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I have a confession to make. I'm a business professor whose ambition has been to help people learn to lead. But recently, I've discovered that what many of us think of as great leadership does not work when it comes to leading innovation.

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I'm an ethnographer. I use the methods of anthropology to understand the questions in which I'm interested. So along with three co-conspirators, I spent nearly a decade observing up close and personal exceptional leaders of innovation. We studied 16 men and women, located in seven countries across the globe, working in 12 different industries. In total, we spent hundreds of hours on the ground, on-site, watching these leaders in action. We ended up with pages and pages and pages of field notes that we analyzed and looked for patterns in what our leaders did. The bottom line? If we want to build organizations that can innovate time and again, we must unlearn our conventional notions of leadership.

01:05

Leading innovation is not about creating a vision, and inspiring others to execute it. But what do we mean by innovation? An innovation is anything that is both new and useful. It can be a product or service. It can be a process or a way of organizing. It can be incremental, or it can be breakthrough. We have a pretty inclusive definition.

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How many of you recognize this man? Put your hands up. Keep your hands up, if you know who this is. How about these familiar faces? (Laughter) From your show of hands, it looks like many of you have seen a Pixar movie, but very few of you recognized Ed Catmull, the founder and CEO of Pixar -- one of the companies I had the privilege of studying.

01:55

My first visit to Pixar was in 2005, when they were working on "Ratatouille," that provocative movie about a rat becoming a master chef. Computer-generated movies are really mainstream today, but it took Ed and his colleagues nearly 20 years to create the first full-length C.G. movie. In the 20 years hence, they've produced 14 movies. I was recently at Pixar, and I'm here to tell you that number 15 is sure to be a winner.

02:22

When many of us think about innovation, though, we think about an Einstein having an 'Aha!' moment. But we all know that's a myth. Innovation is not about solo genius, it's about collective genius. Let's think for a minute about what it takes to make a Pixar movie: No solo genius, no flash of inspiration produces one of those movies. On the contrary, it takes about 250 people four to five years, to make one of those movies.

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To help us understand the process, an individual in the studio drew a version of this picture. He did so reluctantly, because it suggested

that the process was a neat series of steps done by discrete groups. Even with all those arrows, he thought it failed to really tell you just how iterative, interrelated and, frankly, messy their process was.

03:15

Throughout the making of a movie at Pixar, the story evolves. So think about it. Some shots go through quickly. They don't all go through in order. It depends on how vexing the challenges are that they come up with when they are working on a particular scene. So if you think about that scene in "Up" where the boy hands the piece of chocolate to the bird, that 10 seconds took one animator almost six months to perfect.

03:46

The other thing about a Pixar movie is that no part of the movie is considered finished until the entire movie wraps. Partway through one production, an animator drew a character with an arched eyebrow that suggested a mischievous side. When the director saw that drawing, he thought it was great. It was beautiful, but he said, "You've got to lose it; it doesn't fit the character." Two weeks later, the director came back and said, "Let's put in those few seconds of film." Because that animator was allowed to share what we referred to as his slice of genius, he was able to help that director reconceive the character in a subtle but important way that really improved the story.

04:27

What we know is, at the heart of innovation is a paradox. You have to unleash the talents and passions of many people and you have to harness them into a work that is actually useful. Innovation is a journey. It's a type of collaborative problem solving, usually among people who have different expertise and different points of view.

04:50

Innovations rarely get created full-blown. As many of you know, they're the result, usually, of trial and error. Lots of false starts, missteps and mistakes. Innovative work can be very exhilarating, but it also can be really downright scary. So when we look at why it is that Pixar is able to do what it does, we have to ask ourselves, what's going on here?

05:20

For sure, history and certainly Hollywood, is full of star-studded teams that have failed. Most of those failures are attributed to too many stars or too many cooks, if you will, in the kitchen. So why is it that Pixar, with all of its cooks, is able to be so successful time and time again? When we studied an Islamic Bank in Dubai, or a luxury brand in Korea, or a social enterprise in Africa, we found that innovative organizations are communities that have three capabilities: creative abrasion, creative agility and creative resolution. Creative abrasion is about being able to create a marketplace of ideas through debate and discourse. In innovative organizations, they amplify differences, they don't minimize them. Creative abrasion is not about brainstorming, where people suspend their judgment. No, they know how to have very heated but

constructive arguments to create a portfolio of alternatives.

06:23

Individuals in innovative organizations learn how to inquire, they learn how to actively listen, but guess what? They also learn how to advocate for their point of view. They understand that innovation rarely happens unless you have both diversity and conflict. Creative agility is about being able to test and refine that portfolio of ideas through quick pursuit, reflection and adjustment. It's about discovery-driven learning where you act, as opposed to plan, your way to the future. It's about design thinking where you have that interesting combination of the scientific method and the artistic process. It's about running a series of experiments, and not a series of pilots.

07:05

Experiments are usually about learning. When you get a negative outcome, you're still really learning something that you need to know. Pilots are often about being right. When they don't work, someone or something is to blame. The final capability is creative resolution. This is about doing decision making in a way that you can actually combine even opposing ideas to reconfigure them in new combinations to produce a solution that is new and useful. When you look at innovative organizations, they never go along to get along. They don't compromise. They don't let one group or one individual dominate, even if it's the boss, even if it's the expert. Instead, they have developed a rather patient and more inclusive decision making process that allows for both/and solutions to arise and not simply either/or solutions. These three capabilities are why we see that Pixar is able to do what it does.

08:06

Let me give you another example, and that example is the infrastructure group of Google. The infrastructure group of Google is the group that has to keep the website up and running 24/7. So when Google was about to introduce Gmail and YouTube, they knew that their data storage system wasn't adequate. The head of the engineering group and the infrastructure group at that time was a man named Bill Coughran. Bill and his leadership team, who he referred to as his brain trust, had to figure out what to do about this situation. They thought about it for a while. Instead of creating a group to tackle this task, they decided to allow groups to emerge spontaneously around different alternatives.

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Two groups coalesced. One became known as Big Table, the other became known as Build It From Scratch. Big Table proposed that they build on the current system. Build It From Scratch proposed that it was time for a whole new system. Separately, these two teams were allowed to work full-time on their particular approach. In engineering reviews, Bill described his role as, "Injecting honesty into the process by driving debate."

09:21

Early on, the teams were encouraged to build prototypes so that they

could "bump them up against reality and discover for themselves the strengths and weaknesses of their particular approach." When Build It From Scratch shared their prototype with the group whose beepers would have to go off in the middle of the night if something went wrong with the website, they heard loud and clear about the limitations of their particular design. As the need for a solution became more urgent and as the data, or the evidence, began to come in, it became pretty clear that the Big Table solution was the right one for the moment. So they selected that one.

09:58

But to make sure that they did not lose the learning of the Build it From Scratch team, Bill asked two members of that team to join a new team that was emerging to work on the next-generation system. This whole process took nearly two years, but I was told that they were all working at breakneck speed.

10:17

Early in that process, one of the engineers had gone to Bill and said, "We're all too busy for this inefficient system of running parallel experiments." But as the process unfolded, he began to understand the wisdom of allowing talented people to play out their passions. He admitted, "If you had forced us to all be on one team, we might have focused on proving who was right, and winning, and not on learning and discovering what was the best answer for Google."

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Why is it that Pixar and Google are able to innovate time and again? It's because they've mastered the capabilities required for that. They know how to do collaborative problem solving, they know how to do discovery-driven learning and they know how to do integrated decision making.

11:01

Some of you may be sitting there and saying to yourselves right now, "We don't know how to do those things in my organization. So why do they know how to do those things at Pixar, and why do they know how to do those things at Google?" When many of the people that worked for Bill told us, in their opinion, that Bill was one of the finest leaders in Silicon Valley, we completely agreed; the man is a genius.

11:26

Leadership is the secret sauce. But it's a different kind of leadership, not the kind many of us think about when we think about great leadership. One of the leaders I met with early on said to me, "Linda, I don't read books on leadership. All they do is make me feel bad." (Laughter) "In the first chapter they say I'm supposed to create a vision. But if I'm trying to do something that's truly new, I have no answers. I don't know what direction we're going in and I'm not even sure I know how to figure out how to get there." For sure, there are times when visionary leadership is exactly what is needed.

12:03

But if we want to build organizations that can innovate time and again, we must recast our understanding of what leadership is about. Leading innovation is about creating the space where people are

willing and able to do the hard work of innovative problem solving.  
12:19

At this point, some of you may be wondering, "What does that leadership really look like?" At Pixar, they understand that innovation takes a village. The leaders focus on building a sense of community and building those three capabilities. How do they define leadership? They say leadership is about creating a world to which people want to belong. What kind of world do people want to belong in at Pixar? A world where you're living at the frontier. What do they focus their time on? Not on creating a vision. Instead they spend their time thinking about, "How do we design a studio that has the sensibility of a public square so that people will interact? Let's put in a policy that anyone, no matter what their level or role, is allowed to give notes to the director about how they feel about a particular film. What can we do to make sure that all the disruptors, all the minority voices in this organization, speak up and are heard? And, finally, let's bestow credit in a very generous way." I don't know if you've ever looked at the credits of a Pixar movie, but the babies born during a production are listed there. (Laughter)

13:28

How did Bill think about what his role was? Bill said, "I lead a volunteer organization. Talented people don't want to follow me anywhere. They want to cocreate with me the future. My job is to nurture the bottom-up and not let it degenerate into chaos." How did he see his role? "I'm a role model, I'm a human glue, I'm a connector, I'm an aggregator of viewpoints. I'm never a dictator of viewpoints." Advice about how you exercise the role? Hire people who argue with you. And, guess what? Sometimes it's best to be deliberately fuzzy and vague.

14:07

Some of you may be wondering now, what are these people thinking? They're thinking, "I'm not the visionary, I'm the social architect. I'm creating the space where people are willing and able to share and combine their talents and passions." If some of you are worrying now that you don't work at a Pixar, or you don't work at a Google, I want to tell you there's still hope. We've studied many organizations that were really not organizations you'd think of as ones where a lot of innovation happens.

14:36

We studied a general counsel in a pharmaceutical company who had to figure out how to get the outside lawyers, 19 competitors, to collaborate and innovate. We studied the head of marketing at a German automaker where, fundamentally, they believed that it was the design engineers, not the marketeers, who were allowed to be innovative. We also studied Vineet Nayar at HCL Technologies, an Indian outsourcing company. When we met Vineet, his company was about, in his words, to become irrelevant. We watched as he turned that company into a global dynamo of I.T. innovation. At HCL technologies, like at many companies, the leaders had learned to see their role as setting direction and making sure that no one deviated from it. What he did is

tell them it was time for them to think about rethinking what they were supposed to do. Because what was happening is that everybody was looking up and you weren't seeing the kind of bottom-up innovation we saw at Pixar or Google. So they began to work on that.

15:41

They stopped giving answers, they stopped trying to provide solutions. Instead, what they did is they began to see the people at the bottom of the pyramid, the young sparks, the people who were closest to the customers, as the source of innovation. They began to transfer the organization's growth to that level. In Vineet's language, this was about inverting the pyramid so that you could unleash the power of the many by loosening the stranglehold of the few, and increase the quality and the speed of innovation that was happening every day.

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For sure, Vineet and all the other leaders that we studied were in fact visionaries. For sure, they understood that that was not their role. So I don't think it is accidental that many of you did not recognize Ed. Because Ed, like Vineet, understands that our role as leaders is to set the stage, not perform on it. If we want to invent a better future, and I suspect that's why many of us are here, then we need to reimagine our task. Our task is to create the space where everybody's slices of genius can be unleashed and harnessed, and turned into works of collective genius.

17:08

Thank you.

17:10

(Applause)