DLA Piper Global Women's Leadership Summit

September 19-20, 2022
Chicago, IL

Balancing Legal Innovation and Risk: Thinking Bigger, Taking It Further

Tuesday, September 20, 2022
11:05 am – 12:05 pm CT

Moderator

Ferlillia Roberson
Partner
US Co-Chair, Industrials Sector
DLA Piper

Presenters

Nancy Laben

Executive Vice President
Chief Legal Officer

Booz Allen Hamilton

Jennifer Prioleau

Senior Vice President
Chief Legal Officer
Chief Compliance Officer

B. Braun Medical

Lynn Watkins-Asiyanbi

Senior Vice President
Chief Administrative and Legal Officer
Corporate Secretary

CECO Environmental Corp.

Innovation is a mindset; risk is a necessity. How do corporate legal teams weigh risk and innovation while striving toward strategic goals as essential business partners? Our panelists discuss how today's general counsel can guide her team by inspiring a broader vision for leadership and change in the face of today's challenges – from climate change to inequality to labor shortages, supply chain disruptions, unpredictability in consumer behavior, rapidly evolving technology, and the benefits and pitfalls of big data.

Agenda

- Welcome and overview
- Introduction of panelists
- Innovation through the lens of both the individual and the enterprise
- Strategies for fostering innovation and managing risk
- Looking beyond 2022
- Audience Q & A

Question 1

- How does your experience as an individual inform your approach to innovation and risk on behalf of the enterprise?

Question 2

- How does your company culture shape your company's innovation efforts?
    - Has that changed in the move toward remote work?
    - Is innovation is at risk when employees are not physically together?
    - Have you seen unexpected benefits with respect to innovation that have come out of this new way of working?

Question 3

- Is the inherent tension between innovation and risk consistent across your company's various business units?
    - How do you harmonize those tensions?
    - How do you form allegiances and convert the naysayers?

Question 4

- How do you cultivate a growth mindset as a leader?

Question 5

- Some of the benefits and risks of innovation are common across most industries, e.g., financial. What benefits and/or risks of innovation did you find unique to your organization when you joined

that was different from your prior experience?

- Risks of innovation:
  - Cost
  - Failure
  - Operational (disruptive, organizational structure, etc.)
  - Regulatory
  - Reputational
- Benefits of innovation; both tangible and intangible:
  - Economic growth
  - Improved products
  - Improved services
  - Efficiency/productivity
  - Creativity
  - Motivation/entrepreneurship
  - Turnover/absenteeism

Question 6

- How does risk and innovation management intersect with ESG in your organization?
  - Have you found that the increased focus on ESG goals has simultaneously increased your role as a leader (in addition to advisor)?

Question 7

- Do you feel pressure to accept increased risk in a world where “disruptive innovation” is championed?

Question 8

- Smart risk-taking and small-failures; what strategies do you employ to achieve this?
  - Or are you purposefully positioned to take big risks and how do you prepare for failure?

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Ferlillia Roberson
Partner
US Co-Chair, Industrials Sector
DLA Piper

Ferlillia V. Roberson is a Chambers-ranked trial attorney who focuses her intellectual property practice on complex patent and trade secrets litigation in district court, the US International Trade Commission and proceedings before the US Patent Office. Ferlillia also advices counseling on all aspects of patent, trade secrets, and trademark related matters.

Ferlillia's patent litigation experience covers a broad range of technologies, including consumer goods, mobile communications devices, railroad car sets, data storage systems, advanced medical devices, pharmaceuticals, industrial and manufacturing equipment and processes, biochemistry, hazardous waste materials, heat exchangers, welding equipment, GPS navigation systems and automotive devices, among others.

Ferlillia has experience representing her clients in patent and trade secrets jury trials, ITC hearings inter partes reviews proceedings and before the Federal Circuit. Ferlillia has extensive trial and courtroom experience, including handling dozens of ITC cases and district court litigations.

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Nancy Laben

Executive Vice President
Chief Legal Officer
Booz Allen Hamilton

Nancy Laben is the Chief Legal Officer and Executive Vice President of Booz Allen Hamilton. She leads the firm's Legal Department and is responsible for the company's legal work including corporate governance, securities, government contracts, employment law, cyber law, intellectual property, commercial transactions, mergers and acquisitions and corporate investigations.

She is a member of Booz Allen's leadership team and also has oversight for the firm's marketing and communications, media relations, government relations, ethics and compliance and social impact. Ms. Laben is based at the firm's Washington, DC office.

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Jennifer Prioleau

Senior Vice President
Chief Legal Officer
Chief Compliance Officer
B. Braun Medical

Jennifer Prioleau serves on the Executive Leadership Team at B. Braun as Senior Vice President, Chief Legal Officer, Chief Compliance Officer and Corporate Secretary. Prior to joining B. Braun, Ms. Prioleau spent 12 years at HP Inc., where she served as Vice President, Associate General Counsel for HP's Printing Business, Strategic Business Management and Cybersecurity. Prior to her time at HP, she served as Assistant General Counsel at Maidenform Brands and as an IP Associate at a Chicago-based firm.

Ms. Prioleau is a seasoned General Counsel with a successful career unleashing profitable growth by helping global businesses take smart risks, comply with the law, manage crises, avoid material losses, protect their reputation, and disrupt the status quo. She is laser focused on digital transformation and endeavors to rethink and reinvent ways to serve customer needs by leveraging technology and data to change processes, products/services, and business models-all while maintaining compliance and customer trust.

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Lynn Watkins-Asiyanbi

Senior Vice President, Chief Administrative and Legal Officer and Corporate Secretary

CECO Environmental Corp.

Lynn Watkins-Asiyanbi is a native of Chicago and attended the University of Wisconsin-Madison, where she graduated with degrees in Chemical Engineering and Economics. Upon graduation, she worked for General Mills in operations and later moved to Mars, Inc. in operations and later in logistics. She returned to graduate school to pursue a Juris Doctorate and MBA at Northwestern University.

Upon receiving her JD/MBA, she worked at Cargill in their Strategy and Business Development Leadership Program. She left Cargill and moved to DLA Piper in their Corporate Finance group working on mostly transactions dealing with commercial finance and debt restructuring. She moved to another international firm in their Corporate and Securities group, concentrating on multi-jurisdiction mergers and acquisitions, including cross-border joint ventures and the implementation of multi-country tax-driven, corporate restructuring projects. Ms. Watkins-Asiyanbi transitioned to an in-house counsel role with US Foods, Inc. where she primarily focused on transactional related matters from a procurement, transportation logistics, and national sales perspective as well as managed the company's intellectual property portfolio. She was formerly Associate General Counsel at W.W. Grainger, Inc. (NYSE: GWW) supporting the Global Supply Chain organization including global sourcing, product management, transportation logistics and international businesses that were North American and European based. As Deputy General Counsel, Division General Counsel for the Liquid Foods Division and the Chief Ethics and Compliance Officer for John Bean Technologies Corporation (NYSE: JBT), headquartered in Chicago, she was responsible for all things legal in her division (which included 19 locations, including 10 non-US sites) and worked with her business partners on a variety of strategic matters. She was responsible for supporting, on a corporate-wide basis, the HR-team and IR team. She served as legal advisor to the Compensation Committee for the Board of Directors. Currently, Ms. Watkins-Asiyanbi serves at Chief Administrative and Legal Officer and Corporate Secretary for CECO Environmental Corp. (NASDAQ: CECE), headquartered in Dallas. She is responsible for the following functions on a global basis: human resources (including executive compensation and benefits), corporate communications, safety and legal. She is actively involved in mergers and acquisitions and integration activities as well as governance and supports the board in her role as Corporate Secretary.

Ms. Watkins-Asiyanbi is also very involved in the Chicago community. She received the 2017 Business Leader of Color award from Chicago United for her many contributions and this honor shows a readiness to serve on corporate boards. She currently serves as the Board Chair for Women Employed, Inc., a member of the Education Committee for the John G. Shedd Aquarium, a member of the Wisconsin Alumni Association's Alumni Advisory Board, and a member of the President's Council for the Museum of Science and Industry. She has served on the board of directors for the former Girl Scouts of Chicago Council as well as a troop leader and volunteer. She was an inaugural associate board member for the Chicago Committee on Minorities in Large Law Firms; a former board member for Black Women Lawyers' Association of Greater Chicago and Illinois Chapter for the Alzheimer's Association; and she has mentored several high school students through LINK Unlimited. Ms. Watkins-Asiyanbi is also a 2016 Fellow of Leadership Greater Chicago and is an active member of Jack and Jill of America, Chicago Chapter and a life member of Sigma Gamma Rho Sorority, Inc.

Despite her busy schedule, she still finds time to devote to her husband, Charles, and two sons, Nicholaus and Zachary. Ultimately she lives by the motto, "Give a person a fish, they eat for today; teach a person to fish, they eat for a lifetime." She truly believes that a

person is only limited when the doors of opportunity are closed to them; otherwise, they should aspire to conquer their dreams.

August 23, 2022

Legal's Balancing Act: Risk, Innovation, and Advancing Strategic Priorities

Lighthouse

As legal teams expand their responsibilities and business impact throughout their organizations, there's a delicate balance legal professionals must strike in their roles: be better partners and balance risk.

To tease out this complex and dynamic relationship, Megan Ferraro, Associate General Counsel of eDiscovery and Information Governance at Meta, recently joined as a guest on Law & Candor.

Highlights from that conversation are below.

The legal function's bigger role

Legal departments are playing a more significant part in strategy and innovation because the role of in-house counsel has changed greatly in the past few decades. There's been a considerable shift in forward-thinking companies from viewing legal as a blocker to more of a strategic partner.

Successful legal teams are partnering internally to ensure attorneys across their organization get early signals to address potential inquiries in litigation or investigations. Additionally, companies are now hiring in-house teams to fill roles where those legal partners can identify and assess legal risk early on.

In-house counsel have become advocates for why legal deserves a seat at the table at all company levels, which contributes to the overall success of the business.

A great example of how legal is partnering with other parts of their organizations to drive innovation is through the role of product counsel at technology companies. The most effective product counsel have a deep understanding of product goals early, which helps them to identify and address legal issues more quickly and accurately. By working closely with the product team through development, updates, and deployment, they also serve as a conduit between legal and product teams to help advance projects and address potential risks.

Critical risks facing legal teams today

One of the most significant challenges for in-house legal teams is keeping up with the pace their organization's growth—whether it's developing products and services, forging unique

partnerships, or adopting new technology and software.

Often, business teams do not appreciate how even the slightest difference in facts can contribute to different outcomes in the law. Managing the expectations of the business regarding the time it takes to do legal analysis is extremely important.

It's normal to take the time to think about these challenging issues. An important adage for the business to remember is that the law is not “Minute Rice.”

The balancing act between risk and innovation

Weighing risk and innovation requires that you keep pace with changes throughout the organization, including pivots in strategic priorities, with a variety of stakeholders. Staying ahead of these developments and allowing counsel enough time to evaluate potential impacts is key to understanding if the benefits are worth the risk, and if not, how to adjust a business plan accordingly.

Along with providing the guidance stakeholders need to assess risk and make decisions, legal teams also frequently manage how organizational data is stored and accessed with IT departments. If other teams throughout the business do not have the information they need, they can't move as fast to help the company innovate. How long to keep data, what format it is in, and who can access it are all questions that can have a huge impact on innovation.

Cross-functional collaboration

In-house counsel are increasingly working with other leaders in their organizations to inform strategic decisions, but having a seat at the table requires listening and staying connected to “clients” within the business. Strategic priorities can change very often, especially in a fast-paced environment.

Knowing not just what these priorities are but how the business interprets them and what success means to the company will contribute to the most successful legal partners for balancing risk factors and supporting innovation.

To listen to the full conversation and hear more stories from the legal technology revolution, check out Law & Candor.

[View source.]

BETA

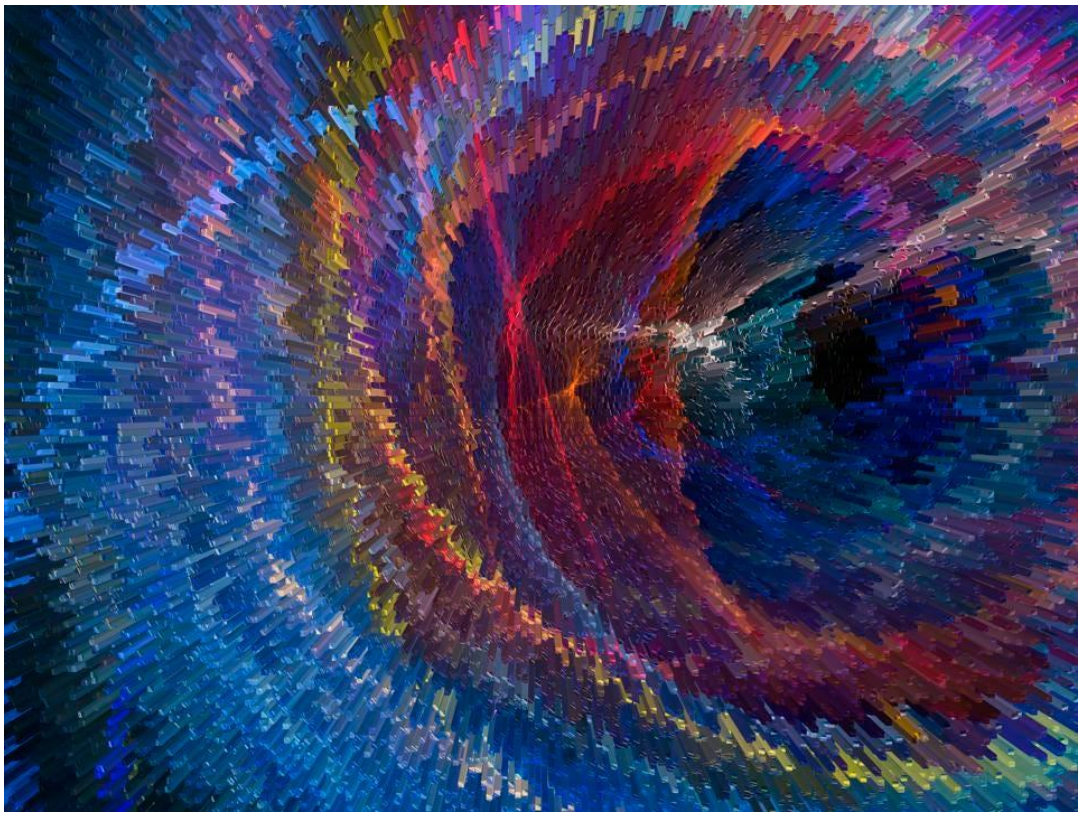
INNOVATION

Your Big Data Responsibility: The Rise In Data Ethics

Christian Ofori-Boateng Forbes Councils Member
Forbes Technology Council
COUNCIL POST | Membership (Fee-Based)

Jun 8, 2020, 09:00am EDT

Co-Founder & Chief Executive at ChristianSteven Software, a report automation and business intelligence software company.



GETTY

Every business manager and marketing pro understands the importance and power of understanding what drives their

customers and prospects, seeing big data as the key that opens that treasure chest.

What is sometimes lost in the larger picture of effective marketing is the actual consumer. Intuitively, most customers and prospects can sniff out businesses looking for sales instead of learning what the client desires and meeting their wants and wishes. And when business interests prevail over customer needs, all the big data manipulation in the world won't sway those valued prospects and customers into doling out more funds or private information.

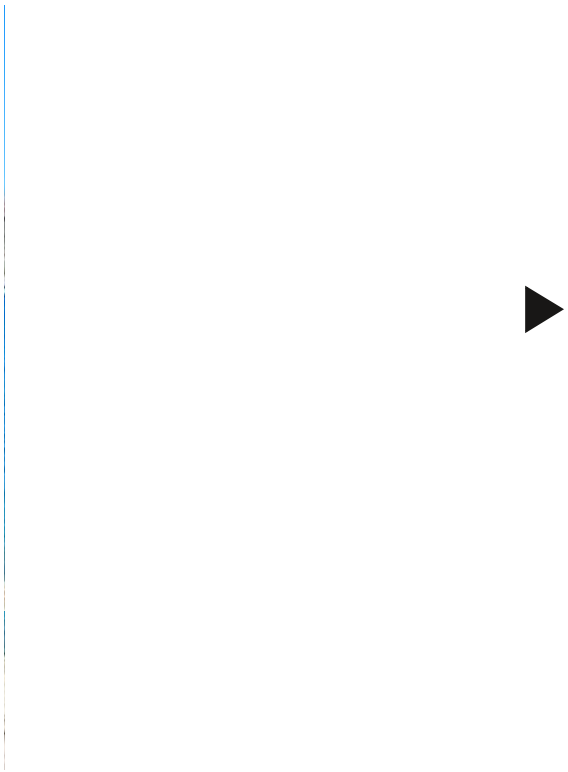
This is where the demand for data ethics comes into play.

Integrating Data Ethics With Data Collection

Consumers are not idiots. They understand the value of their personal data and appreciate the judicious use of their private information when it serves their interests and needs. Many people are even delighted by the idea that proper data analytics can uncover hidden desires and motivations. Such people see the beneficial power of data analytics when properly applied, creating new discoveries and experiences not previously or consciously realized.

People recognize that businesses need to turn a profit, which occurs through interactions with the public. Most people also subconsciously want their preferred businesses to profit when they buy from them because a profitable company can sustain itself to serve the public on into the future. Most importantly, the customer is valued because of the profits they deliver to the company. Since every consumer wants to be appreciated by the businesses they patronize, this creates an ideal win-win scenario in which both businesses and their patrons thrive.

Fortunately for businesses, consumers are generally trusting...until, that is, the company takes an action that proves itself unworthy of the trust of existing customers and possible new clients. When your customers believe you work ethically, honestly and transparently with them, you build fierce loyalty, which translates to continued interactions and profits. You literally cannot buy such clients with money, but you can endear them for life with proper data ethics.



Six Methods That Incorporate Data Ethics In Your Business

1. Inform and consent: Even when it appears obvious, be certain to inform your clients and prospects whenever you are collecting their personal data. However, it is no longer enough to tell people their data is being collected; you should also be eager to share precisely how that data is to be used, preferably explaining it positively to motivate those people to readily reveal accurate information.

Explanation of the intended use of their data is just the first of two steps. Be certain you also obtain clear consent from each person, acknowledging their understanding and acceptance of the data they share.

2. Privacy and protection: While it's comforting to ensure your clients that their data will remain private, all too often an unexpected data breach eliminates the sense of security your customers and prospects felt. And it logically follows that their sense of trust in your competence drops significantly from such a mishap.

If a breach does occur, take immediate action by communicating with all affected parties. Accompanying this notification should be an announcement of the protective measures taken to ensure such an occurrence is a one-time situation. What's most important, though, is demonstrating the security measures in place to protect all exposed data.

3. Two-way transparency: Companies expect transparency of their clients and prospects. Without such clarity, businesses would remain in the dark and be unable to serve their customers effectively. And you already know how powerful accurate data collection and analysis can be toward converting shoppers into buyers.

Now it's your turn to give back through transparent communications and use of their data. Not only should you reveal how their data is used to better meet their needs and desires, but do not hesitate to disclose any financial transactions that resulted from the use of their data (such as selling off mailing lists). Ideally, offer your clients and prospects the opportunity to opt out of any use of their data with which they are not comfortable.

4. Respect the rules: In this global marketplace, you have the entire world in front of you as prospects or customers. Because your doors are open to people in every nation where there is the internet, you must also be aware of and adhere to local or national laws concerning data collection and protection of their citizens. Two prime examples of key data protection laws are EU-US Privacy Shield and General Data Protection Regulation (GDPR).

Just as you abide by the regulations and laws in the country where your business is established and operates, so must you also respect and follow the rules of any nation where you have customers or prospects providing personal and private data.

5. Privacy by design: With the growing awareness of the need for privacy, many firms are proactively adopting the Privacy by Design framework and incorporating intended ethical values during the planning and development stage of any platform or solution utilizing data. This type of preplanning implements data ethics into any solution at the time of creation rather than attempting to modify and insert it at a later date.

6. Algorithm evaluation and auditing: You can't trust everything to AI. It is limited to the data that is input, developing algorithms accordingly. Thanks to human interference and inaccurate or irrelevant data, you could end up with some rather

limited algorithms that do not effectively reach or serve your market base.

For example, when Amazon used AI for recruiting new developers and other techies, it later realized the algorithm was filtering out women in favor of men.

Most important of all is integrating the concept of data ethics within the minds of business owners and executives. Once viewed as the ideal method for obtaining and maximizing the benefits of big data, your team will be on board with the concept. And that is the first important step to satisfying the growing demand for data ethics.

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Christian Ofori-Boateng

Co-Founder & Chief Executive at ChristianSteven Software, a report automation and business intelligence software... **Read More**

Harvard
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Review

Disruptive Innovation

What Is Disruptive Innovation?

by Clayton M. Christensen, Michael E. Raynor, and Rory McDonald

From the Magazine (December 2015)

Martin Barraud/Getty Images

Summary. For the past 20 years, the theory of disruptive innovation has been enormously influential in business circles and a powerful tool for predicting which industry entrants will succeed. Unfortunately, the theory has also been... **more**

Please enjoy this HBR Classic.

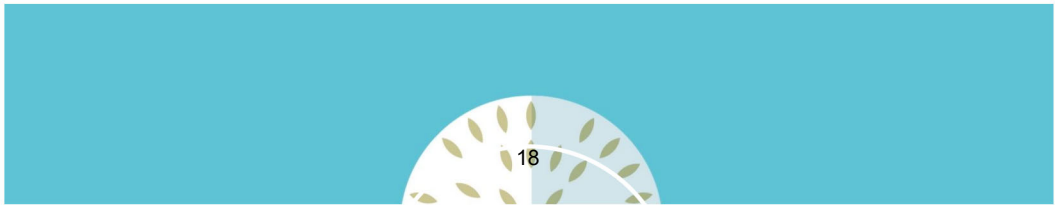
The theory of disruptive innovation, introduced in these pages in 1995, has proved to be a powerful way of thinking about innovation-driven growth. Many leaders of small, entrepreneurial

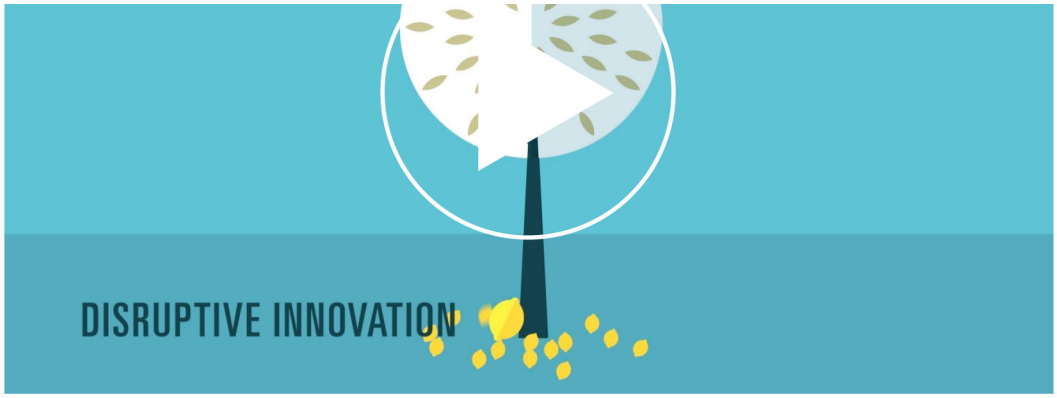
companies praise it as their guiding star; so do many executives at large, well-established organizations, including Intel, Southern New Hampshire University, and Salesforce.com.

Unfortunately, disruption theory is in danger of becoming a victim of its own success. Despite broad dissemination, the theory's core concepts have been widely misunderstood and its basic tenets frequently misapplied. Furthermore, essential refinements in the theory over the past 20 years appear to have been overshadowed by the popularity of the initial formulation. As a result, the theory is sometimes criticized for shortcomings that have already been addressed.

There's another troubling concern: In our experience, too many people who speak of "disruption" have not read a serious book or article on the subject. Too frequently, they use the term loosely to invoke the concept of innovation in support of whatever it is they wish to do. Many researchers, writers, and consultants use "disruptive innovation" to describe *any* situation in which an industry is shaken up and previously successful incumbents stumble. But that's much too broad a usage.

The problem with conflating a disruptive innovation with any breakthrough that changes an industry's competitive patterns is that different types of innovation require different strategic approaches. To put it another way, the lessons we've learned about succeeding as a disruptive innovator (or defending against a disruptive challenger) will not apply to every company in a shifting market. If we get sloppy with our labels or fail to integrate insights from subsequent research and experience into the original theory, then managers may end up using the wrong tools for their context, reducing their chances of success. Over time, the theory's usefulness will be undermined.

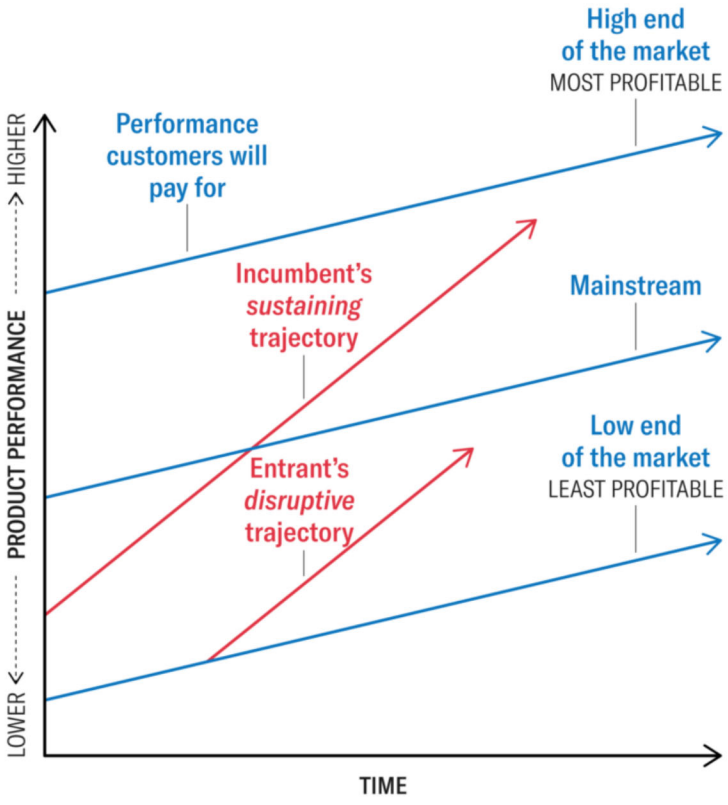




This article is part of an effort to capture the state of the art. We begin by exploring the basic tenets of disruptive innovation and examining whether they apply to Uber. Then we point out some common pitfalls in the theory's application, how these arise, and why correctly using the theory matters. We go on to trace major turning points in the evolution of our thinking and make the case that what we have learned allows us to more accurately predict which businesses will grow.

The Disruptive Innovation Model

This diagram contrasts *product performance trajectories* (the red lines showing how products or services improve over time) with *customer demand trajectories* (the blue lines showing customers' willingness to pay for performance). As incumbent companies introduce higher-quality products or services (upper red line) to satisfy the high end of the market (where profitability is highest), they overshoot the needs of low-end customers and many mainstream customers. This leaves an opening for entrants to find footholds in the less-profitable segments that incumbents are neglecting. Entrants on a disruptive trajectory (lower red line) improve the performance of their offerings and move upmarket (where profitability is highest for them, too) and challenge the dominance of the incumbents.



Source: Clayton M. Christensen, Michael E. Raynor, and Rory McDonald
From: "What Is Disruptive Innovation?" December 2015

HBR

See more HBR charts in Data & Visuals >

First, a quick recap of the idea: "Disruption" describes a process whereby a smaller company with fewer resources is able to successfully challenge established incumbent businesses. Specifically, as incumbents focus on improving their products

and services for their most demanding (and usually most profitable) customers, they exceed the needs of some segments and ignore the needs of others. Entrants that prove disruptive begin by successfully targeting those overlooked segments, gaining a foothold by delivering more-suitable functionality—frequently at a lower price. Incumbents, chasing higher profitability in more-demanding segments, tend not to respond vigorously. Entrants then move upmarket, delivering the performance that incumbents' mainstream customers require, while preserving the advantages that drove their early success. When mainstream customers start adopting the entrants' offerings in volume, disruption has occurred. (See the exhibit "The Disruptive Innovation Model.")

Is Uber a Disruptive Innovation?

Let's consider Uber, the much-feted transportation company whose mobile application connects consumers who need rides with drivers who are willing to provide them. Founded in 2009, the company has enjoyed fantastic growth (it operates in hundreds of cities in 60 countries and is still expanding). It has reported tremendous financial success (the most recent funding round implies an enterprise value in the vicinity of $50 billion). And it has spawned a slew of imitators (other start-ups are trying to emulate its "market-making" business model). Uber is clearly transforming the taxi business in the United States. But is it *disrupting* the taxi business?

According to the theory, the answer is no. Uber's financial and strategic achievements do not qualify the company as genuinely disruptive—although the company is almost always described that way. Here are two reasons why the label doesn't fit.

Disruptive innovations originate in low-end or new-market footholds. Disruptive innovations are made possible because they get started in two types of markets that incumbents overlook. *Low-end footholds* exist because incumbents typically try to

provide their most profitable and demanding customers with ever-improving products and services, and they pay less attention to less-demanding customers. In fact, incumbents' offerings often overshoot the performance requirements of the latter. This opens the door to a disrupter focused (at first) on providing those low-end customers with a "good enough" product.

In the case of *new-market footholds,* disrupters create a market where none existed. Put simply, they find a way to turn nonconsumers into consumers. For example, in the early days of photocopying technology, Xerox targeted large corporations and charged high prices in order to provide the performance that those customers required. School librarians, bowling-league operators, and other small customers, priced out of the market, made do with carbon paper or mimeograph machines. Then in the late 1970s, new challengers introduced personal copiers, offering an affordable solution to individuals and small organizations—and a new market was created. From this relatively modest beginning, personal photocopier makers gradually built a major position in the mainstream photocopier market that Xerox valued.

Read more about

Surviving Disruption

A disruptive innovation, by definition, starts from one of those two footholds. But Uber did not originate in either one. It is difficult to claim that the company found a low-end opportunity: That would have meant taxi service providers had overshot the needs of a material number of customers by making cabs too plentiful, too easy to use, and too clean. Neither did Uber primarily target nonconsumers—people who found the existing alternatives so expensive or inconvenient that they took public transit or drove themselves instead: Uber was launched in San Francisco (a well-served taxi market), and Uber's customers were generally people already in the habit of hiring rides.

Uber has quite arguably been increasing total demand—that's what happens when you develop a better, less-expensive solution to a widespread customer need. But disrupters *start* by appealing to low-end or unserved consumers and then migrate to the mainstream market. Uber has gone in exactly the opposite direction: building a position in the mainstream market first and subsequently appealing to historically overlooked segments.

Disruptive innovations don't catch on with mainstream customers until quality catches up to their standards. Disruption theory differentiates disruptive innovations from what are called "sustaining innovations." The latter make good products better in the eyes of an incumbent's existing customers: the fifth blade in a razor, the clearer TV picture, better mobile phone reception. These improvements can be incremental advances or major breakthroughs, but they all enable firms to sell more products to their most profitable customers.

Disruptive innovations, on the other hand, are initially considered inferior by most of an incumbent's customers. Typically, customers are not willing to switch to the new offering merely because it is less expensive. Instead, they wait until its quality rises enough to satisfy them. Once that's happened, they adopt the new product and happily accept its lower price. (This is how disruption drives prices down in a market.)

Most of the elements of Uber's strategy seem to be sustaining innovations. Uber's service has rarely been described as inferior to existing taxis; in fact, many would say it is *better.* Booking a

ride requires just a few taps on a smartphone; payment is cashless and convenient; and passengers can rate their rides afterward, which helps ensure high standards. Furthermore, Uber delivers service reliably and punctually, and its pricing is usually competitive with (or lower than) that of established taxi services. And as is typical when incumbents face threats from sustaining innovations, many of the taxi companies are motivated to respond. They are deploying competitive technologies, such as hailing apps, and contesting the legality of some of Uber's services.

Why Getting It Right Matters

Readers may still be wondering, Why does it matter what words we use to describe Uber? The company has certainly thrown the taxi industry into disarray: Isn't that "disruptive" enough? No. Applying the theory correctly is essential to realizing its benefits. For example, small competitors that nibble away at the periphery of your business very likely should be ignored—unless they are on a disruptive trajectory, in which case they are a potentially mortal threat. And both of these challenges are fundamentally different from efforts by competitors to woo your bread-and-butter customers.

As the example of Uber shows, identifying true disruptive innovation is tricky. Yet even executives with a good understanding of disruption theory tend to forget some of its subtler aspects when making strategic decisions. We've observed four important points that get overlooked or misunderstood:

1. Disruption is a process. The term "disruptive innovation" is misleading when it is used to refer to a product or service at one fixed point, rather than to the evolution of that product or service over time. The first minicomputers were disruptive not merely because they were low-end upstarts when they appeared on the scene, nor because they were later heralded as superior to

mainframes in many markets; they were disruptive by virtue of the path they followed from the fringe to the mainstream.

Because disruption can take time, incumbents frequently overlook disrupters.

Most every innovation—disruptive or not—begins life as a small-scale experiment. Disrupters tend to focus on getting the business model, rather than merely the product, just right. When they succeed, their movement from the fringe (the low end of the market or a new market) to the mainstream erodes first the incumbents' market share and then their profitability. This process can take time, and incumbents can get quite creative in the defense of their established franchises. For example, more than 50 years after the first discount department store was opened, mainstream retail companies still operate their traditional department-store formats. Complete substitution, if it comes at all, may take decades, because the incremental profit from staying with the old model for one more year trumps proposals to write off the assets in one stroke.

The fact that disruption can take time helps to explain why incumbents frequently overlook disrupters. For example, when Netflix launched, in 1997, its initial service wasn't appealing to most of Blockbuster's customers, who rented movies (typically new releases) on impulse. Netflix had an exclusively online interface and a large inventory of movies, but delivery through the U.S. mail meant selections took several days to arrive. The service appealed to only a few customer groups—movie buffs who didn't care about new releases, early adopters of DVD players, and online shoppers. If Netflix had not eventually begun to serve a broader segment of the market, Blockbuster's decision to ignore

this competitor would not have been a strategic blunder: The two companies filled very different needs for their (different) customers.

However, as new technologies allowed Netflix to shift to streaming video over the internet, the company did eventually become appealing to Blockbuster's core customers, offering a wider selection of content with an all-you-can-watch, on-demand, low-price, high-quality, highly convenient approach. And it got there via a classically disruptive path. If Netflix (like Uber) had begun by launching a service targeted at a larger competitor's core market, Blockbuster's response would very likely have been a vigorous and perhaps successful counterattack. But failing to respond effectively to the trajectory that Netflix was on led Blockbuster to collapse.

2. Disrupters often build business models that are very different from those of incumbents. Consider the health care industry. General practitioners operating out of their offices often rely on their years of experience and on test results to interpret patients' symptoms, make diagnoses, and prescribe treatment. We call this a "solution shop" business model. In contrast, a number of convenient care clinics are taking a disruptive path by using what we call a "process" business model: They follow standardized protocols to diagnose and treat a small but increasing number of disorders.

Read more about

Disruptive Innovation for Social Change

One high-profile example of using an innovative business model to effect a disruption is Apple's iPhone. The product that Apple debuted in 2007 was a sustaining innovation in the smartphone market: It targeted the same customers coveted by incumbents, and its initial success is likely explained by product superiority. The iPhone's subsequent growth is better explained by disruption

—not of other smartphones but of the laptop as the primary access point to the internet. This was achieved not merely through product improvements but also through the introduction of a new business model. By building a facilitated network connecting application developers with phone users, Apple changed the game. The iPhone created a new market for internet access and eventually was able to challenge laptops as mainstream users' device of choice for going online.

3. Some disruptive innovations succeed; some don't. A third common mistake is to focus on the results achieved—to claim that a company is disruptive by virtue of its success. But success is not built into the definition of disruption: Not every disruptive path leads to a triumph, and not every triumphant newcomer follows a disruptive path.

For example, any number of internet-based retailers pursued disruptive paths in the late 1990s, but only a small number prospered. The failures are not evidence of the deficiencies of disruption theory; they are simply boundary markers for the theory's application. The theory says very little about how to win in the foothold market, other than to play the odds and avoid head-on competition with better-resourced incumbents.

If we call every business success a "disruption," then companies that rise to the top in very different ways will be seen as sources of insight into a common strategy for succeeding. This creates a danger: Managers may mix and match behaviors that are very likely inconsistent with one another and thus unlikely to yield the hoped-for result. For example, both Uber and Apple's iPhone owe their success to a platform-based model: Uber digitally connects riders with drivers; the iPhone connects app developers with phone users. But Uber, true to its nature as a sustaining innovation, has focused on expanding its network and functionality in ways that make it better than traditional taxis.

Apple, on the other hand, has followed a disruptive path by building its ecosystem of app developers so as to make the iPhone more like a personal computer.

4. The mantra "Disrupt or be disrupted" can misguide us. Incumbent companies do need to respond to disruption if it's occurring, but they should not overreact by dismantling a still-profitable business. Instead, they should continue to strengthen relationships with core customers by investing in sustaining innovations. In addition, they can create a new division focused solely on the growth opportunities that arise from the disruption. Our research suggests that the success of this new enterprise depends in large part on keeping it separate from the core business. That means that for some time, incumbents will find themselves managing two very different operations.

Of course, as the disruptive stand-alone business grows, it may eventually steal customers from the core. But corporate leaders should not try to solve this problem before it *is* a problem.

What a Disruptive Innovation Lens Can Reveal

It is rare that a technology or product is inherently sustaining or disruptive. And when new technology is developed, disruption theory does not dictate what managers should do. Instead it helps them make a strategic choice between taking a sustaining path and taking a disruptive one.

The theory of disruption predicts that when an entrant tackles incumbent competitors head-on, offering better products or services, the incumbents will accelerate their innovations to defend their business. Either they will beat back the entrant by offering even better services or products at comparable prices, or one of them will acquire the entrant. The data supports the theory's prediction that entrants pursuing a sustaining strategy for a stand-alone business will face steep odds: In Christensen's seminal study of the disk drive industry, only 6% of sustaining entrants managed to succeed. [28]

When new technology arises, disruption theory can guide strategic choices.

Uber's strong performance therefore warrants explanation. According to disruption theory, Uber is an outlier, and we do not have a universal way to account for such atypical outcomes. In Uber's case, we believe that the regulated nature of the taxi business is a large part of the answer. Market entry and prices are closely controlled in many jurisdictions. Consequently, taxi companies have rarely innovated. Individual drivers have few ways to innovate, except to defect to Uber. So Uber is in a unique situation relative to taxis: It can offer better quality and the competition will find it hard to respond, at least in the short term.

To this point, we've addressed only whether or not Uber is disruptive to the taxi business. The limousine or "black car" business is a different story, and here Uber is far more likely to be on a disruptive path. The company's UberSELECT option provides more-luxurious cars and is typically more expensive than its standard service—but typically less expensive than hiring a traditional limousine. This lower price imposes some compromises, as UberSELECT currently does not include one defining feature of the leading incumbents in this market: acceptance of advance reservations. Consequently, this offering from Uber appeals to the low end of the limousine service market: customers willing to sacrifice a measure of convenience for monetary savings. Should Uber find ways to match or exceed incumbents' performance levels without compromising its cost and price advantage, the company appears to be well positioned to move into the mainstream of the limo business—and it will have done so in classically disruptive fashion.

How Our Thinking About Disruption Has Developed

Initially, the theory of disruptive innovation was simply a statement about correlation. Empirical findings showed that incumbents outperformed entrants in a sustaining innovation context but underperformed in a disruptive innovation context. The reason for this correlation was not immediately evident, but one by one, the elements of the theory fell into place.

First, researchers realized that a company's propensity for strategic change is profoundly affected by the interests of customers who provide the resources the firm needs to survive. In other words, incumbents (sensibly) listen to their existing customers and concentrate on sustaining innovations as a result. Researchers then arrived at a second insight: Incumbents' focus on their existing customers becomes institutionalized in internal processes that make it difficult for even senior managers to shift investment to disruptive innovations. For example, interviews with managers of established companies in the disk drive industry revealed that resource allocation processes prioritized sustaining innovations (which had high margins and targeted large markets with well-known customers) while inadvertently starving disruptive innovations (meant for smaller markets with poorly defined customers).

Smart disrupters improve their products and drive upmarket.

Those two insights helped explain why incumbents rarely responded effectively (if at all) to disruptive innovations, but not why entrants eventually moved upmarket to challenge incumbents, over and over again. It turns out, however, that the same forces leading incumbents to ignore early-stage disruptions also compel disrupters ultimately to disrupt.

What we've realized is that, very often, low-end and new-market footholds are populated not by a lone would-be disrupter, but by several comparable entrant firms whose products are simpler, more convenient, or less costly than those sold by incumbents. The incumbents provide a de facto price umbrella, allowing many of the entrants to enjoy profitable growth within the foothold market. But that lasts only for a time: As incumbents (rationally, but mistakenly) cede the foothold market, they effectively remove the price umbrella, and price-based competition among the entrants reigns. Some entrants will founder, but the smart ones—the true disrupters—will improve their products and drive upmarket, where, once again, they can compete at the margin against higher-cost established competitors. The disruptive effect drives every competitor—incumbent and entrant—upmarket.

With those explanations in hand, the theory of disruptive innovation went beyond simple correlation to a theory of causation as well. The key elements of that theory have been tested and validated through studies of many industries, including retail, computers, printing, motorcycles, cars, semiconductors, cardiovascular surgery, management education, financial services, management consulting, cameras, communications, and computer-aided design software.

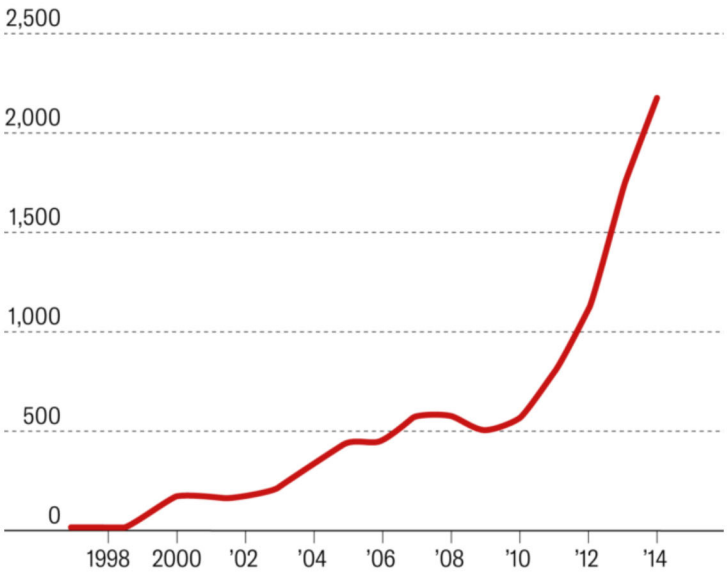
Making sense of anomalies. Additional refinements to the theory have been made to address certain anomalies, or unexpected scenarios, that the theory could not explain. For example, we originally assumed that any disruptive innovation took root in the lowest tiers of an established market—yet sometimes new entrants seemed to be competing in entirely new markets. This led to the distinction we discussed earlier between low-end and new-market footholds.

Low-end disrupters (think steel minimills and discount retailers) come in at the bottom of the market and take hold within an existing value network before moving upmarket and attacking that stratum (think integrated steel mills and traditional

retailers). By contrast, new-market disruptions take hold in a completely new value network and appeal to customers who have previously gone without the product. Consider the transistor pocket radio and the PC: They were largely ignored by manufacturers of tabletop radios and minicomputers, respectively, because they were aimed at nonconsumers of those goods. By postulating that there are two flavors of foothold markets in which disruptive innovation can begin, the theory has become more powerful and practicable.

The Ubiquitous "Disruptive Innovation"

"Disruptive innovation" and "disruptive technology" are now part of the popular business lexicon, as suggested by the dramatic growth in the number of articles using those phrases in recent years.



Source: Factiva analysis of a wide variety of English-language publications
From: "What Is Disruptive Innovation?" December 2015

HBR

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Another intriguing anomaly was the identification of industries that have resisted the forces of disruption, at least until very recently. Higher education in the United States is one of these. Over the years—indeed, over more than 100 years—new kinds of institutions with different initial charters have been created to

address the needs of various population segments, including nonconsumers. Land-grant universities, teachers' colleges, two-year colleges, and so on were initially launched to serve those for whom a traditional four-year liberal arts education was out of reach or unnecessary.

Many of these new entrants strived to improve over time, compelled by analogues of the pursuit of profitability: a desire for growth, prestige, and the capacity to do greater good. Thus they made costly investments in research, dormitories, athletic facilities, faculty, and so on, seeking to emulate more-elite institutions. Doing so has increased their level of performance in some ways—they can provide richer learning and living environments for students, for example. Yet the *relative* standing of higher-education institutions remains largely unchanged: With few exceptions, the top 20 are still the top 20, and the next 50 are still in that second tier, decade after decade.

Because both incumbents and newcomers are seemingly following the same game plan, it is perhaps no surprise that incumbents are able to maintain their positions. What has been missing—until recently—is experimentation with new models that successfully appeal to today's nonconsumers of higher education.

The question now is whether there is a novel technology or business model that allows new entrants to move upmarket without emulating the incumbents' high costs—that is, to follow a disruptive path. The answer seems to be yes, and the enabling innovation is online learning, which is becoming broadly available. Real tuition for online courses is falling, and accessibility and quality are improving. Innovators are making inroads into the mainstream market at a stunning pace.

Will online education disrupt the incumbents' model? And if so, when? In other words, will

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online education's trajectory of improvement intersect with the needs of the mainstream market? We've come to realize that the steepness of any disruptive trajectory is a function of how quickly the enabling technology improves. In the steel industry, continuous-casting technology improved quite slowly, and it took more than 40 years before the minimill Nucor matched the revenue of the largest integrated steelmakers. In contrast, the digital technologies that allowed personal computers to disrupt minicomputers improved much more quickly; Compaq was able to increase revenue more than 10-fold and reach parity with the industry leader, DEC, in only 12 years.

Understanding what drives the rate of disruption is helpful for predicting outcomes, but it doesn't alter the way disruptions should be managed. Rapid disruptions are not fundamentally different from any others; they don't have different causal mechanisms and don't require conceptually different responses.

Similarly, it is a mistake to assume that the strategies adopted by some high-profile entrants constitute a special kind of disruption. Often these are simply miscategorized. Tesla Motors is a current and salient example. One might be tempted to say the company is disruptive. But its foothold is in the high end of the auto market (with customers willing to spend $70,000 or more on a car), and this segment is not uninteresting to incumbents. Tesla's entry, not surprisingly, has elicited significant attention and investment from established competitors. If disruption theory is correct, Tesla's future holds either acquisition by a much larger incumbent or a years-long and hard-fought battle for market significance.

We still have a lot to learn. We are eager to keep expanding and refining the theory of disruptive innovation, and much work lies

ahead. For example, universally effective responses to disruptive threats remain elusive. Our current belief is that companies should create a separate division that operates under the protection of senior leadership to explore and exploit a new disruptive model. Sometimes this works—and sometimes it doesn't. In certain cases, a failed response to a disruptive threat cannot be attributed to a lack of understanding, insufficient executive attention, or inadequate financial investment. The challenges that arise from being an incumbent and an entrant simultaneously have yet to be fully specified; how best to meet those challenges is still to be discovered.

Disruption theory does not, and never will, explain everything about innovation specifically or business success generally. Far too many other forces are in play, each of which will reward further study. Integrating them all into a comprehensive theory of business success is an ambitious goal, one we are unlikely to attain anytime soon.

But there is cause for hope: Empirical tests show that using disruptive theory makes us measurably and significantly more accurate in our predictions of which fledgling businesses will succeed. As an ever-growing community of researchers and practitioners continues to build on disruption theory and integrate it with other perspectives, we will come to an even better understanding of what helps firms innovate successfully.

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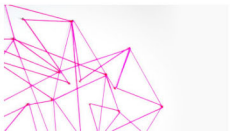


Harvard
Business
Review

Innovation

Is It Real? Can We Win? Is It Worth Doing?: Managing Risk and Reward in an Innovation Portfolio

by George Day

From the Magazine (December 2007)

Summary. Reprint: R0712J Minor innovations make up most of a company's development portfolio, on average, but they never generate the growth companies seek. The solution, says Day—the Geoffrey T. Boisi Professor of Marketing and a codirector of the... **more**

Minor innovations make up 85% to 90% of companies' development portfolios, on average, but they rarely generate the growth companies seek. At a time when companies should be taking bigger—but smart—innovation risks, their bias is in the other direction. From 1990 to 2004 the percentage of major innovations in development portfolios dropped from 20.4 to 11.5 —even as the number of growth initiatives rose.[1] The result is internal traffic jams of safe, incremental innovations that delay all projects, stress organizations, and fail to achieve revenue goals.

These small projects, which I call "little i" innovations, are necessary for continuous improvement, but they don't give companies a competitive edge or contribute much to profitability. It's the risky "Big I" projects—new to the company or new to the world—that push the firm into adjacent markets or novel

technologies and can generate the profits needed to close the gap between revenue forecasts and growth goals. (According to one study, only 14% of new-product launches were substantial innovations, but they accounted for 61% of all profit from innovations among the companies examined.)[2]

The aversion to Big I projects stems from a belief that they are too risky and their rewards (if any) will accrue too far in the future. Certainly the probability of failure rises sharply when a company ventures beyond incremental initiatives within familiar markets. But avoiding risky projects altogether can strangle growth. The solution is to pursue a disciplined, systematic process that will distribute your innovations more evenly across the spectrum of risk.

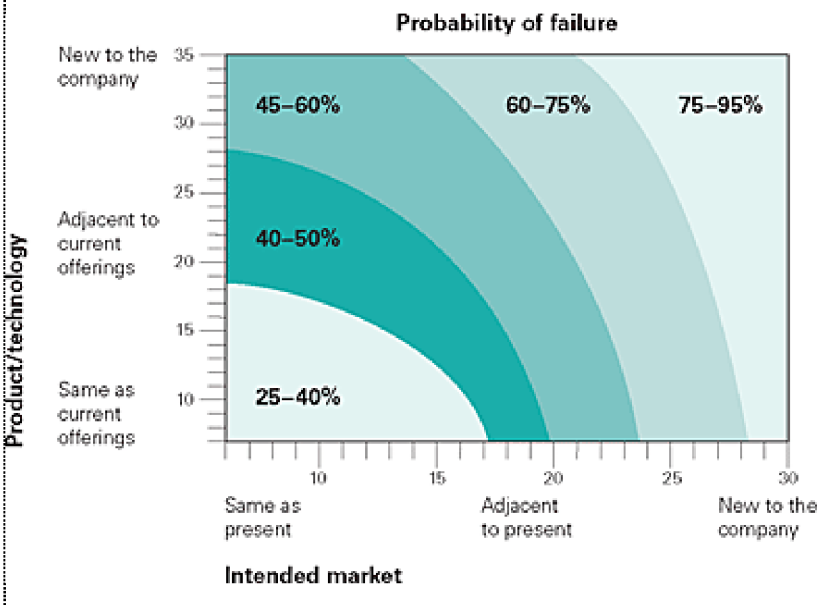
Two tools, used in tandem, can help companies do this. The first, the risk matrix, will graphically reveal risk exposure across an entire innovation portfolio. The second, the R-W-W ("real, win, worth it") screen, originated by Dominick ("Don") M. Schrello, of Long Beach, California, can be used to evaluate individual projects. Versions of the screen have been circulating since the 1980s, and since then a growing roster of companies, including General Electric, Honeywell, Novartis, Millipore, and 3M, have used them to assess business potential and risk exposure in their innovation portfolios; 3M has used R-W-W for more than 1,500 projects. I have expanded the screen and used it to evaluate dozens of projects at four global companies, and I have taught executives and Wharton students how to use it as well.

Although both tools, and the steps within them, are presented sequentially here, their actual use is not always linear. The information derived from each one can often be reapplied in later stages of development, and the two tools may inform each other. Usually, development teams quickly discover when and how to improvise on the tools' structured approach in order to maximize learning and value.

The Risk Matrix

To balance its innovation portfolio, a company needs a clear picture of how its projects fall on the spectrum of risk. The risk matrix employs a unique scoring system and calibration of risk to help estimate the probability of success or failure for each project based on how big a stretch it is for the firm: The less familiar the intended market (*x* axis) and the product or technology (*y* axis), the higher the risk. (See the exhibit "Assessing Risk Across an Innovation Portfolio.")

Assessing Risk Across an Innovation Portfolio



The Risk Matrix* This tool will reveal the distribution of risk across a company's innovation portfolio. Each innovation can ...

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A project's position on the matrix is determined by its score on a range of factors, such as how closely the behavior of targeted customers will match that of the company's current customers, how relevant the company's brand is to the intended market, and how applicable its technology capabilities are to the new product.

A portfolio review team—typically consisting of senior managers with strategic oversight and authority over development budgets and allocations—conducts the evaluation, with the support of each project's development team. Team members rate each project independently and then explain their rationale. They discuss reasons for any differences of opinion and seek consensus. The resulting scores serve as a project's coordinates on the risk matrix.

The determination of each score requires deep insights. When McDonald's attempted to offer pizza, for example, it assumed that the new offering was closely adjacent to its existing ones, and thus targeted its usual customers. Under that assumption, pizza would be a familiar product for the present market and would appear in the bottom left of the risk matrix. But the project failed, and a postmortem showed that the launch had been fraught with risk: Because no one could figure out how to make and serve a pizza in 30 seconds or less, orders caused long backups, violating the McDonald's service-delivery model. The postmortem also revealed that the company's brand didn't give "permission" to offer pizza. Even though its core fast-food customers were demographically similar to pizza lovers, their expectations about the McDonald's experience didn't include pizza.

Once the risk matrix has been completed, it typically reveals two things: that a company has more projects than it can manage well, and that the distribution of Big I and little i innovations is lopsided. Most companies will find that the majority of their projects cluster in the bottom left quadrant of the matrix, and a minority skew toward the upper right.

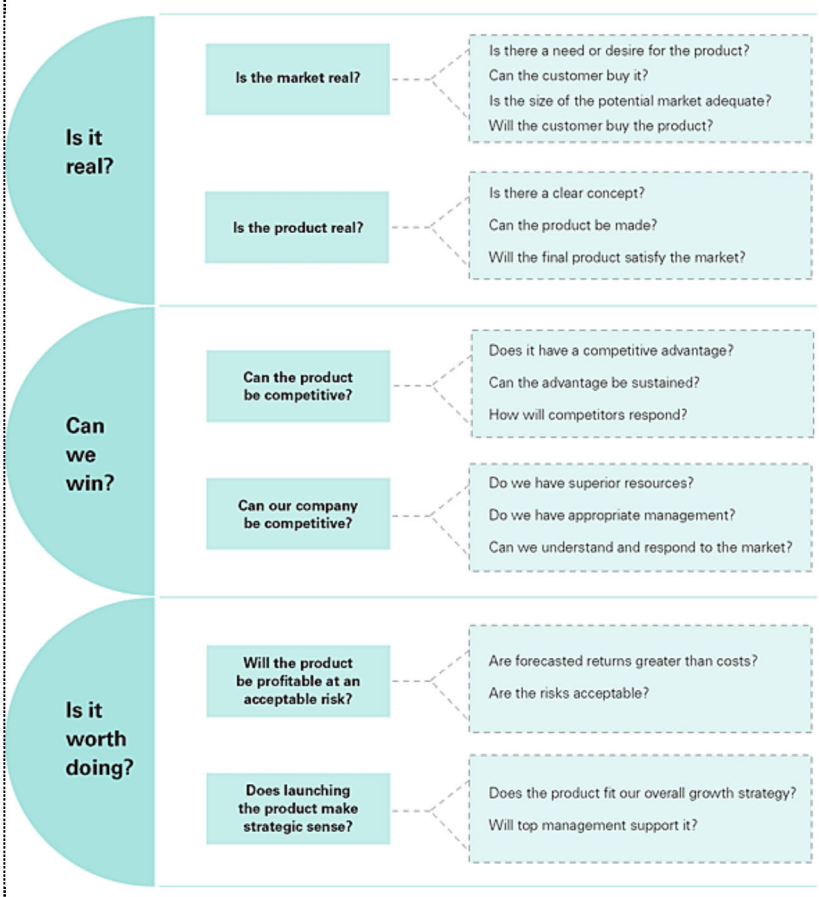
This imbalance is unhealthy if unsurprising. Discounted cash flow analysis and other financial yardsticks for evaluating development projects are usually biased against the delayed payoffs and uncertainty inherent in Big I innovations. What's more, little i projects tend to drain R&D budgets as companies struggle to keep up with customers' and salespeople's demands

for a continuous flow of incrementally improved products. The risk matrix creates a visual starting point for an ongoing dialogue about the company's mix of projects and their fit with strategy and risk tolerance. The next step is to look closely at each project's prospects in the marketplace.

Screening with R-W-W

The R-W-W screen is a simple but powerful tool built on a series of questions about the innovation concept or product, its potential market, and the company's capabilities and competition (see the exhibit "Screening for Success"). It is not an algorithm for making go/no-go decisions but, rather, a disciplined process that can be employed at multiple stages of product development to expose faulty assumptions, gaps in knowledge, and potential sources of risk, and to ensure that every avenue for improvement has been explored. The R-W-W screen can be used to identify and help fix problems that are miring a project, to contain risk, and to expose problems that can't be fixed and therefore should lead to termination.

Screening for Success



Each product concept in your company's innovation portfolio should be assessed by its development team using the ...

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Innovation is inherently messy, nonlinear, and iterative. For simplicity, this article focuses on using the R-W-W screen in the early stages to test the viability of product concepts. In reality, however, a given product would be screened repeatedly during development—at the concept stage, during prototyping, and early in the launch planning. Repeated assessment allows screeners to incorporate increasingly detailed product, market, and financial analyses into the evaluation, yielding ever more accurate answers to the screening questions.

R-W-W guides a development team to dig deeply for the answers to six fundamental questions: *Is the market real? Is the product real? Can the product be competitive? Can our company be competitive? Will the product be profitable at an acceptable risk? Does launching the product make strategic sense?*

The development team answers these queries by exploring an even deeper set of supporting questions. The team determines where the answer to each question falls on a continuum ranging from definitely yes to definitely no. A definite no to any of the first five fundamental questions typically leads to termination of the project, for obvious reasons. For example, if the consensus answer to *Can the product be competitive?* is a definite no, and the team can imagine no way to change it to a yes (or even a maybe), continuing with development is irrational. When a project has passed all other tests in the screen, however, and thus is a very good business bet, companies are sometimes more forgiving of a no to the sixth question, *Does launching the product make strategic sense?*

This article will delineate the screening process and demonstrate the depth of probing needed to arrive at valid answers. What follows is not, of course, a comprehensive guide to all the issues that might be raised by each question. Development teams can probe more or less deeply, as needed, at each decision point. (For more on team process, see the sidebar “The Screening Team.”)

The Screening Team

Project screening teams vary by company, type of initiative, and stage of development. Over the course of R-W-W screening, ...

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Is It Real?

Figuring out whether a market exists and whether a product can be made to satisfy that market are the first steps in screening a product concept. Those steps will indicate the degree of opportunity for any firm considering the potential market, so the inquiring company can assess how competitive the environment might be right from the start.

One might think that asking if the envisioned product is even a possibility should come before investigating the potential market. But establishing that the market is real takes precedence for two reasons: First, the robustness of a market is almost always less certain than the technological ability to make something. This is one of the messages of the risk matrix, which shows that the probability of a product failure becomes greater when the *market* is unfamiliar to the company than when the *product or technology* is unfamiliar. A company's ability to crystallize the market concept—the target segment and how the product can do a better job of meeting its needs—is far more important than how well the company fields a fundamentally new product or technology. In fact, research by Procter & Gamble suggests that 70% of product failures across most categories occur because companies misconstrue the market. New Coke is a classic market-concept failure; Netflix got the market concept right. In each case the outcome was determined by the company's understanding of the market, not its facility with the enabling technologies.

The ability to crystallize the market concept is far more important than how well a company fields a fundamentally new product or technology.

Second, establishing the nature of the market can head off a costly "technology push." This syndrome often afflicts companies that emphasize how to solve a problem rather than what problem should be solved or what customer desires need to be satisfied. Segway, with its Personal Transporter, and Motorola, with its Iridium satellite phone, both succumbed to technology push. Segway's PT was an ingenious way to gyroscopically stabilize a two-wheeled platform, but it didn't solve the mobility problems of any target market. The reasons for Iridium's demise are much debated, but one possibility is that mobile satellite services proved less able than terrestrial wireless roaming services to cost-effectively meet the needs of most travelers.

Segway's Personal Transporter was an ingenious way to gyroscopically stabilize a two-wheeled platform, but it didn't solve the mobility problems of any target market.

Whether the market and the product are real should dominate the screening dialogue early in the development process, especially for Big I innovations. In the case of little i innovations, a close alternative will already be on the market, which has been proved to be real.

Is the market real?

A market opportunity is real only when four conditions are satisfied: The proposed product will clearly meet a need or solve a problem better than available alternatives; customers are able to buy it; the potential market is big enough to be worth pursuing; and customers are willing to buy the product.

Is there a need or desire for the product? Unmet or poorly satisfied needs must be surfaced through market research using observational, ethnographic, and other tools to explore customers' behaviors, desires, motivations, and frustrations. Segway's poor showing is partly a market-research failure; the company didn't establish at the outset that consumers actually had a need for a self-balancing two-wheeled transporter.

Once a need has been identified, the next question is, *Can the customer buy it?* Even if the proposed product would satisfy a need and offer superior value, the market isn't real when there are objective barriers to purchasing it. Will budgetary constraints prevent customers from buying? (Teachers and school boards, for example, are always eager to invest in educational technologies but often can't find the funding.) Are there regulatory requirements that the new product may not meet? Are customers bound by contracts that would prevent them from switching to a new product? Could manufacturing or distribution problems prevent them from obtaining it?

The team next needs to ask, *Is the size of the potential market adequate?* It's dangerous to venture into a "trombone oil" market, where the product may provide distinctive value that satisfies a need, but the need is minuscule. A market opportunity isn't real unless there are enough potential buyers to warrant developing the product.

It's dangerous to venture into a "trombone oil" market, where the product may provide distinctive value

that satisfies a need, but the need is minuscule.

Finally, having established customers' need and ability to buy, the team must ask, *Will the customer buy the product?* Are there subjective barriers to purchasing it? If alternatives to the product exist, customers will evaluate them and consider, among other things, whether the new product delivers greater value in terms of features, capabilities, or cost. Improved value doesn't necessarily mean more capabilities, of course. Many Big I innovations, such as the Nintendo Wii, home defibrillators, and Salesforce.com's CRM software as a service, have prevailed by outperforming the incumbents on a few measures while being merely adequate on others. By the same token, some Big I innovations have stumbled because although they had novel capabilities, customers didn't find them superior to the incumbents.

Even when customers have a clear need or desire, old habits, the perception that a switch is too much trouble, or a belief that the purchase is risky can inhibit them. One company encountered just such a problem during the launch of a promising new epoxy for repairing machine parts during routine maintenance. Although the product could prevent costly shutdowns and thus offered unique value, the plant engineers and production managers at whom it was targeted vetoed its use. The engineers wanted more proof of the product's efficacy, while the production managers feared that it would damage equipment. Both groups were risk avoiders. A postmortem of the troubled launch revealed that maintenance people, unlike plant engineers and production managers, like to try new solutions. What's more, they could buy the product independently out of their own budgets, circumventing potential vetoes from higher up. The product was relaunched targeting maintenance and went on to become successful, but the delay was expensive and could have been avoided with better screening.

Customers may also be inhibited by a belief that the product will fail to deliver on its promise or that a better alternative might soon become available. Addressing this reluctance requires foresight into the possibilities of improvement among competitors. The prospects of third-generation (3G) mobile phones were dampened by enhancements in 2.5G phones, such as high-sensitivity antennae that made the incumbent technology perform much better.

Is the product real?

Once a company has established the reality of the market, it should look closely at the product concept and expand its examination of the intended market.

Is there a clear concept? Before development begins, the technology and performance requirements of the concept are usually poorly defined, and team members often have diverging ideas about the product's precise characteristics. This is the time to expose those ideas and identify exactly what is to be developed. As the project progresses and the team becomes immersed in market realities, the requirements should be clarified. This entails not only nailing down technical specifications but also evaluating the concept's legal, social, and environmental acceptability.

Can the product be made? If the concept is solid, the team must next explore whether a viable product is feasible. Could it be created with available technology and materials, or would it require a breakthrough of some sort? If the product can be made, can it be produced and delivered cost-effectively, or would it be so expensive that potential customers would shun it? Feasibility also requires either that a value chain for the proposed product exists or that it can be easily and affordably developed, and that de facto technology standards (such as those ensuring compatibility among products) can be met.

Some years ago the R-W-W screen was used to evaluate a radical proposal to build nuclear power–generating stations on enormous floating platforms moored offshore. Power companies were drawn to the idea, because it solved both cooling and not-in-my-backyard problems. But the team addressing the *Is the product real?* stage of the process found that the inevitable flexing of the giant platforms would lead to metal fatigue and joint wear in pumps and turbines. Since this problem was deemed insurmountable, the team concluded that absent some technological breakthrough, the no answer to the feasibility question could never become even a maybe, and development was halted.

Will the final product satisfy the market? During development, trade-offs are made in performance attributes; unforeseen technical, manufacturing, or systems problems arise; and features are modified. At each such turn in the road, a product designed to meet customer expectations may lose some of its potential appeal. Failure to monitor these shifts can result in the launch of an offering that looked great on the drawing board but falls flat in the marketplace.

Consider the ongoing disappointment of e-books. Even though the newest entrant, the Sony Reader, boasts a huge memory and breakthrough display technology, using it doesn't begin to compare with the experience of reading conventional books. The promised black-on-white effect is closer to dark gray on light gray. Meanwhile, the Reader's unique features, such as the ability to store many volumes and to search text, are for many consumers insufficiently attractive to offset the near $300 price tag. Perhaps most important, consumers are well satisfied with ordinary books. By July of 2007 the entire e-book category had reached only $30 million in sales for the year.

Can We Win?

After determining that the market and the product are both real, the project team must assess the company's ability to gain and hold an adequate share of the market. Simply finding a real opportunity doesn't guarantee success: The more real the opportunity, the more likely it is that hungry competitors are eyeing it. And if the market is already established, incumbents will defend their positions by copying or leapfrogging any innovations.

Two of the top three reasons for new-product failures, as revealed by audits, would have been exposed by the *Can we win?* analysis: Either the new product didn't achieve its market-share goals, or prices dropped much faster than expected. (The third reason is that the market was smaller, or grew more slowly, than expected.)

The questions at this stage of the R-W-W screening carefully distinguish between the offering's ability to succeed in the marketplace and the company's capacity—through resources and management talent—to help it do so.

Can the product be competitive?

Customers will choose one product over alternatives if it's perceived as delivering superior value with some combination of benefits such as better features, lower life-cycle cost, and reduced risk. The team must assess all sources of perceived value for a given product and consider the question *Does it have a competitive advantage?* (Here the customer research that informed the team's evaluation of whether the market and the product were real should be drawn on and extended as needed.) Can someone else's offering provide customers with the same results or benefits? One company's promising laminate technology, for instance, had intrigued technical experts, but the launch failed because the customers' manufacturing people had found other, cheaper ways to achieve the same improvement. The team should also consider whether the product offers additional tangible advantages—such as lifetime cost savings, greater safety,

higher quality, and lower maintenance or support needs—or intangible benefits, such as greater social acceptability (think of hybrid cars and synthetic-fur coats) and the promise of reduced risk that is implicit in a trusted brand name.

Can the advantage be sustained? Competitive advantage is only as good as the company's ability to keep imitators at bay. The first line of defense is patents. The project team should evaluate the relevance of its existing patents to the product in development and decide what additional patents may be needed to protect related intellectual property. It should ask whether a competitor could reverse engineer the product or otherwise circumvent patents that are essential to the product's success. If maintaining advantage lies in tacit organizational knowledge, can that knowledge be protected? For example, how can the company ensure that the people who have it will stay? What other barriers to imitation are possible? Can the company lock up scarce resources or enter into exclusive supply contracts?

Consider the case of 3M's computer privacy screen. Although the company's microlouver technology promised unique privacy benefits, its high price threatened to limit sales to a small market niche, making the project's status uncertain. An R-W-W screening, however, revealed that the technology was aggressively patented, so no competitor could imitate its performance. It also clarified an opportunity in adjacent markets for antiglare filters for computers. Armed with these insights, 3M used the technology to launch a full line of privacy and antiglare screens while leveraging its brand equity and sales presence in the office-products market. Five years later the product line formed the basis of one of 3M's fastest-growing businesses.

How will competitors respond? Assuming that patent protection is (or will be) in place, the project team needs to investigate competitive threats that patents can't deflect. A good place to start is a "red team" exercise: If we were going to attack our own product, what vulnerabilities would we find? How can we reduce

them? A common error companies make is to assume that competitors will stand still while the new entrant fine-tunes its product prior to launch. Thus the team must consider what competing products will look like when the offering is introduced, how competitors may react after the launch, and how the company could respond. Finally, the team should examine the possible effects of this competitive interplay on prices. Would the product survive a sustained price war?

A common error companies make is to assume that competitors will stand still while the new entrant fine-tunes its product prior to launch.

Can our company be competitive?

After establishing that the offering can win, the team must determine whether or not the company's resources, management, and market insight are better than those of the competition. If not, it may be impossible to sustain advantage, no matter how good the product.

Do we have superior resources? The odds of success increase markedly when a company has or can get resources that both enhance customers' perception of the new product's value and surpass those of competitors. Superior engineering, service delivery, logistics, or brand equity can give a new product an edge by better meeting customers' expectations. The European no-frills airline easyJet, for example, has successfully expanded into cruises and car rentals by leveraging its ability to blend convenience, low cost, and market-appropriate branding to appeal to small-business people and other price-sensitive travelers.

If the company doesn't have superior resources, addressing the deficiency is often straightforward. When the U.S. market leader for high-efficiency lighting products wanted to expand into the local-government market, for example, it recognized two barriers: The company was unknown to the buyers, and it had no experience with the competitive bidding process they used. It overcame these problems by hiring people who were skilled at analyzing competitors, anticipating their likely bids, and writing proposals. Some of these people came from the competition, which put the company's rivals at a disadvantage.

Sometimes, though, deficiencies are more difficult to overcome, as is the case with brand equity. As part of its inquiry into resources, the project team must ask whether the company's brand provides—or denies—permission to enter the market. The 3M name gave a big boost to the privacy screen because it is strongly associated with high-quality, innovative office supplies—whereas the McDonald's name couldn't stretch to include pizza. Had the company's management asked whether its brand equity was both relevant and superior to that of the competition—such as Papa Gino's—the answer would have been equivocal at best.

The 3M name gave a big boost to the privacy screen, whereas the McDonald's name couldn't stretch to include pizza.

Do we have appropriate management? Here the team must examine whether the organization has direct or related experience with the market, whether its development-process skills are appropriate for the scale and complexity of the project, and whether the project both fits company culture and has a suitable champion. Success requires a passionate cheerleader who will energize the team, sell the vision to senior management, and overcome skepticism or adversity along the way. But because

enthusiasm can blind champions to potentially crippling faults and lead to a biased search for evidence that confirms a project's viability, their advocacy must be constructively challenged throughout the screening process.

Can we understand and respond to the market? Successful product development requires a mastery of market-research tools, an openness to customer insights, and the ability to share them with development-team members. Repeatedly seeking the feedback of potential customers to refine concepts, prototypes, and pricing ensures that products won't have to be recycled through the development process to fix deficiencies.

Most companies wait until after development to figure out how to price the new product—and then sometimes discover that customers won't pay. Procter & Gamble avoids this problem by including pricing research early in the development process. It also asks customers to actually buy products in development. Their answers to *whether* they would buy are not always reliable predictors of future purchasing behavior.

Is It Worth Doing?

Just because a project can pass the tests up to this point doesn't mean it is worth pursuing. The final stage of the screening provides a more rigorous analysis of financial and strategic value.

Will the product be profitable at an acceptable risk?

Few products launch unless top management is persuaded that the answer to *Are forecasted returns greater than costs?* is definitely yes. This requires projecting the timing and amount of capital outlays, marketing expenses, costs, and margins; applying time to breakeven, cash flow, net present value, and other standard financial-performance measures; and estimating the profitability and cash flow from both aggressive and cautious

launch plans. Financial projections should also include the cost of product extensions and enhancements needed to keep ahead of the competition.

Forecasts of financial returns from new products are notoriously unreliable. Project managers know they are competing with other worthy projects for scarce resources and don't want theirs to be at a disadvantage. So it is not surprising that project teams' financial reports usually meet upper management's financial-performance requirements. Given the susceptibility of financial forecasts to manipulation, overconfidence, and bias, executives should depend on rigorous answers to the prior questions in the screen for their conclusions about profitability.

Are the risks acceptable? A forecast's riskiness can be initially assessed with a standard sensitivity test: How will small changes in price, market share, and launch timing affect cash flows and breakeven points? A big change in financial results stemming from a small one in input assumptions indicates a high degree of risk. The financial analysis should consider opportunity costs: Committing resources to one project may hamper the development of others.

To understand risk at a deeper level, consider all the potential causes of product failure that have been unearthed by the R-W-W screen and devise ways to mitigate them—such as partnering with a company that has market or technology expertise your firm lacks.

Does launching the product make strategic sense?

Even when a market and a concept are real, the product and the company could win, and the project would be profitable, it may not make strategic sense to launch. To evaluate the strategic rationale for development, the project team should ask two more questions.

Does the product fit our overall growth strategy? In other words, will it enhance the company's capabilities by, for example, driving the expansion of manufacturing, logistics, or other functions? Will it have a positive or a negative impact on brand equity? Will it cannibalize or improve sales of the company's existing products? (If the former, is it better to cannibalize one's own products than to lose sales to competitors?) Will it enhance or harm relationships with stakeholders—dealers, distributors, regulators, and so forth? Does the project create opportunities for follow-on business or new markets that would not be possible otherwise? (Such an opportunity helped 3M decide to launch its privacy screen: The product had only a modest market on its own, but the launch opened up a much bigger market for antiglare filters.) These questions can serve as a starting point for what must be a thorough evaluation of the product's strategic fit. A discouraging answer to just one of them shouldn't kill a project outright, but if the overall results suggest that a project makes little strategic sense, the launch is probably ill-advised.

Will top management support it? It's certainly encouraging for a development team when management commits to the initial concept. But the ultimate success of a project is better assured if management signs on because the project's assumptions can withstand the rigorous challenges of the R-W-W screen.

1. Robert G. Cooper, "Your NPD Portfolio May Be Harmful to Your Business Health," *PDMA Visions*, April 2005.

2. W. Chan Kim and Renée Mauborgne, "Strategy, Value Innovation, and the Knowledge Economy," *Sloan Management Review*, Spring 1999.

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