

The background of the entire page is a night sky filled with stars. In the top left corner, there is a bright, glowing orange arc that curves across the sky. At the bottom of the image, a dark horizon line is visible, with a bright orange and white light source, likely a rocket launch, illuminating the sky and reflecting on a dark surface below.

# 2019 Cross Industry Innovation Summit

Briefing Book  
11.4.19 – 11.6.19  
Space Center Houston

CROSS INDUSTRY  
INNOVATION  
SUMMIT *Vol. 4*

Briefing Book Produced By:



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# Welcome!

I want to welcome you to our fourth and final Cross Industry Innovation Summit. The Summit brings together a select number of top innovation executives from the world's leading institutions to discuss innovation across various industries.

Most industries work at the leading edge of technological standards and are constantly on the lookout for new technologies to make operations simpler, more innovative, safer, and more cost-effective. A significant problem in several industries is that engineers and scientists are typically exposed only to like-thinking individuals. It is that mindset that can prevent innovation and maturation of “out of the box” ideas.

Finding innovative solutions for challenges often requires venturing off in search of diverse ways of thinking. The Summit offers a platform for global industry and government leaders to forge new relationships and gain insights on the most profound innovation dynamics and emerging technology trends in various industries across the globe.

Over the past four years, the Summit has convened an élite club of deep thinkers, trailblazers, and top innovation executives from diverse backgrounds who are committed to changing the world for the better, by fostering cross-pollination and collaborations across disciplinary and industry boundaries. By combining our collective intellect, we will be able to influence and solve some of the world's most challenging technological problems.

The power of aligning our synergies will result in endless possibilities! We are thrilled to be hosting you in Houston.



*Dr. Omar Hatamleh  
Executive Chairman, Cross Industry Innovation Summit  
NASA, Johnson Space Center*

# Agenda

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## Monday, November 4th

1:30 PM - 4:30 PM NASA VIP Tour

Pickup at Courtyard Hotel (Prior registration required)

6:00 PM - 8:00 PM Reception & Networking Session (Courtyard Hotel)

## Tuesday, November 5th

7:00 AM Pickup from Courtyard Hotel

7:15 AM Registration

8:01 AM Welcome NASA-JSC

8:16 AM Summit Overview

Omar Hatamleh, Executive Chairman, Cross Industry Innovation Summit, NASA

8:45 AM Group Picture

9:00 AM Keynote Panel 1

Best practices for harvesting innovation & breaking roadblocks

**Moderator** George Tilesch, Chief Innovation & Strategy Officer, Global Affairs, Ipsos

**Panelists** Kate O'Keeffe, Founder, Cisco Hyper Innovation Living Labs

Mohammed Ansari, Former SVP, LG Electronics

Nick Rockwell, Chief Technology Officer, New York Times

Cary Tilds, SVP Corporate Strategy, FordDirect

9:45 AM Keynote Panel 2

How to accelerate innovation in government institutions

**Moderator** Molly Cain, Founder, GovCity

**Panelists** Jim "Hondo" Geurts, Assistant Secretary of the Navy

David Miller, Chief Innovation Officer, Department of Justice

Franco Ongaro, ESA ESTEC Center Director

Nima Elmi, Head of Government Affairs, World Economic Forum

10:30 AM Break

10:45 AM Innovation X Talk

Gray Scott, Futurist & Emerging Technology Expert

11:00 AM Innovation X Talk

Umran Beba, SVP, Pepsico

11:15 AM Innovation X Talk

Javier Soler, CEO, BBVA US

11:30 AM Innovation X Talk

Kara Goldin, CEO, Hint

11:45 AM Lunch & Special Talk

Till Haunschild, Master Magician

12:46 PM Breakout Session 1

How can we leverage resources in corporations to adapt to fast-changing technology landscapes?

1:45 PM Special Talk

Pete Worden, Chairman, Breakthrough Initiatives

- 2:15 PM** Innovation X Talk  
Jason Wild, SVP, Salesforce
- 2:30 PM** Innovation X Talk  
Ramon Vullings, ideaDJ, Speaker, Author & Cross-Industry Expert
- 2:45 PM** Innovation X Talk  
Frank Stephenson, Creative Director, Frank Stephenson Design, BabyArk and Liliium Aviation
- 3:00 PM** Innovation X Talk  
Ryan Caldwell, CEO & Founder, MX
- 3:15 PM** Break
- 3:30 PM** Innovation X Talk  
Rami Al Karmi, CIO, Ahli Bank and CEO, Ahli Fintech
- 3:45 PM** Innovation X Talk  
Paul Misener, VP of Global Innovation, Amazon
- 4:00 PM** Breakout Session 2  
How do you measure the impact of innovation in an organization?
- 5:00 PM** Innovation X Talk  
Cyriel Kortleven, Speaker on “Crossing Mindset Borders”
- 5:15 PM** Keynote Panel 3  
The impact of innovation on diverse careers  
Scarlett Sieber, Managing Director & CIO, CCG Catalyst  
Vanessa De Luca, Editor in Chief, Medium  
Maria Benjumea, CEO, Spain Startup  
Sian Beilock, President, Barnard College at Columbia University  
Dimitris Bontoulos, Chief Digital Officer, Latam Airlines
- 6:00 PM** Keynote Talk  
Connecting the dots across technology and knowledge boundaries  
Andrea Mills, Chief Advisor, External R&D and Emerging Technologies for PMI Science & Innovation, Philip Morris International
- 6:30 PM** Reception inside the 747 Space Shuttle Transport Aircraft

## Wednesday, November 6th

- 7:31 AM** Pickup from Courtyard Hotel
- 8:02 AM** Keynote Panel 4  
What does successful cross industry innovation look like?  
Moderator Scarlett Sieber, Managing Director & CIO, CCG Catalyst  
Panelists Christian Albrecht, Aviation Expert  
Pete Platzer, CEO, Spire  
Ashlee Adams, Head of Open Innovation, Nestlé USA  
Charlotte Hubbert, Partner, Gates Foundation
- 8:30 AM** Innovation X Talk  
Angela Lee, Former Chief Innovation Officer, Columbia Business School
- 8:45 AM** Innovation X Talk  
Daan Roosegaard, World-Renowned Artist
- 9:00 AM** Innovation X Talk  
Edward Roussel, Chief Innovation Officer, The Wall Street Journal & Dow Jones

<b>9:15 AM</b>	<b>Innovation X Talk</b> Vanessa De Luca, Editor in Chief, Medium; Former Editor in Chief, Essence Magazine
<b>9:30 AM</b>	<b>Innovation X Talk</b> Jennifer Stumm, World-Renowned Violinist
<b>9:45 AM</b>	<b>Special Talk</b> Steven Rader, Deputy Director, Center of Excellence for Collaborative Innovation
<b>10:15 AM</b>	<b>Break</b>
<b>10:30 AM</b>	<b>Innovation X Talk</b> Miguel Calatayud, Chief Executive Officer, Qualitas Health
<b>10:45 AM</b>	<b>Innovation X Talk</b> Sian Beilock, President, Barnard College at Columbia University
<b>11:00 AM</b>	<b>Breakout Session 3</b> What skills and education will be needed for the future worker?
<b>12:00 PM</b>	<b>Keynote Panel 5</b> How to accelerate the transformation of organizations to create a network of innovative paths with divergent opinions Maria Benjumea, CEO Spain Startup Deena Shakir, Partner, Lux Capital Vernon McDonald, SVP, KBR Renaud Visage, Co-Founder, Eventbrite Vishal Gupta, Partner, Steptoe & Johnson LLP
<b>Moderator</b>	
<b>Panelists</b>	
<b>12:30 PM</b>	<b>Lunch &amp; Innovation Pop Talks</b>
<b>12:50 PM</b>	Marguerite deCourcelle: Blockchain's Impact on the Future of Gaming
<b>1:00 PM</b>	Hitoshi Soyama: Innovative Technologies in Material Science
<b>1:10 PM</b>	David Aguilar Amphoux, aka HandSolo
<b>1:20 PM</b>	Rafael Fernandez, Director of Innovation, Ferroviol
<b>1:30 PM</b>	<b>Innovation X Talk</b> Charlie Wen, Co-founder/Former Head, Marvel Studios Visual Development
<b>1:45 PM</b>	<b>Innovation X Talk</b> Antonio Abad, Chief Technology Officer, Hispasat
<b>2:00 PM</b>	<b>Innovation X Talk</b> Danny Petrasek, Caltech
<b>2:15 PM</b>	<b>Innovation X Talk</b> Scott Kirsner, CEO & Co-Founder, Innovation Leader
<b>2:30 PM</b>	<b>Innovation X Talk</b> Wilfried Bair, VP Engineering, Nextflex
<b>2:45 PM</b>	<b>Innovation X Talk</b> Fernando Dominguez, Google X
<b>3:00 PM</b>	<b>Breakout Session 4</b> How do we align incentives and performance goals?
<b>4:01 PM</b>	<b>Conclusion of Conference</b>

# Speaker Perspectives



# Space Junk: Waste or Ingredient?

By Daan Roosegaarde

It looked like an undiscovered Jackson Pollock painting, or an image of a water atom. Nothing could be further away from the truth. I am looking at an image of the earth, surrounded by 29,000 objects larger than 10 cm. It is space junk; pieces of broken rockets and satellites caused by us. This waste can damage our current satellites with collisions creating even more space debris and disrupting our digital communications. This is the smog of the universe. And nobody really knows how to fix it.

In the future, new satellites will have to have a cleaning up plan before they get permission to launch. New solutions are in development, such as a robot arm to capture space junk; a laser which dissolves the waste into tiny less dangerous particles; or a net to capture and retract the junk. But all is still experimental and not proven technology.

At the same time, the industry is growing with, for example, the introduction of the cube satellites. For a few hundred thousand Euro (or dollars), you can launch a milk-box sized satellite into universe. This creates a radical increase in satellites—and potential space waste. And as the space waste hits with other particles because of its speed of 28,000 km/h, it creates more particles. The NASA scientist Donald Kessler described this in 1978 as the Kessler effect—the scenario in which more particles create more collisions



which create more particles which create more collisions, etc., with such an intensity that in the future, we could not launch new missiles without seriously damaging them. Basically, we create our own trap. This started to fascinate me. And so we launched the Space Waste Lab.

Space Waste Lab is the living lab supported by space experts such as NASA and ESA, but also designers and students. The lab produces exhibitions where visitors experience space debris not only as a threat, but also as a potential source for new creativity. It will create large outdoor art and technology installations which show, in real-time, the space waste high in the sky using light. And it creates symposiums and a lab where we work together to use space waste as a new ingredient.

On a recent videoconference with me, Etienne Schneider, the Deputy Prime Minister and Minister of the Economy of Luxembourg, explained that the country's move to support space mining was made as a clear strategy. "We had a focus on banking and finance," he said. "But as this economy is changing, we want to attract new startups and enterprises which are interested in high-tech and investments. Space mining seemed the appropriate sector, and it was also something that personally interested myself and the prime minister. To create a new economy and attract new talent is the mission we have as Luxembourg."

One of the concrete examples is Gary Calnan of CisLunar Industries S.A., who boldly states: "Space waste is a resource." Their company aims



to recycle and reprocess space debris into refined metal for use in space for manufacturing and construction. Ideally, all useful mass should stay in space for re-use in a future in-space economy.

That makes sense. As we spend millions bringing it up to there, why not use it to create something new? Can we 3D-print our new moon homes with space junk? Can we generate energy from controlled collisions using the 28,000 km per hour speed of the space waste? Can we pull the space waste to Earth's atmosphere, where it burns, to make falling stars—cleaning up space and creating a new spectacle, as a replacement for polluting fireworks for the Olympics or World Expo? I am sure we can.

Right now the Space Waste Lab has a focus on our “Shooting Stars” project, to create artificial fallen stars from captured space waste, as a visual performance and improvement of humanity. ESA and experts have validated this is realistic in terms of science and technology. Or can we use



captured space waste to 3D print habitats on the moon, as NASA has already scheduled? That is the new way to go—to create an economy in which waste for the one is a resource for the other.

We need to look at space in a better way. It is our new space to explore, and we should apply the lessons learned on planet Earth. What is space waste, how can we fix it, and what is its potential? Only then we can create a future which is good for all humanity.

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*Daan Roosegaarde is a Dutch artist and innovator, and the founder of Studio Roosegaarde.*



# Leveling the Playing Field: At School and At Work

By Sian Beilock

It's been said that fortune favors the bold. We live in a world that values being assertive, being agile, and — yes — being bold. But for women, these are not traits that are typically praised or rewarded. Instead, from a young age, girls are taught to follow the rules and strive for perfection. And we're long overdue for a change.

We're at a pivotal moment right now. Gender equality is not yet the norm, but women are making strides and working to claim their seat at the table. More women than ever before serve on corporate boards. A historic number of female candidates are seeking the Democratic nomination for president, and a record number of women are serving in Congress. Women outnumber men in college, in medical school, and in law school. But if we want to keep trending upward, we need to recognize how gendered socialization has held women back and will continue to do so — unless we take steps to correct it.

It starts early in life. On the elementary school playground, boys are the daredevils, the risk-takers, and the troublemakers. Girls, however, tend to be more cautious. And their parents are more likely to support them remaining on the sidelines. These behavioral differences carry into the classroom. Working hard and following instructions to a T gets girls good grades; they are conditioned to strive for order. The end result is that girls tend to avoid breaking the rules.

Math tests are a clear example of this. Girls are more likely to follow the conventional problem-solving techniques they learn in the classroom. Boys will look for shortcuts instead of adding up the ones' columns, the tens' columns, and then the hundreds' columns, as students are often taught to do.

As students hit their teen years, this behavior persists. Consider one study that examined how male and female students performed on



the math section of the SAT. Just as in the elementary school years, boys were more likely to use shortcuts — or, if you will, take mathematical risks — as they completed the standardized test. Rather than diligently solve an equation, as girls do, boys moved through questions as quickly as possible. In the context of a timed exam, that can give them an advantage — an advantage that is not necessarily reflective of mathematical ability. Case in point: Among girls and boys who attain comparable SAT-M scores, girls go on to achieve higher math grades at the college or university level.

Once they enter the working world, women's proclivity to follow the rules again holds them back. They undersell themselves when asking for raises, often abiding by the rule of having an outside offer before they ask. They're less likely to apply for jobs unless they meet every requirement of the role, as was the case in a now-famous Hewlett-Packard study that revealed women nominate themselves for a promotion only if they meet 100 percent of the job requirements. Men, on the other hand, do so when they meet 60 percent. Making matters worse, when women do make it to the top, they're held to more rigid standards than their male counterparts.

It doesn't have to be this way. Starting from an early age, we can actively encourage our

daughters to take risks, to pursue sports, clubs, and classes that go beyond their comfort zone, and to be comfortable when there are no step-by-step instructions. They might even push the instruction book to the side. In their adult lives, problem-solving will require intuition and innovative thinking and risk-taking, not a clear step-by-step process — and it's essential to develop those skills early on.

Beyond this, we need to teach girls and women not to fear failure. A bad grade on an algebra test doesn't mean you "aren't a math person." It likely means you didn't study the right way. And a negative performance review

doesn't mean you'll never get that promotion. Setbacks and stumbles are times for personal growth, and without them women will never achieve the gender parity they are seeking.

Gender equality won't happen overnight. But if we can confront and correct our values system, at school and in the workplace, we can make a lasting difference — and make sure our girls and women are rewarded for being bold.

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*Sian Beilock is President of Barnard College, Columbia University.*

“Starting from an early age, we can actively encourage our daughters to take risks, to pursue sports, clubs, and classes that go beyond their comfort zone, and to be comfortable when there are no step-by-step instructions.”

# Mirrorworld: Our Future Digital Reflection

By Gray Scott

Nature is technological and technology is natural. Nature is reflective. It mimics. It is the original source code from which all futures will emerge.

The mirror is one of the most influential technological objects to emerge from nature. It is a technological instrument of profound enlightenment. It has enabled humanity to see the unconscious mind's inner space as well as outer space and the mysteries of the cosmos.

The mirror has had profound impacts on art, culture, and cosmic exploration. It acts as a time machine, enabling us to look back through our modern-day telescopes. It enables us to see ourselves more clearly and to view starlight billions of lightyears away. Its true gift is its insight and foresight.

From primordial dark clay pots filled with still water, to the polished copper mirrors of ancient Egypt, to the modern mirrors that will be used in the James Webb space telescope and that may show us the universe's first light, nature has been hinting at what our future might look like.

We are on the cusp of discovering a new digitized, quantified, and hyper-realistic simulated world that will enable humanity to digitize the human experience. In other words, it may lead us towards the digitization of consciousness. This new world has been called the mirrorworld, and it is our future digital reflection.

The foundation of the mirrorworld has already begun to take shape through innovations and emerging technologies including digital twin systems, virtual reality, augmented reality, brain-machine interfaces, bi-directional neurotechnologies, digital contact lenses, nanobots, and haptics.

Eventually, once artificial general intelligence emerges, it may create deeper levels of this new simulated mirrorworld. The complexity



and innovation that we will find there will be, as Arthur C. Clarke once suggested, “indistinguishable from magic.”

Futurist Kevin Kelly recently wrote, “Someday soon, every place and thing in the real world—every street, lamppost, building, and room—will have its full-size digital twin in the mirrorworld.” The implications are profound.

Google Earth is a current example of the mirrorworld's promise. We can travel anywhere that has mirrored and digitized. We can fly around Mount Everest, walk the streets of Paris, and window shop in Rome—all while sitting on our sofas.

Now, imagine a more advanced version of Google Earth that includes detailed virtual scans of the insides of our offices, our homes, our favorite restaurants, our faces, and our bodies. Imagine if every person had a digital twin inside this new mirrorworld. They would be hyper-realistic simulations of our bodies that are indistinguishable from our current realities.

Might this mirrorworld become the future internet? The next social media platform? How would this change the way we interacted in the digital universe? Might there be no more URLs or two-dimensional pages, but rather a three-dimensional digital world that includes simulated space-time coordinates. The information inside this virtual space could then be linked to places that we could visit. In the future, Wikipedia may become the new digital destination, with virtual walls, chairs, and expert avatars waiting to speak

with you.

Information will be a destination, an adventure, a journey. There will be a new virtual economy with virtual real estate that will have enormous economic value. Who will dominate this mirrorworld ecosystem? Facebook? Google? Amazon?

Within this future space, earth and all of its digital assets will be only one destination. We will want to mirror the moon and Mars. If approached with empathy and ethical wisdom, this simulated virtual future could

enlighten and educate humanity.

The cultural, philosophical, and psychological implications cannot be understated. Technology is a reflection of nature and of our consciousness.

The mirrorworld will reflect who and what we really are.

• • •

*Gray Scott is a futurist, techno-philosopher, and host of the web series "Futuristic Now."*

“ There will be a new virtual economy with virtual real estate that will have enormous economic value. Who will dominate this mirrorworld ecosystem? ”

# How to Accelerate Innovation in Government Institutions

By Nima Elmi

In the age of the Fourth Industrial Revolution, governments across the world have been faced with the difficult task of developing, iterating, and deploying policies to keep pace with the rapid emergence and evolution of technology. It is clear that the traditional notion of “governance” in this context increasingly requires public-private collaboration, as it is no longer limited exclusively to governments.

The first three industrial revolutions have taught us that innovation happens in unpredictable ways and causes unforeseeable disruptions across societies and economies. However, governments are not complete strangers to innovation. Whilst they have previously served as drivers of innovation across industries, they are increasingly lagging private sector actors whose agile governance structures and corporate incentives are driving the acceleration of technology innovation at a rate never previously experienced by humankind. It is against this backdrop that traditional models of governance and government institutions, as currently structured, are struggling. Whilst there are several ways to accelerate innovation across government institutions, outlined below are three broad themes that function as a starting point in this conversation.

## Shift in mindset and skills for the future

There is a real need for governments to adopt a mindset shift by embracing new approaches to policymaking, and empowering civil servants with the digital skills and infrastructure to navigate the evolution of emerging technologies. Technology, in and of itself, will not replace the role of government. Citizens will continue to elect public officials



to represent their views and will require public services, yet emerging technologies can enhance transparency and accountability, and provide policymakers with more accurate real-time data to make important decisions for their societies. A rethink in standard regulatory approaches is necessary, by embracing new and agile solutions for governing technology, encouraging experimentation, learning from failure, and iterating policies as a continuous endeavor.

Alongside this mindset shift should be greater investment by governments in digitizing their processes and training civil servants with digital skills. Successful models for strengthening digital leadership include appointing Technology Ambassadors, Chief Digital Officers, or Chief Innovation Officers, where policymakers are recruited with a specific mandate to follow technology innovation and design technology policy across different government institutions. These digital leaders can successfully steer government institutions by increasing skills through on-the-job training, followed by mentoring.

## Experimentation and open government

As social media platforms provide people with the ability to communicate directly with their representatives in real-time, new

modes of policy generation are needed so governments can better translate the interactions and recommendations from citizens into efficient and effective policies. At the same time, the trust of citizens that government institutions alone can deal with technology policy questions is declining. To restore trust, governments need to engage with citizens and industry to understand and co-design solutions that are human-centred and inclusive. Technology itself can be an enabler of such processes, by providing opportunities to crowdsource input from citizens and industry to address real-world challenges in a constructive and transparent manner.

Similarly, the proliferation of policy labs and regulatory sandboxes across countries illustrates that these are key tools in creating innovative technology policy (combining the principles of scientific labs and product design—experimenting, testing, and measurement—to technology innovation). Such initiatives empower policymakers to interact with citizens, private sector actors, and civil society organizations to co-design human-centred technology policy that can later be scaled.

### **Technology for government**

A nuanced yet growing area of innovation is the emergence of new technologies specifically designed for government purposes and tailored to public services. Governments are faced with challenging questions about how well they can leverage new technologies to deliver welfare services; collect taxes; maintain security; address environmental, health, energy issues; and

much more. As new technology solutions begin to address challenges in the public realm—often in a streamlined and user-friendly way for citizens—questions begin to rise about the future of government. GovTech is an emerging trend, predominantly in economies with advanced digital infrastructure, that promises better service delivery for citizens and better tools for public servants. This places governments at the heart of technology development, with the ability to deliver public services, develop policies, and serve citizens in transparent, efficient, and effective ways through bespoke technology innovations.

Across all areas of emerging technologies, governments that think proactively about their processes and governance structures; seek to address challenges through agile practices; and embrace new technologies will, undoubtedly, enjoy an advantage over nations whose governance institutions and structures remain stagnant and stifled. Fundamentally, governments in the Fourth Industrial Revolution will be divided between those that embrace a “disruptive attitude” by showing a willingness to adopt unconventional modes of governance, experiment with the use of new technology in the provision of internal processes and public services, and accept a higher tolerance to take risks through the adoption of agile principles—and those that do not.

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*Nima Elmi is Head of Government Affairs at the World Economic Forum's Centre for the Fourth Industrial Revolution.*

“The first three industrial revolutions have taught us that innovation happens in unpredictable ways.”



# The Importance of Exaptation in an Era of Abundance

By Omar Hatamleh & Scarlett Sieber

The technological landscape is evolving at a fast rate, and industry, academia, and government need to constantly adapt and transform to remain relevant. The synergy between various industries is incrementing as well. Look at 3D printing technologies, for example, initially thought to be a technology for manufacturing, but now used in medical, food, apparel, construction, and space applications. That is opening the doors for cross-industry collaboration in unprecedented ways, and the result will have positive impacts across the board.

The Cross Industry Innovation Summit has been offering a platform over the last four years for global industry and government leaders to strategize about the future and forge inner-circle relationships, while gaining insights on the most profound innovation dynamics and emerging technology trends in various industries across the globe and beyond Earth's boundaries. The vibrant and genuinely unconventional narrative here has gotten industry leaders and subject-matter experts to step out of their boundaries and comfort zones, challenge themselves, and envision novel approaches to reshape the status quo.

An example of the uniqueness of bringing divergent industries together is the value of exaptation. Exaptation is typically used to describe a change in the function of a feature during the evolution process. For example, a trait can evolve from serving a particular function, to subsequently serve another. Exaptation is shared in both anatomy and behavior. An example of anatomy



exaptation would be the co-option of feathers in birds, initially evolved for the purpose of temperature regulation and display, but later adapted to enable birds to fly.

Exaptation is not only applicable in biological evolution, but also in technological innovation. In an era of technological abundance, it is important that corporations and government institutions use innovation and exaptation to create other functions and models from existing ones used for other purposes. Microwave oven technology, for example, started as radar and was later exapted for food cooking and heating. Currently, there is a copious amount of intellectual property and technologies that can be repurposed or used in areas and functions outside of their original intended application. The Summit has been leveraging that concept, and by doing so, various industries will benefit substantially from a fresh infusion of technologies that are exapted from their original intended use to create vast economic value.

There is no limit to what can be achieved by applying our collective intellects to solve some of the world's most challenging problems. Working together as a community will create a new world in which the possibilities will be endless.

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*Omar Hatamleh is the Founder and Executive Chairman of Cross Industry Innovation Summit, and the Chief Innovation Officer for Engineering at the Johnson Space Center. Scarlett Sieber is Managing Director and Chief Strategy & Innovation Officer at CCG Catalyst.*



# Your Business Won't Thrive Unless You Do

By Kara Goldin



The numbers are daunting: About half of new businesses fail within the first five years, according to the 2018 Frequently Asked Questions report from the Small Business Administration's Office of Advocacy. And while there are a ton of reasons why things might not pan out, there's one factor that I don't think is talked about enough. Simply put, some founders aren't prepared to do everything it takes to make a company successful.

It sounds harsh, I know. But let me be clear: I do believe anyone can become a leader if they have the drive. But some people just jump into launching their business before they've spent enough time working on themselves. I'm so grateful that I had years of work and life experience before I started my company in 2004. That gave me the backbone that I needed to make hint water into what it is today.

Of course, entrepreneurs always feel like they're taking a huge leap. You'll never feel 100 percent ready. But while you're mulling over your idea, product testing, creating your business plan, and ramping up to launch, here are some other things you can do to make sure you're truly prepared to take your business to the big time.

## 1. Meet as many people as possible.

Invest time in growing your network and making it both deep and wide. The number of valuable things that I have gained from the people around me has taken my business far. You can learn something from everyone, so surround yourself with an army of knowledgeable people as early as you can. Make sure they are varied in background. You might be surprised what spark of insight or inspiration you can glean from folks in completely different industries.

## 2. Get experience leading.

Even if you hire the best managers from the start, beginning a business means you're going to be the go-to lead. And that can be quite a culture shock if you've never done it before. Practice this skill while the stakes are lower than a company you've put your heart, soul, and money into. Even if you're not technically in a leadership position at your current job, look for ways to grow your abilities, whether it's heading up a project or volunteering on the side.

## 3. Flex your learning muscles.

Your mind has to be nimble when you're an entrepreneur. In order to keep up with the pace of new things that have to be figured out and decisions that have to be made about topics you have zero experience in, your brain needs to function fast. The best way to sharpen your mind is to never stop learning. For me, that's through reading, either an inspiring book by some brilliant entrepreneur or my Twitter feed.

## 4. Master time management.

As an entrepreneur, you're going to be busier than you could possibly imagine. Take the time to develop time management skills now, before you're thrown into the eye of the storm. Play around with different tactics and tricks to find what works for you to accomplish everything you have to—and somehow always find time for more.

## 5. High-five yourself constantly.

Self-confidence is a big asset when you're starting a business. It's easy to get lost

in a sea of doubt. But feeling sure about your strengths will help you push through. Celebrate your wins, no matter how small. Practice acknowledging the skills that helped you succeed and be proud of what you've accomplished. Keeping these little victories in mind will lift your spirits when you're feeling uncertain about your ability to turn your vision into a reality.

#### **6. Get comfortable asking for things.**

If you want your business to go far, you're going to have to ask for a lot. You will ask smart people to work with you or at least give you advice. If you are fundraising, then you're going to have to ask for an astonishing amount of money. You're going to have to be okay with hearing "no." The good news: You might be surprised how often you hear "yes." When you practice asking for little things, you'll feel less nervous when the time comes

to ask for what you really want.

#### **7. Develop healthy habits.**

Before you get wrapped up in the whirlwind of starting your business, make sure you have habits in place that will keep you sustained for the long haul. If I were still stuck on my Diet Coke addiction when I tried to start hint, I would have crashed and burned. Instead, I swapped soda for water, hiking with my dogs, and created a nightly routine that allows me to get plenty of sleep. These actions fuel me through the busy days. You'll want your pillars of well-being to lean on, too.

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*Kara Goldin is the founder and CEO of San Francisco-based hint, a healthy lifestyle brand, and host of the podcast "Unstoppable."*

“Invest time in growing your network and making it both deep and wide. The number of valuable things that I have gained from the people around me has taken my business far. You can learn something from everyone...”

# Finding Truly Breakthrough Ideas by Combining Concepts

By Ramon Vullings

There is a misconception about where good ideas come from. In most cases, really good ideas come from something existing, which is then adapted to another area.

Cross-industry innovation is the clever way to jump-start your innovation efforts by drawing analogies and transferring approaches between contexts, beyond the borders of your own industry, sector, area, or domain.

These analogies can be drawn at various levels—from products to services, to processes, to strategies, to business models, to culture and leadership.

There are many cool examples of cross-industry innovation in action. I keep on searching for these examples (on multiple levels: process, business model, technology, management, ...) to build a good searchable database and I also publish some of them on my blog, at [blog.ramonvullings.com](http://blog.ramonvullings.com).

## Many disruptions come from different sectors

Fifty-four percent of CEOs, according to an IBM IBV study, indicate that they see competition coming from other sectors in the near future. For organizations, it is of vital importance to have a proper “remix strategy.” So in thinking about choosing the right approach for your cross-industry innovation efforts, there are three main approaches:

**Outside-in:** Knowledge and skills are taken over—with adaptation—from other sectors, for use in your own industry/domain.

**Inside-out:** See what assets and intellectual property (IP) you can apply or export to other sectors.

**Coupled:** Deliberately create something new



together with a non-competitive partner (a few examples: Nike+: Apple with Nike, Senseo: Philips with Sara Lee.)

Note: Many organizations apply all three approaches at the same time on different levels.

## Ask yourself: WWxD?

It starts pretty simply, by just asking yourself: “What Would x Do?”

Many startups also use this for business model remixing. They present themselves like: “We are the x for y.” For example, “We are the Airbnb for meeting rooms.” So now ask yourself, “How would x tackle our situation?” or “How can we become the x for y?”

## Organizations need to go from ‘best practices’ to ‘next practices’

Organizations that optimize for best practices (benchmarking, Six Sigma, balance score cards, etc.) do great within their sector, yet their competition does exactly the same things! Finally, this will only drive prices and profitability down. The key is to go for “next practices,” which in many cases come from totally different sectors or domains.

## Go from EGO to LEGO

The potential of ideas and approaches from other areas is tremendous. Still, only very few organizations apply cross-industry innovation strategies in any kind of structured way. Why do we hold back? Why don’t we look beyond

our borders more often? We often seem to search for solutions in the areas we already know.

The “not invented here” syndrome actually holds people back from using ideas, concepts, and approaches from other domains. It’s my plea to you to embrace other peoples’ and other sectors’ ideas and build upon them. This way, “not invented here” becomes “already invented there!”

In most cases, it is ego which blocks us from learning from other areas. So we need to go from “EGO” to “(L)EGO.” To decompose and recompose our industry variables and actually use building blocks from other areas to generate new solutions and approaches!

**Cross-industry innovation is a structured method to get insights from other industries**

The model I outline in my keynotes, and walk through in projects with clients, works with these 10 steps (which we set out in a “parcours”):

1. Your innovation challenge: Sharpen and focus your question, and play with the level of abstraction
2. The art of questioning: Ask beautiful and “what if” questions
3. Inspiring industries and smart sectors learn from others who are also working on similar challenges
4. WWxD? Ask: “What would x Do?”
5. Business Synonyms tool: Play with proven components
6. The power of the unexpected: Use “wild & crazy” triggers
7. Remix your industry: Disrupt your (or another) sector!
8. Place your bets: Run the jackpot (tool)
9. Beautiful combinations: Add value and generate impact
10. Make ideas happen: Do “concept enrichment” to make powerful concepts

Business lessons can be learned from other industries, as well as from art, nature, or even organized crime.

The natural way to start is to look at how other companies do things, yet there is so much more to be learned from way different domains. In the book “Not Invented Here: Cross-Industry Innovation,” we outline various different areas to look at and to use the principles behind these (sometimes radical) approaches.

**Use tools & knowledge brokers to ‘jump start’ your innovation efforts!**

To help you jumpstart your innovation efforts by looking at other sectors and domains, here are three good starting points:

**Knowledge brokers:** Organizations, websites, and individuals who already have done the curation for you. Here’s a list of 101 cross-industry super sites to help you get started: [crossindustryinnovation.com/101-super-sites](http://crossindustryinnovation.com/101-super-sites)

**Tools:** Find a good set of free(!) tools (the cross-industry jackpot, the 11 research steps, and more) on the website: [crossindustryinnovation.com/tools](http://crossindustryinnovation.com/tools)

**Book:** Use the process and principles, examples, and tools outlined in the book “Not Invented Here: Cross-Industry Innovation.” There are nine chapters, and each chapter has a lot of examples of cross-industry innovation in action. Each chapter also ends with an easy-to-use cross-industry tool.

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*Ramon Vullings is a global speaker and author on cross-industry innovation. Ramon (and team) help companies to look beyond the borders of their domain to innovate in a smarter way.*

# Microbial Agronomy: The New Era of Agriculture

By Miguel Calatayud



The settlement of modern agricultural societies as we know them began through the domestication of terrestrial crops. The shattering of wild wheat into easily dispersible grains constrained the capacity of the early settlers to harvest. Domesticated wheat selected for non-shattering grains that could be easily harvested helped us transition from hunter-gatherer nomadic societies into permanent agricultural societies—probably the most profound technological change in human history.

Impressive as these accomplishments are, we are hitting an inflection point. Arable land and other precious resources, such as fresh water, are in dwindling supply, yet the Earth's population is expected to reach 9.7 billion people by 2050. If we are to feed our growing population, new and innovative solutions are desperately needed. It's a big problem, but ironically enough, the solution may come from something so tiny you cannot see it with your naked eye.

Microalgae are microscopic aquatic organisms rich in antioxidants, minerals, and protein—a highly desirable source of nutrients—but we are still at the very beginning stages of domesticating algae for human consumption. Until recent decades, microalgae were nearly impossible to harvest, but specialized centrifugation and filtration systems are now enabling us to harvest these tiny aquatic vegetables. By comparison with crop domestication, we are at the very beginning of the domestication of the aquatic plants. It is a domestication that, thanks to 21st century tools, might be happening within our lifetimes.

Even so, algae remains a bit of a niche product. It has been difficult to scale the growth of wild algae, which has historically been approached as an industrial laboratory process. But what if you could “farm” algae

much like you would domesticate terrestrial plants, taking the process out of the industrial lab and into the wider, open spaces of nature? Imagine looking over a brilliant green crop of algae, rather than corn husks rippling in the breeze. It may sound futuristic, but we are already there.

At iWi, we are blending basic farming techniques with microbiology to create a new type of farming: microbial agronomy. We are using a highly-productive microalgae called *Nannochloropsis*, which unlike most alga that produce only a single useful product, produces high levels of the Omega-3 fatty acid EPA, as well as several essential amino acids. The photosynthetic organism is 300 times more productive than peas; to put this into perspective, 150 acres of algae are as productive as 45,000 acres of peas!

Unlike traditional microalgae production, iWi's algae are grown on farms located in arid regions like the Chihuahuahua desert in Texas. Such places have limitless supplies of uncontaminated saltwater and plenty of sun, the only two ingredients needed for *Nannochloropsis* to grow and produce. Permitting the microalgae to grow “wild” in saltwater ponds also ensures that they are exposed to a diverse community of other microbes that support their health and vitality. Unlike traditional farming, where fields are rotated with different crops across seasons and across years to keep the soil healthy, *Nannochloropsis* can be grown continually 12 months out of the year.

So why is this so revolutionary? Microbial agronomy as a new approach to farming can be likened to designing a new automobile

engine that not only does 2000 miles per gallon, but also runs on water. The process is the definition of sustainable: no fresh water used, over 95 percent of the saltwater is recycled and reused continually, and after filtering the microalgae out of the water to isolate aminos and Omegas, the resulting water is so pure you can drink it. Nannochloropsis also scrubs the environment of harmful carbon dioxide, turning it into oxygen during photosynthesis. And, because it produces both EPA and DHA, people can access these important Omega-3s without relying on fish and krill farming, which pose a significant strain on our planet's ecosystems and natural resources.

But perhaps the true innovation is the means by which microbial agronomy creates value out of land that is otherwise useless. Consider arid land that can never be used for growing crops or supporting livestock—not just in the United States but throughout the world—the perfect land for farming algae. Microbial agronomy could help grow economies in areas with no other means to make a profit off of the land—all while feeding a population

surviving on dollars a day. Not only is this a big solution to big problems like carbon capture, sustainability, and feeding the world, but it is also a microbial solution to the “small” problems that matter to those who call those places home.

As important as all of this is, it's easier to change the world than it is to change consumer habits, so we must create nutritious products equal or better than what people are used to. This is what drives us at iWi and what sets us apart. We focus both on the nutritional value of our products and on delighting the customer.

Wheat has been around for millennia; it's time to enter a delicious and sustainable new era of farming. Welcome to the era of microbial agronomy.

• • •

*Miguel Calatayud is the CEO of iWi, a Houston company pioneering sustainable food production.*

“Microbial agronomy as a new approach to farming can be likened to designing a new automobile engine that not only does 2000 miles per gallon, but also runs on water.”

# It's a Customer Centric Universe. Are You Ready?

By Jason Wild



At Salesforce, we're constantly sensing and learning from our more than 150,000 amazing customers. As we work with CEOs and their teams to accelerate business transformation, we see a common pattern emerging across industries.

For most organizations, technology alone won't be enough to drive new growth. Leaders must figure out how to put customers at the center of everything they do. Technology can help with that, but it also requires an organizational shift, one we call "Customer Transformation." This goes beyond just improving the sales machine, or optimizing the customer service engine, or delivering relevant marketing to the right people.

Customer Transformation is about completely reimagining the experiences customers have every day. To do that, every person in the organization needs to understand the customer's context, then serve that context with everything they've got.

However, most leadership teams have a variety of conflicting beliefs about how to do this. Many of the executives we work with fall into two camps.

## Renovate

In many industry-leading organizations, we meet executives who see the current wave of technologies as just the latest in a regular flow of incremental innovations. They interpret 4IR (Fourth Industrial Revolution) technologies as an extension of previous digitization efforts, and believe that optimizing for productivity and efficiency will lead to reliable outcomes. We call this the "Renovate" mindset.

This tactical approach can generate isolated successes, but it typically fails to scale benefits across the organization. And unless

cost savings are reinvested in more ambitious transformation, it remains a purely defensive strategy that's vulnerable to disruption.

## Transcend

On the other hand, we see a different mindset in almost every disruptor entrepreneur, which we call "Transcend." These leaders and their organizations are imagining new ways to create customer value and rejecting traditional definitions of competitors and markets. Instead, they relentlessly focus on the customer. They leverage 4IR technologies and a broader ecosystem to take bold and ambitious steps.

## The Challenge

Legacy companies can't simply flick a switch and build a new 4IR-ready organization from the ground up, like most digital disruptors have. These organizations need to find ways to connect new business models, new offerings, and amazing customer experiences with the realities of their existing middle and back office.

This means transforming their existing culture and organizational capabilities, the business processes that have been honed into muscle memory over decades, and the technology stack that underlies it all.

It's a different challenge that requires a different mindset.

## Evolve

We see successful leaders decisively commit



to move out of the Renovate mindset to a new “Evolve” mindset, with a deliberate plan to shift from product-centricity to putting the customer at the center of their business.

We think of this as a bridge to a future (the Transcend mindset), but one that recognizes the reality of where an organization is today. It doesn't mean there won't be Transcend-type initiatives—these are imperative. Yet, everything cannot change at once. So some aspects of the business may continue to operate in a Renovate fashion for some time, driving efficiency and creating savings that can be put towards true transformation.

The reward? Research by McKinsey shows that “reinvented incumbents” boast better economic returns than their traditional competitors, including: 2.5× better revenue growth, 2× better EBIT growth, and 2× better ROI on digital investments.<sup>1</sup>

#### **Four Disciplines Make It Happen**

There are four organizational “muscles” we believe leaders must focus on to make Customer Transformation a reality.

**Customer-Centric Business Processes:** Pivot from product-centric business processes that drive internal productivity to customer-centric experiences that win the customer at every touchpoint.

**One Team Aligned Around the Customer:** Break down silos, enabling teams across the company to deliver the full power of the organization to the customer.

**Leanest Possible Technology Stack:** Reduce

the complexity of the IT footprint, so that the spend shifts from 80 percent “keep the lights on” to greater innovation.

**Sense and Respond:** Listen to and internalize customer feedback, close to real-time, to help the organization evolve as fast as the market moves.

One Salesforce Trailblazer, Unilever, has doubled down on these disciplines. According to Unilever Chief Digital and Growth Officer Peter ter Kulve, “Regardless of the brand, Unilever aims to deliver personalized, relevant experiences to every customer.” Using Mulesoft and Salesforce, Unilever has taken 50 different systems and brought them together to serve insights to 92,000 employees globally. As ter Kulve states, “Every part of our value chain gets disrupted through new technology. So, we went back to the basics and undertook a wholesale redesign of the business. We previously did mass marketing, but that is talking at people. True friendships, true relationships, come when customers can talk back.”

Based on our experience with Unilever and other industry leaders, we're synthesizing what we're learning, including step-by-step strategies, into a leadership playbook called Salesforce's Customer Transformation Framework. For a deeper dive into these strategies, please connect with me at [jwild@salesforce.com](mailto:jwild@salesforce.com).

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*Jason Wild is Senior Vice President for Strategic Innovation at Salesforce and Global Leader of Ignite, Salesforce's approach to collaborative innovation.*

“For most organizations, technology alone won't be enough to drive new growth. Leaders must figure out how to put customers at the center of everything they do.”

# Revolutionizing Customer Experience

By Javier Rodríguez Soler

In mid-September, BBVA Open Platform announced that it was working with Catch to provide banking and payment services for gig workers.

For Catch, a personal benefits platform for workers in the US who do not receive benefits from an employer, this collaboration is a core component of its product. For BBVA Open Platform, the announcement was the embodiment of its vision to enable companies across industries to embed banking services in their products.

At BBVA, we believe that in order for banks to thrive in the digital economy and keep pace with evolving consumer demands, we must transform from a profitable analog bank offering traditional banking products to consumers and businesses into a digital knowledge service business that innovates across industries.

While this transformation might mean different things for different banks, at BBVA, this included an investment in our core banking platform, which was the first real-time core banking platform in the US. Now, we're ready for a future that allows us to innovate for current customers, as well as for companies and their customers across a wide spectrum of industries looking to revolutionize their own products by using API-driven banking and payments services.

As a result of this thinking, open banking has become one of BBVA's most important strategies. In the US, this is executed through BBVA Open Platform.

BBVA Open Platform provides a well-designed suite of white-label banking and payment APIs that enable any US company to offer banking and payment services to their retail or business customers under their own brand. Today, Open Platform is the only open developer platform that provides such a suite of banking and payments services in the US that's backed by a global financial institution.



BBVA Open Platform is always on the lookout for use cases that are not purely fintech, thereby creating myriad opportunities in verticals outside of banking and financial services.

BBVA Open Platform CEO Abhishek Gupta points out in an article on the Open Platform blog ([blog.bbvaopenplatform.com](http://blog.bbvaopenplatform.com)) that any business that uses money as part of its operations should consider how to embed these services for a better customer experience.

For example, says Gupta, an industry like the one in which Catch operates—human resources—is ripe for solutions like those offered by Open Platform. The article points out that many of the most innovative human resources solutions offer ways to move money seamlessly and quickly among employers, individuals, and other involved third parties, or to hold funds for a period of time. All of which are services BBVA Open Platform provides.

Gupta also points to real estate and property management, insurance, and retail as places where providing solutions with embedded banking services can be a game-changer.

Just as Software as a Service took root with the expansion of the internet, it is our goal to make Banking as a Service an innovative core of our efforts to become a digital platform that allows clients across multiple industries to enhance, and in some cases revolutionize, their customer experience.

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*Javier Rodríguez Soler is the CEO of BBVA USA.*

# **Innovation Leader Stories & Research**

# Excerpts from Recent Innovation Leader Research

By Scott Kirsner

Innovation Leader produces quarterly research reports on topics of interest to strategy, R&D, and innovation professionals working in large organizations. We've selected several tables and charts from recent reports that are linked to the agenda and themes of this year's Cross Industry Innovation Summit.

## From our 2019 report "Benchmarking Innovation Impact"

This annual research report examines how large organizations structure, staff, and fund innovation-related initiatives, based on data from 215 survey respondents and interviews with executives at Google, Philips, ESPN, Kellogg's, and Ford, among others. It also explores the key challenges that must be overcome, as well as the support systems required for effective innovation over time.

### Biggest enablers of success in large companies

	All Respondents
Leadership support (CEO, Executives, Business Unit leaders, etc)	74.8%
Ability to test, learn and iterate	53.3%
Right strategy, vision	52.3%
Right team, types of employees	51.9%
Right approach, tactics	29.9%
Right level of funding	28.5%
Correct technology / infrastructure	18.2%
Organization accepts failure well	18.2%
Other	5.1%

### Biggest obstacles to success in large companies

	All Respondents
Politics / Turf-wars / No alignment	51.9%
Cultural issues	47.2%
Inability to act on signals or developments critical to the future of the business	42.1%
Lack budget	40.2%
Lack strategy, vision	37.9%
Recruiting / Not enough of high demand skillsets	24.8%
Not adopting emerging technologies	21.0%
Lack executive support	18.7%
Other	16.4%
Inability to pick up on signals or developments critical to the future of the business	15.4%
Lack CEO support	7.9%

### Financial metrics used in large companies

	All Respondents
Revenue generated from innovation products	58.2%
Efficiencies/cost reduction	38.0%
None (do not track or measure financial impact)	25.8%
Internal Rate of Return (or similar metric)	24.4%
Profit margin	21.6%
Customer acquisition cost	10.8%
Other financial metric	8.9%
Earned Value Analysis (or similar metric)	7.0%
Innovation revenues as a percentage of total revenue	0.0%

### Non-financial metrics used in large companies

	All Respondents
Progress metrics (e.g., Stage-gates, project in pipeline)	54.7%
Number of projects that get launched	50.0%
Learnings / insights generated	46.7%
Number of ideas generated	41.1%
Employee participation rates (in programs, training, etc.)	29.9%
Patent applications, or patents received	27.6%
Brand building / market perception	24.8%
Hypotheses tested	22.9%
Customer touch-points, interactions	19.2%
Media references or press mentions (including social)	16.8%
Net Promoter Score (willingness of customers to recommend to others)	15.4%
None (do not track or measure non-financial impact)	8.9%
Other non-financial metric	6.5%

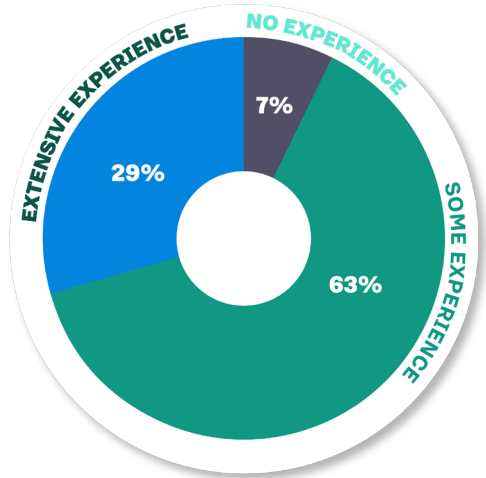
**From our 2019 report “Co-Creation and Ecosystem Development: Best Practices”**

This report focused on how large companies approach co-creation and ecosystem development, based on data from 275 survey respondents and 16 interviewees at organizations such as Johnson & Johnson, Marriott, Boeing, Bose, and HubSpot.

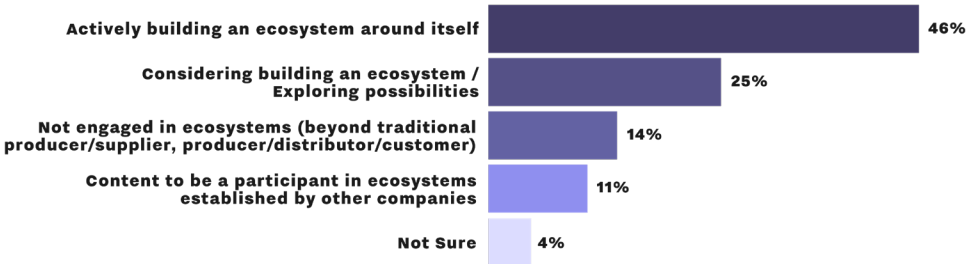
For the purposes of the report and survey, we defined co-creation as: a product development approach that brings multiple entities together to come up with solutions or new concepts — often customers, suppliers, startups, or business partners.

We defined an ecosystem as: a group of parties that work together to enhance a product, process, or platform. Ecosystems may deliver economic benefits to the parties involved, but they may also generate new insights or other kinds of benefits to the parties.

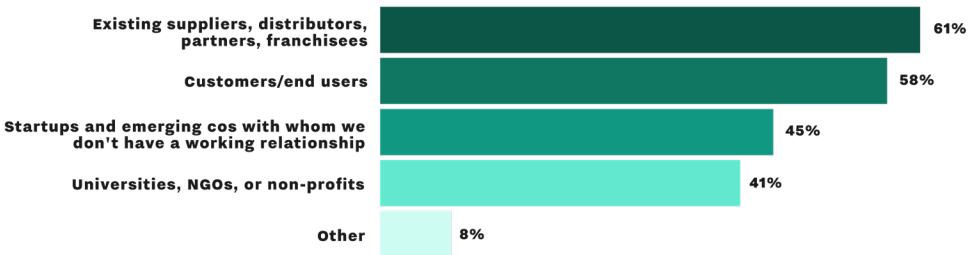
**My company's experience level with co-creation is:**



**My company is (check the answer that is most applicable):**



**We tend to pursue co-creation most often with (check all that apply):**



...

Scott Kirsner is CEO and Co-Founder of Innovation Leader. For more on Innovation Leader's research, visit [innovationleader.com/research](http://innovationleader.com/research).

# What NASA has Learned About the Power of the Crowd

By Kaitlin Milliken



Steve Rader, NASA

Fifty years ago, NASA sent the Apollo 11 astronauts to the moon and back. The lunar mission — made possible by an estimated 400,000 engineers, scientists, and technicians — demonstrates how collaboration can accomplish seemingly herculean tasks. Today, NASA continues to harvest the power of the crowd at the space agency's Center of Excellence for Collaborative Innovation.

"[I]n this new world of lots of technology that's rapidly changing, the crowd is actually one of the few ways to get things done effectively," says Steve Rader, Deputy Manager of the center. "[W]e offer services around the government and help teams to really learn how to use these [open innovation] tools, and then to actually execute [ideas]."

The initiative has its roots at the Johnson Space Center, when Dr. Jeffrey Davis, a NASA researcher, was notified of an impending budget cut in 2009. In order to continue his research with reduced funds, he began to explore possibilities in open innovation. After studying similar programs at Procter & Gamble and Harvard Business School, Davis began to tap the crowd for challenges and technology searches.

According to Rader, NASA's pilots caught the attention of other agencies a year later when the White House team began crafting its own open innovation program.

"NASA's pilots stood out as one of the few places that crowdsourcing and challenges were being used," Rader says. "And so they actually asked NASA if we would stand up a Center of Excellence to not just help NASA do this, but help all the federal agencies that were interested [in building] this...capability."

The Center of Excellence formally began

operations in 2011. Since then, Rader says, the initiative has run 350 challenges and boasts a 90 percent success rate.

During a recent conference call with Innovation Leader members, Rader discussed how the center approaches the crowd, what his team measures, and tips for successful crowdsourcing programs.

## The Crowdsourcing Process

Rader says members of different federal agencies come to the Center of Excellence looking for guidance on running challenges. Crowdsourcing mentors, like Rader, will sit down with representatives from the agencies. They then decide if the department should set up its own crowdsourcing capability or tap into crowds NASA already has access to.

According to Rader, the teams will then create an inter-agency agreement — a two-month process that allows the agency to transfer funding to the Center of Excellence for the project. Once the paperwork is complete, the teams start to work on the challenge using one of the center's platforms.

"[W]e pretty much help them all the way," Rader says. "Once they've done one or two challenges, we interact with them less... And the idea is that eventually — ...once they've proven they can do it internally at their own agency — then they can go off and have their own [crowdsourcing] contracts in place."

## What to Measure

"[W]e measure everything," Rader says. "We use Salesforce extensively to really capture as

much data as we can about each challenge.”

Data Rader highlights include the duration of the challenge, how many prizes were offered, and the number of participants registered. According to Rader, his team groups success into three categories: completely solving a problem, significantly advancing a solution, or making progress on a solution.

His team also looks at the financial impact of challenge outcomes. “We...start asking things like operational costs, life cycle costs,” Rader says. “How much did this save you...? How much is that worth to you over 10 years?”

### **The Do's and Don'ts of Crowdsourcing**

Even with a high success rate, Rader still faces the challenges of innovating at large organizations.

“[W]hat we found is people within an organization are very much in favor of being more innovative, to be more open, to actually be participants. But...that opportunity has often been yanked away from them,” Rader says. “[T]he organizations [says,] ‘We’re interested in...your innovation.’ But then, they don’t get funding. They don’t get recognized. People tell them pretty much immediately why their idea won’t work.”

Rader recommends that organizers set expectations when crowdsourcing to avoid this disappointment. He also emphasizes creating narrow problem statements before posting a challenge for the crowd.

“Never post a challenge or a statement out there with a site that says, ‘Give us all your best ideas,’ because you’re not equipped to actually go implement any of them. We call that the suggestion box black hole,” Rader says. “[A good challenge] is very narrow; you set expectations for what’s going to happen; [and] you make sure [that] the owner of that challenge is somebody who can actually implement whatever comes out of it...”

### **Adopting Crowdsourcing**

While buy-in can help initiatives run smoothly, Rader points to adoption as a common pain point in innovation. Internally, employees may resist crowdsourcing because it is a new technique, outside of traditional

work norms. He also says some people feel as if they are pawning off their job by deciding to tap the crowd.

“We’ve been working to say, ‘Hey, that’s not really the way it works. [Crowdsourcing] actually helps you to do your job better,’” Rader says. “And that’s been a slow process.”

Rader says that adopting well executed challenges — with the right expectations, guidelines for intellectual property, and an implementation plan — can help teams find solutions quickly.

“Within an organization, people working...on a hard problem typically create a bit of a shell... There’s this invisible barrier between [them and] what’s a really obvious solution,” Rader says. “And...there are these folks that are living in other domains...and if [external innovators] can just see the overlap, they can apply solutions...to problems you have. And that’s where that real innovation magic happens.”

### **Innovation Challenges at NASA**

According to Rader, challenges at the Center of Excellence fall along a spectrum — varying from technical, science-heavy initiatives to storytelling projects. Rader highlights a few previous challenges below:

NASA has run challenges on galactic cosmic ray protection, workshopping how to protect Earth from fast moving, heavy particles and radiation.

NASA also ran a storyboard challenge to help explain what happens to the human body in space. “[T]hose storyboard challenges...will be followed by video sample challenges, where we’ll try to find people that can actually take those storyboards and turn them into videos... [Then] whoever we select...[will get] money to go produce those fully rendered videos.”

NASA also ran a series of 17 challenges to create segments of a miniature robot arm that will be used on a free floating robot at the International Space Station.

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*Kaitlin Milliken is a producer on Innovation Leader's editorial team and host of the podcast "Innovation Answered."*

# Inside a Cisco Bootcamp that Gets Multiple Companies to Innovate... Together

By Kaitlin Milliken

San Francisco's Palace of Fine Arts has hosted collaborators from all over the world ever since it was built. In 1915, artists, inventors, and visionaries walked under the Palace's soaring Roman arches during the Panama-Pacific International Exposition, which marked the completion of the Panama Canal, as well as San Francisco's rebound from the devastating earthquake a dozen years earlier.

More than a century later, Cisco's Hyper Innovation Living Lab (CHILL), a 48-hour innovation bootcamp, transformed the Palace of Fine Arts into CHILL's Innovation Hangar. Inside the cavernous space, participants from multiple companies battled the clock to brainstorm, prototype, and present new ideas to users.

By bringing together teams from different companies, CHILL seeks solutions to problems that can only be solved collaboratively. Kate O'Keeffe, founder of CHILL, and her team carefully curate each lab, hand-picking participants from across industries.

"[I]t became clear to me that a lot of corporations needed to stop thinking about innovating independently from each other, and start thinking about how do they innovate as ecosystems," she says.

Participating organizations have included Walgreens, University of California San Francisco, and Citibank. CHILL has an impressive track record. According to Cisco, the Living Labs have so far led to two startups, seven patent applications, and over 20 internal growth initiatives, as of late 2018. During an interview with Innovation Leader, O'Keeffe discussed CHILL's founding, the structure of the two-day event, and how CHILL's formula delivers impact.



Kate O'Keeffe, Cisco

## Designing CHILL

Before founding CHILL, O'Keeffe led Cisco's Services Innovation Center, where she leveraged design thinking and hackathons to field ideas from employees throughout the company.

But while innovation activities generated new ideas, O'Keeffe says that innovators often found themselves endlessly pitching to different senior leaders to win support. After several rounds of "edits," the final version looked much different than the original idea.

"[I]t was a heartbreaking process. ... [B]y the end of it, the innovator is exhausted... and something gets added to a future list of products, instead of really realizing the [initial] vision of the innovator," O'Keeffe says.

She says that she designed CHILL explicitly to bring senior leadership, innovators, and end-users closer together, by physically placing them in the same room.

"[You want] on-the-spot innovation investors to be really confident that everybody's voice that would be needed to sign off on an innovation, that they're there in the room," O'Keeffe says. "[T]hey're smiling [and] they're clapping."

## The Building Blocks of CHILL

According to O'Keeffe, in the months before CHILL, the team identifies the issue area "where all the players have to grow, have to change, or have to participate differently or more collaboratively." They then begin recruiting a large cohort of organizations that work in that zone.





Participating in CHILL comes with a price: \$200,000 in investment from each participating company before the event begins. O’Keeffe says that this payment buys the company equal rights to intellectual property, projects, prototypes, and other outputs created by CHILL.

“To innovate with [Cisco]...through my work, it needs to be peer-to-peer, which means we both have to have dollars on the table,” O’Keeffe says. “It’s not a truly...shoulder-to-shoulder situation unless we’re both prepared to invest.”

In order to participate, organizations must also agree to send top decision-makers. “We have a rule within CHILL: If your company needs the blessing of the CFO or the CEO or Bob from Accounting in order to be successful, then the CEO, and the CFO, and Bob from Accounting have to be there,” O’Keeffe says.

Participating companies are “aware that our own CEO is likely to be there,” she adds. “The minute people start hearing that you have SVPs, and you’ve got EVPs, and you got your CEO coming, there’s a beautiful kind of peer aspect to that.”

However, O’Keeffe says bringing together top

leaders for weeks on end is “impossible.” So CHILL condenses its timeline to 48 hours.

### **The 48-Hour Drill**

At the beginning of CHILL, participants meet for dinner, gathering around a table with members of their new team. This initial meeting creates an opportunity to share perspectives and brainstorm ideas.

“[W]e often get really breakthrough moments over dinner,” O’Keeffe says. “[A] lot of the teams sort of throw out [initial ideas], and start again at 9 p.m. at the end of the first day.”

The next day, they walk into a large arena. Arranged like a donut, build crews sit in the center of the circle with project teams on the outer edge. According to O’Keeffe, two hours in, participants meet their first round of end-users. They then meet with four to five more rounds of end-users throughout the day—reshaping their ideas along the way.

At the end of the first day, participants brief build teams, who work overnight to create a prototype of their ideas. The process ends on day two at 5:30 p.m., when teams pitch their ideas to a more senior group of stakeholders.

“That’s often when a lot of CEOs of the

participating organizations arrive to see the pitches,” O’Keeffe says. “[And] folks on the teams themselves are so senior that they [often]...have the budget to make the appropriate funding decisions.”

### **The Power of the End-User**

According to O’Keeffe, inviting users to give in-person feedback during CHILL helps the teams better understand users’ needs.

When CHILL focused on cancer care, O’Keeffe invited patients, doctors, and nurses. When cancer patients arrived at the arena in person, many were unexpectedly accompanied by their at-home caregivers.

“[W]hen you’re that sick, there’s another person there—a spouse, a partner, a parent—that is part of your day-to-day journey,” O’Keeffe says. “If we had interviewed those end-users on the phone...we never would have met this entirely [different] group of folks.”

As a result, one startup that emerged from the lab focused not only on patients, but also on the caregivers that help them. The digital app, CircleOf, helps cancer patients and their loved ones coordinate doctor appointments, navigate employer health benefits, and connect to all sorts of auxiliary services.

Initially, CircleOf CEO Michael Jordan recalls that his CHILL team was given a broad, somewhat vague mandate: providing cancer patients with a way to receive information.

“For most executives at the time, the focus was AI, predictive analytics, and machine learning,” he says. “We were thinking [that] you would put the medical records into an algorithm, and out will come sort of an optimal cancer treatment plan for that patient.”

But through the CHILL process, Jordan’s team saw how the patient experience varied based on the number of caregivers involved, and their access to different sources of information.

“[We then said,] ‘How do you build a product that democratizes that experience, so that everyone gets the non-clinical support they need...to make good decisions about [their care]?’” Jordan says. “We started with AI...

and we ended with something that’s almost a social caregiving network. ... [CHILL] leads you to the truth, not the buzzword everyone is doing at the moment.”

### **Life After CHILL**

Idea challenges and hackathons can often fizzle out after teams go back to their day jobs. However, O’Keeffe sets follow-up meetings before CHILL ever starts to help avoid that fate.

“[W]e’ve immediately lined up a lot of these post-Living Lab activities” she says. “The longer that process takes to...schedule, the greater the risk we have of...entering the valley of death.”

During these follow-up meetings, project leaders have to refine the business model, test assumptions, work out intellectual property, and decide how to bring the idea to fruition—as an internal initiative or an independent startup. If teams build their idea into a startup, they must also pick leadership for the new company.

Jordan was chosen to be CircleOf’s CEO during this follow-up process.

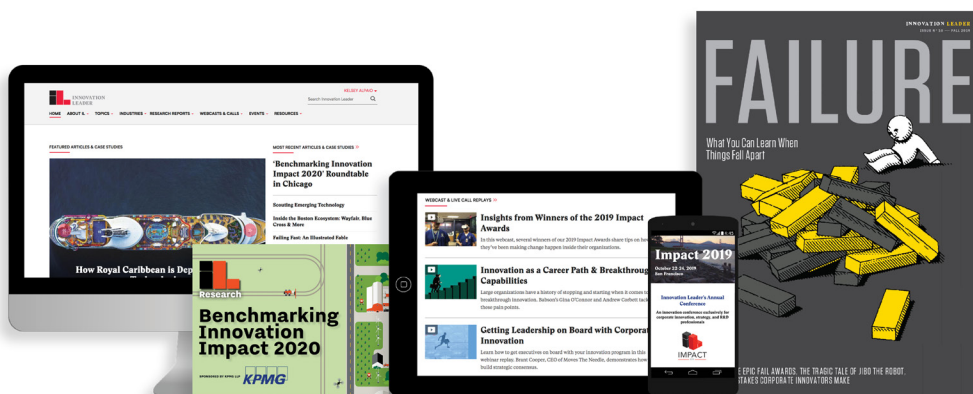
Not all of the lab’s partners remain engaged after startups have gained their footing. According to Jordan, Walgreens, one initial partner, has become less involved in CircleOf. Meanwhile, his team has weekly governance calls with Community Health Network. Cisco is also one of CircleOf’s biggest customers.

According to Jordan, CHILL excels in marshalling the initial resources and support that can make the innovation process smoother, even after the bootcamp has concluded.

“[CHILL] took...product development, customer development, and market research, and [condensed it],” he says. “If I had come up with the idea for CircleOf on my own, it would have taken six months to a year to get to where we had gotten in just 48 hours.”

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## About Innovation Leader

Innovation Leader is honored to have been invited to create this briefing book for the 2019 edition of the Cross Industry Innovation Summit

Based in Boston, Mass., Innovation Leader is a media and events company that serves innovators within large organizations. Since 2013, we have convened the largest network of corporate professionals responsible for strategy, R&D, new product development, design, and innovation at large public and private companies, as well as government agencies and nonprofits. We help these executives enhance their innovation initiatives with case studies and research reports on our website; learn from peers during live events, webcasts, and conference calls; and visit innovative labs and workplaces around the globe.

Among the companies that have appeared at our events or in our coverage: Ford, Disney, Starbucks, Northrop Grumman, Marriott, BMW, Google, Nestlé, Target, Cisco, ING Group, Pfizer, iRobot, Bose, Shell, and Intel.

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