

# Chapter 1

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## The Innovation Challenge

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**A** brilliant editor once told me that all news is local. In other words, unless the news has a direct impact on you or someone you know, it is largely irrelevant.

His observation also applies to IT innovation. A new tool or solution qualifies as innovation when it delivers a tangible benefit that helps you perform a task or achieve an objective faster, better, and more cost effectively than before. When it does not deliver a tangible benefit that leads to some kind of measurable improvement, I do not think it qualifies as innovation.

It is quite possible that a particular innovation can deliver tangible benefits to some people and to some organizations, but not to all people and to all organizations. And it is also quite possible that a particular innovation might be great for a large organization, but prove impractical for a small organization.

If you accept the idea that innovation has to provide some tangible benefit, it becomes apparent that global innovation does not necessarily translate into local innovation. Scale and location matter. They are variables that must be taken into

account when considering the potential value of innovative projects.

My research into innovation has convinced me that successful innovation models are complex and multidimensional. They are neither simple nor linear. Like physics, innovation seems to work differently at different ends of the scale. As a result, small organizations and large organizations are likely to approach innovation in different ways.

Innovation can appear dramatic or mundane. It can be sustaining or disruptive. It can have a large audience or a small audience. It can result in high-margin gains or low-margin gains. It can be embraced and adopted quickly, or over time.

Will a standard model for innovation emerge? Possibly, but it will not be a simple model. It will look more like a network or a bundle of synapses. It will not be reduced into a binary equation. In fact, I see at least six distinct capabilities required for continuous innovation in the modern enterprise:

- 1. Multidirectionality.** The modern innovation model will take multiple paths and explore multiple options. It will combine internal and external resources. It will have focus and structure, but it is also flexible and resilient. It will assume a certain level of risk, with the understanding that risk is proportional to reward.
- 2. Inside and outside balance.** Successful innovation strategies will leverage a blend of traditional research

and development (R&D) and external resources to find creative solutions and serve new markets.



- 3. Redefined teams.** Innovation requires a different approach to team building. In the past, team members were selected for compatibility and skills. Modern innovation teams will include insiders and outsiders, people who can find and leverage the appropriate resources (whether external or internal), people who bring different views and opinions—people who might not even be considered “team players.”
- 4. Deep knowledge and market awareness.** Innovation also requires deep and extensive knowledge and awareness of the competitive landscape. You have to know what the competition is doing and know your competitor’s business—even better than the competition knows its own business!
- 5. Partnering with the world.** For serial innovators, everyone is a potential partner. You must find good ideas wherever they are, and figure out how to make them work within your ecosystem to create new value for your customers.
- 6. Speed.** Technology and globalization have greatly reduced the length of modern business cycles. Everything is moving faster, and the time between cycles has shortened dramatically. Market-leading companies innovate continuously and quickly. Innovative organizations measure speed in two significant dimensions: speed to market and speed to failure. Both measures are critical. The faster you innovate, the faster

you get new products and services to market. But you can't have innovation without failure, and the best way to fail is to fail quickly.

## The Psychology of Innovation

Throughout this book, we will examine the underlying traits and characteristics of leadership that result in innovation and transformation. We will slowly build a case for innovation leadership, and share the experiences of successful executives who have “been there, done that.”

Based on our research, we've developed a table of characteristics that define leaders of innovation. The table is more descriptive than prescriptive; it is more of a menu than a recipe. But I think that now is the right time to share it with you. As you can see in Figure 1.1, I have divided the

Optimizer	Innovator
	
Right brain	Left brain
Recursive	Combinatorial
Habitual	Transcendent
Fast thinking	Slow thinking
Algorithmic	Heuristic
Risk averse	Risk taker
Puzzle solver	Paradigm shifter
Conservator	Value creator

**Figure 1.1 Characteristics of Leadership**

universe of CIOs and IT leaders into two camps: optimizers and innovators. It is an arbitrary division, since most of us live in both universes. But it serves as a method for contrasting the differences between two kinds of mindsets.

As my friend Daphne Jones, the CIO of Hospira, recently said, “Innovation is really a mindset.” I truly believe that she is right. Innovation is a mindset, and a set of character traits. Innovation is a way of looking at the world. As Daphne would say, “Is your mindset flexible and dexterous, or is it fixed and closed?”

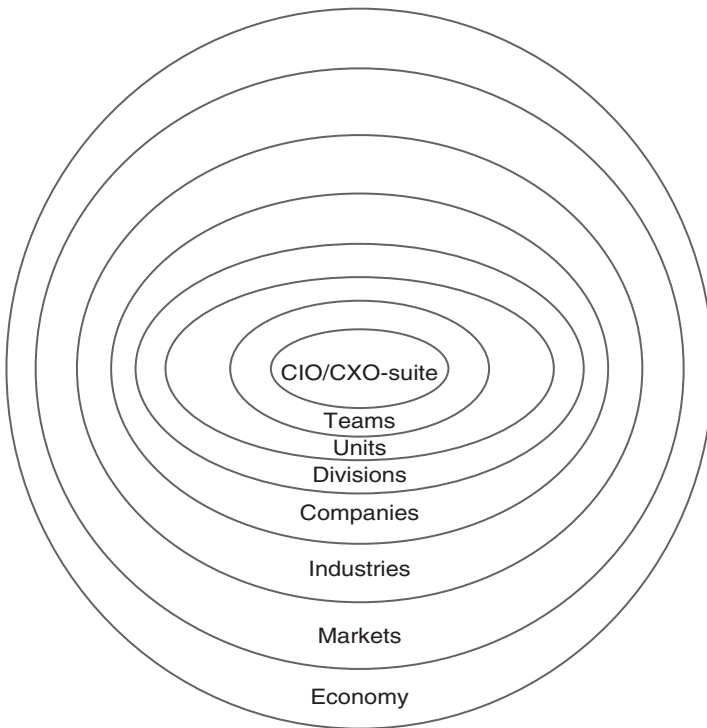
After chatting with Daphne, I realized that innovation really is a mindset. And that realization gives me great hope for the future, because mindsets can be changed.

## **An Expanding Range of Influence**

My interviews and research also showed clearly that the CIO’s traditional range of influence is expanding rapidly. In the past, the CIO’s influence was limited to a thin slice of the organization. Now, thanks to the ubiquity of IT, the CIO’s influence extends far and wide.

But greater influence confers greater responsibility. It is not enough to be influential—you have got to leverage your influence to help the enterprise grow and succeed.

Figure 1.2 shows the many circles in which the CIO exerts influence. It is an amazing testament to the growth of the CIO’s role over the past two decades.



**Figure 1.2 The CIO's Circles of Influence**

## **Speed and Failure Are Essential in Continuous Innovation Strategies**

The pharmaceutical industry, which depends on continuous innovation for its survival, understands the delicate relationship between speed, failure, and innovation—and has developed strategies for achieving success through failure.

Most pharmaceutical companies rely on a two-stage approach to innovation. In the primary stage, the emphasis



is on discovery and testing. In the secondary stage, the focus shifts to success and refinement. The initial stage focuses on the abstract and the ideal, while the later stage zooms in on practical applications for real-world markets.

Both stages are necessary. The initial stage is where the failures take place. The later stage is where the product emerges. In the early stage, failure is not only acceptable, it is expected—because the whole purpose of the early stage is separating winners from losers. Only the winners are sent ahead to the later stage, where they are groomed and prepared for market success.

The innovation strategies used in the pharmaceutical business offer valuable lessons for all of us and are worthy of deeper study. I especially like the concept of a logical, repeatable process that begins with abstractions and ends with the creation of real products that generate measurable value for the enterprise.

If you want to learn more, I recommend a *Harvard Business Review* article entitled “A More Rational Approach to New-Product Development” (March 2008) by Eric Bonabeau, Neil Bodick, and Robert W. Armstrong.

It always helps to remember that innovation is both a combinatorial and a collaborative phenomenon. It does not happen in a vacuum, and you cannot do it alone.

That is why peer-to-peer interaction among CIOs and other IT leaders is essential for continuous innovation.

## Fail Fast and Fail Smart

Back in the early days of the space race, it seemed as though the U.S. rockets were always blowing up. It turned out that many of the rockets launched by the Soviets had also blown up. But unlike the United States, which shared information about rocket launches with the public, the Soviets did not broadcast the results of their tests. As a result, most people never knew about their failures.

As anyone who has ever experimented with rockets knows, many launches end in failure. In rocketry, failure is accepted as a normal phase of the innovation process. You pick up the pieces, analyze what went wrong, and try to fix it. Most important, you keep testing.

We recently caught up with legendary marketing guru Don Peppers, the coauthor with Martha Rogers of *The One to One Future*<sup>1</sup> and *Extreme Trust*.<sup>2</sup> Don has a bachelor's degree in aeronautical engineering from the U.S. Air Force Academy, so technically, he is a rocket scientist. His science background, combined with his graduate degree in public affairs from Princeton, gives him a truly unique perspective on the importance of continuous innovation in the modern economy.

“Great companies are always testing,” says Don. “When you test, you invariably have hits and misses. Many of your hits are random. That’s normal. So instead of focusing solely on outcomes, you should focus on inputs. Did you ask the right questions? Were the tests set up properly? Were there

hidden biases? Then you're learning and moving forward, whether the end result was a hit or miss."

In other words, sometimes the questions can be more important than the answers. This is a critical takeaway for innovation leaders. The more you focus on results, the more likely you are to miss the big picture. The key trends are more important, and they should be the focus of your attention.

Reducing innovation to a simple binary process of separating winning ideas from losing ideas is unlikely to produce genuinely useful results over the long term. Innovation is an iterative process, and each step leads to another. Sometimes, you are not exactly sure where you are going—and that is okay, as long as you are learning and continually improving.

"While it isn't too hard to predict the general direction of innovation, the actual outcomes are often random," says Don. "Ten years ago, for instance, if you had predicted that Apple Computer would become the world's largest music retailer, or that Nokia would become the world's largest camera manufacturer, no one would have believed you. But even 10 years ago we all knew that it was inevitable that music and photographs would eventually be rendered in digital form and transmitted electronically."

Even a string of failures, if they provide enough learning, can lead to success. Before its highly successful iPod, Apple failed with a personal digital assistant called the Newton. And the United States won the space race by acknowledging

failures early, then using the knowledge gained from those failures to develop systems and technologies significantly more advanced than the Soviets’.

## **The New Speed of Change**

Greg Buoncontri has been CIO of Pitney Bowes (PB) since 2000. Prior to joining PB, Greg was CIO at Novartis Pharmaceuticals, and before that he was CIO at Sandoz Pharmaceuticals. Over a career spanning more than three decades, Greg has seen his share of change and transformation.

What has changed the most, however, is the speed of change. “You’d have to be living in a different universe not to recognize the accelerated rate at which things are happening across all kinds of spectrums, whether it’s technology, business, politics, finance, or geopolitical affairs. It’s incredible,” says Greg. “Thinking back over my career and life, I honestly don’t think I’ve seen anything like this before. This is truly unprecedented.”

The speed at which innovative new products and services reach new or growing markets is particularly amazing, says Greg.

“Today, you have all kinds of innovation taking place. Some of it’s good and some of it’s bad. But there’s no advantage in denying that innovation is happening all around us,” he says. “Sometimes I hear people talking about wanting to survive this time of transition. I think just the opposite. I want

to thrive. Innovation creates white space that is filled with opportunity. Innovation isn't something you run away from. Innovation makes you better. It's a horse you want to ride. It might be difficult and challenging, but it's going to take you to a better place."

As most of you already know, PB built its reputation on innovation. The company's iconic postage meter transformed traditional mail, and PB has maintained a unique spirit of inventiveness since its founding in 1920.

"We have a really rich legacy of innovating across multiple channels," says Greg. "One of the ways we foster innovation is through a program called Idea-Net, which started a couple of years ago, where we encouraged employees to make suggestions for innovation around products, processes, customer experience, or internal processes. We collect ideas over the course of the year. There are governance groups that look at the ideas and then decide which ones they want to go forward with and they implement them. There are various ways in which we recognize the people or teams whose ideas have been adopted or implemented. It's been extremely successful."

PB has rightfully earned its reputation as a serial innovator. Although many people still fondly remember the company for its postage meter, PB now provides innovative software, hardware, and services that integrate physical and digital communications channels. The company has annual sales of about \$5.3 billion and employs 29,000 people worldwide.

“When you look at our products and lines of business, you see a transformation from a purely physical world to a world that is increasingly digital,” says Greg. “In our company, innovation is an ongoing process. It never stops. You need to have a culture and a process that recognizes that not all innovation is going to be successful. There might be failures. In fact, those failures produce learning. The companies that are really good at innovation are the ones that have reduced the cost of failure, which allows them to experiment and innovate more. We’ve always been an innovative company in our space. Now we’re widening the space in which we innovate. This is a fascinating experience and a very exciting time.”

## **Focus on the Business Challenge, Not on the Technology**

Tim Campos is the CIO at Facebook. In many ways, he represents a new generation of CIOs who successfully combine business and technology skills to generate value for the enterprise. He studied electrical engineering and computer science at the University of California at Berkeley. He also holds an Executive MBA from an innovative program that combines the resources of Berkeley’s Haas School of Business and Columbia Business School. Graduates of the bicoastal program receive two degrees, one from Berkeley and one from Columbia.

I am sure that Tim would have both diplomas hanging on the wall of his office, except that nobody at Facebook has an office—including legendary founder Mark Zuckerberg!

I think it is fair to say that Facebook is one of the most amazing success stories of the past decade. And like Facebook, Tim is something of a prodigy: At the age of 32, he was named CIO at KLA-Tencor and became the youngest CIO of a Fortune 500 company.

At Facebook, Tim has a bird's-eye view of the new relationship between IT and the enterprise. I asked him to tell me how the cloud was changing the role of the CIO in modern organizations. Here is a summary of what he told me:

*There is so much involved in making technology work with traditional on-premise methodology. Any business decision that involves technology involves a whole bunch of other things that go along with that technology. You must have a data center. You must have a technical operations group. You must have an ability to monitor and maintain all of the technical infrastructure.*

*In a cloud-enabled world, you can get all of the benefits of technology without the investment in the data centers, the people, the infrastructure . . . and that changes the equation.*

*A cloud-based solution allows you to focus your management attention solely on applying technology to the business problem . . . and not on the bits and bytes and mechanics of the technology itself.*

*When you do that in scale—in other words, when you apply cloud as a strategy across your entire enterprise architecture—it's really transformative. At Facebook, for example, most of our internal information services are*

*cloud-based services. That changes how we think about the IT function. And it changes what we get out of IT.*

*Younger companies that are growing up in this cloud-enabled world view IT very differently than traditional companies that have been around for 30 years but are the same size.*

I asked Tim to compare the skill sets of traditional IT organizations and IT organizations that rely more on cloud-based services. Here's a sample of his reply:

*When you're using cloud-based services, the skills you need are less technical and more business-oriented. Imagine a traditional IT function . . . you need database administration, systems administration . . . all these heavy IT skills that are not business related. You don't need all those skills in the IT organization when you're using cloud-based services. So almost by definition, you're more aligned with the business.*

*The cloud changes the nature of the relationship between IT and the business. It's easier for IT to be responsive to the business. Let's say you're using Salesforce.com and your business is growing fast. If the size of your sales organization doubles, you don't have to rethink your CRM application . . . you just have to add more licenses and let Salesforce.com make it work. Salesforce knows how to do this more effectively than any of us would by ourselves. And they have the economic incentive to figure it out.*

*If you're just using the cloud for one application, you probably won't see the benefits. But when you're using cloud for almost all of your applications, then it's a huge change.*



*We still have a very small percentage of the IT environment on-premise, so we can see the difference between the on-premise systems and the cloud systems.*

*The contrasts are striking. In the areas where we spend the most time, the areas where we experience the most pain (pain as defined by work output necessary relative to the business output that we get out), the benefit of the cloud systems becomes strikingly clear. You don't waste your time on things like upgrades and making sure that you have the newest patch revision and all of that.*

I also asked Tim about security in the cloud. Here's what he told me:

*I'd say there are two types of security issues. The first one is a myth and the second one is real. The first issue, which is a myth, is that these cloud solutions aren't secure. And that they would be less secure than your internal on-premise systems. I don't think there's any evidence of that. I don't think there's any evidence that Salesforce.com has continuously been compromised. But there's tons of evidence that enterprises are compromised every day because of accounts that don't get terminated or employees who take information from their companies for nefarious reasons. Those are the real security risks that we face on a daily basis. For a cloud provider to succumb to that on their production systems would mean death to the company. So they invest a tremendous amount in the security of their ecosystems. I don't think that the general security of these systems is a real issue.*

*But there is a secondary issue of data ownership, and that is real. For example, it is not possible for a company to*

*say (in a way that meets certain commitments to external parties) that it owns its data if that data lives with a cloud provider. A very simple example would be user data. Let's say that you give certain guarantees about how you handle user data (i.e., when you say that it's deleted, that it's actually deleted, or that you will not give it to a third party, except under certain conditions). You can't make those guarantees about data that lives with somebody else, because you don't know how they're going to handle the data, even if they make that promise to you.*

*And there is a class of information for which encryption or some other solution is necessary in order for you to use the cloud. That does limit the cloud's utility in certain situations. There are plenty of examples of types of information for which a certain class of protection is necessary that a cloud service provider won't or can't provide to meet your requirements. Which means there are certain types of data that you don't want to put in the cloud.*

I sincerely appreciate Tim's candor and insight. His observations are spot on. The cloud offers benefits—and drawbacks. As the CIO, you need to weigh the pros and cons, and reach a decision that makes sense for your IT organization and the larger enterprise it serves.

## **In the Modern Enterprise, True Innovation Takes Many Shapes and Forms**

Over the past year, I have spoken with dozens of CIOs about their innovation strategies. One truth that has emerged clearly

from our research is that innovation takes various shapes and forms. We tend to think about innovation in terms of new products, services, or processes. Sometimes, however, innovation can take the form of a new way of looking at things.

Several good examples of this surfaced during a recent conversation with Steve Phillips, senior vice president and CIO at Avnet, Inc. Steve told me that he believes IT is ideally positioned to support and champion innovation, especially for technology companies, because “IT teams that work closely with their business colleagues have a deep understanding of how business processes ‘really’ operate and the way that business processes and technology interact.” Typically, IT teams can determine fairly rapidly if a new technology idea has a chance of evolving into a real product or service.

To encourage innovation, Avnet’s IT team has an annual contest for its North American employees to encourage people to come forward with their ideas.

“We have something called the ‘CIO Challenge’ every year,” says Steve. “We encourage all of our IT people to put their good ideas on the table. Typically, the best ideas that emerge aren’t for new products, but for new ways to make IT more efficient and our company an even better place to work.”

In 2012, more than 18 ideas were submitted, either by individuals or teams. Instead of the winner being solely selected by management, the ideas are reviewed by an employee council.

“The employee council sifts through every idea, and they pick the top three from their point of view,” says Steve. “Then the entire IT team votes on the top three and picks a winner. My commitment as CIO is to support the winning idea. Typically, the ideas don’t need a lot of investment, although I’ll commit up to \$50,000 if needed. More than anything else, usually, they need support from management and prioritization.”

The most recent winning idea was the creation of an Ideas Laboratory, which involved setting up a small IT work team who could experiment part-time with new technologies and tools with a focus on how they could be used to deliver business value. In the prior year, the winning idea grew from the desire of some IT staff to learn more about the newer technologies being used in Avnet IT, such as Microsoft SharePoint or SAP.

Essentially, these employees did not want to be limited to the older technology they currently work with and wanted to consider alternative technology career tracks within Avnet. To provide them with this experience, Avnet created a “Technology Day,” followed up by a job shadowing opportunity. Steve explains how it works:

*It’s a voluntary program for our IT employees, where they can spend a day learning from internal and external experts about the newer technologies being used at Avnet. This way, our people can better understand the kind of skills*

*and opportunities open to them. At the end of the Technology Day, participants have the opportunity to sign up to shadow someone who works with the technology to learn even more about it. If they are still interested after that, the employee can say, "I'm interested in making a role transition here." There's no guarantee of a new role, but it's an opportunity to learn and express their interest. And if we can find a new role for these employees, then we do.*

The Ideas Laboratory and Avnet Technology Day both demonstrate that innovation doesn't have to arrive in the form of a new product or service to generate useful business value. Sometimes a new process or a new approach can be just as valuable as a new application or device.

"The innovations that emerge from the CIO Challenge enhance and improve employee engagement," says Steve. "Higher levels of engagement often translate into higher levels of job satisfaction and productivity, which generate tangible business benefits."

The lesson here is that innovation comes in many shapes and sizes. A great innovation doesn't have to be a cool new app or sexy piece of hardware—what's important is whether it helps the business achieve its goals.

More information about Avnet's CIO Challenge can be found on Steve's blog *Behind the Firewall* (<http://blogging.avnet.com/weblog/cioinsights>).

## Notes

1. Don Peppers and Martha Rogers, *The One to One Future: Building Relationships One Customer at a Time* (New York: Crown, 1993).
2. Don Peppers and Martha Rogers, *Extreme Trust: Honesty as a Competitive Advantage* (New York: Portfolio, 2012).