

Chapter 1

Roadmap

Introducing the Lean Enterprise

The root of the enterprise's innovation troubles are the internal failures to address issues of autonomy, incentive, and financial structure. But the overwhelming need to innovate is driven by changes in the outside world. Ubiquitous access to the Internet, mobile networks, and cloud computing re-sculpt the business landscape at ever faster rates. Those forces bring forth new markets and stimulate new products, while building and destroying companies with unsettling speed.

Enterprises need to understand this new environment and its implications for their innovation efforts, and they need to build new structures and strategies that take advantage of these forces rather than being overwhelmed by them. In the chapter entitled Strategy (Chapter 2), we take a closer look at the forces at play and their implications for innovation organizations and strategies.

The Innovation Colony

Overall, this book explains how to generate a profusion of product or service ideas and figure out which ones are likely to make viable businesses, predictably and repeatedly, within a large organization. The key is a new corporate structure that we call an *innovation colony*. Like the economic and political colonies of previous centuries, an innovation colony is a settlement staffed by employees of the mother company, but it's distant enough that the company's traditional management practices are not in full effect. It's funded by the enterprise, but its main concern is sustaining itself by all possible means, just like a normal startup does. Colonies have single, critical functions to perform on behalf of their enterprise masters: to foster disruptive innovations.

Unlike conventional corporate departments, an innovation colony needs a unique degree of independence and autonomy. It's a company within a company, and it spins out startups at a great rate and fosters the ones that show promise. The chapter entitled Corporate Structure (Chapter 3) covers the colony's organization in detail.

An innovation colony won't produce fresh, market-ready businesses, though, unless the people working in it are properly incentivized. Most entrepreneurs are motivated by a risk/reward profile that would terrify ordinary enterprise employees, and typical compensation structures drive them away. However, in order to succeed, your innovation colony will need people that think like entrepreneurs. The key to hiring them is to create jackpot opportunities. In the chapter entitled Compensation (Chapter 4) we argue that enterprises must be willing to surrender a large share of equity in the ventures they develop. Our rationale is that even if the colony produces a handful of market-leading products, everyone concerned will still make enough money to justify the undertaking.

Innovation colonies pursue large numbers of worthy ideas in alignment with an *innovation thesis* based on prevailing trends in technology, investment, and consumer behavior. We take a closer look at this vision and how to formulate it in Vision: The Innovation Thesis (Chapter 5).

Investing in unproven ideas still entails huge risks. What if none of them hit it big? That risk is the reason why the way you select ideas is as important as the number you pursue. Teams within the innovation

colony must test each idea to make sure it has a ready market before committing substantial resources to developing it. The Lean Startup method enables them do exactly that.

The Lean Startup Method

Fred Wilson, founder of Union Square Ventures, says he likes to invest in startups that “grow like weeds.” Why? A weed doesn’t need carefully prepared soil, regular watering, or full sunlight. It busts open its seed, sends down roots, and pushes upward without need for a controlled environment. Likewise, ventures built according to lean startup principles don’t require the certainty of ideal conditions to thrive. They thrive in conditions of extreme uncertainty—the very conditions that bring the highest returns on investment.

To build a lean enterprise, you must create structures and processes within the company that seek out conditions of high uncertainty, discover promising business possibilities, and nurture the ones that show potential to grow like weeds. Do it right, and you have a shot at harvesting a 10,000-times return.

Doing it right is difficult because corporate people are accustomed to shunning uncertainty. We ended up writing this book because we’ve been teaching corporations to do lean startup for the past few years, since before Eric’s book was even published. In our book, we teach you the step-by-step process to changing your risk-averse corporate mind-set in Lean Enterprise Process (Chapter 6).

Lean startup principles are fundamentally an application of the scientific method—especially experimentation. In conditions of extreme uncertainty, the logical approach is to experiment. Everything we do is pretty much an experiment, but seldom do we apply disciplined procedures to make sure we consistently learn from our experiments. The lean startup method is a framework, complete with terminology, best practices, and a worldwide community of enthusiastic practitioners. It allows you to run experiments at minimum cost while yielding maximum learning. An innovation colony simply aggregates lean startup experiments on a grand scale. It is designed to repeatedly discover innovative new businesses that can generate exponential returns.

Build, Measure, Learn

In general, the experimental process is an iterative approach divided into three phases: build, measure, and learn. It starts with an inspiration or intuition that customers have a problem and a particular product or service will solve it. The product is never elaborated more than absolutely necessary to complete the current experiment. The point is to build, as quickly and cheaply as possible, an interaction with potential customers that generates measurable results that lead to learning. In this way, you accrue a growing body of real-world knowledge that guides product development, engineering, and marketing efforts. These techniques are the subject of Experimental Methods (Chapter 7).

As you hone your product ideas to appeal to a real-world audience, you need to make sure it can generate a fast-growing business. The lean startup technique known as *innovation accounting* tells you which variables have a decisive impact on factors such as customer acquisition and retention. By building a spreadsheet metrics model of the business and tracking real-world metrics, you can isolate the variables most critical to growth and allocate resources efficiently to optimize them. This is the subject of Innovation Accounting (Chapter 8).

Product/Market Fit

The ultimate goal of all this experimentation is to achieve product/market fit, the point at which an idea delivers enough value that it can scale quickly to a large customer base. Whether a product or service has achieved product/market fit is largely a subjective judgment. The only proof is an exponentially growing business.

That said, there are two helpful indicators. One is the must-have test. Sean Ellis, the founding head of marketing at Dropbox who is now CEO of Qualaroo, devised this technique while working as a consultant. He used a lightweight tool called *survey.io* to ask a company's customers a single question: "How disappointed would you be if you didn't have access to this product?" After surveying customers of 100 companies, he noticed a pattern. Customers of companies that were struggling to gain traction answered "very disappointed" less than 40 percent of the time. On the other hand, customers of companies that had significant traction answered "very disappointed" at a higher rate. In other words, the company's offering was a must-have for these customers.

Tip

The must-have indicator can be misleading. For instance, Acceptly, an online service designed to help high school students apply to colleges, garnered a high must-have score, but customers didn't use the site frequently enough to make a sustainable business. In such a situation, trying to scale up can be challenging. You can use further survey questions to test for flaws like this.

The other indicator of product/market fit comes from the innovation accounting. An important part of building a metrics model is to enter a set of fictional measures that represent a successful business. When the real-world metrics match or exceed this ideal case, it's a good sign that the business has reached product/market fit.

Three Strategies

The lean startup techniques of experimentation and innovation accounting form the basis for three strategies designed to enable enterprises to create groundbreaking new products. The first is to incubate internally. This is the subject of Incubate Internally (Chapter 9).

Occasionally, a compelling idea will be already in development by an independent startup. The second strategy then comes into play: acquire early. A well-timed acquisition can bring valuable resources into the enterprise and jumpstart innovation efforts that can continue alongside internal startups. In Acquire Early (Chapter 10) we take a look at how to accomplish this.

The third strategy is to invest in outside startups. There are several reasons to do this. A startup may be too risky to acquire or simply may not be up for sale. In situations like this, an enterprise can purchase a stake that may have enormous upside potential without having to make the commitment of incubating or acquiring. Investing is the subject of Invest When You Can't Acquire (Chapter 11).

Some enterprises won't want to dive head-first into the waters of high risk and high reward, preferring to wade into the depths in small steps. But even a small innovation colony can vet enough ideas to generate a hit. The chapter entitled Innovation Flow (Chapter 12) explains how to scale a colony from a limited trial run to a massive operation.

These structures, methods, techniques, and strategies add up to a powerful toolkit that's available to any enterprise with the ambition and commitment to take destiny into its own hands. There's no need to lumber along in a rut of *sustaining innovation*. The path to breakthrough products and exponential growth is wide open. Enterprises can compete with startups on their own turf—and win. Let's see how.

Case Study: GE, Stephen Liguori, Executive Director, Global Innovation

General Electric (GE) ranked ninth on *Bloomberg Businessweek's* 2013 list of the world's most innovative companies. Not bad for a business that rated number eight in the same year's Fortune 500 list of the world's largest enterprises—and positively astounding for a company that was founded in 1892 and now boasts more than 300,000 employees and nearly \$150 billion in revenue (fiscal 2012). Much of the credit goes to their CEO Jeff Immelt and GE leaders such as Stephen Liguori. As GE's executive director of global innovation, Liguori and a dedicated team are pioneering the use of lean startup techniques in the arena of industrial hardware. His FastWorks program was developed through working with Eric Ries and is driving lean startup practices throughout the company to stimulate breakthrough products and open new markets. Liguori and his colleagues are solving the most intractable challenges of enterprise innovation through bold leadership. He spoke with us about the path he's taking to get there.

How Are Your Innovation Efforts Structured? Do You Have a Special Innovation Division?

We don't have a special division. There are two halves to the innovation equation at GE. The first is technical innovation,

inventing new machines. We have seven Global Research centers worldwide, including a new one with 700 software engineers in Silicon Valley, who work with every GE division. The other half is commercial innovation. Beth Comstock, our CMO, heads a small hit squad doing that. I'm the executive director for global innovation. Sue Segal is president of GE Ventures, and there's a licensing team that looks for ways to take advantage of the thousands of patents we have.

How Do You Keep Innovation Efforts Free of Interdepartmental Politics, Budgeting Cycles, and Other Corporate Roadblocks?

It's the heart of the issue. When you combine the bureaucracy that builds up in a large organization with the highly technical nature of the things we make—jet engines, power turbines, CAT scan machines—you could say it's daunting. Our solution is FastWorks, a program built on lean startup principles. If you don't recognize that the culture is the enemy, you'll lose. You've got to go top and bottom. At the top, you have to get not only sponsorship but also buy-in and understanding. We're putting executives through training in lean startup principles, telling them, "You have to know how to do it because if you're not going to change your behavior"—that's literally what we're talking about—"we'll die." The flip side is giving the teams tools and training. They say, "I want to be an entrepreneur, but I get choked to death by the functions. The finance guys say prove it, the legal guys say it's too risky, the compliance guy says the regulatory people will have problems with it."

How Would You Answer Them?

One of the ways you get the buy-in with the bureaucracy and the culture is by telling everyone, "We're not betting the ranch." We're not going to build a factory to roll out thousands

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or millions of new, innovative machines. We might make a million refrigerators a year, but we're making only 60 of the conceptually disruptive refrigerator we've been working on. It's not the old, "Give it to engineering and come back three years later"—and, in our case, \$30 million later. It's like, "How about we give you \$30,000 and 30 days and you come back with a prototype." Then the engineers say, "Do you know how much money it will cost me to set up to make a prototype? My yield will go down, my waste will go up, my metrics will go in the toilet and I'll get screwed at my annual review." It's not that the incentives are set up wrong; they're set up great for running the mother ship. This is not the mother ship. We're telling the teams that the "minimum" in a minimum viable product is not just in terms of the features; it's also the smallest number of customers who need to use it to get real learning. You might make five prototypes of a locomotive and give one to each of the big north American railroads—just 1, not 50, not 500, not 5,000—and that contains the risk to the system. We're doing it to discover a need in the marketplace, not to scale yet, not to make money yet. That opens the window to get people to listen to these radically different ideas. "We don't know if it's a big idea yet, so we're not looking to blow up the world. We just are looking to do a small test."

How Do You Think About Staffing for Innovation?

There are only five on Beth's team. A senior group of execs asked us just the other day, "Do you need more people to do this?" We said, "No." It's probably the first time at a GE meeting where someone was offered more resources and said no! There are two reasons why we did that. First, there's not a startup in the world where they don't talk about the scarcity of resources. We've learned that it's not about how many resources you have; it's about having the right focus. Second,

if this becomes a mandate from headquarters, it will fail. We're spreading the word, GE division by GE division. There's a team from GE's energy business, they make unbelievably huge, complicated generators that go in power plants, plus every piece of what's called *transmission and distribution*. It's just mind-bogglingly complicated. They want to try FastWorks on three new product ventures to get into a radically new space. Here's the punch line: They'll staff it and fund it. I'll bring in an entrepreneur who can coach them in how to be startup-like in GE. We want buy-in by the teams: "You put your skin in the game. You put your people and money in to fund it. We'll provide the training and coaching and tools to help you do it."

Would It Be Productive to Structure Compensation Like a Typical Startup, in Which Founders Give Up as Much as Half Their Salary in Return for Equity in the Projects They Develop?

The compensation plans today do not include equity, but we'd love to get into that. I did a Google hangout with a couple of folks on crowdsourcing. We literally crowdsourced some jet engine parts, believe it or not. The guy who won was from Indonesia. Second place was from Hungary, and third place was from Poland. It's amazing the smart people you can find around the globe. The question came up, "How much are you paying this person?" We paid the winner \$7,000. Someone said, "Couldn't GE potentially make millions of dollars from that?" Yes, we could. So we're trying to figure out the right incentive system for internal startups as well as for crowdsourcing.

Here are the counterpoints: When you're a startup within GE, you have resources and career stability, but if we don't provide the right rewards, they'll leave. So we're aware that we need to let employees put some compensation at risk so they can have a much bigger payout. I'll tell you a hysterical story.

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Our head of HR sat down with a group of relatively senior managers and said, “We want to start doing this lean startup thing and we want to incent GE teams. If we’re going to ask them to do this, we have to give them the offset of big bonuses or equity stakes in what they’re developing.” This is the head of HR! Amazing! The managers said, “Are you crazy?” The very people who say, “I need more innovators and risk takers” are worried about screwing up the compensation system. Will we go all the way to equity or spinning off joint ventures? I can’t answer that question today, but I can guarantee that we’ll be experimenting in the next year or so.

Is There a Vision or a Thesis That Directs or Places Boundaries Around Innovation Efforts?

We probably have two theses. One is to move from building business models on equipment to building them on holistic systems and solutions. How about, instead of providing airlines with jet engines, we provide power by the hour. We say to a power plant, “We’ll tie in wind farms and solar farms, and the more power we give you, the more you’ll pay us because it lowers your operating costs.” That kind of business is very different for a company that grew up building and selling physical pieces of machinery. The other is that the world is becoming increasingly connected and increasingly kinetic—from a speed standpoint—and we’ll either innovate faster or be disrupted. It’s an opportunity to tap our domain knowledge and heritage around technology and do even smarter things with it. We’ve got to move with market speed or market intensity.

What Role Does the Lean Startup Method Play in FastWorks?

The lean startup method is absolutely one of the key pieces. Jeff Immelt’s annual letter to investors for 2013, said that two

of the best books he had read lately are *The Lean Startup* by Eric Ries and *The Startup Playbook* by David Kidder. Those are the only two books he mentioned in a five-page letter, which speaks to the fact that the lean startup method is one of the core influences on what we're trying to do. Every company needs to figure out how it applies to them. We take the principles and morph them to make sense for us.

How Do You Use Metrics? Do You Use Innovation Accounting to Track the Progress of Projects Before They Earn Substantial Revenue?

We're beginning to. Right now, we're actively working with a dozen or so projects where the goal is to identify metrics and develop innovation accounting techniques.

How Do You Know When One of Your Projects Has Reached Product/Market Fit?

We know we've reached product/market fit when the market leaders, the early adopters, say, "I'm in." That's not as subjective as it might sound. We're encouraging people to come up with 10-times-better solutions: Don't just be marginally better than the competition, make it 10 times better. If you're 10 times better, the customer will say, "I've got to have that." Then we know we've got something. We've got software that lets hospitals run better; think of it as air traffic control for hospitals. If you put that software in a hospital for a 90-day trial and at the end of 90 days they say, "Don't take that software out," we know it has reached product/market fit.

What Percentage of Your Projects Is Incubated Internally, versus Acquisitions and Investments?

For us, a bolt-on acquisition is \$2 billion to \$4 billion, and we'll continue to do those. We also do investments with people

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who can act as partners who get us up the curve quicker. We put \$100 million into Pivotal, the VMWare spinoff, and \$30 million into Quirky, the consumer appliance startup. The pendulum is swinging toward finding things earlier, inventing them ourselves, and finding partners who synergize with what we're doing. Look at what we've done with our Silicon Valley Global Research Center. Those 700 software engineers are there fundamentally for organic growth on the industrial Internet. If you go back 10 years ago, GE grew predominately by acquisition. We're much more balanced now.

What's the Percentage of Acquisitions versus Acqui-Hires?

We're in the early stages of looking at acqui-hires. We've done a couple of small acqui-hires to date, and I expect you'll see more of that.

How Can You Scale Innovation Efforts?

GE is unique in its physical scale. It's partly a matter of training at three levels: executives, coaches, and rank and file. External experts are helping us train a couple of coaches per GE business. We're up to 80 or 100 coaches who train people on real projects with real GE businesses. Our goal is to scale that as rapidly as we can, but keep the quality going.

Case Study: Intuit, Hugh Molotsi, Vice President, Intuit Labs Incubator

Intuit is a legend among Silicon Valley legends. Founded at the dawn of the PC revolution by Scott Cook and Tom Proulx, the company fended off competitors including Microsoft to

become the dominant maker of software for personal finance and small business accounting. Intuit was an early adopter of principles later incorporated into the lean startup method, so by the time the lean startup movement reached full flower in 2011, the company—by then a full-scale international enterprise—embraced it wholeheartedly. Hugh Molotsi joined in 1993 as a software engineer and eventually took on leadership of innovation. As vice president of Intuit Labs, he's responsible for encouraging and supporting innovation throughout the company, which employs 8,500 people and generated \$4.15 billion in revenue during fiscal 2012. He blogs at blog.hughmolotsi.com.

How Do You Structure Your Innovation Activities? Do You Have a Special Innovation Division?

One of the things that makes us different from many companies is that we consider innovation everyone's job. There's no set of people who figure out what we're going to be doing in the future. Good ideas come from everywhere, and frontline employees who are interacting with customers are more likely than executives to have the key insights that we need to come up with new ideas.

How Do You Manage Innovation Without a Structure?

Well, it's literally unstructured. Every Intuit employee gets 10 percent of their time to work on ideas they think will drive growth. We call that unstructured time. We don't track it; we just put it out there as an aspirational goal and let people decide for themselves how to spend it. We teach everyone two core capabilities: customer-driven innovation and Design for Delight, which is our version of design thinking. So people spend time at their discretion coming up with ideas and moving them forward.

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How Do Employees Get Resources They Need to Develop Their Ideas?

Once you have an idea, the main challenge is to get it into customers' hands. We created Intuit Labs as a sort of service organization that helps employees run experiments and develop products without needing management input, support, or resources. There are about a dozen of us. Our epiphany was that unstructured-time teams are startups, and they frequently run into similar kinds of challenges. We're trying to make it easier for them and turn ideas into minimum viable products that they use to run experiments with customers. Some people need an iOS programmer, designer, web host, payment processing. We try to eliminate those problems. Or they can sign up for an Incubation Week, which is a week of intensive coaching from other developers and designers with the goal of releasing something to the public by the end of the week. Once they've built an MVP, they can use the Intuit Labs website to acquire their first customers.

Does Intuit Labs Have a Physical Location?

No, it's more a conceptual notion. It's a friendly place for innovation teams that grow out of unstructured time projects and aren't getting the support they need from management.

How Do You Keep Innovation Efforts Free of Interdepartmental Politics, Budgeting Cycles, and Other Roadblocks That Typically Hamper Enterprise Innovation?

That's hard. We run into it all the time. My short answer is, unstructured time is free of all that by definition, because employees are free to use it as they see fit. If someone wanted to develop a Windows Mobile application, their manager might say, "Windows Mobile isn't one of our strategic mobile

platforms,” but that wouldn’t stop the person because that person has full prerogative over how to use that time. That’s a big way we unbuckle ourselves not only from legacy applications but from what might prove, over time, to be an ill-conceived strategy. A few years ago, our big mobile platforms were Windows and BlackBerry. Fast-forward and it’s all about Android and iPhone. We’re constantly making decisions about what we’re going to focus on, but they change very quickly. Sometimes, in hindsight, we realize that it wasn’t the right strategy. The beauty of unstructured time is that we’re not hindered by that strategy. If somebody has passion, they can go for it, and if it works, it can grow into a major line of business.

How Is the Staff Compensated? Would It Be Productive to Structure Compensation Like a Typical Startup, in Which Founders Give Up as Much as Half Their Salary in Return for Equity in the Projects They Develop?

We don’t do anything special. When people work on unstructured time, their motivation is less about becoming wealthy than the sense of accomplishment and pride in improving customers’ financial lives. People who do well at innovation are rewarded in the normal ways that we manage performance and provide compensation. For instance, somebody who is a product manager probably would get promoted. Having said that, every year, we recognized employees for having delivered real benefits in their work around innovation. The Scott Cook Innovation Award is a company-wide recognition. The award recognizes employees whose innovations have created significant value for Intuit employees, customers, or shareholders. Winners also get three months of full-time or six months of half-time to work on whatever they want, because innovators have asked for more time to follow their passions. They

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also get a vacation anywhere they want to go for themselves and a significant other. In addition, we also have the Founder's Innovation Award for outstanding achievement in innovation. I'm generally shy about bringing this up because I'm the only person who has won it so far. But I received the cash and stock equivalent of \$1M in 2011 for helping create our Payments business. So Intuit employees also have this award to look forward to if their venture turns into a big success.

Do You Worry That Entrepreneurially Minded People Will Leave?

Absolutely. In our Rotational Development Program, we look for people who have just graduated from college and have high leadership attributes and entrepreneurial capabilities. They tend to have a great impact when they come to Intuit. But like with most millennials, long-term retention is a challenge and many leave after a few years. They say, "I have this idea. I'd rather work in a small company or start something myself." At the end of the day, there are pros and cons to taking that risk with a small company. The ones who have stayed for longer careers find Intuit compelling as a growing company with lots of opportunity to drive your own projects.

How Do You Choose Which Projects to Support? How Do You Prioritize?

That's a problem we look forward to having. We look for who's most ready to build an MVP. Sometimes it's very clear what a team aims to build and the issue is having time or support to do it. Those teams are perfect for us to help. On the other hand, we can usually see when someone has an idea that hasn't really been thought through. Sometimes we recommended that they sign up for LeanStartIN, a two-day internal event where they get help designing their business model and running lean experiments that don't involve coding. At the end

of that experience, they're usually in a much better place to know what they want to build and test. More than 100 teams have gone through it, and they've been successful to the tune of generating \$20 million in new revenue in eight months.

How Do Projects Get Funded?

We help the teams get to a point where they have a compelling story that they can pitch to a business unit for funding. On rare occasions, we see something that looks like it could be a big strategic business for the company, but it doesn't align with any of our existing business units. We don't want to lose the idea just because it doesn't fit into our current company structure. In those cases, we may end up funding and incubating it as an Intuit Labs project. Brainstorm is a great example. It's a collaborative idea generation tool that began as an unstructured-time project, and we use it internally. A few years ago, we decided to try to sell it to other companies. It's a small business. It doesn't fit any of the business units we have today, but we feel like it could be a good business for Intuit.

What Role Does the Lean Startup Method Play in All This?

We're applying the lean startup across the board in terms of how we build products. We used to have this debate: Do you figure out all the requirements up front, come up with the perfect plan, the right architecture, and then you build it? Or do you get ideas into customers' hands and experiment? That's no longer a debate. Lean experimentation is the approach we use.

Do You Use Innovation Accounting to Track the Progress of Projects Before They Earn Substantial Revenue?

We have nascent thoughts about how to use innovation accounting. The lean startup method has had the biggest impact on our approach to developing new applications. We

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do rapid experimentation, we value data over opinions, and we look for efficient ways to get that data.

How Do You Know When One of Your Projects Has Reached Product/Market Fit?

Right now, it's very qualitative. During the month after SparkRent first went out, the team got a couple dozen landlords to sign up, so they were confident they had a good fit early on. On the other hand, BizRecipes has been out for a couple of months, and we've got some good traffic, but I don't think the team or anyone else feels like we've nailed product/market fit. As we mature, I suspect that we'll get much more rigorous in how we make that decision.

Do You Integrate Oversight of Incubation, Acquisition, and Strategic Investment, or Are They Handled Separately?

Right now they're separate, but we've been talking about integrating them. Historically, we've been able to move really fast in partnership with outside entities, and a partnership can become an acquisition later. We'd like to make partnerships an element of how we help internal startups move faster. How can we make it easy for an internal startup team to work with an external entity to design a test, run the test, and decide whether we want to do something more formal with that entity? That's not my focus this year, but I'm thinking about it for the future.

How Do You Scale Innovation Efforts?

Our goal is to get half of our employees to use unstructured time, so half are doing some sort of exploration. That translates into quite a lot of activity. Scaling up is about teaching people about the tools and techniques. Then, hopefully, they can incorporate those things not just into their unstructured-time projects but into their day job as well.