naked**innovation**

uncovering a shared approach for creating value

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This is a PDF version of *Naked Innovation: Uncovering a Shared Approach for Creating Value*, revision 0.9.1. It's a public beta, so you should expect to find things that need improving. With your help, the forthcoming second edition of the book will be even better. Permission is granted to download and share this file for the purposes of review and collaborative critique. Any redistribution must credit the authors and NakedInnovation.com.

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FOREWORD

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Dean, Rotman School of Management
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Intensifying competition has shortened life cycles and sped commoditization of the products and services companies deliver. As the window of advantage that companies can create to monetize a new product or service shrinks, exploration and innovation are becoming ever more important. If the twentieth century was the century of efficiently producing "stuff," I see the twenty-first century as that of producing "delight." To be successful in this brave new world, companies and managers are going to have to think a bit differently.

In fact, I think we're at the start of a design revolution in which a lot of companies learn to think like designers throughout their organization as they produce complete experiences with products and services for their customers. At Rotman School of Management, where I serve as Dean, we have introduced courses in Business Design to help train the next generation of managers to think and act more like designers—but we are not the only institution thinking in these terms. From the design perspective, the IIT Institute of Design in Chicago trains designers in the social sciences and business management. Although coming from two different perspectives, it is clear our schools think very much alike. We are especially alike in

one way—it is very difficult to communicate this new Integrative Thinking approach to a general audience because it flies in the face of the past century of producing "stuff" dominated by specialization and optimization.

This brings me to the book you are now holding, *Naked Innovation*. Some time ago, a Masters student at the Institute of Design interviewed me in a discussion of many of these same issues. Two years later, he and a colleague from the Institute have produced this work which attempts to tie together new ways to think about and act on an innovation challenge you or your company may be facing. It is a little work with big aspirations—an integration of a seemingly disparate suite of approaches and methods from different disciplines. It is one of the first of what I have hope will be other works on a practice and language of innovation that no one discipline owns but many can share.

A shared practice addresses one of the key issues in business today: a divide in what managers and engineers strive for versus what designers do—reliability versus validity respectively. Difference of perspective is what makes interdisciplinary teams exceptionally powerful, but a lack of common language and purpose can make them equally destructive. *Naked Innovation* provides a common context and language we can use on our teams to make discussions and work on our projects more valuable to our customers and to the organizations for which we work. In due course, this is something that all companies and individuals within them will have to do well to succeed.

I applaud Zachary and David for this terrific contribution to the integration of design and management and am convinced that you will find it an enjoyable and rewarding read.

Preface

This book is about innovation—how to create value for people through new or improved services and products. Innovation not only results in happier customers, but more profitable businesses as well. And since it can be a lot of fun to create something new and distinctive, the people doing the innovating (that's you) can benefit as well.

Innovation is not a zero-sum game—the more people creating new value, the better all of our lives will be. The surprising truth is that it doesn't take someone of unusual genius or creativity to develop innovations. Everybody innovates in small ways all the time, and teams of perfectly ordinary people often come up with astounding new concepts. Yet Innovation as a business strategy (the capital "I" version) is getting a lot of press lately, and sometimes it looks awfully complicated. We wrote this book to help unveil some of the mysteries of the innovation process—stripping it down until it's *Nakied Innovation*. We believe a more structured practice of innovation can be shared by many disciplines without necessarily being owned by one in particular. Thus, our subtitle: a shared approach for creating value. Once you see the underlying theory and how it ties

together to specific methods to create innovation, you'll become even more effective at doing it yourself.

As much as we, your authors, like to think of ourselves as innovators, we are also the products of innovation processes going on all around us. We are products of the United States; products of the University of Chicago and Yale, respectively; products of early careers at the emerging crossroads of business, technology, and culture. Recently, we are both products of the IIT Institute of Design, which has focused on developing repeatable innovation methods.

Because we are products ourselves, few of the ideas in this book are entirely our own. Most of them were created by individuals smarter and more experienced than are we, including Doblin's Larry Keeley, Gravity Tank's Chris Conley, and the IIT Institute of Design's Patrick Whitney, Vijay Kumar, and Jeremy Alexis, among others. If you are lucky, you may have had the pleasure of knowing these brilliant minds, and their fresh views on the emerging practice of innovation, design, and the creation of distinctive value.

That is not to say this work simply copies others' thoughts, or formally represents the approach of the IIT Institute of Design. Nor does it present the One True Way to do innovation successfully. *Naked Innovation* is our take on thought about creating new offerings, tempered by three decades of experience we've had actually doing it. We offer a high level structure for both *thinking about* and *doing* innovation, presenting some new (or at least, newly brought-together) theory and practice we think many disciplines can benefit from knowing. *Naked Innovation* can be a guidebook to a journey in creating distinct value for your customers and organizations. It is meant to be an easy read and relevant to a broad range of business, technology, and design professionals. We'll do our best to not waste your time.

We will move quickly over many topics and provide references for you to explore your particular interests at your own pace.

We would both like to thank our parents Jean & Connie, Laurie & Marian. Special thanks goes to our many colleagues at the Institute of Design who helped us refine our own point of view. We salute you! Waewwan Sitthisathainchai executed a fine series of illustrations far better than our original whiteboard scribbles, and Jordan Fischer's deft photos made us look good. In addition, our early readers gave exceptional feedback that definitely shaped our work. Specifically, thank you David Dunne, Jens Jorgensen, Wyatt Mitchell, Paul Alexander, Lucas Daniel, Jason Ring, and Greg Kriefall. Finally, we could not have completed this work if not for the support and consultation of our professor Jeremy Alexis, a great innovator, and a better friend.

Zachary Jean Paradis
David McGaw
Chicago, Illinois | May 2007

A Note on the Third Reprinting

We are happy to learn that *Naked Innovation* has been a useful part of the innovation discussion in places like DesignWorks at the Rotman School of Business, the Minnesota School for Public Health, the government of New Zealand, and in a number of *Fortune* 1000 companies. And while the book hasn't yet been "officially" published, due to a variety of professional constraints and the press of current innovation projects, we're taking advantage of new online print-on-demand services (a great innovation itself) to increase access. For this version, we've done a quick editorial pass to the most egregious errors. We know there's still some issues (and a few dated sections in the text), but we are planning a complete rewrite—and eventually, hope to see it in bookstores everywhere. Thanks for your support!

TARO TAYLOR/FLICKR

Introduction

For thousands of years, life in the ancient world went on the same tedious way day after day: hunt and/or gather; eat; sleep; repeat. Then somebody discovered how to plant and harvest grain, and the first agricultural revolution was born. It led to more reliable food supplies, and all sorts of good things like the formation of villages, the development of social and political structures, and beer. Fast forward a few millennia, and you have iron plows taming the West; another century and you have mechanical tractors, and then chemical fertilizer, scientific farming, hydroponics, genetically altered seed stocks, and the next thing you know, you're nibbling on a gourmet pretzel, made with bioengineered wheat, walking down the street in the most prosperous and agriculturally rich country the world has ever seen.

It's all thanks to our friend Innovation.

Innovation has made life better, no question about it. It's also happening faster and faster—to the point that anybody who *isn't* being innovative quickly feels left out. Sometimes the innovations are new in dramatic ways, and put other people out of business—not a lot of call for blacksmiths these days,

since the tractor replaced the horse and ox for pulling a plow. More often, there are simpler, smaller innovations which add to something that already exists—like the way user reviews on Amazon.com augment objective product information. Or, they can be a new variety of something, like apple-tinis. Even something small can be an innovation if it adds value. Of course, it's questionable whether an apple-tini actually *does* provide additional value—plain-old gin & vermouth was good enough for Dean Martin. But when a brilliant innovation comes along, whether disruptive (brand new technology or business model) or incremental (new feature or variety), we wonder how we ever lived without it.

The accelerated pace of innovation today leads to more choices. Sometimes, too many—have you seen how many apple-tini, choco-tini, margarita-tini variations there are on cocktail menus? The marketplace usually helps decide which innovations are useful, and provide value, and which fade away, lucky to be remembered in pop-culture trivia games. Starbucks launched a new beverage a few years ago: Chantico "drinking chocolate." It lasted barely a month—just long enough for customers to try and then reject the thick, syrupy concoction. However much money had been spent developing and launching Chantico, it was all written off as the drink vanished from the menu board. Most of us are probably OK with that, and didn't even notice it came and went—others' failed innovation attempts aren't our problem.

But what if you're the person who has to come up with the next new Starbucks beverage? You not only have Starbucks executives and shareholders breathing down your neck, but a nation of easily bored, distractable consumers who might just as easily go to another coffee shop across the street. And it's not merely big companies like Starbucks that have innovation challenges. A 50-person auto parts factory has to

find a faster, cheaper way to deliver spark plugs on time, to keep its contract. Teachers are under pressure to create more relevant lessons to help students succeed, and fundraisers for a local charity need new ways to find donors to support their cause. If *you* don't innovate, somebody else will. The problem is, we're all under a similar pressure, as if a giant finger were pointed at us, exhorting us to *BE MORE INNOVATIVE!* And you can understand why, because today:

There is only one constant: *change*.

As Ferris Bueller said, "Life moves pretty fast—if you blink, you could miss it." No wonder Innovation is the new black. If you want to compete, you need to innovate, or languish forever in mediocrity—and that's if you can avoid going out of business entirely. But *how* to innovate is a tougher question.

Innovation methods aren't yet as widely known or as successfully implemented as a lot of other fundamental business activities. How-to books for innovation are just now beginning to emerge, whereas everybody knows about how assembly lines make production more efficient. As an emerging concept, innovation seems a bit murky—a black art, practiced by hip geniuses that wave their wands and produce, as if by magic, a Tivo! A stuffed-crust pizza! Zipcar hourly car rentals! Ta daa!

Innovations seem magical partly because we only see the final, successful product or service, not the hundreds of discarded initial ideas and interim prototypes. The much messier inside process of innovation is opaque to us, and fosters the growth of myths about innovation:

Innovation Myths

To Be An Innovator...

1. You have to be a genius* *(like Bill Gates)*
2. You have to be a charismatic, inspiring leader *(like Steve Jobs)*
3. You have to have a lot of resources *(like General Electric)*
4. You have to be lucky *(like Post-It™ inventor Ray Fry)*
5. You have to have a special job title *(such as Chief Innovation Officer, or Imagineer)*
6. Your innovation has to be secret and proprietary *(like the Stealth Fighter and its "skunkworks")*
7. You have to be in a new field to innovate *(like biotech)*

In fact, if you dig deeper, you'll find that the examples we've provided are only partly explained by each Innovation Myth.

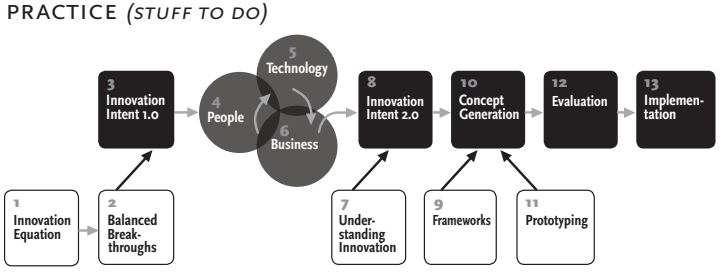
*OK—we'll admit that while you don't have to be a genius, you do have to be smart. But smart in a way that anyone can be, armed with the right tools.

Our book is called *Naked Innovation* partly because we thought it sounded cool, but mostly because we're going to peel back the covers a bit and show you that innovation doesn't have to be mysterious. Don't get us wrong—it's not easy, but at the same time, it doesn't have to be painful, and it's often a lot of fun.

Naked Innovation, as we see it, is neither a complex formula just for engineers in the New Product Development division, nor a buzzword-driven paradigm especially for ponytailed creatives. Rather, it is a flexible structure that can help all kinds of

people in an organization come together to create value. This book is for everyone from designers to engineers, and from CEOs to salespeople, in the hope of developing shared vocabulary, mindset, and goals for innovation. You can use our approach by yourself, though it works better with interdisciplinary teams. You can apply it to a well-funded corporate venture, or a weekend home-improvement project.

Here's how we've organized the book:



Chapters that discuss Big Ideas about innovation lead to more practical applications of those theories through some innovation methods. By knowing the "whys" you'll be better equipped to customize the "hows" to your own needs. We've also marked important concepts in ***bold italics*** so you can spot them more easily.

We want you to create extraordinary value for your customers in whatever way works for you—the perspective we offer isn't meant as the last word on innovation by any means. Adapt and improve as necessary. Let us know what you come up with, too, so we can revise the book. We've followed our own advice even in writing it: getting user input, prototyping, and revising. What you hold in your hands is merely

the latest iteration of an ongoing cycle of prototyping and innovation.

Whoops—that sound you just heard was another new innovation coming to market. Let's catch up by looking at the critical elements that come together to form the Innovation Equation.

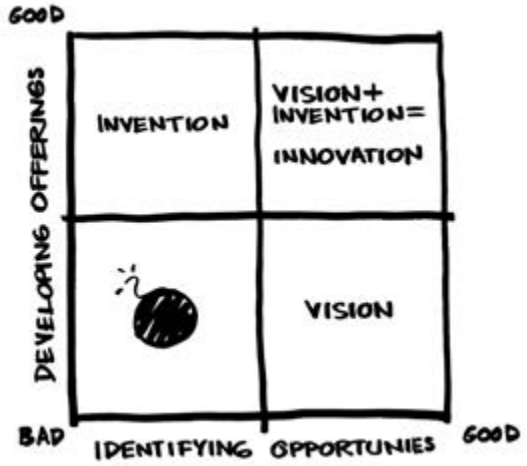
WAHLERB/SXC.HU

1 The Innovation Equation

What Organizations Do

Innovation can be hard work. But it isn't rocket science either (more on what that is later). It is a core activity for every organization and the collective result of many individuals' hard work. The father of management, Peter Drucker, said businesses have two purposes—identifying opportunities and developing offerings. Through these ongoing and complementary activities, organizations add value to customers' lives which is then returned. Value for customers means making their lives better by saving them time, lowering their costs, transforming their lives, or elevating their status. Customers return these benefits through payment, brand loyalty, and ultimately, long-term shareholder value. This process of creation and exchange of value with consumers, is what makes a market-based economy and society function. Value is the fuel on which we run, so we better be damn good at creating it. We'll assume Drucker was correct and start there. Firms are vehicles for delivering value. How do we as individuals contribute to identifying opportunities, developing offerings, and creating value?

Let's consider how identifying opportunities and developing offerings come together to produce value. It takes a great deal



THE INNOVATION EQUATION

of understanding, creativity, and dedication to successfully execute disruptive innovations like the original McDonald's Happy Meal or the Apple iPod. Offerings get released every day that may be technically inventive yet no one wants to pay for them. Similarly, we are regularly confronted with less than inventive products like New Coke, pushed with heavy marketing.

Chris Conley, co-founder of gravitytank, a Chicago-based innovation consultancy, has pushed Drucker's thinking and established a compelling model for understanding the activities organizations do and how they add up to success or failure. We call this model the ***Innovation Equation***:

Vision + Invention = Innovation

Consider the position map above, which shows the combinations of success and failure at each activity. Some level of success

could be achieved anywhere on the map, but let's explore an illustrative example for each.

Bad Vision, Bad Invention

Identifying opportunities poorly often leads to developing offerings poorly. This is not a recipe for success in the market. Take for example, the much-maligned :CueCat. Launched in the late 1990s by a RadioShack vendor, it was intended to connect consumers with advertisers through an inexpensive scanner and special bar codes in magazines. It was an abysmal failure—who reads a magazine sitting in front of a computer? And if you were sitting in front of a computer, why wouldn't you just visit the advertisers' website without a bar code? It was a device that solved no problem and fulfilled no compelling need. If the opportunity was suspect, :CueCat's design, development, and launch didn't make it better. Was it a good idea to design the product to look like a cat (to complement your computer "mouse", of course)? Those clever :CueCat people also thought it would be brilliant to ship hundreds of thousands of them for free to subscribers of magazines like *Wired*, at a cost of more than $1 million. :CueCat

:CueCat, the Unintended Innovation?

Although considered a failure for the company that created it, :CueCat was still a product based in some innovative ideas and technology. Barcode scanners are relatively expensive to purchase even to this day yet somehow hundreds of thousands were given away. At the time of its release, hacker culture quickly bypassed its weak protection schemes and wrote a slew of free applications useful for cataloging books, CDs, DVDs, and other media. There was some value in their work but :CueCat's creators were never able to monetize it.

attracted few users and no profit. You get the point. We want to avoid this.

Vision

Identifying opportunities is a big deal as evidenced by the $2 billion spent each year on market research. But, quality market research doesn't necessarily guarantee success. The Pontiac Aztek is a prime example. At the time of its launch in late 2001, highways were dominated by off-road vehicles with poor gas mileage, rough rides (especially on pavement where they were most often driven), and they rolled over with far too much regularity. General Motors correctly identified that consumers would pay for a vehicle that offered the benefits of a car combined with those of a traditional SUV. Unfortunately, they squandered this opportunity with an offering that could generously be described as awkward. The aesthetics of the Aztek were ridiculed and sales were less than half of the 75,000 GM projected for its first year of release. Just 27,322 were sold and half of those were to rental car companies and company employees. The car was discontinued within a few years. Fantastic opportunity idenfication and vision building can be easily undermined by poor design and development.

Invention

Now let's consider the Segway PT (personal transporter), codenamed "Ginger" at the time. Revealed in December of 2001 by noted inventor Dean Kamen, Segway is a marvel of development and technology. With a footprint not much larger than a human, Segway was carefully designed as the solution for individual transportation between home and office, for getting around a city center, shopping, and other outdoor trips. Its release was met with much fanfare, expert interest, and public curiosity. There was only one problem. No one was willing to actually buy one. Segway was a failure in identifying a viable opportunity. At nearly $5,000, it was too expensive to attract

enough buyers to make the product profitable. With its launch came a wave of Segway bans in cities across the United States and those riding them were quickly derided as "dorky" *(insert picture of Segway geek here)*. The real basic need of personal

The Revolutions of Business: A Story of Optimization

To understand why innovation is "the new black" requires one to walk the path of business thought leaders over the last century. Nearly every MBA student is taught about key revolutions in business, usually in a class titled Organizational Behavior. These revolutions, starting with Taylorism and ending with Information Technology, revolve around the optimization of factories, companies, industries, and information, roughly in that order. Each changed the game so drastically that firms were forced to get on board to compete. They were relatively easy to copy but the slower flow of information in the previous century allowed early adopters to gain a big edge. As a result of the Internet, the IT revolution, and the tens of thousands of mba graduates in business today, most firms understand the history and value of optimization and productivity gains.

How do you gain competitive edge today, when every firm is immediately aware of new ways to optimize? Business schools and publications like *Harvard Business Review* and *BusinessWeek* are happy to extol the virtues of new methods of gaining productivity—thereby tipping your competitors off to ways they can squeeze another drop from their resources. Companies have never before been on such equal ground when it comes to optimization of operations. In fact, firms are forced to deal with ever more rapidly evolving markets and competition so they have to be exceptional at understanding emergent opportunities and managing change. We have entered the era of ***Continuous Innovation***.

transportation and the more complex opportunities and risks therein were simply not well understood by Dean Kamen and his team. Much like rocket scientists (we told you we would come back to them), Kamen treated technological development and invention as an end goal rather than part of a solution.

The Segway is not dissimilar to the many precursors to the iPod. They were technically relevant and robust in terms of feature set yet really didn't address people's needs. While this approach can occasionally be successful, it more often produces marginalized inventions with little chance to be breakthroughs. Speaking of the iPod....

Innovation: Vision + Invention

You've heard a lot about the iPod, and that is because it is too universal and gettable of an example to ignore (we promise to pepper the remainder of the book with other examples). You may have an iPod or iPhone in your pocket or bag right now. If you don't, you probably have considered buying one. If not, you work for Microsoft or you're currently listening to the music of AM radio. The iPod is an exceptional example of how identifying opportunities and developing offerings come together as a successful innovation yet its success had far greater implications for Apple than initially intended.

Steve Jobs and company were looking for a way to increase Macintosh hardware sales. Broadly, they identified two growth strategies: making software and hardware that would empower people yet require a Mac to run. iLife and iPod are like siblings while the iPhone is like a new species. Digital cameras were considered first as Apple was the originator of the category years earlier with the Quicktake 100. Clearly, Apple could have developed a fantastic digital camera but they chose not to. Why? They understood the market was both competitive and

offered compelling offerings. Digital cameras actually worked pretty well and were sold at a reasonable price.

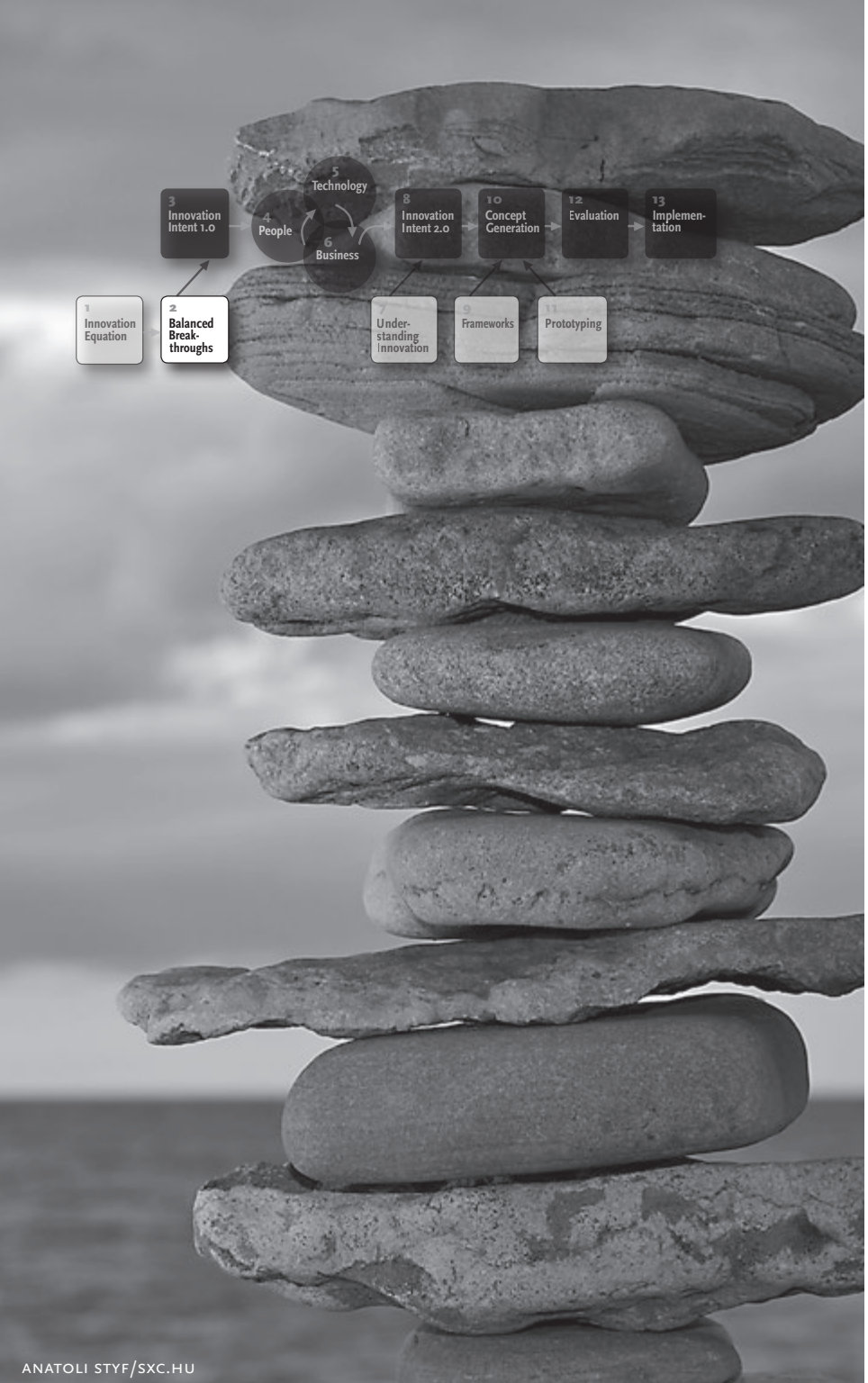
The MP3 market revealed enormous opportunities for creating value through product design, feature set, and integration with iTunes. Apple took advantage of the fact that most MP3 players were horrible to use, looked like voice recorders, and held a woefully small number of songs combined with the explosion of Napster—remember Apple's ad campaign "Rip.Mix.Burn"? It was a perfect match for Apple's obsession with creating integrated user experiences. It was a perfect storm of innovation to create the wildly popular iPod. The first iPods owners immediately grasped the tremendous value they received in using it. Our culture has benefited through entertaining marketing communications and an increasingly innovative handheld device market. Without realizing it, releasing iPod changed the world and how Apple saw itself. Known for 30 years as Apple Computer Inc., they recently switched their name to Apple Inc. hinting at what was and is to come. Innovation, especially disruptive innovation, is fundamentally about changing the status quo.

The Lesson of the Innovation Equation

Understanding the Innovation Equation means understanding how the things we do—identifying opportunities and developing offerings—translate into the things we make. At a high level, it is the model for everything this book is talking about. The Innovation Equation means being obsessed with generating value for people. It also means being ready to fundamentally change how you and your firm act and define yourselves depending on context. Unfortunately, most organizations don't consistently do great marketing and development, nor are they obsessed with creating unique value for their customers. Most do not embrace change, even when facing extinction. But does this mean we should avoid embracing innovation?

In fact, the innovation consultancy Doblin Inc., says that nearly 95% of innovations fail according to their own measures of success. For a moment, just consider how large of a percentage that is... now take a deep breath. This is difficult yet important for us to admit. We have all worked on multiple projects that failed. We all have wasted valuable resources not working with our colleagues in a way that helps to identify opportunities or develop compelling offerings. *In reality, many of the things we do on a day-to-day basis destroy rather than create value for customers, our firms, and shareholders.* Whether it was building something we shouldn't have built, installing a big software system that didn't make sense, advertising in ways that produced no return, or spending just a few too many hours surfing the Internet—we destroyed value. We said it. We've uncovered this ugly truth.

It would be easy for us to blame the factors that make innovation hard. Competition is fierce! Globalization isn't fair! The Internet gives consumers and competitors too much information! We don't have enough time! We don't have enough money! Marketing doesn't get it! Engineering doesn't get it! The damn designers don't get it! We tried it before and it failed! All of these complaints are true to some extent and it is why it makes this hard work. More importantly, the world is in constant flux. What people do changes. How businesses make profits change. Clearly, technology changes. Simply put, what is important to make now will not be what is important to make tomorrow. Regardless, the equation is simple: Vision + Invention = Innovation. Being great at creating Vision—and knowing how to tie that to the things we Invent—is remarkably powerful and not as complex as it may seem. To see why, let's look at why the offerings we create are or aren't successful in the market.



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2 Balanced Breakthroughs

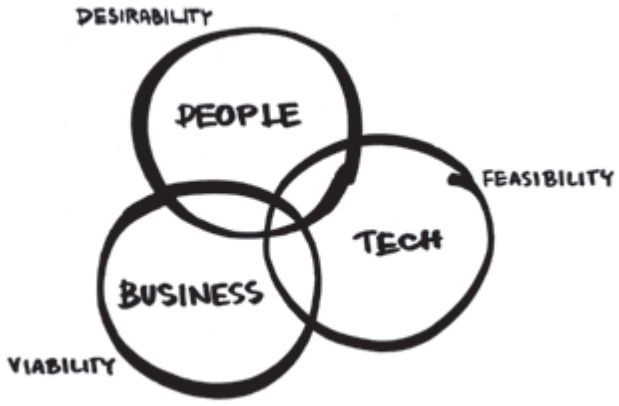
What the Market Rewards

The future is already here.
It's just not evenly distributed.

WILLIAM GIBSON

KNOWING WHAT FIRMS NEED TO DO at an abstract level takes us only so far. Merely saying, "Yeah, we should identify opportunities and develop compelling offerings and be really innovative!" is easy—but what we really need to know is, *What will the market reward?* Or, more specifically, *How does the market of all potential customers value (use/pay for) one thing over another?* We also have to know how to value the things we do that don't touch consumers directly—for example, things like effective supplier management that keeps our costs down, or intellectual property management that generates new ideas or licensing revenue.

Larry Keeley, innovation thought leader and president of Doblin Inc., represents the key components of these different types of value in the simple yet powerful ***Balanced Breakthroughs***



BALANCED BREAKTHROUGHS

model. It shows that powerful offerings are those that appropriately match *what people desire* with *what is technically feasible* and *what is viable as an ongoing business*. Having a "balanced" offering doesn't necessarily mean that each of these components is equally emphasized. Instead, these idea's values should be in equilibrium with the demands of the market. A fascinating study conducted by the Management Sciences Institute found that 89% of successful new product introductions fit the following three criteria:[1]

- New, but not too new to the market
- New, but not too new technology/process
- Is grounded in real customer needs

The first two criteria relate to expert contextual research in business and technology, while the last is tied to understanding the activities of people—this supports the notion of having Balanced Breakthroughs.

[1] Jacob Goldenberg, Donald R. Lehmann, and David Mazursky, "The Primacy of the Idea Itself as a Predictor of New Product Success," MSI working paper (1999): 99–110; online at http://www.msi.org/

CONTEXT IS KING.

At the start of the Internet boom, Bill Gates famously said, "Content is king." (1996) In the sense of introducing new offerings to the market, we think he's wrong. We would suggest that *context* is king.[1] What we mean by this is that offerings must fit within the context of converging trends in people's activites, technological advances, and the competitive environment. Content only matters when the value in question is content. This is what is represented in a balanced breakthrough. Offerings aren't great because of great technology; they aren't great because they make a lot of profit; nor are they great because they make people's lives better (despite what some obsessive user-centered designers tell you[2]); they are better because they can do these things in concert; they are better because they are relevant for emerging trends not yesterday's. Getting one or more right can provide moderate success through invention or vision. Getting them *all* right, and doing so with appropriate timing, guarantees innovation and sustained differentiated competitive advantage.

We have chapters devoted to new ways of understanding value for each of the three components of the Balanced Breakthroughs model later in the book, but first let's consider each one at a higher level. We'll provide a bit of grist for the innovation mill and some questions to help you evaluate projects, offerings, and your company's work. Many of the frameworks we'll present in this and subsequent chapters can be used *analytically,* to measure how your (or a competitor's) offerings

[1] This notion of "Context is King" came up in one of the many fascinating meetings we've had with our flamboyant Catalan colleague, innovator Enric Gili-Fort. Thanks Enric.

[2] We should know—the Institute of Design is all about user-centered design.

stack up, but they can also be used *generatively*, to develop new concepts. Naked Innovation recognizes that great ideas and disruptive innovations can come from anywhere—but they are informed by and constrained by emerging trends. Like Gibson said, the future really is already here.

Emerging *Desirability* to People

We first consider the activities of people because the most fertile ground for innovation opportunities is in the unmet or underserved needs of current and potential customers. Companies are not unaware of this—they spend more than $2 billion each year on market research, trying to understand consumer behavior and latent needs. While the methods they typically use to understand markets—surveys, closed answer interviews, and focus groups—are good at understanding current purchasing behavior, they fail to fully understand latent needs. Even Philip Kotler, the Kellogg School of Business professor known widely as the Father of Marketing, has been quoted saying, "The haunting truth is that traditional marketing is not working."[1] Why would he disparage his own field?

Like other smart people, Kotler recognizes that society has become increasingly complex. Macro trends, including globalization, increasing mobility, mass communication, the proliferation of mobile devices, and mostly, our reliance on the Internet, have created a pool of potential customers so varied and so rapidly changing that it is difficult to keep up. Understanding what people desire has never been more difficult. This is in stark contrast to our past when people were relatively easily split by demographic and geographic segments. So, innovation projects need to address three key questions about people:

[1] Kotler, Philip, "Foreword" in *Kellogg on Branding*, ed. A.M. Tybout and T. Calkins, ix (Hoboken, N.J.: John Wiley & Sons, 2005).

- Who is our target customer and how many of them are they?
- What do they want and, more importantly, what do they need?
- How are those wants and needs changing over time?

You maybe saying, "Isn't this obvious?" and it certainly will be to many readers. The problem is too many people assume that these questions are being asked and answered—when they actually aren't, or at least not in meaningful ways. Not every discipline asks the simple questions that can inform and guide the process of coming up with a new offering. We want to make important questions clear and obvious. Also, we will show you some new aspects of the same questions which specifically consider latent rather than stated desires of consumers.

Emerging *Capabilities* in Technology

Humans are in the midst of a technological revolution of a scope and scale that has never been seen before. While the Industrial Revolution pulled people from farms and concentrated them in cities and factories, the power of the Internet and inexpensive, portable "super-computers" are exploding them apart. Ironically, today's technology allows us to be simultaneously further away yet more in touch than ever. This power has given individuals more control and yet more responsibility over their lives. Indeed, discoveries in pure science, engineering, communications, medicine, and the power of Moore's Law have transformed all of our expectations of what it is to be human. Anyone involved in creating Vision or Invention should seek to be continually informed about what is just becoming possible. These three questions look at how emerging capabilities in technology impact your next offering—and your company's success:

- Do we have the required and appropriate capabilities?
- If not, can we acquire them, build them internally, lease them, or find an outside partner?
- How can new capabilities for this project build on current systems or be part of a broader platform?

Emerging *Viability* of Business (or Organizations)

With more than 70,000 employees and revenues that make it the 25th largest company in the United States, Dell Inc. is an impressive firm by any measure. What is more impressive is that Dell doesn't really make the majority of its profits from computer sales, unlike Compaq, HP, and other manufacturers. Dell's direct-to-consumer sales, and user configuration approaches helps it fulfill *specific* needs of individual consumers, instead of hoping to *approximately* meet the needs of groups of users. Moreover, it produced a business model where Dell gets paid for the computer before it has even bought the parts to make it. As a result, Dell always had more cash in the bank than it actually had on its balance sheet. While it grew to be the number one computer manufacturer worldwide, it was making a bigger profit by investing the extra cash than it was on product markups alone. This allowed it to price their products even more aggressively and ultimately to win a war with Compaq, HP, and IBM. Dell won not with better products, but with a better business model.

In an increasingly networked world, companies don't just have to make a widget and sell it at a profit to be successful—the traditional manufacturing model. Profitable businesses can be built on providing services, accepting micro-payments, facilitating peer-to-peer delivery, and otherwise leveraging an exchange of value through networked interactions having nothing to do with the "meatspace" world of products

in boxes. Sure, companies have gotten really good at playing competitively and defensively in their sectors. We propose a new willingness to deliver distinctive value to people—and also a new willingness to produce invention in business models. Before you invent, it is worth considering these three questions.

- What competition do we and will we face?
- Can we sell enough to make a profit?
- What business model is appropriate? (you should really push on this point)

Unpacking the Balanced Breakthroughs model helps you know how to create offerings that will be successful. As you wrestle with the questions posed for each component, you will begin to identifying opportunity and create internal vision. You may not be able to answer all these questions yourself, as a manager or individual team contributor. But as you engage in a conversation, the need to balance people, business, and technology will help level the foundation on which you will build. Concept creation and development will take place with fewer missteps, your team will work together better, and you will have greatly increased your chance for success. Now let's frame the problem space, assemble a team, and start innovating!

BENJAMIN EARWICKE/SXC.HU

3 Innovation Intent 1.0

Getting Started

Las Vegas, 2007—The Winter Consumer Electronics Show is where most new gadgets make their splashy debuts. But on January 9, 2007, in the midst of the conference, the buzz vanished. Company representatives, journalists, and attendees were focused 600 miles away to the West in San Francisco. Their laptops, Treos, and attention were on one person: Steve Jobs. Jobs was about to reveal the new Apple iPhone—a product so hotly anticipated, so endowed by expectant fans with magical powers, that it had been dubbed "the Jesus Phone."[1]

How would you have liked to have been a product manager, engineer, or designer for Motorola, Samsung, LG, SonyEricsson, or Nokia that day? Imagine how deflated you'd feel to see your latest and greatest mobile phone concepts rendered irrelevant, with a few words from Steve Jobs. And what would be your next move? What do you tell your CEO about your plans for something that will compete? *Where would you start?*

Framing the Problem

A lot of things are hard to get started—homework, writing books on innovation, telling someone "I think we should see

[1] Brian Lam, editor of the technology blog Gizmodo.com.

other people." But you have to start somewhere, and we're big advocates for just jumping in wherever you can. A great place to start is with a question: **"What seems to be the problem?"** In other words, what isn't working? What is the piece that is missing? Why is an innovation needed? Don't worry about getting this right—in fact, you'll probably start with the wrong answer and very well the wrong question. (Our phone company executives, back at the Consumer Electronics Show, thought their problem was how to beat Apple's new iPhone. They only got part of it right.) We'll be revisiting this challenge later.

Even your first, shoot-from-the-hip response can then lead you to other questions:[1]

- Why is the problem a problem?
- Whose problem is it?
- Why does that matter—both for us as a company, and for the people whose problem it is?
- How has the problem been addressed before? What was insufficient about those attempts to solve the problem? Why is it still a problem?
- What are we going to do differently?

Whoops—these questions get progressively harder to answer, and the last one is impossible to respond to, at least at the beginning. But that's OK—we're just trying set down our initial thoughts, and if the answer you put down is "I don't know," then at least you know what you *don't* know. (Socrates would be proud.) There's plenty of time to come back and revisit these questions once we've done more research. We'll be able

[1] These questions are based on the "User-Centered Case" developed by Professor John Grimes, IIT Institute of Design.

to rework them and connect the pieces together to make something coherent.

Naked Innovation is ***Iterative***—that is, it involves cycling back and forth, trying something out, seeing how it works out, and then using what you learned to try something again. There will be only a very few occasions when the Perfect Answer will emerge from your head fully-formed. Look at Thomas Edison—he thought up the incandescent light bulb, sure, but then had to try more than a thousand different filaments before finding the right one. Working iteratively requires some mental flexibility, because it means being willing to question both

What If You Don't Seem to Have a Problem?

Sometimes innovation challenges start out without a real issue. Management comes along and says, "Find something to do with this new technology." In one sense, your problem is just that—what can we do with this? But you also aren't starting out with any market gap. No worries—your task, viewed through the three circles of the Balanced Breakthroughs model, will be to see what is possible and desirable, rather than what is problematic, and build from there.

Other places to start include the capabilities your company has currently mastered—what else could they be applied to? What neighboring capabilities could easily be added to open up an entirely new customer base? How could we leverage our knowledge of (and relationships with) our customers, to serve them in new ways?

Even a vague definition of a problem (or opportunity) is better than nothing at all. The purpose of research is to refine that framing; the purpose of framing is to know where to begin.

assumptions and conclusions. Every time you look at something from a new point of view, you may be able to (and indeed you may *have to*) revise your thinking. Over time, you get closer and closer until you have a solution that works well enough to implement. And from there, you can continue to revise, and improve even after it's considered "done."

So, back to our series of questions: we've made some provisional answers, even if some of those answers include the words "don't know" or "need to find out more." Keeping track of how the answers evolve, as we go through an iterative process, will require some good information management. Some people use shared online knowledge tools, but a simple piece of foam-core board (or a bulletin board or whiteboard) can work as well. Start by posting the key questions and answers. Keeping the current issues visible, right in front of you and your team, makes it easier to re-engage with them as you work.

Your initial statement of the challenge becomes a signpost to your solution. Take out a sheet of paper, title it ***Innovation Intent, Version 1.0***, and include the following:

Innovation Intent | Version 1.0

The problem we are trying to solve

For whom

Why it matters

How other solution attempts have failed

What will make our solution different

Each line should be completed with your best guess; it doesn't have to be your final answer. Over the course of your research, the Innovation Intent will evolve—if it doesn't, you're either remarkably prescient, or you aren't looking deeply enough at the problem. After you've gone through several steps of research and analysis, we'll guide you to a formal revision of the Innovation Intent in Chapter 8.

Involve the Right People

On a small project you may be able to answer all of the questions in the Innovation Intent yourself. But you will always be better off sharing the burden with others. When you work alone, it's easy to fall in love with your own ideas, and completely fail to see their shortcomings. Collaboration brings new perspectives, as well as specialized knowledge and experience, to help strengthen and balance good concepts, and eliminate the bad ones.

One way to involve other people is by having them periodically review your progress and give their feedback. Deeper involvement and commitment comes when you invite others to work on the project with you, as a team. Businesses take this approach all the time, and have learned which kinds of people to have on a team: someone from engineering, someone from design, someone from marketing, someone from production, and so on. In recent years, teams are even beginning to include customers (the people who may buy the product or service) or users (the people who actually use the product or service, who may be different from customers) in at least some phases of their work. A good way to figure out who the stakeholders are in a project is to look at the proposed Innovation Intent: for whom are you solving the problem—can you involve them? How about the people who would be involved in building the solution?

Of course, there may be some constraints in the amount of information that can be revealed to people outside the company, or simply in their availability, but their insights are tremendously important. We found this out while working on a project for a large restaurant chain. Our in-house team developed some great new ideas for restaurant services, but the customers we brought in to evaluate them showed us both additional opportunities and risks that we hadn't considered. Without their input, we might have recommended some of our favorite, clever ideas, only to see them fail miserably in a real-life restaurant.

Collaboration weaves itself throughout the innovation cycle. "We" is always more powerful than "Me," because it forces me to push beyond my preconceptions, to defend my assumptions, and to embrace a different point of view. Most teams will give you better results than working alone; excellent teams include people with different training, job roles, and cultural backgrounds whenever possible, to make sure that at every point there are multiple opportunities for the best ideas to emerge.

Collaboration is often compared to jazz, and the way each musician is not so much playing a defined role as being a constant improviser—listening to and responding to the musical themes and motifs in play. Since jazz may not appeal to everyone, you could also think of it simply as a conversation. It may start out like the interactions you have at a cocktail party—the give-and-take of interactions between people interested in getting to know each other better. We've all been in cocktail conversations (and on teams) from which we wanted to escape. Great conversations, and great innovation projects, are the ones where you find ways of building on each other's statements, watching how topics and agreements (or alternative viewpoints) emerge. Sometimes they even lead to friendships—or real, live products and services that everybody loves.

One of the first conversations to have with your team should be about the proposed Innovation Intent we looked at above: *What seems to be the problem?* You may find that even at this early stage, there are new perspectives that help you see the problem anew. You may also discover more questions that you'll need to answer. You're likely to come away from the first few team

Effective Innovation Teamwork

We at the IIT Institute of Design have found the following concepts helpful when teams work together:

1. **Seek alignment.** Differences of opinion don't always have to be forced into 100% agreement. We use the word "alignment" to signal a willingness to move forward toward the goal, on the same path, even if we may individually retain uncertainty about that approach.
2. **Build each other up.** A multi-disciplinary team means experts in one domain area (like engineering) may not fully understand those in another (like marketing). When a colleague struggles to understand something that is home territory for you, avoid the temptation to lecture or criticize. Instead, offer suggestions, respectfully, that help build up someone else's ability to work with you—and be receptive to their suggestions to you. And never go behind a team member's back with criticism.
3. **Commit to the team**. Members of innovation teams often juggle ongoing work responsibilities—and sometimes work promised to the team doesn't always get priority. Treat team work assignments as binding if you commit to them, and if you can't commit, decline up front, so that the team can adjust.

Drawn on the work of the ID "Team Team" (2006) and advice from Doblin Inc.

interactions with less clarity than you thought you had at the beginning. That is perfectly normal—don't panic! Although we think Naked Innovation offers some sound approaches for a rational approach to innovation, it's also not a formula. We, along with our colleagues, frequently find ourselves feeling clueless as a project begins. When a team member asks, "Why is that?" or "What don't we know?" it's an opportunity to dig deeper to find either the answers, or at least the space where the questions remain. As you seek answers to those questions—and to the other questions that are provoked in turn—you'll start to see patterns form, and end up with a clearer vision of the whole. Learn to enjoy the sense of not quite knowing what will come next. In innovation, as in conversation, the familiar ground is often boring.

Fair warning, though: teams don't always work together perfectly. Yes, you will have conflict, and it will take longer than working by yourself. You also won't be able to take sole credit for the results. But the results are better—we've seen it time and again.

Before You Move Forward

- Formulate an initial Innovation Intent.
- Recruit a team of collaborators.
- Capture questions as they emerge.
- If it seems that you're ending up with too many questions, assign a simple score (use a scale of 1 to 5) to evaluate which ones have the greatest degree of *uncertainty* and *importance* for your project. Prioritize those with the highest total score (uncertainty + importance) to research.

JORC NVAVARRO/SXC.HU

4 People
People-focused Design

A Seinfeld Moment...

George: She was sort of smiling at me, and I wasn't sure if she wanted me to ask her out, because when women smile at me ... I don't know what to do.

Jerry: So you didn't ask?

George: No, I froze. So ... a half-hour later I'm back in the office. I tell Lloyd the whole story. He says "So why don't you call her." I say "I can't." I couldn't do it right then. For me to ask a woman out, I gotta get into a mental state like the karate guys before they break the bricks. So Lloyd calls me a wimp.

Jerry: He said wimp?

George: Yeah. He shamed me into it.

"The Message," *Seinfeld*, Season 2, Episode 9[1]

[1] You could find the same basic trope in almost any Seinfeld episode. We find that most things in life can be related to Seinfeld—or, failing that, to *Paradise Lost*.

Ah, romance. The underlying absurdity here, of course, is how one clueless male turns to other clueless males in order to figure out how to make a social connection with a creature none of them understands: woman. Oddly enough, companies act in a very similar fashion when they try to come up with way of attracting and retaining customers. Executives and managers sit in a room and try to figure out how to entice the public with features or marketing, without having any idea what makes them tick. (This is the "vision" side of our Innovation Equation.) Or worse, they develop a fantastic new technology (what we call "invention") without even trying to understand their customer.

Now, you may be saying to yourself, *Hold on a minute—we do know what makes our customers tick. We ask them in hundreds and thousands of customer feedback surveys and in focus groups. We've never known more! Besides, since we use our own products, we are essentially customers ourselves. So, don't we inherently know what works?*

True—most companies aren't just throwing new products out blindly, desperately hoping somebody will want them. Far from it—in fact, they go to a lot of trouble developing complex marketing plans, drawing both on focus groups and surveys, and on personal, anecdotal experience with products. The results aren't bad. They just aren't consistently great. If, as Philip Kotler said, traditional marketing is not working, we think there are two reasons why.

Reason 1 for the Failure of Traditional Marketing

People are difficult to understand. Our knowledge of customers is necessarily limited. Responses to surveys and focus group questions can be incomplete or inaccurate, not least because people aren't always honest. Whether motivated by a desire to please the people asking the questions, or the perception that certain kinds of answers may result in a greater reward, market researchers have discovered that the insights from such direct-questioning research is less valuable than they thought. And that's if people complete the survey at all—anything that takes more than a few minutes could result in a person just checking off answers at random just to get it over with—often known as "survey fatigue." Focus groups have their own perils, including the way individuals can be swayed by the group (or even by whichever participant is the most outspoken), the unfamiliar environment, and the background awareness of the power their answers may wield.

More importantly, even when people are being honest, they don't always understand their own motives, capabilities, and even preferences. What exactly is it about Coke that makes me select it instead of Pepsi—taste? marketing? legacy associations? memories of the first soft-drink I was served? what my friends drink? Besides, putting together the right list of questions to pose in a survey or focus group is much harder than it seems. Extensive (and expensive) use of those tools led Coca-Cola to develop "New Coke" in 1985—now seen as a colossal failure. While we aren't suggesting that focus groups and surveys never be used, overly specific questions can obscure real issues that are better observed through less-structured methods.

In practice, intuition often saves companies from making mistakes more often. Errant focus group research is often balanced by a manager saying to herself, "I just can't imagine liking that color myself, so maybe we shouldn't lock in our final selection just yet." Intuition has limits too. People within a company have a different relationships to the product than their customers do, even if it's just because they are always around the new models, instead of ones that are six months or ten years old. Company leaders are also often in different life circumstances

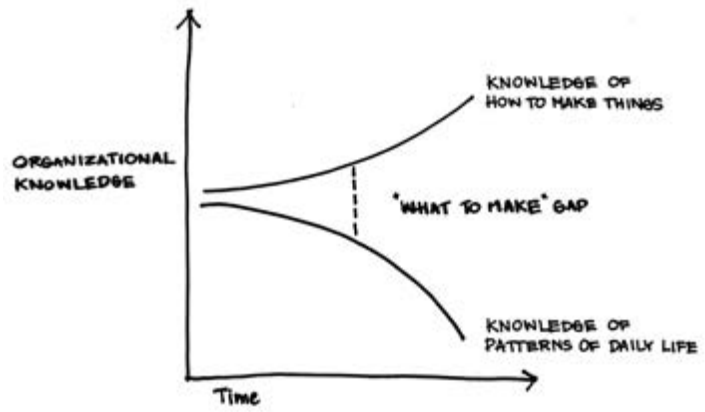
than customers. We heard of one CEO of a major home appliance manufacturer who described at great length, "what people really want" from washing machines. Only one person present had the courage to ask, politely, "Sir, how recently have you done a load of laundry yourself?" (It had been many years.)

Because survey and focus group findings about customers is inadequate, and intuition and our own background knowledge can't cover those gaps, we find it more fruitful to start from a position of empathy—knowing, understanding, and respecting customers as individuals with real needs and hopes and desires. We'll explain how to enter their world empathetically after we first look at the other reason traditional marketing has failed.

Reason 2 for the Failure of Traditional Marketing

The innovation space is so broad that both customers and companies have difficulty imagining how new systems and technologies might change their lives. Our technical abilities make it

THE INNOVATION GAP



possible to do things far beyond what we have ever been capable of before. We once consulted with a startup software company that had a clever solution to a common business problem. When customers finally got a working beta of the software, they found out that their hypothetical needs hadn't actually been so great as to merit the effort required to use the solution. Our client hadn't actually identified an opportunity that the market would reward. The important question for business is less often "How do we build it?" than it is "What should we build in the first place?"

Patrick Whitney, Dean of the IIT Institute of Design, uses the ***Innovation Gap*** to compare the increasing distance between what technology enables us to do, and what we know about the increasingly complex lives of customers:

A lot of problems come from misunderstanding (or failing to try to understand) what people want and need. Our solution is to start the Innovation Cycle with *Desirability* (for People) even though companies are often more skilled at determining *Viability* (for Business) or *Feasibility* (for Technology). The way to focus on people without being misled by traditional market-research methods is to act as empathetic observers rather than

User-Centered *vs.* People-Focused

This approach has been called "user-centered," and we think that is a good term. It can, however, obscure the need to pay attention to non-users—the people who haven't yet tried our product, or who have stopped using it because it failed to work for them. While people's needs and wants are important, they are only one part of a balanced solution, so deep respect of people shouldn't be confused with making them the absolute center of the innovation effort. People-focused innovation is perhaps a broader and more inclusive description.

expecting customers to rattle off a series of demands we can get busy responding to. What we are calling for is an attitude as much as it is a series of methods: enter the world of your customer (and, as importantly, your potential and former customers) and watch what they do. Be in their context; learn from their actions; feel their pain; embrace their ingenuity. And yes, talk to them—but as someone eager to learn, not as someone wanting validation of a predicted response.

Bridging the gap will also require more effort to help both ourselves and our customers envision what the solution will look like. We'll look at ways of previewing our tremendous inventive capacity in Chapter 11: Prototyping.

In recent years, designers have been drawing on ethnographically-informed methods to better understand the people they hope to serve. The constraints of most projects make it impossible to spend years living "in the field" watching people, the way Margaret Mead did to learn about aboriginal cultures. But there is a surprising amount of insight to be gained even from a brief series of field observations—well within reach of any innovation team. If your project is large enough to change the strategic direction of a major company, you may indeed take years in a research mode. Colleagues have done just that at companies like Intel, Nokia, Microsoft, and McDonald's.

A simple field observation is to spend time as a customer yourself, watching other customers. You may be reading this book on an airplane, in a coffee shop, or other public place. Take a look around you: what is going on? Who is there, and what can you tell about them just by watching and listening? If you're there for more than a few minutes, you will notice interactions between customers, multitasking, complications, different modes of behavior, and how people transition from one thing (or person) to the next.

Mere observation won't automatically result in successful innovation. You'll need to ...

- Go beyond what is obvious
- Capture insights in a form usable later by design and innovation teams
- Use those insights to drive change that results in value

POEMS observational framework

Before you panic, we're not going to send you back to school to get an Anthropology degree. Field observations can produce rich insights by using a simple structured observational framework. There are several you could use; we like the POEMS framework, developed by Patrick Whitney and Vijay Kumar at the IIT Institute of Design:

- **People** Who is there? What are their values, pre-conceptions? When do they hesitate or have problems? What are their (unmet or underserved) needs?
- **Objects** What physical things are in the environment, and how do they relate to activities?
- **Environments** Where are people working? What else is going on in the background?
- **Messages** What information is exchanged between people? What information is offered to people by objects or systems?
- **Services** How are people being supported in their activities—either by systems or by employee actions?

Some individual observations might fit under more than one POEMS heading—and that's OK. The point of using these types of frameworks is to cover a lot of areas—not in dividing them

up rigidly. Just open your eyes, and jot down what you see, under whichever heading makes sense. We bet you'll start to notice unexpected things that could be better.

Workarounds

As you observe customers, keep your eyes open for ***Workarounds***—examples of unintended or modified uses of a product or service. Workarounds reveal shortcomings in existing products, and often represent an innovation opportunity. A great example is the amazingly successful OXO line of kitchen tools. Measuring cups hadn't changed much in decades: they were basic tools, easy to make, and relatively easy to use. But almost everyone who uses a traditional measuring cup will do one of two things: to check to see if the amount of liquid poured in is exactly lined up with the little tick marks on the side, you either have to bend down to counter height, or lift the cup up to your eye level.

Researchers at Smart Design, which developed OXO's products, noticed this workaround. Their insight helped spur creation of a new kind of measuring cup with a slanted ledge on the inside, so you could check the alignment of liquid and tick marks from above, while you pour something into it. No workaround required! People who have the new OXO measuring cup love them (we each have one, and have given them out as gifts), and unquestionably find them worth double or triple the price of a plain old measuring cup. People-focused design, stemming from careful observation, provides OXO both with passionate customers and higher profit margins.

Contextual Interviews

Another approach often used in common with field observations is the ***Contextual Interview***. After watching a customer do whatever it is you're interested in, talk with them about what happened, and why. It seems straightforward, but it can reveal

gaps between intention and outcome, and the thought processes behind a workaround. Contextual observations played a key role in some work we did for a large fast-food restaurant chain on drive-through restaurants. We recruited a dozen or so customers who let us ride around in their cars going through various drive-through experiences. First we watched silently as they did whatever they would normally do; then, we asked them to park the car and talk us through what they were thinking at various points. Subtle insights were the result: the expectation for 100% accuracy every single time (no grace for a forgotten 2¢ napkin); the subtle power dynamic between the employee with the headset and the customer; how the time spent by a customer placing an order goes by quickly, but time spent waiting for an order to be filled goes by slowly. Nuances like these are nearly impossible to discover with feedback cards or focus group discussions—and once these small reactions are uncovered, they become obvious opportunities for improving service. They also act as a powerful starting point for an interdisciplinary team to generate new ideas.

Watching Customer Innovations

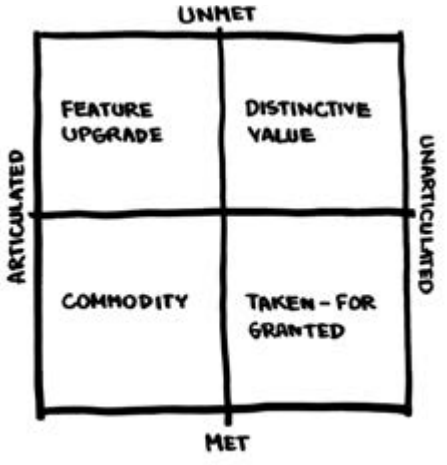
You will also gain fantastic insights if you can equip your customers to innovate on their own. For example, the Google Maps web tool we've enjoyed using has a back entrance (an "open API," application program interface) that allows someone with rudimentary programming ability to layer on their own kinds of information. Paul Rademacher created a mashup of the Apartments for Rent postings from Craigslist.org, with the Google Maps open API, to create HousingMaps.com, which usefully displays available apartments directly on a map. A cheer rose up from millions of apartment-hunting web users, and Google found itself with a valuable insight into what customers were looking for. (It also ended up hiring Paul.) We'll talk more about these emerging trends of customer "co-creation" in the chapter on prototyping.

The POEMS framework and contextual interviews are just two of the hundreds of people-focused design research tools available. You could write an entire book on them all—and in fact, several have been written. (See the "Resources" section at the end of this chapter.) By the way, the recommended methods do include focus groups and surveys, for some situations. Remember, we aren't suggesting you not do focus groups or surveys at all—they can be powerful tools when trying to validate solutions. But their results can't substitute for the powerful insights about unmet needs you get with direct user observation; they also tools that tend to work much better when created and wielded by trained experts.

If all this seems daunting, we can assure you that while user observation can take some time, it's not that hard to do. It's a strategy that's not underused because it's hard—companies often don't know about it, and rarely try it. Even if you outsource some aspects of user research, it's exceptionally worthwhile to spend time with your customers. You're impacting their lives, after all. Making your innovation project people-focused will make you a more empathetic and generous advocate for them, even as you strive to create value for them and profits for your company.

Finding Value for People

User observation should be more than a check-off step in an innovation process—it should become part of your organization's strategic culture. That way, over time, you will become skilled at discerning underlying real needs and opportunities, even when they are at odds with what a person says out loud. The realization that "I need a cup of coffee" is (at least in part) an expression of a deeper need to take a brief break from a hectic day, is one of the insights that has made Starbucks hugely profitable. When you find an "unarticulated" need that hasn't yet been met, that's your opportunity step in and provide



NEEDS MAP

distinctive value—the same way Starbucks provided the "third place" (neither home nor office) we never knew we needed to retreat to.

Let's imagine you run a regional grocery store chain, circa 1990. You've put out comment cards and surveyed your customers, and they seem to indicate you're doing a good job, yet you still are just about even with your competitors. Spending in-depth time with your customers, however, has helped you observe unarticulated needs that go beyond what they have told you about in your surveys. Sorting these needs out into articulated/unarticulated, and met/unmet categories, you end up with the Needs Map shown above.

Let's look a little closer at this map, starting with the lower half:

Commodity *(Articulated, Met Needs)*

Of course everybody wants low prices—customers often say that. That becomes a point of competition for all the grocery

stores in the area, even though there are limits to how low they can cut prices and remain in business.

Taken for Granted *(Unarticulated, Met Needs)*
These are the cost of doing business; your customers assume you will provide these services. (Try taking them away and watch your business dry up!)

As we will discuss further in Chapter 6, the lower quadrants on the Needs Map will tend to provide fewer opportunities for profit—because everybody else is already doing those things. (An exception is when you can find a brilliant, new way of meeting the same needs at a lower cost to your, or by wildly exceeding those expectations with an unusually improved offering.) Savvy business strategy is more often built on exploiting the upper two quadrants:

Feature Upgrade *(Articulated, Unmet Needs)*
Why haven't grocery stores embraced free home delivery (at least, not since the Good Old Days)? It costs too much. But a responsive businessperson might explore ways of meeting this expressly stated need by tinkering with enabling processes (see Chapter 7: Understanding Innovation), and eventually services like Peapod emerge to tap into this desire.

Distinctive Value *(Unarticulated, Unmet Needs)*
Aha, now we're getting somewhere. Families that are increasingly busy have less time to shop for and prepare food at home, but feel guilty about the cost of eating at restaurants. Savvy grocery stores noticed this unspoken need and began providing complete, prepared meals far beyond what had been available in the deli section: rotisserie chickens, side dishes, and everything else, packed conveniently in grab-n-go displays. Sales, and profitability, surged.

Customers may never ask for the things they will end up gladly paying for—who could have foreseen the rise of cable TV or satellite radio (after all, the broadcast versions were free), or personal computers (remember the famous IBM president who scoffed at the very idea?). That's why we can't just ask them what they want, and build it. People-focused design, driven by observational research techniques, will help us find new areas of value, instead of competing with everybody else on the obvious stuff.

By the way, while Feature Upgrades are less sexy and groundbreaking than Distinctive Value, they are still perfectly legitimate areas for an innovation project to explore. They provide greater value than commodities do.

However you work at gaining a better understanding of the people who do or might use your product or service, what is most important is to have an attitude of respect and empathy for them. In a previous generation, Henry Ford could get away with offering cars in any color you wanted as long as you wanted black—that's the "no empathy" approach. Recently, Microsoft asked us, "Where would you like to go today?"—which reflects a certain amount of empathy.

We hope that in the future you know your customers so well that you can tell between those who really want an open choice of where to go, those who would like a personalized recommendation, and those who don't want to go anywhere but enjoy the chance to see where other people are going. Truly understanding and respecting your customers' perspectives, and giving them what they really want, is what we recommend to companies.

Before You Go On...

› Spend time with your team watching customers. Use the POEMS tool to break out insights. What new opportunity areas are you finding? Which stories to you find yourselves telling each other (and others) about your time spent with users?

› Attempt to formally state your customer's Unmet, Unarticulated Needs, and think about how they might lead to Distinctive Value.

› Can your team write a brief paragraph describing your typical customer? If you can't do it easily, you may need to spend more time with users until their concerns, habits, workarounds, and relationship to your product are clear.

RESOURCES FOR USER OBSERVATION

AIGA and Cheskin. "An Ethnography Primer," AIGA, http://www.aiga.org/resources/content/3/7/4/5/documents/ethnography_primer.pdf

Bolt, Nate and Tulathimutte, Tony. *Remote Research: Real Users, Real Time, Real Research*. Brooklyn, N.Y.: Rosenfeld Media, 2010. You will also find other helpful resources at http://rosenfeldmedia.com.

Kuniavsky, Mike. *Observing the User Experience: A Practitioner's Guide to User Research*. Burlington, Mass.: Morgan Kaufmann, 2003. One of the best guides to user research available.

YUYANGA/ISTOCKPHOTO

5 Technology
Platform & System Design

Platforms rule!

larry keeley, doblin inc.

Do us a favor. Take a moment to think about how many times and ways in the last 24 hours that you used the Internet. Really think about it. Our own casual count quickly shot over 100. Whether checking bank statements or paying bills, reading the New York Times or catching up on a favorite blog, buying a book on Amazon.com or finding a new restaurant, the Internet has become an immensely useful and valuable ***Platform***. It is shocking to think about the fact that just over 20 years ago, it didn't exist. What would we do today without it?

While there are many who played a part, there is no one person who "invented" it—it required many people and organization's cooperation. Similarly, there is no one person who profits from it—we all do. While you may not expect to invent an offering with the scale of Internet, you should build solutions based on standards and platforms. How can we be actively involved in important decisions related to feasibility and technology for the projects on which we work? Also, what can we learn from

technology that applies to apparently non-technical products like food or books? Before we answer these two questions, let's ask something else.

Have you ever been in a meeting where an engineer (or other technical person) made you feel like you couldn't take part in the conversation because you weren't knowledgeable enough? Or, if you are a technical person, have you ever used complex terms specifically so you didn't have to explain the details of some issue? We bet you have been on one or the other side at some point. We have seen time and time again that decisions—specifically, technical ones—get made by a small number of people from one discipline who may or may not fully understand the complete ramifications on the business and the value it intends to deliver to its customers. We're not knocking engineers but we are making a call to arms to non-technical disciplines. You have to take part in these big decisions because they will indeed affect your customers! Similarly, we have hope that technologists reading this book will realize their best contribution can be to help others understand the ramifications of one decision or another. You are our guides.

Solution Architecture

The good news is that regardless of whether you are a "techie" or not, you can use some basic knowledge about how technology works agnostically to help make decisions. First, you need to understand a bit about ***Solution Architecture*** and the nature of platforms. This is the good stuff to understand even if you aren't working with a specific protocol or technical specialty. It's also worth knowing regardless of whether you're building a website or a consumer electronic device. Second, regardless of whether you are naturally inclined to or not, if you want to be an innovator you should become passionate about the technological trends that shape our world and affect your current and next project. Although we would never suggest innovation is solely driven by technology, it is one essential part of creating a balanced breakthrough. We'll outline some high level steps you can take to understand these trends, but first let's get to some much needed definitions.

The term "Solution architecture" refers broadly to the way in which functional pieces are arranged into some end solution. The processor, hard disk, track pad, keyboard, and other functional pieces come together to make the laptops on which we write this book. There are two main types of architecture. On one hand, **integral** solutions are built to very specifically solve one problem and not necessarily relate well to other problems—their parts fit together uniquely. On the other, **modular** solutions, even when built for a specific problem, tend to be flexible in terms of their applicability to other problems—their parts could fit with others to create solutions for different problems. Each of these ways of conceiving some solution has costs and benefits associated with them. Let's illustrate these through a few examples.

Integral Solutions

Racing style motorcycles and fine Swiss watches are built for performance. For this reason, motorcycle and watch designers often choose an integral product architecture for top-end products. Integral architecture offers fast, efficient, and precise interactions between parts with little waste in materials—thus, it is appropriate for higher performance solutions. But parts for racing bikes or fine watches really aren't going to be good for much else. On the opposite end of the complexity continuum is a simple pair of scissors. Again, designed with performance for a single use in mind, cutting plain paper, the parts fit together in a way that they aren't very useful in application to other problems. Developing a new unique product in this way can get you to market really fast. This is the essence of choosing to making something in an integrated way: the pieces fit together excep-

tionally well—they are designed from the ground up to work together—but are of only limited utility and re-use. It would be difficult to modify them without a lot of work. More importantly, there is little value built between generations. You pretty much have to start from scratch each time you create a new product. This is less of an issue with scissors, but when you're making a motorcycle, or anything else complex, it can be costly.

Modular Solutions

In contrast, let's consider desktop personal computers and Swatch watches. Most of us have gone through the experience of purchasing a new mouse, hooking up a digital camera, or maybe even installing more RAM or an internal hard disk. While these hardware upgrades and modifications can be painful for non-technical people, they aren't impossible—that's mainly the result of the modular nature of their architecture. This modularity is well illustrated in the "good, better, best" versions of many desktop computers today. The basic system is maintained but for faster components or those with more capacity. It allows manufacturers to offer variety and choice to consumers with the benefits of economics of scale and re-usability.

A similar architecture was used by Swatch to revolutionize the definition of Swiss watch design. By establishing a standardized and modular platform, Swatch could offer an enormous variety of designs while still producing them at relatively low cost. Changing a piece in an integral solution can effect many different other functional pieces; changing a piece in a modular one should have little to no effect on the rest of the system. In software development, this is exactly the benefit "Object Oriented" programming is supposed to achieve: one piece can be flexibly upgraded or changed without fundamentally having to upgrade the entire solution. Unfortunately, this flexibility also comes at some cost. It generally takes more time to design and build modular solutions than it does integrated ones. Additionally, a problem with one part or "module" used in many systems creates problems in all of the solutions making use of it.

Regardless of their issues, we believe in building modular solutions when addressing complex problems. In fact, as we noted at the beginning of this chapter, we would go so far as to suggest that we (and you) should try to build platforms whenever possible. The nice thing about platform thinking is that it is equally applicable to non-technical solutions as it is technical ones. Take the *For Dummies* book series. As pedestrian in nature as the Internet is grand, the series has been remarkably successful since it first debuted in 1991 with *DOS For Dummies*. With more than 125 million books sold, they have shown the world how to do just about everything: use computers, cook, garden, manage finances, run a business, buy a home, plan a trip, exercise, and eat right. The creators do this not through technical prowess but through a consistent organizing principle and modular parts. *For Dummies* is every bit of a platform that the Internet is. It allows books from fantastically diverse subject matter to be written, presented, and consumed in a common and an easily accessible fashion. *For Dummies* also demonstrates how integral solutions many times become modular over time. The first book wasn't viewed as a series but as single solution. Only over time did the formula of how to write, design, and produce the books become modular and standardized.

So what's really the essence of modular architectures and platform thinking? Standards. Whether closed to an organization, partially shared, or completely open, standards are the key to realizing economies of scale, allowing separate technologies to work together, and bringing together contributions from disparate teams. Realize that the further you stray from open

standards, the more costs will be associated with development, and the harder it will be for others to work with you. That is not to say closed shouldn't be used. For example, open platforms and standards were and are essential to the development of personal computers overall, but smart firms within the industry still maintain control over the distinctive value they deliver. Intel, Apple, Microsoft, HP, among others have contributed in and shared the common USB peripheral platform. All have benefited without giving up control of the piece(s) of the puzzle that allows them to differentiate.

Understanding Trends

To be ahead of the curve, we need to spot the emerging and converging trends that will lead to future standards. How can non-techies and geeks alike understand the impact of emerging trends in the world? We find one particularly useful activity is the building of ***Era Maps***.[1]

Era Maps are one of our favorite tools in this kit and are equally applicable when looking at trends in culture, the competitive space, and importantly for this chapter, technology. They are great to complete at the beginning of a project to set the larger context in which your development will be found. Fewer pieces of knowledge are as important as where you've been, where you are, and where you're going. That is exactly what is great about them: they offer a wide-angle lens through which to view past, current, near-future, and future use of the technology you will use to build your solution. Let's consider an example or two.

At a *really* macro level, the personal computer was a big platform of the 1980s—think IBM PCs, Apple IIs, Commodore 64s, and the like. "Official" networks were the platform for the 1990s—think AppleTalk, corporate networks, and shared printers—all built on the previous personal computer platform). Our current

[1] IIT Institute of Design professor Vijay Kumar taught us the value of Era Maps, which we've seen our colleagues use in myriad projects.

platform is the Internet, which was built on shared networks and personal computers. So what is our technological future? The trends tell us mobile and wireless hardware and applications will dominate the next decade. We've been told for years that the "network is pervasive" but now it really is. This might sound cliché but it isn't. We would bet that your firm will use mobile applications (if it isn't building them itself). The more you account for that in your planning, the better your firm will succeed.

SAMPLE ERA MAP: MOBILE COMMUNICATION DEVICES

	PAST	PRESENT	NEAR FUTURE	FUTURE
Hardware	Small screens Monochromatic Limited processing power Limited entry interface	Large screens Color Reasonable processing power Flexible and intelligent entry interface	Smaller devices Rich media capabilities Multiple band connectivity GPS enabled Screen-based keboards	Haptics Augmented reality headsets Virtual keyboards Star Wars holograms Mini Projector
Applications	SMS based Limited mobile browser e.g. WAP Command line data entry	Web enabled WAP 2.0 applications Service provider embedded apps Flexible and expanded data entry Downloadable JAVA enabled	Community based applications Media aggregating Rich multimedia	POP payment Phone as identifier Universal remote control Learns user preferences Natural language recognition
Operating System	Particular to each manufacturer	Windows CE RIM blackberry Palm OS Manufacturer Specific	Windows CE RIM blackberry Palm OS Manufacturer Specific Linux	Windows CE RIM blackberry Manufacturer Specific Linux
Network	Low bandwidth Limited access Regular dropouts	2.5G/EVDO	3G Mesh networks WiFi GIS systems	WiMax Ubiquitous connectivity IP aware

Consider your work through the lens of an Era Map: what technology have people used in the past, what do they use now, and what will they use in three years or a decade? Use the generic diagram on the previous page to build on. We've filled it out with data from a project related to mobile phone restaurant reviews for demonstration purposes. We executed it quickly in November of 2006 and it is interesting to us that with very little research, we predicted several of the iPhone's platform features. Era Maps really work! You might not readily be able to complete all the boxes when you start a project. This is good—it will encourage you to do some research and engage with those who are in charge of making larger technological decisions.

One more issue with platforms needs to be addressed. This is a big one. *Platforms only become relevant when they move past a certain tipping point of adoption—either external or internal to your firm.* Simply put, enough people have to make use of it for it to achieve platform benefits. Why is this so important? Platforms, especially technological ones, can be quite expensive to build. It is much easier and faster to produce a "one-off" than to thoughtfully design a platform that will have legs for years to come.

The decision to build a platform, and, more importantly, whether it be closed, open, or partially-open, will end up, for better or worse, affecting your firm's products for a long time in the future. Sony's decision to keep Betamax (a superior solution in nearly every way) closed and proprietary doomed it to financial failure when compared to the open approach taken by VHS, offered by JVC. Microsoft beat Apple by opening Windows to run on any hardware, although the MacOS and the Macintosh were superior products, at least when Windows first debuted.

But the answer isn't always to be open. Apple's resurgence of late has largely rested on its ability to produce truly integrated experiences—think of how seamlessly the iPod/iPhone works with iTunes and the media/apps store. This thoughtful integration could only be achieved because it is at least partially closed and proprietary. A rule of thumb is to open whatever will help grow the marketplace you are working in without ultimately giving away the distinctive value that your firm delivers.

Being part of the technology decision-making process isn't easy but it is better than sticking your head in the sand and ignoring it. Understanding the implications of the different types of solution architecture and platforms within your competitive space will give you a big advantage in understanding how to balance your innovation. This is the type of vision that points to what to your team and firm should invent.

Before You Go On...

Let's review the keys to understanding technology in Naked Innovation.

- Know the different types of architecture solutions can take. Understand the difference between *integral* and *modular*.
- When ever possible, try to build your solution around *platforms* based on common *standards*. Share valuable information and development burdens when possible to grow markets but don't give away what differentiates your firm!
- If you are non-technical, have the courage, fortitude, and the humility to take part in important technical conversations. If you are geek, understand that you are more powerful and valuable to your firm when you actively engage non-technical colleagues in meaningful discussions.

RESOURCES FOR TECHNOLOGY & PLATFORMS

Gladwell, Malcolm. *The Tipping Point: How Little Things Can Make a Big Difference*. New York: Little, Brown, 2000.

Meyer, Marc H., and Lehnerd, Alvin P. *The Power of Product Platforms: Building Value and Cost Leadership*. New York: Free Press, 1997.

Ulrich, Karl T., and Eppinger, Steven D. *Product Design and Development*. 4th Rev. Ed. Burr Ridge, Ill.: McGraw Hill Higher Education, 2003.

DANIEL CHEONG/FLICKR

6 Business

Strategic Design

It is not necessary to change.
Survival is not mandatory.

W. EDWARDS DEMING

At this point, you may be asking yourself, "This is all quite interesting, but how does this impact my business, strategy, and bottom line?" This is a very good question and not one to be taken lightly. We do not presume to be experts in all realms of strategy. Starting with Sun Tzu's classic, *The Art of War*, many important works have been written on how to organize oneself to succeed in a competitive environment. Understanding the work by thought leaders of strategy such as Michael Porter, Gary Hamel, and the late C.K. Prahalad, is an undertaking all serious strategists should embrace. That said, we will not dwell at length on the two basic strategies currently employed by business today: cost leadership and "me too" competitiveness—everyone knows these. Instead, we are interested in a new logic for business: ***Distinctive Value***. Yes, the logic of delivering on the unmet needs and unarticulated desires of people.

Traditional business logic is fundamentally inside out in nature and starts within a company and a product team: create an idea (similar to competitors), produce the product, and sell the product (in known channels). This chain of value creation is straightforward because it minimizes internal variables and lowers short-term risk. It is inherently deterministic, rational, and allows companies to optimize around fixed organizational structures and development processes. You see the top of the hill to be climbed and you climb it. This is what business is and has been for most firms and the people who work within them for a century or more.

Unfortunately, this traditional business logic climbs known hills—many times, at the expense of organic growth and an increase in long-term risk. Whole industries fall into ruts as players are willing to split up a known pie and compete directly with each other. Global competition or small firms seemingly come from nowhere to unseat great companies and decades long market leaders with some simple yet unrecognized vision and supporting invention. Take vacuum manufacturer Dyson for example. Dyson created an offering that changed the dynamics of home cleaning—men across the world became desperate to vacuum! There is simply no real reason Hoover or other previous market leaders in floor care could not have beat Dyson to the punch in delivering an exceptionally better product. It's just that their intent was squarely focused on maximizing their position in the current

TRADITIONAL LOGIC OF STRATEGY AND VALUE CREATION

NEW LOGIC OF STRATEGY AND VALUE CREATION

competitive space rather than compellingly transforming people's lives.

Jeremy Alexis, a professor at the Institute of Design with a particular interest in exploring emerging relationships between design and business practice, defines "a business" simply yet elegantly as "a value delivery system." When thought of in this way, the essence of strategy is not about beating your competitors nor creating products. Instead, as Alexis and some predecessors suggest, it is the act of creating distinctive value for people—and ultimately doing it in a way that it can be profitably sustained. The question then, is not how to most efficiently climb the hill you see before you (and have climbed many times), but which hill should be climbed? We would suggest it isn't the same hill your competitor is climbing. It is indeed as Sun Tzu said, "[success] without fighting is the true pinnacle of excellence."

Firms must identify what people value, communicate that value internally and externally, and provide it in meaningful and profitable ways. This seemingly simple change in perspective has dramatic ramifications for how firms organize and operate. While most are built around optimizing *existing* products, around *existing* operations, around *existing* channels of sale to reach customers, we suggest that the entire relationship be turned around. By first identifying what specific needs and desires are most highly regarded by customers, firms have

[1] Sun Tzu, *The Art of War*, translated by Ralph D. Sawyer (Boulder, Colo.: Westview Press, 1994), 177.

remarkable and actionable starting point with which to first communicate Vision and then Invent. It is essentially "outside in" to recognize that the needs of current and, more importantly, future customers define who you are and what you do. This is empowering in terms of successfully creating value for people, but problematic in terms of operating as an ongoing concern. It forces firms to be more agile and flexible than ever before. It forces them to be willing to regularly redefine what their business actually is and how to do it.

While this may sound extreme, Peter Drucker suggested a notion decades ago that was remarkably similar when viewed through a contemporary lens. He said there are three fundamental questions business managers and strategists must ask themselves. Inserting Alexis' definition for a business within Drucker's questions makes them powerful:

- What is the distinctive value we deliver?
- What distinctive value should we be delivering?
- What distinctive value will we deliver?

These questions represent the new strategic logic of distinctive value and underlie a larger shift from a focus around a century of optimization to our current era of Continuous Innovation. We want to produce truly compelling experiences and build our organizations flexibly to create them. This attitude is heavily dependent on perspective, so before we get into some tools to help do it, let's tell a story.

In late January 2007, a fascinating conversation about Apple's recently announced iPhone played out openly and dramatically online between blogger and Jump Associate Pete Mortensen and Wharton Graduate School of Business Professor Peter Fader. In an interview on the Wharton website, Fader made a few basic (and classically marketing focused) propositions. In essence, he said the iPhone was entering a much more mature and well developed market than the iPod did at its introduction; he said users will expect hardware keypads and Outlook integration because they were getting them already on their current smart phone devices; finally, he questioned the $500 introductory price point. We think Fader convincingly argued that iPhone would have had a hard time conquering the existing mobile phone and smart phone market.

But what he didn't understand was that *it wasn't supposed to*. Fader's description ultimately didn't represent Apple's strategic or innovation intent, as was recognized by Pete Mortensen in his blog on Wired.com. Responding specifically to Fader's analysis, Mortensen wrote that a "me too" response, as Fader suggested, "is one that classically occurs to marketers. Take the industry-standard feature set and add an innovative feature or form on top to set it apart from the current players.... Marketers tend to live (and die) by this strategy. And it definitely has its benefits. It pays attention to what already exists and works to meet the explicit demands of the market." But, it is also clear that developed markets tend to fall into deeply-dug ruts focused on direct competition and maximizing the current shared pie. Focusing entirely on your competition and market as it stands sets you up to lose sight of the bigger picture.

Enter iPhone. Mortensen appropriately recognized that Apple's strategy was different when he wrote, "So what game is Apple playing, you might be asking yourself? A strategic design play, naturally. Design isn't just about styling—it's about creating something great that meets the real needs of people." This basic premise is correct, but we disagree with the language used to describe it. While Apple is clearly a design-obsessed firm, it is not "Design" per se that defined their intent in this case. Instead, it was their focus on creating something great that would meet the real needs of people. The needs of Treo and Blackber-

ry users were being met quite well, so trying to compete with these products would just have further split the existing (albeit growing) smart phone pie. In this way, it was not only Apple's strategy that was different but, more importantly, their strategic logic. This is the logic of distinctive value.

So what was this unique value that iPhone was created to deliver? Let's consider your co-authors for a moment. We both had slightly better than commodity mobile phones and iPods. We carried them everywhere. The cost of these two devices together was approximately $500. Did we demand a hardware keyboard for texting for our first "smart phone"–like device? Not necessarily, because we had never had anything as robust as Blackberry or Treo before. Would we demand Outlook integration? No, because we didn't have it then on the phones we were using. Was $500 too much to pay? Certainly not, if it provided the functions of both—and so much more—with the convenience of only carrying one device. Talk about distinctive value! Apple was banking on the fact that there were probably ten million other people in nearly the same situation.

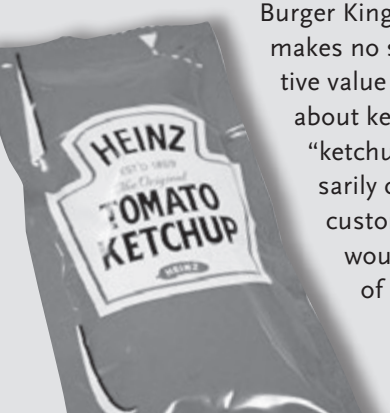
Regardless of whether or not iPhone would be as commercially successful as the iPod, it still illustrates a markedly different logic of how a business decides to compete. Would you and your firm rather produce commodity products or would you like to create experiences that transform people's lives? We would argue you *can* do it with mobile phones, enterprise software, or energy. While the process of how to do it is less clear than delivering low cost or "me too" products, the reward for transforming lives is tremendous if successful. Is it really so crazy to have this as a goal?

So all we have to do is figure out what our future customers value and we can guarantee our company's success. We wish it were that easy—but unfortunately, viably delivering distinctive value may be the hardest part. We've come to the point in developed society where we can build almost anything. However, we can't necessarily do it in a way which will provide the resources for our firms to continue. This is what many "user-centered" designers seem not to understand—and that can cause intense friction on interdisciplinary teams.

We witnessed this first hand while doing some work at a major Internet portal. Invited to a design review with an entire product team, we sat in shock and awe as the design manager stated within the first minute of the presentation that, "The new designs would be a lot better for users if they didn't have to have the advertisements on them." This is at a company whose nearly entire revenue was advertising based! Within that first minute, this design manager (who was a fantastic

What Not to Do as a User-centered Innovator.

Jeremy Alexis has a rule for this issue we think every innovator should memorize: **Don't design ketchup packets.** The basic premise is that ketchup packets are both frustrating to use and easy to improve through design. At first glance, it seems like it would make sense to act as a user advocate in this case. But, the problem isn't that McDonald's, Burger King, or Wendy's can't do it, but that it makes no sense financially to do it. The distinctive value offered by these restaurants isn't about ketchup packets. Creating a better "ketchup delivery vehicle" wouldn't necessarily cause an increase in the number of customers or the volume of sales while it would, most certainly, increase the cost of serving ketchup.



LOUNGEFROG/SXC.HU

designer, by the way) had demonstrated little understanding of how his own company made money. That is, he had no real knowledge of their *business model*, and had, in the process, completely ruined his group's credibility. At that point, it didn't really matter how good the designs were because few people in the presentation were even listening.

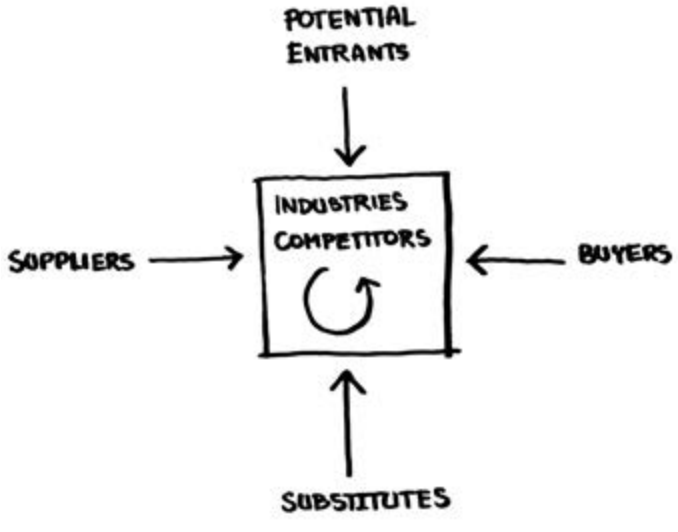
So we've got to create distinctive value for people but do it in a way that an organization can be sustained and grow. The very notion of creating an innovation chain by walking through parts of the Balanced Breakthroughs Model provides us a high-level model and process for creating offerings that fulfill the desire of potential customers, are feasible within our firm's capabilities, and viable financially. It is something of a scorecard that allows us to judge whether our project, and company, capitalizes on emerging and converging trends.

Previous chapters have focused on understanding desirability and feasibility but this, up to now, has been more about offering a new perspective rather than providing any specific means to answer the questions we posed in Chapter 2. This is partly because, as we noted at the beginning of this chapter, so much work has been written about how to understand and win in a competitive environment. Many of the analysis methods and frameworks presented by Porter, McKinsey & Company, and *Harvard Business Review* can provide new perspectives when your intent is to deliver distinctive value. We regularly use the well-known SWOT, McKinsey's 7 S's and 3 C's, Porter's Generic Strategies, Blue Ocean Strategies' value curves, and position maps to understand our company, competitors, the industry in which we are working, and offerings. You should use them too. That said, there are a number which we would like to share: Porter's Five Forces, scenario planning, Doblin's Ten Types of Innovation, and the value web. First let's consider the venerable Five Forces.

Porter's Five Forces

If there is a Sun Tzu of modern business strategy, it would have to be Michael Porter. A leading professor at the Harvard School of Business, Porter's ideas on competitiveness represent the foundation for strategy courses taught today throughout the world. His first book, *Competitive Strategy: Techniques for Analyzing Industries and Competitors* (1980) is a landmark study of how firms understand the dynamics of their industries. In it, Porter introduced a series of tools for understanding various parts a company's ecosystem. His ***Five Forces*** represent a unified generic framework that every MBA uses and is applicable to entire companies or, more granularly, to new product or service ideas. It is good practice to quickly complete a Five Forces evaluation whenever seriously considering some concept to bring to market.

PORTER'S FIVE FORCES



The Five Forces driving industry competition and a new offerings success include:

Suppliers | *What is the bargaining power of suppliers?*
Suppliers can enable or strangle your business so it is essential to understand them well. Embedded within this larger question of bargaining power are sub-issues to consider like what are a supplier's switching costs? What is supplier concentration compared to firms concentration? What is the threat of forward integration—could they take your place with a few moves?

Potential Entrants | *What is the threat of new entrants?*
Industries are more or less likely to allow for new competition. For example, the travel agents industry is highly deregulated, has virtually zero start-up costs, and has exploded in the last decade while the oil industry is incredibly difficult to enter and has gone through a slow march to consolidation. A few of the finer points to consider with potential entrants include barriers to entry, switching costs, capital requirements, access to sales channels and distribution, and brand equity.

Buyers | *What is the bargaining power of customers?*
Some markets allow for extreme power over buyers while in others, buyers have considerable power. A few keys issues to consider when examining buyer position include the firm to buyer ratio, buyer access to information, volume, switching costs, the ability to integrate backwards and replace you as a supplier, and most importantly, buyer price sensitivity. Again, knowing these issues or, at least knowing what you don't know, sets you and your team up for good recommendations on research and execution plans.

Substitutes | *What is the threat of substitute products?*
Honestly, this is one of the most difficult questions to answer. If you know of substitutes you assume you would consider them in your product and strategic planning. Unfortunately, all too regularly firms are caught off guard by new entrants to their markets either because of new capability developed by a competitor, entrants from other markets, or a simple new elegant solution that more appropriately meets the needs of customers. We suggest innovators regularly examine problems and solutions in terms of their specific form, larger category, generic benefits, and budgetary level. Remember to address the benefit, not just continue to crank out products because that's what you has always been done. As a former CEO of Black & Decker once proclaimed, "People want holes, not drills."

Industry Competitors | *How intense is the rivalry between existing firms?*
Anyone who has worked both in growing and flat markets can attest to the difference. Competition, while intense in growing markets, just do not reach the same level as in flat markets. Growth greases the wheels, allows for less optimized and exploratory workflows, and nice paychecks. As markets mature, the number of competitors, lower rates of growth, control of channels, exit barriers, focus on brand, and large marketing budgets generally create rivalries between firms that shed a lot of red on balance sheets. Be prepared to spend a lot—or have a fantastically elegant solution—if you're entering an intensely competitive market.

The Porter's Five, like most of the tools in *Naked Innovation*, forces individuals within organizations to look outside in the world. It doesn't provide specific answers but better informs the more basic questions we have to ask ourselves about what distinctive value we are, we should, and we will deliver in our

industries. While the Five Forces model is largely focused on the here and now, another tool we use is more focused on the many potential futures *which could be*.

Scenario Planning

Scenario planning was first formally developed by the U.S. military and then put into famous application in the corporate world by Pierre Wack at Royal Dutch Shell. While it sounds mysterious, humans are pretty much always doing some level of scenario planning. Think about this morning before you left your house or hotel room. As you were getting ready, you were playing out what may or may not happen that day in your head. If the traffic was bad, maybe you should leave a bit earlier. If a meeting went well this afternoon, you may have to work extra hours this weekend. The basic gist is that you consider the fact that external forces impact your actions and thus could create any number of possible futures.

Scenario planning as executed in a corporation or an innovation project is similar but far more organized. It is also focused on the extreme, especially negative ones which would drastically change the landscape. Using scenario planning in the early 1970s, Royal Dutch Shell considered the story of a world in which oil supplies were at issue and prices skyrocketed. While their competitors focused on optimizing their own operations around the known, Shell pushed forward with an array of expensive investments and long term pricing contracts. These paid off when an extreme in one of the big trends they were considering, the instability of the Middle East, reared its ugly head and caused the oil crisis of that decade. While the rest of the leading petroleum companies, the so-called Seven Sisters, were scrambling, Shell profited handsomely. Scenario planning can be used to mitigate risk and prepare for the future but also as a generative tool on innovation projects. Telling stories of the future and then imagining how your client or firm could succeed in them is an untapped method for new ideas and strategic planning. The point is not to try to discover the one "true" future but to realize there are many ways the future can end up and being actively prepared to deal with a combination of them. We might not be able to define the future but we can, indeed, use our resources to shape it. The basic steps of scenario planning are these:

- Identify a focal issue or decision
- Research and list key trends related to it—make sure to cover trends in Politics, Economics, Society, and Technology (PEST)
- Score trends based on significance to the problem and uncertainty—more significant trends that are less certain should get more weight and come up on top
- Select the top two trends from your scoring
- Create a position map with the two trends which illustrate extremes in their possible outcome
- Define the quadrants with relevant names
- Make scenarios, or stories of the future, which pertain to the quadrants
- Use these stories to spot opportunities and risks for your innovation project
- Incorporate these insights into your solution or road map

Frankly, scenario planning is a method which really requires a bit more explanation than we can provide in Naked Innovation. We would strongly suggest you check out one of the several excellent books on the topic; personally, we like Peter Schwartz' *Art of the Long View*.

So now (if you didn't know it already) you know Porter's Five Forces and a bit about scenario planning. We've promised to outline Doblin's Ten Types of Innovation but the power of the Ten Types is so great that we'll spend the entire next chapter doing it. We'll also cover Value Webs in Chapter 9: Using Frameworks.

Before You Go On...

Let's review the keys to strategy in Naked Innovation.

- The focus of strategy as it pertains to innovation is not on competitors but on delivering *Distinctive Value* to people.
- The new logic of value creation in this increasingly competitive environment is *outside-in* in nature by *identifying value*, *communicating value*, and then *delivering value*.
- This new focus of strategy and logic of value creation does not invalidate the traditional tools for strategy but forces us to use them in new ways. Use Porter's Five Forces, SWOT, etc. In addition, new tools like Value Webs and the Ten Types of Innovation need to be created to address the new dynamic—more on these in coming chapters.

RESOURCES FOR STRATEGY & INNOVATION

The Classics of Strategy

Drucker, Peter. *The Essential Drucker: In One Volume the Best of Sixty Years of Peter Drucker's Essential Writings on Management*, New York: Harper Collins, 2001.

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Prahalad, C.K. and Hamel, Gary. "The Core Competence of the Corporation." *Harvard Business Review* 68 (May/June 1990): 79–91.

Schwartz, Peter. *Art of the Long View*. New York: Doubleday, 1996.

Sun Tzu. *The Art of War*. Translated by Ralph D. Sawyer. Boulder, Colo.: Westview Press, 1994.

Innovation & Business Models

Christensen, Clayton. *Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*. Boston: Harvard Business School Press, 1997.

Kim, W. Chan and Mauborgne, Renée. *Blue Ocean Strategy: How to Create Uncontested Market Space and Make the Competition Irrelevant*. Boston: Harvard Business School Press, 2004.

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Patnaik, Dev. *Wired to Care: How Companies Prosper When They Create Widespread Empathy*. Upper Saddle River, N.J.:FT Press, 2009.

Slywotzky, Adrian J.; Morrison, David J.; Moser, Ted; Mundt, Kevin A.; and Quella, James A. *Profit Patterns: Thirty Ways to Anticipate and Profit from Strategic Forces Reshaping Your Business*. New York: Crown Business, 1999.

JASON RUST/FLICKR

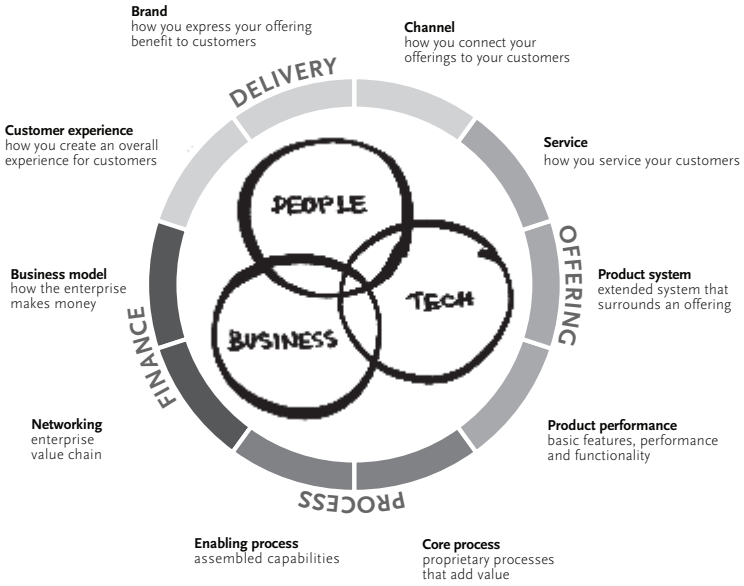
7 Understanding Innovation

The Ten Types

We've talked about how people and firms create vision and invent—the Innovation Equation. We've also shown that the market rewards balanced offerings and then went into detail about how to diagnose emerging trends with people, technology, and business—trends which help you build a vision and set the stage for great invention. Now let's look more closely at how that plays out in the offerings we create. What exactly does it mean to be "in equilibrium with the demands of the market"? How can combinations of different *types* of innovations create compelling breakthroughs that sustain consumer interest and profitability?

While many gurus have outlined innovation typologies, we'll defer to Larry Keeley and IIT Institute of Design Professor Vijay Kumar for inspiration and a starting point. Through years of research and development, Larry, Vijay, and others at the innovation strategy consulting firm Doblin Inc. have defined ***Ten Types of Innovation*** and how they interrelate:

- Customer Experience
- Brand



TEN TYPES OF INNOVATION

Ten Types of Innovation & Balanced Breakthroughs

It's not surprising to us that the Ten Types of Innovation map to what the market rewards—we create things to meet its needs. That said, it is a powerful guide to use in creating and evaluating concepts. Is your company great at creating well-performing products but doesn't put the same effort into networks and partnerships? Maybe it's exceptional in providing B2B processes but could provide new value in terms of user experience? Regardless, these Ten Types give one a starting point for considering what's next for your project or company more generally.

- Channel
- Service
- Product Systems
- Product Performance
- Core Processes
- Enabling Processes
- Networks & Partnerships
- Business Model

Big developments in one type can generate tremendous value for people and companies. Smaller developments across multiple types working together can create even bigger and more powerful breakthrough innovations. How you mix different types of innovations creates balance with what the market rewards. Let's define these types and give an illustrative example for each.

Delivery

Customer Experience | *How you create an overall, connected experience for your customers*

American Girl started as a small, niche doll manufacturer, but providing a consistent, compelling, and highly differentiated customer experience has helped them become a powerhouse producer of toys, movies, and a unique retail phenomenon: American Girl Place.

Brand | *How you express your offering benefit to your customer*

Disney is one of the most powerful brands on the planet—largely through relentlessly leveraging a trusted name in family entertainment into an ever broader array of offerings.

Although not all their ventures have been successful, they have used their brand to sell everything from TV shows to movies, games to music, theme parks to cruises, retail shopping to mobile phone service, and housing communities.

Channel | *How you connect your offerings to your customers*

Apple is regularly heralded as in innovation powerhouse and their powerful use of sales channels is no exception. Their retail stores serve as temples to Apple products, both elevating their value and allowing individuals to engage with them in a transformative experience far beyond anything possible at a generic big box retailer, computer specialty store, or online. Contrast this with what Gateway did with their "Gateway Country" stores. It isn't enough to just open a local store with your products—these channels must also provide distinctive value.

Offerings

Service | *How you serve your customers*

Progressive Auto Insurance has redefined what providing service means in the auto insurance industry and has profited mightily because of it. Its first bold step, providing competitor's rates alongside its own, *even when its rates were higher*, proved a remarkable tool in fostering trust and long-time customer loyalty. The company has continued to introduce a slew of service innovations and, most recently, announced "Concierge Level" claims-service facilities in 18 metropolitan areas. Clients bring their damaged cars directly to Progressive service centers, receive a beeper and a rental car, and are notified when repairs are done—these centers make the process more efficient while providing dramatically better service.

Product System | *Extended systems around an offering*

Microsoft Office bundles a variety of specific products (Word, Excel, PowerPoint, etc.) into a system designed to deliver outstanding productivity in the workplace. Office has become the platform of choice for knowledge workers and achieved this mainly through its initial product integration.

Product Performance | *Basic features, performance, and functionality*

Few (other than competitors) would argue that Dyson vacuums perform better than any other. James Dyson's obsession with a vacuum that wouldn't lose suction was the starting point for a company culture bent on delivering unmatched performance. That performance is the leading reason Dyson is the number one company in floor care.

Process

Core Processes | *Proprietary processes that add value*

Pixar is amazing not only because of their compelling (and incredibly lucrative) stories, but also because of the proprietary pipeline they built to manage story creation and development. With their cutting edge Renderman rendering technologies, inclusive production management systems, and a carefully defined creative process, no other company can match Pixar's internal systems, which consistently produce successful entertainment products

Enabling Process | *Assembled capabilities*

SAP has innovated more in enabling processes than any other. Hasso Plattner and other company founders first recognized the need for Enterprise Software and then, over the next 35 years, built a suite of software platforms which support the core functions of thousands of large companies. Interestingly enough, as SAP's customer base grows,

broader and more differentiated innovations have resulted, all based on the same big enterprise software idea.

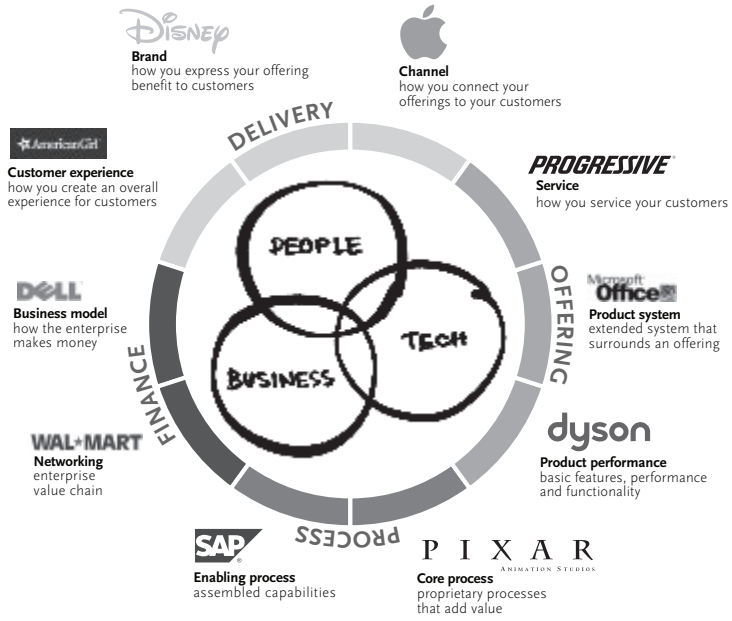
Finance

Networks | *Enterprise value chain and web*
Wal-Mart built a company around a powerful infrastructure of suppliers, transportation systems, and information technology—together worth far more than a simple sum of its parts. By understanding and controlling the network around them, Wal-Mart can cut costs without dealing with details themselves.

Business model | *How the enterprise makes money*
Dell revolutionized the personal computer business model by collecting money before a consumer's PC is even assembled and shipped—resulting in net positive working capital of seven to eight days. Dell wins not because of better products, but because of a better business model.

These Ten Types of Innovation are remarkable in their breadth and power. You may find yourself both excited about using them, and bewildered at their implications, just as we were when first introduced to them. What we think is particularly cool is that the Ten Types give us a lot of options for us to consider whenever we are trying to develop a winning combination of innovation strategies.

Before getting into the details how the categories and types of innovation specifically play out in offerings, let's make what we think is an obvious point. Most people who work to develop new offerings focus on performance—taking existing products and services and making them better. It sounds simple, but the ramifications of this point are important. A focus on performance leads to being absorbed with *features*—and generating new ones (or augmenting old ones) by looking at competitors

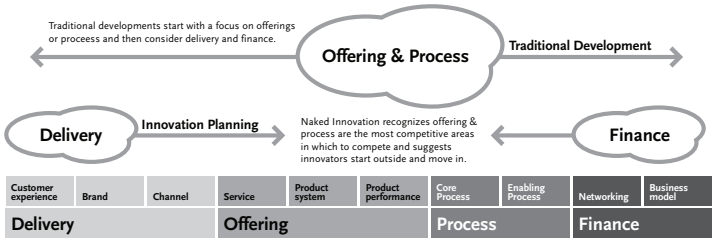


TEN TYPES OF INNOVATION *(WITH REPRESENTATIVE EXAMPLES)*

DIAGRAM ADAPTED FROM LARRY KEELY AND DOBLIN INC.

and trying to one-up them. We see this ingrained offering performance focus again and again as we talk to more people who work in product and service development. It seems as group, innovators are obsessed with the *things* we make and not necessarily the pieces which fit around them.

So a lot of our collective effort is spent in making products perform better—but is that the best investment of time, money, and other resources? If success hinges entirely on winning the performance race, then there's only going to be *one* winner, and everyone else is just playing catch up. In reality, while some customers are willing to pay a premium for the best (or maybe



USE INNOVATION TYPES STRATEGICALLY

even the second best), many other customers are balancing performance against other benefits, including affordability, compatibility with their current systems, convenience of delivery, brand cachet, or a compelling customer experience. And it may seem counterintuitive, but not everything a company does directly touches a customer, even though it directly contributes to the value of the offering. Improvements in the entire development, production, sales, and support chain can dramatically strengthen an offering.

This realization is more than just an interesting fact. Your projects and your company's portfolio can become stronger by knowing and using these Ten Types of Innovation. You can use them to push one-dimensional projects (and offerings) into well-rounded ones which provide value in several ways. This is especially relevant when forcing your team to begin a project considering better business models, platforms, and new customer experiences. These pathways of innovation are less well explored, and receive less investment—which will make it easier for *you* to compete if you're the only one on the Road Less Traveled. When tied together, innovations in multiple areas can transform a market space, significantly disrupting competitors while being difficult to copy. The Doblin rule

of thumb is that innovations in three or four types, combined together and introduced at once, provide a powerful foundation for sustainable competitive advantage. Let's look at two examples of how this plays out in reality.

Dyson Vacuums

First, let's come back to our friend James Dyson and how his vacuums win in the marketplace. We have mentioned that Dyson vacuums have a clear advantage when it comes to Product Performance: they really do suck better than the rest! As he noted in his biography, traditional vacuums regularly get clogged and the bags are horribly messy. We all know this. He identified this need that was staring all of us in the face and devoted himself to creating a better performing solution. It is for this reason that they command an enormous price premium. But the Dyson vacuums win on more than performance alone. As a Product System, they beat competitors as well. No vacuum bags save extra trips and hassle. Dyson also wins big in terms of Brand and Customer Experience—has any home cleaning product been as sexy as a Dyson? Even men, not generally considered the "cleaning" gender, want to use them.

What Dyson and his company did was great but it wasn't like they launched a space shuttle. They successfully identified opportunities and developed offerings to fulfill them—building products to address the unique needs of first British, then Japanese, then North American consumers. They have been incredibly innovative in a space where competitors had little to no new ideas for years. Sure, Hoover could have figured out that people were horribly frustrated with vacuums—all it would have taken would have been a few in-home observations. Couldn't they have taken this realization and produced a better vacuum? Yes—but they didn't. Dyson did, and in the process, changed the industry. We'll see if they can repeat their success with other products.

AN EARLY GOOGLE HOMEPAGE

Google

If making it into the dictionary is a measure, Google is a success. According to the Oxford American Dictionary, to "google" is to "use an Internet search engine, particularly Google.com." While Dyson realized dominance with some focused innovations in the relatively small home cleaning space, Google has defined a new future. In the process, they have scared the hell out of entire industries by embracing many types innovation and demonstrating a willingness to integrate many formerly separate ideas. By our count, Google's collective efforts use every of the Ten Types of Innovation. It takes a few visionary initial ideas combined with some luck and an enormous cash reserve to actually get to where they are now. Rather than dwell on their current state (so many people do that—and frankly, our book isn't long enough to address the possibilities), let's consider them in their earlier days when they really only had one product.

Google's now widely used search engine was born in 1996 out of a research project by Larry Page and Sergey Brin at Stanford University. Both Ph.D. students in computer science, they theorized that a search engine that analyzed existing link relationships between websites—votes of confidence in their view—would produce more relevant results than ranking

them according to the number of times some search term appeared on a page. In fact, the system was originally nicknamed BackRub because it checked these "back links" to estimate a site's importance. For anyone who used Google in the early days (especially before a whole industry developed to "game" its system), it clearly outperformed its competitors.

Put simply, Google-the-search-engine started with a powerful innovation in Product Performance. This was relatively quickly followed by a number of other types of innovations which built on their performance advantage. First, the Customer Experience of the initial site was simple but completely differentiated them from competitors. While Yahoo! and Microsoft were trying to build portals with endless features and graphical doo-dads, Google presented a simple beta that assumed users wished to do nothing more or less than search.

It is a fantastic example of the rule that great design does not mean offering more features or being "over-designed." The experience really was innovative because it was designed (however simply) to meet the most pressing needs of its users: to quickly find relevant information in the vast sea of information also known as the Internet. Google had appropriately balanced its capabilities and user desires but hadn't yet really understood how to make the company feasible in a sustained way. No revenue was coming from Google.com itself.

So what made Google the giant it is today? In 1999, it combined these two big developments in Performance and Experience with a huge new innovation in Business Models—even though it was originally created by someone else. The concept of auctioning online ads started with Bill Gross and his new venture incubator, Idealab, which launched GoTo.com. What Goss and his team had built was a system that allowed advertisers to bid on particular words, and when users

searched for those words, the advertiser's message popped up alongside the search results. It worked so well that Yahoo! bought GoTo.com, renamed the company Overture, and used it quite successfully—with Google (ironically) as the underlying search technology.

The smart people at Google took notice and built their own version of an online ad auction called AdSense. Was AdSense a better version of the technology? Probably so. Was this idea something they wouldn't have come up with on their own? Probably not. Regardless, Google took the idea, integrated it with their other offerings, and has become far more valuable as a company than Yahoo!. Google's infringement of Yahoo! patents was glossed over with a $275 million settlement—a minuscule amount compared to the profits Google made from AdSense.

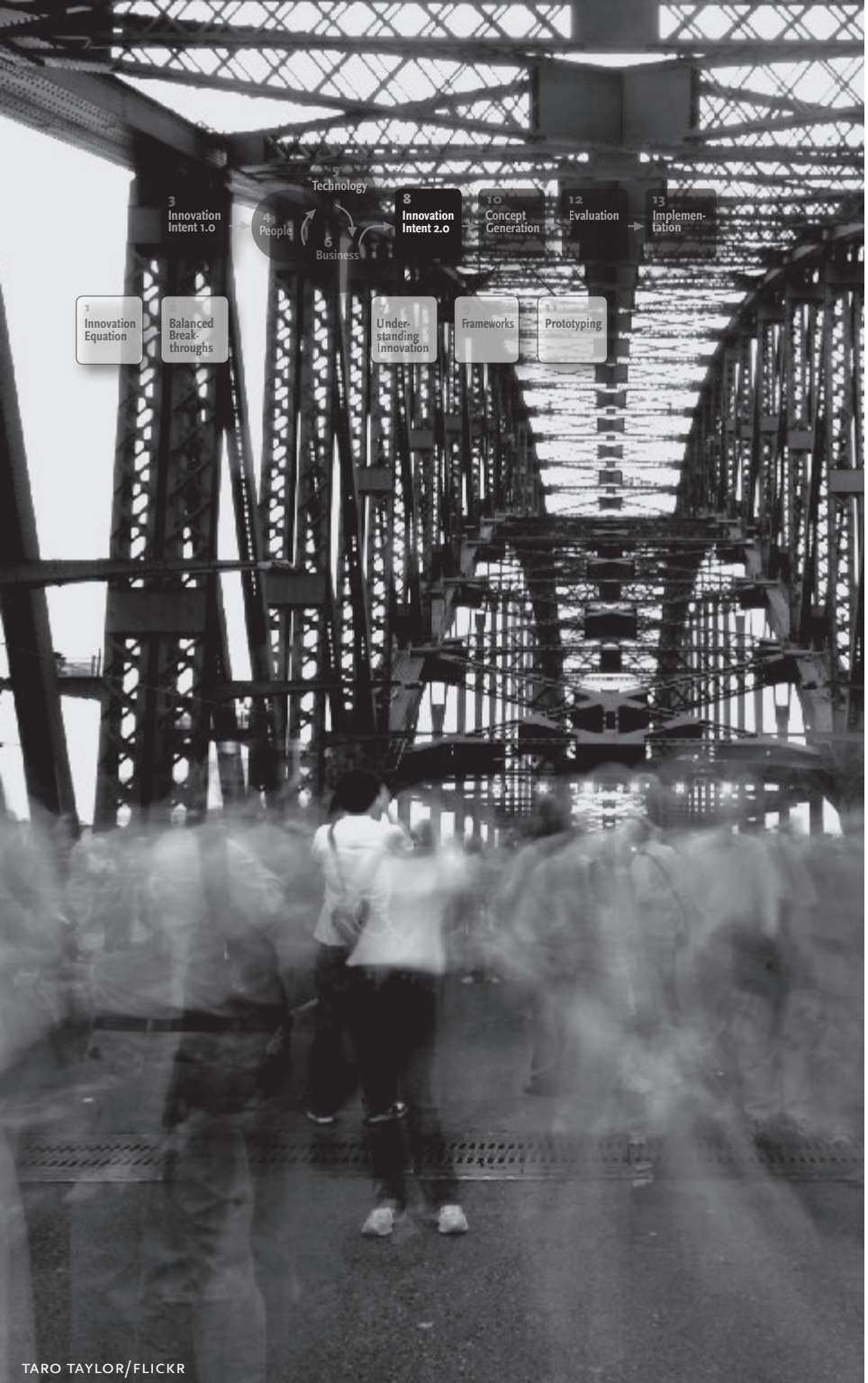
Intellectual property issues aside, what is really important is that someone at Google recognized they needed to balance their offerings feasibly and the GoTo.com / Overture / AdSense model was the perfect fit. This integration of their former search engine Performance and Experience innovations with an appropriate Business Model and smart Networking extensions perfectly balanced with emerging trends. As William Gibson might say, Google's future really already did exist. How people used computers, the rise of the Internet as a technological platform, and a new willingness by businesses large and small to try new contextually based advertisements resulted in a company whose future is so big, few (quite possibly even Google's founders) can now fully comprehend. The visionary short film *Epic 2014*, released online by Robin Sloan and Matt Thompson, presents just some of the possible ways life could be made different in the very near future, thanks to integrated innovations of the kind Google is pioneering. (If you haven't seen *Epic 2014*, it is well worth a look. It's easy to find because you can just google it!) The company's unique portfolio of innovations and a genuine willingness to try new things means they have a lot of options.

Luckily, you don't have to have Google's resources to act like them. Any development team can embrace the Ten Types of Innovation and tease out dramatically new ways to deliver distinctive value to your current and future customers. In a shorter project, you can introduce little innovations in the types you hadn't previously considered to make them stronger. At a strategic level, you can explore types as new core competencies in which to invest and distinguish yourself from your competitor.

By now, you've come a long way from your initial Innovation Intent. After learning about the various domains that affect it, and seeing how the Ten Types of Innovation may suggest new ways of thinking about the problem, it's time to recallibrate. Next, you'll take all your insights and use them to reframe the problem, developing a revised and improved Innovation Intent.

RESOURCES FOR UNDERSTANDING INNOVATION

Doblin Inc. "Ten Types of Innovation." Doblin Inc. http://www.doblin.com/IdeasIndexFlashFS.htm.



TARO TAYLOR/FLICKR

8 Innovation Intent 2.0

Reframing the Challenge

THE CIMARRON, BY CADILLAC (1982–1988). R.I.P.

DUSTIN W. ADAMS/WIKIMEDIA COMMONS

We weren't there, so we can only imagine the discussion that took place in the headquarters of GM's Cadillac division at the dawn of the 1980s. Perhaps it was an accountant that first piped up, "Look, guys, we have to do something—these government CAFE fuel standards requirements are going to kill us unless we come out with a smaller car with good fuel efficiency." Then maybe a marketing guy wondered out loud, "Well, you know that all the yuppies have been buying those smaller luxury cars, like BMWs. We should tap into that demographic!" They turned towards an engineer, who pushed back her Farah Fawcett feathered hair and said, "I've got it! We take the standard J-body platform and put some nicer details on it, and presto: a small Cadillac we can build cheaply!"

Maybe this wasn't how it played out, but at some point, there were some fateful decisions made by Cadillac that resulted in

another fateful innovation misstep for what used to be one of the most forward-thinking auto brands in the 20th century. Rushed into production, and looking for all the world like a Chevrolet Cavalier dressed in prom-night finery, the Cadillac Cimarron underwhelmed the market, and is now widely regarded as the least successful Cadillac ever made.[1] Tom and Ray Magliozzi's *Car Talk* show on National Public Radio dubbed it the 8th worst car of the millennium.[2]

But how could that be? After all, the company had elements of the Balanced Breakthroughs model in play: they combined insights from looking at *People* (people are buying small luxury cars, like BMWs), *Technology* (use standardized car platforms to cheaply customize several models from one base), and *Business* (broaden the portfolio of models with a high-mileage car). Again, we weren't in the room, so we can only speculate at how Cadillac misstepped in developing the Cimarron. We think they probably took the first, obvious answers to their research questions as definitive. They didn't seem to consider *why,* or to check if they had asked the right questions. In short they didn't ***Reframe***. It is not enough to do a little research and then run off and create a new product—that does not in itself produce innovation.

Back in Chapter 3, we said that you should get started with an initial problem statement, the Innovation Intent 1.0. That early attempt at defining the arena you would be working within led to explorations in three different areas:

- People
- Technology
- Business

[1] Warren Brown, "Gutsy Roadster Says Cadillac Is Back: 2004 Cadillac XLR Roadster," *Washington Post*, August 22, 2004, p. G01.

[2] Tom and Ray Magliozzi, "What's the Worst Car of the Millennium?" *Car Talk,* http://www.cartalk.com/content/features/Worst-Cars/.

These explorations should have resulted in some valuable insights and data in each area. The task now is to see how your findings fit together to point out, with increasing clarity, the direction for your innovation effort. The ***Innovation Intent, Version 2.0*** is critical to ensure you will be working on the *right problem and opportunity*, with the *right resources and institutional mandate*. Otherwise, you may find yourself with a Cimarron on your hands—something the apparently meets the requirements of surface research (or management's directives) and specifications documents, but ultimately fails to be rewarded by the market.

Problem and Opportunity Drivers

We will get to our revised Innovation Intent by deeply understanding what underlies and contributes to what we have been able to observe in People, Technology, and Business. Just as a doctor needs to treat the underlying disease, instead of just symptoms, so innovators need to respond to drivers of problems and opportunities. Uncovering these drivers can be a fuzzy process, but if you're willing to roll up your sleeves and involve your whole team in wrestling with loosely structured information, you'll get there. Although we think anybody can trace the driven forces that result in problems and opportunities, this is also an area where an outside innovation or design consultant can be of particular help in offering an independent perspective.

We've found that a good way to proceed is with visual knowledge management tools—by which we mean Post-It™ notes (preferably the bigger ones) and markers (and of course, index cards or software-based tools like Microsoft Visio can also work). Start with a separate Post-It for each key insight produced by your research. It helps to keep observed Problems and potential Opportunities separate for now. Working as a team, move the Post-Its around to create clusters of related

Problems and Opportunities. Use a larger Post-It to label the cluster—or if you're doing this on a whiteboard, you can write in a title.

The Five Whys

With each cluster (and yes, it's OK if it's a cluster of one insight), try to figure out what the underlying driver is. We use the term "driver" instead of "root cause" because we like to avoid implying that it's the *only* cause... but at the same time, we're going to be using one of the techniques of root cause analysis: the ***Five Whys***, developed originally by Sakichi Toyoda, and used both within Toyota Motor Corp. and as part of the Six Sigma process.[1] The idea is to look at an observed effect and ask *Why?* five times—with each iteration trying to probe more deeply. (It doesn't always have to be five times, but Toyoda's research suggested that five *whys* usually gets to the core issue—plus it's easy to remember.) Here's an example:

› Personal savings rates have been declining since the 1980s.	*Original Observation*
› Why? People are spending more than they used to.	*First Why*
› Why? It's more fun to spend money than to save it.	*Second Why*
› Why? People get a more immediate and personal benefit by spending money than by saving it.	*Third Why*
› Why? The risk of future calamity seems much further off.	*Fourth Why*
› Why? The perceived level of prosperity has risen, along with lifestyle expectations.	*Fifth Why*

This isn't a magic technique that will guarantee answers—like many other phases of the innovation process, the Five Whys is a context for your team to have a good discussion about underlying drivers. Ideally, you will find one or two drivers that explain multiple observations, insights, and opportunities—that's partly why it's best to ask the Five Whys on clusters, rather than individual insights. To be a little more rigorous in your analysis, we also suggest that when you think you've identified a Problem or Opportunity Driver, you test it with the following additional five questions:[2]

1. What proof do I have that this driver exists? *(Is it concrete? Is it measurable?)*
2. What proof do I have that this driver could lead to the observed problems or opportunities? *(Am I merely asserting causation?)*
3. What proof do I have that this driver actually contributes to the observed problem or opportunity? *(Even given that it exists and could be a causal factor, how do I know it wasn't actually something else?)*
4. Is anything else needed, along with this driver, for the observed effect to occur? *(Is it self-sufficient? Is something needed to help it along?)*
5. Can anything else, besides this driver, lead to the observation? *(Are there alternative explanations that fit better? What other risks are there?)*

[1] You could also call this the "Act Like a Five Year Old" method.

[2] The Five Whys method has fallen out of favor in the engineering context it started in, because it is seen as insufficiently rigorous. Strengthened by these additional questions, suggested by Bill Wilson (http://www.bill-wilson.net/b73.html), we think it works sufficiently well for innovation discussions.

You may even need to do some further research to validate the drivers you've identified. Fair enough—remember, this is an iterative process.

We recently applied problem/opportunity driver analysis to a project for a consumer electronics company. They believed they needed to provide better customer support to users of one of their products, because people were frustrated at the difficulty they had with a particular feature—and we thought the project might be about a better user manual, or a newsletter that would explain the features better. We had a lot of observed problems and potential opportunities to work with, falling into the following clusters:

- Customers were rating the company's products lower on satisfaction surveys than they had before
- Customers were recommending the product to their friends less than in previous years
- Customers described the way a different product was doing a great job in meeting a similar media access need, in another context
- Many customers described being originally attracted to the product by particular features described by the salesperson
- Although the product was supposed to be easy to use, most customers couldn't figure out how to use those features

Our team spent several hours rearranging Post-It notes and asking *Why? Why? Why?* until we identified two drivers:

- **Problem Driver:** The product was being marketed as simple and easy to use, but was not actually that easy to use, leading to frustration
- **Opportunity Driver:** The widespread use of new kinds of portable media devices presents an opportunity for home-based consumer electronics to work better with them

Our innovation project thus was focused on addressing these underlying issues, rather than just trying to fix the observed problems.

Let us alert you to a common temptation in innovation projects: leaping hastily to a single solution. While it is true that inspiration can strike any time, we also have found that premature solution development can distort both research and analysis, and persuade you that you really need, say, a new website, when perhaps what you need is a less-glamorous direct mail campaign (or even not a marketing effort at all—maybe you need a different product). You know the old saying about people with hammers seeing everything as a nail. When you feel a brilliant concept coming to mind, jot it down and put it in a "parking lot" for future consideration. Stay focused on the reframing—you can come back to your idea later.

Which isn't to say that you don't need to have some sense of where your potential solutions will lie. In fact, a healthy exploration of the different varieties of solutions may well help you reframe some Proposed Innovation Challenge into a solidified Innovation Intent. That's where the Ten Types of Innovation (from the previous chapter) can be an invaluable tool—even as you consider the problem/opportunity drivers. With your clustered insights before you, review the Ten Types, and see which drivers might relate to each one, either as a way of addressing them, or as a way of deepening your understanding of some particular driver itself. For our consumer electronics company above, we realized that part of the problem with the feature/ease-of-use gap was that their business model was about selling the product,

one-time, whereas their customers' level of expectation was much more in line with a service: I just want simple, easy access to media around the clock, and I'm even willing to pay a monthly fee if it would deliver the distinctive value of in-home ease of use. The Ten Types of Innovation are a powerful lens through which to view your project, and can reveal unexpected connections and gaps in the promise you have made to your customers.

Innovation Scale—How Ambitious Are You?

As you begin to see the parameters of your Innovation Intent emerge, your team must also ask itself two key questions:

How aggressively can we innovate?

At different stages of a product's lifecycle, and with different levels of risk tolerance, there are different scales of innovation:

Innovation Scale	Market Lifecycle Stage	Innovation Category	Requirements
New Platform New Product	**Early** High risk and high reward *Examples: XBOX or Google Search*	**Disruptive Innovation** Focus on macro industry trends and technology investment and development	Significant corporate commitment of time and resources at many levels of the organization
Product Line Extension	**Mid-life** Category growth has flattened, and commoditization is increasing *Examples: Office 2007 or Google Academic*	**Sustaining Innovation** Focus on product performance, customer need, process efficiency, and user experience in product and sales	Moderate corporate resources, support from stakeholders of current products, mostly within a business unit or the like
Incremental Change	**Mid-life to End of Life** The category is taken for granted; customers buy largely on price *Example: Windows service releases*	**Incremental Innovation** Focus on easy feature improvements, marketing and business model tweaks	Minimal corporate resources, generally the domain of an individual product team

Further discussion of innovation scale can be found within Geoffrey A. Moore's *Innovating Within Established Enterprises* and Clayton M. Christensen's *The Innovator's Dilemma*, from which we've adapted the table above.

Different scales of innovation come with different kinds of expectations, risk levels, and requirements. We should clarify that each kind of innovation is legitimate, as long as it is aligned with business, people, and technology—distinctive value can be produced even in small amounts. Earlier, we disparaged the apple-tini, but there's many a profitable bar or nightclub whose profits are anchored by a line of fruity-tinis. Not everything has to be an iPod or Velcro.

Now is a good time to decide how strong your team can "push" on the innovation project before you. A lot of this will depend on the guidance you have received from management (or shareholders, if you are management), so then you also must ask:

Do we have sufficient institutional mandate and support to accomplish the innovation task we see emerging?

Just because you see a good opportunity, and have some good ideas for pursuing, doesn't mean that your company is willing to invest in the development. It may not be the right strategic move, or it may simply be more than they want to do at the moment. In the midst of the Internet boom, we developed a comprehensive business plan for a large-scale Internet portal targeting our employer's key market—it would have been a first-of-its kind play, and had already garnered the support of reputable leaders in Silicon Valley. But it would have taken too

[1] Not that we're complaining—in light of the dot-com bubble bursting a year later, it was probably just as well we hadn't pursued it.

much focus off of existing efforts, and despite the expected benefits, was put on the shelf.[1]
Sometimes there are sacred cows within a company that resist modification, until you know just the right person to get on your side. You may not be able to launch a full-scale innovation effort to entirely change the product, but you might be able to do a more modest research and prototyping effort. The result could be a clear and compelling vision of the benefits for more significantly tackling the opportunity in a future development—in effect, helping point the direction so that the next team (whether you are on it or not) will have an easier task.

By now, your team's work area is probably littered with Post-It notes, the whiteboards are covered with scribbles, and you may be all "talked out." If so, you're doing fine—coming to agreement on the fundamental question of Innovation Intent is quite difficult. Take a break if you need to, because there's one more step: putting it all together.

Putting It Together: Innovation Intent, 2.0

Return now to your initial framing of the project: Innovation Intent 1.0. Hopefully you've been adjusting it along the way as you've learned more. Now is the time to make sure it fully reflects the insights you've gained through research and team conversations. In addition to revision what you already had, version 2.0 adds two more questions at the end:

What started as a working hypothesis is now grounded by insights and your increasing familiarity with the problem space. You may even have shifted the problem space to one that is obvious to one that hasn't yet been noticed by anyone else—an incredible opportunity to provide unique value. And without specifying *how* you will do it, the Intent points your company towards opportunity, even if it requires stretching your capabilities.

Innovation Intent | Version 2.0

The problem we are trying to solve

For whom

Why it matters

How other solution attempts have failed

What will make our solution different

The greatest opportunities

The biggest risks

This isn't like setting a traditional business goal—rather, you are defining the space in which you will focus your creative energies on creating new and unique value for your customer. Let's consider the example of Cemex, the third largest cement maker in the world. At some point, an executive in their Mexico City headquarters might have said, "We need to sell more cement. Let's leverage technology and effective marketing systems to gain market share and global prominence." But that wouldn't have pointed towards any particular innovation, especially in a mature (and some would say, boring) commodity market like cement.

Instead, they carefully studied their home market, and discovered a vast, underserved community of potential cement buyers all around them. Many homeowners in Mexico build (and add on to) their own homes, working intermittently as they have time and funds available. Getting cement delivered by a traditional company was a scheduling and financial nightmare. With insights into the role of a Mexican home as a patrimony

CEMEX Innovation Intent | Version 2.0 *(hypothetical)*

The problem we are trying to solve

Make home building and expansion easier

For whom

Working class families in cities

Why it matters

Housing is the most important, and largest, investment families will make, and Cemex can both be an essential partner that contributes to the community, and capture a loyal market segment.

How other solution attempts have failed

No other cement provider has treated homeowners differently than corporate clients; nor have they attempted to make cement purchasing more convenient or easier to afford.

What will make our solution different

We will use technology and just-in-time methods to bring fresh cement closer to our customers, and marketing and financing mechanisms that reduce inconvenience and financial barriers.

The greatest opportunities

We will be the first to provide this service—it is wide open for innovation. The solution will require a certain amount of scale to replicate, so we will have few competitors.

The biggest risks

This will be difficult to execute, and we have to do it well enough at launch so that customers trust us.

for future generations, the concept of neighbors sharing their labor to help all members of the community gradually improve their lives, and the potential for new technology to re-energize a tired business, Cemex might have written their Innovation Intent as shown opposite.

This, at least, is our guess at what they might have written. What we do know for sure is that over the last ten years, Cemex has turned out one innovation after another, including:

- A program called Patrimonio Hoy ("Building Heritage Today") that helps homeowners with financing building projects as small as a single-room addition to their home,
- A tie-in with the traditional *quinceañera* (15 year birthday celebration for Mexican girls) that turns a gift into a contribution toward the family's home

What If There May Not Be a Solution at All?

If money and time are no object, almost any problem can be solved (even the lack of a Cubs World Series victory). But there are usually constraints in the real world. Sometimes during the reframing step it becomes apparent that the project, as currently configured, will be unlikely to succeed. Now is the opportunity to change the project (you could throw more money at some of the constraints, or reduce the scope of the solution). Or, pull the plug on the whole deal. An honorable departure from the field before combat begins saves resources so you can fight again later.

› A satellite-linked network of cement trucks circulating around Mexico City that can dispatch an on-demand cement delivery within 20 minutes

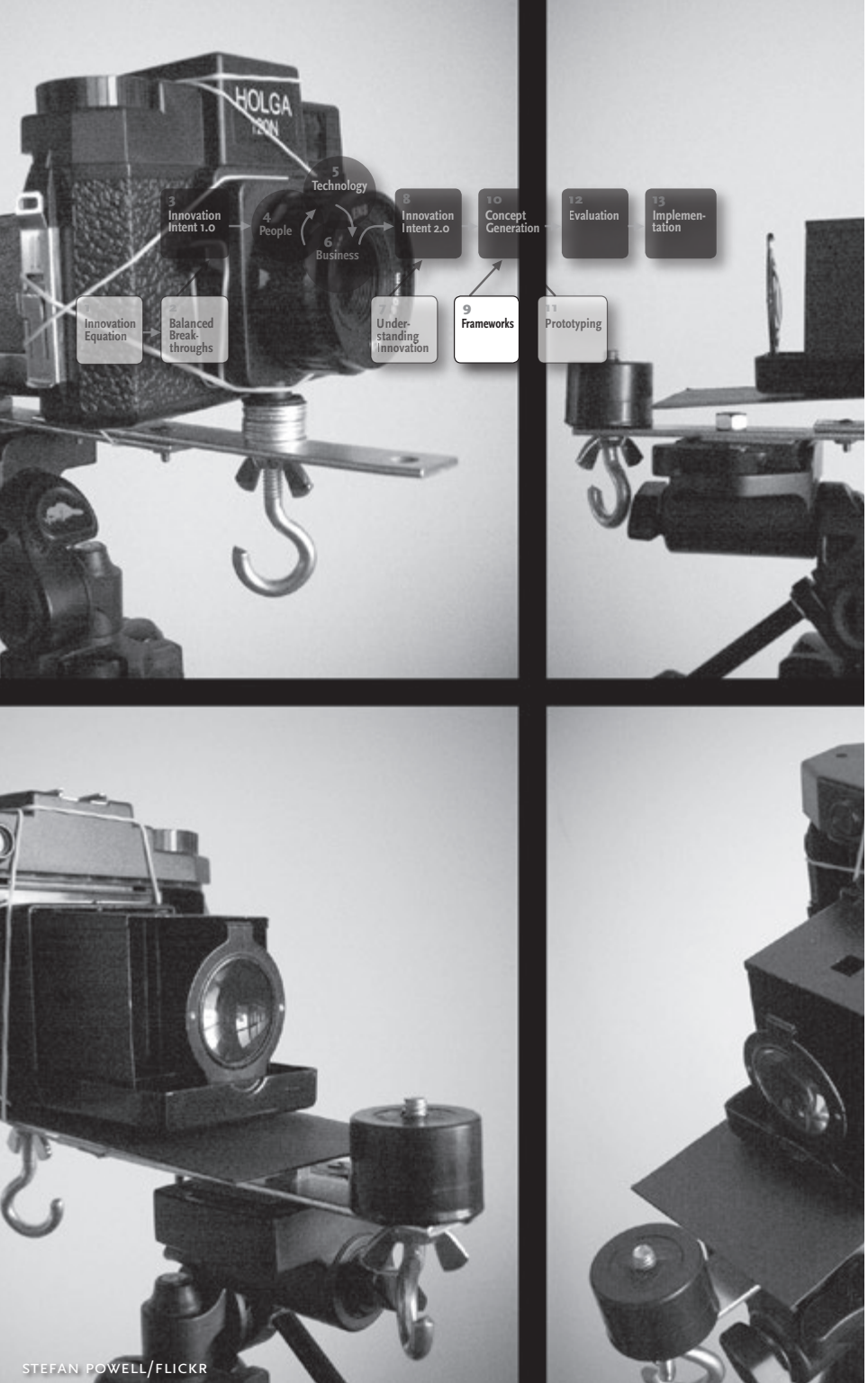
The Innovation Intent is an opportunity to envision the end result of your innovation effort, while still providing a measure of thoroughness and rigor in considering *why* it merits attention and *how* it will be successful.

Just because it's short doesn't mean the Innovation Intent is easy to formulate—actually, it suggests that every word should be carefully considered. But the results are powerful: each word then helps you focus your efforts on solving the right problem, in a way that truly provides value to your customer, while leveraging appropriate technology, and fitting with your business' strategic direction. You can also use your Innovation Intent as a quick filter for concepts that might be proposed in the next few steps.

Remember to be generous and optimistic. As an innovator, whether on a large or small scale, you are bringing forth something new that has the power to transform the day-to-day experience of your customers. You're not only solving a Problem because it's a chance to make money, but because it truly is a Problem.

Working through the team discussion to arrive at your Innovation Intent 2.0 may take a while. You may also discover that the result may look obvious. A lot of profound insights or innovations look obvious after-the-fact—consider the sandwich, or erasers on the ends of pencils. If they had truly been obvious, they wouldn't have had to be invented. So don't let anyone minimize the value of what you've done.

Now, you and your team should really take a break. Come on, you've earned it. You'll be setting the context for, and then creating, new concepts next, so you'll need all your creative energies refreshed.



STEFAN POWELL/FLICKR

9 Conceptual Frameworks

Points of View

How you're feeling about Naked Innovation, with eight chapters under your belt, may depend on your temperament and level of expectation. Some of our friends who read early drafts began asking us at this point, "When do we get to the good stuff—the creative flashes of inspiration and light bulbs going off over your head?" There is a certain Creativity by Checklist feel to all the steps of research and analysis, which might seem a bit mechanical, if not tedious. So, let's pause here for a story of real genius at work.

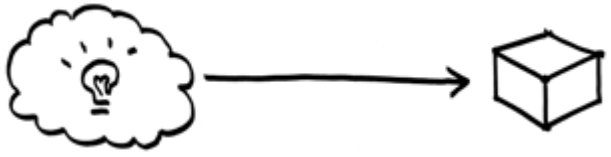
In 1924, George Gershwin was asked to compose a piece to be performed at a prominent New York event. It was supposed to be a fusion of serious and vernacular music—a new kind of piano concerto that combined both classical and jazz styles. As word spread that Gershwin, already famous for Broadway tunes, was working on the piece, anticipation built for what was being hailed as a landmark moment in American culture. But he had just over a month to do it, start to finish. Luckily for all concerned, inspiration struck while Gershwin was on the train: an image of a "musical kaleidoscope of America" suddenly came to mind, along with the whole structure of the piece.

He wrote feverishly for a few weeks, turned the manuscript over to a colleague for orchestration, who then sent the scores to the orchestra a mere eight days before the performance. The critical solo piano parts, to be performed by Gershwin himself, were left blank. There had been neither a full and leisurely development process, nor sufficient rehearsal time, but on the afternoon of February 12, 1924, the audience that first heard *Rhapsody in Blue* was thrilled and responded enthusiastically, as have audiences worldwide ever since.

So, is this an example of innovation, fueled by creative inspiration? *Innovation*, yes: there's distinctive value, something new that provided lasting benefit. But *creative inspiration?* Only partly. Gershwin was able to deliver a musical masterpiece at the last minute because of a lifetime of experience in music—particularly with jazz and ways of improvising melodies and themes. He was also working with an orchestra of trained musicians, who were professional enough to interpret and powerfully express the musical ideas set down in hasty scrawlings on pages they had little familiarity with. The stage was set for inspiration by the decades of collective experience, wisdom, and training of these talented musicians—and, by their familiarity with the capabilities of their instruments (technology), the interests of the audience (people), and the cultural context in which they were offering this entirely new kind of music (business strategy). Which fits nicely with the Balanced Breakthroughs model we've been talking about.

Breakthrough innovations sometimes appear suddenly, fully formed as from the mind of Zeus, but more often they emerge as the confluence of multiple strands of input. Structured innovation leverages preparation, the experiences of an entire team, and deliberate processes so that you don't have to wait and hope for some sort of magic moment. Processes don't automatically generate answers, but they set the context, lining

up well-considered ideas in a way that significantly increases your chances of making a brilliant and value-adding leap of insight. While some of what you have read so far could feel mechanical, the phase we now enter is where creative energies start crackling and sparking like never before. Everything that we'll discuss in the next three chapters sort of happens all at once, and how much time you spend at each step depends to a degree on what results you're trying to achieve, and where your team's strengths and weaknesses come into play. You are on a journey now from an idea to a final product:



Although creativity and brilliance are important skills to have represented on your team, we also don't spend the whole effort trying to leap "out of the box." Rather, you are finding the space for innovation, and building a box around it, and then focusing on creating ideas there, where they are much more likely to be successful. That way you know those ideas fit and will likely be rewarded by the market.

In Chapter 8, revising your Innovation Intent carried you a step further. We can refine the focus still more by clarifying the definition of success for this project.[1] Analytical frameworks will help you take what you already know about the innovation space, and create clear Design Principles, so that you'll know just how we need to apply creativity and design methods to generate new ideas.

How Frameworks Help

Back when we were taking introductory graphic design classes, we were introduced to two valuable creative approaches for problem solving in design. The first one is sketching: an assignment would often begin with a requirement to draw rapidly, at about a two-inch square size, a possible design idea. Then draw another, and another, and another. Filling up two or three pieces of paper with tiny sketches was considered an essential first step. The approach encourages ***Breadth***. Looking at a lot of potential solutions helps you avoid becoming complacent and too easily satisfied with your first idea.

The second idea involved squinting: holding a design mock-up at arm's length and squinting to blur the page so only the basics of the visual structure were apparent. (You could also put your design on the floor and stand on a chair and look down at it, to get a greater distance.) Squinting is about ***Focus***—helping you filter out extraneous information to concentrate on a particular aspect of the project (in this case, visual structure.

Graphic design relies heavily on sketching; in the realm of innovation, we use tools called Frameworks to help us explore both contexts and potential solutions with breadth and focus.

A Framework is a set of assumptions, concepts, values, and practices that constitutes a way of viewing reality.

Frameworks are simplified models that provide a way to view your project—they act as conceptual prototypes, in a way. They serve as a lens that helps you zoom out to see the whole picture, and zoom in to examine one part in isolation.

Frameworks take a lot of different forms. You've already been introduced to several in this book: the Innovation Equation, Balanced Breakthroughs, POEMS user observations, Porter's Five Forces, and the Ten Types of Innovation are all frameworks that help you ensure breadth of analysis and depth of focus.

A framework unique to your project is the Innovation Intent. Each of the questions posed in developing the Innovation Intent is designed to ensure that you cover key areas (Breadth), so that you haven't left anything out, and have examined the important once in sufficient detail (Focus), so that you don't gloss over problems that will weaken your solution. Any interesting or potentially tricky areas that are uncovered in the research and discussions that led to your Innovation Intent 2.0 can spur further research and discussion.

We will introduce you next to three new frameworks that can help in the context contextualization phase, but we recommend exploration of other frameworks—or the creation of your own frameworks—throughout the innovation process.

Position Map

A Position Map is a simple way of visually arranging two sets of information, revealing relationships on familiar *x* and *y* coordinates. Clusters of data points can reveal groupings; the absence of data points can reveal opportunities for new solutions (or areas where innovation has historically been unsuccessful). Of course, the first step is to pick which two attributes you will compare against each other. You want to find things that are based on what the market values, and that are not correlated already. (If you map two correlated values against each other, you'll get a fairly predictable line.) As you may imagine, it may take several tries to find the pair that are sufficiently distinct and also reveal something interesting.

On a project about a mobile phone service for senior citizens, a student team considered the following range of attributes:

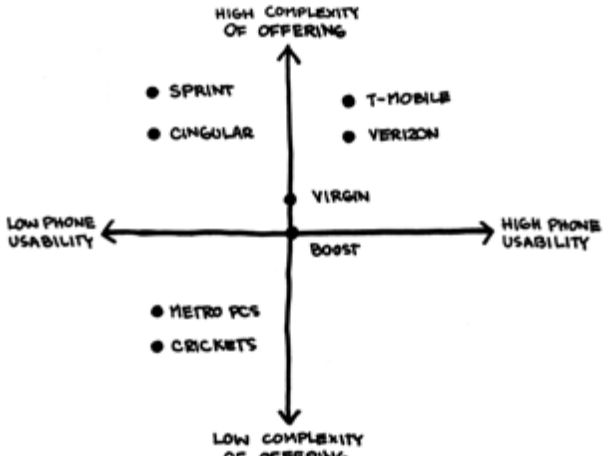
Characteristics of mobile phones

- Ease of use
- Cost of phone
- Number of phone choices

Characteristics of mobile phone carriers

- Cost per month
- Number of minutes.
- Length of contract required
- Complexity of choosing a plan

The team wanted to develop a position map to show what kinds of mobile phone offerings were already on the market. For each offering from a mobile phone company (Verizon, Cingular, T-Mobile, etc.) we could place it on an x/y plot to help compare them not only to each other, but to the whole possible space described by those attributes. But if we picked Number of Minutes *vs.* Cost per month, we would likely find that there is already a strong correlation—these two attributes are already mutually dependent. A more interesting comparison is between the Complexity of Choosing a Plan and the Ease of Use of the phone itself. The map (above, right) reveals that the "big four" mobile phone companies have a rather complicated plan selection process, and phones of varying degrees of ease of use. Some smaller carriers, Metro PCS and Cricket, have an easier plan selection process. But nobody has yet combined an easy plan selection process with an easy-to-use phone.



POSITION MAP FOR A SENIOR-TARGETED MOBILE PHONE

As it turns out, AARP had done their own research which had remarkably similar conclusions. This framework, then, points to a potential offering that a major mobile phone carrier (such as Cingular) could offer in partnership with a senior-focused organization, such as AARP.

The Position Map exercise doesn't take very long, though it can require several iterations to find an interesting mash-up of data. Once you find the right combination of attributes to map, you can make effective sense of pages and pages of data in a single graph.

Leveraging Customer Experience

Another powerful framework is the ***Compelling Experiences*** model, which was developed by Doblin Inc. after looking at hundreds of successful interactions people have: a visit to a

[1] More information can be found on Doblin's website: http://www.doblin.com/what/CompellingExperiencesCond.pdf

sporting event, a trip to the mall, a family dinner.[1] Every experience can be thought of has having five modes:

- **Attraction** What happens before you get involved; what draws you in
- **Entry** The transition from Attraction into the experience
- **Engagement** Participating in the experience: being there
- **Exit** The transition out of Engagement—leaving the experience for something else
- **Extension** What happens after you've left—what do you remember? What do you pass on to others?

The Doblin team found that six qualities distinguish *compelling* experiences from the everyday. Each one of these qualities might be experienced more, or less, or not at all, in each of the five stages:

- **Defined** You can describe specifically what's going on
- **Fresh** The experience feels new and interesting
- **Immersive** You are fully involved in the experience
- **Accessible** Nothing prevents you from taking part
- **Significant** The experience is meaningful, not everyday
- **Transformative** The experience makes a difference in your life

Putting the five stages and the six qualities in a grid gives you a broad space to consider—a good way to enforce breadth in your consideration either of your own innovation project, or of other comparable projects you are using as a model. How does the current situation leverage one or more of the qualities in each phase? How could it be improved by adding more "qualities"?

	Attraction	*Entry*	*Engagement*	*Exit*	*Extension*
Defined					
Fresh					
Immersive					
Accessible					
Significant					
Transformative					

A team of graduate students at IIT Institute of Design used the Compelling Experiences framework on a project for Chicago's Museum of Science and Industry. Insights drawn from watching museum visitors were being sorted out, when the team realized that many of the activities of Attraction and Extension were similar—often involving questions of transportation, and using brochures and other information tools to discover alternatives. They also found that the physical environment at the Museum constrained both Entry and Exit stages to happen in the same place, which was an insight that led to suggesting careful use of the space to distinguish between these different modes.[1]

Exploring Exchanges of Value

Value Webs, are similar to the Value Chains model that Michael Porter introduced in his 1985 best-seller, *Competitive Advantage: Creating and Sustaining Superior Performance*. Porter wrote, "The value chain disaggregates a firm into its strategically relevant activities in order to understand the behavior of costs and the existing and potential sources of differentiation."[2] Value Chains provide a useful model of activities within a firm, but less often address outside relationships. Furthermore, value exchanges are usually described in purely monetary terms.

[1] This project was completed by Nathaniel Block, Kimberly Dziedzic, Taylor Lies, and Laate Olukotun, as part of the Research & Demonstration Class at IIT Institute of Design, Fall 2005.

2 Michael E. Porter, *Creating and Sustaining Superior Performance* (New York: Free Press, 1985), p. 33.

Questions to Ask When Creating a Value Web

Vijay Kumar suggests a series of questions to ask when creating Value Webs to use descriptively or prescriptively:

When descriptively representing the current state:

- Where is the value created?
- Is the Value Web balanced?
- Who has leverage?
- Who controls the customer interface?
- Who controls the dominant platform?
- Who has control over intellectual property?
- Does the shape of the web mean something?
- What is the effect of time on the Value Web?
- Where are the inefficiencies?

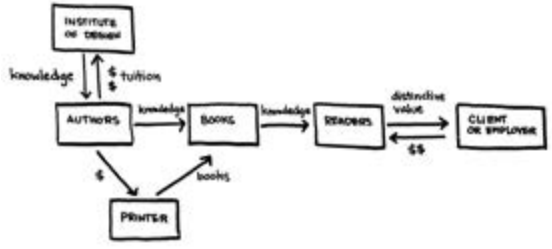
When prescriptively representing new strategies, partnerships, or business models:

- How can more value be created?
- What are the ways to own the customer interface?
- What are the ways to own the platform?
- What are the ways to leverage the IP?
- What are the ways to control time to extract more value?
- How can the Value Web be restructured for advantage?
- How can the inefficiencies be removed?

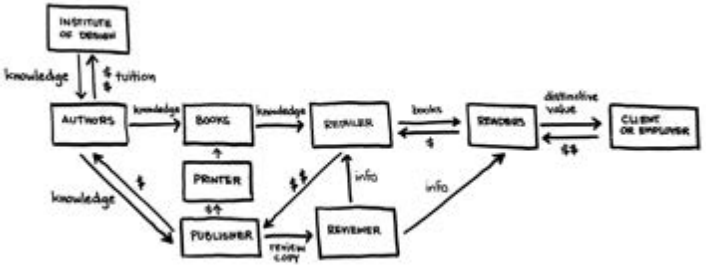
Value Webs take the chain and expand it in two directions. As outlined by Vijay Kumar and Jeremy Alexis, Value Web diagrams illustrates the exchange of multiple kinds of value, both tangible and intangible, as they flow among participants of a system or market. Common values we consider include money, information, materials, services, brand recognition, pride of ownership, knowledge, and so on. Links are represented directionally to show exactly who is giving and who is receiving, and whenever possible, use quantifiable terms to describe the actual amount exchanged.

Just for fun, we did a quick Value Web of our Naked Innovation book project. When we were first writing the book, it was just a student project, with the possibility for printing up a few extra copies (funded by our advisor—thanks, Jeremy!) to pass on to colleagues, potential employers, and old girlfriends who never

NAKED INNOVATION VALUE WEB, SELF-PUBLISHED



NAKED INNOVATION VALUE WEB, WITH A REAL PUBLISHER



thought we'd amount to anything. So, our Value Web looked like the upper diagram on the previous page.

Then we started to get positive reactions, and were encouraged to pursue getting the book published, for real. This dramatically changed the Value Web, shown at the bottom of the previous page—adding new players (a publisher, retailers, reviewers), and also adding new streams of value (royalties, reputation, and sales revenue).

Used descriptively, Value Webs are fantastic tools to understand the dynamics of the current situation. Used prescriptively, they outline opportunities, strategies, new partnerships, new business models, and ultimately, ways of delivering distinctive value to customers. They are remarkable tools to uncover relationships and rethink the dynamics of your business.

Other Frameworks ... and Making Your Own

While there is a host of innovation frameworks to choose from—many based on considerable scholarly expertise and/or analysis of successful innovation projects—you can always create your own. The essence of a framework is that it reduces the complexity of a situation to reveal internal patterns and structures that are useful to you. Draw on the research you've done, and the questions in the Innovation Intent to illumine your topic better. Remember, your goal is to frame the space where useful ideas can be created.

All the information discovered as you use frameworks can find a home on the (increasingly full!) project board. Here again, working through these analysis stages provides an opportunity for fruitful conversation with your team. Having conceptual models like frameworks helps take a whirl of thoughts out from the ether and externalize them on paper, where everybody can see them—and offer alternative viewpoints, or add on additional insights.

Design Principles

So, now you've got more pieces of paper, more diagrams, and more ideas floating around. It *could* seem chaotic, except for the fact that in generating all these conceptual models and contextual analyses almost always results in those *aha!* moments, where a tangible, specific Insight pops up. Use a highlighter, use Post-Its, use sticker dots or whatever works to call out those insights with particular resonance for your project. In fact, go back and review everything you've done so far—the research you did into People, Technology, and Business, your Innovation Intents, the Ten Types lens, and all the frameworks. Sometimes it's helpful to work through a 3 × 3 grid like this to make sure you've gleaned the whole project for potential insights:

From the Balanced Breakthroughs

From the Innovation Intent	People	Technology	Business
Opportunities			
Risks			
Distinctives			

Add anything you discover to your list. Collect all the insights by writing them (or shuffling Post-Its) on a single piece of paper. You may discover related insights that can be clustered together, or conflicting insights that prompt further discussion. Insights lead to Design Principles, which are critical for keeping concept development focused on the kinds of innovation that will deliver distinctive value.

Insights are generally *descriptive*—for example, the Museum team might have observed "In families with children of mixed ages, the fatigue level of the youngest determined how long

they could stay at the museum." Perhaps this observation could be clustered with other observations to form a larger insight like, "The needs of young children can influence an entire family's visit." We can turn insights into success critieria by carefully rewording them as active verb phrases—in particular, a verb phrase that would finish the thought that starts, "A successful innovation will …." So our insight about kids becomes a Design Principle thus: "Help parents meet the practical needs of young children."

We should point out that sometimes the transformation of an insight into a success Principle is straightforward and obvious—almost simply a grammatical switcheroo. That doesn't make it any less powerful. Other insights may require a deeper level of thought and interweaving to become a Principle. It won't help to observe that kids who come to the Museum don't seem interested in the displays, and then turn that into a Principle as "Make kids be interested in displays." You have to ask, *Why aren't they interested in displays?* Maybe it has something to do with the fact that kids come from homes with video games and computers, and are used to interacting with information in a different way. Maybe it has something to do with what you heard in interviews about displays seeming to be very static. And then you realize that across town, the aquarium is attracting huge crowds with hands-on-experiment areas. Putting all those things together provides a Design Principle that takes things up a level: "Provide multiple avenues of engagement with exhibits, activating multiple senses and personality types." Design Principles that are specific enough, and address issues you can reasonably influence, are much more likely to lead to success.

But don't get too extravagant in Principle formation. If you end up with a list of 100 Design Principles, you'll be quite ready to engineer something like a Space Shuttle, but you will have

a difficult time keeping them all straight. Remember, you're trying to make some sensible boundaries of the innovation space so that you can effectively develop concepts. We find that about seven (plus or minus two) Design Principles is adequate for most projects. If you find yourself with far too many initial Principles, then do a simple clustering exercise, writing each one on a piece of paper, and moving them around on the table until the most related ones are together. Then, name each clusters appropriately. (By the way, hang on to the list of which individual Principles make up the Meta-Principles—it will help remind you what that principle means.)

For many innovation teams, the set of Design Principles, combined with the Innovation Intent, can strike you as being overly simplistic. "*Is that all this is about?"* you'll find yourselves asking each other. That's partly because with all the time you've spent engaged in research and thinking about your project, you've become somewhat of an expert yourself—a clear sense of the real situation is almost intuitive. Just to be sure, though, you may want to check the validity of your insights by reviewing them with someone outside of your project who also understands the space you're working in. Design Principles that are in balance with the needs of the market should seem plausible, whether they are what you expected, or something different.

Before You Go On…

Just for review, here's the top-level view of why we've included frameworks at this point in the Naked Innovation process:

- Frameworks force you to cover your topic space with breadth and depth.
- The result of a framework is not The Answer, though it should be a deeper level of understanding. It's about the journey, not the destination.

› Using multiple frameworks (and using them in quick succession) is perfectly fine. There isn't a single framework to rule them all—rather, it's the effort of trying out many frameworks that helps you iteratively approach solutions. (See number 2, above.)

Armed with your Innovation Intent, and list of Design Principles, you're ready to spend some time developing new concepts! Why not take a break? Maybe listen to some music ... try out that old *Rhapsody in Blue* and appreciate the innovative genius of George Gershwin.

RESOURCES FOR CONCEPTUAL FRAMEWORKS

12Manage.com. http://www.12manage.com. Includes more than 400 analytical frameworks and business models.

Design Council (UK). "Design Methods." http://www.designcouncil.org.uk/en/About-Design/Design-Methods/

MÁRCIO DUARTE/SXC.HU

10 Concept Generation

Shaping Great Ideas

History is powerfully present within the stone walls of Westminster Abbey in London, where British sovereigns have been crowned and buried for almost a thousand years. For American visitors who have only experienced Kings and Queens through history books, it can be overwhelming to be right there, at the nexus of so much tradition. There's more than just royal history, though: amid stained glass, gothic tracery, and breathtaking expanse of space, you also see countless memorials to individuals who have done noble deeds for Britain: Isaac Newton, William Shakespeare, Charles Dickens, Winston Churchill, Rudyard Kipling, Henry Purcell, and Händel, to name but a few. Carved into stone, these names cover such a wide swath of achievement, and are so packed in next to each other, the thought of so many great spirits being honored in one space is quite humbling. It makes you feel small—and it makes you wonder if you could ever do something to earn a space there.

We've said that Naked Innovation is about unveiling some of the mystery that surrounds innovation—and about showing you how anyone can create new and distinctive value. One

of those mysteries and misconceptions is how the Genius Innovator comes to the moment of concept creation, and a magic light bulb clicks on, and suddenly Cheez Whiz has been discovered—or something else equally thrilling, earning the Innovator a shot a getting his name carved on the wall of Westminster Abbey or whatever spot is locally convenient. By now you know that even when inspiration strikes, it does so as the result of careful preparation—and anyway, inspiration doesn't so much *strike* as *emerge*, though a thoughtful and gradual process that both can and should be open to everybody. So it won't come as any surprise that while Concept Creation is, in a sense, the turning point of the innovation process—the spot when new ideas often first appear or come together—it's also what you've been working at all along. In Naked Innovation, concept creation is only as effective as the preparation that precedes it, and the evaluation and implementation that follows. Isaac Newton and the others from the Abbey would probably agree.

Equipped with an Innovation Intent, an understanding of Balanced Breakthroughs, and a set of Design Principles for your innovation, you can focus your efforts on generating new ideas (or extensions of existing ones) that will result in a solution that fits what the market (people, technology, and business) is looking for. You might work at concept creation as a team, in a classic ideation mode; try out different concepts yourself or with customers; or throw open the whole endeavor to the world at large (doing what has been called "crowdsourcing")—but the approach remains roughly the same:

- **Align** concept generation to your Intent and Design Principles
- **Gather** as many ideas as possible
- **Organize** and connect ideas in ways that multiply their effectiveness
- **Try out** and select the best ones to work on further.

The last two part will be discussed in more detail in the next two chapters on ***Prototyping*** and ***Evaluation & Decision Making***. For now, our task will be to load up on as many good ideas as we possibly can. We'll take it step by step. While we can't guarantee you a memorial plaque, we think we can increase the chances that you'll innovate with impact.

Methodical Concept Generation

You've already framed your concept space, and the easiest way to start exploring concepts is by using your Intent and Design Principles directly. Start with a blank sheet of paper (or blank computer screen—however you like to work) and put a single question at the top. If a Design Principle was "Provide social interaction on the train that enhances the commuting experience," then the question becomes, "*How might we* provide social interaction that enhances the commuting experience?" Focusing on that one issue, and drawing on the background knowledge you've developed through all your research, start setting down potential solutions. It's a matter of mixing your imagination with your experience; you might come up with things like:

- Hire train conductors trained like Southwest Airlines flight attendants to engage travelers with light banter
- Offer regular commuters assigned seats, by station, put them next to people from their own neighborhood day after day
- On Fridays have a trivia contest on each car

You can probably come up with better ideas... the point is to keep at it, and focus on just one *How might we?* at a time. *How might we's* can also be formed from Intent statements, includ-

ing the one about Risks, except that in that case, it becomes "How might we mitigate the risk of ...?"[1]

You also can push your idea generation by looking at outside sources, whether they are analogous projects in related industries, or case studies of exemplary innovation that happened anywhere. Ask: Who else has tried to solve similar problems? A customer service innovation challenge can learn from the experiences of any company with significant public interaction—for example, one of our projects that involved a high-volume retail environment led us to look at the New York Subway system, and the ways they've streamlined ticket purchases.

Sometimes, randomized input can help—there are a variety of decks of innovation cards that can jolt your thinking by considering an entirely new way of thinking about the problem. You can also (temporarily) remove some constraints to explore more fanciful ideas, and see if they point towards something that you could realistically do: What would you do if money were no object? What would you do if you were trying to do the exact opposite?

Whether you tackle methodical concept generation with a team or by yourself, don't be afraid to suspend judgment. Don't even worry about how to execute the idea, or whether it fits with other parts of the problem—just try to get a lot of ideas down on paper. There will be plenty of time to develop them later.

Structured Ideation

Brainstorming has been around for more than fifty years, ever since an ad executive suggested that people working together could be more creative than people working alone. But much of what is called brainstorming today tends to be less effective—

[1] We learned the simple and powerful "How might we?" framing device from Chris Conley, professor at IIT Institute of Design and co-founder and director of gravitytank.

elaborate offsite meetings that squelch day-to-day creativity on-site; too many people participating, with too many vested interests to try truly new directions; idea generation that results in flights of fantasy but few implementable concepts; timid variations on existing realities due to poor direction-setting or hasty, negative critiques. Too little structure, or too much, and the brainstorming session won't generate results that justify the effort of putting it together. By contrast, the process we describe below maintains a good balance between structure and imagination, is optimistic and far-thinking, yet focused, and in practice produces viable concepts with some consistency. We call it ***Structured Ideation***, but it naturally draws on much of the best thinking about intentional concept generation (and we'll refer you to key references at the end of the chapter).

The first step is to think about who will participate. If you're working with an Innovation Team, they are naturals—they already know the topic, and probably have many nascent ideas already in their heads. You could also invite others who could bring additional, diverse points of view. Be sure to you've got people who are willing to play along and commit to the exercise. You may have to deal with people who have axes to grind, or who remember how "we tried the same thing three years ago and it didn't work." Help them understand the reason for the meeting and the context provided by your research, to keep them from impeding the flow of ideas. (By the way, if you can lend your copy of *Naked Innovation* to others in your organization, it can help put everyone on the same page about concept creation and the roles that people with different job titles and levels of responsibility can play.)

Perhaps the most delicate question is whether the boss should be there. In many organizations—even healthy ones—having a top decision maker present at an ideation session can subtly alter the feel of the room, and make people less willing to ques-

tion long-held ways of thinking. We often recommend that the project team work independently of the group or individual making decisions, until specific, well-developed proposals are ready. In the interim, if executive participation in idea generation is desirable (either for the ideas themselves, or for the sense of involvement that will foster uptake later—see Chapter 13), separate ideation sessions might be better.

Establish some ground rules with the **Ideation Guidelines** (see the box below). This should be a Bill of Rights that anybody in the group can refer to.

Ideation Guidelines

1. Align on Innovation Intent
2. Capture every idea—even the crazy ones
3. Be visual; sketch
4. Push for as many ideas as possible—quantity is more important than perfection
5. Build on each other's ideas
6. Evaluate later

Keep these guidelines visible while you are generating ideas—and give everyone present the right to refer to them as a way of keeping the group on task.

Guidelines like these have existed in various forms for more than a generation, but can be traced back to the 1953 book *Applied Imagination* by advertising executive Alex Osborn (the "O" in the legendary ad agency BBDO). IDEO has a similar set of brainstorming rules that have been effective over time. The version above is our adaptation of this collective wisdom, informed by our own experience and input from colleagues and clients.

Key Roles & Room Setup

A Facilitator will help keep things on track by offering ideation topics to the group. He or she can encourage participation from each person, but also sense when it's ready to move on. (If you're the facilitator, just be sure you don't let your personal ideas dominate!) If the group is made up of people who don't feel very creative, it may also be helpful to have a Sketcher capture ideas in a visual form as people share them—though we vastly prefer to have everybody sketch for themselves (it doesn't have to be art—just more than words). Both the Facilitator and Sketcher can stand near a large whiteboard or wall space, but it's also important for the rest of the group to be in a semi-circular arrangement, where they can clearly see and engage with each other, as well as the Facilitator and Sketcher. Make sure everybody has paper and pens or pencils. M&Ms are almost mandatory, too—don't blame us if you forget them and people tire out quickly.

Ideation Steps

The following practical stages for preparing and facilitating an ideation session are drawn on the work of Institute of Design Professor Vijay Kumar, as taught in his Design Synthesis class and Strategic Design Planning Workshop. That's where we learned much of what we know about structured ideation. Our thanks to Prof. Kumar, and to the classmates with whom we interacted as we were all figuring out how to apply this knowledge.

- **Set the stage.** Frame the brainstorming session by briefly explaining the background of the project. This is not an elaborate presentation—keep it short! *(5 minutes)*
- **Define the objective.** Clarify what kinds of ideas the session will focus on—you might be only working on one portion of the overall project, for example. Your Innovation Intent document will guide you here. *(5 minutes)*

- **Warm up** *(optional)*. We like do some quick and informal "Mind Mapping" to get things going. Identify some of the key components of the topic you're working on, and as people call out sub-parts, write them on the whiteboard in clusters, connected by lines. It can be loose and free-form—just get your minds working. *(10 minutes)*
- **Start with individuals** *(optional)*. The facilitator can introduce one of the larger ideation topics, and give people a few moments to begin thinking and sketching their ideas on their own. This gives everyone a chance to get some momentum going, without feeling a need to be first off the block with something brilliant. *(10 minutes)*
- **Ideate as a group.** With open-ended framing from the facilitator ("How might we _____?"), the group can work together on the problem. As each person develops an idea, they can share it with the group. Conversation is natural, but don't get into evaluation—try instead to build on each other's ideas. *(20 to 60 minutes)*
  - *Capture ideas on concept sheets*. Whether you're using a single Sketcher to capture each idea as it is shared, or having the idea originator sketch their own, be visual wherever possible—diagrams and stick figures are perfectly fine. Sheets can be posted on the wall, and clustered on-the-fly by the Facilitator, near related ideas. We like to use simple, printed sheets with a spaces for a sketch, a brief (two- to seven-word) description ("what it is"), and a brief list of essential functionality ("what it does").
  - *Generate many ideas*. You'll get the most benefit from a concentrated ideation session by pressing on to generate *lots* of ideas; don't stop to refine or embellish.
- **Combine and cluster ideas**. As topics are exhausted and the session winds down, the Facilitator can help the group re-examine clusters of ideas, or to see ways that disparate ideas can reinforce or complement each other. Move the concept sheets around to build meta-concepts of several sheets taped together. *(10 minutes)*
- **Highlight obvious winners.** The time-honored method to do this is with colored stickers or small Post-It notes: each participant gets a small number (three to five, usually) and can vote on their favorite concepts of the day. While this is not a definitive evaluation (that process is explored in depth in Chapter 12), it can help surface the clear winners—some of which might be so good, you'd want to start working on them right away. *(10 to 20 minutes)*

We've seldom seen a good ideation session last longer than two hours. Keep an idea on the energy level in the room, and make sure there are appropriate breaks—concept generation can be exhausting.

One last comment about structured ideation sessions: while we think they represent a critical opportunity to pool the emergent, collective wisdom of the team, you also should not expect all your ideas to surface here. Structured ideation should be used in concert with other intentional methods described in this chapter.

Crowdsourcing

Whenever you have more people working on a problem, the theory goes, you have that many more brains who could potentially run across The Answer. Instead of outsourcing concept

generation to a design consultancy, why not crowdsource—turn the problem over to a large group outside the initial innovation team. It could even involve the public at large, or at least whoever is interested in the topic. The Open Source software movement is a perfect example: people around the globe, connected by the Internet and united in their passion for solving technical problems, have created millions of lines of software that rivals or exceeds the work of Microsoft, Oracle, and others. Wikipedia is a another example—perhaps rough around the edges, but a far more robust and rich collection of content than could ever have been created by the handful of people who organized the project.

Crowdsourcing involves providing a simple statement of the project's background and goals (why not draw them directly from your Innovation Intent?) and then setting up a way for contributors to submit their ideas. Be sure intellectual property and compensation issues are very clear up front!

The downside of crowdsourcing, though, is that revealing proprietary research and technology can give your competitors a huge boost. (Which still may be to your advantage if you are creating a new platform.) You also may find yourself distracted by having to chase down irrelevant, non-aligned ideas from people who don't fully understand the challenge. Crowdsourcing is not easy to manage, but it is an emerging approach that shows some strong potential.[1]

Gathering Emergent Concepts

If all of the above has given you the impression that ideas can *only* emerge during a specific Concept Generation phase of the project, then we need to re-assert something we said in the Getting Started chapter (Chapter 3): you should always have a way

[1] For a more complete guide, see Eric Von Hipple's *Democratizing Innovation* (The MIT Press, 2006), available as a free download from http://web.mit.edu/evhippel/www/democ1.htm.

of capturing ideas that emerge throughout the project. Even from the very start of research, you may have a flash of inspiration, and you should try to capture that idea in a way that will make sense later on, so that you can measure it against your Design Principles, and weave it into connections with other concepts. A simple notebook (we like the slim Moleskine line, with its elastic band) can be a great place to jot down ideas on the run, but a more formalized way of recording concepts is important too. We often find ourselves using stacks of the same Concept Worksheets that we prepare for a ideation session, and then post them on the project board.

The lessons of successful group brainstorming also apply to the informal interactions your team may have here and there—and even with those chance encounters with people off the team. Telling the story of your project to a colleague in another department can reveal hidden essences that prompt one of you to say, "Hey, what if...?" Whenever you hear a phrase like that, be sure to capture the idea, build on it, and defer evaluation until you've had a chance to let the moment of inspiration run its course.

For most people, idea generation is always happening—sometimes at inappropriate moments—remember Archimedes running down the street, naked, having lept out of his bath in a "eureka!" moment about corkscrews? Even David Letterman is fond of saying that "there is no off position to the genius switch," so be sure to be ready in season and out of season to snag those ideas, wherever they come from.

Filter through Design Principles

You may also discover that a concept that seems to be just right doesn't actually fit with your Design Principles. That could indicate that you need to add a new Design Principle (or jigger them around a bit), or reexamine the Innovation Intent.

Remember, innovation is iterative, and you need to give yourself permission to revise your initial plans, thoughtfully and deliberately, as you learn more about your innovation space and the people it will impact.

With whatever combination of concept generation methods you choose, try to continue developing ideas even beyond the ones that seem like they're the perfect solution. The pressures of today's high efficiency workplaces means each of us can be tempted to settle for the quick win. By starting with a lot of concepts, you may find not only even better solutions, but also system solutions that combine several concepts into something truly powerful and revolutionary. The chapter on Evaluation will show how to pick which ideas should be developed into marketable products or services.

Before You Go On...

Ask yourself a few questions, just for review:

- *Have we done enough concept generation?* A trick question—you can always seek more ideas. But your structured concept generation phase can probably draw to a close when you've got more ideas than you can entirely keep in your head all at once—we mean three or four dozen or more, rather than just five or fourteen. You also should feel like there's enough good ideas to pursue that you have to choose carefully between them—that way you'll be evaluating between strong ideas, and not just picking the only one that isn't pitifully weak.
- *Have we covered the solution space broadly enough?* Make sure you include concepts that anticipate a variety of ways your market might evolve in coming years. As we discussed in Chapter 6, we are big fans of the Scenario Planning method.

- *What if we're stuck?* Do something different for a while. See how others have solved similar problems—reason by analogy. If you're working on a customer service problem in the airline industry, look at how hotels address similar issues for a similar set of customers. It's probably best, though, not to look directly at competitors, since copying their strategies is unlikely to provide distinctive value within your industry.

RESOURCES FOR CONCEPT GENERATION

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INSTITUTE OF DESIGN STUDENTS ASH BHOOPATHY, JUDD MORGENSTERN, & JENNIFER CANADY

11 Prototyping
Shaping Great Ideas

The long-running PBS show *This Old House* shows a creative process from the start, as a tired, past-its-prime hovel becomes a glorious Queen Anne mansion with granite countertops, slate roof, and a Jacuzzi. Even though the show is obviously edited, like other reality shows, to portray step-by-step progress toward a final goal, it is full of prototypes:

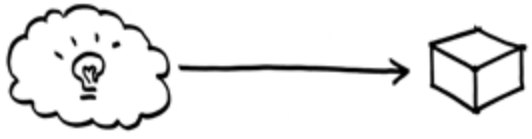
- an architect's sketch
- a blueprint
- a construction budget
- a back-of-the-envelope diagram showing a contractor where to place a joist
- a palette of finish colors and textures
- Norm Abram measuring twice, cutting once

On *This Old House* they use forms of prototyping throughout to try out ideas, to align a team, and to get feedback from the client. We recommend a similar approach for your innovation process—and that's why this chapter is not so much the next

step as it is a brief discussion of a way of life for every innovator and designer. Prototypes happen anytime—napkin sketches are often the rough prototype that instigates a project in the first place. Frameworks are also prototypes, as are sketches and diagrams.

Prototyping is one of the simplest thing you can do to make innovation easier—and yet it seems to be the most underused tool in the innovator's toolkit. Maybe because we seldom see the prototypes that lead up to a finished product—or because we think being clever and creative means doing a purely mental, and entirely within-the-brain activity. (Albert Einstein and his "thought experiments" notwithstanding!) If you think about it, though, the act of writing is innovation (creating unique value for readers), and only a rare and gifted writer can set pen to paper and produced final, polished prose without some intermediate steps of outlines or drafts. Perhaps an even better example would be collaborative writing, like scripts for *The Simpsons*, or this book. Not only do various prototypes of the text encourage revisions and improvements, but by putting words on paper, it allows a team to work on an idea together. Early reactions to the script in draft form can inform ways of improving it, giving plenty of times to fix problems before spending the money on animators and editors. Ideas become strong when they are exposed to reality early, and often, through prototyping.

In the chapter on Conceptual Frameworks, we described the journey you are taking from an idea to a concept:



Prototypes, like Frameworks, can be used throughout the journey. They come in different forms and degrees of refinement, depending on where they come in the process. At an early stage, prototypes might be simple sketches of concepts. The Balanced Breakthroughs model from Chapter 2 functions as this kind of prototype. Frameworks are themselves a sort of conceptual prototype, As an idea emerges, you might try mocking up one particular kind of functionality (a "works-like" prototype), or the appearance of something (a "looks-like" prototype). Prototypes may have varying levels of detail or fidelity. A simple prototype may be quite abstracted from reality, which can help you see the big picture. Or, they may be a thorough exploration of just one portion of the innovation, helping focus attention on that one issue—like the arrangement of a control panel, or the texture of a hand grip.

Low-fidelity prototyping tools should be easily accessible to the team throughout the process—things like Play-Doh, Legos, foam core, and paper and pencils. Later on, more detailed and accurate prototypes can work out nuances, and convincingly present a concept to management or an investor. But if you start making fancy, costly prototypes too early, you won't feel the freedom to try out things. And simple prototypes can reveal plenty. Working on some issues related to drive-through restaurants, we equipped ourselves with a set of cheap toy cars, and enlarged site blueprints to a matching size, and tried "driving" the cars around the lot. Grown-ups playing with toy cars seemed ridiculous, but quickly spotting and addressing issues with our concepts saved us a lot of time before we called in architects and site planners.

A critical function of prototypes is revealing flaws. This can be discouraging if you have fallen in love with your own ideas. We'll even go so far as to say that having other people point out those flaws can be downright annoying—who likes to have

their brilliance challenged? What innovators need to realize is that the critique of a prototype saves tremendous time and expense compared with actually producing a flawed product. Receiving feedback humbly, and with the attitude of one who is eager to learn and open to new ideas, will serve you well.

Here is a quick look at a few different kinds of prototypes you might use at various stages in your project:

Conceptual Prototypes

Value Webs, as described in Chapter 9, can describe a present reality, or they can map out a potential future. The schematic, abstracted representation of value flows between participants can provide an excellent opportunity to test assumptions. If makers of the :CueCat had looked at a value web for their product, they might have noticed the imbalance of value between consumer and website/advertiser. If the user's only benefit is saving the effort of typing a ten-letter web address into their browser, it seems unlikely to be successful.

Behavioral Prototypes

Because we place such a high importance on providing benefit to the people that will ultimately use the product or service, it is critical that ideas be tested with users early on. How will they actually interact with it? Will they really do the things we expect them to do? Does our mental model of the system correspond to the user's mental model, or will they frame the entire interaction differently, and be disappointed when their expectations are unfulfilled? Because you want to do behavioral prototyping early enough to head off fundamental problems, don't let the final execution technology stand in your way. A perfect example is with websites. You can test the navigational structure of a website using paper sketches of different web pages. Show the home page to a user, and ask them to "perform" a task by selecting a menu item. Next, show them the page sketch that would come up if they had actually clicked on the menu button. With a handful of simulated, paper web pages, you can get an idea if your menu structure will really work. Be careful in behavioral prototyping that test users understand the limitations of the prototypes, and focus on the core issue you are exploring—but also don't give them more information than they would have if they were an actual user.

Functional (or "Works-Like") Prototypes

The Functional Prototype simulates the functionality of an innovation, even if it looks clunky and impractical. In the web design world, paper prototypes of individual web pages are shown to a test user one at a time, in a sequence determined by which menu items the user "clicks" on, in conversation with the designer facilitating the interaction. A mechanical Works-Like prototype of a clothes dryer might include the moving parts, but leave off the control mechanisms and outer case. Works-Like models test how effectively the innovation performs essential tasks, and allow for experimentation with behind-the-scenes mechanisms without the hassle of making them look pretty.

Appearance (or "Looks-Like") Prototype

Looks-Like prototypes simulate the appearance of an innovation, but without full functionality behind it. A Looks-Like web page prototype might be a beautifully-rendered screen without any live, "clickable" elements; a Looks-Like clothes dryer presents the outer case and control panel, but can't actually hold clothes. Functionality can be simulated through verbal instructions to evaluators; the goal is to see if the appearance gives the right messages and expectations to users. Our background as designers has taught us that showing Looks-Like prototypes may require some careful planning, because evaluators will react to anything that looks intentional—even if it is, in your mind, just a placeholder for something else. A mock-up of

a magazine layout with a "temporary" picture may get you reactions, positive and negative, to the person in the picture, instead of to the typographic layout. Sometimes low-fidelity can be better—in this case, a solid grey box is a better stand-in for a future picture than just whatever picture you might happen to have available.

The Future of Prototyping

Complex or risky products and services, or ones that target users that may be hard to connect with for review sessions, call for more creative prototyping methods. One approach that has been used with success at Stanford is Video Prototyping. A short film showing a user interacting with the product or service, can include several scenes, each with a variation on the functionality. Because people are familiar with movies, and used to suspending disbelief and imagining themselves participating in the scene, their reactions to watching someone else try different ways of using the product can provide valuable insights.[1]

Another way of simulating certain kinds of offerings is in an immersive online environment like Second Life. American Apparel is just one of the companies that has opened up a virtual store within Second Life, and can gauge, both from customer feedback, and from sales of virtual clothing for Second Life avatars, which styles might be worth executing in the real world.[2]

Video Prototyping and Virtual Prototyping are not only interesting approaches in themselves, but exemplify an experimental approach we commend: **try stuff out, see what happens!**

[1] We first heard of video prototyping from Wendy Ju, a doctoral student at Stanford's Center for Design Research: http://www.WendyJu.com/

[2] Virtual prototyping in the context of Second Life is described briefly in Philip Rosedale, "Alter Egos," *Forbes* May 7, 2007, p. 76–80.

Experience Prototypes

A team of experienced innovators, engineers, and designers can often use their imaginations to fill in the gaps in a prototype. However, the more immersive an experience is, the harder it is to make those mental leaps. People in Hollywood didn't see anything particularly special about the first Star Wars movie when it was just a script—it seemed like just another Sci-Fi B-movie.[1] Even the first editor initially cut together a film that was lifeless and dull. It wasn't until George Lucas spliced together aerial combat scenes from old World War II movies that his colleagues finally grasped his full cinematic vision, for an adventurous, Saturday morning space opera.

To help customers and executives understand the vision, a much higher degree of realism may be needed—and even a certain amount of stagecraft. Architect's models are easier for a client to understand than blueprints, but even better is a full-sized mock-up of, say, the kitchen layout. You can put together something like that using cardboard boxes cut to size, or (with a little more effort) using foam core panels glued into the dimensions of counters and appliances. Adding some representative finish treatments and light placements will create a more complete experience, and make is easier to imagine being in the space. That's how you discover problems like having to take extra steps between the stove top and refrigerator.

Although our discussion of prototyping is taking place relatively late in our Naked Innovation structure, you shouldn't defer prototyping. Prototyping is not a project step—it's a way of working that should be infused throughout your project. A quick sketch on a whiteboard even while you're mapping out research topics is a simple prototype that help align your team.

[1] Even if you think that *Star Wars* is merely a B-movie, you'll have to admit that it's at least a B-Movie in a whole different category than the space movies that preceded it.

Quick'n'dirty prototypes, used frequently, will reduce misunderstandings and unveil hidden assumptions.

Your Prototyping Mission

As you consider how to use prototyping in your project, remember these key points:

1. Different kinds of prototypes are appropriate in different situations. Determine first what kind of feedback you need, and then make the appropriate prototype—a carefully refined appearance prototype won't be the best way to figure out whether the core concept is useful to a customer.
2. Talking about prototypes doesn't put something real in front of users or teammates. Prototype early and often for maximum benefit.

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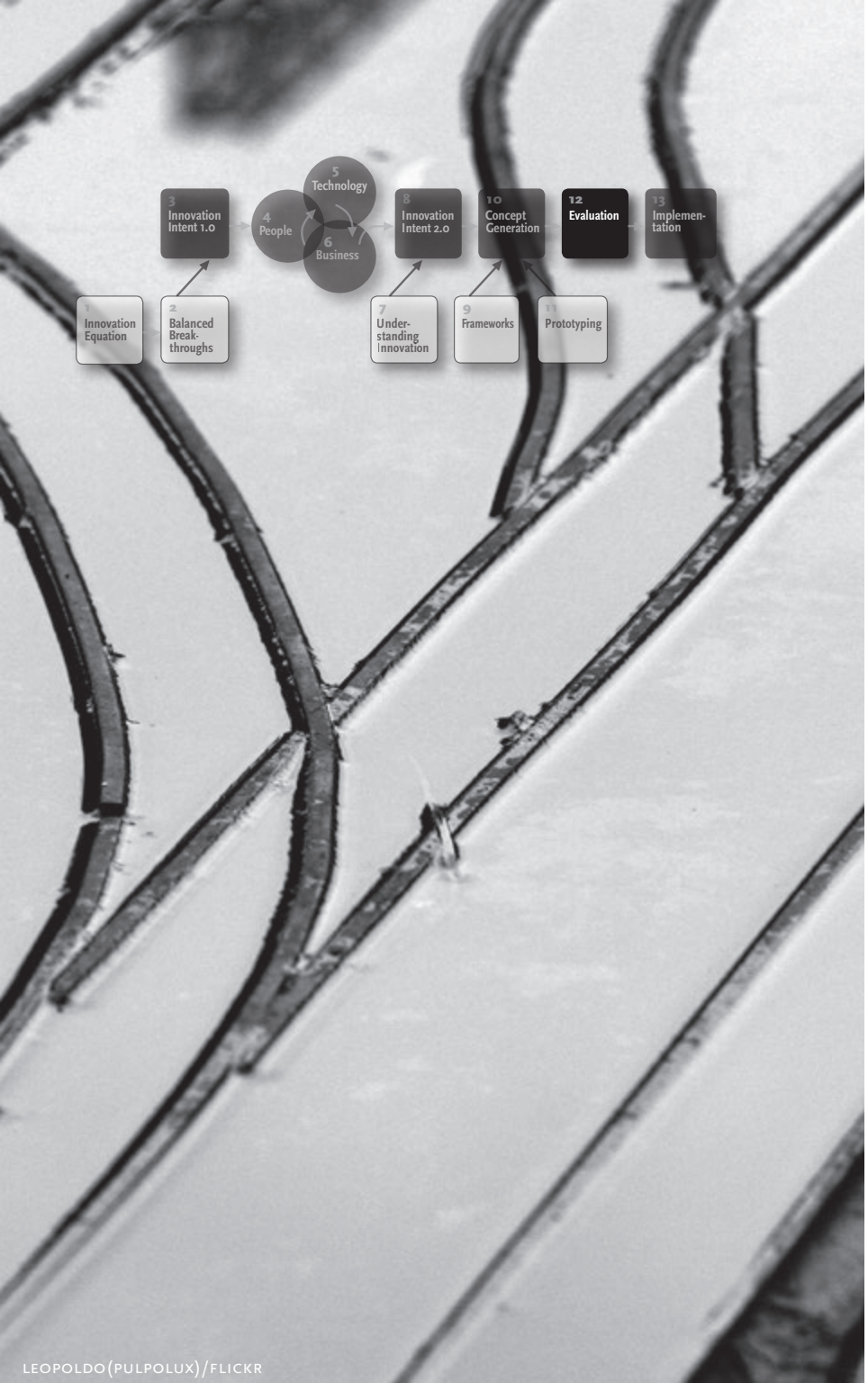
Kelley, Tom. *The Art of Innovation*. New York: Currency, 2001.

Snyder, Carolyn. *Paper Prototyping: The Fast and Easy Way to Design and Refine User Interfaces*. San Francisco: Morgan Kaufmann, 2003. See also the companion website at http://www.paperprototyping.com/.



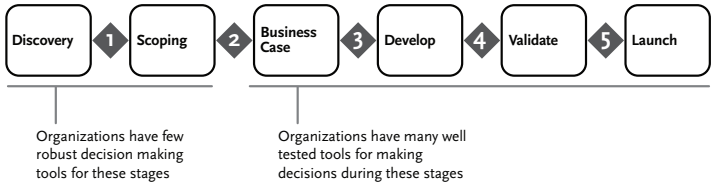
LEOPOLDO(PULPOLUX)/FLICKR

12 Evaluation
Decision Making

People tend to make decisions they feel comfortable making, not the ones critical to project success and timeliness.

JEREMY ALEXIS, IIT INSTITUTE OF DESIGN

Concepts are where the rubber of invention meets the road and all the good insights you've found are turned into solutions. Unfortunately, just like in our own lives we always have more good ideas of what we would like to do than we can possibly support with time, money, and capabilities. Zach has been working on producing a designer deck of playing cards for years but has never gotten around to finishing it. David has done a significant number of choral music performances but doesn't foresee having time in the near future to continue. We both think we have a great idea for a screenplay, but our effort



A GENERIC STAGE/GATE PROCESS

is probably better spent elsewhere, on topics we know at least something about—for example, this book.
Our firms or clients are no different. They have to do what will generate the most value for their customers and their shareholders, sometime in the short run and sometime in the long. Good strategy for an organization or a development effort accounts not only for what should be done, but also what should not.

Method and tools for evaluation in development and going to market—the "how to make" phase—are well instituted within companies, typically in the form of a standardized Stage/Gate process shown above. In contrast, those enabling good decisions related to resource allocation—the "What to Make" phase—are woefully underdeveloped. This lack of rigor around evaluation early in the idea process is well illustrated when walking through the aisles of many retailers today. A study in the *McKinsey Quarterly* notes that less than 7% of all new product introductions in the consumer packaged goods industry were "innovative" between 2000 to 2004. Breakthrough innovations accounted for nearly 26% of sales within the categories studied while line extensions were a measly 1%.[1] Stage/Gate is

[1] Erik A. Roth and Kevin D. Sneader, "Reinventing Innovation at Consumer Goods Companies," *McKinsey Quarterly*, November 2006, online at http://www.mckinseyquarterly.com/article_page.aspx?ar=1870&L2=21&L3=35

fantastic for implementing great ideas but, unfortunately, it is equally as good at implementing bad ones. The result is a lot of products get put into the market that will never significantly contribute to a firm's profitability. That's how you end up with Crystal Pepsi.

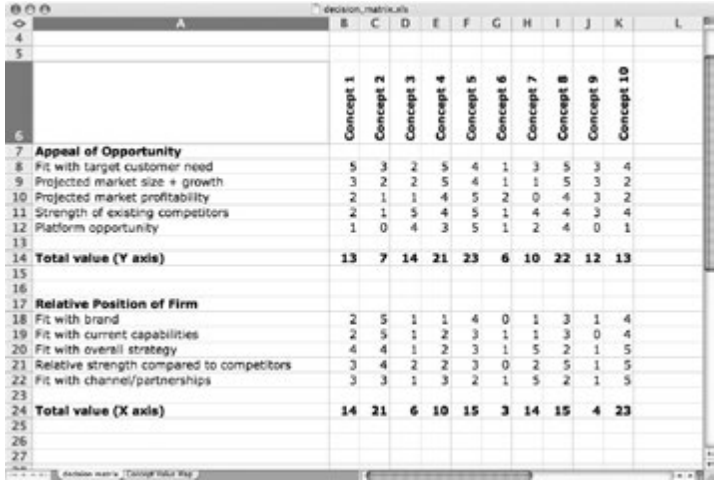
What we're talking about more specifically is decision making at the "fuzzy front end"—concept evaluation. Doing this right is essential because so much of an offering's success or failure is embodied in the idea itself. This may sound like a controversial statement to those who believe work is all about execution, but it is grounded in the Balanced Breakthroughs model. Furthermore, research such as that in the *McKinsey Quarterly* article cited above shows the significant financial return of breakthrough innovations, as opposed to simple product line extensions. So, when making evaluations on the offerings we create or have to fund, we should take these into account. The overall quality of the "idea" really has to fit the context or it is going to have a very low chance of returning on its own investment.

In companies today, decisions in this fuzzy front end are frequently made through unstructured discussion and consensus building among team members. The most casual ones include the phrases "I think we should do this one," followed by, "Sounds good." Design firms some times use "voting dots" or other ad hoc tools in an attempt to add a bit more rigor to the process. Large companies like to use Discount Cash Flow (DCF) analysis to make "go or no-go" decisions (see the box on the next page). Regardless of the process used, there is a significant emphasis on intuition. Organizational influence is always a big factor.

People like to make decisions about known entities, quantities, and channels. Unfortunately, these are not the projects that generally generate the most value for an organization.

This leads to teams being afraid to kill well-known ideas or projects at the expense of less well-known ideas that could provide higher value ones. It leads to a lot of false positives (projects given a go that add no value); and a lot of false negatives (projects set aside that could have been spectacular successes).

We wish we could give you a single, perfect evaluation tool that would always help avoid these problems. Companies often go to great lengths to develop an internal formula that will take subjectivity out of the process. But that can be even worse—using a one evaluation method exclusively produces disappointing results in the long run, because different types of information vary in importance depending on the type of concept being evaluated. Too often we compare apples to oranges because we're using the same evaluation method regardless of the nature of the idea, or where we are in a development project. So, let's consider several decision making tools, and see how they might fit in an overall innovation process.



	A	B	C	D	E	F	G	H	I	J	K	L
4												
5												
6		Concept 1	Concept 2	Concept 3	Concept 4	Concept 5	Concept 6	Concept 7	Concept 8	Concept 9	Concept 10	
7	**Appeal of Opportunity**											
8	Fit with target customer need	5	3	2	5	4	1	3	5	3	4	
9	Projected market size + growth	3	2	2	5	4	1	1	5	3	2	
10	Projected market profitability	2	1	1	4	5	2	0	4	3	2	
11	Strength of existing competitors	2	1	5	4	5	1	4	4	3	4	
12	Platform opportunity	1	0	4	3	5	1	2	4	0	1	
13												
14	**Total value (Y axis)**	**13**	**7**	**14**	**21**	**23**	**6**	**10**	**22**	**12**	**13**	
15												
16												
17	**Relative Position of Firm**											
18	Fit with brand	2	5	1	1	4	0	1	3	1	4	
19	Fit with current capabilities	2	5	1	2	3	1	1	3	0	4	
20	Fit with overall strategy	4	4	1	2	3	1	5	2	1	5	
21	Relative strength compared to competitors	3	4	2	2	3	0	2	5	1	5	
22	Fit with channel/partnerships	3	3	1	3	2	1	5	2	1	5	
23												
24	**Total value (X axis)**	**14**	**21**	**6**	**10**	**15**	**3**	**14**	**15**	**4**	**23**	
25												
26												
27												

A DECISION MATRIX

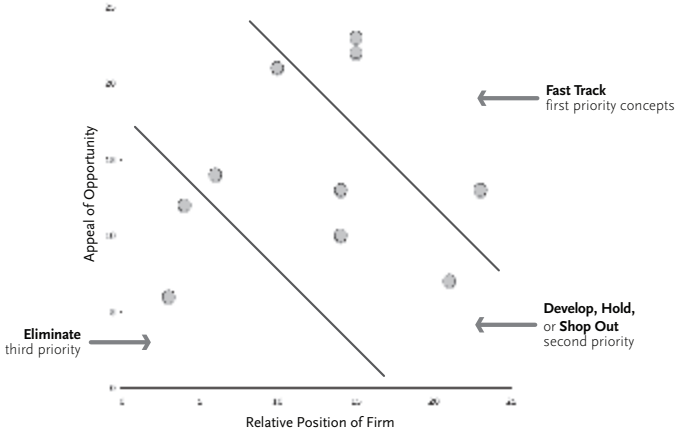
The Dirty Secret of Discount Cash Flow

Discount Cash Flow (DCF) analysis is an exceptional tool for evaluating how very well known products will do in known channels if released in the near future, but it isn't foolproof. In fact, the dirty secret of DCF is that the numbers can really be anything the business or financial analyst putting them together wants them to be. If that person believes in an idea or likes the individual leading the project, projections can look good. If they have issues with one or the other, the "numbers" can project a much worse story—regardless of reality.

The bottom line is that psychology and motivations play into DCF regardless of how straight forward and "analytical" the final numbers look. Individuals putting together this information have a tremendous amount of power and their power becomes much more pronounced when DCF is used for evaluating possible offering ideas several years (or more) in advance. At this point, it is more speculation than analysis.

The Decision Matrix: Selecting Good Concepts

One of most useful evaluation tool following concept generation is the ***Decision Matrix***. There are a few different specific forms worth considering, but the basic idea in every case is to rate each concept against a suite of criteria. These concepts are then sorted to show which ones are of highest total "value" and maybe plotted on a position map. While the level of rigor used can vary widely, we generally build them quickly in Excel using a team's collective judgment to score. Completing a decision matrix is especially worthwhile just after a big workshop or



PRIORITIZING CONCEPTS BY BUSINESS AND USER VALUE

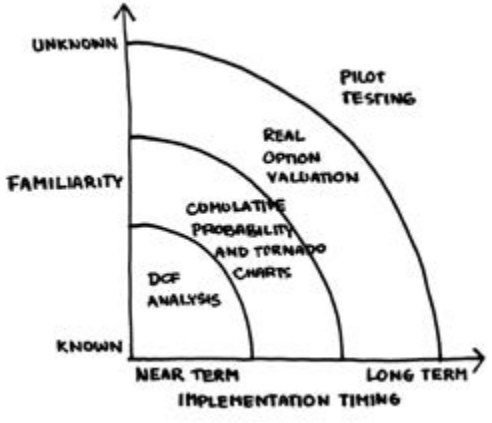
other idea generation activity. Managers and team members working on innovation projects can feel overwhelmed by the many concepts created during exploration. Matrices allow teams to quickly focus on high value opportunities. So which criteria should be used and how should they be scored? Criteria generally fall into three distinct categories: value to potential customers, ease of implementation, and economic value—broadly mapping to the Balanced Breakthroughs model.

On the previous page, you'll see a pre-defined matrix, created in Excel, that works well as a starting point for concept scoring. Success factors from the Balanced Breakthroughs model divide into two main aspects of any development: *Appeal of Opportunity* versus the *Relative Position of Firm*. A more customized matrix can include the Design Principles you framed after your research, helping you measure how well each concept accomplishes the requirements you already established.Quickly score each concept (that is, over an afternoon, not a week) and then plot them on a position map (shown above). This map will

visually compare the strength of various concepts, and be your guide in determining which ones should have priority.

Bucket concepts into one of the following categories (well-defined by Jeremy Alexis). Those with highest priority need to be put on the **Fast Track** to development. These concepts are a quick win or address a closing window of opportunity. They should be brought to market as quickly as possible. Those with secondary priority fall into one of three categories: **Develop**, **Hold**, or **Shop Out**. The **Develop** concepts are promising, but require additional research, design, and engineering before it can be validated or implemented. Those on Hold are, for the moment, probably ahead of their time and will require markets or technologies to mature for them to be valid. Shop Out concepts would be difficult for your client or firm to execute but may be valuable to partners or others in your ecosystem. These ideas can be licensed or given away for free to help build partnerships. Finally, we know that some of the ideas we generate aren't really going to fit our firm or potential

DECISION-MAKING TOOLS FOR GOOD CONCEPTS



customer's needs—these should be thrown in to the **Eliminate** bucket.

Making Decisions Between Good Concepts

After you've selected the best ideas with a decision matrix, you probably still have more concepts than your client or firm can manage to execute. Since most projects will require some form of additional investment to move forward (money, almost certainly, but also time, human resources, and working space), concepts can be examined for practicality. If the concepts will need to be implemented soon, and your company already has the capabilities required, reductive quantitative analyses like Discounted Cash Flow and Net Present Value will be applicable. On the other hand, the further from implementation and less well known an opportunity is, the more you'll need to use other evaluation methods. The model below speaks to some of the evaluation methods to consider with concepts that are further in time and capabilities from your firm's current business.

Many of the these methods, described briefly below, have been thoroughly examined in books on product and portfolio management (see the resource list at the end of this chapter). In addition, you probably have people on your team, or within your firm, who are passionate and knowledgeable about executing detailed quantitative analysis. You should engage them in a discussion of what's appropriate for your project. *Naked Innovation* seeks to provide a high-level integration of a lot of different disciplines' perspectives, rather than a detailed, exhaustive, so the following will serve as an introduction to material covered more extensively by others.

Discount Cash Flow (DCF) analysis determines the present value of future income by discounting it using the cost of capital. It sounds complex but the basic idea behind DCF, and a related analysis, ***Net Present Value*** (NPV) is that one hundred dollars

today may only be worth $90 a year from now, because of inflation and other opportunity costs. So, when deciding what to invest in, firms must take into account—they must *discount*—their investments in some innovation project. It is not enough for a concept to just make a profit, it must profit in addition to exceeding inflation and other opportunity costs.

Where DCF and NPV are very specific with known variables and expected returns, ***Cumulative Probability*** and ***Tornado Charts*** are more appropriate to demonstrate critical uncertainties and ranges of possible outcomes. If an innovation project lead recognizes critical uncertainties, these methods provide guidance for decision-makers to determine how much should be spent to gain more information to clearly resolve issues. This is exactly what happens when we know less about some concept we are considering—there is a range of possibilities as the outcome of development.

Real Options Valuation is the notion that investments should be valued in the same way as financial options. The idea has been around for a while in academic circles but is becoming more familiar with corporate financial planners. Just as in personal financial planning, diversified innovation portfolios provide breadth of opportunity and a platform for taking calculated risks, balanced by some sure bets. Even apart from a broad portfolio of innovation concepts, when we acknowledge that potentially valuable concepts may have risks, we provide an incentive to identify the critical uncertainties and use evaluation tools like Discount Cash Flow more precisely, helping us bring the concept to market.

Sometimes there are concepts that are clearly valuable—yet so far out of a firm's capabilities or brand that it is difficult to know what to do with them. Your firm could Shop Out the idea, but it could also think about ***Pilot Testing*** in the form of

Before You Go On...

The three keys you should remember, for doing great evaluation and decision making, include:

- Be *structured but fast* with your initial concept evaluations. Even with a hundred ideas it shouldn't take more than an afternoon.
- Use *Decision Matrices* then categorize your concepts as *Fast Track, Develop, Hold, Shop Out*, or *Eliminate*.
- Engage those passionate about quantitative analysis to consider a wider range of evaluative methods beyond *Discount Cash Flow*. More specifically, think about using *Cumulative Probability, Real Options Valuation*, and even *Pilot Testing* through angel investment.

RESOURCES FOR EVALUATION

Cooper, Robert G., Edgett, Scott J., and Kleinschmidt, Elko J. *Portfolio Management for New Products*. New York: Perseus Books Group, 2001.

Gorchels, Linda. *The Product Manager's Handbook*. New York: McGraw-Hill, 2005.

ANNA PUSTOVAYA/ISTOCKPHOTO

13 Implementation
Making Innovation Real

Culture eats strategy for breakfast.

TODD MCCULLOUGH, DOBLIN INC.

On November 3, 1983, General Motors' Chairman Roger B. Smith and President F. James McDonald announced a bold new concept they called Saturn. Its motto proclaimed Saturn was to be not only "a different kind of car" but also "a different kind of company." Free from the bureaucracy, labor issues, and other dysfunctions of its parent, the independent firm's first 99 employees were challenged to beat the Japanese at their own game, to innovate, and ultimately to infect General Motors with effective new management techniques. Saturn was America's new hope in a sagging national automobile industry and was lavished with attention and positive press.

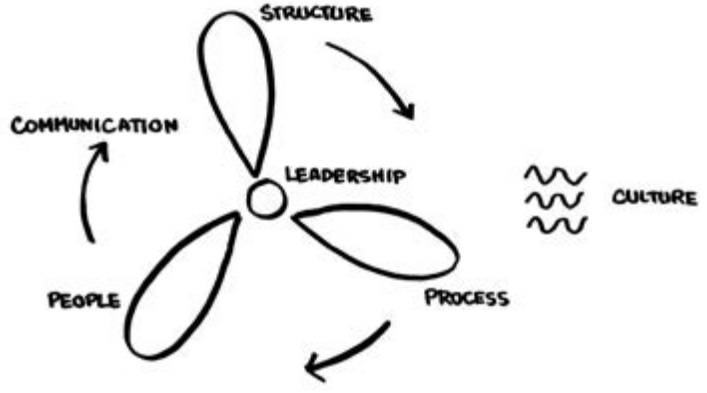
Saturn's vision was an appealing one that still resonates: to make simple but high quality cars sold by approachable no-haggle dealers to customers who are fundamentally enthusiastic about the product. The company went on to realize much of this vision and set new standards for buyer satisfaction. The

so-called "Saturn experience" began with the sale at a dealer and ran through the entire life of the car—and was the talk of the auto industry for years. A recent survey even ranked Saturn as the only economy carmaker in the top five in customer satisfaction.

Unfortunately, as good as this all sounds, the hard reality is that Saturn *never* made a profit and in 2004 was turned into just another division of GM—exactly the opposite of what its founders had intended. By October 2009, production was shut down entirely. So what went wrong?

Well, there is a whole book's worth of material in examining the unique Saturn experiment, but the most important factor contributing to its failure was the ever present ***Culture*** of General Motors. Though it was Saturn that was supposed to lead GM to new ways of handling corporate governance and employee relations—a new way of doing things—the company just could not escape its parent's shadow. The proverbial apple had not fallen far enough from the tree and could not fulfill its promise. Regardless of how good a strategy is, regardless of how smart employees are, regardless of how many resources are thrown at an opportunity, delivering on some identified opportunity simply cannot be achieved without a culture aligned to it. Innovation is not just about new offerings we introduce but how firms embrace a new way of looking at, and organize themselves within, the world. Failure to adequately address the road to change can undo a local restaurateur's new idea for new menus just as they undid Saturn's promise to be a new type of car company.

Have you ever known a company that had a brilliant vision, and the people and resources to invent anything, but which still could not seem to connect the pieces? Its problem was surely one of culture—"the way we do things around here." A



PROPELLER MODEL OF ORGANIZATIONAL DYNAMICS

firm's culture is the sum of all past successes, failures, structures, processes, and most importantly, people. It is a powerful force which can propel little organizations to greatness or crumble large decades old corporations regardless of their means. It is the most difficult aspect to address in proposing big innovations because it cannot be directly managed. Fortunately, there are useful ways to think about how to work within or to align your team or a firm's culture to pave the way for some innovation's success.

Two of the most useful tools to help understand a firm's culture and readiness to change are the Propeller and Change Readiness (AVBP) models of organizational dynamics created by Roger Mader while working at the management consulting firm VIA International. While there are many ways to organize one's thoughts around the dynamics of culture, the power of these models are their simple elegance and completeness. They allow one to quickly consider many organizational factors to address in a roadmap to roll out some new innovation. Wheth-

er you are in a position to pull all the levers within the models or not, it is always helpful to know the lay of the land.

Diagnosing Culture

The ***Propeller Model*** is comprised of six main components that contribute to a firm's culture: leadership, structure, process, people, and communication. When an organization is properly tuned, its Propeller turns freely with a culture aligned to its strategy and new innovations. When not well tuned, the very people who charged with creating and delivering value to customers may work against it. While one cannot directly change culture, these components act as levers one can manipulate to indirectly affect *"the way we do things around here."* This "way" can pave the road to the success or failure of new ideas and projects—it is the essence of a firm's culture. Let's examine each component of the Propeller model in detail.

Leadership. It is hard to create anything really new and special without having great leadership. Individual leaders and their teams have to provide a compelling perspective *for why an organization exists* and *where it is going*. As such, both a firm's mission and vision should support and be supported by the projects we work on as contributors. A few choice words from a charismatic leader can have a dramatic effect on employee behavior. Leadership is the arrow that guides and aligns employees at a high level. Work that is inconsistent with leadership or visa versa will rarely produce fruitful results.

Structure. A firm's physical and organizational structures are well considered by management but are also underestimated in terms of importance. How work groups are formed, how roles are defined, existing technological platforms, plants and equipment, and more generally the infrastructure around *what makes an organization work*, play pivotal roles in determining the success or failure of some innovation project. A simple example of how structures might not support work is the physical location of team members. If critical decisions of some project need to be explored and shared by people from different disciplines who are also physically located far away, it will be more difficult for them to build a consensual point of view than if they were working near each other. We're not suggesting that everyone work side-by-side, but that managers and contributors on

Why Innovations Fail

At the heart of many innovation miscues lie misaligned incentives. Even when you give high performance teams great resources and time to do their work, they still will not be successful if they are rewarded for producing something other than innovative offerings. IIT Institute of Design's Jeremy Alexis suggests caution when you see one or more of these incentives coming in to play on your team or firm:

- **Short Termism.** Reputations are built on (and bonuses are granted for) short-term improvements, rather than long-term growth.
- **Entrenchment.** Organizations build measurements on past performance, galvanizing existing behaviors instead of fostering breakthrough innovations.
- **Silos.** Rewards based on individual performance, or on business unit profit and loss, rather than on overall benefit to the company.
- **High Price of Failure.** Failures are easy to identify and remember, people and projects become scapegoats—who would take risks in that context?

innovation projects take a moment to consider how structures around them effects their work.

Process. The more mature an organization becomes, the more fully detailed their processes generally are. *How an organization provides value* to its customers are often made official through documented development processes, performance measures, operational systems, marketing communications, delivery flows, and customer relationship management protocols. These are important to understand because they largely determine the scope of how some new innovation project will come into being and then touch a customer. Process enables and constrains how people work so it is essential to provide the right level of flexibility.

Equally, if not more, important to documented processes are those which are undocumented. Knowing how decisions *really* get made and who makes them can empower innovators to pre-sell concepts to the right group or individuals and not waste important time and resources.

People. When it comes right down to it, making innovation happen is about getting people to adopt a new way of looking at the world—first *in* an organization and then *outside* it. Employees and team members need to easily be able to answer the questions *Who am I?* and *Why should I care?* in relation to their work. Commitments, rewards, beliefs, internal training and education, human resources, and recruiting should serve strategic and innovation goals of a firm. Measuring an individual or team strictly on short-term performance will drive them to deliver in the short term—sometimes at cost to the future. Asking an engineer to act as a product manager with no additional training or support will result in highly technical and "engineered" products that may not meet the needs of the market. Human capital truly is *the* most valuable resource—take pains to align them to your innovation intent.

Communication. Communications is the glue that binds teams and companies together. Considering many of us work in multi-national firms and on teams distributed around the world, great communication is more important than ever. Formal communications (and the systems for creating and distributing them) from leaders about a firm's mission and vision, the documentation of process, and status updates should echo strategic goals and convey incentives clearly. We all have been a part of delivering work or receiving it where there was a clearly a disconnect between what was expected and what was delivered—it is an unsatisfying experience and a quick way to destroy a lot of value.

While this may all sound quite complex, the Propeller model is really quite simple and scales well. At a strategic level, it can be used to organize your understanding of a firm. It forces you to examine how leadership acts, what structures are in place, what process are people expected to use (and what they are actually doing), who is on your team, and how people communicate. These are ultimately the building blocks of first how to identify, design, operationalize, then deliver value to customers. Senior managers of large companies can study their own company to understand it better. The model can also be used to outline change. If you've always worked with big enterprise, but now you've decided to attack the mid-market, we bet your company is going to have some issues until you tune the culture to adapt to the change. The Propeller model can help you consider what levers to pull.

More tactically, the model can be used as a "back of the envelope" way to consider team dynamics. Are the right people on the team? Are their physical and virtual structures built to sup-

port them? Is leadership sending the right message? How can communication protocols be set to increase a project's chance of success? Overall, the Propeller is simple but fantastically powerful when used.

Assessing Readiness for Change

The second tool we use in understanding a company's culture, particularly in the context of innovation, is the ***Change Readiness (AVBP) Model***: Angst, Vision, Belief, and Plan. Underlying this model is Mader's understanding of one simple observation: *it is nearly impossible to change team or employee behavior unless it is viewed as necessary by those who need to change*. From the outside, it can seem to be clear how and why some individual or organization should act in new ways to address a changing ecosystem. From the inside, especially at organizations that have had considerable past success—think Microsoft and SAP, the two goliaths of consumer and enterprise software—accepting change for people can be akin to admitting failure. On a smaller scale, but no less important, a local business has to change to survive the arrival of Wal-Mart. Mader suggests that the alignment of Angst, Vision, Belief, and Plan is the key to successfully introducing a new strategy or innovation within an organization.

Angst. People in a firm must feel some unease about the current situation to be ready to change. This Angst can take many forms: new competitors, a changing ecosystem, being left behind, or something more primal like a fear of failure. Both team and managerial leaders must not hesitate to make it clear they see a new way of doing things as essential to survival. When Bill Ford, Jr. publicly said, "It's change or die," to the press, he wasn't really talking to them but instead to Ford employees. We're not suggesting you be so dire when presenting a call to arms. (We also hope your situation won't be as dire as Ford's is now.)

[1] Chip Heath and Dan Heath, *Made to Stick* (New York: Random House, 2007).

Vision. While those (especially in big successful companies) may need Angst to be motivated to change, more importantly, they need a brilliant Vision of the future. Big new strategies and innovations can be complicated, many times involving the active retirement of people and systems. The Vision is sort of like an elevator pitch everyone can understand and rally around. While John F. Kennedy gave many fine orations, we especially like his famous 1961 call to "put a man on the moon and return him safely by the end of the decade." Embedded in this short statement is a considerable amount of information, direction, and emotion. Whether you are a senior manager or a team contributor, presenting a Vision of a future state people can invest in is worth time considering. Sometimes you only have one shot to sell your version of the future: a new business pitch, an internal product or engineering review, maybe an all-hands meeting—we suggest you make the best of it. To that end, we highly recommend Chip Heath and Dan Heath's book, *Made to Stick,*[1] and hope you apply their principles to communicating your Vision.

Belief. Incentive to change and a picture of the future are necessary but both mean little if your team has no Belief. We could say we're going to start a new software company to go make a better computer operating system than Microsoft or Apple, but few joining us would really believe this is possible. One of us worked for a technology start-up called that went through a rollercoaster of success and failure over its few years of existence. In the company's final months, senior management presented a series of possible strategies for the company to continue, each more outlandish than the last. Ultimately, our leadership's Vision became just too far from reality for contributors to do their jobs well. Next time

you create an innovation, use the Angst in the situation, create a Vision, but make sure they Believe!

Plan. A big part of building Belief is presenting a Plan that outlines the roadmap to success. This doesn't necessarily mean you have to have each step figured out. Honestly, we all know that things do not always go "as planned." This is especially true when rolling out new offerings—technology, customers, and competitors always seem to have a reaction! Instead, the Vision and the first few steps to achieving it must be clear and then immediately acted on. In this way, Angst begets Vision begets Belief begets Plan, and so on—a new innovation implemented and unleashed!

So what form should this plan take? We like creating a ***Roadmap*** that places organizational changes in line with the introduction of new innovations. A roadmap is less specific than a Microsoft project plan but more specific than bulleted goals. It allows us to match changes in our organization or client's makeup with the introduction of new offering. You can create these relatively easily in Excel by creating a four column layout. Label the first column Beachhead and the next three Phase 1 through 3. A Beachhead is the first public introduction you have for some new offering. It is up for you to decide how long each phase will take but we often use periods like six months for the first phase, one year for the next, two to three years, and five years. We then create rows for products, services, people, processes, structures, and communications. The first two rows document the offerings you plan on delivering while the four others are the important parts of the Propeller model that must be addressed to support them. Take the current project you are working on and create a quick roadmap to see how you can plan for success.

Implementation Over the Long Term

We don't intend for this short chapter to prepare you as a change management consultant—it's hard work and there are some really great firms and people trained to do it! We have hope that roadmaps, the Propeller model, and the Change Readiness model will help prepare you to understand what it actually may take to get an innovation to be successful. This is especially true if the idea you are proposing will fundamentally change the way your organization or company delivers value to current customers. It's not just about the idea—it's about the people who have to make it real.

Before You Go On...

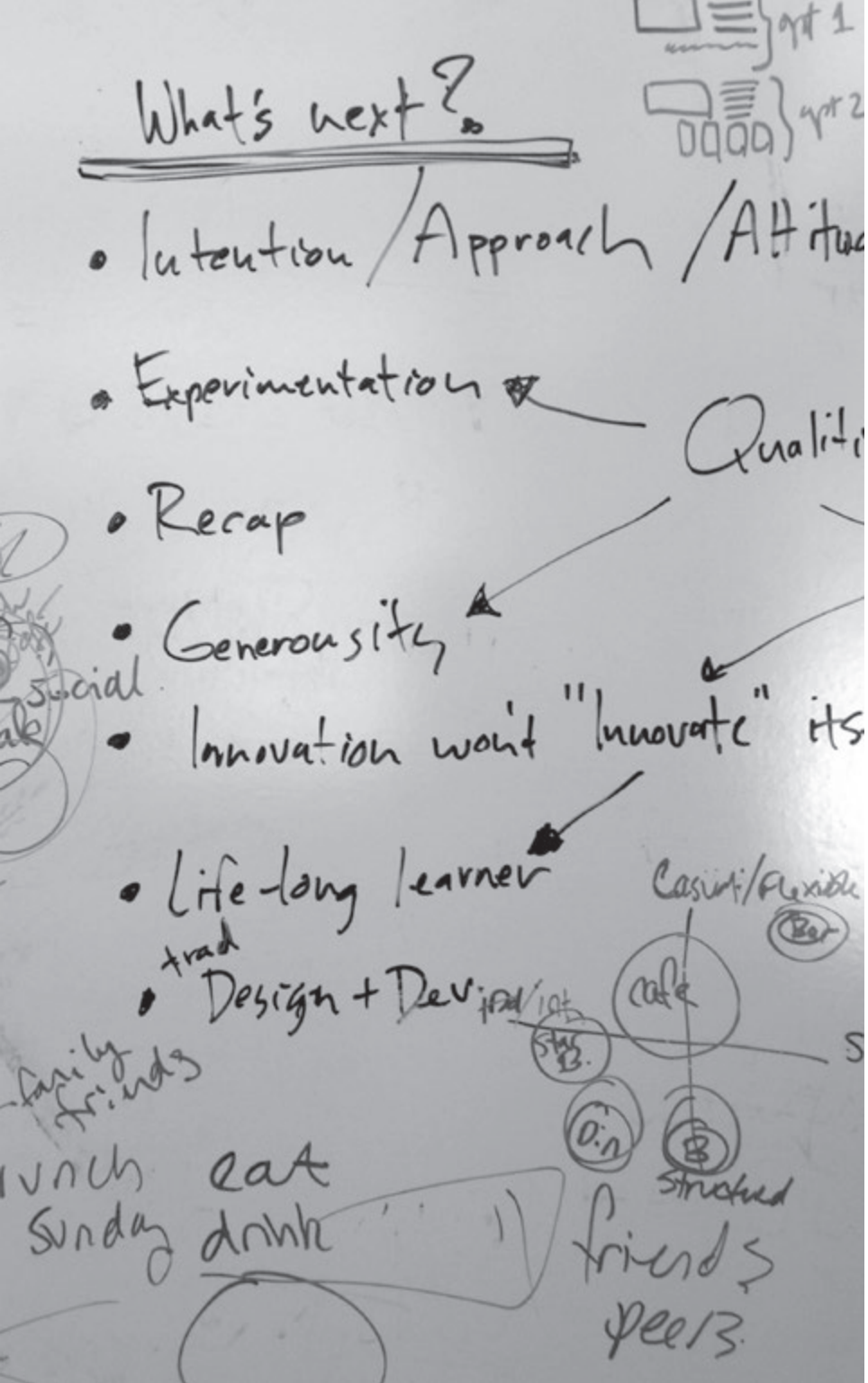
If you remember anything from implementing innovation, let it be these three keys:

- Getting any new innovation or strategy to be successful is really all about changing *people*—how both employees and customers act.
- The *culture* of an organization or team (the way they act) *cannot be directly manipulated*. But the elements within the *Propeller model* can be used to examine and then indirectly affect it.
- People will only be ready to change if they have *Angst* about their current situation, have a clear *Vision* to drive them, have *Belief* in leadership and the *Plan* put into action.

RESOURCES FOR IMPLEMENTATION

Heath, Chip and Heath, Dan. *Made to Stick*. New York: Random House, 2007. An excellent new volume on effective communication.

Thompson, Jr., Arthur; Strickland, III, A. J.; and Gamble, John E. *Crafting and Executing Strategy*. New York: McGraw-Hill/Irwin, 2006.



What's Next?

Having read these thirteen chapters, you may be asking yourself, "What's next?" We readily admit we have merely scratched the surface of what it takes to be really successful in introducing new offerings to the market. The most obvious next steps are the detailed design, engineering, marketing, and operations work to complete the circle and actually produce something of value. As a senior executive at a large company we worked for said recently, after you have the right strategy idea you need a lot of great "execution, execution, execution." So why does our book stop here? The answer is that the nuts and bolts of these standard development and operational processes—the "How to Make" part—have already been well documented and taught in professional schools. We have focused on the "What to Make" phase specifically because we believe that being good at generating and discerning quality concepts is what differentiates the really fantastic organizations from the merely good ones. Unlocking the right ideas is what empowers innovation to happen.

No doubt there will still be those who think that Innovation is just the latest business fad. With so many people talking

about it, it is hard to separate the wheat from the chaff. We've witnessed gurus touting their "Seven Keys to Innovation," and have read dozens of popular articles lavishing praise on one obvious success or another. It is hard to ignore the desire for "quick wins," "low hanging fruit," and an easy path to breakthroughs. Unfortunately, Innovation (naked or otherwise) isn't that simple. Producing work that creates the most value requires risk and resources, an identification of multiple converging trends, fantastic communication and interdisciplinary teamwork, excellent execution, and a group of people willing to adopt a new way of behaving in the world. It is fundamentally complicated and ambiguous.

Thankfully, there are some really smart people thinking about how we can coordinate these activities more consistently. We've introduced you to a few of them in *Naked Innovation*—Larry Keeley, Vijay Kumar, Chris Conley, Jeremy Alexis, Roger Mader, and Patrick Whitney. In addition, there are many more doing great research at Stanford, Carnegie Mellon, Rotman, among other academic institutions, as well as in leading companies. Even the United States government has put together a think tank to develop new metrics for what Innovation contributes to the economy. Innovation on how to innovate is all around us!

A lot of these bright people are working to make Innovation a more reliable, repeatable method than it has been in the past—a "science," if you will. It was, in fact, one of the very purposes of this book to introduce innovators to a unified framework for thinking about and doing the work of value creation. From the initial feedback we've received, we think we've been at least partially successful. At the same time, we recognize there is something missing from the equation. That something is a certain attitude. This is where Innovation may still be more of an art than a science.

From our experience, the people who innovate well seem to have similar qualities. First, they have a deep ***Empathy*** for both potential customers and colleagues. We've written about empathy earlier in the book but it is important to stress it. Creating Distinctive Value is all about meeting needs. To meet a need, you must be able to first recognize it. Fundamentally, we must do this through listening and empathy. Second, successful innovators have an ***Authenticity*** that transcends the barriers of professional disciplines, and even of social groups. The best innovators are good at sharing not only their insights but also their process. They make the hidden seen, the mysterious less so; they "cut cubes out of fog,"[1] and they guide us down a sometimes unsure path. At the same time, they admit when they are unsure or have failed. Finally, the best innovators have a ***Conditioned Optimism*** which seems unbreakable. They have trained themselves to remain positive, allowing them to continue doing good work knowing they have failed in the past. Conditioned Optimism enables elegance in solution even when constrained in resources. It unshackles us from what is *not* possible and allows us to see that what *is*.

We do not suggest these qualities are innate. Rather, we recognize that despite making big strides in becoming more empathic, more authentic, and more optimistic, we still have far to go. Like many of our colleagues, we've embraced the mindset of the continuous learner, the endlessly curious, the explorer. Our hope is that *Naked Innovation* will be another signpost toward a shared approach for everyone who desires to make cool things and change the world. By enabling ourselves and instituting processes of continuous innovation in the organizations we serve, we can focus on the big problems that really matter. We look forward to working with you.

[1] This phrase, which describes what a generation of students at the IIT Institute of Design aspire to do in solving big innovation challenges, originated with Jay Doblin (1920–1989), who was both a director of the Institute and founder of Doblin Inc.

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PHOTOS: ZACH BY JASON RICHARDSON; DAVID BY JORDAN FISCHER

IIT INSTITUTE OF DESIGN

Since its founding in as the New Bauhaus in 1937, the IIT Institute of Design (www.id.iit.edu) has grown into the largest full-time graduate-only design program in the U.S., with more than 125 students from around the world. Located in Chicago, it is part of the Illinois Institute of Technology (IIT), but ninety per cent of the Institute of Design's students come from outside the area; about a third remain in the area after graduating, helping grow the city's innovation community.

The school offers professional Master of Design degrees in communication design, design planning, design research, or product design; a dual Master of Design / MBA degree program with the IIT Stuart School of Business; and the Master of Design Methods, a nine-month executive program in design methods for innovation. The Institute of Design created the country's first Ph.D. design program in 1991, helping pioneer the development of an international community of basic research in design methods.

The Institute of Design is dedicated to humanizing technology and improving the process of innovation, by developing and teaching a more methodological, human-centered approach to design. This approach involves researching and understanding people as they use technologies and services, finding opportunities for innovation, exploring possibilities quickly and effectively, and proposing compelling solutions that tie directly to user needs as well as business strategy. The result is new concepts for products, communications and services that create meaningful value, both for their users and for the companies that make them.

A Note on the Type

This book is set in FF Scala and FF Scala Sans, complementary families designed in the late 1980s and early 1990s by Dutch typographer Martin Majoor. Although they draw broadly on the humanist typographic tradition, they show resonances with modern letterforms ranging from William Addison Dwiggins' Electra to Eric Gill's Joanna. Scala was originally created for the Vredenburg Music Center in Utrecht; along with Scala Sans, it has become widely used in publishing and branding. Even texture and and unusually complete set of glyphs, including italic small capitals, make them robust and versatile. Plus it has a cool italic ampersand that we really like: *&*.