

Alumni Bulletin

MARCH
2016

THE NEW SPACE RACE ▶

—42—

Inside the capital
flight to the cosmos

REWRITING HISTORY

—36—

How the case method is
revolutionizing high school
history classes

HARVARD | BUSINESS | SCHOOL

DAVID BIRNBAUM

Rare 1

PRIVATE JEWELER EXTRAORDINAIRE



IMAGE-3352
"WHITE SYMPHONY"
D FLAWLESS
[GIA Lab]
all Pear Shape
Diamond Necklace
35 diamonds
8+ carat center
(no fluorescence)
total: 90+ carats



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March 2016

WEBB CHAPPELL



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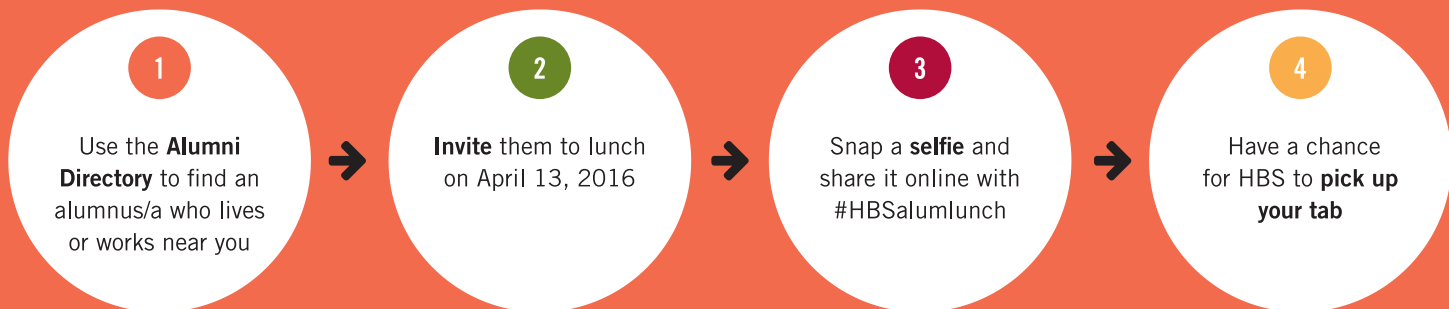
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DETAILS AT:

alumni.hbs.edu/alumlunch

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DECEMBER 2015

Deconstructing Draper

Re: Golden State of Mind

I admire **Tim Draper (MBA 1984)** for his sustained interest in rebooting public education in California. Too few HBS alums are engaged with public education, no doubt because of the complexity, bureaucracy, and slow pace of change that characterizes the sector. But the sad state of traditional public education negatively impacts all of us—even those who can afford private school for their children.

I'm puzzled, though, by his organization's support of the proposal for "megacounties," which would include just six mega school districts for the more than 6 million students in the entire state. Each school in California is already subject to four (overlapping and often inefficient) layers of supervision—at the district, county, state, and federal levels. Does Tim really think that making one of those layers humongously large will bring much-needed accountability into the system? —**Jim Mills (MBA 1986)**

Tim Draper's investment in the school voucher campaign was not for naught. It caused the legislature to panic and pass a surprisingly progressive charter school law to undermine support for vouchers. As a result, California now has one of the most dynamic K-12 education sectors in the country. The Los Angeles Unified School District has more charter schools than any other chartering agency, and [according to a 2014 report by Stanford's Center for Research on Education Outcomes] "the typical student in a Los Angeles charter school gains more learning in a year than his or her district school peer, amounting to about 50 more days of learning in reading and an additional 79 days of learning in math." Well done, Mr. Draper!

—**Glenn Noreen (MBA 1982)**

Feedback

Fluffy profile but [Tim Draper] apparently is also doing some significant organizational change initiatives with broad implications for state and local governments. But that information, despite being in the lead, doesn't come up until the very end, and then is only briefly referenced as one might see if reading the [National] *Enquirer*. More meat, less fluff, please.

—**Barbara Thornton (MBA 1995)**

Practicing PWYW

Re: The Price Is Right

As part of my financial services, I help retirees identify and implement their optimum Social Security claiming strategy. Pricing this service has been very difficult, generally ending up as a pro bono activity, hoping it will generate good feelings and some referrals.

For the next few cases, I'm definitely going to implement the [pay-what-you-want] pricing plan: "Because we're going to be partners in this venture with Social Security, I want you to price my services based on how you feel about the outcome."

—**John Bonnett (MBA 1956)**

Constraining Carbon

Re: **Walt Minnick (MBA 1966)**

and **Bill Eacho (MBA 1979)**

Great article! With the future of our kids and grandkids at stake, as Walt Minnick says (and I agree), it's quite surprising that this issue isn't getting much more attention. I continue to be amazed at how many HBS alumni are misinformed about the reality and seriousness of the problem.

—**Roger Shamel (MBA 1974)**

+ ONLINE

Read about Minnick and Eacho's innovative carbon tax plan at alumni.hbs.edu/carbonneutral

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What went through your mind when you found out you were accepted to HBS?

April Fools' joke?

—Elizabeth Clarkson (MBA 2000) (@Beezer232)

That I read the email wrong.

—Matthew Witheiler (MBA 2008) (@witheiler)

I went running through a Chicago warehouse in January and hugged a team member.

—Tim Perzyk (MBA 2007) (@tperzyk)

What do I tell Stanford?

—Marguerite Orane (MBA 1985) (@MargueriteOrane)

WEBSITE

alumni.hbs.edu

“It was four days without food or water. Initially it was a prospect I couldn't imagine, but I felt like a new being afterwards. It was very freeing.”

—Dan Sprinkles (MBA 1977), who left the corporate world to become a spiritual healer, describing his transformational vision quest

LINKEDIN

linkd.in/hbsalumni

What advice do you have for the HBS Class of 2017?

“Be sure to use your time wisely. HBS offers amazing opportunities to add to what you know and who you know, and both matter in life.” —Lynn Feldman (MBA 1982)

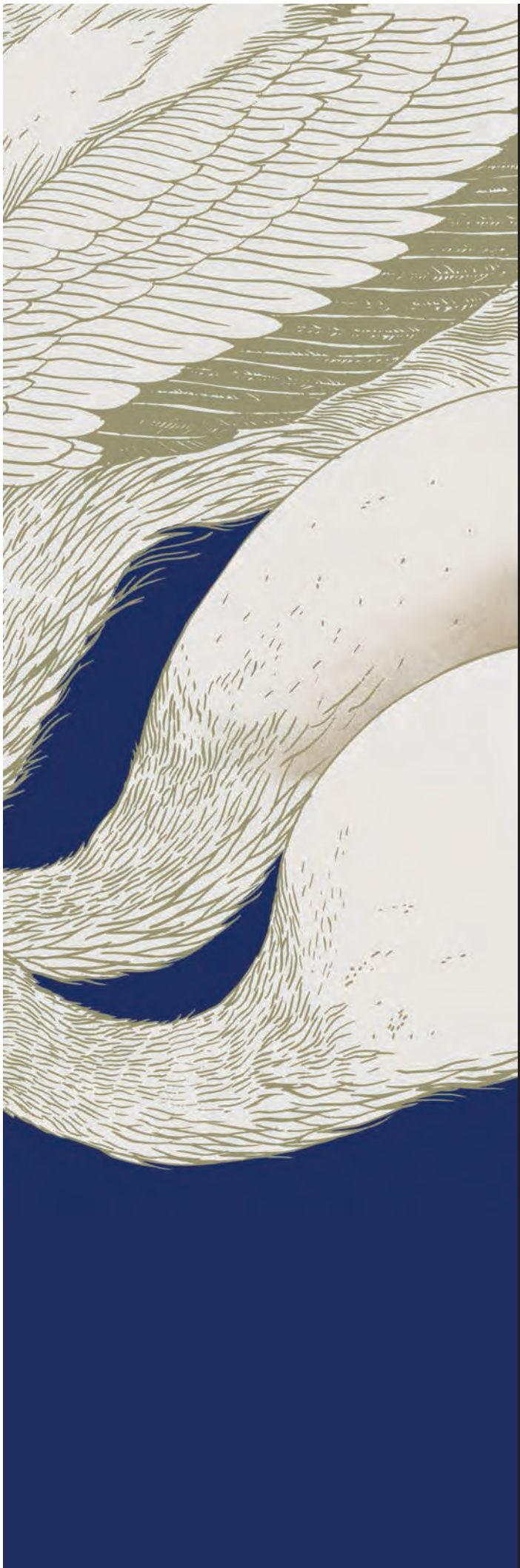


INSTAGRAM

instagram.com/hbsalumni

Current #HBS students give a shout-out to the Class of 2018 :) #NextStopHBS





Interest

03|2016

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GROWTH STRATEGIES

Delivering Trust

FertilityIQ brings transparency to the perplexing world of IVF

WHEN THEY MARRIED, DEBORAH AND **Jake Anderson (MBA 2010)** knew that they might have difficulty starting a family due to a preexisting medical condition. They began consulting with fertility specialists early on, only to discover the outlook was dimmer than they'd thought: In addition to Deborah's ovarian cysts, Jake had a lower-than-normal sperm count.

The couple went through three rounds of fertility treatment, all unsuccessful. Their experience made one thing clear: "We had no idea what we were in for," Jake says. "Nothing in life is perfect, but we just didn't know the good and bad of the clinics we used." In one case, a medical oversight resulted in a trip to the ER for Deborah, despite the clinic's high-profile reputation. Someone,

they thought, should do something about the lack of accessible information in this complex, delicate corner of the medical world.

Although the couple were happily employed—Deborah at a startup, Jake at VC firm Sequoia Capital—the Andersons realized *they* were that someone. Both left their jobs in 2014 and used personal savings to begin work on FertilityIQ, an

MARCOS CHIN

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ad-free website where patients fill out a comprehensive survey of their clinic experience in exchange for access to a complete database of anonymous reviews. (The information is verified by the patient, who submits a scan of a clinic document, and will also be available for a monthly subscription fee to those considering treatment options.)

To develop FertilityIQ's assessment form, Jake and Deborah sought input from close to 50 other couples as well as three fertility doctors to ensure that they captured a full spectrum of concerns outside their own. In addition to providing demographic and medical particulars, treatment regimens, and personal preferences, patients give detailed feedback on everything from a clinic's billing department to its doctors' and

nurses' bedside manner. "People who have been through this want to see it go better for others," says Jake, noting that they currently have reviews covering 60 percent of fertility doctors and 90 percent of all clinics in the United States. "High-quality assessments are the lifeblood of what we're offering," he adds. "Every new review helps hopeful parents and women trying to have a baby."

FertilityIQ launched in February; until then, the Andersons shared data with those who had contributed through free, personal Skype sessions. "Every call reminded us that we were dealing with a very human subject and creating something by, and for, a community," says Jake.

"Seeing in real time how helpful the data is has been really exciting,"

says Deborah, adding that she and Jake are well aware of the stigma surrounding fertility issues in an era of "picture-perfect" social media identities. Creating a community where people can share their experiences while improving the outcome for themselves and others brings the topic a bit more forward as celebrities such as **Tyra Banks (OPM 42, 2012)** and Nicole Kidman open up about their experiences with IVF; last year, Mark Zuckerberg also spoke publicly about the multiple miscarriages his wife had on their way to having a baby.

For their part, the Andersons also have news to report. Not long after deciding to try conceiving without fertility treatments, the couple became pregnant. They're expecting a baby in April. —JULIA HANNA

@Soldiers Field



MADDIE may be HBS's most popular study partner. The sweet-tempered therapy dog makes semiannual visits to Baker Library to provide much-needed stress relief during finals. Last December, an estimated 80 students and staff visited the cuddly six-year-old labradoodle.

American Express CEO **KENNETH CHENAULT** and former Massachusetts governor Deval Patrick spoke at the 44th annual **H. Naylor Fitzhugh (MBA 1933)** Conference in early February. Sponsored by the African American Student Union, the conference also featured panel discussions on the business community's response to social injustice as well as the challenges and opportunities unique to African American entrepreneurs.

"Harvard is famous for its intellectual freedom," **WANG JIANLIN**, chairman of the global conglomerate Dalian Wanda Group, told 800-plus students who gathered in Burden Hall in October. "Ask me anything at all." Students quizzed China's richest man on the future of the Chinese movie industry, on how changes in China's one-child policy might impact the real estate market, as well as his opinion on the American presidential race.



In December, the Boston Redevelopment Authority officially approved plans for HBS's new convening center, **KLARMAN HALL**, named for Beth and **Seth Klarman (MBA 1982)**. Expected to open in 2018, the space will feature a flexible floor design that can accommodate up to 1,000 guests.



LEADERSHIP

Takes One to Know One

New alumna to lead External Relations

Janet Cahill (AMP 189, 2015), who was previously managing director of HBS External Relations and The Harvard Business School Campaign, has been named the new executive director of External Relations. **Ralph James (MBA 1982)**, who has held that role since 2010, has assumed a new role as Strategic Advisor, External Relations.

Cahill is responsible for managing all aspects of the School's alumni relations, development, and alumni marketing and communications activities in support of the more than 80,000 alumni globally. She takes on this role as the School has raised close to \$900 million and energized alumni at 22 Campaign events worldwide. Publicly launched in April 2014, The Campaign is part of The Harvard Campaign, which concludes in 2018.

"The HBS community is nothing short of remarkable," says Cahill, "and I am honored to lead the External Relations team in supporting and enabling our alumni and the School to continue making a difference in the world."

Cahill previously headed Alumni Marketing and Communications and Alumni Clubs and Associations within External Relations. She has worked with many nonprofit organizations over the years, and earlier in her career was a sales and marketing executive at companies ranging from NeXT Computer to IBM.

Interest



Q

A

HOW DO I GET YOUR JOB?

Career Makeover

Marla Malcolm Beck (MBA/MPA 1998) AND **Ravneet Uberoi (HBS 2017)** share a résumé line: a stint at McKinsey before coming to HBS. Beck, cofounder and CEO of beauty retailer Bluemercury, tells Uberoi, a member of the student-run Retail & Luxury Goods Club, how she went from consultant to entrepreneur to retail maven, with 70-plus stores across the country. —APRIL WHITE

RU: When you were at HBS did you envision starting your own beauty brand?

MMB: I knew I wanted to run a company, but I didn't know I wanted to *start* a company. I caught the entrepreneurial bug at HBS. I think it was the exposure to entrepreneurship intersecting with the advent of e-commerce.

After HBS I took a job in private equity. I met entrepreneurs who had built \$10 million to \$50 million companies, and I realized, "Oh, they're not superhuman. I can actually do this."

So I started thinking, what business can I bring to e-commerce? Luxury beauty. We raised a million dollars in two weeks, and we were off to the races. I'll always remember the date—May 14, 1999. One year after I graduated from business school, I was responsible for my own salary.

RU: You make it sound so easy. What was the most challenging

aspect of starting Bluemercury?

MMB: The hardest thing I ever did was the first year of Bluemercury. The funding—at that time—was easy; finding a business model that was going to be sustainable was the hardest. There was a lot of competition, people weren't purchasing things online yet, funding started drying up, then the Nasdaq crashed. We had to figure out how to build a real business, for profit.

RU: What's next in the beauty industry?

MMB: I think everyday beauty services like Drybar are the next phase. With Uber and Airbnb, the younger generation is really used to services on demand. For us that translates into a concept called X Bar, an on-the-floor beauty bar that introduces clients to new products. We're really close to our clients; that's how we see the trends. We listen and we implement quickly.

+ ONLINE
Malcolm Beck on choosing a cofounder and raising capital for fashion and beauty startups at alumni.hbs.edu/beck





3-Minute Briefing

Pamela Meyer (MBA 1986)

Certified Fraud Examiner; CEO, Calibrate; author, *Liespotting: Proven Techniques to Detect Deception*

At my 20th HBS reunion I heard faculty member **Michael Wheeler** describe behavior people engage in when they're being deceptive. **THE ROOM WAS TRANSFIXED.** No one was on their phone! It turned out there is a robust, well-funded body of research—housed in academia, law enforcement, and intelligence—that had never been brought in a systematic way to the business world.

We all make high-stakes decisions that can punctuate the course of our lives—who to hire, who to work for, who to vote for, which deal to do. **THE AVERAGE PERSON IS HONEST, NOT DISHONEST.** I don't walk around being paranoid. But the costs of deception are high. It pays to develop a close team of colleagues you absolutely trust and would go to war with.

A complicated stew in our culture is creating a deception epidemic. Social media, for example, makes it possible to create and continuously tweak multiple identities, so there's a fractured sense of self out there. **AND THE MORAL BAR HAS LOWERED.** We no longer trust the media to be a fair watchdog, nor our elected officials to act with integrity.

DETECTING DECEPTION IS NOT A PARLOR TRICK; it's a complex, imperfect science. A first step is to observe someone's "baseline behavior," so you have a reliable reference point for measuring changes later.

Don't point your finger and say, "Oh, your eyebrow twitched, you're lying." **LOOK FOR CLUSTERS OF VERBAL AND NONVERBAL INDICATORS OF DECEIT:** grooming gestures, postural shifts, repeating questions or protesting them, providing inappropriate detail, detour statements, false smiles.

The issue that I'm most concerned about right now is inside threat mitigation. Studies show that anywhere from 30 percent to 50 percent of cyberattacks were inside jobs by employees with privileged access. **BREACHES IN CYBERSECURITY RESULTED IN LOSSES OF \$500 BILLION IN 2014,** but we're only spending about \$100 billion to address the problem. There's a huge gap between the size of the threat and our ability to detect it.

Knowing someone is deceptive is quite different from knowing the truth. It's important to recognize that difference. We don't have a view into an individual's internal monologue, and we're often biased. So don't waste your energy judging others: **PURSUE FACTS, NOT PEOPLE** and focus on getting to the truth. —JH

+ ONLINE

Meyer on the three Ts required for difficult conversations at alumni.hbs.edu/meyer

Interest



IN MY HUMBLE OPINION

Framed

Jeffrey Deitch on art and business

THE 1970S NEW YORK CONTEMPORARY ART WORLD THAT Jeffrey Deitch (MBA 1978) knew, where painter Jean-Michel Basquiat tagged buildings and artist Keith Haring bartended, was a far cry from the corporate boardroom. But Deitch—like so many of the artists he has supported—had a different perspective on art. “Even though you can’t apply sophisticated financial models to it or the complex structures that I learned in Production and Operations Management,” he says, “art is a business.” And Deitch, in his three-plus-decade career as an art advisor, curator, and collector, has become one of its most successful entrepreneurs. His business strategy? “If it is art that inspires me, it’s going to inspire other people, and they will buy it. It’s really as simple as that.”

—AW

On getting an art education:

“One of the great things about art is that what you experience every day adds to your knowledge and connoisseurship. I try to have an important experience with a work of art every day: seeing a work of art that’s new to me, seeing a work of art in a new way, or reading about an artist or a work of art.”

What makes a great artist:

“I’m not looking for artists who just paint nice pictures, or have

impressive technique or arresting subjects. I’m looking for artists who are changing the definition of what an artwork is or what an artist is—or even in a small way making some sort of structural or conceptual change in how a work of art is made.”

In his personal collection:

Jean-Michel Basquiat, Keith Haring, and Jeff Koons, among many others. “I like to collect works by artists I’ve worked with and who’ve been good friends.”

+ ONLINE
Marc Weidner (MBA 2007) offers advice to aspiring art collectors at alumni.hbs.edu/weidner



“Creating a great art collection is surprisingly similar to actually creating a great body of art yourself.”

the custom-made, buffalo-horn frames since about 1988. “Now that they’ve become a trademark, I have to continue wearing them.”

Changes in the art world, part I: Its prominence. “When I came to HBS, contemporary art was on the margins. Now, as we’ve seen, culture, art, design—these are central to the economy.”

Changes in the art world, part II: Its price. “I remember being the underbidder on the most expensive Rothko painting ever sold in 1982; it sold for \$250,000. Now a similar Rothko would be \$80 million-plus. Oh, the works I’ve sold that I should have kept! I remember selling an Andy Warhol Elizabeth Taylor portrait for

\$135,000 around 1994. Something like that today would be worth \$20 million.”

Keeping focus: “If I’m unable to do my morning run, I’m not as mentally focused the rest of the day. I ran the Charles River when I was at Harvard Business School; now that was a great run.”

Proudest professional accomplishment: *Post Human*, an exhibition Deitch curated in 1992 on future conceptions of the human body. “It became very influential, and the term entered into the language.”

Dream project: “I’m particularly determined to do *the great exhibition* on New York art in the 1980s. It’s my generation; that’s where I was.”

Advice to novice art collectors: “Creating a great art collection is surprisingly similar to actually creating a great body of art yourself. It’s not an investment portfolio; it reflects a vision.”

The personal touch: Deitch travels some 100 days a year. “In art, the deal is very personal. So an in-person conversation is always more important, more meaningful, than an email or a telephone exchange.”

Those glasses: He’s been wearing

SURVEY SAYS

Measuring Impact

NEARLY 40 PERCENT OF HARVARD ALUMNI FROM across all schools have founded for-profit and nonprofit organizations—launching more than 146,000 active ventures with an estimated \$3.9 trillion in annual revenues and creating 20.4 million jobs across all sectors and around the world.

That’s just one of the findings of the inaugural Harvard Impact Study, the University’s first effort to quantify the economic and social contributions of its alumni. HBS professor **Josh Lerner** led the study, which was based on a survey sent to almost 245,000 alumni, with approximately 15 percent responding in part or in full. The results were released in December.

“This study has helped to confirm what we’ve long believed—Harvard University alumni are central players in the global ecosystem of entrepreneurship,” Lerner says. “The research also helps us to better understand the depth and breadth of their roles as founders of firms that collectively have an indelible impact on the world economy by creating jobs, fostering prosperity, and bringing innovative products and services to market.”

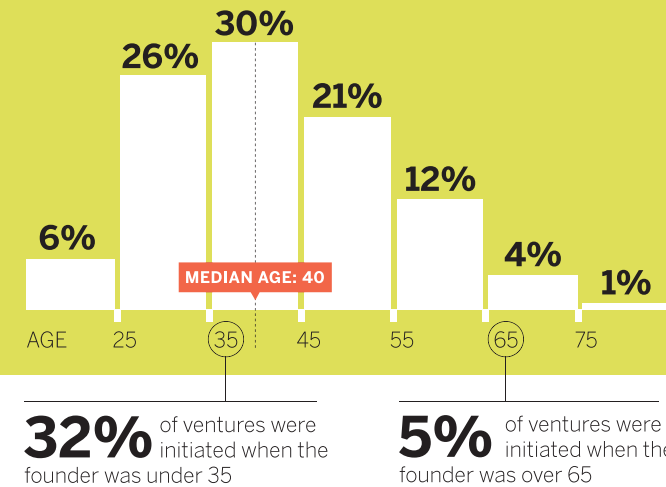
In addition to measuring alumni entrepreneurship, the study evaluated board service and volunteerism.

—AW

+ ONLINE
Read more about the results at community.harvard.edu/alumniimpact

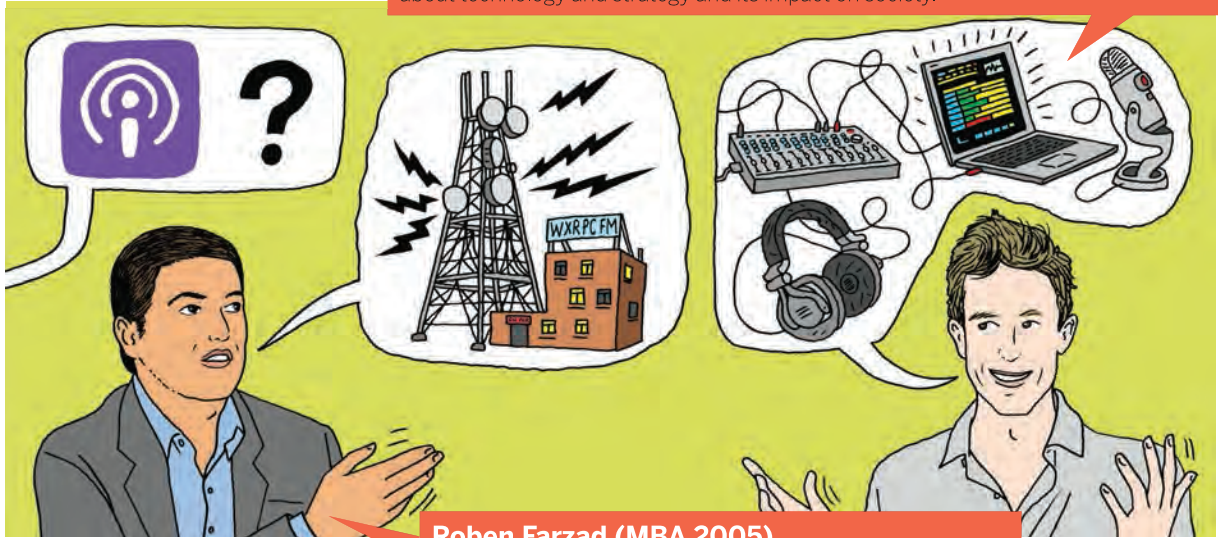
A Lifetime of Launches

The median age of Harvard alumni when they launch a venture is 40. Entrepreneurship by Harvard alumni occurs at all stages of life, and graduates across all schools have a long tradition of founding both for-profit and nonprofit organizations.



James Allworth (MBA 2010)

Director of Strategy, Medallia, a Silicon Valley–based customer experience company
PODCAST: Host, with Ben Thompson, of *Exponent*. “We’re solidly into like five figures of people listening in every week. It’s just kind of blowing up, and it’s lots of fun talking about technology and strategy and its impact on society.”

**Roben Farzad (MBA 2005)**

Host, *Full Disclosure* on NPR One
PODCAST: “I kind of envisioned it as a *Fresh Air* for finance or business—lighthearted, sophisticated, but not homework.”

AUDIOPHILES

The People's Pods

What's behind the rise of the podcast economy?

BETWEEN 2008 AND 2015, THE PERCENTAGE OF AMERICANS who listen to podcasts nearly doubled, according to Pew Research, jumping from 9 percent to 17 percent. What's driving the growth? And how did a 10-year-old medium suddenly become the next big thing? Two alumni podcasters weigh in.

—DAN MORRELL

HBS: Why did it take so long for the form to find its footing?

RF: Technology. All that stodgy equipment you'd have to go to a public radio station for in the past has been compacted and streamlined for the iPad and iPhone world. Now you can walk into a person's podcast-equipped garage, and there'll be some good microphones hooked up to a MacBook and some egg-crate cushioning on the walls. And you could substantially replicate the NPR audio experience.

Bluetooth technology inside cars has been a factor. As recently as eight or nine years ago, if you wanted to use an MP3 player or an iPod in the car, you'd have to hook it up to one of those old cassette deck adapters. Now you have the ability to stream

audio to your car stereo.

JA: Another way of thinking about it is distribution. Distribution used to be so, so important to get content out there. And increasingly, that's not so, because the Internet is “disintermediating” all the distributors.

RF: If I went out with this idea just five or six or seven years ago, I'd be at the mercy of my local public radio station, which really controlled the means of both production and distribution. Now it's into the great wide open. It's really the democratization of audio. And that's both an opportunity and a huge peril for the incumbent public radio world.

JA: I think that dynamic is exactly right. For a lot of these radio stations, the aim used to be to create content that appealed to as broad an

audience in your local geography as possible. But the Internet has completely turned that on its head. And because the addressable market has gone from that local geography to everyone, the best content, even if it's in a niche, always rises to the top.

HBS: How much money can really be behind this boom? What would a podcasting bubble look like?

RF: A lot of people worry that we are in one right now. It's become cliché. You go to a holiday party or a cocktail party, and people are like, “Oh, you know, I'm starting a podcast.” But that does make me worry, from a supply-and-demand and an advertiser equilibrium perspective. Are there going to be a handful of massive multimillion-listeners-per-week podcasts that capture the advertising disproportionately while all the others are taking pennies and nickels here and there?

JA: I am actually very bullish on the future of this. Advertisers used to put a lot of money into print. When Google came along, suddenly all the people who used to put money into print advertising went to Google, because it was so much more targeted. This is the exact same paradigm shift that's going to happen to radio.

+ ONLINE

Hear about Allworth's aha moment and one of Farzad's favorite guests at alumni.hbs.edu/podcastboom

HBS is part of the boom:

Listen to *Cold Call*, which offers a behind-the-scenes look at current case studies, at hbs.edu/coldcall

IMPACT

MARCH 2016

INVESTING IN THE HBS FUND

FIRST-YEAR MBA STUDENTS LEARN WHERE THEY ARE HEADED FOR THE FIELD 2 IMMERSION BY RECEIVING T-SHIRTS IDENTIFYING THEIR DESTINATIONS.

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IMPACT | HBS CAMPAIGN NEWS

HBS FUND FOR LEADERSHIP AND INNOVATION

A Resource for the Next Big Idea, and More

The HBS Fund for Leadership and Innovation is instrumental in bringing innovative projects to life at the School. Recent successful HBS initiatives that are advancing management education—including the Harvard Innovation Lab and HBX—gained traction in their early stages with the help of gifts of all sizes to the HBS Fund.

“In business, venture capital or R&D budgets seed the most promising new ideas,” says Dean **Nitin Nohria**. “In academia, where endowments are generally restricted to donor-defined purposes, there simply aren’t funds earmarked for advancing the next big idea. The School relies heavily on annual gifts to the HBS Fund for early-stage support of breakthrough projects, courses, programs, and other initiatives.”

As ventures like Field Immersion Experiences for Leadership Development (FIELD), the US Competitiveness Project, the Harvard Innovation Lab, and HBX take hold, they are attracting targeted donor support, freeing up unrestricted resources for new opportunities.

This cycle of investment allows the School to act quickly and thoughtfully to foster initiatives that prepare students for—and address the challenges of—an evolving business world.

The HBS Fund also supports core priorities that have long made the School a leader in the field of management education. A commitment to global understanding, pathbreaking research, educational innovation, and attracting the most talented students from diverse economic backgrounds are foundational elements of the School’s mission. These are far-reaching and often expensive areas of focus that require ongoing funding from multiple sources.

For more than a century, Harvard Business School has proven fertile ground for ideas that change the way people think about business and the world, but the School can never rest on its legacy; rather, it must be relentless in its pursuit of excellence and relevance. Annual giving to the HBS Fund for Leadership and Innovation helps make this possible.



“The School relies heavily on annual gifts to the HBS Fund for early-stage support of breakthrough projects, courses, programs, and other initiatives.”

Nitin Nohria, Dean of the Faculty

📷 SUSAN YOUNG



THE HARVARD BUSINESS SCHOOL CAMPAIGN
THE HARVARD CAMPAIGN

campaign.hbs.edu

HBS Fund: Four Areas of Opportunity

Annual giving to the HBS Fund for Leadership and Innovation has an immediate impact on the School's ability to advance key priorities and provides much-needed financial flexibility to invest in new initiatives. To learn more, visit alumni.hbs.edu/hbsfund.



A Diversity of Perspectives

Student Financial Aid

Need-based fellowships enable the School to attract the most talented students regardless of their financial circumstances, while bringing a diversity of perspectives to the classroom.



HBX Live

Educational Innovation

Ongoing innovation ensures that the School continues to provide a transformational learning experience that educates and shapes future leaders.



FIELD 2 Students in Morocco

Global Understanding

HBS provides an educational experience with unmatched global breadth, through internationally focused cases and courses and opportunities for students and faculty members to gain firsthand experience in markets around the world.



US Competitiveness Project Faculty Panel

Pathbreaking Research

Research conducted by HBS faculty serves as the foundation for the School's educational programs and addresses the world's most pressing issues and challenges.

A LEGACY OF REAL-WORLD IMPACT

These HBS initiatives were made possible with support from the HBS Fund for Leadership and Innovation:



FIELD

A complement to case method learning, FIELD (Field Immersion Experiences for Leadership Development) is a required, yearlong MBA course designed to foster leadership development, a global outlook, and the ability to integrate knowledge across disciplines.



US Competitiveness Project

The faculty involved in this multiyear, research-led effort are committed to identifying practical steps that business leaders can take to strengthen the US economy, which is an issue of global concern.



HBX

Using innovative digital platforms, HBX online courses and programs make the School's discussion-based approach to learning accessible to a broader range of students and offer further opportunities to engage HBS alumni.



And More...

The HBS Fund also helps meet the demand for need-based financial aid and provides critical support for ongoing faculty and student programs and activities.

HBS FUND HELPS FUEL FACULTY RESEARCH AND NEW LEARNING EXPERIENCES

Data's Double Duty: Research and the Real World

As **Raffaella Sadun** was wrapping up her Corporate Strategy course last fall, one of her students sent her a four-page analysis of the private equity industry in India, a topic the class had touched on during a case discussion. On his own initiative, the student had interviewed industry leaders to better understand the barriers to growth that Indian private equity firms face—his analysis echoing findings from Sadun's own research. "It built on intuitions that I already had, but seeing firsthand experiences was great input," says Sadun, the Thomas S. Murphy Associate Professor of Business Administration. An enterprising MBA student independently working to further existing research, she says, is "one of the interactions that you won't find at other schools."

This kind of real-world input is especially relevant to Sadun, an economist who sees her research as helping firms build actionable solutions to their business challenges. Sadun's research is developed from management practice data that she and her colleagues compiled by interviewing business leaders across the globe. For instance, to determine how competing priorities can affect a family business, her team spoke to more than 1,100 CEOs, eventually finding striking differences in managerial styles and productivity in firms run by family members relative to their

external counterparts. Over the past several years, Sadun and her colleagues have interviewed 15,000 managers in 34 countries, leading to observations on everything from incentivization to the effects of competition on how firms are organized. "There is a branch of my field that is closer to philosophy," she says. "Ultimately, though, I want to have an impact on the real world, not just academia."

Insights pulled from the data, Sadun says, can extend beyond private firms. She wants to see if her research can help decrease mortality rates in neonatal intensive care units by increasing accountability and communication and teaching doctors to be better managers. "I'm trying to understand how my work can impact the public sector," she says.

This is, admittedly, a daunting undertaking that will require untold amounts of data and research—and funding. But Sadun says that's a credit to another unique characteristic of her workplace. "HBS is very open to developing big ideas," she says. And thanks to the support of her research from the HBS Fund for Leadership and Innovation, she feels a bit less like an economist and a bit more like an entrepreneur.



"I want to have an impact on the real world, not just academia.... HBS is very open to developing big ideas..."

Raffaella Sadun, Thomas S. Murphy Associate Professor of Business Administration

ABOVE: RUSS CAMPBELL; RIGHT: DANA MAXSON



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“...we had the opportunity to meet some of the most brilliant people who are contributing to the life of the city...”

Arthur Segel, the Poorvu Family Professor of Management Practice

An Immersion in Private Equity and Real Estate

During the week in early January when the Dow dropped more than 1,000 points, 33 second-year HBS students were, coincidentally, in New York City discussing the post–Great Recession economy with investors **Bill Ackman (MBA 1992)**, **Ray Dalio (MBA 1973)**, and Stan Druckenmiller. The students were participants in an Immersive Field Course (IFC) led by **Arthur Segel**, the Poorvu Family Professor of Management Practice.

The course, Private Equity and Real Estate in New York City, provided hands-on learning through unscripted student-led discussions with some of the sectors’ most influential players—many of them HBS alumni—and opportunities for students to work on group projects at nine companies, including Barclays Capital, Barneys, Elliott Management, and Jonathan Rose Companies. The issues they tackled ranged from crowdsourcing and e-commerce, to renewable energy generation and development of buildings for use by charter schools.

IFCs are topic-oriented and designed to give MBA students in the Elective Curriculum deep engagement in the field by working with local organizations for up to two weeks. The NYC course included four on-campus sessions in the fall that laid the groundwork for the 10-day immersion. It gave students access to numerous innovators in investing and securitization, as well as leading real estate developers, including **Mike Fascitelli (MBA 1982)**, **Barry**

Sternlicht (MBA 1986), and **Owen Thomas (MBA 1987)**, who shared insights about industry trends and challenges.

At Kohn Pedersen Fox Associates, architects of 10 and 30 Hudson Yards, the largest private real estate project in the United States, Chairman A. Eugene Kohn explained how an idea moves from drawing board to skyscraper, after which students toured the site. They also met with US Ambassador to the UN Samantha Power and **Sir James Wolfensohn (MBA 1959)**, former president of the World Bank, to gain a better understanding of America’s financial capital from a global vantage point.

The course exceeded students’ expectations. “We were able to talk with real estate and investment people who shared their perspectives on what’s going to happen with the economy during a tumultuous time worldwide,” says **Keir Evans (HBS 2016)**. For classmate **Caitlin Haught**, the biggest takeaway was that “as MBA students we can make a large impact on the world not only through investing and real estate, but also by giving back.”

Observes Segel: “New York is still the center of the world, and we had the opportunity to meet some of the most brilliant people who are contributing to the life of the city and the global economy. They have extraordinary stories to tell, and it was fascinating for the students to hear about the paths they’ve chosen, especially as they look to the next step in their own careers.”

Above: A. Eugene Kohn (far right), chairman, Kohn Pedersen Fox Associates, and a senior lecturer at HBS, with students in the firm’s New York offices.

EXPRESSIONS OF SUPPORT



“We believe in HBS’s ability to prepare leaders to meet the challenges facing business and society today.” Ashley Garrett and Alan K. “AJ” Jones (both MBA 1987), HBS Fund Chairs

Alumni and friends who give to the HBS Fund for Leadership and Innovation advance the School’s key priorities. Gifts are put to use immediately where they are most needed, whether to support financial aid, educational innovation, global understanding, or pathbreaking research. Support for the HBS Fund enables the School to invest in new ideas and initiatives.

For more information, contact Charlie Cardillo, Senior Director, Annual and Reunion Giving, at 617-495-4702 or ccardillo@hbs.edu.



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“For HBS to continue to have the kind of talented students that it has and to continue to be inclusive requires alumni to be very generous in their giving. That’s a powerful motivator for me.” Lavanya Manohar (MBA 2011)



“We, as business leaders, should go beyond ourselves and take a longer term view, putting larger interests above ours. Giving to the HBS Fund is a means to do just that and help the School provide lifelong learning opportunities for others.” Christopher Lee (AMP 178, 2010)

“Our support for the HBS Fund reflects the confidence we have in the Dean and other leaders at the School. Innovations such as HBX and FIELD are a great way to inspire donors to underwrite the future.” Marc Lipschultz and Jacob Doft (both MBA 1995)



CHRIS TAGGART; TORI SOPERS; COURTESY CHRISTOPHER LEE; DANA MAXSON



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1 MEXICO CITY



2 MEXICO CITY



3 MEXICO CITY



4 NEW YORK CITY



5 SAN FRANCISCO



6 CHICAGO

Recent HBS Campaign Regional Events & Alumni Gatherings

1–3 HBS Campaign Mexico City Regional Event held in February at the Hyatt Regency Mexico City.

1 **Alfredo Berlanga (MBA 1997)**, **Dan Roig (MBA 1995)**, **Jorge de la Mora (MBA 1996)**, and **José Luis Ballesteros (MBA 1996)** at the reception.

2 **Alejandro Ramírez Magaña (MBA 2001)** was one of several speakers during the event.

3 **Vera Makarov (MBA 2010)**, **Felipe Ortiz-Monasterio (MBA 1977)**, and **Federico Barcena-Mastretta (MBA 1996)** before the start of the evening's program.

4 (seated, from left) **Peter Weinberg (MBA 1983)**, **Debby Weinberg (MBA 1985)**, **Jamie Dinan (MBA 1985)**, **Clifford Press (MBA 1983)**, (standing) **Beth Fascitelli (MBA 1984)**, **Mike Fascitelli (MBA 1982)**, **Elizabeth Miller (MBA 1985)**, and **Elizabeth Sawyer (MBA 1983)** at the New York City HBS Couples Dinner held in December at the Union Club as part of the School's regional engagement efforts.

5–6 Young Alumni Networking Events were held in the fall to create opportunities for alumni to connect. The San Francisco event was cohosted by the **HBS Association of Northern California** at ThirstyBear Brewing Company, and the Chicago event was cohosted by the **HBS Club of Chicago** at EPIC.

Upcoming Campaign Regional Events around the World

Dubai
Istanbul
Toronto

To learn more about upcoming events and see photos from past events, please visit alumni.hbs.edu/CampaignEvents.

HBS WAS JUST THE BEGINNING

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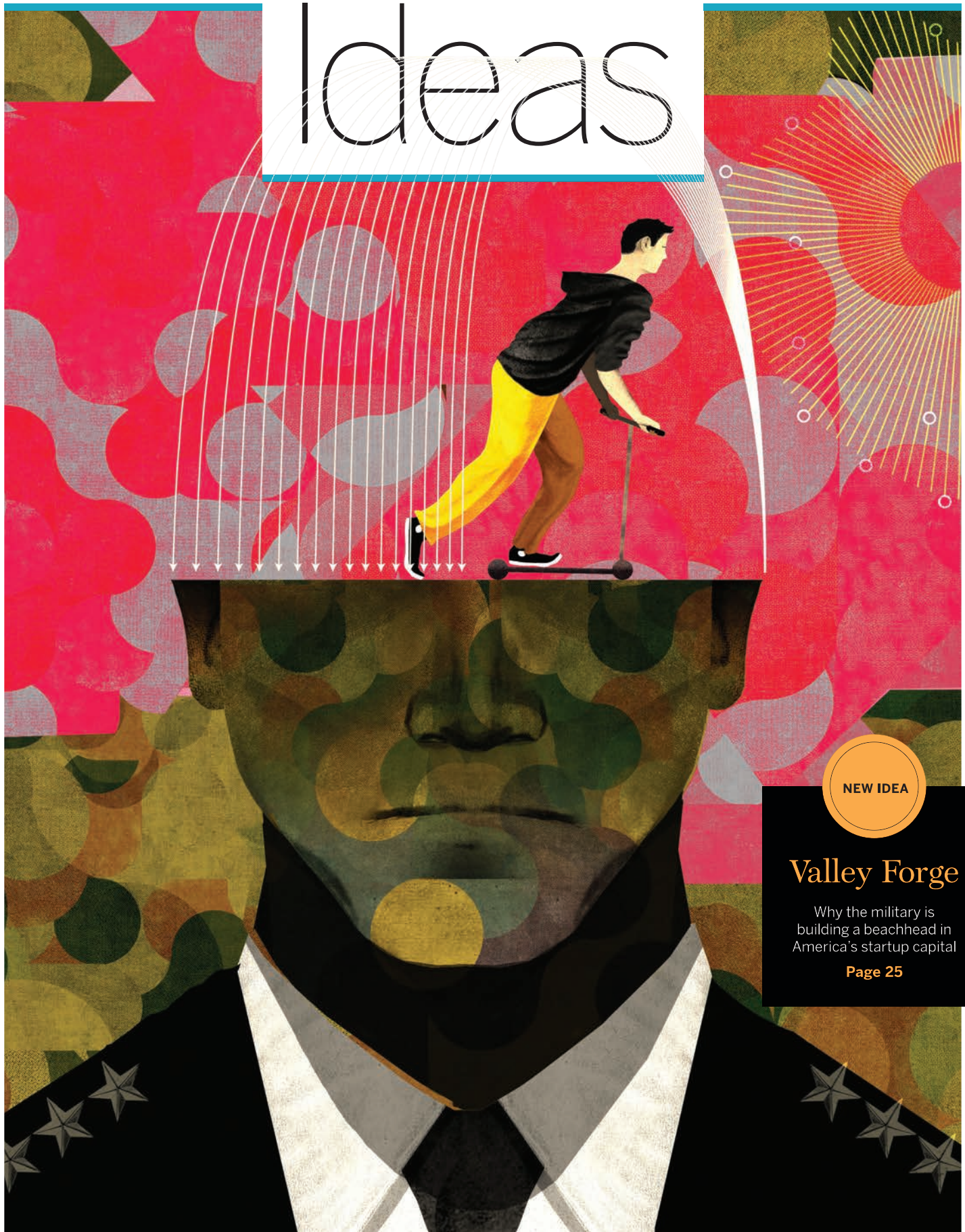


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Ideas



NEW IDEA

Valley Forge

Why the military is building a beachhead in America's startup capital

Page 25

MAKING A
DIFFERENCE

MAKING HIGHER ED ACCESSIBLE TO AFRICANS



Scott Royster (MBA 1992)
Cofounder, Maarifa Education

Scott Royster (MBA 1992) cofounded Maarifa Education to help provide high-quality schooling for Africans.

“In Africa, roughly 5 percent of the population has completed university. We want to be part of the catalyst of taking that to 20, 30, even 40 percent in a generation or two,” he says.

Royster spent his early post-HBS years working for private equity firms before joining Radio One—an American broadcasting company that targets African-American and urban consumers—as CFO in 1996.

“We took that company from six radio stations to 70 in five years, took it public in 1999, and raised a couple billion dollars in capital. Today, Radio One is the largest African-American broadcasting company in the United States,” he says. “That’s where I truly became the entrepreneur and executive I am today.”

His success there also positioned him well to pursue his dream of helping to transform post-secondary education in Africa. With the acquisition of two Cavendish Universities (Uganda, Zambia) and a significant investment in a third (KCA University, in Kenya), Royster spends his days overseeing strategy and business development.

“What we’re doing hasn’t been done before in this part of the world, and it has the power to transform the continent.”

alumni.hbs.edu/makingadifference



and figure out ways for the Pentagon to work with the notoriously anti-establishment tech industry. “I’m not saying that Silicon Valley owns the franchise on smart folks and innovative folks,” says Hendrickson. “But you’ve just got to start somewhere.”

So how does the buttoned-up Pentagon introduce itself to the Bay Area’s jeans-and-hoodies set? The same way everyone else does, Hendrickson says: with personal connections. Secretary of Defense Ash Carter has developed strong connections in the Valley, so the team started with his network and then spread out, meeting with startup founders and venture capitalists. They’ve also adjusted the way the Pentagon typically talks to potential partners. The government is used to the request for proposal (RFP) model—an agency has a need, a company proposes to fulfill it, and that’s that. But in the Valley, Hendrickson is always looking for ways to show startups that the Pentagon can be useful to entrepreneurs, too. “We have other things to bring to the table,” says Hendrickson. “If we can present them with a data set and algorithms that they just can’t get anywhere

The Western Front

What the nation’s tech capital can teach the Pentagon (and vice versa)

THE GOVERNMENT USED TO BE AMERICA’S greatest innovator. Among many things, it developed or helped fund the creation of the Internet, GPS, microchips, and even Cheetos. (True story: The military’s need for easy-to-transport meals led to the creation of powdered cheese.) And just decades ago, Washington was involved in two-thirds of all research and development in America; only one-third came from private industry. But today, those R&D ratios have flipped. Both private companies and governments around the globe are innovating far faster than Washington can keep up, which puts the Pentagon in the dangerous position of falling behind. “The way we have been doing business for the past several decades will not be sufficient going forward,” says Rear Admiral **Brian Hendrickson (MBA 1997)**.

That’s why the Pentagon has gone west.

Last summer, Hendrickson and a colleague opened an office in Silicon Valley called the Defense Innovation Unit Experimental, or DIUx for short. Their mission: discover new technologies that can be useful to the military,

else, that’s interesting to them.”

Entrepreneurs are also interested in capital, of course. The government has it, but its process of selecting and paying for new technologies is ploddingly slow. Traditional military contractors have built their businesses around that process, but Valley innovators can’t wait as long. “We can approach it two ways,” Hendrickson says. “We can say, ‘You need to learn how to do business with the DoD,’ which will confirm a negative bias; or we can say, ‘We need to look at ways that we can do business differently.’” He’s doing the latter, developing a new, fast process for the military to pay companies.

And perhaps just as importantly, Hendrickson can speak and think like Valley types. The region is full of buzzwords—disrupt, pivot, fail fast—that reflect its unsentimental, try-and-fail attitude. “The X in our name is for experimental,” he says. “Not every one of those experiments will go according to plan.” But if the Pentagon wants to keep up with a fast-changing world, Hendrickson knows it’s going to need to embrace that kind of unpredictability, too.

—JASON FEIFER

NEW IDEA

Paper Chase

CASE
STUDY

LOVEPOP MAKES GREETING CARDS THAT OPEN to reveal intricate 3D designs that resemble an artistic take on a children's pop-up book. The brainchild of two former ship designers—**Wombi Rose** and **John Wise (both MBA 2015)**—the two-year-old company operates four sales kiosks in the Boston area, with mobile retail teams that visit local fairs and markets. The kiosks offer a valuable in-person experience with a high conversion rate for the

\$8–\$13 cards. The split between in-person and online sales is roughly 50/50.

Production is vertically integrated, with cards made in a facility Lovepop owns in Vietnam, which allows for greater flexibility. The company is doubling its revenues quarter over quarter and reported a \$1.4 million run rate in late 2015. After some small initial fundraising, in December it secured an investment via ABC's *Shark Tank* (\$300,000 for 15 percent of the company) and an undisclosed amount of angel funding.

The Question:

TRADITIONAL CARD DISPLAY STANDS WON'T WORK FOR LOVEPOP'S CREATIONS, IN PART because the stands only show the front of a card. They would hide Lovepop's value—the reveal. "We don't feel like we're sending someone a teddy bear card; we're sending a teddy bear that emerges out of a card," says Rose. The kiosk model is effective, but scaling quickly can be costly and time-consuming. And while the team has begun investing in their online approach, hoping to build a unique gifting experience for customers, it is hard to match the interaction of the kiosk.

At the heart of the challenge is the question of positioning: Lovepop makes a product that looks a bit like a greeting card, but acts much more like a gift. "How do we position our product in a market that doesn't understand what we do?" asks Rose. "How do we create a category?"

The Answers:

IT STRIKES ME THAT LOVEPOP EMBODIES THE "IT'S THE thought that counts" approach to gift giving. Sometimes, you just can't think of a gift that's just right because you're trying to give a gift to someone who has everything or is just so darn inscrutable that you can't figure out what they'd like.

This could be an interesting place to position the product. It's more than a card (heck, it is \$13), but it's not yet another useless item that you'll regift or send to Goodwill. You can show some level of personalization by picking a card you know that resonates with them (e.g., they love Hawaii, so pick the palm tree option), but it's not one more thing they don't need.

The problem with the kiosk as an option is volume and scale. I'd recommend a PR blitz as the fastest way to gain more traction. —**Laura Troyani (MBA 2010)**

I'D REDEFINE THE VALUE PROPOSITION—YOU'RE NOT selling a product but an experience. It's the ooh and aah of the reveal that's the excitement and value. As

such, your delivery of this experience should also have the same mindset. In this regard, your kiosks are so conventional and blah that it's a testament to the cards that they've sold so well. Your brand (and name, no less!) are set up for pop-up retail—your entire "shop" could be set up as a "reveal" and add an element of surprise and experiential delight wherever you go. You could create a very unique brand presence that's not just about greeting cards.

—**Jane Choi Greenthal (MBA 1991)**

THE KEY TO CREATING A CATEGORY HERE IS GETTING the cards into people's hands and letting them see the value. Relying on purchases at retail value to drive word of mouth will be slow, and will open up the category for a lot of competition (low-entry barrier).

The secret to driving this is business category use. It's a perfect direct mail opportunity. (Yup, I said it; much more effective than email.) Send a sample to business owners with the idea of creating orders for

+ ONLINE
Offer your strategy for
Lovepop at [alumni.
hbs.edu/casestudy](http://alumni.hbs.edu/casestudy)



business use. At low cost, it's practical to send out promotional samples that drive in-hand use. The big byproduct is using this introductory effort to cross-sell consumer use of the product. How many times have we used something at work that we incorporate into our personal lives? Plenty! **—Gary Ambrosino (MBA 1988)**

YOU MAY WANT TO MARKET THESE CARDS THROUGH AN existing gift channel that would view them as complementary. FTD, 1-800-Flowers, and other online marketers could see this as another quality product they could market alongside their own—or maybe a pop-up valentine paired with chocolate manufacturers or [with retailers like] Tiffany's, with cards that change year to year. You would not have to offer your entire line through each channel, just match each card with each channel. The most responsive channels could be your focus. Videos on their channel sites and on YouTube could be a nice way to jump-start visibility, offering exposure via someone else's customer list. **—Brian Barnett (MBA 1983)**

PARTNERSHIP IS CRITICAL TO YOUR DISTRIBUTION growth. Reaching out to companies like Hallmark or Things Remembered (already in the card/gifting space) could be mutually beneficial—providing access for your company and needed innovation for theirs. **—Joyce Hrinya (MBA 1988)**

CONSIDER CRACKING THE MARKET VIA TARGETED enterprise sales. For example, BMW sending thank-



you notes to its loyal customers or United sending holiday or birthday cards to top-tier frequent fliers. This would provide volume and rapid exposure to consumers with lower sensitivity to price.

—Ariel Galinsky (MBA 1997)

YOU MAY WANT TO POSITION OUTSIDE OF THE GREETING card market and more in the corporate giving space. There are a couple of designs that I would buy in bulk to ship to our key customers. So perhaps you could market personalized or custom designs for similar sales/marketing executives (or teams) who are positioning their products or services. Instead of selling 1 or 2 at a time, you'll be selling 200-plus per order. It will raise visibility in your market—you can promote individual purchases of your cards on the back of each one, and you'll get a third distribution mechanism.

—Julie Walker (GMP 6, 2000)

GOT A CASE?

To take part in a future "Case Study," send an outline of your company's challenge to bulletin@hbs.edu

The Benefits of Bias

EVERY YEAR, SPECIALLY CHOSEN COMMITTEES help the US National Institutes of Health (NIH) decide how to allocate massive—totaling more than \$24 billion in 2014—competitive federal grants for medical research. But the evaluators on the various committees come from disparate fields and bring highly specialized expertise to the process—which some worry might create subject-area bias in the decision-making process and affect the quality of research.

Assistant Professor **Danielle Li** takes a mathematical approach to examining this issue in a recent HBS working paper, crunching data from nearly 100,000 NIH grant applications from 1992 to 2005. She plotted links between applicants and evaluators—via professional publication citations—to determine potential bias. Then, to establish the quality of the funded projects, she tracked the number of publications and citations that the research produced over time.

Her findings indicate that expert evaluators were indeed biased in favor of projects in their own area, which increased the application's funding chances by 3.2 percent. But there was an unexpected benefit to their bias. Evaluators' expert ability to separate the exceptional proposals from the lackluster ones led to projects with a measurably larger academic impact than projects selected without significant specialized expert input. The takeaway was clear, says Li. "Strong conflict-of-interest policies to reduce bias come at the expense of reduced quality of the experts you are actually consulting. And that [leads to] funding research that is worse."

While Li's paper doesn't advocate doing away with conflict-of-interest policies entirely, she says it may be acceptable—in some contexts—to loosen the reins. "You don't want to eliminate all conflicts of interest, because there can be such a big information tradeoff," she says. For the NIH, the benefits of more expertise at the judging tables are likely to far outweigh potential bias.

—ERIN PETERSON

"Expertise vs. Bias in Evaluation: Evidence from the NIH," by Danielle Li, HBS Working Paper.

Price Check

Assistant Professor Kris Ferreira on machine learning and optimization in online retail

How did you come to focus on algorithmic pricing?

In my doctoral work at MIT, I was studying optimization, probability, and machine learning, which are essentially mathematical tools that enable us to use data to make better decisions. From there, I realized I wanted to focus on a business application in an industry with the most room for improvement. Online retail, particularly online fashion, definitely fit the bill.

Why is fashion a good place to focus?

The industry faces several challenges that many other retailers don't. There is quite a bit of heterogeneity in customer style preference. Many products are sold for just one selling season. It's extremely difficult to predict demand—sometimes demand actually increases as the price goes up due to perceived quality and popularity. These factors make selling fashion product quite different than selling, say, milk or toilet paper. In addition, online retailers have a vast amount of data at their fingertips; solving complex problems with data seemed like a natural fit.

Tell me about the research you did with Rue La La.

Rue La La is in the online flash sales industry, offering designer apparel and accessories at a deep discount for a limited time. Many of its products sell out the first time they're offered, and a majority of the revenues come from first sales. So the question of how to price new products is an important one, but there's no historical sales information available to go by.

To address that need, my coauthors and I identified features from past products—such as price and the number of similar products sold at the same time—



“Online retailers have a vast amount of data at their fingertips; solving complex problems with data seemed like a natural fit.”

that we could map to features of new products as a way to predict demand. We also took into account the need to price multiple products in the same category at the same time, since demand for one item is influenced by the price of all the others. After we built and implemented a software tool to make demand predictions and optimize prices, we ran a field experiment to test the impact of our tool and saw a 10 percent revenue increase in the test group. This shows that online retailers can enjoy a substantial gain with a relatively low investment when they go beyond the common approaches of determining price based on intuition, competition, or a standard cost-plus-markup formula.

How does this connect with your research on dynamic pricing?

Many retailers mark down prices at the end of the season as a way to clear inventory. The problem with that is you might have strategic consumers who delay their purchase of a pair of sandals, for example, to take advantage of the discounted price. Whereas if you didn't use a markdown, then—who knows?—maybe those consumers would have purchased the item at full price.

We suggest that online retailers change their price more frequently at the beginning of the selling season to gauge demand at different price points. If you can go through that process quickly—which is possible in the world of online retail—you can set an optimum price for the rest of the selling season. There's a fundamental tradeoff: Should I learn something about demand by offering a price that might be suboptimal, or should I offer the price that I think is optimal now to maximize revenue? Our research shows retailers a way to balance this tradeoff between “learning and earning.”

—JH

INNOVATION



Reinventing the Wheel

Martijn Lopes Cardozo is turning old tires into new business

CARBON BLACK IS EVERYWHERE. THE dark, powdery substance can be found in inks, dyes, polymers, rubber, and tires—almost everything that looks black has used carbon black in its production, says **Martijn Lopes Cardozo (MBA 2000)**, CEO of Netherlands-based Black Bear Carbon.

Tires, in particular, are a gold mine. But with every tire change, that potential carbon black—4.5 million tons annually, worth 4.5 billion euros—heads to landfills (or worse, up in smoke). “It’s like throwing out the old wallet with the money still in it,” says Lopes Cardozo.

That’s the founding principle of Black Bear: bringing tires into “the world of the circular economy” by extracting carbon black from discarded models to create new ones. Lopes Cardozo first heard about the idea in 2013 while serving as an entrepreneur-in-residence at the Dutch incubator YES!Delft. The idea of chipping away at the mountains of old tires without emitting loads of CO₂ and other toxic chemicals into the air or clogging landfills appealed to Lopes Cardozo. He’d worked extensively in startups and spent some time in the corporate world, but now he wanted more than commercial success—he wanted to lead a company that

had what he calls a “strong sustainability story.” In need of a veteran entrepreneur, the scientists and researchers in the young company asked Lopes Cardozo if he would like to join the team as CEO in early 2014.

The process works like this: End-of-life tires are collected at the Black Bear plant, where their steel wiring is removed. They are then heated without oxygen, allowing the rubber to evaporate, leaving behind carbon black, which can then be “pelletized” (think instant coffee) and used to create everything from new tires to paint. And there’s a bonus to all of this. The process also produces a gas that can be used to generate electricity, creating a self-sufficient plant that has the potential to provide energy to the local community.

Since its founding in 2010, Black Bear has grown from 3 employees to 15 and has plans to open a second plant this year. There are enough tires in the world to build more than 800 production lines, and Lopes Cardozo has bold ambitions: “After we have successfully demonstrated our first installation, we want to rapidly scale-up internationally,” he says. Creating more localized production facilities would also be more efficient. Ironically, he says, tires are quite hard to transport.

—MAUREEN HARMON

One of Lopes Cardozo’s early entrepreneurial stops: LA-based Gold-Pocket Interactive, founded by girlfriend (now wife) **Izet Fraanje** and **Scott Newnam (both MBA 2000)**, and acquired by Tandberg Television in 2005.



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I ASK BECAUSE...

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are already HBS
stakeholders, but
as contributors,
we can directly
impact the
School’s future.”**

— Peter Burrow (MBA 1985)
30th Reunion Gift Chair



Alumni volunteers make a difference at HBS. Peter is one of many fundraising volunteers advancing the case for annual giving to the HBS Fund for Leadership and Innovation and its immediate impact and critical role in driving innovation and new initiatives.

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Off Script

Prescriptions for the future of pharma



PRESCRIPTION DRUG SPENDING INCREASED BY MORE THAN 13 PERCENT IN THE United States in 2014, raising health insurance premiums and the ire of consumers and politicians. The reasons behind the rise are many, including the high cost of drug development—as much as \$2.6 billion per drug, according to one study—and the limited lifespan of patent rights. What can the pharmaceutical industry and government regulators do to improve conditions?

We put your queries to **Fred Hassan (MBA 1972)**, a managing director at Warburg Pincus whose four decades of pharmaceutical experience has included top posts at Schering-Plough and Wyeth.



Are there structural reforms that could be implemented in the drug industry to lower the market-driven price of drugs? Forcing pharma firms to invest in R&D a minimum percentage of the sales of any FDA-approved drug? Longer patent protection post-approval? Less red tape to approve drugs? What is the drug industry's own view on why there is this constant inflation in the cost of prescription drugs?

—Etienne Locoh-Donou (MBA 2002)

GOVERNMENTS ARE NOT GOOD AT MANAGING MARKETS or driving innovation. “Forcing” a minimum R&D ratio to sales is unnecessary because the present ratio in pharma R&D spend is in the high teens. The best way to improve the cost of prescription drugs is to improve the supply of new drugs. The two best approaches to this are modernizing the FDA so it gets a “pro-innovation” mandate in addition to its present “protecting the public health” mandate; and extending patent life proactively in areas such as Alzheimer’s to help open up the supply of new drugs.

Is there a framework in another country—could be a hybrid model of multiple developed or developing nations—where public and private payers, providers, and producers of pharmaceuticals and medical

devices work in a more coordinated way?

—Rebecca Leung (MBA 1996)

SMALLER, HIGHLY ADVANCED countries with long-term industrial strategies, such as Singapore, have a relatively well-coordinated system to achieve their health-care goals while keeping costs under control. They also control health funding deficits by encouraging, or even requiring, their main populations to aggressively set aside medical savings during their earning years to help with older age health care. Such actions are much harder to accomplish in the United States.

Who is really making much of the money in this large and rapidly growing market? It doesn't seem like the drug companies, physicians, or hospitals are seeing big profit increases. Is it research labs? Drug distribution? Insurance? Where is all this additional spend going?

—Richard Kaung (MBA 1995)

ALL ENTITIES ARE FOLLOWING THEIR OWN BUSINESS models—whether they are for-profit or not-for-profit. The additional spend on health care is due to increased utilization of health-care services as the population gets older. Costlier innovations and longer patient lives in areas such as cancer are part of the increase as well.

+ ONLINE

Read about Hassan's recent award from the HBS Healthcare Alumni Association at alumni.hbs.edu/hassan

INK

BOOK REVIEW

Making Your Presence Felt

NOW TRUMPETED BY POPULAR WRITER SUSAN CAIN AS the “high priestess of self-confidence for the self-doubting,” Associate Professor **Amy Cuddy** nevertheless crumbled in her first elevator pitch.

Attending a gathering of prestigious researchers, Cuddy, then a fifth-year PhD student, found herself in an elevator face-to-face with an academic hero, who asked her to give a literal elevator pitch on her work. She bombed, overwhelmed by the moment and unable to give a coherent description of what she had been studying the past four years.

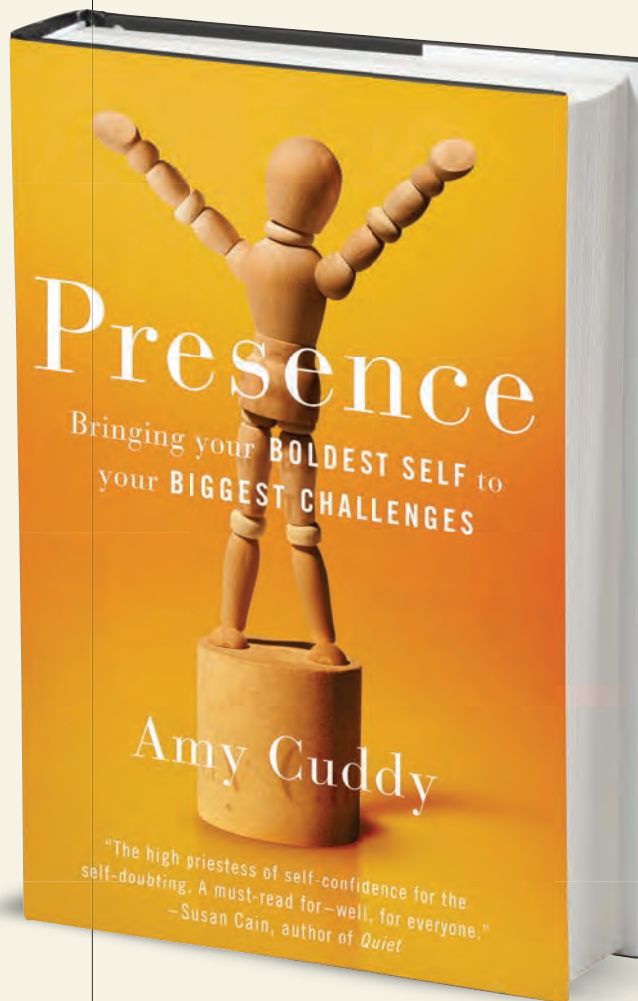
In her new book, *Presence: Bringing Your Boldest Self to Your Biggest Challenges*, Cuddy highlights her personal experience to introduce the concept of “presence,” the ability to generate an inner calm, authority, and confidence during times of potential stress. In high anxiety situations such as job interviews or presentations, Cuddy contends that we are likely to lose this self-possession in a fit of worrying about the stakes and self-questioning our performance. If only we could stay in the moment, focused on the task at hand, calmly and without regret about the results.

We can achieve presence when we need it, Cuddy argues, through a combination of body postures, behavior, and mindset, which activate chemical changes in the body. Expansive “power poses” can cause testosterone levels to rise and cortisol levels to drop, in turn increasing our appetite for risk, causing us to perform better in job interviews, for instance, and generally configuring our brains to cope well in stressful situations, she says. Her 2012 TED Talk on power posing, with 30 million views, is the second-most viewed video in the series.

“When we feel present, our speech, facial expressions, postures, and movements align,” Cuddy writes. “And that internal convergence, that harmony, is palpable and resonant—because it’s real.”

If you want to make a bad impression, Cuddy can tell you how to do that as well. Slouch. Cross your ankles. Walk with short strides and little arm movement. “When we feel powerless or subordinate, we constrict our posture, tightening, wrapping, and making ourselves smaller,” she writes.

Cuddy is among a growing number of HBS faculty using scientific methods and behavioral science to study how the human brain works. Peer into their research toolkits and you will find instruments for brain scanning and eye tracking, as well as experiments to test psychological and physiological responses. Beware, future MBAs: Can a cold call of a student’s galvanic skin response be far away? —SEAN SILVERTHORNE



+ ONLINE

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QUOTED

“The 80–20 rule pervades everything in life. Eighty percent of your revenue is going to come from 20 percent of your customers; 80 percent of the value of what you read comes from 20 percent of the text; and 80 percent of the value of your work comes from 20 percent of the effort. So when starting your company, find those 20 percent of things you can do that will get you 80 percent of the results, and forget the rest.”



—**Laurie Stach (MBA 2011)**, founder and executive director of MIT Launch, an entrepreneurship program for high-school students,

discussing startup time management during a TEDx event at Institut Le Rosey—a Swiss boarding school

WHAT I'M READING

“For those who love history and like thinking about why our American system (with all of its flaws) kind of works, these two books help to frame how lucky we are and why the way we do things in the United States does not work so readily elsewhere.”

—HBS professor **Arthur Segel**, on *Against the Gods: The Remarkable Story of Risk*, by Peter L. Bernstein, and *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*, by Hernando de Soto



LYRICS

La Fille En Ré (THE GIRL FROM RÉ)

Le sable est chaud à Sablanceaux

The sand is hot at Sablanceaux

Tout est doux à Rivedoux

Everything is calm at Rivedoux

C'est l'paradis à Sainte-Marie

It's paradise at Sainte-Marie

Elle suce sa roue à La Noue

She's taigating him at La Noue

Il est dans sa botte à La Flotte

He's riding in her group at La Flotte

A bicyclette aux Grenettes

They're biking at Les Grenettes

Elle prend l'virage au Bois-Plage

She turns the corner at Bois-Plage

Il la rejoint à Saint-Martin

He catches up with her at Saint-Martin

Elle fait l'avion au Bastion

She's gliding at the Bastion

Ils bavardent à la Couarde

They start chatting at la Couarde

A la Pergo c'est l'apéro

At the Pergola it's time for drinks

Ils se tutoient à Loix

They're on first name terms at Loix

La fille en Ré, elle l'a fait rêver

The girl from Ré, she made him dream

La fille en Ré, elle l'a réveillé

The girl from Ré, she woke him up

—“La Fille en Ré,” by Private Pepper, a.k.a. musician **Eric Dufaure (MBA 1974)**. Watch the video, shot at Île de Ré off the western coast of France, starring Eric's son Paul, at alumni.hbs.edu/ink

YES

- Clarifies supremacy of federal govt
- Large Republic → less liable to abuse
- ↳ Block tyranny of majority

← Madison
 Limited
 negative
 breed
 conf
 Absolu

FEDERAL

DAVID MOSS IS REWRITING HISTORY

PROBLEMS

Economic Downturn

Tax Problems

High Inflation

Falling Imports (Demand?)

Trade Problems

Exports ↓

Britain playing States against each other

printing
 paper
 money

States imposing
 tariffs on
 each other

Govt Debt

Federal raises tax

States rel to

FED

Can one HBS professor
 change how American history
 is taught in high schools?

BY APRIL WHITE

PHOTOGRAPHED BY WEBB CHAPPELL

NEGATIVE

son:
ted federal
the will
d more
nflict...
lute negative will
with better

Madison's prognosis may not be right?
Will crush states, esp small ones.
Large states will dominate?

15, 1786-87

Articles of Confederation

Financial Distress

ral govt can't
ise funds through
axes
es can tax, but
eluctant to contribute
to federal govt

FEDERAL GOVT
Not paying debt

- Downturn
- Private debtors in trouble

States raising taxes or inflating (RT!)

British troops still on US soil

IN MARCH 2010, THE 1787 DRAFTING OF THE UNITED STATES CONSTITUTION became breaking news. The members of the Texas State Board of Education had convened in Austin to review the state's history and other social studies curricula. A battle had been brewing for months between the board's conservative Republicans, who perceived a liberal bias in the curriculum, and its more moderate Republicans and Democrats. For three days, the board held contentious open meetings, arguing issues centuries old—Were the Founding Fathers guided primarily by Christian principles? Is there a constitutional basis for the legal doctrine of separation of church and state?—in an effort to craft a list of the people, places, and events students need to know to understand American history.

When revised American history textbooks, incorporating the ideas of the board's conservative majority, arrived in Texas classrooms last fall, a new round of fiery rhetoric erupted. And while the Texas curriculum fight may have been the loudest, similar battles have played out in California, Colorado, and Oklahoma, as each state debated guidelines to define history for public school teachers, standardized test writers, textbook publishers, and students.

But lost in these debates is a much more fundamental question: Is history just a series of dates and events? While the debate rages over *what* to teach students about American history, Harvard Business School Professor **David Moss** is considering a different issue. *How* should we be teaching that history—and why?

DAVID MOSS TEACHES HISTORY IN THE PRESENT TENSE.

On a blackboard in an Aldrich classroom, the professor scrawls, "The federal government is insolvent!" He sets the scene for the class, an unusual mix of Harvard undergraduates and MBAs. "I want you to imagine: You just fought in the American Revolution," he says. "The federal government—which is part of what you fought to create—the federal government can't pay you." That is just one of the issues facing the country as the Constitutional Convention gathers. It may be 2015 as Moss begins this class, but for the next 90 minutes, we are in the critical period of the mid-1780s, between the end of the American Revolution and the election of the country's first president, when the nation was governed by the Articles of Confederation. To understand that document's successor, the US Constitution,

you need to understand the time period from which it emerged, Moss argues, and the problems and personalities that shaped it. Today's case protagonist is Founding Father James Madison; the question he faces is the debate over the "federal negative," his plan to give Congress veto power over state laws.

You may have learned about the federal negative in an 11th-grade American history survey course that careened from the American Revolution to the Vietnam War in just 180 days. But it's unlikely you learned about it or any other American history topic the way Moss teaches it in his History of American Democracy course. "We're looking at history as not just a series of things that happened, but as a series of things that are about to happen," says Moss. That means considering the choices the individuals—real human beings, not the one-dimensional heroes or villains we commonly encounter in history textbooks—faced and the circumstances, public and private, that influenced their decisions. This is not how the 51-year-old professor was taught American history when he was growing up in upstate New York. But the approach is immediately familiar to any HBS student: It is the hallmark of the case method.

In the overcapacity classroom, Moss draws from the students some of the other issues that face the young country in the critical period. Students forced by lack of space during the "shopping period" to sit on the staircases hold their name cards over their heads to join the conversation as Moss asks the class to consider possible solutions to these problems. "What does James Madison think?" he asks, reminding the class that this is 1787. This isn't a question of what a student thinks, from her Skydeck vantage point 228 years later, and it's not a question of what Moss thinks; his own opinions



One popular case puts students in the shoes of founding father James Madison at the Constitutional Convention, a scene imagined here by early 20th century artist Howard Chandler Christy.



are hidden behind a scholarly calm and the quiet joy he takes at playing devil’s advocate. This is a question of what the historical record—here, the case, filled with exhibits on war expenditures, currency fluctuations, and American imports and exports—tells us. And students can’t simply rely on their modern-day political views; the Democratic and Republican parties didn’t even exist yet, and the political challenges they will learn about don’t map neatly onto today’s battles of blue versus red.

The blackboard fills up with proposed remedies to the country’s ills in 1787, and with more exclamation points, underlines, asterisks, bullets, check marks, Xs, and arrows in every direction. “What you are doing is writing the Constitution—specifically Article 1, Section 8,” Moss tells the class. It’s no idle practice; Harvard University claims eight United States presidents among its alumni.

The Madison case under vigorous discussion grew out of the first case Moss, who came to HBS with a background and degrees in both history and economics, wrote in 1994: “Constructing a Nation: The United

“What you are doing is writing the Constitution—specifically Article 1, Section 8,” Moss tells the class. It’s no idle practice; Harvard University claims eight United States presidents among its alumni.

States and Their Constitution, 1763–1792.” His experience teaching that case suggested that the same method HBS pioneered to impart business principles might be well suited for the study of history. In 2006 he began developing the elective Creating the Modern Financial System, to examine the intersection of the financial sector and government in shaping financial history through a series of cases on topics such as the rise of the world’s first futures market in early 18th-century Japan, Wall Street’s first financial panic in 1792, and the Federal Reserve’s highly controversial response to the global financial turmoil of 1931. The course debuted

in the spring 2008 term; six weeks later Bear Sterns collapsed, underlining Moss's thesis. The students' enthusiasm for the course may have been motivated in part by current events: The first year there were 30 students; a year later, after receiving a top student rating, Moss faced significant overenrollment. But Moss's enthusiasm was for the method as much as the subject and its sudden relevance to global financial events. His first course-length experiment had been a success. He saw the case method bring history—which many students thought of as a dull procession of inevitable events—to life. Character, narrative, and tension gave an urgency to topics such as the French pension system and the rise of German universal banking, and placing students in the decision-making role made them reconsider the myths that often surround historical figures.

Moss's History of American Democracy course began, in part, as another test of the utility of the case method—could it work for a younger undergraduate audience, unfamiliar with the case method, and for a broader historical topic? Now in its third year, the hybrid undergraduate-MBA course—covering historical moments that are well known (secession, Selma), less well known (Harvard graduate Thomas Dorr's 1842 rebel government in Rhode Island, a study of suffrage), and recent (Citizens United, Prop 8)—is consistently oversubscribed.

Now as Moss explores the federal negative, a handful of observers are wedged in the back of the crowded classroom, including a Harvard graduate student and former high-school teacher who was the course's head teaching fellow last year; a historian who has coauthored some of the course's 24 new cases; and a member of the Executive Education group. The trio is part of a small team Moss has formed to conduct his boldest experiment yet: taking the case method into high-school classrooms to revolutionize how we teach teenagers about American democracy.

THIS PAST FALL, MOSS AND HIS TEAM LAUNCHED THE CASE METHOD IN 11 PUBLIC, CHARTER, AND PRIVATE HIGH SCHOOLS

in Indiana, Massachusetts, New York, Pennsylvania, Texas, and Washington, DC.

As part of the small pilot program, 23 history and civics teachers introduced several of the cases Moss uses in History of American Democracy into their curricula. The teachers were provided with cases—the Madison case was among the most popular, because it is a topic commonly covered in high-school history classes—as well as worksheets, assignment questions, and teaching

plans. They also visited the HBS campus in September for a two-day master class on both the method and the cases themselves.

"I thought I was teaching by the case method," Eleanor Cannon said after attending the workshop. Cannon and two of her colleagues, Bailey Duncan and Jack Soliman, pioneered the case method in their classrooms at St. John's School, an elite private school in Houston. What she meant is that her small history classes aren't all lecture; she expects class participation and encourages questions and debate. But what she saw during the on-campus workshop was something different.

Moss and his team have spent a great deal of time considering exactly what it is about the case method that makes it a different and effective tool for teaching history. There's one thing Moss knows for sure: There is no case method without the case itself. "It's like trying to do an anatomy class without the cadaver."

The teachers and students in the pilot program, who provide feedback on each case, are helping Moss envision what the case method could look like in high schools: How do you fit a case discussion into the confines of a high-school schedule? How do you record the information when you aren't blessed with HBS's abundance of blackboards? Can the case method incorporate the type of "active learning" popular in high schools—for instance, students moving around the classroom to vote on issues or work in small groups?

Moss isn't talking about the essence of the case method as he explains the importance of teaching civics as a dynamic and engaging topic, but he could be: "The three branches of government are extremely important, the checks and balances are extremely important, the Bill of Rights is extremely important," he says. "But if you stop there, you miss almost the whole thing. Those are crucial pieces, to be sure, but by themselves they're not enough. Much more is needed for a successful democracy. We know this because if you try to export just those pieces, including the blueprint, the Constitution, to another country you don't get a working democracy."

ELEANOR CANNON'S SUNNY, SPACIOUS CLASSROOM AT ST. JOHN'S SCHOOL IN HOUSTON

is well appointed, with bright white dry-erase boards covering two walls and a computer screen in place of a blackboard. She has set up the seating to mimic what she saw a month earlier at the HBS workshop: two concentric horseshoes shaped by white tables and blue chairs. Without prompting, the 11th-grade students—dressed in khaki shorts or plaid skirts, each with a dif-

ferent style and color of sneaker—fill the seats the same way MBA students do. The first to arrive take the seats in back; the students who slip in just as class begins are relegated to the equivalent of the Worm Deck.

This is the second of three 40-minute periods Cannon will spend with these 11 students on “The Struggle over Public Education,” one of six cases they will read over the course of the year. Each day the students read a portion of the same case used in Moss’s HBS classroom, nine pages in preparation for the first class, just four or five on the subsequent days. Part of learning by the case method is learning the case method itself: the level of preparation and participation the cases require and the etiquette of building on, or disagreeing with, a classmate’s comments. Already, the students have adapted to the format; one student has prepared a comment that refers to the case’s footnotes.

Cannon is an energetic teacher, her presentations filled with motion and funny sound effects, and the students reflect that enthusiasm back to her. The case is complex in its details—focusing on the legislative and judicial machinations over New York State’s 1849 Free School Law—but the underlying themes are readily accessible to the students: Who should go to school? Who should decide what is taught in school? Who should pay for school? Within these debates are questions of immigration, industrialization, taxation, and, of course, democracy.

On the first day of the case discussion, Cannon set the stage, using the case to explore the state of education in the mid-19th century and the vision of public education proposed by educational reformer Horace Mann, the first secretary of Massachusetts’s state board of education. Today, she guides the class through the historical context that gave rise to the common school movement. “Let’s look for evidence,” she says, drawing them back to the document each has in hand. She’s hoping they’ll discover the statistics in Exhibit 4 showing the divide between New York’s rural and urban communities. One student suggests, correctly, that the growth of factories was a motivation for the common school movement in urban settings. Cannon sees an opportunity.

“What skills do you need to work in a factory?” she asks.

“None!” the students chorus.

Slowly, though, they concede that basic reading and math skills could be important, as well as interpersonal skills. Showing up to work on time, following orders, working quietly—“School is like a factory!” one student, Alex, interrupts. That’s the connection Cannon wanted her to make. Cannon didn’t have to tell her why 19th-century factory owners might support common schools; the evidence was there in the case. “That’s actually horrible,” Alex adds.

In a conversation over lunch, Cannon and her col-

“In education in the United States, you have two very different ideas,” says Houston high-school history teacher Jack Soliman. “One is about indoctrination. The other is about helping kids become independent thinkers. ‘This is what you should think’ versus ‘What do you think?’”

leagues Bailey Duncan and Jack Soliman discuss the day’s classes. Just this morning they had presented their experience with the case method pilot program before a faculty meeting, explaining the benefits they’ve seen already in student retention and engagement; students are making connections between the case material and previous lessons, and some who were reluctant to speak up earlier in the semester are now joining the class conversation.

“We haven’t given anything up,” says Cannon; in previous years the teachers taught the antebellum era the students are now debating via an 80-slide PowerPoint deck. “We’ve gained,” adds Duncan. “In this method you see the human element. Will they remember Horace Mann if he is a 30-second definition, or will they remember him if they have a sense of who he was and how he made a mark on their world today?”

And there’s the question of how to teach history, in Texas or anywhere. The strictures of the Texas Essential Knowledge and Skills concern themselves with 30-second definitions. At a private school not bound by the state guidelines, the teachers can concern themselves with something else. “In education in the United States, you have two very different ideas,” says Soliman. “One is about indoctrination. The other is about helping kids become independent thinkers. ‘This is what you should think’ versus ‘What do you think?’” For these St. John’s teachers, the case method is an effective new tool to teach their students not what to think but how.

In Duncan’s classroom, another group of 11th-grade students gathers in pairs and trios to review the assignment questions. “You’re training your minds for this discussion,” Duncan tells the lively group. He is a playful teacher—it’s Throwback Thursday, so he gamely displays a childhood photo—who takes a slightly different approach to teaching the case. In his class, the day’s topic is outlined on the board in advance: “What were the most and least compelling parts of Mann’s vision? Why?” “Why was New York a much different story than Massachusetts regarding education reform?” “Which common school reform motivations were good in your opinion? Bad?” There’s also a mystery question; one student, Ellie, covers her face with her sweatshirt in mock dread before rejoining her group’s conversation with a sudden insight that encapsulates the takeaway from the case as aptly as it does David Moss’s mission:

“Oh! Oh! Now that people are more involved in the democracy, the government wants them to be better educated!”





THE

NEW

RACE

Touting everything from asteroid mining to shoebox-sized satellites, a new generation of space entrepreneurs is taking the search for the next big thing to the farthest reaches of the galaxy

BY ROBERT S. BENCHLEY

PHOTOQUEST

Ariane Cornell (MBA 2014)

watched galactic history being made from a deck in West Texas.



Ariane Cornell
Head, Astronaut
Strategy and
Sales, Blue Origin

Cornell calls the West Texas launch and landing a “learning experience,” noting that Blue Origin is slated to reach into orbital space before the end of the decade.

+ ONLINE

Watch Blue Origin’s New Shepard make its historic landing at alumni.hbs.edu/spacerace

Cornell works for Blue Origin, where she is head of astronaut strategy and sales and supports engine sales for the space exploration company. Along with a few dozen fellow employees, all dressed in royal blue company polo shirts—including founder and Amazon CEO Jeff Bezos—Cornell saw Blue Origin’s rocket fly more than 62 miles up in the sky on November 23, deliver a vehicle into sub-orbital space, and return to Earth intact on a landing pad a few miles away.

The experience was visceral: A sonic boom when the rocket entered the atmosphere, a massive dust plume that went up when it landed, and a wild cheer when the scene settled to reveal a safe landing. “It was one of the most memorable and electric moments I have ever experienced,” Cornell says.

But sending a rocket into space and landing it back on Earth wasn’t just an important internal milestone for Blue Origin or a memorable life experience for Cornell. Historically, rockets like these deliver their payload—this one delivered the company’s New Shepard module that someday could give human passengers a taste of space travel—and are destroyed on the way up or crash back to Earth in pieces. With rockets costing tens of millions of dollars, reuse can reduce one of space entry’s largest costs. When SpaceX launched and successfully landed its Falcon 9 rocket at Cape Canaveral just a few weeks later—delivering 11 satellites into low-Earth orbit for a commercial client—CEO Elon Musk noted that it costs \$60 million to make the rocket but only \$200,000 to fuel. In other words: two small landings for space startups, one giant leap for space exploration.

This promise of cost savings and efficiency has long been the hallmark of private space companies. And that field is growing: There are now nearly 1,000 space companies worldwide according to industry analyst NewSpace Global, and they are touting revolutionary (and mostly unproven) new concepts in rockets, space tourism, and even space services, ranging from orbital refueling to asteroid mining to space debris cleanup.

This entrepreneurial energy is following a decidedly terrestrial opportunity. The nonprofit advocacy group Space Foundation estimated that the global size of the industry reached \$330 billion in 2014, with an annual growth rate of 9 percent. Commercial space activities made up 76 percent of that total.

The final frontier, it turns out, might just be the last great market.





With rockets costing
tens of millions of
dollars, reuse can
reduce one of space
entry's largest costs.



David Thompson
President and
CEO, Orbital ATK

When Thompson launched Orbital in 1982, it became the first corporate space contractor in nearly 30 years.



Lewis Braxton III
Former Deputy
Director, NASA
Ames Research
Center

“We began thinking about Mars as a way for NASA to show that we still have it.”

Mars is NASA's new mission, with plans to send astronauts to the planet in the 2030s.

The Orbital Effect

David Thompson (MBA 1981) was working at NASA in the late 1970s when the agency's funding began to bottom out. In 1966, NASA spending made up 4.41 percent of the total federal budget. By 1975, it was less than 1 percent. “The original programs were finished, the shuttle hadn't begun yet, and we weren't sending astronauts into space,” he says.

Thompson began thinking about a new kind of organization—a private-sector firm that would attract young engineers to work on exciting projects like designing rockets for satellite delivery. Besides, he held the “naive view that starting a space company might be fun and profitable.” Founded with two HBS classmates, **Bruce Ferguson (MBA 1979, JD 1981)** and **Scott Webster (MBA 1981)**, with capital supplied by maxed-out credit cards, Orbital Sciences Corporation launched in April 1982, the first corporate entrant at the prime contractor level in nearly three decades. (Today, the company—now Orbital ATK—is a \$4.5 billion enterprise.)

For NASA, the funding nadir led to introspection. “NASA began taking a hard look at its purpose and what it was giving back to the public,” says **Lewis Braxton III (PMD 66, 1993)**, who recently retired as deputy director of NASA's Ames Research Center and is now pursuing a position with a space startup. Over the subsequent decades, the agency transformed. “We had once been the leader in technology,” he says. “Somehow, over the years, we had become the nation's technology broker to outside companies.” The 2011 shuttering of the shuttle program—and its \$600 million per launch costs—left them without a high-profile pursuit. “We began thinking about manned Mars missions as a way for NASA to show that we still have it.”

The agency is currently developing the necessary capabilities to send astronauts to an asteroid by 2025—sort of a trial run—and to Mars in the 2030s. Meanwhile, unmanned probes have been and will continue to examine the planet, and send back information that will be useful in helping NASA understand how astronauts—and possible future colonists—will be able to survive the intense radiation that bombards its surface.

By choosing to look farther out into space, NASA opened up a competitive market closer to Earth. Two years ago, the agency awarded a nearly \$7 billion contract to SpaceX—launched in 2002 by PayPal and Tesla Motors cofounder Musk—and Boeing to transport US astronauts to the International Space Station (ISS) starting in 2017. That it was split between the two companies—\$4.2 billion to legacy transporter Boeing, \$2.7 billion to upstart SpaceX—was a sign of changing attitudes. It also showed the benefits of market competition: Since the space shuttle program shut down, the United States has relied on Russia for flights to

the ISS, which cost \$71 million per astronaut, set to rise to \$82 million under a new contract. That cost could drop to \$58 million aboard Boeing or SpaceX spacecraft. (NASA announced in January that Sierra Nevada Corporation—where **Gregg Burgess [GMP 5, 2008]** is VP of technology—will join Orbital ATK and SpaceX on its roster of companies contracted to resupply the ISS.)

“The drive to reduce cost is generating the most change,” says aspiring space entrepreneur **Justin Oliveira (HBS 2017)**. Oliveira came to HBS after a stint as human spaceflight program examiner with the White House Office of Management and Budget, where he oversaw NASA projects to see how well they were adhering to presidential policy, as well as being stewards of the taxpayers' money. “After years of aerospace being cost-plus contracting and paying huge amounts for rockets, you have a guy like Musk walk in saying, ‘I'll offer you something 98 percent as reliable for one-third the cost.’ It shakes things up. The reason SpaceX can do what it does is that it's not using 50-year-old methods.”

While SpaceX is a relatively august entrant into the market, it wasn't until three years ago that it shook up the industry by offering very aggressive, heavily discounted pricing for rocket launches. “When SpaceX began, everybody laughed and wondered how this billionaire guy could come up with a company that was even remotely relevant,” says **Gautier Brunet (MBA 2015)**, a former rocket engineer who works for Seabury Group, a consulting and investing firm. “In three years, that has changed, and people now realize he is a credible threat. There has been a strong push to reorganize the sector and trim the incredible fat that was everywhere. There is no magic to it—you have to find ways to lower your costs, or you won't be successful.”

Better. Smaller. Cheaper.

“Moore's Law has finally come to aerospace,” says **Sunil Nagaraj (MBA 2009)**, VP at Bessemer Venture Partners (BVP), one of the most active firms investing in the space industry. “It means that parts are cheaper and more expendable. If the cost of building and launching a satellite is one-thousandth of what it used to be, it's not that a big of a deal to lose one. Satellites are now ‘versioned’ just as software and apps are. That gives companies much more agility, much more ability to experiment. Space companies are starting to look like tech companies, and that's huge.”

To date, BVP has invested \$50 million in space-related startups, including Skybox Imaging, a satellite-imagery company acquired by Google for \$500 million in 2014, and Spire, a data-gathering company headed by **Peter Platzer (MBA 2002)** that has raised \$80 million in



“Space companies are
starting to look like
tech companies, and
that’s huge.”

—Sunil Nagaraj (MBA 2009)



Joseph Landon
VP and CFO,
Planetary
Resources

“Everything we consider precious on earth is available in limitless quantities in space.”

total. Nowhere in space has the better-smaller-cheaper trend had more impact than in satellites. Approximately half of all satellites launched today are CubeSats—shoebox-sized satellites that can be made for \$50,000–\$200,000 and launched for \$30,000–\$500,000 on board a scheduled flight that has extra cargo space. For that price, companies can launch multiple CubeSats and direct them to specific orbital locations where, as a group, they will provide total global coverage 24/7, rather than viewing some of Earth some of the time. Spire wants to put up 100 of them to provide worldwide weather and shipping data; Platzer says that fewer than 20 satellites currently monitor weather.

Platzer agrees with Nagaraj: Satellite loss is expected. “Don’t update—replace. It’s cheaper,” he says, referring to the two-year average lifespan of CubeSats.

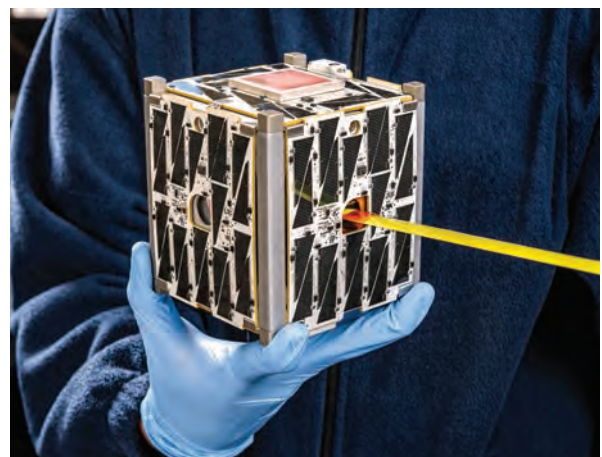
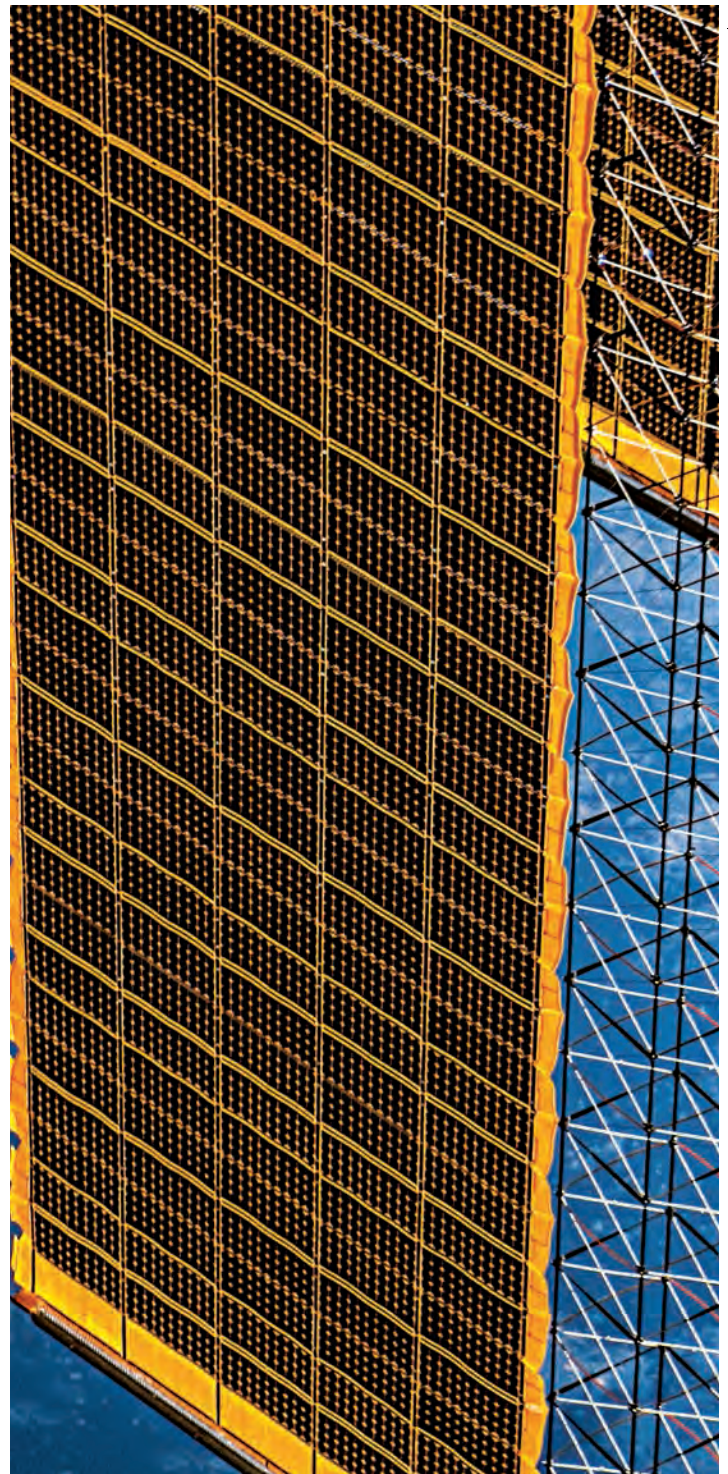
Which is fine for small satellites, but what about the bigger, more expensive satellites that control military telecommunications or beam the Super Bowl worldwide? **Joseph Landon (MBA 2007)**, VP and CFO of Planetary Resources in Redmond, Washington, one of the space startups pursuing asteroid mining, estimates there are about 400 active satellites that need fuel to stay in their “assigned Earth-orbiting parking spots.” Getting fuel from earth into space is extremely costly: All costs considered, fuel in space costs more than pure gold on earth, says Landon. “Each satellite operator pays up to \$50 million per ton for that fuel. That’s \$180,000 per gallon.” And each of these 400 satellites has to make about \$50 million a year to just cover the manufacturing, launch, and operating costs. “That’s a \$20 billion market for a company that can provide a low-cost fuel alternative that keeps the satellites operating and making money for their operators.”

Planetary Resources’ plan is to mine asteroid water, which can be broken down, processed into rocket fuel, and used to refuel these satellites—all without ever returning to Earth. The technology exists, Landon says; companies are just waiting for the first galactic oil well to be dug, so to speak.

Asteroids could be a prime commodity source, he says. “Everything we consider precious on earth is available in limitless quantities in space.” More than 700 asteroids are estimated to be worth \$100 trillion, according to Asterank, which tracks and evaluates 1 million of the largest asteroids. Another 100 million smaller asteroids remain untracked.

All of these futuristic space-mining plans, though, still struggle against the oldest barrier: getting into space. Most of the cost of carrying people, satellites, supplies, or debris cleanup devices into space involves escaping the clutches of Earth’s gravity well. Every trip requires lifting off with fuel for the whole ride.

Until Planetary Resources or another asteroid miner can provide in-space fill-ups, rocket companies are left with the heaviest cost-reduction burden. Rocket Lab,



+ ONLINE

Learn how **Khaled Al Hashmi (GMP 11, 2011)** is helping the UAE space program get off the ground at alumni.hbs.edu/spacerace



Refueling satellites is extremely costly: All costs considered, fuel in space costs more than pure gold on earth.

a company set to offer small satellite launches (up to 150 kg) at a bargain-basement price of \$5 million each, relies on 3-D printing and other cost-reducing technologies that make its carbon composite rocket scalable. (Nagaraj of BVP—a Rocket Lab investor—calls it “the Model T of space.”) The company already has signed a contract with Moon Express, a lunar mining startup, for two flights in 2017.

Other space companies, however, are experimenting with approaches that eliminate conventional rocket fuel altogether. Colorado startup Escape Dynamics has invested three years of R&D toward the development of fully reusable, electromagnetically powered, single-stage-to-orbit vehicles that use an external energy source—microwaves beamed from strategically placed

locations on earth.

“Chemical rockets have been putting man into space for the past 50 years, but they are inherently limited by the energy contained in their fuel,” says cofounder **Laetitia Garriott de Cayeux (MBA 2004)**. In fact, if Earth were 50 percent larger, with a correspondingly stronger gravitational pull, no form of chemical propulsion would contain enough energy to launch a spacecraft into orbit.

Microwave beams are more efficient, with rockets able to ascend without being weighed down with heavy fuel. Garriott de Cayeux projects that launch costs would be reduced from the current \$25,000 to \$50,000 per kilogram for small payloads to about \$150 per kilogram—an astonishing cost reduction if it can be achieved.

Tiny CubeSats—shown here leaving the International Space Station—are being used to measure everything from weather to traffic.



Laetitia Garriott de Cayeux
Cofounder,
Escape Dynamics

“Chemical rockets ... are inherently limited by the energy contained in their fuel.”

Successful space mining operations could prove lucrative: There are several hundred asteroids estimated to contain more than \$100 trillion in metals.

Profits, Both Near and Far

BVP’s Sunil Nagaraj has sat in on more than 100 presentations from space companies in the past 12 months, noting that the breadth of businesses demonstrates the vitality of the new space industry. “Ideas range from new types of rockets to satellite constellations to ground station networks of satellite dishes, to new thrusters on satellites to asteroid mining,” he says.

Joe Landon sees it, too. In addition to his work at Planetary Resources, Landon is chair of the Space Angels Network, the only early-seed-stage investment firm focused on space, with members heavily invested in more than 30 companies, grouped in segments that include “habitats and real estate” and “microgravity research.”

“The pace is really fast in this industry, and there have been some very good investment outcomes because it’s so young,” says Landon. “The pace of company growth is picking up, too. Investors are excited about getting in early.” SpaceX took about 10 years to be worth \$1 billion, he says. Planet Labs, a company that wants to create an Earth-imaging satellite network with open data access, is on pace to be worth \$1 billion in five years.

One key differentiator he sees for space startups: the ability to generate income while they wait—possibly for many years—for the technology and capital to catch up to their ambitions. Planetary Resources’ Arkyd line of spacecraft, a sort of flying telescope accompanied by

remote sensing technology, is designed to search for mineable asteroids. While their first few spacecraft will be used to test these capabilities, they will also observe Earth and collect data—ranging from oil and gas exploration to crop growth—to be sold to industry, academia, and the government, generating millions of dollars in revenue instead of burning through investors’ cash.

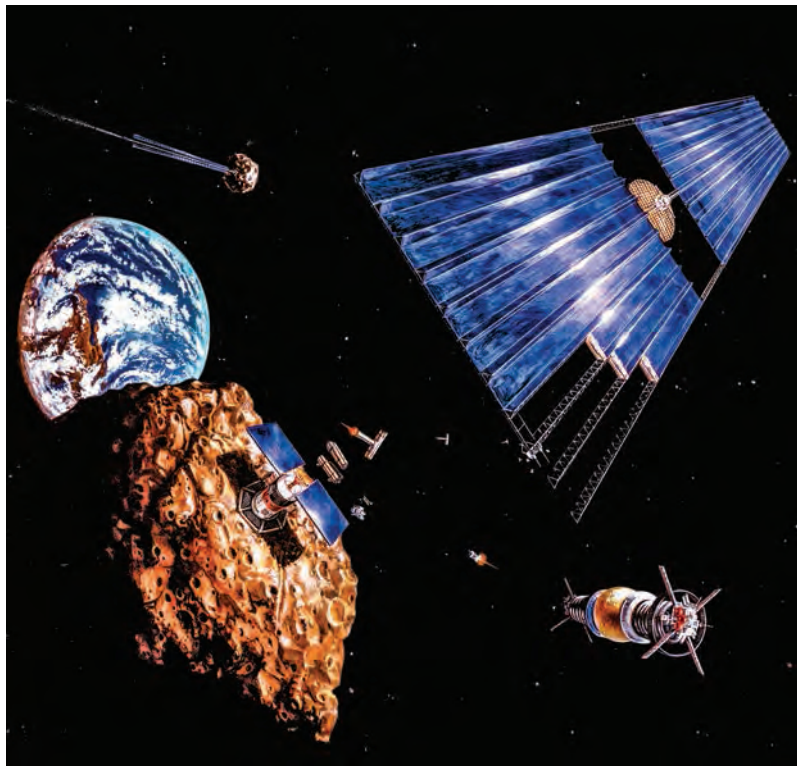
“We think of this type of R&D work as non-dilutive funding that helps push our technology closer to our long-term goals,” says Landon. “Elon Musk’s ultimate mission for SpaceX is to colonize Mars, but he has very smartly focused first on launching spacecraft into orbit—a natural stepping-stone to the long-term goal of the company. The early revenue we are earning now is a similar stepping-stone.”

“What keeps it all together is finding innovative new ways to bring costs down and make the business commercially attractive,” says Seabury’s Gautier Brunet. “Planet Labs takes pictures that let you see real-time traffic jams, and you can do environmental monitoring. But you also can see how many cars are parked at all the Walmarts in the world, so hedge funds can [then] long or short the stock without waiting for the quarterly reports. It’s another way to monetize those images.”

Balance sheets can take some of the romance out of space, but the wonder of the work persists. There are three photos of space on the walls of Nagaraj’s office that serve as a constant reminder of this—Hubble Ultra Deep Field, the deepest picture of space ever taken; Earthrise, the first image of Earth taken from *Apollo 8* in its orbit around the moon in 1968; and Pale Blue Dot, a photo of Earth taken from outside the orbit of Pluto by *Voyager 1* in 1990. “Space may be our deeply rooted passion, but we all have to temper that so we don’t make bad business decisions,” says Nagaraj. In other words, you need a business plan, not a *Star Wars* obsession. “Fifty years ago, space was dominated by exploration and achieving firsts,” he says. “Now we’re taking proven business models and applying them to a new approach to space.”

Akshay Patel (MBA 2010), who left an investment banking position at Morgan Stanley last year to become VP of strategy and business development at Planetary Resources, describes it as a reverse-engineering process.

“Many space industries are still years away from becoming a reality, but you have to think about the challenges now and how to meet them,” he says. “Once you start ferrying people outside Earth’s orbit, you will need places to dock and places to stay, and you will need to get water from asteroids. Space entrepreneurs need to work backward, asking themselves the right questions. How can I get there? How can I make a sustainable business now so I’ll be in a place to be ready when it all happens? When you do, you start to see the different pieces of the puzzle come together. That’s exciting.”



MAKING A
DIFFERENCE

BANKING ON TRUST



Marie Sheppard (MBA 1990)
Manager, Innovation Labs, World Bank Group

Development work is more about listening than telling,” says Marie Sheppard (MBA 1990), a veteran of more than two decades with the World Bank Group. As she winds up an assignment as manager of the Bank’s Innovation Labs in Washington, DC, she reflects, “The more you understand a country—people’s priorities and the challenges to achieving them—the better your chances of having a positive impact.”

Based in Zambia from 2005–11, Sheppard spearheaded a joint venture that brought together government, business, and civic leaders to identify and address constraints to job creation and business development. “We catalyzed demand for change, crowd-sourced solutions, and implemented them in transparent ways,” she notes.

Sheppard has often leveraged the success of other countries to build trust for new initiatives. In 1996, for example, when Uganda’s privatization program stalled due to widespread concerns about corruption, she brought in a former government minister who had guided a similar transition in his South American country.

“Hearing directly from someone who had been through it helped convince the president and parliament that they could make the reform process work,” she recalls. Sheppard calls this kind of knowledge sharing and relationship building “the World Bank at its best.”

alumni.hbs.edu/makingadifference



New York

July 14/62
5282, Jan 14/62, Dy go luss & mky. Reputed w 15% @ 20%
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May 15/67 No clu
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ON CREDIT



*A Baker Library collection
tracks the historical
evolution of American commerce,
one debtor at a time*

BY JULIA HANNA

ILLUSTRATION BY EDUARDO RECIFE



T

HE LARGE TOME LOOKS ITS AGE, WHICH IS ROUGHLY 160 YEARS old. Bound in leather, an average page, of which there are about 800 in the volume, includes almost 100 eye-blurring lines of pen-and-ink script. It's one of 2,522 volumes of credit reports from R.G. Dun & Co. dating from 1840 to 1895, housed in Baker Library's Historical Collections. Probably not the first thing you'd pick up for beach reading. Yet once the eyes adjust, a lost world opens up. Much like ours, it's driven by human strivings large and small, and the movement of people from one part of the world to another. There is failure, success, and death. Marriage, children, and real estate. Fires, war, and moral weakness. And the ups and downs of one man's bakery.

"Age ab[ou]t 50, fam[ily] of ab[ou]t 5 children, has done an excel[le]nt bus[iness] & made money at it," reads an entry on R.S. Miller of Charleston, South Carolina, dated March 11, 1856. (Frequent abbreviations are used in the reports; subsequent quotes have been translated for clarity.) Three months later: "In business a long time; doing a very extensive business wholesale & retail. Makes crackers by the million & has grown fat on them. Is in very comfortable circumstances & increasing his property daily." Six additional reports tell more of the same: "is rich & good." Then, in 1865, a few months after the end of the Civil War, a much briefer verdict: "Out of business." Miller bounces back a couple of years later, but sells out by April 1870. "Worth nothing was wealthy before the war but was ruined by the war. Can't recommend him for credit," reads a July 1873 report. A year later, the final words: "Little credit no means business quite small."¹

Credit is as old as commerce, but the reports that fill page after brittle page from the R.G. Dun & Co. Collection provide a slow-motion close-up of a 50-plus-year span when American business expanded from small, local exchanges within a day's horseback ride to transactions spanning multiple states and hundreds, if not thousands, of miles. The physical fact of those massive volumes highlights the importance of telling that story through the letters, memos, reports, books, and images that provide a lens for examining the past to better understand the present—a need that has become no less essential in an online, digitized world. "Our current collecting focus is the papers of influential business leaders and the records of innovative companies in the late 20th- and 21st-century global business world," says Laura Linard, Baker Library's director of special collections. More recently, that focus has led to relationships with investment and financial organizations. "It's in that world that you get a glimpse of what is happening in the overall economy," she says. "The

Dun collection is remarkable in that sense because it references all of American society in the industrial age."

In the first decades of the 19th century, it wasn't uncommon to somehow know the person you were doing business with—maybe they went to your church, or were married to a neighbor's daughter. But with the opening of the Erie Canal in 1825 and the spread of railroads, newly developed transportation systems expanded the range of business dealings beyond hometown connections. More and more, merchants and suppliers were being asked to sell on credit to people they didn't know from Adam. This, and the devastating economic effects of the Panic of 1837 and the recession that lingered in its aftermath well into the following decade, contributed to the growing demand for outside verification of an individual's creditworthiness.

Should you sell lace on credit, for example, to Henrietta Bruckman & Co., a milliner at 403 6th Avenue in New York City? Here's the scoop: "The extent of her means she declines, stating as her credit is as good as she wants it to be. From outsiders we learn that she is a very industrious & prudent old lady, well meaning & will not bargain for more than she intends to pay for, that she is doing a snug business (which is managed by her son 'Herman,' aged 24, who has lately left the employ of 'Pollock & Bro' where he had a salary of \$800 per annum) & making a little money, has always been prompt, is worth about \$300 & is in good credit for about \$500 to \$800. The husband makes sufficient by his practice as a doctor to support the family."²

In 1841, Lewis Tappan addressed the need for firsthand insight into an individual's creditworthiness, founding the Mercantile Agency after his own silk importing business failed in the wake of the collapse. Subscribers paid a fee to gain access to that report on Henrietta Bruckman and thousands of others; the information was held closely and only read to clients at the agency's New York office or local branches. In

A page from one of 63 credit volumes covering business in Louisiana State. The annotated entry at right details the success of two "free men of color" (identified by scholars as light-skinned men of mixed race) who worked as exchange brokers in New Orleans. With entry dates ranging from 1854 to 1868, the report spans the years leading up to and after the Civil War. The most frequently used of Baker Library's historical records, the Dun collection offers researchers an unusually detailed snapshot of the socioeconomic factors affecting business at the time.

30.
New Orleans
Citeans Par Sa.

+ Jacob Loria Notary Public
at Camp
\$2000 by the pt. tornade in that place in 1785. Brother of Joseph Loria the Mayor of New Orleans had some few of the
for my report he will make, he is an honest man.

1099/2
A. Cassard & Co
of John Williams & Co. "E" young, steady, & of good char. He is steady, active, honest, & has the best judgment
means. "E" is the son-in-law of J. B. Leducq. He has been asked them in purchases going through the firm
of using his name as this security. He has been a very fair & open in his transactions.
1797, 1798, 1799
A. Cassard continuing alone.

A. Cassard
his name is not stands for your credit for his wants, fine, small.
will in all respects & pay promptly so will connect. Ed. am. 25 or 30% Very? Well for the engagements

11000
B. & A. Soulie
As a so. Bro. & agents for some large estates. leave money on p[ro]p[er]ty, or
250 to \$20000. They are respectable, and in their own way do nothing on their own for, but will be just for what they might make table.
has an well off, every a very ad. cr. 3, an safe.
large desirable bid. Nov. 19/57 are rich, w. \$5000. Dealer bus.
D. July 20/58 Rich, & double 10000.
bus, & pay any rich. Considered safe & good. 4000.
This will be the best, has plenty of time. Aug. 17/58
11000
July 16/58. He is in France, and wealthy, & Retired from active bus. \$4000.
\$1500 Oct 2/58 Are wealthy & retired from bus.

B[ernard] & A[lvin]
SOULIE
Merch[an]ts
Ex[change] Brokers
&c[etc.]
84 Bienville

May 30/54
FMC [Free Men of
Color], age 45 to
50. Bro[ther]s. Are
agents for some large
estates, loan money on
p[ro]p[er]ty &c[etc.]
Are v[er]y wealthy
estimated worth
from 250 to \$300m
[\$250,000 to
\$300,000]. Th[ei]r
cr[edit] & standing are
1st rate.

March 55
H[a]v[e] respect,
means. Are of good
char[acter], they
do nothing on their
own a/c [account]
but w[oul]d be
good for what they
might undertake.

March 19/57
Are rich, w[orth]
\$500m [\$500,000].
D[oin]g a lar[ge]
bus[iness].

Feb. 23/60
They are colored men,
of ample means for
their bus[iness], are
steady, indust[rious]
& good bus[iness]
men, stand v[er]y high
here, & consid[er]ed
g[ood] & safe.

June 22/66
All right wor[th] over
100\$m [\$100,000].

July 16/68
A[lvin] is in France, are
wealthy & Retired from
active bus[iness].

1664 A. Souza
See Victor Souza #d 11,568 Variety
The present Dept of the sea Vol. 1 p. 62. Souza's
in the Great Bus. as A. S. Souza. He failed. His father Victor's but up the claims of him at 25 on the 9th
that he went into the Haney bus. & the son A. is in his employ & had an interest, but he does not
to old S. who now carries on the bus. & the son A. is in his employ & had an interest, but he does not
in any bus. in his own name I cannot have any means to signify. He is of gd. char. He has a profession to
a Christian, altho his father is a Jew. 1664. 53.
fact says it was not put in the A. S. & acid as married & his wife & son's eyes are A. S. & 22 Aug 1857
to have but very little of any means that he had as was large & he is considered doubtful.
D. 24/58 Bus. money, all come from D. 24/58 he had a house, but pay him to have money. June 13/57
and in each respect. 2/27/58 12/69 sold out of general

1099
S. Stafford & Co
Hottel
See D. Daniels & Co. See Dealer
Stafford & Barlett. He is a reliable man, honest & good for \$50000
from the old firm, sometime before the death. He is a gd.
in the bus. & has been in the bus. (1797) they got into difficulty abt a purchase by long owner on the bus. & was a very large
& died. I continue in the bus. He is of gd. char. & a gd. bus. man. He had some property on the bus. & was a very large
you are not of his pt. but he owns it. He is considered a man of means. He has recently become a part proprietor of the
Hottel. It is now in his hands, in my eye, on bus. & considered safe for very engagements. He will make a
B Dec 20/54. He has father as one of the firm of Stafford, Barlett & Co. (City Notes) See Vol. 1/172. for practical
20 Aug 1857 a judgment obtained on it for an old claim. He is a gd. man. He is a gd. man. He is a gd. man. He is a gd. man.
of course all as before. D. Jan 12/57. He is doing a large retail bus. & in fine c.t. on relation
last report that the Sheriff was in possession. S. says the Sheriff did not proceed
Judgt. was obtained vs. him as security by neglect of his lawyer for \$236, the
who made the seizure took the money out of the bill & also out of the pocket of
The case is now in Court. Ct. v. lit. affected, & continues vs. paid. Jan 29/57. Call
Cro. together & surrendered their assets in stock & of c.t. \$20m. each
deficient \$4m. will prob. pay between 30 & 40 c.t. June 1/57 Failed badly in some bus.

Handwritten notes and signatures on the right margin of the page.

1849, Tappan sold the agency to an associate, Benjamin Douglass, who in 1859 ceded control of the firm to his brother-in-law, Robert Graham Dun. That same year, coded reference books with condensed ratings were made widely available. The advent of the typewriter also brought about change. In 1874, Dun placed an order with E. Remington and Sons for 100 of the newfangled machines at a cost of \$55 each, assuring the future of the young, struggling company. After that, a report could be typed and mailed out directly—an efficiency that benefited clients but not future historians, as few of those reports survive. In 1933, the firm merged with its closest competitor, J.M. Bradstreet & Co., to become Dun & Bradstreet. Dun & Bradstreet donated the credit volumes to Baker in 1962.

The reports—the most frequently used in the library’s extensive historical records—offer a historic treasure trove in their rare level of detail, geographic scope, and depth of narrative information about individual businesses and the people who ran them—the high-flying bankers and railroad men as well as women, recent immigrants, and African Americans. “The Dun collection contains granular, local information about 19th-century America that exists nowhere else,” says Special Collections Librarian Timothy Mahoney. “That’s why researchers come from far and wide to use it.” A scholar might research women-owned boardinghouses, for example, or German immigrant businesses in New York, or even individuals—J.D. Rockefeller’s early days are chronicled, as are those of Frank Winfield Woolworth, who borrowed \$300 from a former employer to open “The Great Five Cent Store” in Utica, New York, in 1879.

The correspondents who gathered information on a subject’s creditworthiness were often attorneys, although they might also be a bank cashier, postmaster, sheriff, or even another businessperson. Each was known by a number or initials. While no key exists to their identities, it’s believed that Abraham Lincoln, Ulysses S. Grant, Grover Cleveland, and William McKinley all worked as correspondents at some point. Generally compensated by being recommended as debt collection agents, they mailed accounts of an individual’s net worth, character, habits, and time in business to the closest Dun office, where clerks were paid about \$3 a week to transcribe them into the enormous volumes.

The leeway allowed in a credit report might seem slim when considering the dollars-and-cents of one person’s holdings. But the question of character offered a wider margin of opinion. “Formerly did business for H & E Leberman...but now does for himself. He is now small potatoes,” one correspondent writes in December 1864 of a New Orleans businessman in an unnamed industry. Several months later: “He is not only small potatoes, but a d—d rascal.”³ Two partners from Fort Worth, Texas, “have been very dissipated. ...They say they never will drink again. They however promised this before but both have gone like the sow to their wallow again.” One of the men, Thomas J.J., was “raised in idleness & knows more about dressing fine & sporting than he does about business.”⁴ The correspondent concedes that both are men of “some capac-

ity” who might succeed if they apply themselves; nine months later, however, “J.J.” is dead, and his partner has gone broke.

A Chicago leather dealer in business with his brother, “RTB,” is “very tyrannical & windy (talks of 50\$ as most men would 50 cents, lives well, drives fast & drinks freely).” Reports go back and forth on RTB’s creditworthiness. He is “the best judge of leather in this market” but also “irascible & quarrelsome & in this way makes enemies.” Then, “his habits have been more expensive than his circumstances were thought to justify, but he is more prudent in this respect than formerly...careful in his credits & industry.” Seven years later, prudence seems to have won out: “Stand well with the trade & are in high credit.”⁵

The personal nature of some of these details, and the fact that an individual had no access to his or her report, made Dun and other agencies vulnerable to criticism. The Irish nationalist and Civil War brigadier general Thomas F. Meagher penned one of the most damning indictments. In *The Commercial Agency “System” of the United States and Canada Exposed* (1876), he writes of credit reporting work, “It can only be performed...by the ill-at-ease, struggling, acrid spirits of the place—the meddlesome, mischief-making busy bodies, whose moving springs are envy, greed, uncharitableness, or disappointed ambition.”

Libel suits were a more serious threat. The first, filed in 1851, claimed that two Ohio business partners were prevented from purchasing goods in New York because a correspondent reported that the wife of one of the men was about to file for divorce and alimony, thereby reducing his assets. A few years later, a New York engraver filed suit when he learned of a report that stated he was a counterfeiter who had left his wife for a prostitute. The Ohio case ruling found in favor of the plaintiffs, although it would be overturned on a technicality; the second was decided in favor of the agency on the grounds that the report had no malicious intent and was provided in confidence. By the late 1800s, enough precedent existed to establish the legal understanding that credit reports were “privileged communication” exempt from libel charges.

In this way, the reports of the Dun collection made history as much as they now serve as a means of studying it. “You can see that what happened then is all part of an ongoing, dynamic cycle,” says Laura Linard. Given that, one could wonder what researchers will find 150 years from now in the blizzard of bits and bytes being left behind today. In the wake of the Internet, what changes will the 50-year period show from 2000 to 2050 in how business is done, and what will it reflect about our society? We won’t be around to know. But Linard and her colleagues are doing their part to ensure that resources are available to answer those questions. ❧

For more on the R.G. Dun & Co. Collection and other holdings in Baker Library’s Special Collections, visit www.library.hbs.edu/hc

1. SOUTH CAROLINA, VOL. 2, P. 263, R.G. DUN & Co. COLLECTION. SCHOLARS CAN TRACK THE CIVIL WAR’S ECONOMIC EFFECTS ACROSS GEOGRAPHY AND INDUSTRY THANKS TO THE DUN COLLECTION’S COMPREHENSIVE HOLDINGS.
2. NEW YORK, VOL. 216, P. 731, *IBID.* CREDIT REPORTS FOR WOMEN, WHO WERE NOT LEGALLY LIABLE FOR THEIR DEBTS, ALWAYS MADE MENTION OF THE FINANCIAL STATUS OF CLOSE MALE RELATIVES WHO WOULD BE RESPONSIBLE IF AN ENTERPRISE FAILED.
3. LOUISIANA, VOL. 3, P. 163, *IBID.*
4. TEXAS, VOL. 28, P. 202, *IBID.*
5. ILLINOIS, VOL. 2, P. 209, *IBID.*