

Living in an X-Problem World

This book started from a basic question: With so many companies focusing more intensely than ever on innovation, why are so few seeing the benefits?

According to one estimate, as many as 60 percent of new product development initiatives are canceled before they come to market, and of the 40 percent that do come to market, 40 percent fail to make a profit. In other words, only about a quarter of new product development efforts reap anything close to the desired rewards. Other estimates put the proportion even lower.¹

Given this track record, some are tempted to give up on the whole enterprise. A rising chorus in the business press declares that innovation has become discredited as a concept and it's time to find the next new trend.

But I strongly believe innovation will be as important as ever. Competition will continue to be based on meaningful differentiation—finding new ways of attracting customers and helping them get what they want done and live their lives the way they wish. Innovation is a key means of developing such differentiation. The trick is how to make it relevant.

Cranking Up the Innovation Engine

Innovation for its own sake isn't enough; it must be focused by clear priorities.

Some years back, I reviewed a lengthy request-for-proposal from a Global 100 corporation. It all boiled down to this: “We’ve run out of ideas, and we don’t know who our customers are anymore.” This self-assessment was startling for its frankness, but unfortunately too many companies have let themselves get into the same situation. The focus on cost-cutting, outsourcing, and eking out percentage efficiencies that started in the mid-eighties drew to a close at the turn of the millennium, and companies realized that they needed to reinvest in growing the top line.

Innovation emerged as the primary means to the growth goal. It was the inescapable topic in the press and at conferences, and companies eagerly cranked up their rusty innovation engines and started churning out goods guided by customer-centricity, competitive benchmarking, brand alignment, and market segmentation. But over time, innovation itself became the end rather than a means. We lost sight of the fact that an innovation engine is just a power source. It gets us moving, but it is up to the driver to steer it in the right direction.

Despite this recent intensive focus on innovation, over half of executives recently surveyed by *The Economist* were *still* concerned that they had too few innovation ideas in their pipelines.² Not a good sign.

Innovation Surplus

Some companies who have been cranking their innovation engines hard for a few years now have an *innovation surplus*. That is, they have more ideas than they can implement and take to market with available resources. I first ran into this phenomenon a few years ago when doing work with a wireless carrier in Europe, and gradually realized that the benefit of my outside perspective was not so much to help its people come up with new innovations as to filter, prioritize, and refine the ones they already had.

Brian Mathews, VP of Autodesk Labs at the large software company that makes products for architects, engineers, designers, and digital artists, says about his company’s own innovation surplus, “The last

thing we need is more ideas! The work is in transforming an idea into a form the market can accept.”³

Even master innovator Google has slowed the pace of new product introductions to refine the ones that it already has. Even if Google could develop them all, the market could not absorb them. Customers are already confused by the huge range of Google’s offerings (topping out at around fifty).⁴

To companies in an innovation drought, an innovation surplus may sound like heaven, but it presents its own challenges. Whether you have just a few ideas to invest in or more than you can handle, the challenge is to select the most relevant ideas. As Davila, Epstein, and Shelton write in *Making Innovation Work*, “Too many innovative ideas out there for companies to process clouds their judgment on which ideas are truly great. Clouded by the excess, the companies take on too much innovation and the wrong types of innovation, and waste their investments.”⁵

The Goal: Innovation Effectiveness

Innovation effectiveness should be your goal, not just innovation *quantity*. Effectiveness comes from selecting specific innovations to develop based on a clear understanding of what you want to achieve in your business and which opportunities you wish to pursue. Turning out lots of innovative ideas and products without a vision just saps precious resources.

Opportunities for companies come from recognizing and solving problems that no one else has identified. But opportunities themselves are getting harder to spot and more complex to understand and exploit.

Companies must increasingly look for niches, emergent trends, latent customer needs, and narrowing competitive gaps. Profiting from any of these requires expensive and difficult efforts to understand and develop products for them, create the marketing, sales, and support channels, and establish a brand presence. A new opportunity may be at odds with a company’s familiar market, with no guarantee that it will expand into mainstream markets and yield the large returns that large enterprises require.

As HP's experience illustrates, companies are increasingly expanding into each other's spaces in unexpected ways, customers are becoming more fickle and demanding, and integrated systems of products and services are superseding stand-alone offerings.

These complex problems cannot be solved by simply improving the products you already have and selling them to existing customers. You need to make a significant—even drastic—shift in what you make, whom you sell it to, the value proposition of the product, or how you help customers with their unmet needs. The question is, how do you figure out which of these, or which combination, is the best one for *you* to pursue?

What's Your Innovation Diagnosis?

How much is the dark matter of complex problems affecting your ability to innovate effectively? Since this is not always easy to perceive clearly, here is a little diagnostic questioning to see which of the typical symptoms apply:

- Can you say what the strategy of your company is in thirty words or fewer? Do you have a clear picture of the boundaries of your business? Can you say what your company stands for today?
- Can you say what central insights are driving innovation efforts and the future of your company?
- Does your organization's innovation portfolio include both long-term big bets and near-term small ones?
- Do you have a deep understanding of your customers and their needs, beyond market statistics and segmentation models? Do you spend much time with customers as they use your products?
- Do you have a clear idea of who your competitors are? Is it a stable set? Do you know which disruptive threats you should be keeping an eye on?
- Can you say what organizational capabilities you have that could be extended into new areas, or meet customers' needs in new ways?
- Are all the ways you interact with customers integrated together to provide the most benefits for you and for them?

If you answered “no” more than a couple of times, then just cranking up your innovation engine is likely to be a wasteful and ineffective exercise, creating lots of noise and heat but not much real movement. You need to get a better handle on the problem itself first.

Wicked Problems

In working with clients from a wide range of industries I began to see the same challenges of complexity, ambiguity, and risk coming up over and over. Some industries had more extreme variations than others, but the issues were not isolated to software, physical products, or services, or to consumer or business or industrial categories. What was universal, however, was that people had a great deal of concern about the challenges but lacked a clear way of talking about them and their implications for business.

After a while, an old concept came to mind: *wicked problems*. This class of problems, involving high levels of ambiguity, complexity, risk, and social discord, was first identified in the 1970s by two professors of urban planning, Horst Rittel and Melvin Webber. Rittel and Webber were struggling with challenges of urban development that brought up complex and interrelated issues of housing versus commercial development, class, economic and ethnic divisions, crime, poverty, transportation, and so on. Each of these is multidimensional and has many constituents with strong views about what makes good or bad solutions, and when brought together for large-scale planning they create a problem of gigantic complexity.

Very little has been written about wicked problems beyond academic journals, with only one recent book-length treatment of them (*Dialogue Mapping*, by Jeff Conklin).⁶ There has been a recent uptick in writing on the concept as others have also recognized its value.⁷ Nevertheless, if you ask almost anyone today about wicked problems you will get a blank stare.

When I started doing presentations to clients about how they were facing wicked problems, it would click immediately: they recognized

the applicability of the concept and were relieved finally to have a name that described their challenges. Wicked problems fall on the upper end of a scale of problem types:

- *Simple problems:* These are problems for which both the problem and solution are easily defined. If you have a leak under your sink, for example, chances are that two different plumbers will diagnose and fix it the same way.
- *Complex problems:* Here the problem is known but the solution is not. For example, the problem might be to design a new product for a price point 10 percent lower than the current model. That's a simple enough problem to state, but there could be dozens of ways to solve it.
- *Wicked problems:* The challenge here is that neither the problem nor the solution is known. How can you define a good solution when you cannot even state what the problem is? That is the conundrum of wicked problems.⁸

Rittel and Webber identified a variety of characteristics that define a wicked problem:

There is no definitive statement of the problem, and each solution reveals new aspects of the problem. The problem is an evolving set of interlocking issues and constraints that change over time and make the problem itself unstable. You cannot properly understand the problem until you have a solution.

Since there is no definitive problem, there is no definitive solution. The problem-solving process ends when you run out of time, money, energy, or some other resource, not when some perfect solution emerges. There is no absolute right or wrong answer. There are better or worse answers, but no way of telling ahead of time what the best approach is.

Each wicked problem is risky because it is unique, and it's hard to test or simulate solutions ahead of time. Some patterns from previous problems can be applied, but there is always a considerable learning curve. One has to place a bet on a solution to find out how it works. As Rittel observes, "One cannot build a freeway to see how it works"—that is, to see

whether its impact on traffic and population will be favorable. Conklin notes that this is the Catch-22 of wicked problems: you cannot learn about the problem without solutions, yet every solution is expensive to try and has unintended consequences that are likely to spawn new wicked problems.

There are many stakeholders with different perspectives on the problem and how to resolve it. This makes the problem-solving process fundamentally social. Getting the right answer is not as important as having stakeholders accept whatever solution emerges.⁹

Much of the writing about wicked problems has focused on group facilitation toward consensus on the problem definition and working toward mutually beneficial solutions. Given that wicked problems originated in the public planning and policy realm, this is a natural enough orientation. If you want to solve a problem such as urban crime or plan the route of a new freeway, then emphasizing group perspective sharing and collaboration toward a solution is exactly right.

It should come as no surprise that few people in a business context want to take on wicked problems. Think about it from a middle manager's point of view: how would you like to advance your career by tackling a high-risk, bet-the-farm challenge when no one can agree on what you're trying to accomplish, there's no way to tell when you've succeeded, and the only way to see if you're going in the right direction is to put products out into the market? Not exactly attractive!

But I realized after a time that the definition and characteristics of a wicked problem are not perfectly suited to the challenges that businesses face today—they are both incomplete and overly vague. In the hunt for a better framework I coined the term *X-problems*.

X-Problems

X-problems incorporate all the characteristics of wicked problems but shade them differently, sharpen the focus from the generic wicked problem definition, and add some new elements.

Why call them *X-problems*? The letter X is evocative of many things that apply to these types of problems:

X is extreme: X-problems are extreme in risk and complexity.

X is mysterious: Every X-problem revolves around questions that have never been asked before, or challenges that are unprecedented.

X is a crossroads: A crossroads is a place where things converge together—and diverge outward. At a crossroads one must make a choice among paths, each of which could entail risk or opportunity.

X means opportunity: X marks the spot for treasure—the winnings that come from finding the problem and capitalizing on it before others can.

Several factors differentiate X-problems from wicked problems:

- The presence of competition, and competitors that are getting better and more diverse.
- The need to satisfy more demanding customers and provide superior customer experiences.
- The need to integrate products of diverse types and origins into comprehensive, coherent systems for customers.
- Clarity about the problem emerges slowly, as with wicked problems, but iterative approaches to solving them are necessary, in contrast to the one-shot deal of wicked problems.

The following sections take up each of these in more depth.

More and Better Competition

The major element missing from the traditional definition of wicked problems is competition. This is not surprising, given that wicked problems have their roots in social policy. Certainly, wicked problems address the issue of competition of stakeholders, but primarily stakeholders who have a common interest and will *mutually benefit* from the solution. In a competitive business context, the company that identifies and addresses

a problem first stands to gain *at the expense* of the others. In a world where opportunities are getting harder to identify and develop, being first can be very valuable.

(Note that X-problems still may require alignment-building *within* an individual organization, just as wicked problems do. See Chapter Eight for more on these internal issues of X-problems.)

But here we have our dilemma: competition pushes us to move quickly to solve the problem, yet the problem resists rapid definition. Like wicked problems, X-problems cannot be cleanly defined early on because they are too complex and fuzzy. So while every instinct is to decide quickly and act decisively, we must be circumspect, cautious, a little humble about the things we may not know.

Who Are We Competing Against, Anyway?

A recent comparison test in *Car and Driver* magazine pitted Land Rover against two brands that, a few years before, it would not have considered competitors: Acura and BMW. Who at Land Rover, the vaunted maker of continent-crossing off-road vehicles, would have dreamed it would be getting cross-shopped by customers against a Japanese luxury sedan brand and a maker of cars designed for hurtling down Germany's Autobahns?

As described earlier, HP embarked on aggressive expansion over the last ten years, seeking out interlocking areas of business that ideally provide mutual benefits. At times it has expanded the bubble too far and had to pull back (it abandoned its forays into TVs, digital cameras, and rebranded Apple iPods, for example). Nevertheless, the boundaries and focus of HP's business today are hard to sum up in a single sentence. As a result of its expansions, it now fights a multi-front war in many categories against behemoths and niche players alike.

These are but two examples of how once-clear-cut categories of products, customers, and businesses are blurring together. Indeed, the notion of well-defined industries is being antiquated by companies like HP seeking out adjacent areas to grow their markets and satisfy their customers. Gary Hamel argues for the use of the word *domain*

rather than industry, as this allows a broader view of a company's wealth-creation possibilities.¹⁰

A domain is defined by:

- An organizational toolbox of capabilities and know-how, intellectual property, experience, and brand equity.
- A set of products (physical, software, or services) and any ecosystem that surrounds them. Together with the toolbox, these determine the company's place in a value chain.
- Companies that create complementary products.
- Needs to be satisfied for customers (construed broadly).

It is tempting to see your domain as bounded by direct competitors. But as Land Rover discovered, that can result in some surprises. It is better to take a wider view of competitors based on who else has capabilities similar to yours, and who is meeting similar needs for customers, even if they are in a traditionally different market. These companies should be considered potential competitors and your definition of your domain expanded to include them. Yet this opens up opportunities for you; this is much the approach that HP has been taking in expanding its range of offerings.

You also want to be careful of overly defining yourself by customer segments. While these are useful from a marketing point of view once a product is launched, if they always serve as the starting point for new product definition, then you could be limiting yourself. Better to think in terms of customer needs, and see how needs (and their related behaviors and attitudes) may translate to other customer types as well.

Domain shifts set off a domino effect of unexpected competition for others, who in turn must explore new areas. As market boundaries blur, companies are forced to adapt rapidly to turbulent shifts that challenge their core business and their overall mission, as they come up to speed on new domains and learn what being "innovative" means in each them. As Grant McCracken wryly observes, while we might be encouraged to set off for dreamy blue oceans of uncontested markets, the real challenges are the great masses of water coming at *us*.¹¹

A company that is highly effective at innovation in one category will carry those skills over when it expands into new categories. If it is coming from a domain with a higher level of innovation, then it will disrupt the established equilibrium. Just ask any one of the hundreds of businesses that never dreamed they would be competing against “search engine” company Google.

You can no longer be comfortable with a circumscribed competitive set. As the question of who you are competing against gets blurrier, so does the question of what business you are in, and therefore exactly what products you should be rushing to market. If you don’t know what your target is or who you might ultimately be competing against, should you be moving to market so quickly?

The ability of companies to innovate has become more widespread. Even if you think your company is on the cutting edge, chances are your competitors are closing the gap more rapidly than you may believe.

Steven Jay Gould, the late evolutionary biologist, had a strong interest in how complex systems change over time as different species compete with one another. He was also a rabid baseball fan, and he examined the history of the sport as an analogy to how natural systems evolve and improve. One question he puzzled over was why we don’t see batting averages above 0.400 anymore. Through statistical analysis, he ruled out external factors such as rule changes, improvements in equipment, and alterations in league play and season structure. He also ruled out the idea that batters got worse over time (just the opposite—they are better). So what is the cause of the drop in overall batting averages?

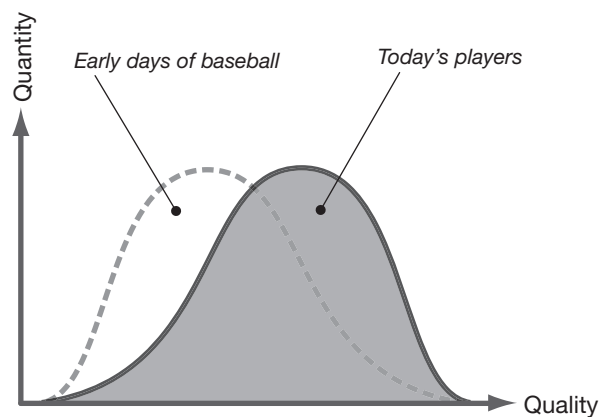
He concluded that there has been an overall improvement in play that has narrowed the gap between the very best and the average players. Back in the early days of baseball, the naturally gifted players who could “hit ’em where they ain’t” (as Wee Willie Keeler put it while accruing a 0.432 average in 1897) were inherently advantaged over less skilled players. If one were to plot the players on a bell curve, as Gould did, the bell would reflect the fact that there are a small number of very good players, and a larger number of worse ones, shifting the average to the left.

Today that bell curve has shifted dramatically to the right as the overall quality of league players has improved, pushing up against the limits of the human body's mechanical capabilities.

The reason for this, as Gould explained, is illustrated in Figure 1.1. He wrote, "Slowly, by long distillation of experience, players moved toward optimal methods of positioning, fielding, pitching, and batting—and variation inevitably declined." In other words, the gap between the average and the best got smaller, and the gap between the worst and the average also reduced. Everyone got better, and the best are now barely better than the rest.

Gould argued that such a progression over time is a generalized property of complex systems. "I have formulated the argument parochially in the terms and personnel of baseball. But I feel confident that I am describing a general property of systems composed of individual units competing with one another under stable rules and for prizes of victory.... As the system nears [its] narrow pinnacle, variation must decrease—for only the very best can now enter, while their predecessors have slowly, by trial and error, discovered better procedures that now cannot be substantially improved. When someone discovers a truly superior way, everyone else copies and variation diminishes."¹²

FIGURE 1.1 Performance Bell Curve.



I see much the same situation in business. It used to be that companies that were “naturally gifted” at innovation, like a natural athlete, had a leg up on their competition. They could outmaneuver their competition due to their innate abilities, which came about not through a combination of chromosomes but happenstance of attitudes, skills, choices, and experiences of the founders. In the early days of a new category, this advantage can hold for a limited time.

But the superiority of innovation-gifted companies forces the competition to work harder, to learn better how to compensate for their relative lack of natural abilities. Gradually the overall level of innovative skill in a given market rises, pulled along by the natural talents of some and pushed by the hard work of others. Articles and books are written (I’m doing my bit here to level the playing field), conferences are held, competing products inspected, employees exchanged, best practices exposed, supply chains shared, and knowledge circulated.

Today, not every company is as good at innovation as it wants or needs to be, but the overall level of innovation has risen so that previously lackluster companies have narrowed the gap with naturally innovative companies. It is now harder to stand out and rely on innovation alone as a calling card to customers.

More Demanding Customers

The second difference between wicked problems and X-problems has to do with customers becoming more demanding.

I remember my grandfather shopping for a new car some thirty years ago. He and my grandmother had a farm in Lincolnshire, in the middle of England, and the local Renault dealer had sent a rep out to show him a new model, an exotic feature of which was its electric windows. Magical! No more tedious winding of handles as you paused to chat with a neighbor on a narrow country road or needed to yell at some meandering sheep to get out of the way.

Today, of course, electric windows are standard equipment on even the most inexpensive of models. As cars improved over the years they

altered expectations. In turn, cars have been influenced by customers' upward-ratcheting demands about comfort, speed, and capability.

A study of global CEOs conducted by IBM revealed that executives see increasingly demanding customers as one of the top five trends. Customers are more informed, and they are more eager to collaborate with companies on shaping the products that they will buy, use, and live with. But most of these CEOs see this as an opportunity for better engagement rather than a threat to be feared. As one cited in the report stated, "The more informed our customers are and the higher their expectations, the better we will be positioned to demonstrate our differentiation."¹³

These differentiation and expectation trends often translate into increased demand for the aesthetic qualities of using a product, not just its raw functionality. As Daniel Pink has put it, "For businesses, it's no longer enough to create a product that's reasonably priced and adequately functional. It must also be beautiful, unique and meaningful."¹⁴

Crafting Better Customer Experiences

The term *customer experience* refers to the qualitative experience of using a product: how easy it is to use, the emotions that are evoked by it both during and after use, the self-image that the customers feel they are projecting, and of course how well the product satisfies their needs and desires. The customer experience should be considered holistic, covering all stages from purchasing the product and setting it up to ongoing use and eventually perhaps upgrading, replacing or renewing, or disposal and perhaps recycling. Customer experience is not something that applies only to services or to Web sites; it is a universal consideration.

Customers are increasingly treating ease- and joy-of-use as important purchase criteria, on a par with price and feature lists. In other words, *how* a product does its job is now as important as *what* it does. (Returning to Gould's baseball analysis: over time the capability and price of products in a category normalize, so "soft" factors like customer experience increase in importance.)

Look at how BMW's MINI division has created a big impact with its small cars (Figure 1.2). The MINI customer experience is worlds apart from the typical car-buying and ownership experience. The dealerships are bright and airy, with friendly, helpful, and non-pushy staff. There is a play area for children (complete with models of MINIs, of course). The dealership signage, the brochures, even the Web site and billboards have a consistently designed look, all reinforcing the car's pugnacious personality. Each MINI can be customized to the customer's taste—no preformulated options packages. Once an owner, you feel part of a club, complete with in-person get-togethers and numerous online forums. MINI sells a line of accessories that are not the usual brand-slapped third-party products but are truly in keeping with the brand's "Let's Motor" image: driving shoes and gloves, or a logo-emblazoned handbag that would fit right in at a hip nightclub. This is state-of-the-art customer experience that covers all stages from trying the car out and buying it to owning and living with it.

By taking a holistic view of the experience of using your products, you can often uncover unmet and latent needs that may have slipped through the cracks of a more functionality-oriented perspective. Customer experience is fertile ground for sustained competitive advantage if you can offer clear differentiation that is hard to replicate, attracting

FIGURE 1.2 MINI.



new customers or making the product accessible to previously uninterested people, and building customer loyalty by consistently addressing previously unrealized needs and wants.¹⁵

In my experience, engineering-focused companies, which are generally staffed by left-brain thinkers who are analytical and quantitative, give short shrift to the softer qualitative aspects of customer experience. But in an X-problem world of heightened competition and customer expectations, this is the kiss of death. Indeed, it is often these companies that find themselves beset by unexpected competitors who woo away their customers by satisfying needs that the engineering-focused organizations had not even recognized. In the 1990s I worked with Oral-B, which prides itself on using rigorous research to design its toothbrushes. It was losing market share to Crest and Colgate, who were up to that point mostly toothpaste brands. Oral-B's brushes were state-of-the-art from cleaning efficacy and materials technology perspectives, but Crest and Colgate were winning over customers by putting more emphasis on fun brush shapes and disposable electric brushes, factors that were not on Oral-B's radar at the time. People had begun expecting more than technical qualities from their toothbrushes—they wanted a touch of joy as they woke up or retired for the night.

Customer Expectations Are Resetting

Companies often focus too narrowly on their own industry and ignore how customers' expectations may be getting reset by seemingly unrelated categories. Customers no longer judge based solely on comparison with direct competitors; they use standards set elsewhere: my satisfaction with a new dishwasher may be blunted by comparison to the ease of use of my iPod, for example. This is not limited to consumer products, either. A recent trend has been for workers in large corporations to use Web 2.0 services intended for consumers and small businesses, such as sites for online collaboration and file sharing. Why? Because the ease of using and setting up these low-end services makes it easier (and more pleasant) to get their jobs done than the industrial-grade systems their companies provide. For all the sophistication of the products from the

large software vendors like Oracle and SAP, their offerings are getting judged by end users with the same criteria they'd use for ordering photos online or getting a driving map.

Furthermore, thanks to the Web, customers have an unprecedented ability to see over the horizon of ownership and find out what living with a product will be like. We used to have to rely on our intuition from seeing the product briefly in the store, trusting the salesperson's shtick, or, if we were lucky, reading a magazine review. We relied a lot on tips from friends in the absence of other sources that were unbiased and in-depth. The Web has created a global forum for individuals to rave or complain about products. Anyone can become an industry-shaper. In 1998, Englishman Phil Askey posted a Web page with some thoughts on his recent digital camera purchase; ten years later, this had blossomed into dpreview.com (Digital Photography Review), the premier site for detailed camera reviews. Askey now wields about as much power as anyone in the world to make or break a new camera introduced by a multibillion-dollar corporation like Canon or Sony.

When a company brings out a solid product, this works in its favor. But when it gets it wrong, the reaction can be quick and devastating. The consumer electronics and software categories especially are littered with initially promising but flawed products that were killed off by Web-enabled word of mouth.

The bar for customer expectations is high, maybe higher than you think, and is only getting higher. If you want to bring an innovation to market it has to clear that bar (or find ways to dodge it).

Systems, Not Products

In many businesses, the blurring of boundaries is being accelerated by a shift from shipping stand-alone products to creating holistic experiences for customers. HP's expansion—to cover a broader range of computing and digital entertainment experiences—is an example. The system creates value and benefits in a way that stand-alone products cannot.

For a time the Apple iPod was the product that everyone wanted to emulate. At frog design, we regularly had clients coming to us saying,

“We want the iPod of [fill in the blank for their industry].” But their thinking was often stuck in a product-centric view of the world, focused on the most tangible piece of the system to the exclusion of the vital, but less tangible, other elements. The iPod succeeded by being a systems solution, not a hardware solution, to the problem of digital music. Apple repeated the trick with the iPhone a few years later, creating an integrated system of hardware, software, Web experience, and external application developers that brought high-end smartphones out of a business niche and into the consumer mainstream.

What often goes unrecognized is that *every* product is part of a system. Integrated digital systems such as HP’s and Apple’s are the obvious examples, but there is another type of system that lives alongside: the diverse set of customer “touchpoints” that include Web, advertising, customer service, collateral, brand, and the product itself. Optimizing how they work together is crucial to superior customer experiences. Companies stand out if they successfully innovate on the quality and seamlessness of these touchpoint systems in ways that address customers’ needs, as MINI demonstrates.

It is harder than ever to succeed with a product by itself. Developing complex integrated systems is the new order, and it forces pieces of a company to come together and collaborate in ways that organizational silos had not previously required or even allowed. In the past, the Web team would hardly need to talk with product development teams until the time of product launch, and hardware, software, and service development were often carried out largely independently. Today, these all need to be tightly integrated and developed in parallel.

It also often means that a company must reach out to partners and vendors to collaborate more closely in order to create a system that does not feel to the customer like a bundle of incongruous elements. The IBM CEO study cited earlier also revealed that the top-performing companies collaborate more than their underperforming competitors, working with partners and customers alike to inspire innovation.¹⁶

X-problems are systemic in nature, and you need an integrated team—both inside your organization and with outside partners—to

solve them and to deliver the systemic solutions. Going it alone or thinking too narrowly is unlikely to be successful.

Emergent Clarity

As with wicked problems, the definition of an X-problem emerges slowly over time in waves. Paradoxically, you have to start making solutions—prototypes, products, campaigns, acquisitions, new channels—in order to further your understanding of the problem. The familiar and comfortable waterfall model of research-analyze-decide-act does not work well here.

Why is this?

It's easiest to explain with a basic example: the introduction of the Sony Walkman in 1979. This represented a truly new product category, and Sony grappled with anticipating how people would want to listen to music while on the move, something they had never been able to do before. Transistor radios had afforded some of the same freedom, but that blue and silver Walkman represented the first time that music could be truly personal. Headphones and cassette tapes meant the songs and the sound were yours alone.

It seems strange now, but early Walkmans included two headphone jacks. Though Sony had the insight about personal music, they felt that the impetus to share would still be strong. Over time they realized that people did not use the device for sharing, and eventually the second jack disappeared. Given the novelty of the Walkman, it would have been hard to accurately test for this behavior ahead of time, and only by putting solutions out on the market was Sony able to home in on the true boundaries of the problem.

Caught between the push of competition to move quickly and the resistive tug of emergence to be more measured, we can think of “time-to-right” as being the countervailing force for time-to-market. Sometimes it is better to have the *right* product out, rather than just the first.

Apple was far from the first manufacturer of mp3 players, the heirs to the Walkman of two decades earlier. In fact it was rather late to

the game, and many other manufacturers, from small start-ups to large consumer electronics and computer companies, were pioneering the market. But Apple came out with the *right* thing, the iPod, the thing that cracked the X-problem of digital music by taking a systems approach rather than treating the player as an isolated product.

Apple benefited from not being first. By seeing how the usage model was shaping up based on other players, it was able to use that perspective to its advantage. Unlike Sony, Apple did not have to take as many educated guesses, and could base its understanding of the problem on the issues revealed by the solutions of others.

Managing the tension between time-to-market and time-to-right is one of the keys to dealing successfully with X-problems and matching innovations effectively to business goals.



Like dark matter, X-problems are pervasive but difficult to perceive and understand directly, and are more likely to be spotted by their symptoms. Are unexpected competitors disrupting your business? Are you having a hard time defining the boundaries and focus of your business? Are competitors addressing unmet customer needs you didn't even know about? Are you feeling pressure to fast-track innovation and product development efforts based on very partial information with which to prioritize them? Are you struggling to wrangle internal and external stakeholders so that they deliver a coherent solution? If so, you are facing an X-problem.

The next chapter takes up ways to deal with it.