies can find good ideas by researching the products and services of competitors and other companies. They can find out what customers like and dislike about competitors' products. They can buy their competitors' products, take them apart, and build better ones. They can ask their own sales representatives and intermediaries for ideas. These groups have firsthand exposure to customers and are often the first to learn about competitive developments. Electronic retailer Best Buy even checks with venture capitalists to find out what start-ups are working on.



Source: Cisco I-Prize (now referred to IoT Challenge) Moscow Team

Cisco's I-Prize innovation competition, now called IoT, draws entries from around the world, like this winning team from Russia, and has generated numerous new product ideas.

To establish the optimal brand positioning for the new product and the right points-of-parity and points-of-differences, marketers need a thorough understanding of the competition. Consider how the fierce video game console battle among Microsoft, Sony, and Nintendo has spurred innovation as each firm attempts to break loose from the pack.⁷⁴

VIDEO GAME CONSOLES Makers of video game consoles fight tooth-and-nail for the minds and hearts of the 1 billion gamers worldwide, 220 million of whom live in the United States. For the 2013 holiday season, Microsoft's new Xbox One went head to head with Sony's new PS4. Although the two game consoles both added many new features—from motion-detection cameras to allow gamers to play using gestures to technology linking the gaming console to a smart phone or tablet—the Xbox One was priced \$100 higher than the PS4's \$399 list price. Microsoft also lost the early PR battle when it announced policies that angered customers, such as restrictions on the process of gaming and sharing games. And the company had a tough act to follow. Its earlier model, the Xbox 360, brought significant power and online functionality to gamers, introducing Achievements and the gamer score to facilitate competition. With sales of more than 75 million units, Xbox 360 also drew more than 40 million users into Microsoft's Xbox Live connected gaming service. The third major player, Nintendo, found great success in 2006 with its Wii gaming system. Bucking industry trends, it chose a cheaper, lower-power chip with fewer graphics capabilities, creating a totally different style of play based on physical gestures. A sleek white design and motion-sensitive wireless controller also made Wii much more engaging and interactive, and Nintendo's decision to embrace outside software developers meant new titles quickly became available. Its collaborative nature made Wii a hit with non-gamers drawn by its capabilities and with hard-core players seeking to master its many intriguing games. The 2012 follow-up, the Wii U, did not attract the same interest, putting Nintendo in a tough spot against its two chief competitors.

ADOPTING CREATIVITY TECHNIQUES Internal brainstorming sessions also can be quite effective—if conducted correctly. “Marketing Memo: How to Run a Successful Brainstorming Session” provides some guidelines.

marketing memo

How to Run a Successful Brainstorming Session

If done correctly, group brainstorming sessions can create insights, ideas, and solutions that would have been impossible without everyone's participation. If done incorrectly, they are a painful waste of time that can frustrate and antagonize participants. To ensure success, experts recommend the following:

1. A trained facilitator should guide the session, and the right physical environment must be used.
2. The right participants must be chosen. Sometimes it is useful to have a real mixture with many different points of view.
3. Participants must see themselves as collaborators working toward a common goal.
4. Rules need to be set up and followed so conversations don't get off track. Some structure is needed, though flexibility is desired too.
5. Participants must be given proper background preparation and materials so they can get into the task quickly.
6. Individual sessions before and after the brainstorming can be useful for thinking and learning about the topic ahead of time and for reflecting afterward on what happened.
7. During the session, each participant must be encouraged to participate and think freely and constructively. It may be useful to give participants time to think and gather their thoughts based on what they have heard.
8. To help stimulate thinking, participants may be told to identify and challenge existing assumptions, role-play some aspect of the situation they are analyzing, or consider borrowing ideas from other firms, even outside the industry.
9. Brainstorming sessions must lead to a clear plan of action and implementation so the ideas that materialize can provide tangible value.
10. Brainstorming can do more than just generate ideas—it should help build teams and leave participants better informed and energized.

Sources: Anne Fisher, “Why Most Brainstorming Sessions Fail,” *Fortune*, August 23, 2013; “7 Ways to Enliven Your Next Brainstorming Session,” *Forbes*, March 18, 2013; Natalie Peace, “Why Most Brainstorming Sessions Are Useless,” *Forbes*, April 9, 2012; Linda Tischler, “Be Creative: You Have 30 Seconds,” *Fast Company*, May 2007, pp. 47–50; Michael Myser, “When Brainstorming Goes Bad,” *Business 2.0*, October 2006, p. 76; Robert I. Sutton, “Eight Rules to Brilliant Brainstorming,” *BusinessWeek IN Inside Innovation*, September 2006, pp. 17–21.

Creativity is mostly about making connections in ways that are not obvious. Here is a sampling of techniques for stimulating creativity in individuals and groups.⁷⁵

- **Attribute listing.** List the attributes of an object, such as a screwdriver. Then modify each attribute, such as replacing the wooden handle with plastic, providing torque power, adding different screw heads, and so on.
- **Forced relationships.** List several ideas and consider each in relationship to each of the others. In designing new office furniture, for example, consider a desk, bookcase, and filing cabinet as separate ideas. Then imagine a desk with a built-in bookcase or a desk with built-in files or a bookcase with built-in files.
- **Morphological analysis.** Start with a problem, such as “getting something from one place to another via a powered vehicle.” Now think of dimensions, such as the type of platform (cart, chair, sling, bed), the medium (air, water, oil, rails), and the power source (compressed air, electric motor, magnetic fields). By listing every possible combination, you can generate many new solutions.
- **Reverse-assumption analysis.** List all the normal assumptions about an entity and then reverse them. Instead of assuming that a restaurant has menus, charges for food, and serves food, reverse each assumption. The new restaurant may decide to serve only what the chef bought that morning, provide some food but charge for the time the person sits at the table, or design an exotic atmosphere and rent the space to people who bring their own food and beverages.
- **New contexts.** Take familiar processes, such as people-helping services, and put them into a new context. Imagine helping dogs and cats with day care service, stress reduction, psychotherapy, funerals, and so on. Instead of sending hotel guests to the front desk to check in, greet them at curbside and use a wireless device to register them.
- **Mind mapping.** Start with an idea, such as a car, then think of the next idea that comes up (say Mercedes) and link it to car, then think of the next association (Germany), and do this with all associations that come up with each new word. Perhaps a whole new idea will materialize.

New-product ideas can arise from *lateral marketing* that combines two product concepts or ideas to create a new offering.⁷⁶ Cereal bars are a successful combination of cereal and snacking. Kinder Surprise combined candy with a toy.

USING IDEA SCREENING

In screening ideas, the company must avoid two types of errors. A *DROP-error* occurs when the company dismisses a good idea. It is extremely easy to find fault with other people's ideas (Figure 15.2). Some companies shudder when they look back at ideas they dismissed or breathe sighs of relief when they realize how close they came to dropping what eventually became a huge success. Consider the hit television show *Friends*.⁷⁷

FRIENDS The NBC situation comedy *Friends* enjoyed a 10-year run from 1994 to 2004 as a perennial ratings powerhouse. But the show almost didn't see the light of the day. According to an internal NBC research report, the pilot episode was described as “not very entertaining, clever, or original” and was given a failing grade, scoring 41 of a possible 100. Ironically, the pilot for an earlier hit sitcom, *Seinfeld*, was also rated “weak,” though the pilot for the medical drama *ER* scored a healthy 91. Courteney Cox's Monica was the *Friends* character who scored best with test audiences, while characters portrayed by Lisa Kudrow and Matthew Perry were deemed to have marginal appeal, and the Rachel, Ross, and Joey characters scored even lower. Adults 35 and older in the sample found the characters as a whole “smug, superficial, and self-absorbed.”

The purpose of screening is to drop poor ideas as early as possible. The rationale is that product-development costs rise substantially at each successive development stage. Most companies require new-product ideas to be described on a standard form for a committee's review. The description states the product idea, the target market, and the competition and roughly estimates market size, product price, development time and costs, manufacturing costs, and rate of return.

The executive committee then reviews each idea against a set of criteria. Does the product meet a need? Would it offer superior value? Can it be distinctively advertised or promoted? Does the company have the necessary know-how and capital? Will the new product deliver the expected sales volume, sales growth, and profit? Consumer input may be necessary too.⁷⁸



"I've got a great idea!"



"It won't work here."



"We've tried it before."



"This isn't the right time."



"It can't be done."



"It's not the way we do things."



"We've done all right without it."



"It will cost too much."



"Let's discuss it at our next meeting."

| Fig. 15.2 |

Forces Fighting New Ideas

Source: With permission of Jerold Panas, Young & Partners Inc.

A research study almost killed one of the all-time successful TV sitcoms, *Friends*, reinforcing the fact that research must be interpreted and used carefully.



Source: © Pictorial Press Ltd/Alamy

Management can rate the surviving ideas using a weighted-index method like that in Table 15.2. The first column lists factors required for successful product launches, and the second column assigns importance weights. The third column scores the product idea on a scale from 0 to 1.0, with 1.0 the highest score. The final step multiplies each factor's importance by the product score to obtain an overall rating. In this example, the product idea scores 0.69, which places it in the "good idea" level. The purpose of this basic rating device is to promote systematic evaluation and discussion, not to make the decision for management.

As the idea moves through development, the company will need to constantly revise its estimate of the product's overall probability of success, using the following formula:

$$\begin{array}{ccccccc} \text{Overall} & & & & & & \\ \text{probability} & = & \text{Probability} & \times & \text{Probability of} & \times & \text{Probability of} \\ \text{of success} & & \text{of technical} & & \text{commercialization} & & \text{economic} \\ & & \text{completion} & & \text{given technical} & & \text{success given} \\ & & & & \text{completion} & & \text{commercialization} \end{array}$$

TABLE 15.2 Product-Idea Rating Device

Product Success Requirements	Relative Weight (a)	Product Score (b)	Product Rating (c = a × b)
Unique or superior product	.40	.8	.32
High performance-to-cost ratio	.30	.6	.18
High marketing dollar support	.20	.7	.14
Lack of strong competition	.10	.5	.05
Total	1.00		.69

^a Rating scale: .00–.30 poor; .31–.60 fair; .61–.80 good. Minimum acceptance rate: .61

For example, if the three probabilities are estimated at 0.50, 0.65, and 0.74, respectively, the overall probability of success is 0.24. The company then must judge whether this probability is high enough to warrant continued development.

Managing the Development Process: Concept to Strategy

Attractive ideas must be refined into testable product concepts. A *product idea* is a possible product the company might offer to the market. A *product concept* is an elaborated version of the idea expressed in consumer terms.

CONCEPT DEVELOPMENT AND TESTING

Concept development is a necessary but not sufficient step for new-product success. Marketers must also distinguish winning concepts from losers by testing.

CONCEPT DEVELOPMENT Imagine a large food-processing company gets the idea of producing a powder to add to milk to increase its nutritional value and taste. This is a product *idea*, but consumers don't buy product ideas; they buy product *concepts*.

A product idea can be turned into several concepts. The first question is: Who will use this product? It can be aimed at infants, children, teenagers, young or middle-aged adults, or older adults. Second, what primary benefit should this product provide—taste, nutrition, refreshment, or energy? Third, when will people consume this drink—at breakfast, midmorning, for lunch, midafternoon, with dinner, late evening? By answering these questions, a company can form several concepts:

- **Concept 1.** An instant drink for adults who want a quick nutritious breakfast without preparation.
- **Concept 2.** A tasty snack for children to drink as a midday refreshment.
- **Concept 3.** A health supplement for older adults to drink in the late evening before bed.

Each concept represents a *category concept* that defines the product's competition. An instant breakfast drink would compete against bacon and eggs, breakfast cereals, coffee and pastry, and other breakfast alternatives. A snack drink would compete against soft drinks, fruit juices, sports drinks, and other thirst quenchers.

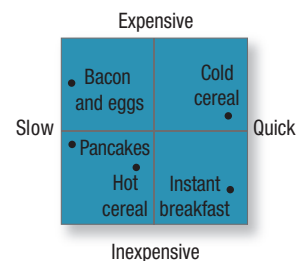
Suppose the instant-breakfast-drink concept looks best. The next task is to show where this powdered product would stand in relationship to other breakfast products via perceptual mapping. Figure 15.3(a) uses the two dimensions of cost and preparation time to create a *product-positioning map* for the breakfast drink, which offers low cost and quick preparation. Its nearest competitors are cold cereal and breakfast bars; its most distant is bacon and eggs. These contrasts can help communicate and promote the concept to the market.

Next, the product concept becomes a *brand concept*. Figure 15.3(b) is a *brand-positioning map*, a perceptual map showing the current positions of three existing brands of instant breakfast drinks (A–C) as seen by consumers. As Chapter 10 described, it can also be useful to overlay current or desired consumer preferences on to the map. Figure 15.3(b) also shows four segments of consumers (1–4) whose preferences are clustered around the points on the map.

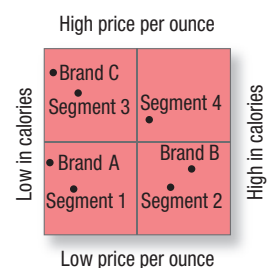
The brand-positioning map helps the company decide how much to charge and how calorific to make its drink. Three segments (1–3) are well served by existing brands (A–C). The company would not want to position itself next to one of those existing brands, unless that brand is weak or inferior or market demand was high enough to be shared. As it turns out, the new brand would be distinctive in the medium-price, medium-calorie market or in the high-price, high-calorie market. There is also a segment of consumers (4) clustered fairly near the medium-price, medium-calorie market, suggesting this may offer the greatest opportunity.

CONCEPT TESTING Concept testing means presenting the product concept to target consumers, physically or symbolically, and getting their reactions. The more the tested concepts resemble the final product or experience, the more dependable concept testing is. Concept testing of prototypes can help avoid costly mistakes, but it may be especially challenging with radically different, new-to-the-world products.⁷⁹ Visualization techniques can help respondents match their mental state with what might occur when they are actually evaluating or choosing the new product.⁸⁰

(a) Product-positioning Map (Breakfast Market)



(b) Brand-positioning Map (Instant Breakfast Market)



| Fig. 15.3 |

Product and Brand Positioning

In the past, creating physical prototypes was costly and time consuming, but today firms can use *rapid prototyping* to design products on a computer and then produce rough models to show potential consumers for their reactions. Firms developing big-ticket items such as orthopedic devices for knee replacements or electric cars use rapid prototyping in new-product development to save time and money.⁸¹ In response to a short-term oversupply of wine in the marketplace, the makers of Kendall-Jackson developed two new brands by using rapid prototyping to quickly bring their ideas to life, selling 100,000 cases of each brand, 10 times more than expected, in the process.⁸²

Companies are also using *virtual reality* to test product concepts. Virtual reality programs use computers and sensory devices (such as gloves or goggles) to simulate reality. Lockheed Martin uses virtual reality to develop its GPS satellites for the U.S. Air Force.⁸³ Supercomputers allow for elaborate product testing to assess changes in performance and supplement consumer input. Kenworth used to test new truck designs with clay models and wind tunnels. Using supercomputer analysis, it can now make more accurate estimates of how much drag and fuel use it can eliminate with new trimmed and tapered mud flaps (answer: \$400 of a typical truck's annual gas bill).⁸⁴

Concept testing presents consumers with an elaborated version of the concept. Here is the elaboration of concept 1 in our milk example:

Our product is a powdered mixture added to milk to make an instant breakfast that gives all the day's needed nutrition along with good taste and high convenience. The product comes in three flavors (chocolate, vanilla, and strawberry) and individual packets, six to a box, at \$2.49 a box.

After receiving this information, researchers measure product dimensions by having consumers respond to questions like these:

1. **Communicability and believability**—"Are the benefits clear to you and believable?" If the scores are low, the concept must be refined or revised.
2. **Need level**—"Do you see this product solving a problem or filling a need for you?" The stronger the need, the higher the expected consumer interest.
3. **Gap level**—"Do other products currently meet this need and satisfy you?" The greater the gap, the higher the expected consumer interest. Marketers can multiply the need level by the gap level to produce a *need-gap score*. A high score means the consumer sees the product as filling a strong need not satisfied by available alternatives.
4. **Perceived value**—"Is the price reasonable in relationship to value?" The higher the perceived value, the higher is expected consumer interest.
5. **Purchase intention**—"Would you (definitely, probably, probably not, definitely not) buy the product?" Consumers who answered the first three questions positively should answer "Definitely" here.
6. **User targets, purchase occasions, purchasing frequency**—"Who would use this product, when, and how often?"

Respondents' answers indicate whether the concept has a broad and strong consumer appeal, what products it competes against, and which consumers are the best targets. The need-gap levels and purchase-intention levels can

A in-depth conjoint analysis helped to design the Courtyard by Marriott hotel chain.



Source: © Jeff Greenberg "0 people images"/Alamy

be checked against norms for the product category to see whether the concept appears to be a winner, a long shot, or a loser. One food manufacturer rejects any concept that draws a definitely-would-buy score lower than 40 percent.

CONJOINT ANALYSIS Consumer preferences for alternative product concepts can be measured with **conjoint analysis**, a method for deriving the utility values that consumers attach to varying levels of a product's attributes.⁸⁵ Conjoint analysis has become one of the most popular concept-development and testing tools. For example, Marriott used it to design its Courtyard hotel concept.⁸⁶

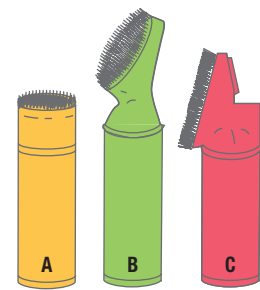
With conjoint analysis, respondents see different hypothetical offers formed by combining varying levels of the attributes and rank them. Management can then identify the most appealing offer and its estimated market share and profit. In a classic illustration, academic research pioneers Green and Wind used this approach in connection with developing a new spot-removing, carpet-cleaning agent for home use.⁸⁷ Suppose the new-product marketer is considering five design elements:

- Three package designs (A, B, C—see Figure 15.4)
- Three brand names (K2R, Glory, Bissell)
- Three prices (\$1.19, \$1.39, \$1.59)
- A possible Good Housekeeping seal (yes, no)
- A possible money-back guarantee (yes, no)

Although the researcher can form 108 possible product concepts with these five elements ($3 \times 3 \times 3 \times 2 \times 2$), it would be too much to ask consumers to rank them all from most to least preferred. A sample of, say, 18 contrasting product concepts is feasible.

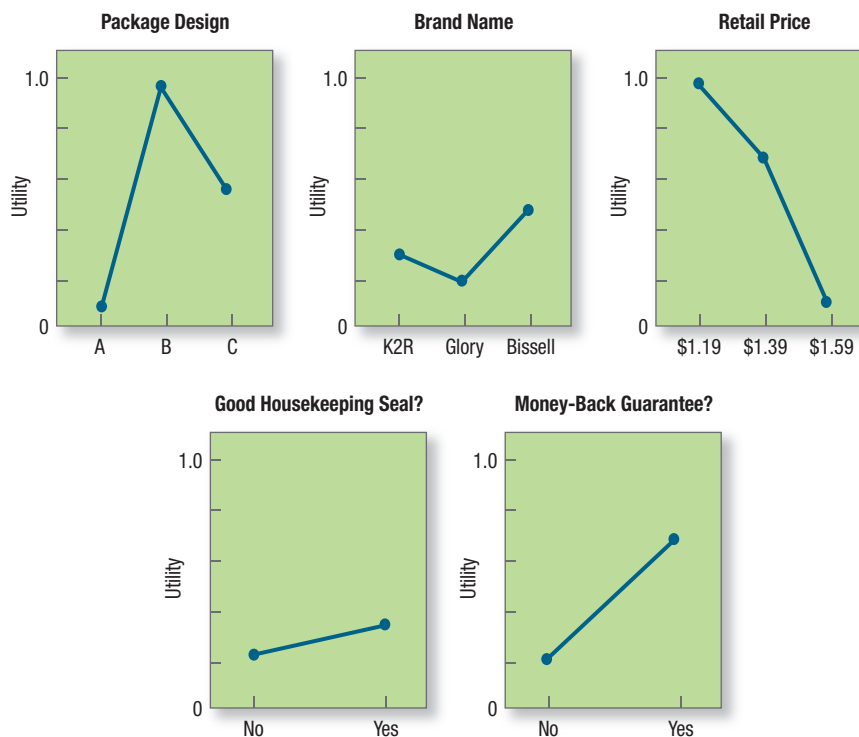
The marketer now uses a statistical program to derive the consumer's utility functions for each of the five attributes (see Figure 15.5). Utility ranges between zero and one; the higher the utility, the stronger the consumer's preference for that level of the attribute. Looking at packaging, package B is the most favored, followed by C and then A (A has hardly any utility). The preferred names are Bissell, K2R, and Glory in that order. The consumer's utility varies inversely with price. A Good Housekeeping seal is preferred, but it does not add that much utility and may not be worth the effort to obtain it. A money-back guarantee is strongly preferred.

The consumer's most desired offer is package design B, brand name Bissell, priced at \$1.19, with a Good Housekeeping seal and a money-back guarantee. We can also determine the relative importance to this consumer of each attribute—the difference between the highest and lowest utility level for that attribute. The greater the



| Fig. 15.4 |

Samples for Conjoint Analysis



| Fig. 15.5 |

Utility Functions Based on Conjoint Analysis

difference, the more important the attribute. Clearly, this consumer sees price and package design as the most important attributes, followed by money-back guarantee, brand name, and a Good Housekeeping seal.

Preference data from a sufficient sample of target consumers help to estimate the market share any specific offer is likely to achieve, given any assumptions about competitive response. Still, the company may not launch the market offer that promises to gain the greatest market share because of cost considerations. The most customer-appealing offer is not always the most profitable offer to make.

Under some conditions, researchers will collect the data by presenting not a full-profile description of each offer, but two factors at a time. For example, respondents may see a table with three price levels and three package types and indicate which of the nine combinations they would like best, second-best, and so on. Another table consists of trade-offs between two other variables. This trade-off approach may be easier to use when there are many variables and possible offers. However, it is less realistic in that respondents are focusing on only two variables at a time. Adaptive conjoint analysis (ACA) is a “hybrid” data collection technique that combines self-stated or explicated importance ratings of attributes with pair-wise trade-off tasks comparing two options.⁸⁸

MARKETING STRATEGY DEVELOPMENT

Following a successful concept test, the new-product manager will develop a preliminary three-part strategy plan for introducing the new product into the market. The first part describes the target market’s size, structure, and behavior; the planned brand positioning; and the sales, market share, and profit goals sought in the first few years:

The target market for the instant breakfast drink is families with children who are receptive to a new, convenient, nutritious, and inexpensive form of breakfast. The company’s brand will be positioned at the higher-price, higher-quality end of the instant-breakfast-drink category. The company will aim initially to sell 500,000 cases or 10 percent of the market, with a loss in the first year not exceeding \$1.3 million. The second year it will aim for 700,000 cases or 14 percent of the market, with a planned profit of \$2.2 million.

The second part outlines the planned price, distribution strategy, and marketing budget for the first year:

The product will be offered in chocolate, vanilla, and strawberry, in individual packets of six to a box, at a retail price of \$2.49 a box. There will be 48 boxes per case, and the case price to distributors will be \$24. For the first two months, dealers will be offered one case free for every four cases bought, plus cooperative-advertising allowances. Free samples will be distributed in stores. Coupons for 50 cents off will appear in newspapers and online. The total sales promotional budget will be \$2.9 million. An advertising budget of \$6 million will be split 50:50 between national and local. Two-thirds will go into television and one-third into online. Advertising copy will emphasize the benefit concepts of nutrition and convenience. The advertising-execution concept will revolve around a small boy who drinks instant breakfast and grows strong. During the first year, \$100,000 will be spent on marketing research to buy store audits and consumer-panel information to monitor market reaction and buying rates.

The third part of the marketing strategy plan describes the long-run sales and profit goals and marketing-mix strategy over time:

The company intends to win a 25 percent market share and realize an after-tax return on investment of 12 percent. To achieve this return, product quality will start high and be improved over time through technical research. Price will initially be set at a high level and gradually drop to expand the market and meet competition. The total promotion budget will be boosted about 20 percent each year, with the initial advertising-sales promotion split of 65:35 eventually evolving to 50:50. Marketing research will be reduced to \$60,000 per year after the first year.

BUSINESS ANALYSIS

After management develops the product concept and marketing strategy, it can evaluate the proposal’s business attractiveness. Management needs to prepare sales, cost, and profit projections to determine whether they satisfy company objectives. If they do, the concept can move to the development stage. As new information comes in, the business analysis will undergo revision and expansion.

ESTIMATING TOTAL SALES Total estimated sales are the sum of estimated first-time sales, replacement sales, and repeat sales. Sales-estimation methods depend on whether the product is purchased once (such

as an engagement ring or retirement home), infrequently, or often. For one-time products, sales rise at the beginning, peak, and approach zero as the number of potential buyers becomes exhausted [see Figure 15.6(a)]. If new buyers keep entering the market, the curve will not go to zero.

Infrequently purchased products—such as automobiles, microwaves, and industrial equipment—exhibit replacement cycles dictated by physical wear or obsolescence associated with changing styles, features, and performance. Sales forecasting for this product category calls for estimating first-time sales and replacement sales separately [see Figure 15.6(b)].

Frequently purchased products, such as consumer and industrial nondurables, have product life-cycle sales resembling Figure 15.6(c). The number of first-time buyers initially increases and then decreases as fewer buyers are left (assuming a fixed population). Repeat purchases occur soon, providing the product satisfies some buyers. The sales curve eventually falls to a plateau representing a level of steady repeat-purchase volume; by this time, the product is no longer a new product.

In estimating sales, the manager's first task is to estimate first-time purchases of the new product in each period. To estimate replacement sales, management researches the product's *survival-age distribution*—that is, the number of units that fail in year one, two, three, and so on. The low end of the distribution indicates when the first replacement sales will take place. Because replacement sales are difficult to estimate before the product is in use, some manufacturers base the decision to launch a new product on their estimate of first-time sales alone.

For a frequently purchased new product, the seller estimates repeat sales as well as first-time sales. A high rate of repeat purchasing means customers are satisfied; sales are likely to stay high even after all first-time purchases take place. Some products and brands are bought a few times and dropped. Colgate's Wisp disposable toothbrush received much trial, but repeat sales slowed considerably after that.⁸⁹

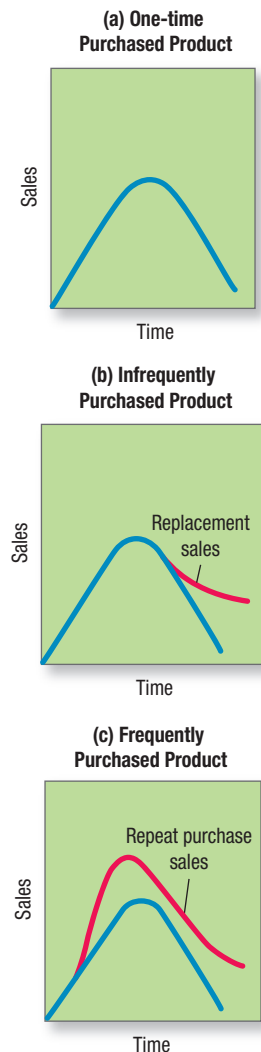
ESTIMATING COSTS AND PROFITS Costs are estimated by the R&D, manufacturing, marketing, and finance departments. Table 15.3 illustrates a five-year projection of sales, costs, and profits for the instant breakfast drink.

Row 1 shows projected sales revenue over the five-year period. The company expects to sell \$11,889,000 (approximately 500,000 cases at \$24 per case) in the first year. Behind this projection is a set of assumptions about the rate of market growth, the company's market share, and the factory-realized price. Row 2 shows the cost of goods sold, which hovers around 33 percent of sales revenue. We find this cost by estimating the average cost of labor, ingredients, and packaging per case. Row 3 shows the expected gross margin, the difference between sales revenue and cost of goods sold.

Row 4 shows anticipated development costs of \$3.5 million, including product-development cost, marketing research costs, and manufacturing development costs. Row 5 shows the estimated marketing costs over the five-year period to cover advertising, sales promotion, and marketing research and an amount allocated for sales force coverage and marketing administration. Row 6 shows the allocated overhead to this new product to cover its share of the cost of executive salaries, heat, light, and so on.

Row 7, the gross contribution, is gross margin minus the preceding three costs. Row 8, supplementary contribution, lists any change in income to other company products caused by the new-product introduction. *Dragalong income* is additional income to them, and *cannibalized income* is reduced income.⁹⁰ Table 15.3 assumes no supplementary contributions. Row 9 shows net contribution, which in this case is the same as gross contribution. Row 10 shows discounted contribution—that is, the present value of each future contribution discounted at 15 percent per annum. For example, the company will not receive \$4,716,000 until the fifth year. This amount is worth only \$2,346,000 today if the company can earn 15 percent on its money through other investments.⁹¹

Finally, row 11 shows the cumulative discounted cash flow, the accumulation of the annual contributions in row 10. Two points are of central interest. First is the maximum investment exposure, the highest loss the project can create. The company will be in a maximum loss position of \$4,613,000 in year 1. The second is the payback period, the time when the company recovers all its investment, including the built-in return of 15 percent. The payback period here is about three and a half years. Management must decide whether to risk a maximum investment loss of \$4.6 million and a possible payback period of three and a half years. As part of their financial analysis, firms may conduct a breakeven or risk analysis.



| Fig. 15.6 |

Product Life-Cycle Sales for Three Types of Products

TABLE 15.3 Projected Five-Year Cash Flow Statement (in thousands of dollars)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
1. Sales revenue	\$0	\$11,889	\$15,381	\$19,654	\$28,253	\$32,491
2. Cost of goods sold	0	3,981	5,150	6,581	9,461	10,880
3. Gross margin	0	7,908	10,231	13,073	18,792	21,611
4. Development costs	−3,500	0	0	0	0	0
5. Marketing costs	0	8,000	6,460	8,255	11,866	13,646
6. Allocated overhead	0	1,189	1,538	1,965	2,825	3,249
7. Gross contribution	−3,500	−1,281	2,233	2,853	4,101	4,716
8. Supplementary contribution	0	0	0	0	0	0
9. Net contribution	−3,500	−1,281	2,233	2,853	4,101	4,716
10. Discounted contribution (15%)	−3,500	−1,113	1,691	1,877	2,343	2,346
11. Cumulative discounted cash flow	−3,500	−4,613	−2,922	−1,045	1,298	3,644

Managing the Development Process: Development to Commercialization

Up to now, the product has existed only as a word description, a drawing, or a prototype. The next step represents a jump in investment that dwarfs the costs incurred so far. The company will determine whether the product idea can translate into a technically and commercially feasible product. If not, the accumulated project cost will be lost, except for any useful information gained in the process.

PRODUCT DEVELOPMENT

The job of translating target customer requirements into a working prototype is helped by a set of methods known as *quality function deployment* (QFD). The methodology takes the list of desired *customer attributes* (CAs) generated by market research and turns them into a list of *engineering attributes* (EAs) that engineers can use. For example, customers of a proposed truck may want a certain acceleration rate (CA). Engineers can turn this into the required horsepower and other engineering equivalents (EAs). A major contribution of QFD is improved communication between marketers, engineers, and manufacturing people.⁹²

PHYSICAL PROTOTYPES The goal of the R&D department is to find a prototype that embodies the key attributes in the product-concept statement, performs safely under normal use and conditions, and can be produced within budgeted manufacturing costs. Sophisticated virtual reality technology and the Internet now permit rapid prototyping and flexible development processes.

R&D must also decide how consumers will react to different colors, sizes, and weights. Historically, a yellow mouthwash supported an “antiseptic” claim (Listerine), red a “refreshing” claim (Lavoris), and green or blue a “cool” claim (Scope). Marketers need to supply R&D with information about what attributes consumers seek and how they judge whether these are present.

Firms rigorously test product prototypes internally. Vibram, which makes its own FiveFingers line as well as soles for all types of shoes—such as for skateboarding, cycling, rock climbing, and fly fishing—employs a team of product testers. The company puts its products into the most extreme conditions by executing tests directly in the field and employing a series of procedures:⁹³

If our chemist creates a new compound targeted towards road running applications, first we perform a battery of lab tests to understand the compound’s physical properties. Next, we bring natural environments and surfaces into the laboratory and calculate information. Then lastly shoes are distributed to our tester team who will document things like weather/temp, distance, location, and running surfaces, etc. They’ll comment on the differences in the grip of the soles. We then compile the results and make a decision on validation.

CUSTOMER TESTS When the prototypes are ready, they must be put through rigorous functional and customer tests before they enter the marketplace. *Alpha testing* tests the product within the firm to see how it performs in different applications. After refining the prototype further, the company moves to *beta testing* with customers.

Consumer testing can bring consumers into a laboratory or give them samples to use at home. Procter & Gamble has on-site labs such as a diaper-testing center where dozens of mothers bring their babies to be studied. To develop its Cover Girl Outlast all-day lip color, P&G invited 500 women to come to its labs each morning to apply the lipstick, record their activities, and return eight hours later so it could measure remaining lip color, resulting in a product that came with a tube of glossy moisturizer that women could apply on top of their color without looking at a mirror. In-home placement tests are common for products from ice cream flavors to new appliances.

MARKET TESTING

After management is satisfied with functional and psychological performance, the product is ready to be branded with a name, logo, and packaging and go into a market test, if desired.

Not all companies undertake market testing. A company officer at Revlon stated: “In our field—primarily higher-priced cosmetics not geared for mass distribution—it would be unnecessary for us to market test. When we develop a new product, say an improved liquid makeup, we know it’s going to sell because we’re familiar with the field. And we’ve got 1,500 demonstrators in department stores to promote it.”

One problem is that many managers find it difficult to kill a project that attracted much effort and attention, even if they *should* do so based on market testing. The result is an unfortunate (and typically unsuccessful) escalation of commitment.⁹⁴

Many companies, however, believe market testing, if done correctly, can yield valuable information about buyers, dealers, marketing program effectiveness, and market potential. The main issues are: How much market testing should be done, and what kind(s)?

The amount of testing is influenced by the investment cost and risk on the one hand and time pressure and research cost on the other. High-investment–high-risk products, whose chance of failure is high, must be market tested; the cost will be an insignificant percentage of total project cost. High-risk products that create new-product categories (the first instant-breakfast drink) or have novel features (the first gum-strengthening toothpaste) warrant more market testing than modified products (another toothpaste brand).

CONSUMER-GOODS MARKET TESTING Consumer-products tests seek to estimate four variables: *trial*, *first repeat*, *adoption*, and *purchase frequency*. Many consumers may try the product but not rebuy it, or it might achieve high permanent adoption but low purchase frequency (like gourmet frozen foods).

Here are four major methods of consumer-goods market testing, from least to most costly.

Sales-Wave Research Consumers who initially try the product at no cost are reoffered it, or a competitor’s product, at slightly reduced prices. The offer may be made as many as five times (sales waves), while the company notes how many customers select it again and their reported level of satisfaction.

Sales-wave research can be implemented quickly, conducted with a fair amount of security, and carried out without final packaging and advertising. However, because customers are preselected, it does not indicate trial rates the product would achieve with different sales incentives, nor does it indicate the brand’s power to gain distribution and favorable shelf position.

Simulated Test Marketing Thirty to 40 qualified shoppers are asked about brand familiarity and preferences in a specific product category and attend a brief screening of both well-known and new TV or print ads. One ad advertises the new product but is not singled out for attention. Consumers receive a small amount of money and are invited into a store where they may buy any items. The company notes how many consumers buy the new brand and competing brands. This provides a measure of the ad’s relative effectiveness against competing ads in stimulating trial. Consumers are asked the reasons for their purchases or nonpurchases. Those who did not buy



Vibram has professional product testers who put the soles it makes for shoes through extreme conditions to see how they hold up.

the new brand are given a free sample. Some weeks later, they are contacted to ascertain product attitudes, usage, satisfaction, and repurchase intention and are offered an opportunity to repurchase any products.

This method can give some surprisingly accurate results about advertising effectiveness and trial rates (and repeat rates if extended) in a much shorter time and at a fraction of the cost of using real test markets, making it especially appealing to marketers of fast-moving consumer goods.⁹⁵ As media and channels have grown more fragmented, however, it has become harder to truly simulate market conditions with only traditional approaches.

Controlled Test Marketing The company with the new product specifies the number of stores and geographic locations it wants to test. A research firm delivers the product to a panel of participating stores and controls shelf position, pricing, and number of facings, displays, and point-of-purchase promotions. Electronic scanners measure sales at checkout. The company can also evaluate the impact of local advertising and promotions and interview a sample of customers later to get their impressions of the product. It does not have to use its own sales force, give trade allowances, or “buy” distribution. However, controlled test marketing provides no information about how to sell the trade on carrying the new product. It also exposes the product and its features to competitors’ scrutiny.

Test Markets The ultimate way to test a new consumer product is to put it into full-blown test markets. The company chooses a few representative cities and puts on a full marketing communications campaign, and the sales force tries to sell the trade on carrying the product and giving it good shelf exposure. Test marketing also measures the impact of alternative marketing plans by implementing them in different cities. A full-scale test can cost more than \$1 million, depending on the number of test cities, the test duration, and the amount of data the company wants to collect.

In designing a test market, management faces several decisions: (1) How many test cities? (2) Which test cities? (3) Length of the test? (4) Which information to collect? and (5) What action to take? A number of considerations come into play for each decision. Columbus, Ohio, is a popular location for testing new fast-food products: The city is reasonably representative demographically of the rest of the nation, with a healthy dose of college-aged students, and is a contained media market with reasonable ad rates.⁹⁶

Many major global consumer goods makers such as L’Oréal, Philips, and Nikon like to test in South Korea because its demanding but fair consumers and well-developed marketing infrastructure help ensure that products are in good enough shape to enter other global markets.⁹⁷ Gucci likes to test its luxury products in China because it feels consumers there indicate where the luxury market is heading.⁹⁸

Many companies today skip test marketing despite its benefits and rely on faster and more economical testing methods. Starbucks regularly launches products before they have been deemed “perfect,” based on this philosophy espoused by chief digital officer, Adam Brotman: “We don’t think it is okay if things aren’t perfect, but we’re willing to innovate and have speed to market trump a 100% guarantee that it’s be perfect.” The company’s mobile payments app had a number of flaws and corrections in its first six months after launch, but it now generates 3 million mobile transactions a week.⁹⁹ General Mills prefers to launch new products in 25 percent of the country, an area too large for rivals to disrupt. Managers review retail scanner data, which tells them within days how the product is doing and what corrective fine-tuning to do.

Some companies like to test their new products in South Korea because of the open-minded attitude of consumers who live there and the marketing infrastructure that exists.



Source: © JTB MEDIA CREATION Inc./Alamy

BUSINESS-GOODS MARKET TESTING Business goods can also benefit from market testing. Expensive industrial goods and new technologies will normally undergo alpha and beta testing.¹⁰⁰ During beta testing, the company's technical people observe how customers use the product, a practice that often exposes unanticipated problems of safety and servicing and alerts the company to customer training and servicing requirements. The company can also observe how much value the equipment adds to the customer's operation, as a clue to subsequent pricing.

Companies must interpret beta test results carefully because only a small number of test customers are used, they are not randomly drawn, and tests are somewhat customized to each site. Another risk is that testers unimpressed with the product may leak unfavorable reports about it. Square doesn't employ beta testing—preferring to test at its own internally controlled locations—because it feels it should never put out an unfinished product.¹⁰¹

At trade shows the company can observe how much interest buyers show in the new product, how they react to various features and terms, and how many express purchase intentions or place orders. In distributor and dealer display rooms, products may stand next to the manufacturer's other products and possibly competitors' products, yielding preference and pricing information in the product's normal selling atmosphere. However, customers who come in might not represent the target market, or they might want to place early orders that cannot be filled.

Industrial manufacturers come close to using full test marketing when they give a limited supply of the product to the sales force to sell in a limited number of areas that receive promotion support and printed catalog sheets.

COMMERCIALIZATION

Commercialization incurs the company's highest costs to date.¹⁰² Too often companies are so focused on developing a new product that they neglect to spend adequate time developing a winning marketing launch program.¹⁰³ The firm will need to contract for manufacture, or it may build or rent a full-scale manufacturing facility. Most new-product campaigns also require a sequenced mix of market communication tools to build awareness and ultimately preference, choice, and loyalty.¹⁰⁴

To introduce a major new consumer packaged good into the national market can cost \$25 million to \$100 million in advertising, promotion, and other communications in the first year. For new food products, marketing expenditures typically represent 57 percent of first-year sales.

To raise funds, some inventors who don't have the backing of a major corporation are relying on crowdfunding and companies like Kickstarter.¹⁰⁵ With **crowdfunding**, individuals or start-ups fund their projects by using social media and other means to generate interest and contributions from the general public.

WHEN (TIMING) Suppose a company has almost completed the development work on its new product and learns a competitor is nearing the end of its development work. The company faces three choices:

1. **First entry**—The first firm entering a market usually enjoys the “first mover advantages” of locking up key distributors and customers and gaining leadership. But if rushed to market before it has been thoroughly debugged, the first entry can backfire.
2. **Parallel entry**—The firm might time its entry to coincide with the competitor's entry. The market may pay more attention when two companies are advertising the new product.¹⁰⁶
3. **Late entry**—The firm might delay its launch until after the competitor has borne the cost of educating the market, and its product may reveal flaws the late entrant can avoid. The late entrant can also learn the size of the market.

If a new product replaces an older product, the company might delay until the old product's stock has been drawn down. If the product is seasonal, it might wait until the season arrives; often a product waits for a “killer application” to occur. Many companies are now encountering competitive “design-arounds”—rivals are making their own versions just different enough to avoid patent infringement and royalties.¹⁰⁷

WHERE (GEOGRAPHIC STRATEGY) Most companies will develop a planned market rollout over time. In choosing rollout markets, the major criteria are market potential, the company's local reputation, the cost of filling the pipeline, the cost of communication media, the influence of the area on other areas, and competitive penetration. Small companies select an attractive city and put on a blitz campaign, entering other cities one at a time. Large companies introduce their product into a whole region and then move to the next. Companies with national distribution networks, such as auto companies, launch new models nationally.

With the Internet connecting far-flung parts of the globe, competition is more likely to cross national borders. Companies are increasingly rolling out new products simultaneously across the globe. However, masterminding a global launch poses challenges, as Chapter 8 described, and a sequential rollout across countries may still be the best option.¹⁰⁸

TO WHOM (TARGET-MARKET PROSPECTS) Within the rollout markets, the company must target initial distribution and promotion to the best prospect groups. Ideally these should be early adopters, heavy users, and opinion leaders it can reach at low cost. Few groups include all these, so the company should rate prospects and target the best group. The aim is to generate strong sales as soon as possible to attract further prospects.

HOW (INTRODUCTORY MARKET STRATEGY) Because new-product launches often take longer and cost more than expected, many potentially successful offerings suffer from underfunding. It's important to allocate sufficient time and resources—yet not overspend—as the new product gains traction in the marketplace.¹⁰⁹

To coordinate the many tasks in launching a new product, management can use network-planning techniques such as **critical path scheduling (CPS)**, which develops a master chart showing the simultaneous and sequential activities that must take place. By estimating how much time each activity takes, planners estimate completion time for the entire project. Any delay in any activity on the critical path—the shortest route to completion—will delay the project. If the launch must be completed sooner, the planner searches for ways to reduce time along the critical path.¹¹⁰

The Consumer-Adoption Process

Adoption is an individual's decision to become a regular user of a product and is followed by the *consumer-loyalty process*. New-product marketers typically aim at early adopters and use the theory of innovation diffusion and consumer adoption to identify them.

STAGES IN THE ADOPTION PROCESS

An **innovation** is any good, service, or idea that someone *perceives* as new, no matter how long its history. Everett Rogers defines the **innovation diffusion process** as “the spread of a new idea from its source of invention or creation to its ultimate users or adopters.”¹¹¹ The **consumer-adoption process** is the mental steps through which an individual passes from first hearing about an innovation to final adoption.¹¹² They are:

1. **Awareness**—The consumer becomes aware of the innovation but lacks information about it.
2. **Interest**—The consumer is stimulated to seek information about the innovation.
3. **Evaluation**—The consumer considers whether to try the innovation.
4. **Trial**—The consumer tries the innovation to improve his or her estimate of its value.
5. **Adoption**—The consumer decides to make full and regular use of the innovation.

The new-product marketer should facilitate movement through these stages. A water filtration system manufacturer might discover that many consumers are stuck in the interest stage; they do not buy because of their uncertainty and the large investment cost.¹¹³ But these same consumers would be willing to use a water filtration system at home on a trial basis for a small monthly fee. The manufacturer should consider offering a trial-use plan with option to buy.

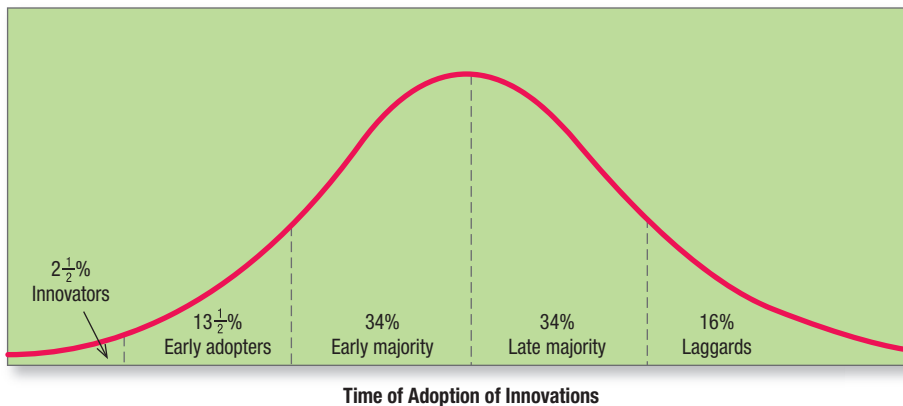
FACTORS INFLUENCING THE ADOPTION PROCESS

Marketers recognize the following characteristics of the adoption process: differences in individual readiness to try new products, the effect of personal influence, differing rates of adoption, and differences in organizations' readiness to try new products. Some researchers are focusing on use-diffusion processes as a complement to adoption process models to see how consumers actually use new products.¹¹⁴

READINESS TO TRY NEW PRODUCTS AND PERSONAL INFLUENCE Everett Rogers defines a person's level of innovativeness as “the degree to which an individual is relatively earlier in adopting new ideas than the other members of his social system.” Some people are the first to adopt new clothing fashions or new appliances; some doctors are the first to prescribe new medicines.¹¹⁵ See the adopter categories in Figure 15.7. After a slow start, an increasing number of people adopt the innovation, the number reaches a peak, and then it diminishes as fewer nonadopters remain.

The five adopter groups differ in their value orientations and their motives for adopting or resisting the new product.¹¹⁶

- **Innovators** are technology enthusiasts; they are venturesome and enjoy tinkering with new products and mastering their intricacies. In return for low prices, they are happy to conduct alpha and beta testing and report on early weaknesses.



| Fig. 15.7 |

Adopter Categorization on the Basis of Relative Time of Adoption of Innovations

Source: Tungsten, http://en.wikipedia.org/wiki/Everett_Rogers. Based on E. Rogers, *Diffusion of Innovations* (London: Free Press, 1962).

- **Early adopters** are opinion leaders who carefully search for new technologies that might give them a dramatic competitive advantage. They are less price sensitive and are willing to adopt the product if given personalized solutions and good service support.
- **Early majority** are deliberate pragmatists who adopt the new technology when its benefits have been proven and a lot of adoption has already taken place. They make up the mainstream market.
- **Late majority** are skeptical conservatives who are risk averse, technology shy, and price sensitive.
- **Laggards** are tradition-bound and resist the innovation until the status quo is no longer defensible.

Each group requires a different type of marketing if the firm wants to move its innovation through the full product life cycle. In addition to or instead of targeting opinion leaders, some experts advocate targeting *revenue leaders* with a new product—those customers with higher customer lifetime-values—to accelerate the path to profitability.¹¹⁷

Personal influence, the effect one person has on another's attitude or purchase probability, has greater significance in some situations and for some individuals than others, and it is more important in evaluation than in the other stages. It has more power over late than early adopters and in risky situations.

Companies often target innovators and early adopters with product rollouts. When Nike entered the skateboarding market, it recognized an anti-establishment, big-company bias from the target market that could present a sizable challenge. To gain "street cred" with teen skaters, it sold exclusively to independent shops, advertised nowhere but skate magazines, and gained sponsorships from admired pro riders by engaging them in product design.¹¹⁸

CHARACTERISTICS OF THE INNOVATION Some products catch on immediately (roller blades), whereas others take a long time to gain acceptance (diesel engine autos). One new-product concept that quickly took hold was StubHub online ticket reselling service.¹¹⁹

STUBHUB The cofounders of StubHub, Jeff Fluhr and Eric Barker, came up with the idea for their site when they were Stanford MBA students. Realizing there were far too many unused tickets for sporting events, theater events, and concerts, they decided to set up an "eBay for tickets" where sellers could set a price higher or lower than face value depending on demand. StubHub would take a 10 percent cut from the buyer and a 15 percent cut from the seller on every purchase. The service had to negotiate state laws restricting ticket reselling, but by 2006 it was making \$100 million in revenue, split between sports (75 percent), concerts (20 percent), and theater (5 percent) in a market estimated to be worth \$4 billion in the United States. StubHub was sold to eBay for \$310 million in 2007. Original-ticket seller Ticketmaster and its Live Nation parent have fought the company from the start, threatening legal action, introducing paperless tickets that limit reselling, and launching the TicketExchange service to compete. StubHub has set its sights on being more than a ticket seller and becoming a multiplatform e-commerce site. A brand-building multimedia campaign launched in 2012 was designed to add emotional components to the company's functional message, including the idea of tickets "growing on trees." With 40 percent of primary tickets going unsold, StubHub is also emphasizing helping consumers discover events and attend more of them.

StubHub, a leader in online ticket reselling, is considering other e-commerce options while adding a more emotional component to its core business.



Source: These materials have been reproduced with the permission of StubHub, Inc. © 2014 STUBHUB, INC. ALL RIGHTS RESERVED.

Five characteristics influence an innovation's rate of adoption. We consider them for digital video recorders (DVRs) for home use, as exemplified by TiVo.¹²⁰

1. *Relative advantage*—the degree to which the innovation appears superior to existing products. The greater the perceived relative advantage of using a DVR, say, for easily recording favorite shows, pausing live TV, or skipping commercials, the more quickly it was adopted.
2. *Compatibility*—the degree to which the innovation matches consumers' values and experiences. DVRs are highly compatible with the preferences of avid television watchers.
3. *Complexity*—the degree to which the innovation is difficult to understand or use. DVRs are somewhat complex and therefore took a slightly longer time to penetrate into home use.
4. *Divisibility*—the degree to which the innovation can be tried on a limited basis. This provided a sizable challenge for DVRs—sampling could occur only in a retail store or perhaps a friend's house.
5. *Communicability*—the degree to which the benefits of use are observable or describable to others. The fact that DVRs have some clear advantages helped create interest and curiosity.

Other characteristics that influence the rate of adoption are cost, risk and uncertainty, scientific credibility, and social approval. The new-product marketer must research all these factors and give the key ones maximum attention in designing the product and its marketing program.

ORGANIZATIONS' READINESS TO ADOPT INNOVATIONS The creator of a new teaching method would want to identify innovative schools. The producer of a new piece of medical equipment would want to identify innovative hospitals. Adoption is associated with variables in the organization's environment (community progressiveness, community income), the organization itself (size, profits, pressure to change), and the administrators (education level, age, sophistication). Other forces come into play in trying to get a product adopted into organizations that receive the bulk of their funding from the government, such as public schools. A controversial or innovative product can be squelched by negative public opinion.

Summary


1. Once a company has segmented the market, chosen its target customer groups and identified their needs, and selected its desired market positioning, it is ready to develop and launch appropriate new products and services. Marketing should participate with other departments in every stage of new-product development.
2. Successful new-product development requires the company to establish an effective organization for managing the development process. Companies can choose product managers or new-product managers, committees, departments, or venture teams. Increasingly, they are adopting cross-functional teams, connecting to individuals and organizations outside the company through crowd-sourcing and other means, and developing multiple product concepts.
3. Eight stages define the new-product development process: idea generation, screening, concept development and testing, marketing strategy development, business

analysis, product development, market testing, and commercialization. At each stage, the company must decide whether to drop the idea or move to the next stage.

4. The consumer-adoption process is the process by which customers learn about new products, try them, and adopt or reject them. Today many marketers are targeting

heavy users and early adopters of new products because both groups can be reached by specific media and tend to be opinion leaders. The consumer-adoption process is influenced by many factors beyond the marketer's control, including consumers' and organizations' willingness to try new products, personal influences, and the characteristics of the new product or innovation.

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Applications

Marketing Debate


Whom Should You Target with New Products?

Some new-product experts maintain that getting close to customers through intensive research is the only way to develop successful new products. Other experts disagree and say customers can't possibly provide useful feedback on what they don't know and can't provide insights that will lead to breakthrough products.

Take a position: Consumer research is critical to new-product development *versus* Consumer research may not be all that helpful in new-product development.

Marketing Discussion

Product Innovativeness

 Think about the last new product you bought. How do you think its success will be affected by the five characteristics of an innovation: relative advantage, compatibility, complexity, divisibility, and communicability?

Marketing Excellence

>> Apple

Apple has transformed the way people listen to music, play video games, talk on the phone, and even read books. The company's revolutionary product innovations include the iPod, the iMac, the iPhone, and the iPad. They are the reason the company topped *Fortune's* Most Admired Companies list every year from 2008 to 2014.

The iPod introduced many consumers to Apple and initiated a series of monumental product innovations. It exemplified Apple's innovative design skills and looked, felt, and operated like no other device. To the delight of Apple (and the chagrin of competitor Sony), the

revolutionary MP3 player became "the Walkman of the 21st century," and the launch of the iTunes online music store helped drive iPod sales through the roof.

The iPod was also central in changing the way people listened to and used music. According to musician John Mayer, people felt like they were "walking through musicology" when they used their iPods, leading them to listen to more music and with more passion. The iPod has gone through a series of re-generations, adding features like photo, video, and radio capabilities along the way.

Apple reached its impressive market domination through a combination of shrewd product innovation and clever marketing. The marketing effort appealed to both Apple fans and people new to the brand. To reach such a broad base, the company had to shift its

channel strategies. It added “mass electronic” retailers such as Best Buy and Circuit City (now defunct) to its existing channels, which quadrupled its number of outlets.

Besides this enhanced “push” effort, Apple also developed memorable, creative “pull” advertising that helped drive the popularity of the iPod. The Silhouettes campaign featured silhouettes of people listening to and dancing with their iPods and appeared all over the world. This simple message worked across cultures, portraying the iPod as cool but not beyond the reach of anyone who enjoyed music.

As the iPod’s popularity grew, a halo effect helped increase Apple’s share in its other markets. In fact, in 2007 the company officially changed its name from Apple Computer Inc. to Apple Inc. to help communicate its focus on non-computer products.

Apple’s next-largest product launch after the iPod was the iPhone, its 2007 entry to the cell phone industry. With its touch-screen pad, virtual keyboard, and Internet and e-mail capabilities, the iPhone launched to huge consumer excitement; people lined up for hours to be among the first to buy one. Investment analysts initially feared that Apple’s two-year contract with AT&T and the iPhone’s high price would hinder its success. But 74 days after the product’s debut, 1 million units had been sold. It had taken the iPod two years to reach the cumulative sales (\$1.1 million) the iPhone had reached after just its first quarter. In fact, half the iPhones’ buyers switched to AT&T, incurring fees to break their contracts with other carriers, just to have a chance to own an iPhone.

Over the next few years, Apple dropped the price of the iPhone significantly and added impressive picture and video capabilities, video game features, a faster processor, and access to millions of additional applications. The iPhone had become yet another game-changing technological invention. When the iPhone 4 launched in 2010, showcasing FaceTime video calling, Steve Jobs declared it “the most successful product launch in Apple’s history.” Jobs died in 2011 and didn’t get to witness the success of the iPhone 5 launch in 2012. Apple received more than 2 million preorders of the iPhone 5 within the first 24 hours, far exceeding sales of any preceding iPhone launch. When the phone officially hit the shelves on September 21, 2012, the company couldn’t keep up with the initial demand.

The launch of the iPad also created media frenzy in 2013. The multitouch device combined the look and feel of the iPhone with the power of a MacBook and gave consumers access to music, books, movies, pictures, video games, documents, and hundreds of thousands of applications at the touch of a finger without mouse or keyboard. Apple followed up with the launch of the iPad mini, a smaller version of the original, and the iPad Air, accompanied by a powerful marketing campaign that inspired consumers to do anything with their iPad, including creating movies, building wind turbines, studying coral reefs, and making mountain climbing safer.

In recent years, Apple has faced more serious competition for its smart phones, tablets, and other handheld devices, especially from Samsung and HTC. Investment in research and development is just one way the company remains a leader in this cutthroat industry. It spent \$2.4 billion in R&D in 2011, \$3.4 billion in 2012, and \$4.5 billion in 2013. Creating, producing, and launching new products is a top priority for Apple. With creative marketing support behind them, these products are the reason consumers and analysts stay on their toes awaiting Apple’s latest product news.

Questions

1. Apple’s product launches over the past decade have been monumental. What makes the company so good at innovation? Is anyone comparable to Apple in this respect?
2. How important was the iPod to Apple’s current success? Discuss the significance of the iPhone and iPad launches to Apple’s new-product development strategy.
3. It has been a few years since Apple’s last epic innovation. What’s next for Apple?

Sources: Matt Vella, “Apples’ Latest Ad Is Probably Going to Give You the Chills,” *Time*, January 13, 2014; www.apple.com; 2013 Apple Annual Report; “iPhone4: The ‘Most Successful Product Launch’ in Apple’s History,” *Independent*, June 28, 2010; Joseph De Avila, “Why Some Apple Fans Won’t Buy the iPhone,” *Wall Street Journal*, September 12, 2007, p. D3; Nick Wingfield, “Apple Businesses Fuel Each Other; Net Jumps as Mac Sales Top PC-Industry Growth Rate; iPhones, iPods Also Thrive,” *Wall Street Journal*, October 23, 2007; Terri Yue Jones, “How Long Can the iPod Stay on Top?,” *Los Angeles Times*, March 5, 2006; Beth Snyder Bulik, “Grab an Apple and a Bag of Chips,” *Advertising Age*, May 23, 2005; Jay Parsons, “A Is for Apple on iPod,” *Dallas Morning News*, October 6, 2005; Peter Burrows, “Rock On, iPod,” *BusinessWeek*, June 7, 2004, pp. 130–31; Jay Lyman, “Mini iPod Moving Quickly, Apple Says,” *TechNewsWorld*, February 26, 2004; Steven Levy, “iPod Nation,” *Newsweek*, July 25, 2004; “Apple Computer: iPod Silhouettes,” New York Marketing Association; Steven Levy, “iPod Nation,” *Newsweek*, July 25, 2004; Effie Worldwide, www.effie.org.

Marketing Excellence

>> Salesforce.com

Salesforce.com was founded by former Oracle executive Marc Benioff in 1999. Benioff believed software should be free of troublesome installations, maintenance issues, and continuous upgrades. His vision was “to make software easier to purchase, simpler to use, and more democratic.” With that in mind, Benioff led a start-up company called Salesforce.com that offered software-as-a-service (SaaS), or cloud computing.

SaaS differs from old-school software technology because companies pay for the product per use each month, much like a utility bill. Salesforce.com uses the Internet or “cloud” to host its customer relationship management (CRM) applications and to deliver them directly to customers, who can access the software from any device just by logging on to a Web site. They don’t have to invest in servers or software licensing, install the software, or store the data themselves. With this innovative concept, Salesforce.com turned the software industry upside down and created an entirely new multibillion-dollar industry.

From the start, Salesforce.com wanted its products to be everything traditional software wasn’t. Its first product had an extremely user-friendly sales interface that organized contacts, accounts, and opportunities. The company welcomed customer feedback, and as a result it could develop new features to fit users’ needs. Today, The Sales Cloud is Salesforce.com’s key product. It lets companies track leads, change forecasts, collaborate with colleagues, and access real-time customer information, improving productivity and closing more sales.

Salesforce.com next launched The Service Cloud, a CRM solution that changed the way companies connect with their customers. This product provides companies with a call-center view of each customer and the ability to track each case on an individual basis. Users can communicate with customers through every media channel, escalate complaints, and plug into conversations on social networking sites, ultimately resulting in better overall customer service.

From 2010 to 2012, Salesforce.com acquired 19 companies in order to expand its product offerings. In 2011, it purchased Radian6, which allowed it to launch The Marketing Cloud, with which customers can listen to and engage in conversations taking place on public

social media sites like Twitter and Facebook. In addition, The Marketing Cloud enables companies to monitor their brand and products across the Internet and analyze their sales leads.

Salesforce.com transitioned into the platform-as-a-service or PaaS category with the launch of Force.com. PaaS provides customers with tools to build their own applications rather than supplying the application already built. For example, a university might develop an application for its student body that includes campus maps, bus routes, and school events, while a clothing store can customize sale discounts and product offerings for each customer based on previous purchase patterns. By 2014, more than 4 million customers had created their own applications using the Force.com platform.

A first mover, Salesforce.com is also the market leader with 14 percent market share. The company spends 7 percent of revenues on research and development and an astonishing 53 percent on marketing to help generate leads and new customers. Cloud computing has become a competitive, rapidly evolving industry, inhabited by big players like Oracle, IBM, and Workday as well as niche companies that focus on specific industries such as health care and hospitality.

Over the years, Salesforce.com has won numerous awards for its products and services. *Forbes* ranked it the most innovative company in the world from 2011 to 2014. With \$3 billion in sales, it has expanded into 16 different languages and has more than 100,000 customers and more than 2.1 million subscribers.

Questions

1. Why has Salesforce.com been so successful? What did the company do well when it created and expanded its product offerings?
2. What are some of the challenges Salesforce.com faces in the near future?
3. What other products and services might Salesforce.com offer next? Why?

Sources: Spencer E. Ante, “New Cloud-Software Firms Take Off,” *Wall Street Journal*, March 5, 2014, p. B5; Salesforce.com; 2013 Salesforce.com Annual Report; David Trainer, “Salesforce.com Has Insider Selling, Valuation in the Clouds,” *Forbes*, December 16, 2013; blogs.salesforce.com/company/2013/03/how-to-turn-a-simple-idea-into-a-high-growth-company, accessed June 2, 2014; Vauhini Vara, “Business Technology: An Early Adopter’s New Idea; Salesforce.com Sees Future Built on ‘Platforms,’” *Wall Street Journal*, January 22, 2008, p. B3; Floyd Norris, “First Insiders Sold Their Shares Privately, then Salesforce.com Filed to Go Public,” *New York Times*, May 14, 2004, p. C1.



In This Chapter, We Will Address the Following **Questions**

1. How do consumers process and evaluate prices? (p. 483)
2. How should a company set prices initially for products or services? (p. 489)
3. How should a company adapt prices to meet varying circumstances and opportunities? (p. 504)
4. When and how should a company initiate a price change? (p. 507)
5. How should a company respond to a competitor's price change? (p. 509)

Ryanair's revolutionary pricing strategy charges a nominal airfare—or even nothing—for the seat, but also charges a fee for almost everything else involved in the flight.

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