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Hard work paid off for chef Jessica Gamble.

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# Atlanta emerging as national leader in intellectual property

BY DAVID ALLISON  
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Atlanta is emerging as a national leader in intellectual property, the key to today's knowledge economy.

Many people don't know what intellectual property is or why they should care about it. But it's critically important.

Intellectual property, also known as "IP," includes technology but is more than just technology. It includes a series of four protections for any new idea, innovation or knowledge. There are patents, trade secrets, copyrights and trademarks.

Without IP, there's no economic return for knowledge creation since it's free for all to copy, take and use. Without IP, there's no incentive for major investments in research since there would be no economic return.

Other cities may lead Atlanta in pure technology creation. And other cities may have great IP strengths, such as Silicon Valley and Washington, D.C.

"But I think we are leaders in having a total, coordinated effort in terms of IP



Scott Frank, president and CEO of Atlanta-based AT&T Intellectual Property

offerings and really a combined IP package," says **Scott Frank**, CEO of Atlanta-based **AT&T Intellectual Property**, which oversees

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## Fox Theatre plans first major renovation in decades

BY AMY WENK  
awenk@bizjournals.com

Atlanta's historic **Fox Theatre** plans its first major renovation in decades to keep pace with a spate of competing venues across the city.

The Fox Theatre looks to add a premium lounge for ticket holders that would reopen a portion of its rooftop, allowing patrons to enjoy cocktails and Midtown views along Peachtree Street.

Project architect **Lord Aeck Sargent** in early September filed plans in Atlanta to remake the northeast corner of the theater, which once housed jazz club Churchill Grounds, and a 4,000-square-foot piece of the lavish building's rooftop that spans over the theater's arcade and connects to the Egyptian Ballroom.

In total, the lounge will feature about 8,000 square feet of indoor and outdoor space, likely with a new connection into the theater via the Spanish Room.

The Fox Theatre would not disclose how much the project will cost, other to say it's one of the most significant investments it has made in more than 20 years.

"This is probably one of the largest undertakings for the Fox since the 'Save the Fox' campaign in 1975," said **Adina Erwin**, vice president and chief operating officer for the Fox Theatre. "This is definitely going to be a seismic shift for our organization."

The project comes as premium seating at venues has almost become a must-have to stay competitive in Atlanta. For example, the new \$1.5 billion Mercedes-Benz Stadium will feature 7,500 club seats and more than 100,000 square feet of premium space.

"Our customers were really asking

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### COVER STORY



## Top inventors share secrets of innovation

Nine of AT&T's inventors with more than 1,300 patents to their credit discuss the art of creation.

STORY BY David Allison, 37A

## NEWS

OPENS SEPT. 24

# Fernbank Museum comes full circle, opens expansion

BY MARIA SAPORTA  
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The Fernbank Forest now will be the featured attraction of the **Fernbank Museum of Natural History**.

Starting Sept. 24, the expansion of the Fernbank Museum will be open to visitors – providing people of all ages and abilities to experience the largest old-growth Piedmont forest in the Southeast.

**Susan Neugent**, Fernbank's president and CEO for 19 years, said she is more proud of this achievement than of any other in her tenure. That is significant because when Neugent joined the museum, it was on the brink of bankruptcy. It has since enjoyed 19 years of operating in the black.

Fernbank was able to open up its doors to the forest through a \$20 million campaign, which actually ended up raising \$21.7 million. That does not include another \$5 million endowment to help take care of the forest.

"We have come full circle – connecting with the original mission of Fernbank as a school in the woods and teaching about nature," Neugent said. That was the original vision of Emily Harrison, who lived on the land and founded Fernbank Inc. in 1939 to preserve the forest.

The expansion in the forest includes 10 acres of woodland adventures that serve as a natural bridge to the 65 acres of urban Piedmont forest. The features include interactive exhibitions, elevated walkways, vistas overlooking the forest and the restored creek meadow as well as a trail system to Fernbank Forest.

**Jennifer Grant Warner**, who headed the project for Fernbank, pointed out how all the new features are connected to nature. There are two wooden pods for scenic viewing – one resembling the bloom of a tulip poplar and the other a fern. Natural motifs are found throughout the different features that include play areas for young children as well as the Isdell Wildlife Sanctuary, which overlooks the restored creek and the wetlands.

There also is the Kendeda Pavilion, an adventure outpost and field station where students will be able to have labs and learn about forest. Along the paths, there are multiple insect hotels where people can study their habitats.

A major part of the expansion involved restoring the woods by removing nearly 50 invasive species that covered the forest and damaged native plants and trees. Fernbank also has been replanting native species to reinforce the forest.

At one time, there were 21 species of ferns identified in the forest. Today, they have identified about a dozen, and the hope is that with the restoration of the forest, some of the other ferns will grow back.

Another part of the expansion involved acquiring the homestead of the Cobb



Jennifer Grant Warner, left, and Fernbank CEO Susan Neugent.



### Sensory Wall

Touch is an important way to observe our surroundings. Can you determine the natural items represented here by using just the sense of touch?

Made possible by the Frances Wood Wilson Foundation



PHOTOS/JOANN VITELLI

*New features include interactive exhibitions, elevated walkways, vistas overlooking the forest and the restored creek meadow as well as a trail system to Fernbank Forest.*

family, a family that had lived on the property for decades and had taken care of woods by the patriarch, who Neugent described as a naturalist. It was the acquisition of the property that enabled Fernbank to provide the natural bridge between the new Woodlands and the old-growth forest.

"A lot of people had a hand in strengthening this institution and making it a top-drawer science institution in Atlanta and the Southeast," Neugent said. "The forest is a unique component. We are the only major museum of natural history connected to an old growth forest in a major metropolitan area."

Because the fundraising campaign brought in an additional \$1.7 million, Neugent said Fernbank will be able to make even more enhancements than originally planned.

"The additional dollars have allowed us to add more trails and more native plantings and more programming," she said. "We are going to update the IMAX theater with all new laser and digital components."

Fernbank also has been able to operate by generating 90 percent of its annual operating budget. It receives revenues from the gate, its store as well as special events. The rest of the money comes from

the philanthropic sector.

The museum, which does provide educational programs for students around the state, receives virtually no public funds from either the local, state or national government.

"Philanthropy helps us advance the institution," said Neugent, giving a special nod to the Robert W. Woodruff Foundation, which provided \$5 million towards the campaign and the \$5 million endowment to help maintain the forest. "Our mission is to help people understand their role in the natural world. We are a place where people can disconnect to reconnect."

NEWS



BYRON E. SMALL

The Fox would add a premium lounge that will reopen a portion of its rooftop, allowing patrons to enjoy cocktails and Midtown views along Peachtree Street.

FOX CONTINUED FROM PAGE 1A

for this,” said **Allan Vella**, president and CEO of the Fox. “We are really excited about the outdoor space. To entertain on our rooftop and have a cocktail in the beautiful weather with the Fox marquee blinking in the background with wonderful food in a very upscale and party-like atmosphere ... there will be nothing better. It will be one of the nicest premium clubs



Allan Vella

in the entire city.”

Construction on the new lounge could start in January, with the goal of opening in fall 2017. Vella said the Fox Theatre, a nonprofit organization, will finance the project through a loan.

“We are well positioned to be able to undertake a significant financial investment,” Erwin added.

Membership to the club will be offered both on a per-event and yearly basis. The membership rates have yet to be set, Erwin said, but likely will include parking and upgraded food and beverage.

The Fox Theatre, whose architecture borrows from Moorish, Arabic, Art Nouveau and Art Moderne influences, has a rich history in Atlanta.

It was originally conceived as a headquarters for Atlanta’s Shriners. Design firm Marye, Alger & Vinour was the original architect. To help with costs, the Shriners ended up leasing the auditorium to movie mogul William Fox.

FOX THEATRE BY THE NUMBERS

- ▶ 150 - Public performances per year
- ▶ 199 - Events per year in the ballrooms
- ▶ 592,789 - Annual attendees
- ▶ \$31 million - Annual ticket sales
- ▶ \$28.8 million - Annual economic impact
- ▶ \$41 million - Invested in the Fox’s restoration since 1974

SOURCE: FOX THEATRE

The Fox Theatre was nearly demolished in 1974 when Southern Bell looked at the property for a new headquarters. A massive community campaign saved it from the wrecking ball.

The theater’s many architectural elements will inspire the design of the lounge, said **Karen Gravel**, director of historic preservation for Lord Aeck Sargent. Gravel is leading the team of designers working on the project.

“It’s a very difficult design challenge,” Gravel said, but “a dream job for our entire firm.”

One of the coolest aspects is that the rooftop had been accessible to the public back when the Fox opened in 1929. It’s unclear exactly when it closed, suggesting it may have been 50 years or more.

“I’ve not met anyone who has gone out there,” Gravel said.

The rooftop space will feature two bars when the renovation is complete, she said.

Among similar preservation projects in Atlanta, Lord Aeck Sargent has worked on Ebenezer Baptist Church, the Georgia State Capitol master plan, and the Hinman Research Building at Georgia Tech.

With the project, the Fox Theatre looks to maintain its top position in the city and country, having been ranked the No. 5 theater in the world by concert industry trade publication Pollstar in 2015.

“We’re excited about this project,” Erwin said. “It’s really truly around enhancing the guest experience.”

ATLANTA BUSINESS CHRONICLE



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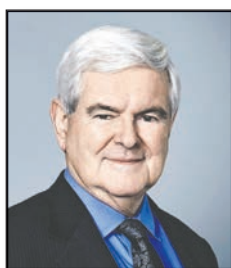
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**NEWS**

IP CONTINUED FROM PAGE 1A

IP for the telecom giant from its offices in the AT&T tower in Midtown. AT&T has its intellectual property headquarters in Atlanta because of the IP people and community it provides, Frank says.

Driving Atlanta's emergence as an IP capital are **Georgia State University** and **Georgia Tech**, Frank says.

Georgia State has a world-leading number of IP programs. Georgia Tech has world-leading creation and leveraging of IP through the Georgia Tech Research Institute, faculty, and other programs. The two schools are uniquely partnering to leverage their complementary strengths, including Georgia State's law school and Georgia Tech's engineering school, Frank says.

The schools' presidents agree.

"Over the last decade, Georgia State's College of Law has emerged as a national leader in the area of intellectual property law, an increasingly important field that spans business, law, technology and creative endeavors," says **Mark Becker**, president of Georgia State. "The university's focus on entrepreneurship and innovation has benefited from our extensive expertise in IP as we have developed new programs and partnerships. In particular, Georgia Tech and Georgia State have formed a constructive partnership that is so much more productive than what would be achievable were we working

alone or separately."

"The metro Atlanta area is becoming a hub of innovation," adds Georgia Tech President **G.P. "Bud" Peterson**. "Georgia's research universities play a key role in the recent growth because corporations and startups all want to tap into the talent, technologies and other resources available at our universities."

"Our goal is to provide resources to help innovators succeed here in Georgia, and to collaborate with business, industry, and government, along with our colleagues in higher education, to create a thriving innovation ecosystem," Peterson adds. "Evidence that it is working can be found in the phenomenal growth of 'innovation neighborhoods' such as Tech Square, Technology Enterprise Park and the North Avenue Research Area. New companies are coming to the area almost every month, and large corporations are becoming engaged in helping to provide needed resources for growth. We look forward to continued collaboration with large and small companies alike, our public and private university partners, Governor Deal, Mayor Reed, the Metro Chamber, the Georgia Department of Economic Development and others to help Atlanta become not only the premier IP capital in the Southeast, but also in the U.S."

Innovation will be the featured topic at a Sept. 28 event at Georgia Tech when Walter Isaacson, CEO of The Aspen Institute and author of a best-selling

biography of Apple founder Steve Jobs, is scheduled to moderate a panel including **The Coca-Cola Co.**'s CEO **Muhtar Kent** and **The Home Depot Inc.**'s CEO **Craig Menear**.

*"Before we were so dependent on information and ideas, intellectual property was kind of secondary. But now corporations, they will spend whatever it takes to protect it."*

**SCOTT FRANK**

CEO, AT&T Intellectual Properties

It's Atlanta's coordinated IP efforts that make it stand out from other cities, AT&T's Frank believes. "This is where the universities and corporations are getting together more regularly than we believe any other community in the country, if not the world, to talk about intellectual property issues," he says.

For example, Frank notes that representatives of about 20 to 25 corporations meet in Atlanta every quarter to talk about IP issues. "It's not that other communities don't have anything, but we think we have a significant number of more meetings, different types of meetings and

much more coordinated efforts that allow Atlanta and Georgia to bubble to the top in terms of thought leadership," he says.

Frank says IP leaders in other cities may not yet recognize Atlanta's leading position in the field. "But now we believe it's time to share all this tremendous set of programs, this tremendous cooperative effort with the rest of the world. We literally have made a concerted effort to spread the message, that's happening right now," he says.

Atlanta's strengths in IP should help it attract and recruit new companies, drawn by IP graduates from Georgia State and Georgia Tech. "Every IP graduate that I know from those schools is getting a job pretty quickly. And I don't think they can graduate them fast enough," Frank says.

Georgia's booming film and music industries will further fuel the growth of IP in the state, Frank believes. "Every form of innovation, every idea, whether again it's technology, music, or a movie, needs to be properly protected so that nobody can simply take it, copy it, and use it without fairly compensating the creator for it."

Meanwhile, corporate spending on IP has skyrocketed in recent years and just reinforces the importance of IP in a knowledge economy, he says. "Before we were so dependent on information and ideas, intellectual property was kind of secondary. But now corporations, they will spend whatever it takes to protect it."

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## COVER STORY



Nine of AT&T's top inventors with Scott Frank, center, CEO of AT&T Intellectual Properties.

JOANN VITELLI

# Hall of fame inventors talk secrets of innovation

AT&T'S WORLD-CLASS INNOVATORS WITH 1,300+ PATENTS DISCUSS THE ART OF CREATION

BY DAVID ALLISON  
dallison@bizjournals.com

**M**uch is written these days about the critical role of innovation in business success. But for organizations large and small, innovation can be extraordinarily difficult. Creators must fight for resources to birth new products, and if they succeed their new creations often must overcome a Darwinian environment of marketplace inertia, entrenched competitors, cultural orthodoxy, naysayers and rivals.

Atlanta Business Chronicle recently got the first-ever opportunity to do a deep dive into innovation with nine of the world's top inventors. They are with **AT&T Inc.** and work in the telecom giant's Atlanta-based intellectual property operation, which is based in Midtown Atlanta near Georgia Tech. The nine inventors have a combined total of more than 1,300 patents. The group included:

- ▶ **Jeffrey Aaron**, principal member of AT&T's Tech Staff;
- ▶ **Carl Bedingfield**, lead member of AT&T's Tech Staff;

- ▶ **Art Brisebois**, director member of AT&T's Tech Staff;
- ▶ **Brian Daly**, director member of AT&T's Tech Staff;
- ▶ **Bob Koch**, director - intellectual property for AT&T;
- ▶ **Barrett Kreiner**, principal system architect for AT&T;
- ▶ **Dale Malik**, director member of AT&T's Tech Staff;
- ▶ **Jeffrey Mikan**, lead member of AT&T's Tech Staff; and
- ▶ **Sam Zellner**, lead - AT&T's IP patent development.

The group was joined by **Scott Frank**, president and CEO of AT&T Intellectual Properties. "This company has a lot going on and these guys are extremely busy. This is the first time we've all ever gotten together in a room," Frank said. "It's like sitting in a room with Babe Ruth and Hank Aaron and Mickey Mantle and Willie Mays and others. We are sitting here with world-class inventors. This is a very very small group of people. Everybody here has over 100 patents. They are literally in the worldwide hall of fame of

inventors and they're all in one room. And I think it's an amazing feeling to be around them."

"Because of these people, they've positioned AT&T with competitive advantages for years to come which really bodes well for our customers, employees and shareholders," Frank added.

Atlanta Business Chronicle asked the inventors to discuss four topics:

\*What are the secrets to innovation and the invention of great new products and technologies, whether in a large organization or in a startup?

\*How does a company or organization create a culture that inspires and fosters innovation and invention of great new products and technologies? How does a company or organization inspire risk taking in new product development, allocate scarce resources, pick winners or losers, etc.?

\*How can a company or organization best judge which new products or technologies are most likely to be successful in the market? Do the best innovations come from the lab or from the marketing department? What if the world doesn't even know it needs a new product (think

Steve Jobs and the iPad)?

\*What are some of the biggest roadblocks or challenges that stifle new innovation and invention within companies or organizations, and how can these be overcome?

Following is an edited transcript of the discussion.

**Q. What are the secrets to innovation and the invention of great new products and technologies, whether in a large organization or in a startup?**

**Jeffrey Aaron:** I think part of it is to look out into the future as opposed to being too fixated just on your current problems. And a lot of what we do - we do architecture and design and so forth and build things for AT&T going forward into the next three to five years or so. So some of us have jobs that we look out in that way. But I think as well it's sort of a mindset. If you submit something to be patented it takes a number of years for that process to go through anyway. So you really don't want to focus on things that might be applied

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## COVER STORY

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to a technology that you know will be replaced in a couple of years. So you really want to look ahead and just keep that mindset and a lot of times ideas just occur to us if you think that way.

**Q. We hear a lot about looking into the future. How do you look into the future?**

**Jeffrey Aaron:** A lot of us have jobs where we are constantly looking at how technology is changing, and trying to keep up. It's rolled over 100 times since we got out of college. And we're doing all kinds of different things and we have to know how new stuff works in order to do our jobs. But we are also curious and we kind of see what's the generation after that or what are the possibilities after that. So I think a lot of us are immersed in that and we are interested in that sort of thing. We are interested in future technology in our area, and even more broadly.

**Jeffrey Mikan:** You keep up to date on where the technical trends are going. And then you can foresee not only your solutions and where they want to go but also you can foresee problems and where they're going to go. Battery life is going to continually be a problem, right? And how do you address that in different use cases.

**Dale Malik:** Most people think that innovation happens just kind of by happenstance. It's really actually a disciplined approach. Probably the crew that you have here are the most disciplined people you'll find. Kind of adding on what Jeff said is that no explorer just goes out without supplies or any idea of where they might want to go, the things they might have to tackle when they get there. .... And that's the disciplined approach. We might be tackling a new area and we just kind of set off to see what it can do. How might it behave. Go through a lot of different paces whether it's an architecture that Jeff is working on or a specific technology. That's how you find out what's going on. It's a very organized approach. It's not just 'hey, look what happened!' That usually doesn't get you anywhere.

**Bob Koch:** You asked how you look to the future? Sometimes it helps to look to the past to look to the future. What I mean by that is, what is it that we think in the future will seem kind of humorous or laughable? 'Remember back in 2016 when we did it this way?' When you look to the past and say 'remember back when you had to turn a knob on your TV to change the channel?' What are the annoyances or inconveniences, the simple difficulties today that are going to seem like humorous problems in the future? And you don't have to solve all of it. There may be some pieces of it that others will solve. Maybe you don't have to solve the bandwidth limitation or this limitation but you can take a core idea and also kind of expect and rely on others to do some of the solutions between now and what you



**Jeffrey Aaron**

Principal member of tech staff, has worked for AT&T since 1998 and holds 144 patents.



**Carl Bedingfield**

Lead member of tech staff, has worked for AT&T since 1986 and holds 132 patents.



**Art Brisebois**

Director member of tech staff, has worked for AT&T since 1996 and holds 112 patents.



**Brian Daly**

Director member of tech staff, has worked for AT&T since 1995 and holds 142 patents.



**Bob Koch**

Director - intellectual property, has worked for AT&T since 1994 and holds 137 patents.



**Barrett Kreiner**

Principal system architect, has worked for AT&T since 1996 and holds 123 patents.



**Dale Malik**

Director member of tech staff, has worked for AT&T since 1983 and holds 213 patents.



**Jeffrey Mikan**

Lead member of tech staff, has worked for AT&T since 2001 and holds 128 patents.



**Sam Zellner**

Lead - IP patent development, has worked for AT&T since 1983 and holds 174 patents.

see in the future.

**Brian Daly:** I agree with what you just mentioned about looking to the past. I think that's very important because as we look to the future we have to learn from the past. Ten years ago who would have thought about smart phones and the apps that we have today? Now we are looking at 5G technology and trying to predict what types of services are going to be on the network 10 years from now and trying to be innovative and invent the network that's going to be around 10 years from now to support those services. So predicting the future is a very critical part of innovation, and trying to understand the past and use that for those predictions is a key element.

**Art Brisebois:** Sometimes you look at the new technologies that are coming along and realize that people are being overwhelmed with layer upon layer upon layer of technology. Sometimes the most interesting ideas are about how to make the use of the technology effortless. Maybe you don't invent the v12 engine but you invent the self driving mechanism to help drive the car. Make technology useful by everyone. As every new technology comes along there's always an opportunity to make its use effortless.

**Sam Zellner:** I think an important part of innovation is identifying the right problems. There's tons of problems out there, big ones and small ones. That's a big piece of it -- understanding where to focus your effort. If you focus your effort on something that's not really a problem or goes away over time, you've wasted your time. To Dale's point, it is about doing a systematic method. You think about a problem, making sure you've got the right problems. Technology breaks down some assumptions that used to be true, and that's one of the hard things for a lot of inventors, is to understand what assumptions no longer hold in the new world. If you take cell phones, the whole idea that you had to be in one place, you had to be wired, all of a sudden wireless communications came about and you don't have to be in the same place.

**Jeffrey Aaron:** An additional thing that I think all of us probably try to do is think about the ways to put things together in different ways or in new ways. Maybe do something a little bit different than the industry might think. If you think what would happen if you do it the opposite way, is there some benefit from that? I think for some of us, for a lot of us probably, it's just fun to think in that manner. And so we do it a lot. And we have these ideas come

floating around. A lot of it doesn't happen at work, at least for me anyway. I'll be taking a walk, it will happen on weekends. I used to write down a lot of things over the Christmas holidays just because I had free time and a little relief from the day to day current job. A lot of people in this room enjoy doing this.

**Bob Koch:** Jeffrey is right. A lot of times it may be something that I hope becomes a product in the future... But part of it, too, is any time we solve a problem, we've solved the problem but we've probably without realizing it created a new problem. And the new problem is sort of where the next generation of invention lies. When we had Caller ID come out, as a simple example, all of a sudden that creates problems because now you want to block Caller ID, right? So if you can anticipate what today's solution, what kind of new problems they are going to create, then we can invent that generation ahead.

**Brian Daly:** These problems come at you from all different directions. They may be handed to us from regulators, they may come from the competition, they may be coming from consumers, they may be coming from internal operations. So trying to piece together the different comments we're getting from all these stakeholders really sparks some of the innovation, at least for myself, whether it be on long walks or in the shower or what have you. It's something that you try to gather as much information as you can from different areas and try to come up with solutions to solve the different problems that are being handed to us or encountered in what we are doing.

**Dale Malik:** There's another aspect to it. There's this, I'll call 'preform thinking' the guys are describing. There's this other piece, I'll call it the pressure cooker. Something is presented in a very, very short period of time that we've got to do something. And all of a sudden you've got a problem in front of you. And you may have done a lot of lateral thinking, not specifically about that problem, but all of a sudden something jumps from way over here right into the middle. I go, 'wait a second I was just thinking, was it related to that?' You're faced with a very critical problem that you've got to solve that these mental exercises have really brought you to the point of solving.

**Art Brisebois:** Sometimes you observe combinations of problems and gaps. For example an Internet of Things device manufacturer makes a \$5 module. They may not realize what kind of impact their product can have on the load of the billions of dollars of network investment. The network infrastructure vendor of tens of billions of dollars of product may not realize the impact they can have on the battery life with these little \$5 devices. So filling the gap between and finding combinations and solutions is often a good area of innovation and

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## COVER STORY

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creativity. The different vendors don't always think about other product lines. They patent things that apply to their area and we often bridge the gap.

**Jeffrey Mikan:** Our own patent lawyers come up with a list, 'here's a list of 20 areas that we want to look at. Give us your thoughts on those 20 areas.' And we'll take those 20 areas and we typically delve into, well, 10 of those I can easily apply stuff to and out of those 10 I'll get 20 ideas, and I'll pitch those 20 ideas back to them. Now of those 20 ideas, five will fly. So it's getting new problems into our brains for us to apply our knowledge to those problems. Because normally you're focused in your realm with your problem feature set and you don't look at all the other tools that are still in the tool box until you have a different tool box and you come look at the problems in that area.

**Bob Koch:** That's a key point. Because when we look to the future we are not just looking to the future, we're looking to the future potentially of AT&T as well. Because we are patenting, and the patent that we file today maybe gets issued in three to five years and it goes for another 20 years, well who knows what AT&T's future is going to be or what the market's future is going to be. It may turn out to be something that is very important for the future of our company that we haven't even anticipated yet. So being able to be open-minded and not just bound to the current business of our company, I think, has generally helped the inventors to be very broad in their thinking.

**Jeffrey Aaron:** I think it's very easy for engineers, for instance, to be focused down on what they have to do. It's really important to make deadlines and things like that. But I think it's really good to be willing to enjoy, if you can, to think of it as a valuable thing, to think a little more broadly, to think a little wider, a little more laterally, not just to think of 'what will AT&T need two years from now,' because we may not know exactly. Things may change. So it's easy sometimes to think that kind of playing around with ideas and thinking beyond what you have to do in your job might be a waste of time or might be something that you shouldn't be doing. But it's really important to kind of persist in that. And I think people here probably really enjoy it. So that may be part of the reason why we persist in it. But it's a good thing. It's not a distraction from your job necessarily.

**Sam Zellner:** One of the things is in the patenting process we bring together lots of people, a diversity of people with diverse backgrounds to cultivate new ideas, to break down some of the assumptions. Barrett is a good example [Barrett Kreiner, principal system architect for AT&T.] Barrett comes in and brings ideas in from a different angle because he's not necessarily always involved with the engineering side, on the wireless side, the landline sides,



SHUTTERSTOCK

**AT&T owns one of the strongest patent portfolios in the telecommunications industry and consistently ranks in the top 25 companies each year in obtaining new U.S. patents:**

# 20,000

Worldwide patents and applications held by AT&T.

# No. 1

AT&T's ranking as the most valuable telecom brand worldwide

# No. 2

Ranking of AT&T by The Wall Street Journal and The Patent Board, among all companies in the telecommunications industry sector on their patent scorecard, which "ranks corporate innovation using a series of metrics to determine patent quality, technological strength, and breadth of impact."

things like that. That where you can break it down and get some very good innovation going on.

**Barrett Kreiner:** To what Sam's saying, for example, I have outside interests including public safety, being a hazardous materials technician. Those are somewhat different domains than what the telephone company is. However, part of my job is to take what we are solving in the phone domain and applying it back to their communication needs potentially, and problems that may have been solved in those domains cross-pollenate back here. So we do bring a lot of ideas in where it was solved in one space and can we find a similar solution that may be potentially patentable in a different space.

**Sam Zellner:** Some of the times it helps, in Barrett's case where he's doing emergency services, when you take things to extremes you can come up with some very good ideas that way, because all of a sudden, as you were saying before, you have to make some new assumptions, you have to make some new models to address the area.

**Dale Malik:** Let me add to Sam's comment. One of the things we do in The Foundry [AT&T's innovation center at Georgia Tech opened in 2013], which is one of our areas we focus on, we like to look at things as platforms, not just an event. ... I was at a Georgia Tech thing last week where they had the students

doing an innovation thing. I was helping coach some of the students and one of things one of the students said was 'we have this capsule that helps delivery of things to the lower part of your intestine.' And I said, 'well did you think about it as a platform? It's really a delivery system. That's what it is. Think of it as a delivery system and expand your thought process.' But that's part of the discipline in making it into a platform and not just looking at it in an isolated perspective. You get a lot more out of it, you can see what other things you can do with it.

**Bob Koch:** Just to play on Sam's thought again. It is important for us to bring others together who are not just engineers and to have mixed backgrounds and mixed responsibilities because you need to have that balance of what is technically feasible and foreseeable in the future but also what is it that we think the market is really going to want. Because otherwise it's innovation without maybe an actual path to implementation. But also thinking to the future, I think what we are really seeing for inventors, it helps them think about their day-to-day work as well because if they can envision where their part of the business or their part of the technology is headed, they can work to make whatever it is they're doing now more adaptable to the future or have a better path to getting there. And so, really thinking of the future helps

accelerate innovation because you're getting people to think about 'how do I get there,' not just 'how am I solving the issue I have to solve.'

**Q. How does a company or organization create a culture that inspires and fosters innovation and invention of great new products and technologies? How does a company or organization inspire risk taking in new product development, allocate scarce resources, and pick winners or losers?**

**Art Brisebois:** I think having a low cost way to express ideas and get them considered is an important part of it all. We have what's called TIP [The Innovation Pipeline, an online crowd sourcing platform where AT&T employees can submit, vote and collaborate on ideas] where we can submit an idea and get feedback without having to engage all of the costs of the whole legal process to go through prior art checking etc. and I think that's a low-risk way to foster innovation.

**Dale Malik:** On the back side of that, we facilitate the ideas and see if we can spin them up quick. Low cost prototypes. See if it's got legs and you can put it together. And then, if it's got something, then obviously it moves forward. But you haven't done a lot of upfront or back-end investment to give it some life and get it off the ground. And that's really a company-wide effort that has been really amazing.

**Carl Bedingfield:** I think some of the things you talked about really require an attitude change in the management of the company. It's one thing to decide 'we need to be more innovative.' ... But in fact the notion of allowing people to fail or giving them free time to spend on an idea that you may not have as part of your business plan ..., I don't think you can just do that as a passing side project. It really requires somebody to be committed. And of course in a company like AT&T with a long legacy of patenting and innovation, it's not too far a step to have that sort of perspective. But for another company pretty much focused on the bottom line, it's going to take a big commitment and a very creative solution to get there.

**Jeffrey Mikan:** It's not a freebie for AT&T. While it has been baked into our DNA, AT&T still has to work at it. TIP is seven years old and we continue to evolve the process to make it smoother and faster and easier to submit ideas.

**Bob Koch:** TIP and the patent program both are company-wide programs and it reflects trying to have this common thread throughout the company of innovation. In TIP we took a lot of our direction from Silicon Valley. TIP is a crowd-sourcing, web driven place for any employee in the company to go and submit an idea. And it can be voted up or down by the crowd.

**Jeffrey Aaron:** I think it's really important that a company really values

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## COVER STORY

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innovation in all its different forms and that it's not just lip service. It takes time. And I've seen BellSouth and AT&T grow this over the years and be really consistent about it. But it does cost a lot. There's a lot of effort involved. ...But I agree it's not something that if somebody is starting with a small company or something, it's not an easy thing to do. It took [AT&T] a lot of work and a lot of thought and a lot of effort and consistency.

**Art Brisebois:** I think the pairing of people with problems and people with ideas for solutions sometimes helps foster a lot. Jeff and I have been working with marketing on some problems. They have a problem, they have a potential use for a solution, and we have solutions. So pairing us together, it makes for a great collaborative environment.

**Q. Do the great innovations, the great inventions, start in the market where the market comes to you guys and says 'we've got a problem,' or do they come out of your minds and you go to the market and say 'we've got this, is this useful?'**

**Jeffrey Mikan:** It happens both ways. A good chunk of the time the problem is discovered first and then marketing and this team kind of pulls in the experts in the field to create the solution. There's another way where we create a solution and we don't have a problem for it yet: Creating the solution – turning it over and saying here's an innovative way to do X, Y, Z – but until certain things happen you don't need this. And that's when you start looking at what happens, what does it take, and is it five, 10 or 30 years out before this interesting solution actually has a problem.

**Sam Zellner:** I think the important thing here is when you think of really good innovation, what they've done is pinpointed the point where the technology, the market demand, and the economics all intersect just perfectly. That's the tricky thing. That's what makes innovation hard. Sometimes there's great technology out there but there's no need. Or there's great technology and the cost is still too high. And that's the way a lot of inventions are these days. ... The classic example is ATMs. If you had asked people do they want ATMs? [they would have said] no. But get them oriented, they were willing to accept that change.

**Q. What are some of the biggest roadblocks or challenges that stifle new innovation and invention within companies or organizations, and how can these be overcome?**

**Dale Malik:** To inject it into the DNA has to become part of your methodology. I'll call it that pause along the way, the pause to consider. Because if you do that, that check point, then you don't lose it as you're running headlong to get something done. The other piece is – because things are so wide and complex

– is cross-collaboration. If you have your head down and you don't have a mechanism to look left and right, you can't pull in other things. So you have to have mechanisms to look left and right and to share in a very disciplined way. So as an example, we have an integrated working group which meets every so often where the different projects share the things they're doing with the technology – cross pollinate. Without that cross-pollination I might think to call Sam, I might not. ...That's very, very key.

**Brian Daly:** Another thing is recognition that innovation can occur at any level and any part of an organization. It's not just the research organization because that's their job. It could be the customer-facing, customer-care representative. It could be the installer, anybody in the organization can have input into innovation. And I think programs like our TIP program have really fostered that and given an avenue for any employee to provide that kind of input. But that recognition, I think, is really important to get the innovation flowing.

**Jeffrey Mikan:** Going along the same lines, in bigger companies it also helps to pull executives into the patent process, by pairing their problem up with engineers for their solution. So it gets their exposure to there is justification for driving money into this organization in return.

**Dale Malik:** Jeff and I a few years ago met with John Stankey who's now the head of the [AT&T] Entertainment Group and we had one of those sessions. And he painted this picture of the larger problems of the business, which day-to-day we would never hear. We sat there across from him and said, 'Oh, really.' And we started a three-way conversation parrying back and forth and by the time we were done we'd kind of laid the ground work for the future of where we wanted to go and what we wanted to do. But we couldn't have had that opportunity to think that way without this cross-collaboration. And that was orchestrated, purposefully. That's that up and down and left and right. It can't just be one direction.

**Carl Bedingfield:** You can make innovation with whoever you happen to have. I mean, some of the most innovative creatures on the planet are kids, just because of the way they learn to think and the way they learn to try things that nobody else would try. I think that sort of mindset can go an awful long way.

**Jeffrey Aaron:** One thing kids do is they play a lot. And they think that's fine. So one roadblock in a smaller company is if people are constantly told they have one job and they have to do their job and they have a deadline and that's it, there's no head room, no ability or no free space to do any of the things we are talking about. That could be a big problem and I think some companies may struggle with that because they are struggling to do their day-to-day things. That's just very difficult. So at AT&T we can see all this stuff happening and we

have this culture and we're all used to it and a lot of it's great, but it took a long time to get there. It seems like a lot of companies may have trouble with some of that, and so they may make it hard for their people without even realizing it. They think they're doing their business right but they may be cutting off the oxygen for people to be able to think a little more broadly.

**Dale Malik:** How do you take friction out of your ecosystem? Part of it is a patent process but also part of it is all of these things I call 'putting wheels on the bus.' Whether it's the financial instruments you use or supply chain aspects, all the things you need to do your job. So if your level of friction in your job goes down, then your ability to innovate goes up because you can get to it quicker. You don't have the obstacles. If that friction level is high you lose interest, you lose momentum, it doesn't feel as good, it's not as rewarding. That's really one of the fundamental tenets.

**Brian Daly:** The other thing is you can't get discouraged when you're innovating. I don't know how many ideas I've had that didn't move forward for one reason or another. If you've got ideas, get them evaluated. There may be good business reasons or other reasons why they hit a brick wall but don't let that discourage you. Continue moving forward. The company shouldn't discourage you because you may have ideas that don't make it forward. Just continue on and press forward.

**Jeffrey Aaron:** This happens all the time I'm sure to all of us, but particularly with patents there can be 'prior art.' You can have a wonderful idea but some other wonderful people came up with some of those ideas, too. The point is, really you can't look upon that as some kind of failure. I've had people, when I've come up with ideas before, sometimes they might seem a little odd to somebody that's really more entrenched in that area because I might think broadly, a little outside what I know best. So there can be advantages to not being totally entrenched in an area already. You might think of something new that the people that are really working there might miss. But you could also come up with something you think is great and you're just not aware that there's some group someplace that did that. Just don't get discouraged or think you should have done more.

**Jeffrey Mikan:** From the innovator's point of view, go do the quick Google search on the idea and if it's in the first two pages you probably shouldn't bother submitting it. Unless you're adding a fourth leg to a chair. Unless there is a unique innovation there, don't go pursuing it. But if it doesn't pop up in the first two pages, throw it at the wall.

**Jeffrey Aaron:** You may also find an area that is just really crowded. We hear that a lot. You only have a finite amount of time, so try to prioritize. Pick some areas that you think you can make a difference in. You might decide to stay

away from an area just because you know there's tons of people working in that area.

**Sam Zellner:** The really interesting thing about innovation is when you look at the ideas, everybody goes 'it was obvious.' Great ideas come out and people go 'it was obvious.' So that should encourage people to think that if all these ideas you've seen are obvious, then clearly you can come up with some obvious ideas, too.

**Jeffrey Aaron:** A lot of times you'll hear 'well how is this different than that?' There are all of these jumping off points. Whatever exists, you could potentially build on. The end result is a new thing but the pieces of it are already existing.

**Art Brisebois:** One of the biggest challenges is people are used to doing things in order. ABCDEFG. Well what if you come up with D and there's no ABC. There's no EFG. You've just come up with D. It's hard finding people who think that way, out of order. But let's patent D and A, B and C will come along. That creates some opposition. They'll say, 'well, that's a nice idea but you can't do it because of X or Y or Z.' Somebody else is thinking of those three things and you may just not realize it.

**Dale Malik:** So this is a cultural thing. Anytime you do creative sessions you can't shoot the idea. If you bring the negativity in you kill it right away even before it gets off the ground. We run into this in sessions. I say 'well what if you don't have that as a problem, it doesn't exist? Stop telling me about the friction. It's gone. Now what can you do?' Remove the resistance points and you see what happens.

**Bob Koch:** I think if you have an atmosphere of trust where you feel willing and able to throw out ideas no matter how crazy they are, and then your colleagues are going to accept them and take you seriously and not just laugh you off... my guess is if you threw out an idea 10 years ago about cars driving around and picking people up and driving them where they wanted they would think you're crazy. What is Uber today? Having a work environment where you feel comfortable sharing ideas and not stifled and willing to be overly creative, however creative you think you've gotten take it one step further and there's where you get beyond the prior art likely and find novelty.

**Jeffrey Aaron:** And if there's not an immediate path to something don't necessarily throw the idea away or say it's not important or you're wasting your time or doing the wrong thing. Because that might be very important later.

**Carl Bedingfield:** I saw a picture yesterday of one of the worst inventions of 1995. It was declared one of the worst inventions of 1995. It was a selfie stick. It used an instamatic camera because that was available in 1995. Now all of a sudden it's brilliant.