

AUTUMN 2017

Sky high
MBA boosts
engineer's
career in space

Next for NASA
Lessons learned
on Earth are going
intergalactic

Digital days
Make the most of
devices in business
without powering
down relationships

Alums' companies plan for
an interstellar future

The final frontier

A night cityscape with a starry sky overlay. The sky is filled with numerous small, bright stars, creating a sense of vastness and infinity. The city below is illuminated with warm lights, and several buildings are visible, including a prominent one with a grid-like facade. The overall mood is serene and contemplative.

“To infinity and beyond.”
– *Buzz Lightyear*

Dear W. P. Carey family and friends,

Space and business school? Really? I bet you never would have guessed how much research and work relevant to space occurs outside the labs of rocket scientists. I'm extraordinarily proud of the efforts our faculty and alumni are doing in this area. It truly reflects our belief that ASU has no borders. While we are a state university within a state of the U.S., we operate in a global market for higher education, and space – to borrow a phrase – may be “the final frontier.”

ASU has a number of initiatives related to space. If you aren't getting the daily ASU Now email, I encourage you to check it out to learn about innovations happening around campus. ASU's NewSpace Initiative, for example, is particularly interesting because it's meant to bridge academia, government, the public, and commerce.

While it may seem far removed to some, technology advancements may soon make it possible to create business models for intergalactic commerce. We may have

opportunities for space tourism, or benefit from new mineral mining on asteroids such as with Psyche, a NASA mission in which ASU was awarded the lead role. Our first commanding mission, Lucy, is already sending technology built on campus into deep space.

This takes us to a host of questions. Who will determine property rights in space? How will resources be monetized, and what current business models will be disrupted by advances related to space? How can what we know about managing organizations, constructing supply chains, financing new startups, using big data, and marketing to consumers change if they are no longer contained by Earth's gravity?

When dealing with high-risk environments – space, war, cleanroom technology, etc. – we can apply a number of existing answers to help improve performance. You'll read about

the work on teams in space in this issue. What strikes me is that the space context provides even more significance to the application of what we research, teach, and learn in business schools.

ASU and the W. P. Carey School of Business is the place to explore these issues. ASU has been recognized as the

“Crazy” ideas are only crazy until they work.

No. 1 most innovative university the past two years by other university presidents, ahead of MIT and Stanford. That's a recognition I believe we truly deserve, but it also obligates us to start asking questions earlier than most. “Crazy” ideas are only crazy until they work. Then, they become innovative.

I hope this issue gives you some crazy ideas. Go turn them into innovations.

Amy Hillman

amy.hillman@asu.edu
@WPCdean



To the editor,

In the recent issue of *W. P. Carey* magazine (Volume 4, Issue 2, Spring 2017) on page 38 under the section, "In Memoriam," I noticed the passing of Dr. Philip Stiles. I have written, "In Memory of Dr. Philip Stiles." I would like to express my appreciation to the *W. P. Carey* magazine for keeping alumni informed of recent happenings at the W. P. Carey School of Business, as well as other critical events such as the passing of key faculty and other alumni at ASU.

In Memory of Dr. Philip Stiles

As we travel through life, some important individuals contribute to the shaping of our lives regarding character and professional development. One of these people that set me on my career path in international development work was Dr. Stiles. His impact took place when I was at Arizona State University from August 1972 to June 1974, pursuing my master's. Dr. Stiles was one of my professors whose courses and personal guidance prepared me for my first international assignment as a Peace Corps volunteer. Dr. Stiles was working with Peace Corps Iran and recruited my wife (Glenna) and me as volunteers. My wife served as a kindergarten teacher and I volunteered as an agricultural

Your two cents matters. And we love to get your questions. We're here and we're listening, so drop us a note anytime: editor.wpcmagazine@asu.edu

extension agent. During our training in Sahneh, Iran, Dr. Stiles paid us a visit. Before my departure, Dr. Stiles stated to me that now is the time to go to Iran because he felt there would be a time when Americans would not be able to travel there freely. This statement came true with the departure of the Shah Mohammad Reza Pahlavi as a result of the Iranian Revolution in 1979.

I gained the desire to go overseas and do development work as a result of the following two courses conducted by Dr. Stiles:

- Conference and Workshop: International Agriculture
- World Food Biodynamics

I owe great gratitude to Dr. Stiles as a mentor and hope that I can return equal mentorship to aspiring students interested in international development.

Steven P. Kovach, PhD
(MS Agriculture '74)

Overheard on social media

Chris Carlson (BS Business Administration '20)
As my freshman year of college comes to a close, I am so glad I made the choice to go to ASU. Even though not everything went as planned, it has been a fantastic year. I'm thankful for the warm weather and all of the great people I've met throughout this year. I'm still not over how I can bike to work every day and that I'm still constantly overdressing for the heat. I can't picture myself going to any other school, and that's a good thing because it means I made the right choice.

Megan Cozzalio (BS Business Law '17)
It still hasn't hit me that my four-year vacation is over. Thanks ASU for giving me everything I wanted in my college experience.

Samantha Mahon (BA Business Communications '16)
What a great time at the Arizona State University – W. P. Carey School of business career fair today! So proud of the school I come from and to represent

PepsiCo! Kudos to the amazing professors who bring business ideas and strategies to life in the classroom to shape these talented and motivated students!

Saagar Anand (MBA, MSBA '18)
This – full-time MBA program ranked 25th in the *U.S. News & World Report* 2017 ranking, moving up 10 spots – is the beginning of something big for @WPCareySchool, and we're only looking to go up north from here! #iamwpcarey #wpclove

Ann Urich (BS Computer Information Systems '83)
When I graduated from college, my family could not be there because my brother Vern was in a bad car accident. Since my family wasn't there to celebrate my day, I decided not to walk in the graduation ceremony. My mom still regrets it. I asked ASU if I could walk in the spring 2017 convocation, so my 83-year-old mother could see me graduate. They said, "Yes!" My mom was there with tears of joy. Vern was there taking pictures. My daughter was there to cheer me on – louder than anyone attending.

W. P. CAREY MAGAZINE
Volume 5, Issue 1, Autumn 2017

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W. P. Carey magazine is a publication of W. P. Carey School of Business at Arizona State University © 2017

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PHOTO BY RICH PILLING

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100,000+ W. P. Carey alumni worldwide

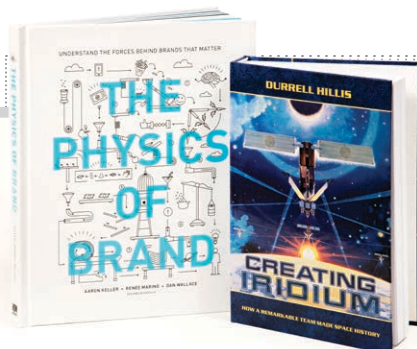
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Lessons learned on Earth are going intergalactic; service robots might positively influence customers' frontline experiences in the future; why user-generated online content is invaluable

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The secret gig startup that's backed by Richard Branson; alums serving in the Peace Corps

ON THE COVER: Missile launched into the morning sky. (Photo: shutterjack/Getty Images). *See page 12*

**BOOKSHELF**

Get educated on artificial intelligence.

See page 37

**W. P. CAREY BOOK CLUB**

Connect with alumni around the world and sharpen your business skills.

See inside back cover

Getting from here to there could get a lot quicker (and soon), thanks to the efforts of the students behind AZLoop, Arizona's SpaceX Hyperloop competition team.

Last year, SpaceX challenged college students to create transportation pods that could revolutionize terrestrial transportation. Resembling a plane without wings, the pods are meant to travel within a tube – the goal being to achieve near-vacuum pressure and eliminate atmospheric drag for max speed.

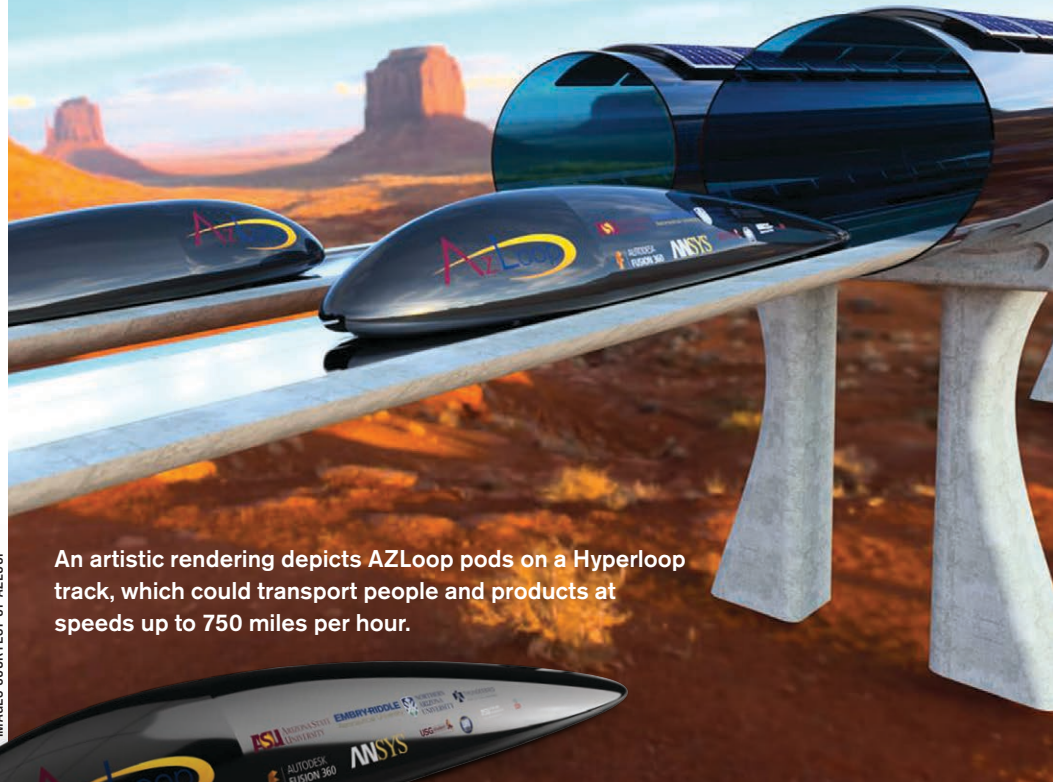
“When you talk about having the ability to send cargo from the shipping port in Long Beach, California, to Phoenix in 30 minutes, that has the potential to transform business models within the industry,” says **Lynne Nethken** (*BSE Robotics '16, MS Mechanical Engineering '18*), team captain and project lead of AZLoop. “Or consider the fact that people living in Phoenix can work in California, earning those wages while still making it back home in time for a dinner outing with family and friends.” Narrowed from the original field of 1,300 entries, AZLoop was one of 23 teams selected to advance in the competition as of April 2017. More than 100 students from Arizona State University, Embry-Riddle Aeronautical University, and Northern Arizona University are working on the project – which has far-reaching implications for businesses and people alike.

“Technology allows for individuals and companies to be more innovative than ever, leading to entrepreneurial and business opportunities that can revolutionize the economy,” Nethken says. “The Hyperloop is an excellent example of that.”

Working with an interdisciplinary team as large as AZLoop has been a rewarding experience for all involved. “Ideas thrive when not everyone thinks alike,” says **Hunter Middleton** (*BS Business Entrepreneurship '19*), a business entrepreneurship and sustainability student in the W. P. Carey School of Business. “I believe we all complement each other, and have learned a great deal about leveraging everyone’s strengths to achieve a common goal.”

Because this is the first full-scale Hyperloop, the students behind AZLoop are making their contribution to the future of transportation. “I think many people underestimate how soon transportation like the Hyperloop could be available for public use,” says W. P. Carey supply chain management and finance

The future of transportation



An artistic rendering depicts AZLoop pods on a Hyperloop track, which could transport people and products at speeds up to 750 miles per hour.

IMAGES COURTESY OF AZLOOP



student **Logan Becker** (*BS Supply Chain Management/ Finance '18*). “It has massive potential to become a faster, more sustainable way to transport people and goods.”

Nethken adds, “Introducing new technology such as this and others – and pursuing the business opportunities that stem from it – will continue to shape and define the future.”

October

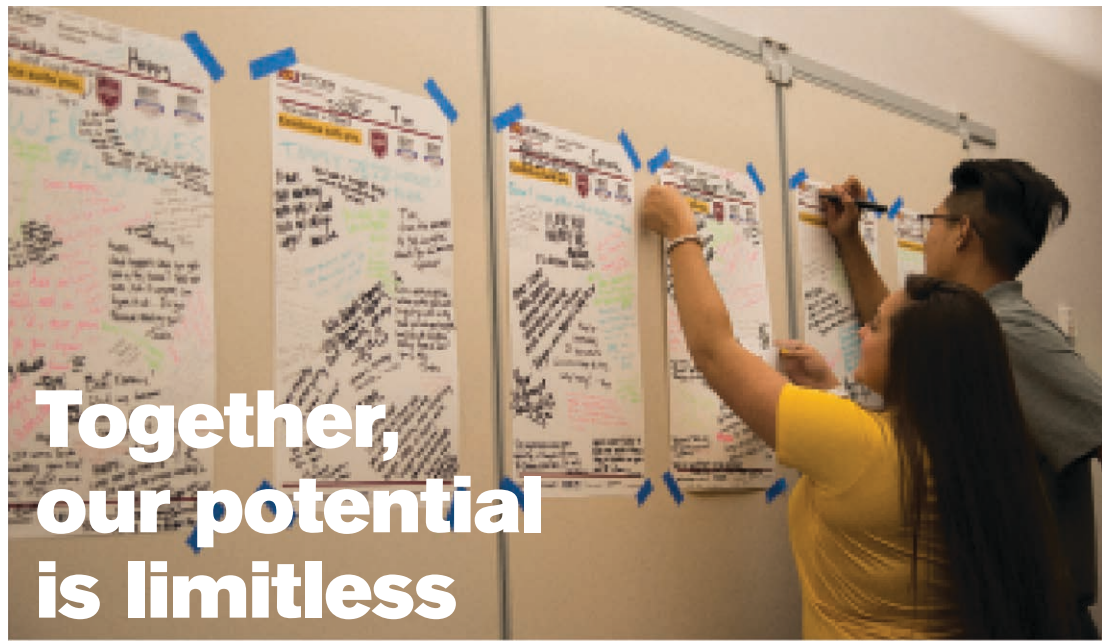
3 Economic Club of Phoenix Luncheon
Westin Kierland Resort & Spa
6902 E. Greenway Pkwy., Scottsdale, Ariz.
11 a.m. to 1:30 p.m.
Kicking off the season as keynote speaker will be **Ken Lamneck**, president and CEO of Insight Enterprises Inc.
wpcarey.asu.edu/economic-club

11 Lawrence R. Klein Award for Blue Chip Forecast Accuracy Reception & Program
University Club, One W. 54th St., New York.
6 to 8 p.m.
The Lawrence R. Klein Award is presented annually by the W. P. Carey School of Business in association with the nationally recognized Blue Chip Economic Indicators newsletter, honoring consistency and accuracy in economic forecasting. The Klein Award gives you an opportunity to connect with W. P. Carey School

alumni, faculty, staff, students, and economic leaders.
wpcarey.asu.edu/alumni/klein-award

26 2017 W. P. Carey Alumni Hall of Fame
McCord Hall Plaza,
450 E. Lemon St., Tempe, Ariz.
6 to 8 p.m.
The Hall of Fame recognizes alumni who have made significant contributions to their professions, the community, and the school of business.
wpcarey.asu.edu/alumni/hall-of-fame

28 ASU Homecoming Block Party and Football Game
Old Main Lawn, 400 E. Tyler Mall, Tempe, Ariz.
Time: 4 hours prior to kickoff
Join your fellow business school alumni and friends in the W. P. Carey tent at the ASU Homecoming Block Party. Join us before the ASU vs. USC game at our tailgate full of food and beverages, interactive entertainment, and Sun Devil Pride.



**Together,
our potential
is limitless**

Whether delivering products that people need to live or services that help them live better, business is fundamentally about solving problems. We recognize this at the W. P. Carey School of Business, and our goal is to address the problems on a global scale.

To further Arizona State University's mission and raise support for our educational priorities, ASU has embarked on a comprehensive, university-wide philanthropic effort: Campaign ASU 2020. Through Campaign ASU 2020, alumni and friends can propel programs that give students the skills, experience, and global perspective they need to attain their life goals.

Specifically, donors can choose to expand summer bridge programs, foster entrepreneurship through innovative programs, support rigorous experiential learning programs, broaden our commitment to experiential learning for all

business students, increase professional mentorship programs, and provide a competitive edge through additional funding to help advance faculty research.

"The Forward Focus Scholarship has allowed me to pursue my passions, without having the pressure to find a job just to repay student loans. Without it, I don't know that my dreams to help underprivileged populations would be possible," says **Rachel Curtis (MBA '18)**.

There has never been a greater opportunity for donors to make a difference. By supporting Campaign ASU 2020, alumni and friends can accelerate this momentum by investing in the students who will create the businesses of tomorrow, forward-thinking programs, and the faculty who drive innovation and discovery.

Learn more about Campaign ASU 2020 priorities: wpcarey.asu.edu/give

A more flexible part-time MBA

This fall, students are taking classes in a redesigned W. P. Carey MBA program. Already the highest-ranked part-time MBA in Arizona, the new Professional Flex MBA gives busy working professionals more options and more time to complete their degree. Balancing work and a personal life or family commitments, returning to school – even two nights a week – can be a daunting task. That's why the Professional Flex MBA offers classes in the evenings or online, and gives students from two to four years to complete their MBA while continuing to work. Now you can earn your degree on your schedule.

Another new feature of the Professional Flex MBA is classroom robots that can take your place should you need to miss class. You can participate virtually, interacting with classmates and your faculty, so you'll never fall behind.

Learn more about the Professional Flex MBA and find out if you qualify for a GMAT test waiver, exclusively for ASU alumni:

wpcarey.asu.edu/flex



November

1 Economic Club of Phoenix Luncheon

Camelback Golf Club,
Scottsdale, Ariz.

11:30 a.m. to 1:30 p.m.

*Ernie Garcia III,
co-founder and CEO
of Carvana*

[wpcarey.asu.edu/
economic-club](http://wpcarey.asu.edu/economic-club)

16 21st Annual Spirit of Enterprise Awards Luncheon

Westin Kierland Resort & Spa
6902 E. Greenway Pkwy, Scottsdale, Ariz.

11 a.m. to 1:30 p.m.

The Spirit of Enterprise Awards is Arizona's premier celebration of entrepreneurship. Each year, the W. P. Carey School of Business acknowledges companies that positively impact our economy while exhibiting ethics, energy, and excellence in entrepreneurship. We are thrilled to celebrate another class of incredible organizations, including our third Spirit Student Entrepreneur, honoring an ASU student running a business while attending school.

wpcarey.asu.edu/research/entrepreneurship/soe-event

29 54th Annual ASU/JPMorgan Chase Economic Forecast Luncheon

Phoenix Convention Center
South Ballroom, 111 S. 3rd St., Phoenix

11:15 a.m. to 1:15 p.m.

Featuring John Williams, president/CEO, Federal Reserve Bank of San Francisco; Anthony Chan, managing director/chief economist of Chase; and Lee McPheters, research professor of economics/director of the JPMorgan Chase Economic Outlook Center at ASU.

wpcarey.asu.edu/efl

Ports America hosts ASU SCMA mentors and UASGC program participants at the Port Newark Container Terminal in Newark, N.J.



The logistics of learning supply chain career skills

Tiffany Lam (*BS Supply Chain Management/Business Data Analytics '17*) chose to attend ASU because of the Fleisher Scholars program. “I saw firsthand the difference mentorship makes,” says the first-generation college graduate. “It isn’t just the program, but it was the ASU students who guided me through the college application process, my transition into the university, and stayed with me through figuring out internships and finding a full-time job.”

Lam paid it forward by designing a mentoring program for under-resourced high school students, and she was one of four supply chain management undergraduates who mentored 11th-grade students

from September 2016 through March 2017 in a pilot program through the ASU Supply Chain Management Association (SCMA). SCMA partnered with the Urban Assembly School of Global Commerce (UASGC) public school in Harlem, N.Y., to benefit both high school and supply chain management students interested in logistics careers.

So how do you make supply chain management appealing to teens, and develop the collegiate participants’ mentorship and professional skills for the workforce?

“We (mentors) worked to create a dynamic program with multiple components, including a case competition, a manufacturing simulation game, a site tour at Ports America, and constant mentorship,” explains Lam, who recommended the need for community service to the SCMA. “Everything was designed to both encourage the students to

dive deeper into supply chain and expose them to resources they might not otherwise have.”

The competition was sponsored by Ports America, which operates terminals in every major shipping port in the U.S., and included videos on professional and supply chain skills needed to solve the case, as well as a slideshow on presentation best practices. The mentors also took a three-day trip to New York, where they hosted workshops and a final judging event at UASGC. The winning team received a sponsorship to attend the Business Scholars Institute at ASU’s Tempe campus.

Since the successful pilot run, the community outreach program has become an annual project for ASU SCMA. Learn more: asuscma.org



Like a good neighbor

L launched through Changemaker Central, an ASU student hub focused on social change, the Woodside Community Action Grant is a seed-funding competition for students passionate about service.

“We all think of things we would like to do to improve our community but never seem to have the resources,” **Lindsay Dusard** (*BS Marketing/BA Public Service & Public Policy '17*) told ASU Now. A two-time grant winner and former student chair of the initiative, Dusard believes the program “gives students the opportunity to make that vision possible.”

Illuminating neighborhoods

Woodside funding supports development and implementation of service projects that improve the lives of others – making it possible for business technology student **Maria Fernanda Navarrete** (*BS Business Technology '19*) to bring sustainable light sources to nearby neighborhood streets.

“House of Refuge lacks a significant amount of light during

nighttime, and residents don’t feel safe going out at night,” Navarrete says. The local nonprofit offers supportive services and transitional housing programs to homeless families.

Navarrete brought the problem to fellow members of Global Resolve, a student-run organization focused on social entrepreneurship, in which she serves as vice president. “We decided to implement solar lamps in the community,” says Navarrete, “and use lights to create a safer, more welcoming environment.”

Making a difference, one project at a time

Our school’s namesake, Wm. Polk Carey, often stressed the importance of “doing good while doing well” – a legacy our students and alumni

continue to embrace and carry forward.

Recognizing our community’s contributions to the world is our greatest privilege. Thank you for ensuring the spirit of service lives on at ASU’s W. P. Carey School of Business and beyond.

Wm. Polk Carey often stressed the importance of “doing good while doing well.”

Dean's Council

Committed to community

Strengthening the business community's participation in the development of future business leaders remains vital. That's why the W. P. Carey School of Business maintains the tradition of cultivating industry partnerships through the Dean's Council. Members serve as a philanthropic advisory group for the dean and act as advocates for W. P. Carey in their communities, and within their respective organizations. Member donations of time, expertise, and financial support help progress our organizational vision.

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Digital days

Making the most of devices in business without powering down relationships

By Teresa Esquivel

If you're reading this on a smartphone or tablet, you're not alone. There are stats to back this up, of course. For example, geomarketing.com says close to 75 percent of U.S. adults will use a smartphone this year, and according to thinkwithgoogle.com, we spend an average of 75 minutes per day on tablets. But we don't always need numbers to prove we're in the digital age. All it takes is a casual look around to see people scanning their screens anywhere at almost any time. To find out how Sun Devils make the most of their screen time, we asked faculty, alums, and current students which devices they depend on to get through the day.

Moshe Cavalin (MBA '18)

"My future is very much in progress," says Cavalin. "Eventually, and I'm talking in the very far distant future, I'd like to start my own business. That's why I'm studying entrepreneurship. I don't have any ideas yet, but for the short term, I want to be more involved in product strategy and product management, which is why I'm studying marketing. Sticking with product marketing right out of the gate with the MBA is my plan, but that might change."

He has plenty of time to nail down a career. At 19, Cavalin is the youngest MBA candidate at the W. P. Carey School of Business. He's a high achiever who finished community college at age 11, enrolled at the University of California, Los Angeles at age 12, and began his first graduate degree – in cybersecurity – at 16. He's interned at NASA and Honeywell Aerospace, has a pilot's license, and is "big into martial arts and piano." He's also big into music.

"At work, at home, Spotify," Cavalin says. "I bought a premium membership around the time I was working for NASA. With it being on the Air Force base in the middle of the desert, the commute was an hour, maybe longer, so music was a big help in dealing with that, and I've enjoyed it ever since then. Pretty much I can't imagine my life without it."

His digital devices help keep the music coming, but they're also indispensable for all aspects of his life. For class, it's a laptop. For social media, he turns to his tablet, both to keep tabs on how companies are marketing themselves, but also to connect with classmates. Like every new MBA class, his has a Facebook group for sharing information about jobs, events, classes, and general communication. LinkedIn, he says, came in handy for looking for jobs, looking at companies, trying to network with recruiters, and networking with alumni.

"Outside of that, there's not a moment when I'm not checking email on my phone to see if classmates have replied to me," he says. "When I was frantic about looking for jobs, I was always on my phone checking for responses."

In his downtime, though, he says nothing from work crosses his mind. Instead, he relaxes by watching movies on his laptop or using his iPad to play games or read writing prompts submissions on Reddit. Or, he'll shut everything down and meet up with friends. "I enjoy spending time with my friends face to face, going places, watching movies, spending quality time with them just chilling and relaxing."



Moshe Cavalin
(MBA '18)

Reghenae Simmons (MBA/MSIM '18)

A self-described multi-tasker, Simmons is never far from a device or two. "They allow me to be more productive," she says. "I can be connected to real-time data while being part of a virtual meeting, and working on whatever project I'm working on. Also, through email or chat, I'm able to include others who might need the information. I know for some people, multi-tasking is considered a distraction, but it allows me to have a hectic day and get everything done. I'm able to focus on different things all at the same time."

Simmons has undergrad degrees in aeronautical and industrial engineering from Tennessee State University. She has internships with NASA and Tesla under her belt. An MBA with a concentration in supply chain management and a Master of Science in Information Management is in the works. For school, work, and play, she relies on a laptop and a smartphone.

"For personal use, for extracurricular activities that don't involve school, I use a Mac – that's my preference," she says. "But I have an HP for anything involving school because not everyone is Mac-supportive." She leans on software like Numbers, Google Docs, and Keynote for classwork. To scratch her itch for filmmaking, she turns to iMovie, and to feed her lust for new tech, Slickdeals leads her to the best bargains on the latest and greatest tech devices.

"I like to be at the forefront of technology at all times, so I like to upgrade my laptop every year," she says. Sometimes she sells the old devices, sometimes she gives them away to family members, and sometimes she keeps them. Her current tally is three laptops and three iPads, as well as several iPhones, including versions 1, 3, 4, 5, and 6.

"It's like an obsession or something," she says. "I have the 6s Plus, so I'm behind on the iPhone, but I'm anticipating the iPhone 8. I will cry when I get it. It will be tears of joy and sadness at the same time because I'll be spending \$1,000 for a phone, but once I have it in my hands, I'll be one of the most excited people in the world."

Even so, she says she'll put her phone away when spending time with friends. Unless that is, someone else pulls their phone out first. "That's my excuse," she says, laughing. "If they have their phone out, mine might as well be out, too."

Thomas Kull, research professor, supply chain management

Some faculty prefer a tech-free classroom. Kull isn't one of them. "In fact, in a few classes, I require technology while we're doing the instruction or having the experiential learning exercises," he says. "Students usually have a laptop or a tablet, but sometimes they use their smartphone because the simulation we use is designed to be able to operate with a mobile device, as well."

The simulation, or sim for short, Kull refers to is one he had a hand in developing. Called "Coffee Trade: A Contract Negotiation Game," it allows students to work in teams to manage two supply chains, and the teams compete to accumulate total profit, according to the sim's description.

"What's been neat about the simulation is that it is online, so it's accessible throughout the world," he says. "We run some online courses where maybe one-third of the class is military, and they're dispersed everywhere, so we'll have people interacting in Germany, in Japan, and in the U.S., all at the same time."

Aside from the sim, Kull leans on traditional tech in the classroom, such as digital projectors and blackboard technology, and he makes good use of his iPad, too. "I'm often using my tablet for the iNote technology," he says. "It's useful for taking notes during research meetings and for showing people concepts that are harder to explain than just show. And, there are PhD seminar-type classes that I teach where the tablet is useful for the students and me for reviewing articles. Instead of printing them out, we use the tablet and the Adobe tools for highlighting and writing notes and putting comments on the PDF itself."

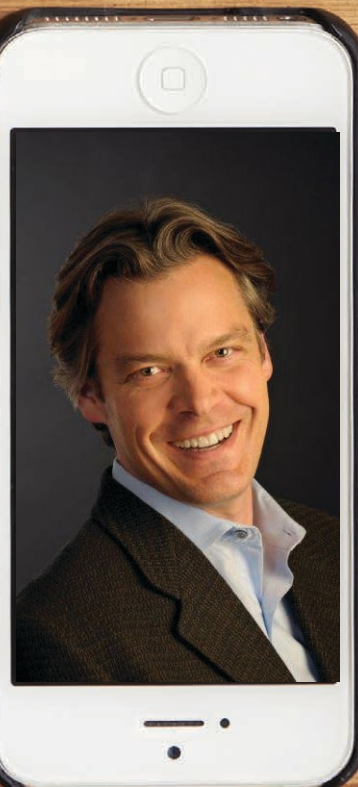
Amazon Cloud Drive enables Kull to prep for class or take notes away from school and access them in the classroom later. When he's not working, Kull is gradually amassing smart home devices. He currently has the Nest Learning Thermostat, the August Smart Lock, the SkyBell video doorbell, automated lighting for outside and, soon, the Amazon Echo.

"We've been talking a lot in the supply chain world about the Internet of Things and artificial intelligence, as well as machine-to-machine communication," Kull says. "My home is a testing ground, or playground, where I can learn how intuitive or unintuitive some of these systems are, how some talk to each other well, and others don't. I'm learning all the glitches. But I think my router is over-taxed. I look at it, and it's almost steaming because it's so hot with all the interconnectedness."

Reghenae Simmons
(MBA/MSIM '18)



Research Professor
of Supply Chain
Management
Thomas Kull



Kim Komando *(BS Computer Information Systems '85), talk radio host, "The Kim Komando Show"*

"I talk to people about living their best digital lifestyle," says Kim Komando. "I help people figure out what they need and how to get something done. How to use technology to help care for aging parents. What's happening with a husband or wife looking up old high school friends on Facebook. How you can see if your kids are texting and driving."

This ASU alum talks tech every week on "The Kim Komando Show" – which broadcasts on more than 450 stations – as well as in a weekly column for *USAToday.com*, on her website *komando.com*, on Fox News, and in a newsletter sent out to 40 million subscribers every month. Known as America's Digital Goddess®, her reach is broad, and her knowledge runs deep.

It's likely no surprise to hear, then, that Komando is "always connected" but likes to keep it simple.

"I just use my phone and my laptop," she says. "I've tried smart watches, but I don't want to be that connected. As a business owner, there is a time when I just need to stop. I think if I wore a watch, it would just be too much. And if I tracked my steps, I'd make sure to do 12,000 steps every day and not just 10,000, because that's my nature."

She also keeps the tech in check with a "no screen time during dinner time" rule at home, and by checking her phone just once or twice during the evening to make sure everything is "hunky-dory."

During meals out with friends and family, the rule stands, but there's a catch: "We put our phones face down next to our plates. Whoever turns theirs over first has to pay the bill," she says. But when it's not dinnertime, Komando is all about helping people make the most of the digital devices available to them.

"I love what I do; once people have the knowledge, they have power," she says. "I'm encouraged by not just the number of kids who can pick up an iPad and finagle it like an adult, but also folks who are over 70 learning to use devices and reconnecting with high school friends on Facebook and keeping in touch with what's going on with their family. Technology offers tremendous outlets for them to feel connected."

Even though she gets 50,000 calls into her show every week, and some 500 emails each day, some things still surprise her. One example is the increasing number of people who are interested in the "dark web," a place she refers to as the "bad part of the internet," and a place you don't need to go. She's also surprised – pleasantly – by the advance of technology that impacts our health. "Researchers have determined that if you're wearing an Apple Watch, it can detect if you have AFib (atrial fibrillation)," Komando says. "And most people are unaware until they have heart issues or heart failure. Those are the things I think, 'Wow, that's cool.'"

**Kim Komando**
(BS Computer Information Systems '85)



Martin Warioba (MBA/MSIM '07), co-founder and managing partner, WS Technology Consulting

Martin Warioba lives and works almost 10,000 miles away from Tempe, Ariz. "I have always been entrepreneurial and wanted to own my business for a long time," he says. "When I moved back to Tanzania, after working as a technology integration consultant at Deloitte in California, it was the right opportunity to set up my own business. Tanzania has been among the top-performing economies in Africa and, in the late 2000s, technology was starting to become a major factor in both government and private sectors."

Warioba co-founded WS Technology Consulting (wstechconsulting.com) in 2011 in Dar es Salaam, a city on the coast of the Indian Ocean, but envisions a time when the company will be recognized throughout Africa for its technology advisory, project management, software development, and IT security services.

The company depends on a range of devices and software to get business done, including an array of Windows-based and Mac laptops and PCs, as well as Android, iOS, and Windows phones and tablets for communications, work, and developing mobile apps. Their digital technicians' marketplace, Fundi247, connects consumers with professional technicians in various industries. The app, which is available through the Apple App Store and Google Play, will soon introduce mobile payments and other related financial services to the marketplace.

"We use the Microsoft Azure cloud services and Xamarin

platform to develop and deploy mobile apps quickly," Warioba says. "And for our conference calls, we switched from Skype to UberConference because it is easy to use and affordable. For content management, we use Dropbox to manage and share all content we develop in our company. We can view shared documents across multiple devices, and this has improved our productivity tremendously."

The company is sometimes at the mercy of spotty internet connections when working with clients in rural and semi-urban areas. The workaround is to develop apps that work in both offline and online mode.

When he's off the clock, Warioba is all about work-life balance. He spends time with his family, and makes time weekly to play basketball and golf. He also enjoys reading and traveling. "Sometimes it is not pretty, but life isn't easy when I'm away from my gadgets for too long," he says. With them, he can access his favorite apps, like Google Maps, Uber, and TripCase when traveling, and mobile money applications for a variety of needs.

"East Africa is famous for mobile payment applications, and Tanzania is its leading market for diversity," he explains. "Using my phone, I can buy airtime, send money to friends and family, or pay for my utilities whether I am in Tanzania or traveling abroad. I make sure my devices and apps bring productivity while maintaining a work-life balance, as they can quickly consume your life."

The business of space

Commercial players aim for the stars, ground themselves on Earth, and make big bet on small satellites

by Betsy Loeff

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ll you star-gazing souls who look skyward and mourn NASA's small 0.47 percent share of the federal budget, take heart: More than three-fourths of the global economic activity related to space – some \$323 billion in 2015 – came from commercial sectors.

Broadcasting, telecommunications, and Earth-observation spending made up the biggest piece of this moon pie: \$126 billion. But infrastructure was another big slice. Things like launch services, in-space platforms, ground equipment, and even insurance to cover it all totaled more than \$120 billion.

No, it's not your standard-issue, government-backed space race anymore.

Space is serious business and these days that business is booming.

To boldly fund what no one has funded before

"Access to space has historically been dominated by governments and a few select large contractors," says **Eric Matteson** (MBA '03), a space launch program manager for Orbital ATK's Launch Vehicles Division in Arizona. "Orbital ATK built the first purely commercial rocket, called Pegasus, and in recent times there have been more startups joining in with their own designs," he adds, pointing to firms like Elon Musk's SpaceX, which is now 15 years old, and the 11-year-old Rocket Lab as examples.

All of these companies are part of what's now called NewSpace, which Wikipedia defines as a "highly visible, globally emerging private spaceflight industry" that is characterized by "commercially minded aerospace companies and ventures working to independently develop faster, better, and cheaper access to space and spaceflight technologies."

What's more, investment in NewSpace is on the rise.

"One of the big differences from the past is now venture capital markets are willing to invest in space," says **Barry Matsumori** (BS Management '78), CEO of satellite company BridgeSat and former senior vice president of both Virgin Galactic and SpaceX. "They never did that before."

Venture capitalists traditionally view space business as too risky and slow to deliver a return on investment. However, according to a report produced by analysts at The Tauri Group, "more than 50 venture capital firms invested in space deals in 2015, the most in any year." The venture capitalists pumped some \$1.8 billion into commercial startups with space-related products and services, which was more than venture capitalists chipped in during the previous 15 years combined.

Venture capitalists are putting in big bucks, too. As a case in point, Rocket Lab, a privately owned startup that plans to offer small-satellite launch services, made news in March 2017 by closing a \$75 million financing round. The startup launched its experimental rocket for the first time in May 2017.

Along with venture capitalists, there's the billionaires club, a small number of headline-grabbing innovators who are financing space-related businesses. This club includes Amazon founder Jeff Bezos, who started Blue Origin to provide private access to space, and Tesla CEO Musk, whose SpaceX was launched in 2002 to offer space transport services, among other things. Virgin Galactic's founder, Richard Branson, aims to provide

suborbital spaceflight for tourists through SpaceShipTwo, as well as space transport services via LauncherOne.

Other billionaires involved in space include the co-founder of Microsoft, Paul Allen, who established Vulcan Aerospace, and Facebook's Mark Zuckerberg, who joined British physicist and mathematician Stephen Hawking and Russian millionaire, scientist, and philanthropist Yuri Milner in a \$100 million space exploration project called Breakthrough Starshot, which aims to reach the nearest star system.

For those who want to initiate a space-related startup but don't have billions to invest, the Founder Institute, a California-based business incubator, may be able to help. It has earmarked financial incentives and mentorship support from industry veterans to help space-related startups get off the ground.

"This is an international call for anyone working in space or passionate about space to launch a company," Adeo Ressi, co-founder and chief executive of the Founder Institute, told *Space News*. "Our goal, which admittedly might be a bit of a stretch goal, is to have 500 new space and space exploration companies launched by 2025."

Ressi's dream may not be entirely out of reach, although it may remind some of that old industry analyst joke: "The numbers are right. The years are wrong."

NewSpace Global, an analyst firm that covers the space industry, has gone from tracking 125 space companies six years ago to more than 1,000 today. Richard M. Rocket, NewSpace Global's CEO, told *SatelliteToday.com* that, "We will get to 10,000 businesses in the next 10 years. Every single company that's in the satellite and launch market – regardless of size, whether or not they are public or privately held, whether based in Seattle, Denver, or Nigeria, it doesn't make a difference – everything is going to flip upside down in the next 10 years."

Out-of-this-world ideas

There are many new ways to commercialize space technology, data, and access.

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"Now venture capital markets are willing to invest in space."

Barry Matsumori
(BS Management '78),
CEO of satellite company
BridgeSat and former
senior vice president
of both Virgin Galactic
and SpaceX.

(Continued from p. 13)

The NewSpace sector includes launch organizations, firms with moon-mining goals, businesses that plan to provide satellite maintenance services, orbital debris removal companies, and much, much more.

“Businesses are even looking at providing entertainment from space,” Matsumori notes. “One company in Japan plans to launch a nanosatellite into a very low orbit, and it will release, in a controlled fashion, pellets that will produce a light show. Different materials make up the pellets. As they enter the atmosphere, they oxidize, emitting light. Because the materials are different, each one oxidizes with a different color. Hence, you’ll have a pattern and colors.”

Another company, SpaceVR, plans to put virtual reality cameras on foot-long satellites to give the earthbound an astronaut’s view of the planet.

Launch, rinse, repeat – and 3D print

Along with new ideas for products and services, NewSpace entrepreneurs “have entered the space business with a different approach,” Matsumori says. Among the changes is a belief in reusability of rockets. “Early on, Elon Musk had the notion that throwing away a used rocket is kind of silly,” Matsumori continues. “If you flew a 747 from Arizona to New York and then threw the plane away, that’s not intelligent business. But, essentially, that’s what’s been done in the rocket and engine space business. Elon decided reusability is essential. Now SpaceX is not only recovering the first stage of a rocket; they’re using that first stage over again.”

Blue Origin has similar goals, and that company has already demonstrated that it can launch a rocket, disengage the crew capsule, and safely land the booster rocket in a vertical position by engaging its thrusters.

Besides recycling, NewSpace and established companies are joining the movement of additive manufacturing, or 3D printing, to help make commercial space endeavors low-cost and easier – from 3D printing rocket parts while on the ground to making astronauts’ tools in space with the first 3D printer on the



“We needed somebody to launch our satellites, and we could have gone with NASA, but we bet on SpaceX. The price was right, and we believe in what they’re doing.”

Victor Einfeldt
(MSIM '06), manager of network security and infrastructure for satellite communications provider Iridium

International Space Station. But there’s more than economics driving such rocket-related sustainability endeavors. There’s zeal.

“When I was at SpaceX, one of the things that I liked about being there was that if you ask anybody in the company, ‘Why does the company exist? Why are you here?’ the answer was simple: ‘We’re going to Mars.’ That’s what Elon wants. Everything that the company does is about supporting the mission to Mars,” recalls Matsumori.

He must have fit right in. Early in Matsumori’s career, he worked on space architecture as part of a NASA study. The researchers examined space vehicles, space stations, Mars habitats, and other details designed to answer the question, “How do we get to Mars and stay there?” says Matsumori, who shares his knowledge giving annual lectures to students of ASU’s School of Earth and Space Exploration.

Even if people don’t venture away from the planet, they could be customers for space travel, says Matteson. He thinks private space travel may be akin to where the airline industry was many years ago, where only the wealthy could afford to fly until economies of scale kicked in and prices came down. He sees “shades of the early airline industry in front of us now with space travel.”

Plus, he sees applications beyond shelling out big cash for a chance to experience weightlessness on a Virgin Galactic suborbital flight. “It still takes too long to get to Japan, for instance. If you could do that in a couple of hours versus 15 hours, that would be transformational to world travel,” he says.

What’s old is new again

Newcomers aren’t the only ones reusing space vehicles and innovating in the space business. Established giants are engaged in some recycling actions, too.

Matteson, for instance, has spent part of his Orbital ATK career repurposing used rocket motors. “It’s a swords-to-plowshares application,” he says. For years, the Minotaur program at Orbital ATK has been taking motors from old Minuteman and Peacekeeper

land-based, intercontinental ballistic missiles and turning them into low-cost rockets that can launch government satellites or payloads on suborbital trajectories.

“These decommissioned motors were sitting in silos waiting on alert for launch against a nuclear attack,” Matteson says. “They are inspected by the Air Force, and then we integrate modern avionics, structures, new upper stage propellant, and the payload for a complete launch vehicle solution.”

Along with recycling, upgrades are underway. For example, Iridium, a satellite communications provider, is in the process of replacing their old and distant assets. “We have 66 satellites up there now,” says **Victor Einfeldt** (*MSIM '06*), Iridium’s manager of network security and infrastructure. “Satellites are not designed to last more than 20 years,” he explains. “We have 75 satellites scheduled for launch, and six will be ground spares – a \$3 billion investment. Sixty-six are going to be in the mission orbit, or servicing customers. We’re going to have spares in space, as well, should something happen.”

To accomplish this upgrade, Iridium purchased eight rockets from another commercial player in the industry. “We needed somebody to launch our satellites, and we could have gone with NASA, but we bet on SpaceX. The price was right, and we believe in what they’re doing,” Einfeldt says.

Other businesses involved in upgrades to these “Iridium NEXT” satellites are broadband services provider ViaSat, which supplies key radio frequency hardware, and Orbital ATK, which Matteson says is “assembling, integrating, and testing those satellites.”

Why space business matters on planet Earth

While the business of space has all of us gazing toward the stars, it has broad benefits for those rooted to Earth.

“Space makes the whole world go around now,” says Matteson. “Whether it’s the debit card transactions that are time-stamped by GPS satellites or getting from point A to point B following Google Maps instead of old-school paper maps, space touches our lives every day in ways we probably don’t even realize. We take it for granted.”

Everywhere you look

Ask Matsumori why those of us on this wet,



PHOTOS COURTESY OF ORBITAL ATK AND IRIIDIUM

Top: A picture taken from a chase airplane shows Orbital ATK's Stargazer carrier aircraft releasing its commercial rocket, Pegasus®, which ignites, beginning its climb to orbit.
Bottom: Iridium NEXT satellite.

blue planet should care about the machinery we send into orbit, and he'll be hard pressed to give you just one answer. He'll try, though. He lumps several items under the header "critical applications."

Among the must-have capabilities from space that Matsumori pinpoints is Earth observation for things like weather forecasting. "The only way to get critical weather data is via satellite," he says. "You can't do it any other way."

Agriculture and forest management are other applications dependent on the broad view from beyond our planetary atmosphere. "Typically, the sensors on a satellite will look at a spectrum of images through different frequencies and be able to get information about what's going on," Matsumori says. Agribusinesses are using satellite imagery to estimate crop yields, evaluate crop health, guide decisions about fertilization and watering schedules, and help identify optimal crop types for different areas.

Matsumori also sees communication as a critical space-related application: "The only way to provide communication coverage for any place on Earth is by satellite," he says. Therein lies the primary mission of many a corporation.

Moving up in the world

One company leading the way is ViaSat, headquartered in Carlsbad, Calif., with a location in Tempe's ASU Research Park. When it queried British consumers late last year, 27 percent were worried that poor broadband would spoil their 2016 Christmas festivities. Among millennials, that number rose to 45 percent.

Lucky for all these internet addicts, companies like ViaSat dedicate themselves to bringing broadband to all, including those who have been cleared for takeoff and are now cruising at 35,000 feet. "What ViaSat has done is offer much more than broadband on a plane," says **Jason Guiles** (MBA '10), a program manager for this satellite-based internet service provider. "With the amount of bandwidth we have today, we can have hundreds of planes, at any given time, full of people streaming video from Netflix, Amazon Prime, YouTube, or Hulu" on personal electronic devices like iPads and smartphones. Remember, the aircraft is moving at hundreds of miles an hour.

Right now, ViaSat provides such service on more than 550 commercial planes, mostly traveling over land, but with the recent launch of ViaSat-2, the world's highest-capacity communications

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satellite, ViaSat will be the first internet service provider to provide high-speed, high-quality internet over water, including the Atlantic Ocean. Another 830 planes are in the queue for equipment install, as the company recently inked big deals with American Airlines in the U.S., El Al Israel Airlines, Finnair, Scandinavian Airlines System, and Icelandair throughout Europe. The company also provides its high-speed connectivity to U.S. government VIP and special mission aircraft.

On land, ViaSat brings internet to around 830,000 subscribers in North America and Europe. It is also one of the companies that helps people in remote areas get high-speed internet connectivity. It's not just for the well-heeled living in high-priced mountain communities or rural retreats. "Because we have so much capacity on our satellites, we're looking at new programs we call shared or village Wi-Fi," Guiles says. "We're working with towns in Mexico to deliver the internet to areas that have never had service before."

"We estimate that most of the globe – 80 percent – is not covered by any communication system," says Einfeldt at Iridium, a Motorola offshoot that also brings the internet to the farthest reaches of Earth. "There's no ground-based communications infrastructure for more than 80 percent of the planet since nobody is about to build cell towers in the middle of the ocean."

Although users can't stream their favorite YouTube channels on an airplane using the Iridium network, the system has vital importance to planes and other transportation vehicles worldwide. That's because it does cover the whole world, which enables Iridium to create subsidiaries like Aireon. Starting in 2018, Aireon will begin to track and monitor aircraft around the world in real time.

The technology monitors Automatic Dependent Surveillance-Broadcast (ADS-B) signals, which planes equipped with the proper devices send. "Right now, planes flying over the North Pole or an ocean often cannot be seen by any ground radar," Einfeldt explains. "With Aireon, we can get global flight tracking anywhere," he says, adding that this could end tragic accidents like the one that left all 239 people aboard Malaysia Airlines flight MH370 lost at sea.



"With the amount of bandwidth we have today, we can have hundreds of planes, at any given time, full of people streaming video from Netflix, Amazon Prime, YouTube, or Hulu."

Jason Guiles
(MBA '10), Program manager, ViaSat

The Aireon technology also will likely save airlines' and their passengers' money. "Because of the gap in radar coverage, flight controllers don't want planes flying anywhere near each other over an ocean," Einfeldt explains. "It also means planes have to follow a particular path so that they can get as much radar coverage as possible. This technology means we'll be able to track direct routes over the ocean." They also can fly closer together. Both changes allow for greater scheduling flexibility and fuel savings for airlines.

Playing it safe

Communication isn't the only place where space capability has become crucial. "The importance of space to national defense is paramount," says Orbital ATK's Matteson.

"I think evidence of this is shown by how the U.S. government is trying to establish a new military branch within the Air Force," he adds. He's speaking about the Space Corps, which was part of the National Defense Authorization Act (NDAA), a bill that lays out military spending for 2018.

Such legislation passes annually, but this year's NDAA called for the first new branch of the armed services since 1947, when the U.S. created the Air Force. As the legislation envisions it, the Space Corps would be a division within the Air Force just as the Marine Corps fits within the Navy. And, like the Marines, the Space Corps would provide "combat-ready forces," according to the bill, which has not yet passed.

"Unfortunately, we've become just like every other war-fighting country, very dependent on space," said Republican Congressman Mike Rogers of Alabama in a June 25, 2017, interview with National Public Radio. As a sponsor of the Space Corps, Rogers told NPR, "The Russians and Chinese have realized that if they can take our eyes and ears out, which is what our satellites are, they might be able to compete or have an advantage against us." He added: "It's natural that you're going to see war-fighting move up into that domain."

What kind of applications do those satellites deliver to military leaders? Naturally, there's communications and surveillance. "Satellites keep a watchful eye on the world," Matteson

notes. "They can provide early warning and detection of rocket launches from other countries as well as data and communication links for the military."

Launch vehicles – aka missiles – also are crucial to defense, and they're vitally important to testing those defenses. Among other things, the company Matteson works for – Orbital ATK – makes both target and interceptor missiles used to validate the United States' missile defense system. The interceptor chases down the target, Matteson explains. "It's like a bullet hitting a bullet."

Back on Earth, satellites help soldiers track munitions, says Iridium's Einfeldt. "You could, for example, turn landmines off and on if you planted them somewhere," he notes.

And, of course, there are specific communications technologies for military use. Guiles notes, "ViaSat's global network of satellites can give military players situational awareness for enhanced intelligence, surveillance, and reconnaissance missions," he says. To illustrate, he invites us to imagine troops from several military branches all operating in the same region. "If everyone is using the same satellite communications backbone, they'll be able to understand who is nearby, whether the other troops are allied forces, or whether there's an enemy in the area."

The small sat revolution

So how big are the satellites that relay our favorite TV shows, show us our way around a new town via GPS, and help farmers predict crop yields? Are they the size of a car? A suitcase? A toaster? The answer is "yes."

"To date, everybody's been focused on larger satellites that stay in space a longer period," says Matsumori, who is on the board of advisors for satellite propulsion company Accion Systems. "Now what is happening is that given new technologies and lower cost, people are starting to spend on small satellites that have roughly the same capabilities" as the traditional large satellites.

Matsumori explains that traditional satellites can weigh 11,000 pounds, while many being launched today are a few thousand pounds or even lighter. Some are no bigger than a loaf of bread.

The larger, traditional satellites are placed into geostationary orbit, which means they fly some 22,000 miles or more above Earth, staying over the same part of Earth and following its

(Continued on p. 18)



ViaSat-2, the world's highest-capacity communications satellite from broadband services company ViaSat, before it successfully launched into space on June 1, 2017. The satellite will offer high-speed internet service to millions of people on the ground, in the air, and at sea.



Mason Takidin
(MS-BA '16)

Breathe from your core

Yoga, singing, meditation: There are plenty of activities during which you might be instructed to breathe from your core. As it turns out, we all do.

"The electromagnetic field around earth is derived from the moving of molten iron in the core, deep below the planet's surface," explains **Mason Takidin (MS-BA '16)**, project resource analyst at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, California. That electromagnetic field protects the planet from solar winds, which speed through space at several hundred miles per second and can strip a planet of its breathable gases.

JPL is preparing for NASA's Interior Exploration using Seismic Investigations, Geodesy, and Heat Transport (InSight) mission. NASA will land a robotic terrestrial explorer on Mars equipped with geophysical instruments that will probe beneath the planet's surface. "It's very important to study the depths of a planet beneath its crust," Takidin says.

The birth of rocky planets

"InSight will help to build the foundation for future science missions on Mars," says Bruce Banerdt, the principal investigator for the InSight mission. "The interior of a planet retains the fingerprints of the origins of a planet and can help explain how it was formed." The InSight mission hopes to uncover the mysteries of Mars and answer why a planet like Earth has become drastically different.

InSight was originally slated to launch in 2016, but the trip was knocked off schedule by leaky equipment. "With Mars missions, you have to wait two years to relaunch because of the way the orbit works," says Takidin. The relative positions of Mars and Earth are only favorable for launching missions for a few weeks every 26 months.

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rotation. This orbit means we can track geostationary satellites without redirecting the antennas that communicate with them from Earth. Geostationary satellites' distant orbit is associated with latency; however, they have significantly more capacity than low-earth orbit (LEO) satellites that fly only about 1,000 miles above Earth.

In ViaSat's case: Its technology is orders of magnitude better than any other satellite – geostationary or LEO – in terms of capacity, performance, and the ability to enable broadband services at scale. While more capacity will not lower latency, it offsets the problem by enabling varying streaming media, data, and voice over internet protocol (VoIP) services.

“At low-earth orbit, the LEO satellites are moving around Earth faster than Earth itself,” Matsumori explains. “One satellite doesn't cover one place on Earth. Multiple satellites zoom by, and you have to have coverage change between the satellites as they move over different parts of Earth. It's a complication in architecture design.”

To overcome this design challenge, ViaSat is bringing to market an even more powerful geostationary spacecraft known as ViaSat-3. Just one ViaSat-3 class satellite will have 1,000 gigabits per second, or 1 terabit per second, of total network capacity, which is more capacity than all 400 communications satellites have in space today. ViaSat-3 will offer added flexibility to adjust its coverage area based on shifting user demand. The goal is to efficiently beam service to markets in need instead of spreading coverage “like peanut butter” equally across Earth with LEO satellites.

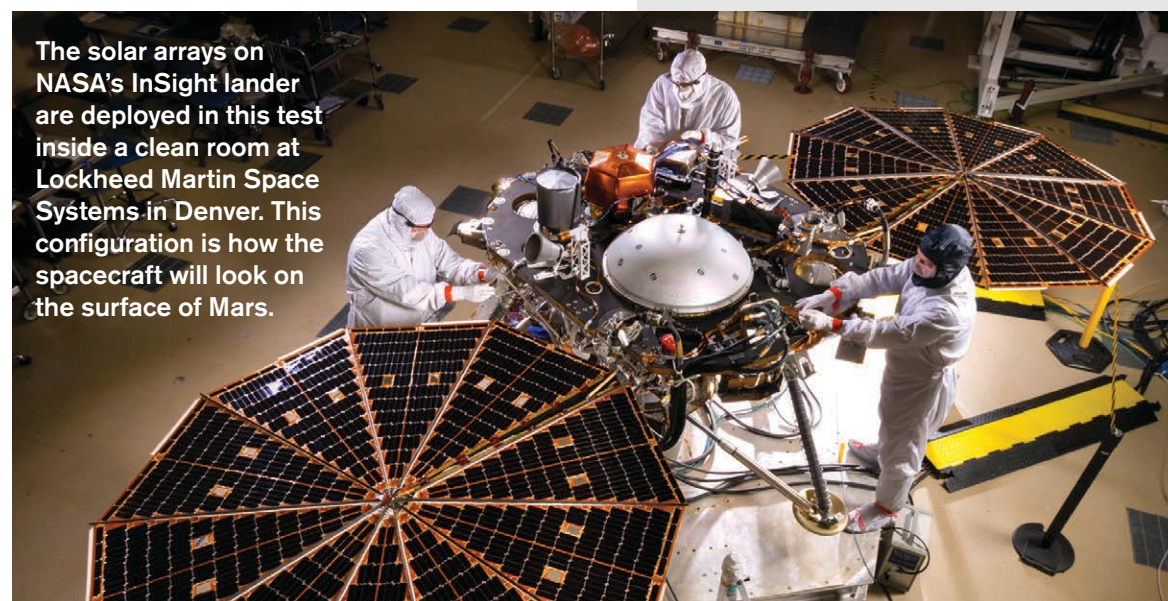
Here's another concern: Very small satellites, called nano or CubeSats, historically have had to “hitch a ride” into space with a larger payload, says Matteson. “Typically, they've been held hostage to the primary payload's schedule and orbit parameters.” NASA, for instance, has a CubeSat launch initiative that puts small satellites built by schools and non-profits on its launches, but often these researchers must compete for that precious ride. “In this always-connected era, operational responsiveness is critical to both business and the government. When required, they must be able to get their small satellites into orbit on relatively short timelines,” he continues.

New businesses and new offerings from established firms are coming online to address

this need and help small satellites get off the planet. Orbital ATK is working on new designs and updates to its small space launch capabilities in order to meet the projected needs of those customers. So are other startups in the industry.

Many giant leaps for mankind

As we continue to explore outer space, our creativity brings the technology used for space business down to Earth. Whether warning us about imminent weather and missile launches or sharing a view of Earth from space and a light show like no other, space products and services make life easier, help us endure unstable times, and open our ideas of what we think is possible.



The solar arrays on NASA's InSight lander are deployed in this test inside a clean room at Lockheed Martin Space Systems in Denver. This configuration is how the spacecraft will look on the surface of Mars.

PHOTO COURTESY OF NASA/JPL-CALTECH/LOCKHEED MARTIN

The space industry is in a new period of rapid expansion in both capabilities and customers, even after many years of slow, steady progress. Startups are trying fresh approaches to bring us closer to space. Established space operators are renovating products and reutilizing the old. The universal reach of small satellites is attracting interest and investment from other industries and connecting the billions of people around the globe who don't have access to modern communications.

The way we live is going to keep evolving thanks to space business. The skilled professionals who comprise the space industry – some of whom are our alums – are prepared to take a leading role in making those changes a reality. ■

(Continued from p. 17)

Once landed, InSight's vehicle will move the main two instruments (the seismometer and a heat flow probe) from the lander deck to the Mars surface. This will be the first mission to robotically deploy instruments on another planet. The spacecraft will then measure ground movement using the seismometer, and will command the heat-flow probe to hammer up to 15 feet into the Mars ground to study the planet's interior heat flow.

It takes a village to raise a lander

“InSight is a very important project in a business sense because it shows JPL's collaboration strengths,” says Takidin. “This is a mission with many foreign partners.”

The lander will carry a seismometer from France, a heat probe from Germany, plenty of hardware from a host of private companies, as well as numerous colleges and universities will lend their expertise. It is Takidin's job to coordinate such players.

Working with InSight Project Manager Tom Hoffman, Takidin used analytical skills from his MS-BA program to effectively coordinate project control processes. The Jet Propulsion Lab does so much of this detailed coordination, it's considered a NASA leader. “We're sharing our experience with other NASA centers on how to monitor their projects and do project control when working with foreign partners,” Takidin notes.

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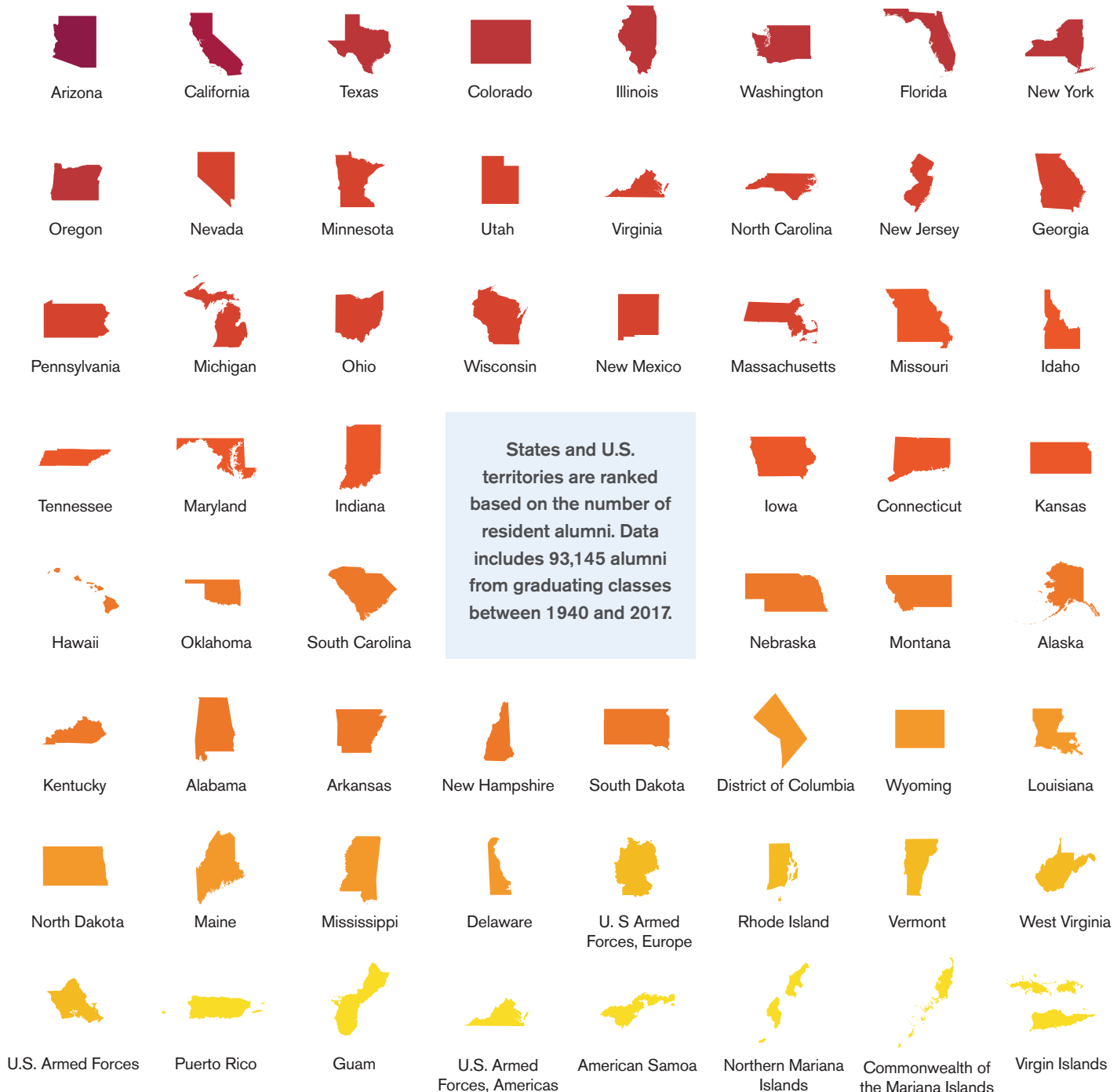
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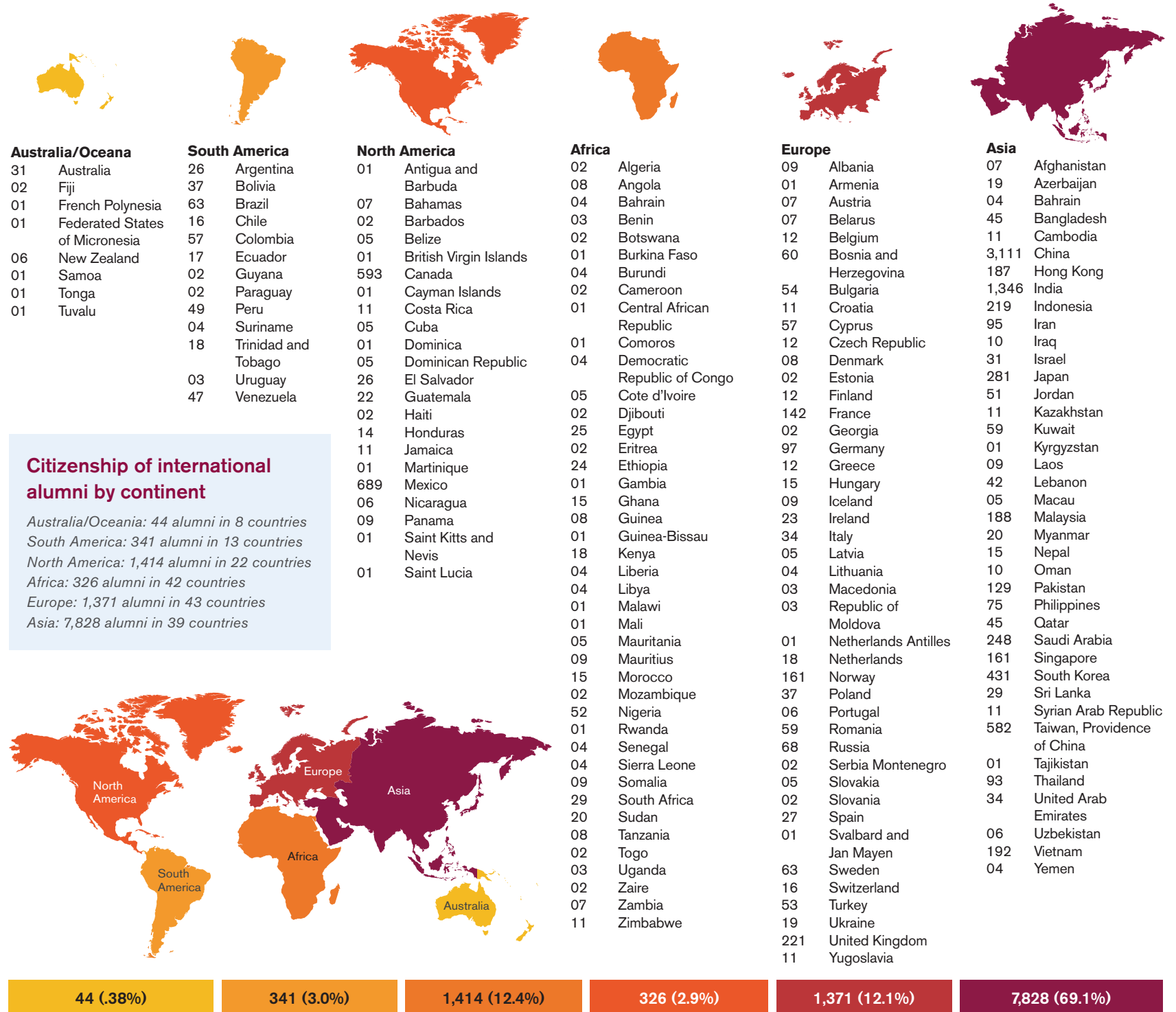
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**Repairing something
improperly or
miscommunicating
with a teammate
might be manageable
on Earth, but fatal
in space.**

Research by
Jeff LePine
Professor of
Management and
PetSmart Chair
in Leadership

Lessons learned on Earth may soon go deep into space

Professor of Management and PetSmart Chair in Leadership Jeff LePine is halfway through a multiyear grant from NASA to study how astronauts – and the rest of us – can more easily and efficiently make transitions between daily tasks. Switching from individual work to team work can be tough, as can switching from a complex project to a mundane task. In both cases, how well or how poorly astronauts and earthlings make those switches affects our productivity.

The NASA research ties in with other work LePine has done on how to form teams, what it takes to make them useful, and how they adapt when something unforeseen happens. “The focus of this research is on understanding the nature of transition periods, how different features of the tasks and those involved influence what’s going on during the transition, and how that change influences effectiveness on the subsequent tasks,” LePine explains.

The proposal by LePine’s team – including Assistant Professor of Management Ned Wellman and graduate student Daniel Newton – on the topic of team task switching was one of 16 projects NASA selected in early 2015 for its human research and space biology programs. NASA said it wants the research so it can develop resources and measures that will ensure astronauts remain healthy and maintain performance standards during their missions. After all, repairing something improperly or miscommunicating with a teammate might be manageable on Earth, but fatal in space.

From previous research, LePine already knew that teams and individuals have routines that make it hard to switch gears from one task to another. Now he needed to find out what variables cause those difficulties and what we can do to counteract them.

Simulation supports research mission
The NASA study started with LePine’s team

developing a firefighting simulation and enlisting W. P. Carey management students in the experiments. Participants trained in different roles and teamed up to fight a virtual fire. After 20 minutes, the researchers told them their fire truck had broken and needed to be repaired, and gave each a set of Legos. After the trucks had been re-assembled, participants re-joined their team and continued fighting the fire.

The firefighting part of the experiment required participants to work as a team on a task involving decision-making, while the truck-repair part required participants to work individually on a simple assembly task. The researchers measured how effectively each person assembled their truck and surveyed participants about their transitions.

Some people struggled to transition. Those who were thinking more about fighting the fire were slower and less productive in fixing the truck than those who became focused on the second task. Such “residual engagement,” LePine says, can influence how quickly we transition to our next task, and how much we are distracted and unable to engage in it fully.

One factor is whether participants sense the previous task is complete. Participants who were told they were done firefighting performed better at truck repairs than participants who were told they would have to return to firefighting. When a previous task is still hanging over your head, the research says, you have a harder time transitioning to a new task.

Another factor affecting transitions is the feedback we get on our performance. Participants who were told they had done well at firefighting did better at truck repairs than participants who were told they’d done poorly in firefighting. Participants in the latter group dwelled on that bad news, hurting their performance on the second task.

The third significant factor was participants’ cognitive ability or brain power. Smarter people were better able to recognize and accept their feelings of residual engagement, Newton says, and better able to figure out ways to overcome those feelings.

LePine says he was surprised by how well the concept of residual engagement worked in practice. The experiments consistently showed that residual engagement, or the lack of it, affected how people performed when switching tasks. Also surprising was how positive emotions from the first task spilled over and boosted participants’ performance on the second task.

That “buzz,” however, can be a double-edged sword. “When individuals are performing one task, and they are highly engaged, the positive emotions linger and can have a positive effect on the subsequent task,” LePine says. “But at the same time, if you’re more engaged with the thing you’re doing, it makes it harder to disengage from it mentally, and this negatively affects performance on the other task.”

NASA hopes the research comes up with countermeasures or protocols that can mitigate adverse effects and make transitions easier and more productive. Lessons learned so far can be applied on Earth, too, LePine says. For example:

- Managers could recognize the implications of transitions and schedule tasks accordingly. They might hold regular meetings in the morning, then give employees time to transition to – and complete – more complex or individual tasks.
- Teams could take the time to verbally go through an assignment’s goals before jumping into the work. In switching to different tasks, they could take the time to debrief each other and acknowledge that they are done with the task. Talking before or after a job can serve as a mental demarcation line, which makes transitions easier and more productive.
- Individuals could learn how to compartmentalize tasks. Don’t ruminate about the previous task. Instead, tell yourself that you need to disengage from that one and focus energy on what you need to accomplish next. ▣

– Jane Larson

A robot designed with more humanlike features and mannerisms – and therefore perceived to be more like a person – would be viewed as having more warmth and competence.

Research by
Amy Ostrom
*Department of
Marketing Chair and
PetSmart Chair in
Service Leadership*



Domo arigato, Mr. Roboto

When Styx's "Mr. Roboto" debuted in the early '80s, the song hinted at a future filled with humanoid robotics.

Fast forward three decades and the tune rings prophetic. At the Henn-na Hotel in Japan, robots operate the check-in desk without human assistance. At the Los Angeles Residence Inn, a robot bellhop named Wally delivers bottled water, towels, and other amenities to guests' doors. Robot airport check-in assistants weigh luggage and carry it for travelers. Health care facilities use robots to assist with the transfer of patients from their beds. Even some Lowe's Home Improvement stores feature the LoweBot, which helps consumers locate products while also managing shelf inventory for the retail giant.

With technology's increasing role in daily lives, W. P. Carey Department of Marketing Chair and PetSmart Chair in Service Leadership Amy Ostrom wanted to understand how service robots might positively influence customers' frontline experiences in the future.

"These technologies are coming – or in some cases already are here," says Ostrom. *Business Insider* states that the global market for robots functioning in consumer and office applications is estimated to grow exponentially to \$1.5 billion in American dollars by 2019. "It, therefore, continues to be important for companies to think about what robotics mean to the customer," Ostrom says.

In a conceptual paper published in the *Journal of Service Research*, Ostrom and co-authors Jenny van Doorn, Martin Mende, Stephanie Noble, John Hulland, Dhruv Grewal, and J. Andrew Petersen analyzed existing research about technologies that employ social robotics and other interactive interfaces. The team was interested in understanding service outcomes – satisfaction, loyalty, repatronage, engagement, well-being – when customers

perceive robots as having a high automated social presence, i.e. when they appear more social and human in nature.

Designing the humanoid robot

Applying social cognition and psychological ownership theories, the researchers predict that robots with perceived warmth and competence, as well as perceived manipulability, attractiveness, and receptiveness, will positively drive service outcomes. A robot designed with more humanlike features and mannerisms – and therefore perceived to be more like a person – would be viewed as having more warmth and competence.

The most efficient humanoid robots also would likely offer some degree of customization, allowing the customer to feel a sense of control. Consider a robot in the home, programmable for specific tasks in specific rooms, or a personal butler robot at a hotel that could speak in different voices, selectable by the user.

Another key to positive service outcomes is attractiveness – in the form of an aesthetically and socially appealing robot, or one with novel and creative features. And, finally, for customers to be receptive to humanoid robots, the technology must be glitch-free, responsive, and helpful.

Taking human nature into account

As companies contemplate using humanoid robots in their frontline service models, they must consider basic tenets of consumer behavior. Take, for instance, a person's relational orientation.

In communal relationships, customers expect service providers to be kind and responsive but not primarily profit-motivated (health care services). A robot's warmth, then, would be necessary for those with mutual mindsets. Conversely, exchange relationships imply a quid pro quo in which consumers expect to promptly repay for received benefits (banks). Robotic competence would be vital

for those with exchange mindsets.

"Customers have tendencies toward one or the other mindset when they approach service relationships," says Ostrom, "a critical distinction when considering how a robot will interact socially."

Humans also have a tendency to personify objects. Research suggests that anthropomorphized products elicit greater and more positive emotional response in consumers. The more consumers anthropomorphize robots, the warmer and more competent those humanlike robots will be perceived – leading to further positive service outcomes.

A final consideration: Individuals differ in their technological readiness. Some are far more willing to embrace, adopt, and use new technologies than others.

So what is a company to do when consumers vary so widely in their orientations, habits, and receptiveness? "Our study highlights questions companies should think about," says Ostrom. "We hope that our propositions will be a catalyst for interdisciplinary collaboration among service science, engineering, computer science, and businesses experimenting with service robots."

A robotics-filled future

Ostrom believes that today's daily technological interactions are paving the way for greater acceptance of humanoid robots. "Many already have this entity they're talking to every day in their house – Alexa or Cortana or Siri – and asking questions. It is woven into their daily experience already. Taking it from there to a mobile robot you're talking to – the leap doesn't seem so far."

So, while we don't need to say *domo arigato* (thank you in Japanese), Mr. Roboto – because he or she is, after all, a robot who needs no thanks, we may feel compelled to do so, especially if the robot is social and human enough with which to connect. ■

– Melissa Crytzer Fry

**Companies
can shape their
strategy to
encourage users
to contribute
content and get
better results.**

Research by **Yili (Kevin)
Hong**, Assistant Professor
of Information Systems,
and **Bin Gu**, Professor of
Information Systems

The power of positive feedback

Are you looking for suggestions for a new restaurant to try this weekend? Could you use a reputable caterer to host a surprise birthday party? Or maybe you just want ideas for a recipe to spice up tonight's dinner.

First stop: The internet. It's the quickest go-to that puts recommendations and ideas on virtually any topic imaginable at your fingertips in just seconds.

Whether it comes in the form of product reviews, gardening tips, or shared recipes, content provided by other users online is invaluable. It's also useful to businesses that rely on it to help increase traffic to their websites and in turn, increase brand identity and advertising revenue.

For example, every month, 135 million people visit Yelp for recommendations and reviews on everything from auto mechanics to hair stylists and cruise lines. Founded in 2004, Yelp has generated more than 95 million reviews, all contributed by the public, for free. Websites like Yelp depend on user-generated content for their success, and the more familiar they become, the more their profit margins grow.

"Numerous surveys show that buyers go to online reviews for information about a product before they make a purchase," says Assistant Professor of Information Systems Yili (Kevin) Hong. "They are impacting the consumers and having an effect on businesses."

For many, contributing ideas and opinions online is as routine as searching for it, but it's a slippery slope: It's not always easy for businesses to persuade visitors to contribute. "User-generated content is essential in today's world," says Professor of Information Systems Bin Gu. "But the fundamental question is, how can we motivate people to share more content?"

That is the key issue that inspired Gu, Hong, and six co-authors to research different methods of addressing this

challenge. Two studies and their findings are outlined in the paper, "Effectiveness of Performance Feedback in Stimulating User-Generated Content."

The research examines the role feedback plays as an intervention in encouraging contributors to share more, and what type of feedback is most useful in generating maximum results.

Measuring performance by 'likes'

In one of their studies, the researchers used a mobile recipe app in which users upload photos and recipes of food they prepare and then receive "likes" and comments.

Weekly push notifications told users how many people benefited from their contributions, where they ranked among contributors, and how many other users they beat in numbers of "likes."

"We look at the social value orientation, how people generate contributions," Gu says. "Some people contribute purely because of their reputation. Some people are concerned about their welfare, while others are concerned about their health and the well-being of others." And some like to come out on top.

Men were most responsive to the competitive message, providing more content after learning how many other users they've outperformed in numbers of "likes."

Women, on the other hand, were more motivated by altruism, offering more contributions after receiving messages that tell them how many people they helped with the content they shared.

Feedback motivates high achievers

According to their research, past performance does, in fact, influence future results. Individuals who received higher numbers of "likes" tended to contribute more content when they received the push notifications, while those who received fewer "likes" retreated.

"It's similar to a high-performing middle

school student," Hong says. "If teachers say the student is doing well, they'll work harder." Likewise, if a student is not doing well and a teacher points that out, they get discouraged.

"The research shows that we should give high-performing users the notifications, but not the low-performing users," Hong explains. "If they are not performing well, the platform should not send a push because it will discourage them."

In the second experiment on crowdsourcing internet marketplace Amazon Mechanical Turk, the researchers paid workers to provide advice that could be used to help new employees perform effectively and efficiently. The findings were "notably consistent" with those of the first study.

How it all adds up

While user-generated content isn't necessarily a direct link to profitability, it ultimately does impact a company's bottom line because more content attracts more users and prospective buyers to the website.

Hong, Gu, and their colleagues identified the types of messages that encourage men and women to contribute more content and learned how feedback stimulates content among high- and low-performing users.

Armed with insights like this, "companies can shape their strategy to encourage users to contribute content and get better results," Hong says. "User engagement is all they need to achieve, and they want to capitalize on it."

Most importantly, Gu explains, the results show the vast potential of how powerful, meaningful feedback can inspire a person's contributions to society.

"We should not just think about recipes," Gu says. "This knowledge has a lot of value to individuals and society. It can motivate people to donate more blood, for example. There's tremendous social value." ■

– Claire Curry

Formative years inspire rewarding careers

Solid foundation:

Alum's path to successful career began with lessons at ASU

Elizabeth Crain was 10 years into her investment banking career when she found herself at a crossroads: Leave a struggling private equity fund for another position in banking or pursue something entirely different? In the end, she followed her instincts to leverage her experience in banking and moved to the management and operational side of the business.

Crain (*BS Economics '87*) is now happily marking 30 years in the industry as a co-founder and chief operating officer of Moelis & Co., a global independent investment bank. She oversees the firm's global strategy, infrastructure, and business management. Established with a handful of employees, today the company boasts almost 650 employees and 17 offices worldwide with revenues of more than \$600 million last year. The firm, which went public in 2014, has advised clients on nearly \$2 trillion in transactions.

What's equally notable, Crain says, is the fact that Moelis continues to work with clients from its very early days.

"What drew me to this part of the business, as opposed to asset management or sales and trading, was the ability to work with companies advising them on strategic alternatives in a relationship-based business, not a transactional or trading business," she says. "That didn't appeal to me. It was this corporate work, where I could be part of helping a company execute on their vision and strategy by providing advice or access to capital."

Family and university life intertwined

Relationship building has been the foundation for Crain's entire career. And that began at ASU.

Growing up a half-mile from ASU's Tempe campus, university life and family life were often intertwined, one in the same for Crain. There were weekend football games, Fiesta Bowl traditions, and a family of alumni.

"Arizona State has been a part of my life for as long as I can remember," she says.

When Crain stepped onto campus as a freshman economics major in the 1980s, she started down a path that ultimately would help shape her long and fruitful career. One of her most vital experiences came through the Department of Economics, where the faculty created a personalized academic environment that fostered relationships and a small college feel.

"It helped set me on my way," Crain says.

Taking the right pitchfork in the road

An offer to join Merrill Lynch as a young analyst opened the doors to a career that has taken Crain through the investment banking and private equity industries as a banker, principal, and operations specialist. Along the way, she has twice been honored by *American Banker* magazine as one of the "25 Most Powerful Women in Finance." She also has chosen to serve as a board member for organizations focused on arts and education and sits on the Dean's Council of the W. P. Carey School of Business.

Thinking back over her career, Crain recalls a major turning point in 2001, when she met Ken Moelis at UBS Investment Bank. She turned down



Elizabeth Crain,
(BS Economics '87)
Co-Founder and Chief Operating
Officer, Moelis & Co.

his initial job offer to join in a banking position and countered with one of her own – a position in the day-to-day management of the business. Six years later, rising to the ranks of a managing director in the firm's office of the CEO and president, Crain and a handful of partners left to join Moelis in launching Moelis & Co.

"We were looking at the investment banking industry and the scale of the major firms and felt that the art of investment banking and advising clients was being lost on those big platforms," she explains. "We felt that the industry was no longer that trusted advisor to a CEO."

At the time, there were fewer independent firms in the market, and the group of founders jumped at the opportunity to fill a void. The Moelis team quickly prioritized the long-term success of its clients over short-term results, and the outcome has been a Wall Street success story.

Still enjoying many 'firsts' in finance

Since founding the firm in 2007, the market has changed as global independent investment banks continue to gain market share. Crain doesn't see that trend reversing. What hasn't changed is her firm's mission to bring experience, creativity, a nimble approach, and balanced advice to clients.



Chris Long,
(MBA '01) Vice President
of National Security
Systems, Orbital ATK

in medicine. Then a chance encounter sealed Long's future.

In 1982, the Space Shuttle Columbia was diverted from its planned landing in rain-soaked California and instead prepared to land at the U.S. Army's White Sands Missile Range in New Mexico.

Long's family lived in New Mexico, and after the shuttle had touched down, his father wrangled a spot to get a closer look at Columbia. The unexpected landing captured the nation's attention – and Long's imagination.

"It was fascinating. It solidified the direction I wanted to go toward," Long says.

Boldly going where few dare

For more than two decades, Long (MBA '01) has been living out his dream as an engineer and executive

working in the space industry. He has spent much of his career with Orbital ATK, a global leader in aerospace and defense technologies, and its heritage companies. He is currently Orbital ATK's vice president of national security systems, overseeing a business area that designs, builds, and operates satellites for the U.S. Department of Defense and the intelligence community.

Long is also a partner in Arizona-based Aletheia Enterprise Design Group. The company, which employs 75 people in Arizona and New Mexico, has a broad range of design and development business interests.

At Orbital ATK, Long's work is classified, the satellite systems are complex, and the team is often up against a new challenge to solve or a threat to unravel – a combination that might prove too daunting for some but keeps Long engaged in the field.

"Working in space is a hard and unforgiving environment with little room for mistakes," he says. "The way we build, test, and fly space missions is different than the development of ground or airborne systems. For many new engineers, the challenge is the timeline that it takes to see a program from start to finish."

Preparing for takeoff

Long began his career at Motorola and remembers well his first project, working on a GPS system that the company was helping to build. In the late 1990s, the technology was relatively new, and the challenge was perfect for the young engineer. Soon after, Long dove into work involving classified space programs at the company – projects he can't discuss even two decades later.

Projects in those early days were both exciting and challenging and set the stage for a successful career. But for Long, the work also gave him something else.

"I knew that what I was doing was contributing to a better society," he says.

As Long worked to establish himself in the field, he looked to ASU for an MBA. The program drew like-minded professionals from the state's high-tech companies, boosted Long's business profile, and rounded out his engineering career. Long forged friendships in the program that continue today.

Failing forward

Throughout Long's career, almost all his work has been out of the public eye because of the classified nature of the projects. At Orbital, Long's business area is focused on satellite systems equipped with information, surveillance, and reconnaissance capabilities. His team has access to some of the country's most advanced technologies and is tasked with helping meet vital, always-evolving national security needs.

"The one thing that is great about the work is that we get access to very sensitive information that keeps the country safe," he says. "The downside is you don't get to talk about it a lot."

Long has valued the counsel of mentors, leaders in his industry, over the past two decades. They have stressed the importance of being "a well-grounded leader, setting expectations of people, giving them the room to perform, and then holding them accountable," he says.

In turn, Long offers this advice for young engineers.

"As an engineer, especially as a young engineer, there is a fear of failing or a fear of not knowing the answer, which is true in business as well," he says. "It is important to understand that you cannot be a lone ranger. In this industry, success comes in surrounding yourself with highly capable people, and understanding that failure is probable and is part of innovation and necessary for growth.

"We learn from failure and improve our process," he adds. "Fail early and fail fast, learn, and move on." ■

Three decades in investment banking – with all of the economy's highs and lows – might make early retirement look attractive. But Crain, a self-avowed lifelong learner, isn't going anywhere.

"Every day I am exposed to something new and different," she says.

Case in point: a recent meeting where the seasoned executive faced yet another unique question for the first time.

"I walked out of the meeting thinking, 'Well, that was a first.' I think that's awesome and that's what energizes me every day," she says. "I have many firsts, and at this point in my career, I love that."

Sky high:

MBA boosts engineer's career in space

As a boy, Chris Long was sure about two things: the importance of a college education and the joy of playing outside building forts, ramps, and whatever else he dreamed up.

Surrounded by a family of engineers – and a child of the first *Star Wars* generation – Long pictured himself working in space. But as the son of a pharmacist, he also envisioned a career

CLASS NOTES

Bringing the magic back to live music

Founded in London in 2010 and based all over the place, Sofar Sounds is bringing the magic back to live music. Getting on the guest list for one of their intimate, invite-only events is one surprise among many – the excitement of which continues to capture the interest of artists and audiences alike.

“My first experience was three amazing bands in this cool office space,” says **Samantha Waterman** (*BS Marketing/BA Tourism '11*), who volunteers as an artist liaison for Sofar Los Angeles. “I had no idea who was going to be performing or where the location was. I loved the anticipation.”

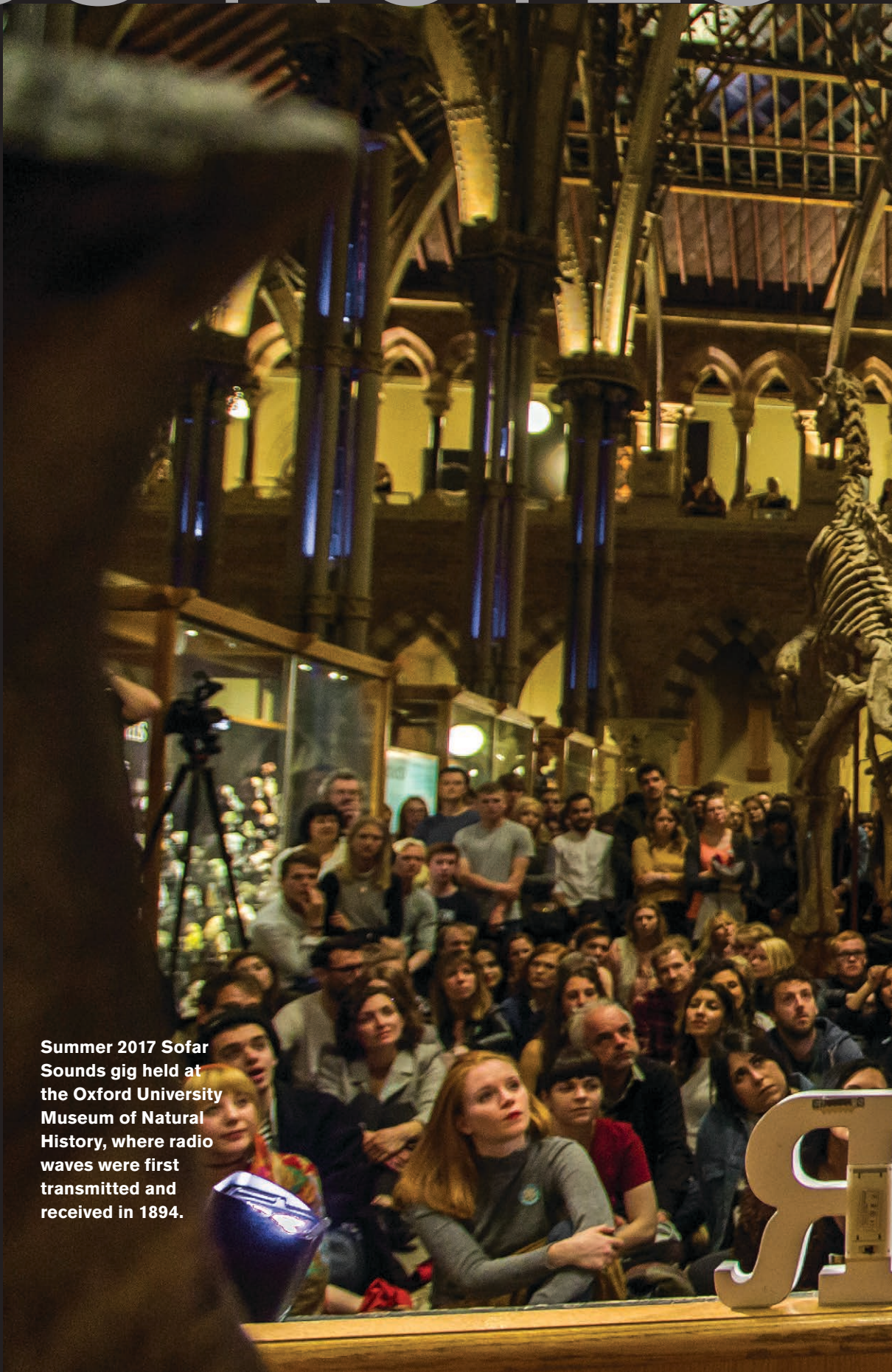
Newcomers lucky enough to land a ticket can expect to hear from three diverse artists in a unique space, with a secret lineup and location to be revealed the day before the event. “Every gig has a distinct flavor,” says **Phoebe Petridis** (*BS Marketing '11*), director of Sofar London. “Sofar makes it possible to see an indie band, jazz band, and beatboxer perform – all in one night, and all in one living room.”

From living rooms and warehouses to museums, rooftops, breweries, and beyond, diverse venues and lineups are key to curating memorable experiences for guests. Of equal importance are the guests themselves.

“The most magical element of the show was how appreciative and engaged the audience [was],” Sofar investor Richard Branson wrote of attending his first Sofar gig. “It took me back to when we started Virgin Records, sitting on beanbags and drifting away with the music as we found new bands to sign and fall in love with.”

(Continued on p. 32)

Summer 2017 Sofar Sounds gig held at the Oxford University Museum of Natural History, where radio waves were first transmitted and received in 1894.



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PHOTO BY IAN WALLMAN



(Continued from p. 30)

It's a BYOB concert like no other, where emerging artists tell stories and talk about their musical journeys. Guests connect with fellow music fans and bands on a personal level. And when the music starts, everything else stops.

"Any other small venue or bar does not offer an experience like this for guests or musicians," Waterman says. "It gives emerging artists a chance to perform in front of a guaranteed audience full of people who will listen and appreciate the songs and the performances.

"It's definitely influencing the music community in a positive way," Waterman adds, referring to an impact that will now reach refugees, thanks to a new partnership with Amnesty International. A global event to raise awareness of the ongoing refugee crisis, Give a Home will engage 1,000 musicians for 300-plus concerts in more than 200 cities worldwide on Sept. 20, 2017.

"Music and art have always been powerful partners to the cause of justice because they share an ability to stir something deep within us," Secretary General of Amnesty International Salil Shetty said in a statement. "The shows will be an opportunity to reflect on our shared humanity and strengthen our resolve to tackle this unprecedented humanitarian challenge."

While the competition for Give a Home tickets closed Sept. 10, there are plenty of ways to connect with Sofar in a city near you. Learn more at sofarsounds.com.



Sofar Sounds allows emerging artists to connect with fans on a personal level.

1960s

Urban Giff (*BS Livestock Production '60*) serves on the board of directors for the National Center for American Indian Enterprise Development in Tempe, Ariz.

Les Gilbertson (*BS Accountancy '60*) is a workers' compensation lawyer at the Law Offices of Les Gilbertson in Tucson, Ariz.

Michael Tiffany (*BS Business Administration '61*) practices law as managing attorney and is a shareholder at the 50-year-old law firm Tiffany & Bosco PA in Phoenix.

Buff Ness (*BS Business Administration '63*) ministers to his community as the president of Ness Ministries in Branson, Mo.

Manny Acino (*BS Insurance '64*) recently became a consumer services professional at Kid Glove Storage & Moving Space in Scottsdale, Ariz.

Walter Bader (*BS Finance '64*) owns the natural sleep products company Lifekind in Browns Valley, Calif.

Bill Nasif (*BS Accountancy '64, MACC '66*) is celebrating 41 years as a partner at Nasif, Hicks, Harris & Co. in Santa Barbara, Calif.

Dean Aulerich (*MBA '65*) is the owner and director of Forest Engineering in Corvallis, Ore.

Russel Brown (*BS Accountancy '65, MBA '66*) is the retired president and co-owner of R.E. Brown & Co., and was recently honored by the Texas Board of Public Accountancy for serving as a CPA for more than 50 years.

Samuel Cook (*BS Accountancy '65*) provides financial services as a CPA at Strong McPherson & Co. in Carson City, Nev.

Leland Rice (*BS Business Administration '65*) works as a photographer and curator for Leland Rice Studios in Oakland, Calif.

Randy Richmond (*MBA '66*) is the founder and principal of the small business financing company Crosswind Strategies in San Diego.

David Tinineko (*BS Marketing '66*) serves as treasurer and a board member of Gateway Bank in Mesa, Ariz.

Bob Bardell (*BS Business Administration '67*) is celebrating 11 years as an agent at Agent Realty Executives in Phoenix.

Bob Howells (*BS Accountancy '67*) is a member of the board of directors for the Parkinson's Institute and Clinical Center in San Francisco.

Ronald Messer (*BS Advertising '67*) is a staff buyer planner for the medical device company Medtronic in Phoenix.

Logan Adams (*BS Marketing '69*) helps people get into their homes as a broker associate at Coldwell Banker Residential Brokerage in San Francisco.

George Baker Jr. (*BS Marketing '69*) makes the process of finding a banquet hall easier as the principal of event planning company Jorj Baker Productions in Los Angeles.

John Bare (*BS Marketing '69*) owns John Bare Photography in Orange County, Calif.

Thomas Elliot (*BS Finance '69, MBA '71*) is celebrating nine years as the owner of TCE Investments in Scottsdale, Ariz.

Michael Lyders (*BS Management '69*) owns the railroad financing company RTC Industries in Seattle.

Barry Mac Ban (*BS Business Administration '69, JD '72*) practices law as an attorney and owner of Mac Ban Law Offices in Tucson, Ariz.

1970s

Werner Nistler Jr. (*MACC '70*) is the CEO of the senior living community Touchmark in Portland, Ore.

John Cotugno (*BS Accountancy '71*) owns Custom Made Posters in Phoenix.

Irwin Sheinbein (*BS Business Administration '72*) oversees the physical scrap metal processing facility as the president of American Metals in Phoenix.

Robert Jackson (BS Real Estate '73) helps people reach their goals as the founder and chairman of Jackson Roskelley Wealth Advisors in Scottsdale, Ariz.

Joy Partridge (BA Anthropology '70, BS Accountancy '73) owns accounting firm Partridge & Associates in Scottsdale, Ariz.

Joseph Cattaneo (BS Real Estate '74) is the president and principal of real estate development firm A&C Properties in Phoenix.

Jon Nocht (BS Accountancy '75, MBA '80) is a security analyst at Mutual of Omaha Bank in Phoenix.

Jeff Reinke (BS Transportation '75) owns the retail business Dirt Road Dreams in Murrells Inlet, S.C.

Scott Rose (BS Real Estate '75, JD '79) is a senior member of Cavanagh Law Firm in Phoenix.

Mark Sheets (BS Accountancy '75) is the president of Spartan Concrete in Phoenix.

Randall Talbot (BS Insurance '75) is the managing director of Talbot Financial in Seattle.

Kurt VonSpreckelsen (BS Real Estate '75) is celebrating 23 years as senior appraiser at Don R. Scheidt & Co. in Indianapolis.

Earl Hunt (BS Accountancy '76) is the senior sales engineer at the CPA and consultancy firm Armanino in Seattle.

Ronald Peters (BS Real Estate '76) is celebrating his third year as president and CEO of the Fulton County Center for Regional Growth in Albany, N.Y.

Leonard Johnson (BS Real Estate '77) is the senior project manager at Chanen Construction in Phoenix.

Jeffrey Kass (BS Management '77) is an IT project manager at Solar Turbines in San Diego.

Peter Meier (BS Business Administration '77) is an associate broker for Realty Executives in Phoenix.

David Reimold (BS Finance '77) is celebrating eight years as a realtor for Cambridge Properties in Phoenix.



Austin Gardner (BS Business Communication '12) and **Samantha Hampton Gardner** (BFA Dance Education '12) first met through a friend, **Mary Ford** (BFA Dance '12). Their mutual love for ASU football games soon turned into a mutual love for one another. The Gardners were married in March 2016 in an ASU-themed wedding and live in Costa Mesa, Calif.

Carol Simon (BS Business Administration '77) is the general manager at Crestline Hotels and Resorts in Charlottesville, Va., and is the co-author of *A Hotel Manager's Handbook*, which shares 189 techniques for achieving exceptional guest satisfaction.

Robin Terrell (BS Business Administration '77, MBA '78) is a leadership scientist at Amazon in the Czech Republic.

Robert Enzenberger (BS Business Administration '78) is a lawyer and mediator for the Law Offices of Robert Enzenberger in Reno, Nev. He is a member of the National Academy of Distinguished Neutrals, an invitation-only organization limited to professional mediators and arbitrators who are well established as trusted neutrals amongst the legal community within their state of practice. Enzenberger has successfully mediated more than 1,200 litigated cases during the past 10 years.

Scott Marohnic (BS Real Estate '78) is the president of Realty Capital Advisors in Phoenix.

Ann Couch (BS Accountancy '78) owns Ann Michele Couch CPA in Phoenix.

Steven Reed (BS Accountancy '78, JD '81) is a partner at the personal injury law firm O'Steen & Harrison in Phoenix.

Edward Sagert (BS Finance '78) is the director of the equipment financing company EDPS Group in Atlanta.

Richard Boals (BS Accountancy '79), president and CEO of Blue Cross Blue Shield (BCBS) of Arizona, retired on July 1 after 45 years at the company, 14 as its president and CEO. He serves as a consultant to the BCBS board.

Jeff Reich (BS Business Administration '79) is an associate broker at Russ Lyon Sotheby's International Realty in Phoenix.

John Rich (BS Management '79) is the logistics manager of the William Beaumont Army Medical Center in El Paso, TX.

1980s

Francisco Gutierrez (BS Real Estate '80, JD '83) owns Gutierrez Law Firm in Phoenix.

Craig Meier (BS Finance '80) is a broker for the real estate agency firm Homebuyers Solutions in Phoenix.

Jack Furst (BS Finance '81) founded Oak Stream Investors in Dallas and, in March 2017, was presented with the Philanthropist of the Year Award by the ASU Alumni Association.

Bob Lettieri (MBA '81) is the chief financial officer of computer and network security company CellTrust in Scottsdale, Ariz. He was named state treasurer of the Arizona Republican Party on Jan. 28, 2017.

Paul McMullin (BS Business Administration '81) is the senior director of global field service operations at medical services company Hologic in San Diego.

Lowell Sanker (BS Marketing '81) is a flavor chemist at the consumer goods corporation Procter & Gamble in Cincinnati.

Gary Artz (BS Finance '82) is the chief accountant at the National Credit Union Administration in Alexandria, Va.

Virgil Berry Jr. (BS Real Estate '82) has 28 years of experience managing and maintaining more than 4,000 residential, commercial, and vacant properties as the president and owner of Berry Realty Associates in Phoenix.

Joel Broder (BS Real Estate '82, MBA '86) is a principal for the real estate development company Visiquest Properties in Scottsdale, Ariz.

Mary Corzel (BS Marketing '82) is the senior vice president of mobile banking solutions company Bryn Mawr Trust in Plymouth Meeting, Pa.

Doug Herkes (BS Real Estate '83) manages second homes and investment properties as the director of property management at Pacific Property Services in Kailua-Kona, Hawaii.



ASU PROFESSOR ELECTED TO AAA BOARD OF DIRECTORS

Steve Kaplan (BS Accountancy '74), director of the School of Accountancy and KPMG Professor of Accountancy at the W. P. Carey School of Business, was elected in May 2017 to the board of directors of the American Accounting Association (AAA). Kaplan will serve a three-year term as vice president of education with the AAA, which is the largest community of accountants in academia.

Alums widen world of business in Peace Corps

W. P. Carey alums are taking their business experience to new levels as volunteers with the Peace Corps.

Michael Hutchison (*BA Economics '08, MBA '11*) is volunteering in community economic development in western Ukraine, beginning his two-year assignment in 2016. He works with a nonprofit that is training and advising communities as Ukraine's government decentralizes and local governments take on more administrative responsibilities. He helps write grants, organizes workshops for entrepreneurs, and gives presentations on American business practices.

Alexandra Payan (*BS Business Law '15*) has been volunteering in Madagascar since 2016. Working with a not-for-profit,

she joins doctors, nurses, and researchers on expeditions to rural villages, where they provide health care and teach safe motherhood, malaria prevention, and water sanitation. She also teaches English, agriculture, and entrepreneurial skills in her village.

Veronica Esquivel (*BS Management/ Supply Chain Management '12*) volunteered in community economic development in the Dominican Republic for two years and returned earlier this year. She worked in a rural community, helping improve business practices of farmers who harvested and sun-dried orange peels for export. She also helped with programs to empower youths and to train women entrepreneurs.



Leslie Twohig (*BS Marketing '83*) is the marketing coordinator at Southern States University in San Diego.

Micahel Vaughn (*BS Accounting '83*) acts as mayor pro tempore for the city of Rancho Santa Margarita, Calif.

Charles Brokop (*BS Business Administration '84*) safeguards and grows clients' wealth as the president of Clear Stream Advisors in Scottsdale, Ariz.

Tom Mahlik (*BS Marketing '84*) is the director of global security services at The MITRE Corp. in McLean, Va.

Tim Sheedy (*BS Economics '84*) owns the software development company Atlas Development in Phoenix.

Jeff Graves (*BS Management '85*) is the president and CEO of First Financial Equity in Phoenix, which was ranked the No. 1 investment advisory firm in Arizona by the *Phoenix Business Journal* in April 2017.

Greg McMillan (*BS Finance '85*) is the founder and president of DGM Ventures, which manages a variety of companies with operations in Dallas, Houston, and Kansas City, Mo. The company recently opened its first of 10 Pet Supplies Plus stores in the Kansas City market. McMillan was honored in January as the 2016 Franchise Owner of the Year by Sally Beauty Supply.

Jane Kennelly (*BS Administrative Services '85*) is the owner and project development manager of DeSantana Stone, North Carolina's largest supplier of hand-carved natural stone, in Asheville, N.C.

Karl Baltutat (*BS Real Estate '86*) is the managing member of Karl Baltutat Valuation Services in Phoenix.

Bryan Sheets (*BS Finance '86*) manages Supreme Lending in Phoenix.

Vincent Price (*MBA '87*) serves as chief financial officer and vice president of Cambia Health Solutions in Portland, Ore.

Chiang-Nan Chao (*PhD '89*) is a professor of management at St. John's University in Jamaica, N.Y.

Steve Cotton (*BS Purchasing and Materials Management '89*) is a realtor for Beacon Property Solutions in Peoria, Ariz.

R.J. Crosby (*BS Marketing '89*) is the branch manager and vice president of First Choice Loan Services in Scottsdale, Ariz. He was recognized in April 2017 among the top in his industry by the Expert Network, an invitation-only service for distinguished professionals. Crosby was chosen as a Distinguished Mortgage Professional based on peer reviews and ratings, dozens of recognitions, and accomplishments achieved throughout his career.

Mary Lavan (*BS Management '89*) owns the hand-thrown pottery company Just Mare Pottery and Stoneware in Pueblo West, Colo.

David Nelson (*BS Finance '89*) is the principal owner of Global Network Specialists in Phoenix.

David Sapienza (*BS Operations and Production Management '89*) is the co-founder and vice president of sales at the software company 3Gtms in Evergreen, Colo.

Elisabeth Uczekaj (*BS Finance '89*) is the CFO of air transportation and regional aftermarkets at Honeywell Aerospace in Phoenix.

1990s

Daniel Shaskin (*BS Computer Information Systems '90*) is a senior consultant at CSC Computer Sciences in Portugal.

Rich Shattuck (*BS Marketing '90*) is the vice president and owner of Shattuck & Grummett Insurance in Juneau, AK.

Kristen Cazier (*BS Management '91*) is a collections representative for American Express in Phoenix.

Kim Paskal (*MBA '91*) is a shareholder at one of the largest locally owned public accounting firms in Arizona, BeachFleischman, in Tucson, Ariz.

Cultural, career ambitions pave path to Peace Corps

Hutchison and Esquivel had similar reasons for joining the Peace Corps. He was eight years into a successful career with a health insurance company when he decided to change his lifestyle and career path while indulging his passion for travel and learning about different cultures. Esquivel sought to do more with her corporate experience and training. "I wanted to use my skills to assist businesses in emerging markets directly," she says. "So, I traded my cubicle for the Caribbean."

Payan has been entranced by Africa, and loved community service, since childhood. Having learned at W. P. Carey the importance of being creative and adaptable, she recognized that serving in the non-business sector of rural health care would make her a more diverse and well-rounded job candidate. "The business of doing business," she says, "is not limited to the boardroom, office, or stock market."

Business skills benefit volunteer work

Hutchison's W. P. Carey education helps him understand business owners and community leaders when they share details of their ideas,

business models, and resources. His MBA and work experience also help him gain trust as a colleague who can contribute to the community's success.

"I wanted to use my skills to assist businesses in emerging markets directly," she says. "So, I traded my cubicle for the Caribbean."

Esquivel says she used business school concepts to help the orange farmers implement inventory controls to reduce waste and to reuse packaging materials to substantially cut costs. That left more money to be reinvested in the community, improving the well-being of families for generations to come.

Language lessons bridge social gap

Besides improving her Spanish and her confidence working in Latin America markets, Esquivel says the experience showed her the importance of cultivating international

relationships. "I have become a global citizen, gaining an appreciation, respect, and responsibility to the world community," she says.

Intensive classes in Malagasy paid off for Payan because most people in rural villages know only their region's dialect. She calls the hardships transformative and loves the diversity of her experiences.

Hutchison has been studying Ukrainian and has met many people who speak English or are eager to learn it. He's gone from having no idea what others in a room are talking about to having Ukrainian friends who invite him to family celebrations and Ukrainian colleagues who genuinely want to improve their community. "A surprising aspect is the enjoyment I get from working hard for something other than a future pay raise," he says. "My passion motivates me, so it's less stressful, and I'm able just to enjoy the process."

When they return, the alums say they expect to make more changes. Hutchison might become a project manager for a municipality. Payan wants to attend law school, study global health, or international law, and return to Madagascar. Esquivel plans to do more economic development focused on promoting binational relationships.

Troy Scoma (BS General Business '91) is the president and owner of the retail company Cactus Sports in Tempe, Ariz.

Brigitte Schreiner (BS Marketing '91) is the senior shopper marketing manager at the household cleaner supplier SC Johnson in Racine, Wis.

Mike Showers (BS Accountancy '91) is the finance director for the town of Camp Verde, Ariz.

Doug Davis (MBA '92) is the senior vice president and general manager of the Internet of Things solution group at Intel in Phoenix.

Joseph Cellini (MBA '94) works in client executive sales at the hardware and solutions company Unicomgov in Herndon, Va.

Todd Mack (BS Marketing '94) is the general manager at the steel production company ITC Manufacturing in Phoenix.

Erin Scope (BS Marketing '94) is the territory manager in the vaccine division of Pfizer Inc. in Phoenix.



Corrine Miller (BS Advertising '65, MS Education '70) and her husband **Greg** (BS Marketing '65) were high school sweethearts before attending ASU, and they married shortly after their undergraduate commencement. As members of the ASU class of 1965, the Millers returned to their alma mater for their Golden Reunion in May 2015. Each year, the ASU Alumni Association invites alumni celebrating their 50th reunion for a special two-day event to see former classmates, tour ASU facilities, hear guest speakers, for induction into the Golden Circle honorary group of all classes who celebrated their 50th reunion, and to join the procession during the university's spring commencement. The Millers visited campus again this May for the W. P. Carey breakfast for the class of 1967. Did you graduate in 1968? If so, make plans to attend next year's Golden Reunion: alumni.asu.edu/goldenreunion

Are you a proud Sun Devil? Do you own or manage an innovative business? You may be eligible to become a Class of 2018 Sun Devil 100 honoree. Learn more and apply at alumni.asu.edu/sd100



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Carson Holmquist
(BS Management '08)

More alumni move to head of the class

We are proud to welcome the third group of alumni entrepreneurs and business leaders to the Sun Devil 100. Each year, the ASU Alumni Association celebrates the exceptional achievements of Sun Devil-owned and Sun Devil-led businesses around the world.

In April, the Sun Devil 100 welcomed 34 inductees – including 23 W. P. Carey alumni, three of whom produced the highest business growth rates among all inductees:

Carson Holmquist (BS Management '08)
CEO, Stream Logistics
1,852.32 percent business growth rate

Jonathan Beekman (BS Economics/Finance, BA Spanish '02)
CEO, Launchpad Inc./Man Crates
776.06 percent business growth rate

Matthew Michalowski (BS Finance '09)
President and Owner, PXL Brothers
365.11 percent business growth rate

This year's honorees came from a range of industries. They are pioneers and initiators of change. They are corporate leaders and entrepreneurs. They have founded companies and turned businesses around.

One of the notable traits of this group, like the two before it, is the inductees are addressing key business and community issues, in fields that range from online

community management, software for legal professionals, and tax planning to moving/logistics and energy-efficient lighting solutions. Their work demonstrates how they engage with and improve the community that surrounds them. The Sun Devil 100 Class of 2017 find success by leveraging their ASU connections to operate efficiently and creatively.

A startup doesn't have to be rocket science

A former NASA engineer preparing astronauts for future space missions, **Deirdre Morhet** (MBA '07) helps small businesses with inefficiencies to grow into the future. The 360-degree career change happened gradually after Morhet left NASA in Houston for Intel in Arizona. At the same time, she started a small company with her sister, which inspired Morhet to learn more about small business ownership. She enrolled at ASU to earn her MBA in accounting and

finance, adding to her undergrad and grad degrees in industrial engineering.

"It was during my time at ASU that I launched BASC Expertise out of my home," says Morhet, whose business venture started with a class paper that focused on tax preparation for small companies. Morhet continues to work with small businesses with 10 or fewer employees, as well as individuals, still providing sales and tax preparation, in addition to offering accounting, payroll services, QuickBooks setup and training, financial statements, entity formation, and business consultation.

Proximity influences growth and internships

Kimothy Taylor (BLS Liberal Studies '08, MBA '13) relocated his company, Ipro, from north Phoenix to the well-located Papago Technology Center in Tempe, Ariz., making room for business growth – 29.57 percent growth rate – and bringing ASU's talent pool close.

"There are a lot of skilled workers at the university," says Taylor, who will continue leading the recently acquired software company as its president and chief operations officer. "To grow Ipro, we can recruit responsible, educated interns who learn quickly and apply what they've learned. They get our training, and with enthusiasm and effort, can rise to the top of our talent pool."

Learn about the other Sun Devil 100 Class of 2017 inductees: alumni.asu.edu/sd100class2017

Jeffrey Pruitt (BS Accountancy '94) is a partner and CEO of the venture accelerator Tallwave in Phoenix.

David Porter (BS Management '94) is the senior vice president at Vivant Smart Home in Columbus, Ind.

Laurie Machado (MBA '95) owns and operates Carmel Dog Concierge in Carmel-by-the-Sea, Calif.

Ohad Shvueli (MBA '95) owns Oforbis Sales Outsourcing in Raleigh, N.C.

Shannon Cerf (MBA/MHSA '96) is the terminologist at the technology company ManTech in Delmar, N.Y.

Monica Celaya (BS Management '97) is an operations consultant at McDonald's in Phoenix.

Paul Scolardi (BS Accountancy '97) is the CEO and founder of the private trading company Super Trades in Minneapolis.

Wes Siebern (BS Management '97) owns Classic Car Wash in San Francisco.

Chris Celtruda (MBA '98) is the CEO of the Los Angeles-based Merex Group, a global provider of comprehensive support for U.S. manufactured legacy defense platforms, including aircraft, helicopters, and their respective engines.

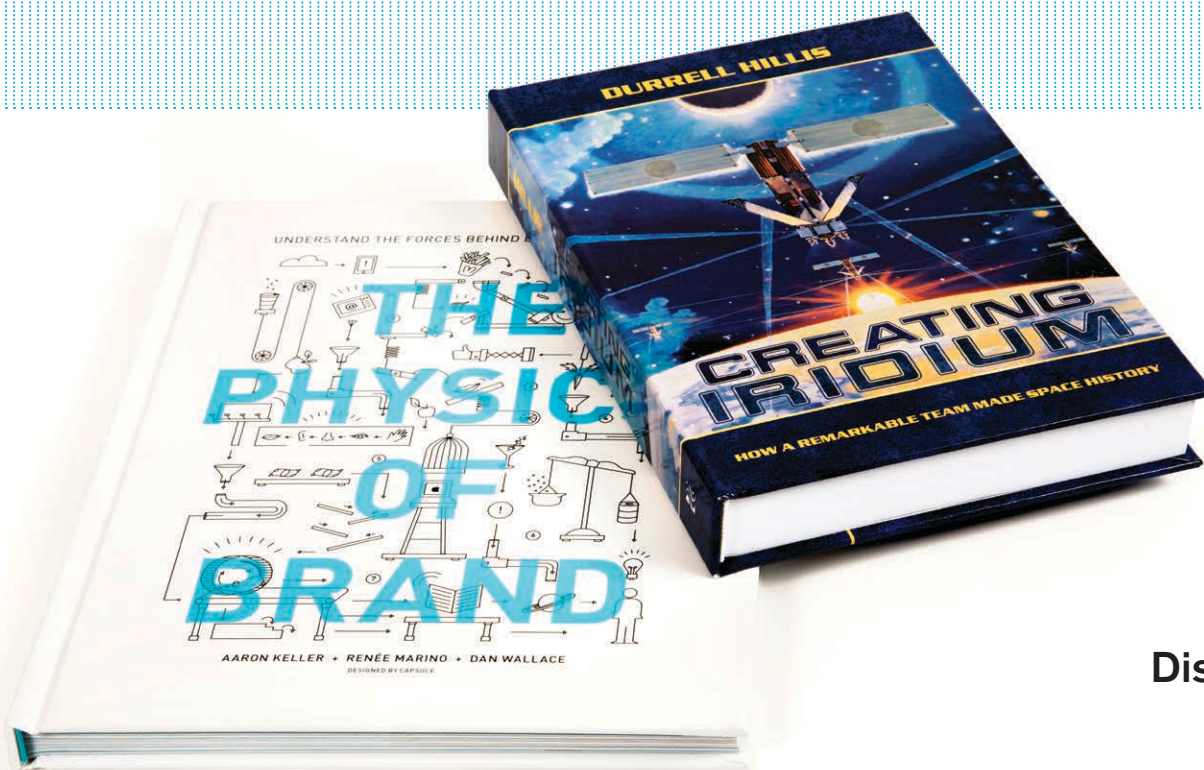
Christine MacGregor (BS Marketing '98) is an e-commerce and marketing executive at the clothing manufacturer TeeFury in Orange County, Calif.

John Meloun (BS Finance '98, MBA '05) serves as CFO of The Joint Chiropractic in Scottsdale, Ariz.

Jon Robinson (MSIM '98) is the chief information officer of the health, wellness, and fitness company Isagenix in Phoenix.

Jeffrey Showen (MBA '98) is the senior systems engineer at iGov Technologies in Tampa, Fla.

Darby Shupp (BS Accountancy '98) is a member of the board of directors for the Apollo Education Group in Phoenix.



READ MORE

Discover new business books by alumni

One makes satellites; one makes brands. Two alumni take business readers across time and space.

In **Creating Iridium: How a Remarkable Team Made Space History**, **Durrell Hillis** (*MS Electrical Engineering '67, MBA '70*) offers insiders' views of the communications satellite program that his team refused to believe was an impossible task. His book shares stories from his more than 40 interviews with Motorola colleagues who created the idea for a system of "upside-down cell phone towers" orbiting 420 miles above Earth. They overcame obstacles in technology, manufacturing, and international regulations to build and launch the system that still enables voice and data transmissions across 99.999 percent of the planet.

The book begins in 1987, with Hillis charging a team to search for ways their new division could turn its expertise in satellite payloads from a subcontractor into a prime contractor business.

It continues through its spinoff as Iridium Inc. and ends with the system's first live call in 1998. Hillis says he wrote the book to record and pay tribute to the people who were part of the massive project. "People were passionate about this program," he

says. "They worked 80- to 100-hour weeks because they wanted to, and they did amazing things that had never been done before."

Iridium's story offers many lessons on managing teams, conducting negotiations, and defying conventional manufacturing wisdom. Hillis says the book shows the importance of determining the kinds of teams needed to complete a complicated project, and how to empower and hold them accountable. It tells of winning crucial support from Russia, China, and other countries to build and operate the system. It also gives examples of what Hillis calls "a true 'clean sheet of paper' approach" to high-capacity manufacturing, such as training subcontractors on quality and testing standards, and applying statistics to keep thousands of activities on schedule.

Others have written about Iridium's subsequent bankruptcy and reorganization, but the saga of the satellites continues. The first next-generation satellite launched in January and Hillis says the next few years will see Iridium making air traffic control more efficient while also being used for global Wi-Fi and other apps.

As Iridium turned upside down the concept of cell towers, the internet is turning upside down how consumers interact with brands.

In **The Physics of Brand: Understanding the Forces Behind Brands That Matter**, **Dan Wallace** (*BS Marketing '82*) and co-authors argue that to make brands valuable, marketers must change from controlling brand messages to delivering memorable customer experiences.

"The premise is that brands live in human memory and that the way we develop our memories is through our experiences in the world," Wallace says. We can measure those experiences in time – the first moment we create a memory, the amount of time customers spend with a brand, and the rate at which the time spent increases. Experiences also are crafted in a space where customers are at the center, surrounded by their trusted communities, then by brand handlers and brand owners.

The authors combined their expertise in brand strategy, brand design, and brand valuation to produce the first book that offers a framework for linking brands with customer experiences. The framework includes three models – developed into software and tested in simulations – for turning the signals a brand sends into social and multi-sensory experiences for customers, which ultimately lead to profits and value.

Advance your knowledge of artificial intelligence

Department of Information Systems Chair and Professor **Raghu Santanam** recommends these six books for educating yourself on machine learning.



Leading Digital: Turning Technology into Business Transformation by *George Westerman, Didier Bonnet, and Andrew McAfee*



The Digital Transformation Playbook: Rethink Your Business for the Digital Age by *David Rogers*



Augmented: Life in the Smart Lane by *Brett King*



Humans Need Not Apply: A Guide to Wealth and Work in the Age of Artificial Intelligence by *Jerry Kaplan*



Rise of the Robots: Technology and the Threat of a Jobless Future by *Martin Ford*

Michael Voogd (*BS Finance '98*) retired after 26 years as a budget officer in the U.S. Navy. He is now an agent and registered representative at New York Life in Norfolk, Va., and is running for the office of Norfolk city treasurer.

Anthony Cerasoli (*BS Marketing '99, MS Architecture '05*) is the lead project designer for architecture company Theo Hotz Partner AG in Switzerland.

Chandler Yelton (*BS Global Business and Financial Management '99*) is the vice president of sales and marketing at O'Neil Printing in Phoenix.

2000s

Mike Simmons (*MBA '00*) used his business background to co-found La Gattara Cat Café & Wine Bar in Phoenix.

Russell "Rusty" Janes (*BS Finance/ Computer Information Systems '01, MBA '13*) leads the technology sourcing team at Raytheon in Tucson, Ariz.

Sara Mahn (*BMus Performance '90, MTax '01*) is the managing director of mergers and acquisitions at Deloitte in New York City.

Prashant Mudgal (*MBA '01*) is the director of value engineering at business commerce network SAP Ariba in Singapore.

Shannon Breen (*BS Finance '02*) is the vice president of logistics for Knight Transportation in Chandler, Ariz.

Patrick Kerscher (*BS Marketing '02*) is a senior associate at CBRE in Colorado Springs, Colo.

Gabe Ortega (*BS Real Estate '02*) is the senior vice president of NAI Horizon in Phoenix.

Joe Enos (*BS Accountancy '03*) is a software engineer at the workforce solution firm Experis in Phoenix.

Lee Bowen (*MSIM/MBA '04*) is celebrating his one-year anniversary as the vice president of finance at Young Living Essential Oils in Salt Lake City.

Nicole Lash (*BS Management '04*) is the director of fiscal services at Mesa Community College in Mesa, Ariz.

May Lu (*BS Economics '04*) is celebrating nine years as a shareholder at the law firm Tiffany & Bosco in Phoenix.

Jeremy Thomas (*MBA '04*) is the senior product manager at the research and development company Aviage Systems in China.

Tracy Weinman (*MBA/MS Health Services Administration '04*) is a manager of procurement and supply chain at American Airlines in Dallas.

Stephen Adams (*MBA '05*) owns and manages Adams Craig Acquisitions in Scottsdale, Ariz., and was named to Professional Builder's 40 Under 40 in February 2017.

Jason Bates (*MBA '05*) is the CFO and vice president of USA Truck, a logistics company in Van Buren, Ark.

Chad Eaton (*BS Management '05*) is vice president of business development at the identity protection and data risk services company CyberScout in Scottsdale, Ariz.

Michael Faith (*BS Management '05*) practices law as an attorney at Faith, Ledyard & Faith in Avondale, Ariz., and was recently appointed to the city of Litchfield Park's Planning and Zoning Commission.

Matthew Visnansky (*BS Marketing '05*) joined the Opus Development Company in April 2017 as real estate manager, real estate development.

Amber Sainz (*BS Finance '06*) is a finance manager for Intel in Phoenix.

Daman Wood (*MBA '06*) joined technology company Telesoft in June 2017 as its chief operating officer.

Brett Chase (*MBA '07*) is a senior manufacturing engineer at Microsoft in Seattle.

Josh Margulies (*MBA '07*) is the vice president of marketing for the Arizona Coyotes NHL franchise in Glendale, Ariz.

Carlyle Stewart (*BS Supply Chain Management '07*) is the senior vendor relations specialist for American Airlines in Dallas.



Bryan Benson (*MBA '10*) and his family welcomed **Bastian Benson** to the world on Oct. 28, 2016, in Seattle. Bryan is the recruiting manager for talent acquisition at Amazon.

Kelsey Bedore (*BS Marketing '08*) is an account manager at the advertising agency Blakely & Co. in Colorado Springs, Colo.

Robert Rosing (*MBA '08*) is the eDiscovery strategy counsel at Klinedinst PC in San Diego.

Andreas Coumides (*BS Accountancy '09*) is an associate attorney at Swenson, Storer, Andrews & Frazelle in Phoenix.

Adam Greenwald (*MBA '09*) is the director of development at the Reform Jewish Leo Baeck Temple in Los Angeles.

Chris Murphy (*BS Accountancy '09*) is a professional services manager at the work processing firm Workiva in Scottsdale, Ariz.

Todd Wood (*MBA '09*) is the CEO of luxury rental homes Christopher Todd Communities in Phoenix.

2010s

Leilah Krohn (*BS Marketing '10, MBA '14*) is a compliance manager at the investment company Vanguard in Phoenix.

Sheena Moore (*BA Broadcasting '03, MBA '10*) is an associate product manager at the medical technology company CR Bard in Tempe, Ariz.

Charles Powell (*MBA '10*) is the vice president of small business analysis for Bank of America in Phoenix.

Andrew Stevens (*BS Marketing '10, MBA '16*) is a customer manager at McKesson in Scottsdale, Ariz.

Stuart Suelman (*MBA '10*) is the senior manager of chemicals strategic sourcing at Johnson & Johnson in Skillman, N.J.

Nolan Andelin (*MBA '11*) is a sales performance manager for the financial services company Merrill Edge in Chandler, Ariz.

Erin Holzmeister (*BS Accountancy '11*) is a senior category manager at Kattera, an architecture and construction company in Chandler, Ariz.

Johnathon Romero (*BS Economics/ Management '11*), the general manager/ market director of PepsiCo in Honolulu, writes, "I graduated with a dual major, found a job with PepsiCo on campus at W. P. Carey, and now have progressed to the point where I am running the state of Hawaii. I'm thankful for the opportunity that W. P. Carey provided to me."

Anthony Towne (*MBA '11*) is the vice president of the financial services company Citi in Tampa, Fla.

Sujoy Biswas (*MBA '12*) is a senior manager at A.T. Kearney in Chicago.

John Guasto (*MBA '12*) serves as vice president of the aircraft parts distributor Aviall in Dallas.

Jon Koester (MBA '12) is celebrating five years as a procurement manager at Johnson & Johnson in Phoenix.

Amanda Wilber (BS Management '12) has been appointed the human resources risk manager for the city of Cottonwood, Ariz.

Alex Caprariello (BA Business Communications '13, MA Sports Journalism '16) is an anchor for KNWA TV and Fox News 24 in Fayetteville, Ark.

Brett Dusek (MBA '13, MACC '16) is an audit assistant for Deloitte in Phoenix.

John Farmer (MBA/JD '13) is a product manager at the polymer manufacturer PolyOne in Cleveland.

Dr. David Greene (MBA '13) is the CEO of the US Lead Network, a marketing company in Phoenix.

Andrew Housley (MBA/JD '14) is a senior analyst on legal sourcing at Johnson & Johnson in New Brunswick, N.J.

Carmelo Lo Faro (MBA '14) leads the composite materials global business unit at Solvay, an international chemical and advanced materials company in Tempe, Ariz.

David Bates (MSIM '15) will be celebrating his two-year anniversary in January 2018 as a project leader and management consultant at Point B in Phoenix.

Kathryn Carruthers (MS-GL '15) is honing her management skills in Intel's Accelerated Leadership Program while she's a business development manager at the tech company in Chandler, Ariz.

Tracy Leibsohn (MBA '15) recently became a senior project manager at Henkel in Scottsdale, Ariz., where she's worked for the past three years.

Krista Moller (BS Accountancy '15, MACC '16) is a finance manager and executive assistant at MollerHomes Real Estate in Gilbert, Ariz.

Michael Ruff (MBA '15) is celebrating 18 years as a project manager at American Express in Phoenix.

Rebecca Short (BA English Literature '11, MBA '15) works in corporate leadership development at FCA North America, a holding company in Auburn Hills, Mich.

Ben Silverman (MSIM '15) is the principal cloud architect at OnX Enterprise Solutions in Phoenix. He recently co-authored the book *OpenStack for Architects*.

Mridul Bommareddy (MS-BA/MBA '16) recently celebrated his one-year anniversary as an associate at the law firm A.T. Kearney in Chicago.



Lester "Les" Tenney A longtime professor of insurance in the Department of Finance, Les Tenney died on Feb. 17, 2017. He was 96. Tenney taught at the W. P. Carey School for 17 years, and was respected for his ability to leverage industry connections and incorporate real-world simulations in coursework. A survivor of the Bataan Death March during World War II, Tenney dedicated his life to the financial security of fellow survivors. A published author in finance, he also founded University Research Associates, which provided financial and retirement planning for businesses nationwide. He is survived by his wife Betty, their two children, seven grandchildren, and two great grandchildren.

Harrison Kent (BA Business Sports & Media Studies '16) is an account executive for the Northern Arizona Suns in Glendale, Ariz.

Tony Lazare (MBA '16) guides, trains, and oversees teams to achieve core IT objectives as the director of information technology engineering at Cable One in Phoenix.

IN MEMORIAM

1960

Glenn E. Woodmansee

1961

James M. Momper
Pat M. Simone

1963

Douglas E. Massingale

1964

Barbara J. Hilland

1966

Terrance P. Hughes

1967

Jerry L. Barber

1968

Milton L. Lafen
Gary L. Tanner

1969

Frank A. Condie
Doris J. Gotsch
George E. Tanguy II

1973

Bruce F. Alderman

1974

Manuel G. Marin

1976

Kenneth W. Stucks

1977

David W. Huffman

1981

Kevin D. Fisher
Toby L. Joy

1982

Tony T. Magann

1983

Nancy J. Curtis
Suzanne J. Vesely
Genevieve A. Wagoner

1984

Brent G. Johnson
Sally L. Olney
Mark T. Penner
Donald C. Pierson III

1985

Dale E. Anderson
Gregory J. Schmidt

1987

Jack R. Rustad

1989

Philip J. Rhodes

1993

Cheryl M. Faas
Donald E. Lancendorfer

1995

Ray J. Harris

1998

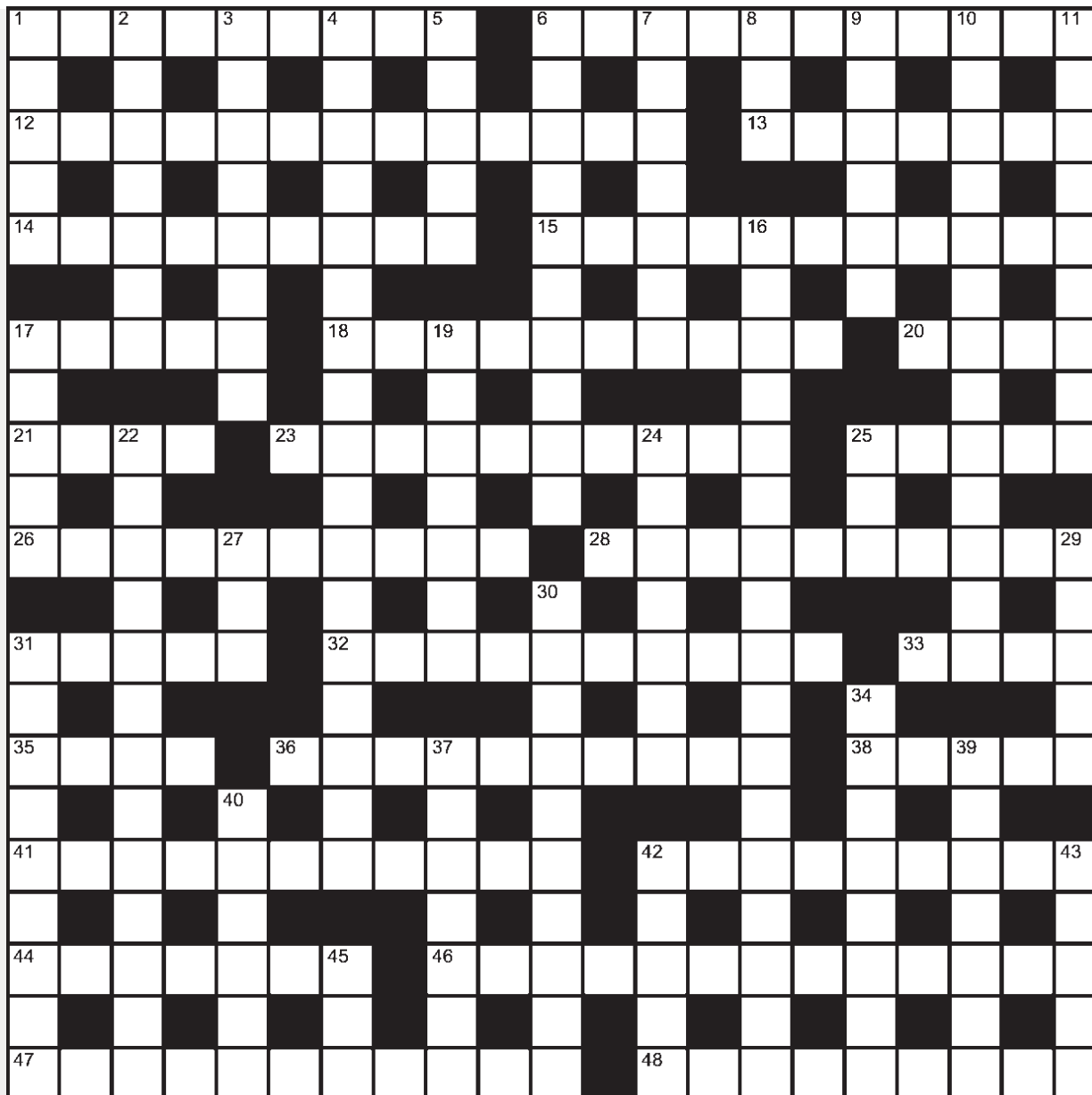
Elizabeth Bawden

2003

Gregory J. Gorosics

2011

Wendy M.
Hosking-Spivey



W. P. CROSSWORD

ACROSS

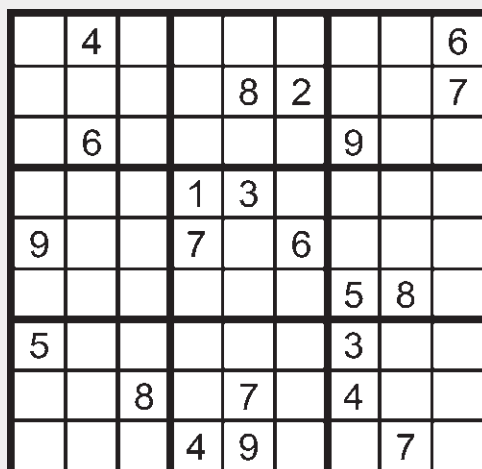
- 1 Italian salad (9)
- 6 Instagram and such (6,5)
- 12 Excessive (13)
- 13 Fantasy football stat (7)
- 14 Let off steam (9)
- 15 An extraordinary event (11)
- 17 Taco Bell condiment (5)
- 18 Use this hashtag when sharing social posts about your alma mater (10)
- 20 Don Johnson's "Miami _____" (4)
- 21 Symbol on a secure website (4)
- 23 Decline in value or price (10)
- 25 When you're out of practice (5)
- 26 An amount of money sent as a payment for something (10)
- 28 The immature pod of any of various bean plants, eaten as a vegetable (5,5)
- 31 Shakespearean pronoun (5)
- 32 Firmly established (4-6)
- 33 "You _____ Meant for Me" by Jewel (4)
- 35 Shield of Jupiter (4)
- 36 Gather a flower and preserve it (10)
- 38 Assume authority (5)
- 41 Alto instrument (7,4)
- 42 They sell to the public (9)
- 44 Cause to be alone (7)
- 46 In a self-reliant way (13)
- 47 Humankind (4,7)
- 48 When meeting a chief executive, treat him or her with basic respect (9)

DOWN

- 1 Bride's walk (5)
- 2 Spot trouble from this part of boat (7)
- 3 Where business is _____ (8)
- 4 Shipboard meal (9,8)
- 5 The announcement doesn't carry much weight (5)
- 6 Traffic-jam speed (6,4)
- 7 Tree with heart-shaped leaves (7)
- 8 _____ Hillman is W. P. Carey's first-ever female dean (3)
- 9 One of the Rolling Stones (6)
- 10 A music scale that is either major or minor (8,5)
- 11 Within reason (9)
- 16 A slice of cake that a dieter doesn't eat, en francais (5,2,10)
- 17 Sun-powered energy (5)
- 19 It happened on 34th Street (7)
- 22 Bio is a _____ in words like biology and biography (9,4)
- 24 Post for which you pay a high price (7)
- 25 Music category (3)
- 27 *Caddyshack* prop (3)
- 29 Students don't get enough of this (5)
- 30 Sees way around advertisements for walkways along beach (10)
- 31 With that (9)
- 34 Let's get down to _____ (8)
- 37 Frozen treat (4-3)
- 39 Leftovers (7)
- 40 Reasons for cramming (6)
- 42 Contemporary copy held by literature professor (5)
- 43 You're cramming my _____ (5)
- 45 Sixth sense (3)

SUDOKU

Numbers more your thing?



SOLUTIONS

You'll find the answers to the *W. P. Carey* magazine crossword and Sudoku on our website: wpcarey.asu.edu/crossword

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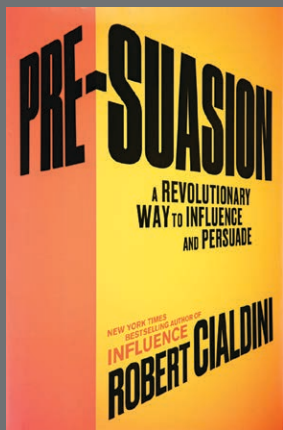
Twitter @WPCareySchool

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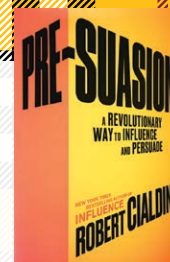
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