

**PLOTTING A COURSE**  
WHY B-SCHOOLS MUST JOIN  
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# BizEo



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## STEM FIELDS FLOURISH

BUSINESS SCHOOLS CROSS-POLLINATE  
THE BEST IDEAS ACROSS DISCIPLINES TO  
HELP INNOVATION BLOSSOM P. 21

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- Dr. Adriane Randolph, Associate Professor of Information Systems, and Director of the BrainLab at Kennesaw State University, is one of the nation's foremost experts in the growing field of brain-computer interaction. Here, she is with PhD Project colleagues, Dr. Lemuria Carter, Interim Associate Dean and Associate Professor of Accounting, NCA&T University and Dr. Mary Dunaway, Assistant Professor of Computer Information Systems at Quinnipiac University.

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Dr. Randolph enhances the lives of paralyzed individuals through her work. She credits The PhD Project with helping her to become an established leader in this important area of IT research. To see a video clip of Dr. Randolph and her laboratory work, visit The PhD Project's YouTube channel homepage: [youtube.com/user/thehdprojectvideos](https://www.youtube.com/user/thehdprojectvideos) and search for **Making A Difference: Dr. Adriane Randolph video**.

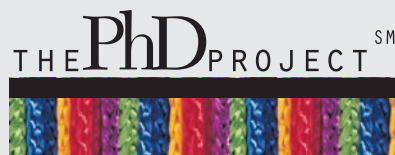
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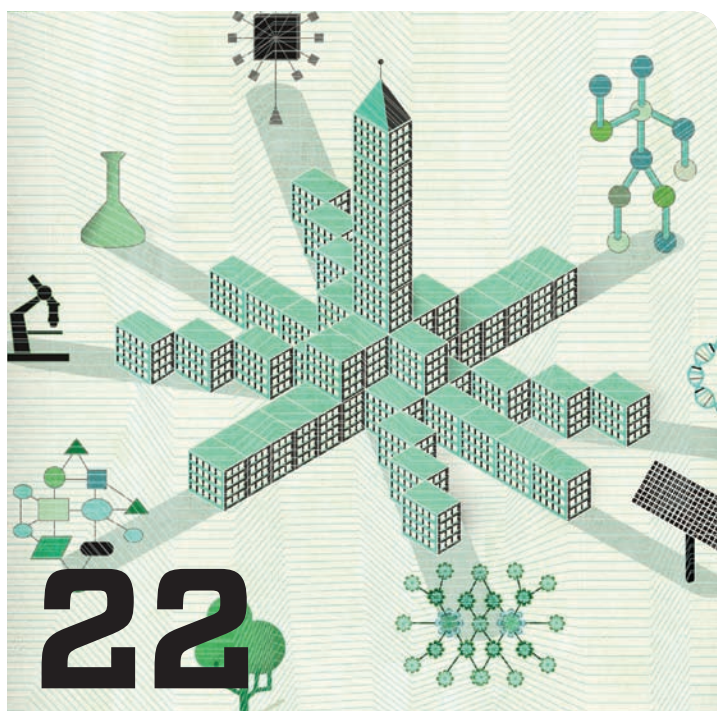
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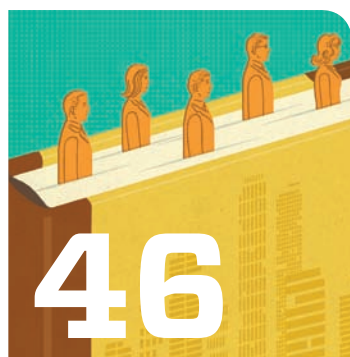
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A photo of the author is also required.

For departments such as Research & Insights, Ideas in Action, and People & Places, schools can submit information and images that highlight recent research, new books, news announcements, industry events, or specific aspects of their programs. Digital images must be saved at a high resolution (300 dpi or higher in JPEG or TIFF format) and at a size of 3" x 4" or larger.

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# The Skills to Build

**WHEN DEBBIE STERLING** began studying mechanical engineering and product design in college, it was at a teacher's suggestion. At first, she was reluctant to pursue such a technical field, because she thought it wouldn't allow her to express her creativity. But Sterling quickly found that engineering was perfect for creative types, because it requires "a skill set to build anything you could dream up in your head," she says in her TED talk. "How empowering to be able to build whatever you want!"

And, yet, as a child she never was given erector sets and construction blocks to play with, toys that are a matter of course for young boys. Her toys came from "the pink aisle" in the toy store—all makeup and princesses. That inspired Sterling to create GoldieBlox, a story-based construction set for girls.

When she tried to pitch her business to toy manufacturers, she was told time and time again that GoldieBlox would never succeed—because girls don't like science. So, in 2012, Sterling started a Kickstarter campaign to raise the capital to manufacture 5,000 units herself. She had hoped to raise US\$150,000 in 30 days. By the time her campaign ended, she had raised more than \$285,000—and received thousands of orders. Today, GoldieBlox is a popular franchise that's working to "disrupt the pink aisle" by introducing young girls to technical fields. (If you haven't seen Sterling's April 2013 TED talk, it's worth a watch: [www.youtube.com/watch?v=FEeTLopLkEo](http://www.youtube.com/watch?v=FEeTLopLkEo).)

I love Sterling's story because it highlights trends now unfolding in business, where it takes more than just business, technical, or creative skills to get an idea off the ground. Somehow, all three need to come together.

In a special section in this issue, we take a look at how business schools are working to bring more people like Sterling into their programs—individuals who are skilled in STEM disciplines (science, technology, engineering, and math) but who need business skills to better translate innovative discoveries into market-ready solutions. For example, the authors of "Plotting a Course for STEM" make an impassioned case for why business schools need to become much more active in STEM education. We also share the paths that several schools have taken to better integrate STEM disciplines into their programs.

In this issue, we also look at a problem that business and STEM disciplines share: gender disparity. Sterling herself says that for a long time she felt as if she "didn't fit in," either in her male-dominated Stanford engineering courses or among the executives and investors in the toy industry. The authors of "Closing the Gender Gap" in this issue present data that show just how underrepresented women are at all levels in business schools. We also speak with Sondra Barbour, an executive at Lockheed Martin, who makes "top-100" lists for women in both business *and* STEM. She has this advice for women: Don't be afraid to say "yes" to leadership roles.

For Sterling, saying "yes" to her own idea—especially when so many others said "no"—was the scariest part. Today, she couldn't be happier about channeling her engineering skills and creativity into GoldieBlox. Sterling represents exactly why STEM and business make the perfect partners. Together, they really can build anything.

*Tricia Bisoux*  
Co-Editor



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## MEASURING SOCIAL IMPACT

I was most interested in Robert S. Rubin and Frederick P. Morgeson's excellent article "Redefining Quality" on page 48 of the January/February issue of *BizEd*. The program quality model they propose is articulate and incorporates a lot of relevant dimensions, such as curriculum, faculty, and placement. However, if I look at quality metrics from the vantage point of the Global Business School Network ([www.gbsn.org](http://www.gbsn.org)), an organization which brings together business schools from affluent and low-income countries, I would suggest adding a societal impact dimension.

This dimension is particularly relevant to the rapidly growing number of business schools not only in the

developing world, but also in the more affluent OECD countries whose strategies include increasing internationalization. Societal impact would focus on opportunities that business schools provide students to create new enterprises, generate new jobs, experience management challenges in developing countries, and understand how to enhance the effectiveness of civil society or public sector organizations—in short, to contribute to global development.



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For example, business schools in the developing world are increasingly serving societal needs by focusing on health management and public policy. Such efforts meet the needs of public sectors and NGOs, as well as private businesses, and contribute to global development. Even in the U.S., schools that offer such opportunities as experiential learning in emerging markets may be favorites among the most desirable students.

Good management is a key ingredient of progress, and that is why business schools can be powerful instruments of social and economic development. It seems, therefore, important to measure their contributions, as well as program quality.

*Guy Pfeffermann*  
 Founder and CEO  
 Global Business School Network

## CORRECTION

Readers might have noticed that the first paragraph of "Navigating Change," which appears on page 20 of the January/February 2015 issue, mistakenly referred to the date September 10, 2011. The date, of course, was meant to refer to September 10, 2001, the day before the attacks on the Pentagon in Washington, D.C., and the World Trade Center in New York City. The copy has been corrected in *BizEd*'s digital edition and on its website.



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# calendar

MAY 11–12

## Curriculum Development Series: Teaching Design for Creativity & Innovation

Santiago, Chile

At a time when business leaders frequently cite creativity as the skill their companies need most, this seminar will explore ways for educators to bring the “design studio approach” into their MBA programs. Attendees will learn to teach students how to implement design thinking within organizations, use design inquiry to frame and reframe problems, generate prototypes of ideas, and invent alternative solutions to complex organizational problems. *Curriculum Development Series: Experiential Learning* will be offered on May 13 and the *Teaching Effectiveness Seminar* will be offered on May 14–15, both at this location.

MAY 14–15

## Applied Assessment Seminar

Budapest, Hungary

This seminar is intended for educators and administrators who already have attended AACSB International's Assessment or Assurance of Learning seminar and have a strong working knowledge of accreditation and assessment. Attendees will discuss how to implement effective assessment plans, including choosing rubrics and reports, gaining faculty buy-in, and establishing a strong culture of continuous improvement. *The Assessment Seminar* will be offered on May 12–13 at this location.

MAY 23–24

## Business Accreditation Seminar

Shanghai, China

Participants in this seminar will gain understanding of the accreditation process, learn more about what is involved in attaining AACSB initial accreditation and conducting a continuous improvement review, and develop relationships with other administrators who can guide them through the process. *The Continuous Improvement Review Seminar* will be offered on May 24–25 and the *Assurance of Learning Seminar* will be offered on May 26–27, both at this location.



## AACSB International Conference and Annual Meeting (ICAM 2015)

Tampa, Florida

Focused on the “Currents of Change” affecting business and business education, ICAM 2015 will be organized around themes at the foundation of AACSB's 2013 Accreditation Standards: innovation, engagement, and impact. Plenary speakers include author Daniel Pink, whose work explores the motivations behind human behavior, and Carolyn Woo, former dean of the University of Notre Dame's Mendoza College of Business and current CEO of Catholic Relief Services. Speakers also include Beta Gamma Sigma International Honoree Roger W. Ferguson Jr., president and CEO of TIAA-CREF.

► For a complete listing of AACSB International's seminars, conferences, and webinars, visit [www.aacsb.edu/events](http://www.aacsb.edu/events).

MAY 24–26

## Annual Accreditation Conference: Asia Pacific

Shanghai, China

Educators who attend this conference will explore the trends in the Asia Pacific region related to global accreditation and AACSB's 2013 Accreditation Standards. They'll also network with peers, volunteers, and accreditation staff, and delve into the regional challenges. *Also offered at this location will be seminars on Business Accreditation on May 23–24, Continuous Improvement Review on May 24–25, and Assurance of Learning on May 26–27.*

MAY 24–26

## Annual Accreditation Conference: Europe, Middle East & Africa

Amsterdam, The Netherlands

In its inaugural run, this conference offers attendees the opportunity to better understand the AACSB 2013 Accreditation Standards in the context of countries in Europe, Africa, and the Middle East. Participants will network with peers, accreditation volunteers, and accreditation staff; explore regional challenges related to global accreditation; and exchange best practices and solutions.

ALSO CONSIDER:

MARCH 27

## 2015 Paraguay Economic Forum

Milwaukee, Wisconsin

The program “Paraguay: The Case for Foreign Direct Investment and Tourism Development” will explore ways to improve business curricula at Paraguay's universities, as well as promote commercial and cultural relations between Paraguay and the United States. It will be held at the Alverno College School of Business and Management. Email [carol.pope@alverno.edu](mailto:carol.pope@alverno.edu) for information.

JUNE 4–7

## Faculty Development Workshops in International Business

Atlanta, Georgia

Georgia State University Center for International Business Education and Research (CIBER) will host a series of workshops for business faculty interested in developing and incorporating international content in their existing business curricula. Session topics include international business, management, financial management, and marketing, as well as global supply chain management, research, and pedagogy. Visit [ciber.robinson.gsu.edu/fdib](http://ciber.robinson.gsu.edu/fdib).

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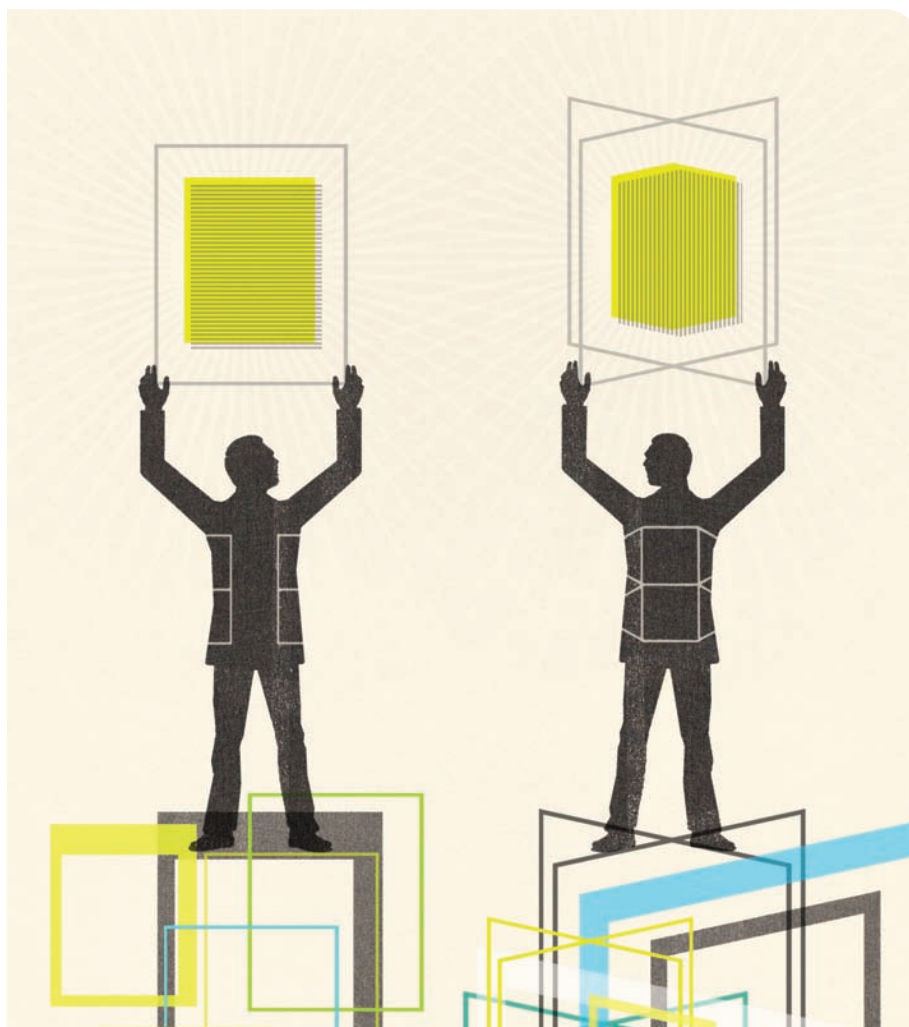
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## Truth or Consequences

WHY UNDESIRABLE SOLUTIONS FUEL DISBELIEF

**EVER WONDER WHY DIFFERENT PEOPLE** can look at the same evidence but come to very different conclusions? One cause of this phenomenon just might be “solution aversion,” according to a recent study. That is, if someone dislikes the solution to a problem too much, the easiest course of action is to deny the problem exists at all.

Doctoral student Troy Campbell and associate professor Aaron Kay, both of the Fuqua School of Business at Duke University in Durham, North Carolina, conducted three experiments. Each experiment involved one of three issues backed by strong evidence—climate change, air pollution, and crime.

In one experiment, study participants were asked to identify themselves as either Republicans or Democrats. Then, each read a statement asserting that global temperatures will rise 3.2 degrees by the end of the 21st century. Finally, each was asked to evaluate a proposed solution to the problem. When that solution emphasized taxes or government regulation, both generally opposed by Republicans, only 22 percent of Republicans said that they believed the original statement. When the solution emphasized free market solutions such as green technology, 55 percent of Republicans said they believed it. Democrats’ belief did not change regardless of the statement.

In a second experiment, however, Democrats showed similar solution aversion after reading a statement about the frequency of home break-ins. More stated that they believed the statement after they evaluated a solution that involved stricter gun-control laws; fewer believed it when the solution involved looser gun-control laws.

For many, “the cure can be more threatening than the problem,” says Campbell. These findings show that it’s counterproductive to label those who deny evidence of a problem as “anti-science,” say Campbell and Kay. It’s better to try to understand why some view particular solutions as threatening. By doing so, those on both sides of a debate can reach past political divides and communicate more effectively.

“Solution Aversion: On the Relation Between Ideology and Motivated Disbelief” appears in the November 2014 issue of the *Journal of Personality and Social Psychology*.



## Yelp as Prophet?

**THREE RESEARCHERS** at the University of Maryland's Smith School of Business in College Park are developing a tool to predict whether a restaurant is about to shut its doors for good. Doctoral student Jorge Mejia, assistant professor Shawn Mankad, and associate professor Anandasivam Gopal have analyzed 130,000 postings on the popular user review site Yelp to discover whether a computer-assisted text analysis of these reviews could predict a restaurant's closure more accurately than user ratings alone.

The researchers focused on reviews for 2,600 restaurants that had recently operated in the Washington, D.C., metropolitan area. They identified 454 that had closed between 2005 and 2014, as well as linguistic patterns in the reviews that indicated the type of restaurant and the quality of the user's experience. They then matched restaurants of similar type to better compare reviews.

For instance, restaurants whose reviews included words like "good," "friend," "great," "nice" and "neighborhood" had a high rate of survival. The researchers also identified words and phrases under five categories: overall quality, speed, responsiveness, food quality, and atmosphere. Reviews loaded with "high-weighted" words and phrases—such as "wonderful ambience" and "attentive wait staff"—also provided an accurate prediction of high restaurant quality.

The study went further to find that high-dollar restaurants were more likely to close than less expensive ones, and that speed of service played a larger role in restaurant closures than atmosphere or food quality.

"Using our approach, a restaurant could monitor its performance in the dimensions that matter the most to customers," the researchers write. Says Mankad, "We are surrounded by all of this free, unstructured data. We should be using that data."

"More Than Just Words: Using Latent Semantic Analysis in Online Reviews to Explain Restaurant Closures" is a working paper based on Mejia's dissertation.

## Disgust and Self Interest

In a study involving 600 participants, researchers found that individuals were more likely to engage in self-interested behaviors such as lying and cheating after writing essays or viewing film scenes that provoked feelings of disgust than those who had not.

The experiment, which involved equal numbers of men and women, was part of a study co-authored by Karen Page Winterich of Penn State's Smeal College of Business in University Park; Vikas Mittal of Rice University's Jones Graduate School of Business in Houston, Texas; and Andrea Morales of Arizona State University's W.P. Carey School of Business in Tempe.

In another set of experiments, researchers asked participants to evaluate cleansing products such as disinfectants and body wash after experiencing a sense of disgust. They found that this group was no more likely to engage in deception than those in a

control group who had experienced neutral emotions.

People often don't realize they feel disgust, which can be caused by something as simple as a newspaper article. The emotion triggers a sense of self-protection, the authors explain—which can lead to self-interested behaviors such as lying, stealing, and cheating.

If companies create clean environments—or even make someone think of cleaning—they could mitigate the effects of disgust and encourage greater cooperation. The question for companies, says Mittal, is "how do you create an environment that is less emotionally cluttered so you can become progressively more thoughtful?"

"Protect Thyself: How Affective Self-protection Increases Self-interested, Unethical Behavior" was published in the November 2014 issue of *Organizational Behavior and Human Decision Processes*.

Disgust triggers a sense of self-protection—which can lead to self-interested behaviors such as lying, stealing, and cheating.

# Why Clusters Count

**A RECENT STUDY** finds that regions with clusters of firms in any industry will see noted economic growth, in areas such as job creation, patents, and even the creation of new industries.

Using data from the U.S. Cluster Mapping Project from 1990 to 2005, researchers studied 41 industrial clusters, as well as 589 industry subfields, in 177 U.S. regions. Examples of clusters include the automotive industry in Detroit and the concentration of high-tech activity in Silicon Valley.

They defined a cluster as having 15 distinct types of industries within it.

For instance, the researchers discovered that industry specialization activity that's one standard deviation above the mean can equate to 1.3 percent annual employment growth, and in some scenarios, 1.2 percent annual growth in patents. Regions should not necessarily strive to become the next hotspot for tech startups or finance, the authors say. Instead, regions should build clusters based on their existing strengths.

"Clusters, Convergence, and Economic Performance" is by Mercedes Delgado of Temple University's Fox School of Business in Philadelphia, Pennsylvania; Michael Porter of Harvard Business School in Boston, Massachusetts; and Scott Stern of the MIT Sloan School of Management in Cambridge. It appears in the December 2014 issue of *Research Policy*.



## B-SCHOOL DEANS LOOK TO THE FUTURE

Last month, business deans from around the world convened in San Diego, California, to attend the annual Deans Conference sponsored by AACSB International. The conference theme was "The Future of Work," and session topics covered the future of faculty, learning, and leadership. Plenary speakers were Andrew McAfee of MIT Sloan School of Management, who spoke on life in today's tech-enabled society; and Jennifer Chatman of the University of California, Berkeley, who discussed the latest research on creating organizational culture.

Special coverage of the conference, including interviews with keynote speakers and reports about individual sessions, appears online at [www.BizEdmagazine.com/deans2015](http://www.BizEdmagazine.com/deans2015). Conference coverage was made possible by the support of Sonic Foundry Inc., a video management platform for academic, enterprise, and event webcasting.

# MILLENNIALS AT WORK

**MILLENNIALS VALUE** personal development and work-life balance over money and status. However, they are still ambitious and believe in their own ability to steer their careers. These are among the findings uncovered in an independent study on millennials conducted by the INSEAD Emerging Markets Institute in Singapore, the HEAD Foundation, and Universum.

Of the more than 16,000 global respondents in 42 countries, 73 percent said they would choose work-life

balance over a higher salary, and 82 percent said they valued work-life balance over their position in a company. Forty-two percent agreed or strongly

agreed with the statement that they would rather have no job than one they hate; respondents in Chile, Lebanon, and Peru felt particularly strongly on that question.

Even so, they're ambitious. Forty-one percent of respondents say it's very important to them to become leaders or managers—35 percent for the money, 31 percent for the influence, and 31 percent for the chance to have strategic roles. As always, there are regional differences. In Nigeria, for instance, 70 percent of millennials want to be managers because they want to lead people.

"In the near future, millennials will occupy every consequential leadership position in the world, be it in business, academia, government, or in the nonprofit sector," notes Henrik Bresman, the academic director of the HEAD Foundation and associate professor of organizational behavior at INSEAD. "Will they be ready to lead? If so, how will they lead? How can the preceding generations identify, understand, develop, and prepare them to take on the monumental challenges the world will be facing?" The study, he adds, seeks to answer those questions.

**82%**  
value a  
work-life  
balance

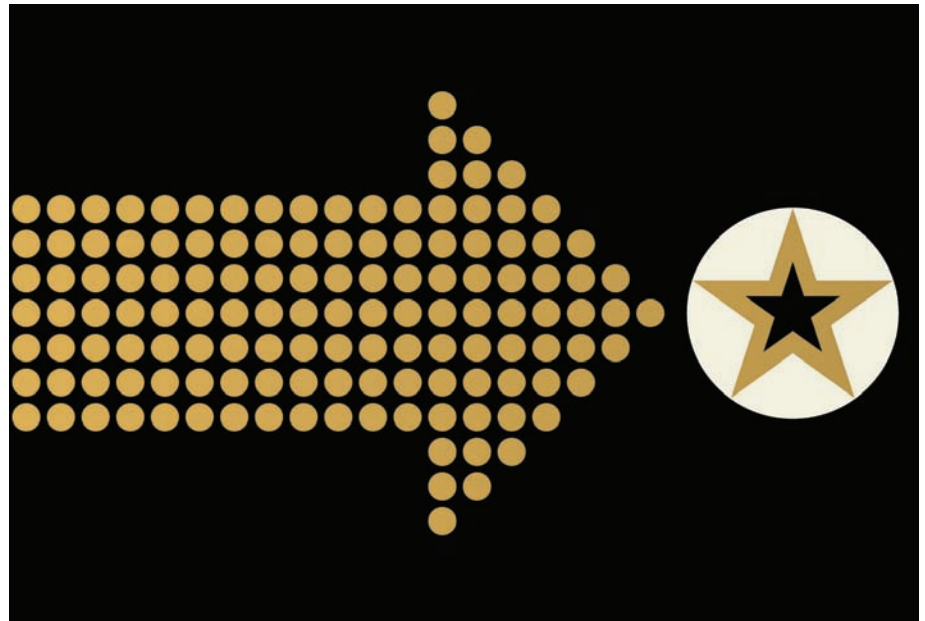


# How Open-Source Leaders Emerge

**IN OPEN-SOURCE PROJECTS** such as the online encyclopedia Wikipedia or the operating system Linux, large groups of geographically distributed people, with little or no affiliation with one another, produce successful results even with no formal leadership in place. That begs the question: What makes open source work?

That's the subject of a forthcoming study by Samer Faraj of McGill University's Desautels Faculty of Management in Montreal, Canada; Sri Kudaravalli of HEC Paris in France; and Molly Wasko of the University of Alabama at Birmingham. The researchers examined 6,709 messages from 976 individuals in a computer programming community to discover how de facto leaders emerge in open-source groups. They analyzed the messages for behaviors related to sociability, such as expressing thanks and sharing personal stories, as well as those related to leadership, such as contributing ideas and answering questions. They noted the types of behaviors that were associated most closely with those perceived as community leaders.

They found that leaders in these groups were more likely to contribute knowledge than engage in social behaviors. The distinction is of interest because in traditional organizations, social capital and relationships have



been shown to be an important factor in leadership development. The researchers also found that in their study's large sample size—which included close to 1,000 individuals—only 42 were perceived by others as leaders.

The researchers point out that the rules of leadership might be different in less technically driven communities. They also cannot confirm whether leaders emerged because they already possessed leadership qualities or whether

they developed leadership qualities because they first engaged in social behaviors. But they note that this study is one of the first to provide a glimpse into how leaders develop in relatively “leaderless” environments, an important topic for companies that want to experiment with online crowdsourcing to drive innovation.

“Leading Collaboration in Online Communities” is forthcoming in *MIS Quarterly*.

Approximately **60 percent of job openings require basic STEM literacy, and 42 percent require advanced STEM skills.** And yet, 28 percent of companies say that at least half of their new entry-level hires lack basic STEM literacy. Over the next five years, employers will need to hire nearly 1 million workers with basic STEM literacy and more than 600,000 with advanced STEM knowledge.

► From a survey by the Business Roundtable and Change the Equation. Visit [businessroundtable.org/closingtheskillsgap](http://businessroundtable.org/closingtheskillsgap).

# When PhDs Manage Money



The four co-authors analyzed 14 years of quarterly data from 822 money management firms that manage 2,590 domestic equity products with US\$4.2 trillion in assets; of these firms, 134 hired 531 PhDs and managed 817 products with \$2.2 trillion in assets. The researchers found that the domestic equity investment products managed by PhDs performed better than those products managed by non-PhDs when matched by objective, size and past performance for one-year returns, Sharpe ratios, alphas, information ratios, and MPPM, the manipulation-proof performance measure. Further, investment flows to PhD-managed products substantially exceeded the flows to their non-PhD counterparts. There is even a performance gap among

**WHAT VALUE** does the PhD have outside the academic setting? According to a recent study by four professors, when PhD holders are in key roles at money management firms, they outperform non-PhD-holders across all measures.

“Hiring employees to maximize assets under management is of first-order importance for money management companies,” says lead author Charles Trzcinka, professor of finance at Indiana University’s Kelley School of Business in Bloomington. He conducted the research along with Ranadeb Chaudhuri of the Kelley School, Zoran Ivkovich of Michigan State University in East Lansing, and Joshua Matthew Pollet of the University of Illinois at Urbana-Champaign.

PhDs: Those who published in top outlets in economics and finance outperformed the PhDs who did not.

The paper provides reason for money management firms to seek out employees with PhDs for some roles and demonstrates opportunities for PhDs outside academia. Says Trzcinka, “While only a small part of the larger debate, our paper provides evidence toward the value of attaining a higher degree.”

► **“What a Difference a Ph.D. Makes: More Than Three Little Letters” is available at [papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2344938](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2344938).**

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## On the Nines

According to a new study, most people are likely to experience life crises and make momentous life decisions at the ages of 29, 39, 49, and 59, regardless of country or culture. These decisions can include running a marathon, seeking extramarital affairs, or even committing suicide. Because these ages mark entry into the next decade of life, say researchers, they inspire greater self-reflection and search for meaning than others.

The study was authored by Adam Alter of New York University Stern School of Business and Hal Hershfield of UCLA Anderson School of Management. “As we age,” the authors write, “it’s good to understand this propensity so we’re more likely to make constructive rather than destructive choices.”

“People search for meaning when they approach a new decade in chronological age” was published online November 17 in the *Proceedings of the National Academy of Sciences*.



# FEWER EMBAS ARE SELF-FUNDED

**COMPANIES MIGHT BE** investing more in their executives' education, according to the 2014 Membership Program Survey from the Executive MBA Council (EMBAC). After a five-year rise, the number of self-funded EMBA students has decreased, from 41.2 percent in 2013 to 39.8 percent in 2014.

In the same time frame, the number of students partially sponsored by their com-

**Average age of an EMBA student: 37.5**

**Average years of work experience: 13.7**

**Average years of management experience: 8.7**

panies increased from 34.7 percent in 2013 to 35.6 percent, and the number of fully sponsored students increased from 24 percent to 24.6 percent. The total cost

of EMBA programs rose by about 2 percent, from US\$73,401 to \$74,883.

While the news is encouraging, companies still are coping with the effects of the recent recession and economic uncertainty, so that it is still unclear whether they are permanently allocating more funds for tuition reimbursement programs, says Michael Desiderio, EMBAC executive director. Says Desiderio, "Time will tell if [this] becomes a trend."

In 2014, 285 EMBAC member programs, or 92 percent, participated in the survey.



## FUNDING INTERNATIONAL STUDY

**The Council on International Educational Exchange (CIEE) has pledged US\$20 million to tackle the major barriers that keep students from studying abroad: cost, curriculum, and culture. The pledge will cover scholarships and grants for American students through the Generation Study Abroad Initiative. CIEE also will sponsor passports for 10,000 students to enable participation, and make an annual \$20,000 grant to college faculty to support innovative approaches for custom study abroad programs.**

According to the organization, fewer than 300,000 U.S. students per year study abroad, which means that less than 10 percent of all U.S. college students experience international education before they graduate. The Generation Study Abroad Initiative, which was launched in 2014, aims to double the number of U.S. students studying abroad by the end of this decade.

► **For more information, visit [www.ciee.org](http://www.ciee.org).**

Women hold 11.5 percent of the highest-paid executive positions and board seats in the state of California's 400 largest public companies, up 0.6 percent from last year. Two companies—organic food maker Annie's Inc. in Berkeley and cookware retailer Williams-Sonoma—have equal numbers of women and men in top positions.

► **From the "2014–2015 UC Davis Study of California Women Business Leaders," which is available at [gsm.ucdavis.edu/women](http://gsm.ucdavis.edu/women).**

## books

### ORGANIZED INNOVATION



“Innovation is the primary economic battleground of the twenty-first century,” write Steve Currall of UC Davis, Sara Jansen Perry of the University of Houston-Downtown,

Emily Hunter of Baylor, and author Ed Frauenheim. But they believe innovation is on the decline, at least in the U.S., because fewer corporations are funding basic research and universities haven’t stepped forward as hoped to fill the gap. They believe that universities, government policymakers, and business executives must pull together in an organized fashion to innovate and commercialize new technologies that will provide breakthrough solutions to world problems. (Oxford University Press, US\$29.95)

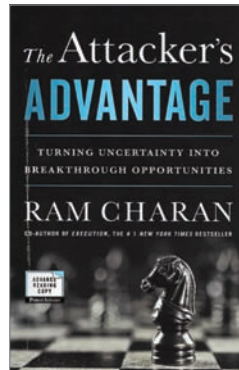
### CHANGING YOUR COMPANY FROM THE INSIDE OUT



In 2008, a former Peace Corps volunteer now working at IBM proposed creating a service organization within the company that paired top managers with nonprofits

in emerging economies. Initially derided, the Corporate Service Corps has become a valued tool in helping IBM both gain access to new markets and retain key talent. The University of Michigan’s Gerald Davis and Christopher White offer many other examples of “social intrapreneurship,” which they define as grassroots change within an organization that aligns with core business objectives while advancing a social cause. The two authors expect to see more of it—and they offer tools and techniques to bring it to any boardroom. (Harvard Business Review Press, US\$28)

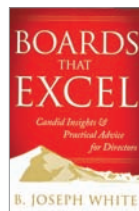
### THE ATTACKER'S ADVANTAGE



“Taking control of uncertainty is the fundamental leadership challenge of our time,” declares business advisor Ram Charan. He believes that the most successful future

leaders will be able to look ahead to see what’s coming, recognize opportunity in uncertainty, manage the transition to a new path, and create more agile organizations. He describes how sophisticated algorithms that deliver massive amounts of data are reshaping every industry and predicts that only the “math houses” that understand how to use such computations will survive. Overall, he notes, “The advantage now goes to those who create change, not just learn to live with it.” (PublicAffairs, US\$23.99)

### BOARDS THAT EXCEL



B. Joseph White has seen boards from both sides. He’s studied them as an academic in his positions as dean emeritus at Michigan’s Ross School and president emeritus of the

University of Illinois; he’s also served on boards for both publicly and privately held companies. Here White explores what a board member’s true responsibilities are, how an individual should determine when to accept board service, and what defines an excellent board. “The bookends, or starting and ending points, of great governance are high aspirations for and great results by the company or organization the board is overseeing,” he

writes. It’s a highly personal account of a deeply important topic. (Berrett-Koehler Publishers, US\$29.95)

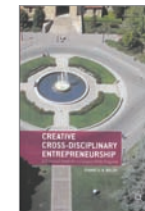
### CRITICAL KNOWLEDGE TRANSFER



When key employees leave, how do managers make sure their “deep smarts” about company products and processes don’t leave with them?

Dorothy Leonard of Harvard, Walter Swap of Tufts, and consultant Gavin Barton offer strategies that help managers elicit everything they need to know from knowledgeable employees before they depart. Then they present a case study about the knowledge-transfer program in place at GE’s Global Research Centers. “Loss of proprietary know-how can actually cripple a company’s ability to produce the next generation of products,” they write. They’re here to stanch the flow. (Harvard Business Review Press, US\$32)

### CREATIVE CROSS-DISCIPLINARY ENTREPRENEURSHIP

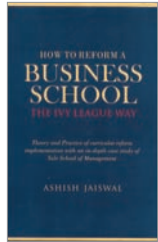


“Entrepreneurship has always existed with human civilizations,” writes Dianne H.B. Welsh. “It is tied to human survival and success.” For that reason, Welsh believes entrepre-

neurship skills can be taught within any discipline and will be essential in many industries in the future. But she doesn’t just present strong arguments for why business schools should offer their own entrepreneurship courses and cross-disciplinary programs. She also provides a detailed template for how she launched an entrepreneurship degree program at the University of North Carolina at Greensboro, including everything from

her initial proposal to her actual curriculum, down to the student learning goals. It's a generous and genuinely useful guide. (Palgrave Macmillan, US\$35)

### HOW TO REFORM A BUSINESS SCHOOL

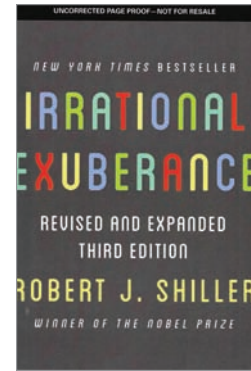


Critics say MBA programs need reform, but how should the curricula be revised? Ashish Jaiswal of the Oxford Centre for Higher Education Policy Studies describes the overhaul of the Yale School of Management, which in 2006 abandoned disciplinary silos in favor of integrated “perspectives” in cat-


egories such as Customer, Investor, and Society. Among the innovations are case studies that include hundreds of pages of raw data—such as financial statements and analyst reports—so students get a better feel for “the real-life environment in which leaders have to make their decisions.” Jaiswal’s conclusion is clear: It’s time for business schools to “reform and rise.” (OxCHEPS, US\$35)

### IRRATIONAL EXUBERANCE

Yale’s Robert Shiller has released the third edition of his classic text, updated for the times. He points out that, despite their repeated appearances over the decades, market bubbles are still mysterious to investors—perhaps because



each one arises around a different economic “story.” He suggests that bubbles should be viewed as epidemics instead. “We know that a new epidemic can suddenly appear just as an

older one is fading if a new form of the virus appears, or if some environmental factor increases the contagion rate.” As a bonus, the text of his Nobel Prize lecture is included at the end. (Princeton University Press, US\$29.95) 

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# STEM @ WORK

As pundits and policymakers promote the benefits of STEM disciplines, business schools ramp up their own programs aimed squarely at this market.

**INNOVATION HAS BECOME THE TOP GOAL** of most international businesses, and professionals in science, technology, engineering, and math who spur innovation have become prized employees. But unless these experts understand how to commercialize an idea, manage a team, or run a business, their innovations might never get far from the workroom or lab.

That's where business schools come in. They can teach engineers and scientists how to think through a problem, lay out a business plan, and manage employees. As they do so, they can join the global conversation about how STEM professionals can improve lives and solve thorny global issues.


But there are even more benefits for business schools that design STEM-related programs. They can take advantage of STEM-specific grants, scholarships, and visas. They can attract technically minded students, then develop new relationships with firms that are focused on recruiting these graduates. They can develop cross-disciplinary programs with other schools across campus or across town. In the pages that follow, educators at the center of such efforts discuss how business schools can better position themselves to turn out the next generation of industry leaders.



# TECHNICAL PURSUITS

BY SHARON SHINN

How business schools are placing themselves at the center of STEM education.



**THE ENGINEERING AND SCIENCE** students who sign up for Texas Tech's new STEM MBA class are in for a shock the first time they take an exam. They're used to answering quantitative questions, so they're not fazed by the math portion of an accounting problem, for instance. But they're stumped by the essay question that asks them to explain what the results mean and how those results might affect a company.

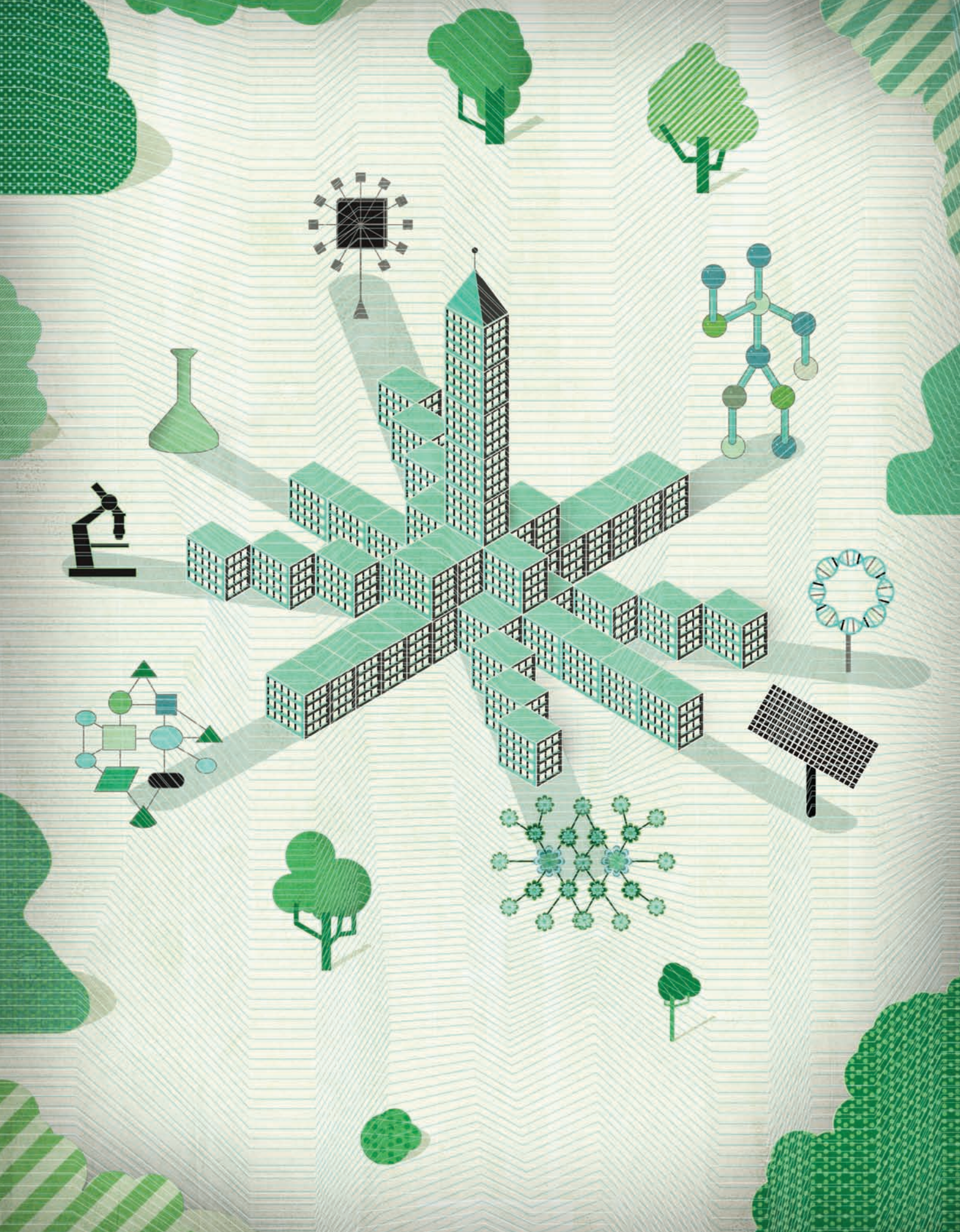
"Their thinking has to change when they're faced with interpreting numbers instead of just calculating them," says William R. Pasewark, associate dean of graduate programs and research at Texas Tech's Rawls College of Business in Lubbock.

That's the whole point of the

STEM-related programs that are being launched by a growing number of business schools: to help professionals with strong technical skills understand not just the nuts and bolts of technology, but also its impact and its potential to solve global problems.

"Our graduates have to think beyond technical solutions and understand how the technology is being used," says Matthew Lynall, director of experiential learning and management consulting programs at Purdue University's Krannert School of Management in West Lafayette, Indiana. "We can create smart cities that use incredible technology, but if no one wants to live in them, they're not viable solutions. The tech is important, but it's not sufficient."





STEM-oriented students who graduate from business programs have mastered the hard skills of science and the soft skills of communication, says Ronald Ackerman, director of graduate admissions and student services at Iowa State University's College of Business in Ames. That means they have the practical ability to solve technical issues and jump-start innovation, which is being hailed as the source of competitive advantage for both countries and corporations. But they also have the ability to work with teams, negotiate conflicts, measure results, and set long-term strategies. In short, they can combine technical brilliance with management smarts to become superstar managers and innovators. And business schools are gearing up to help them excel in their chosen careers.

### THE STEM CLASSROOM

So far, only a handful of schools offer business programs designed expressly for STEM students or professionals. While each program is different, the common overarching goal is to help engineers and technicians think more like businesspeople.

For one thing, they learn to work in teams, which is often a whole new adventure for individuals who are used to working in labs. "Students tell us, 'We've been lone wolves, and now we have to work together in a pack,'" says Lance Nail, dean of Rawls College. Schools also try to make sure the teams are as diverse as possible, mixing students from different disciplines and countries of origin so they learn how to adapt to many different cultural approaches and thinking patterns.

STEM students also get vivid examples of how their new business skills will be valuable in a tech-based environment. For instance, at Texas Tech, adjunct professor Ginger Kerrick holds a managerial position at NASA with the International Space Station. In her classroom, she presents a case study on the business model NASA uses when staffing and seeking procurements for the ISS.

Kerrick, who has a physics background, "will show how she married her STEM acumen with her business acumen to progress to the role she's in," says Nail.

Even standard business courses are being rethought to add a STEM angle. "Traditional business law courses might not be as appropriate in a STEM MBA program, because there's a lot more emphasis on intellectual property," says Texas Tech's Pasewark. "We're retooling our course to cover patents and copyrights."

Students in STEM-based business courses also frequently have opportunities to apply their new knowledge in the workplace. For instance, at Iowa State, all industrial engineering students must complete a senior project where they work as consultants with a manufacturing company; those in the STEM MBA program can use that same course to fulfill their MBA requirement of a service learning project in which they consult with area nonprofits. This class allows students to practice team-building skills, apply newly learned business concepts, and benefit the community, all at the same time.

Students conduct similar industry projects at Purdue. For a recent class, says Lynall, students considered how clients should incorporate 3-D printing into their businesses. They not only looked at engineering specs and mechanical characteristics, but also debated how 3-D printing could potentially reshape the firm.

"With new technology, the disruption often isn't the technology itself," says Lynall. "It's the implication it has for the organization's business model and the way the company creates and captures value. If students leave here and don't understand that, we haven't done a good job."

### THE STEM EMPLOYEE

Once STEM students master business skills, administrators expect to see them find jobs at a wide range of workplaces.

For instance, a Texas Tech student with math and economics degrees recently took a position as a business analytics consultant at E&Y. The school expects to see students placed at energy companies, biotech firms, and pharmaceutical labs.

Lynall predicts that Purdue students will end up in companies that use and will be affected by technological innovations, whether on the operations, supply chain, or distribution side. Some will go into product development and technology commercialization; others will take



jobs where they deal with the implications of technology at their firms. But, he adds, the program is new enough that he's not sure yet what will happen. "Once we put students in front of recruiters, we'll have a clearer idea of what kinds of jobs these students will be moving into," he says.

At Iowa State, where the STEM-related business program is a five-year BS/MBA, administrators first worried about the marketability of their graduates, who tend to be younger than the typical MBA. However, Ackerman notes, most are employed at graduation and all of them have jobs within three months.

Those Iowa State graduates tend to fall into three categories, says Mark Peterson, director of graduate career services. The first group consists of graduates who take traditional first jobs in technical fields—however, they often start at higher salaries because of their expanded skill set. The second group is made up of graduates who go into their first jobs at a somewhat higher level, even though they're younger than other applicants and have less experience.

The third group consists of individuals who took STEM courses because they're good at math or science, but they choose careers that have little to do with their undergraduate majors—for instance, they might be engineers who go into investment firms. "Organizations like the way these engineers apply logic to problems and solutions," explains Peterson.

# THE ENTREPRENEURS

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## THE STEM LAUNCHPAD

As science and technology become increasingly important to the innovation efforts of entire nations, more business schools are likely to add programs that target individuals in tech and science fields. Administrators of current STEM programs offer key pieces of advice:

**Start small and build slowly.** Make sure your faculty is ready to take on the challenge, says Pasewark, and make sure you can design the right curriculum for your targeted audience.

Such a controlled build allows the program to expand in a way that's manageable. It also allows administrators to understand the career needs of one group of students at a time and to identify companies that might want to hire them. "Gradually building the program allowed us not only to understand the

grade in business and managerial skills.

Similarly, at Texas Tech, Mary Weatherly, director of graduate and professional programs, has been expanding her recruiting efforts across the state and across the nation. On campus, she visits STEM classrooms; off-campus, she attends career tours, visits other colleges with strong STEM programs, and promotes the MBA on social media. Students and their parents are excited about the possibilities, she says. "I've met with more people on this program than I have for any other program we offer," says Weatherly.

Iowa State's STEM MBA is an extension of the undergrad curriculum, so it doesn't look to other schools to fill the pipeline. Even so, it recently began engaging students far earlier than their junior years, when they apply for the

# A controlled build allows administrators to understand the career needs of one group of students at a time and to identify companies that might want to hire them.

needs of the students, but also to develop relationships with the advisors and the other departments around the university," says Peterson.

**Determine which students to target.** For the first year of Purdue's program, administrators recruited students who originally had applied to its traditional two-year MBA. But they have plans to market the program more heavily and in ways that differentiate it from the school's regular master's program. Krannert also is approaching companies that hire Purdue engineers and science students to ask them if they'd like to sponsor employees who could use an up-

program. Administrators now promote the STEM MBA at freshman orientation, work closely with engineering advisors to target students, and hold informational sessions and luncheons throughout the year.

**Collaborate with other colleges—and other universities.** "You're not drawing students from your own college, so the program forces you to reach out," says Pasewark of Rawls College.

But collaborative efforts can be challenging, especially when the various colleges have different core structures. For instance, Krannert's MBA is delivered in eight-week modules, while some other

colleges on campus follow a 16-week format, making it tricky for students to sign up for certain classes. Krannert is responding by cross-appointing faculty members to develop stronger connections between STEM and management professors. Krannert also is co-developing course offerings with other schools "to make classes more accessible to one-year STEM MBA students, either in the way the courses are structured or where they're located," says Lynnall.

He adds, "We hope that when we develop more collaborative programs, the boundaries between academic units will disappear. We want this program to truly be seen as a Purdue program, not a School of Management program at Purdue."

**Decide what qualifies as STEM at your school.** "There are a lot of definitions of STEM, and we had to narrow it down," says Pasewark. "You'll have discussions like, 'Is exercise science really STEM?' At Texas Tech, our preference has been to restrict the program to students from engineering and the hard sciences."

**Build the program around your university's strengths.** At some schools, that might be biotech or big pharma. At Texas Tech, that includes energy—so it's no surprise that the current program includes four students from the wind science department, a specialty of the school.

**Be patient and flexible.** It might take time for program administrators to figure out what courses students will be interested in and which employers will want to hire graduates. "We expect it will take a while before our program has its own identity separate from the two-year MBA," Lynnall says. "We know that once we enroll students, we need to respond to their needs and help them pursue the kinds of jobs they want."

## THE STEM ADVANTAGE

Business schools that take the time and invest the energy to launch STEM-related programs are likely to reap big



# Stronger alliances between business and STEM disciplines represent a win-win for everyone.

rewards. For one thing, says Iowa State’s Peterson, as they look for companies to offer internship programs and hire their students, they’ll develop relationships with a whole new set of businesses. In turn, when those businesses need graduates from other disciplines, they’ll check first with the school they trust.

Lynall agrees. “If the only relationship we have with these companies is that they come in once a year to recruit our students, that’s not sufficient,” says Lynall. “If we engage them in other ways, we develop a partnership. In the end,

they’re the customers. If we don’t understand what they need and how their businesses are changing, if we don’t have very rich relationships with industry, we won’t keep evolving our program. We’ll just be guessing, doing something, and hoping it works.”

Most important, when business schools launch STEM-related programs, they equip their graduates with the skills they need for a lifetime of employment. “A sophomore engineering student recently told me about his internship at John Deere,” relates Ackerman of Iowa

State. “He said, ‘Many parts of the job were business-related, from managing projects to working on teams. I didn’t need technical skills so much as an understanding of business.’”

Stronger alliances between business and STEM disciplines represent a win-win for everyone involved. Students will follow more interesting career paths, corporations will do a better job of harnessing the power of new ideas, and society more quickly will reap the benefits of new products. Business schools that incorporate STEM into their studies can recruit a new type of student, build stronger relationships with industry—and participate in some of the most exciting new developments of the future. **D**

**D** For more details about the programs offered by the three schools profiled here, see “Wired for Business” on page 34.

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MICHAEL GOUL, LARRY DIGNAN,  
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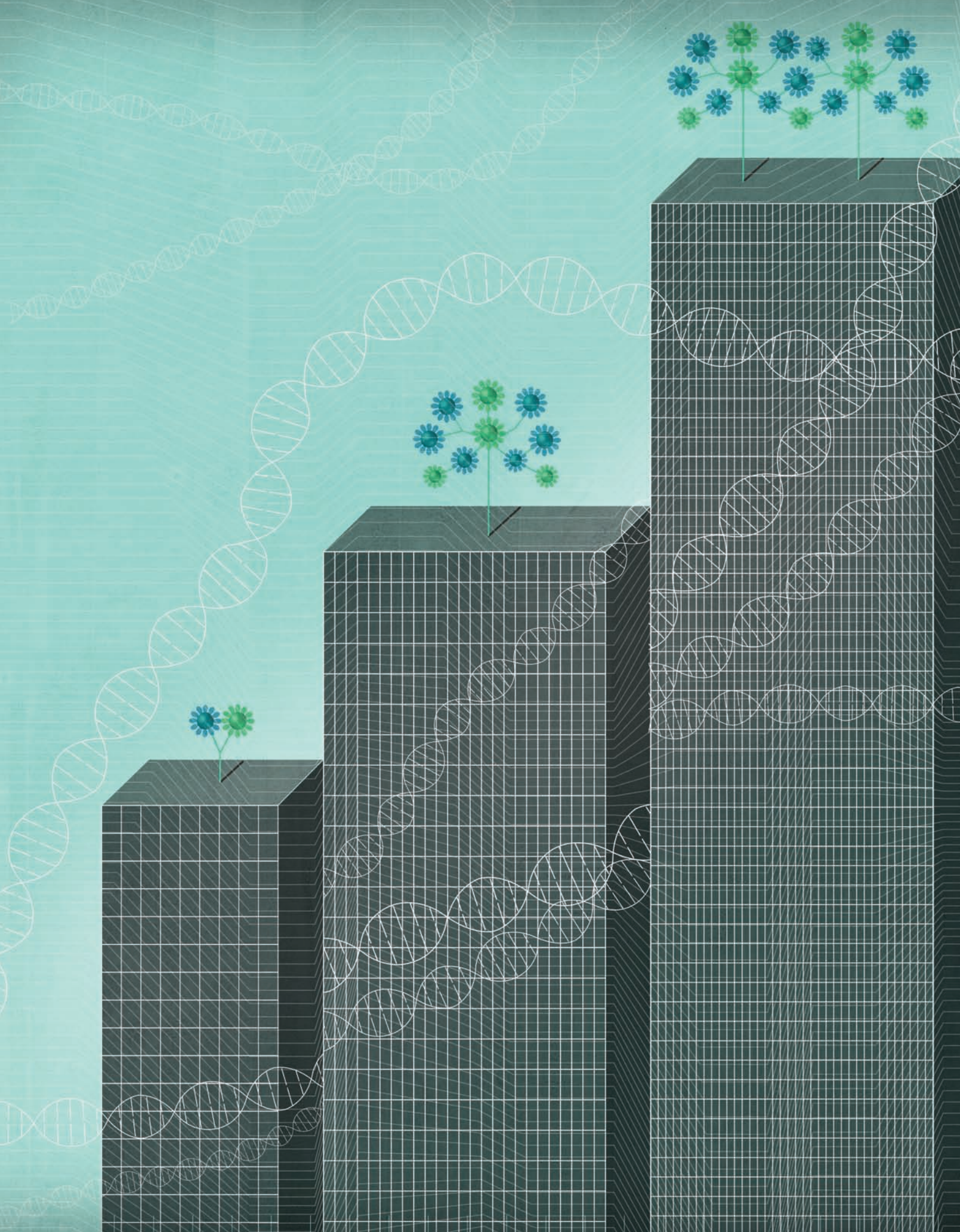
# PLOTTING A COURSE FOR STEM

The future of STEM will be brighter if business schools are willing to take leading roles.

**“DO BUSINESS SCHOOLS** have a role in STEM education?” We posed this question during a panel presentation at AACSB International’s Associate Deans Conference in Phoenix, Arizona, in November 2013. It’s a question that still deserves much greater attention from business schools than it’s currently getting.

We need only look at what’s happening in industry. Organizations in all sectors are finding that their future growth and productivity are tied to tech-based fields; they need new hires

with the business skills to work across disciplinary chasms to tackle difficult problems. Consider the following: Is Goldman Sachs an investment business or is it really a STEM firm? We contend that the firm’s clients, investments, operations, and personnel are increasingly driven by science, technology, engineering, and math considerations. Distinctions between STEM and non-STEM disciplines are rapidly disappearing in companies in every sector—and that means that business schools should be part of the STEM conversation.



STEM also has become a national policy imperative, as U.S. corporations and government agencies allocate



ever more resources to STEM-focused scholarships, grants, programs, and awareness initiatives. But even while many view STEM education as critical to producing 21st-century economic and technological leaders, some countries still lag behind. Brazil, China, and India produce more technical workers than the U.S., the U.K., and Japan—and the gap expands each year. Business schools can help close the gap and leverage the skills of STEM talent by tapping into three of their biggest strengths: educational programs, industry partnerships, and advocacy.

### THE EDUCATION ADVANTAGE

Business schools have long participated in technology through their IT-related programs, in math through operations research and statistics, and in science through topics such as actuarial science. The growth of analytics and big data presents an opportunity to integrate the business school's traditional strengths in operations, marketing, management science, information systems, and statistics. To become a recognized force in STEM education, business schools must develop strategies around their greatest asset—their programs. They can do so in three important ways:

#### ■ Integrate STEM into curricula.

Business schools can bring STEM-based cases, tools, solution sets, and research into relevant business programs and courses. They also can create more opportunities for students with STEM backgrounds to work with the business school.

■ **Actively recruit STEM workers and undergraduates.** Business schools must learn to speak a STEM-centric language more fluently to attract this pool of potential students.

#### ■ Create integrative degree paths.

Establish formal agreements within the university to offer undergraduate students in traditional STEM disciplines the option to earn master's degrees in business, from "4+1" programs to joint degrees. (See "Wired for Business" on page 34, which details how several schools launched such efforts.) They also need programs that go beyond one discipline to systematically incorporate multiple STEM areas. Business schools are uniquely positioned to serve this integrative role.

#### ■ Pursue STEM designations.

Most important, business schools must document their STEM programs to ensure eligibility for certain financial aid, federal grants, or visas. In the U.S., this means making sure that applicable programs qualify for one or more STEM-designated Classification of Instructional Programs (CIP) codes. Developed by the U.S. Department of Education's National Center for Education Statistics in 1980, CIP codes now are used by the Department of Homeland Security to determine eligibility for extended visas and serve as the de facto basis for STEM designation.

**7.4**  
**MILLION WORKERS**  
were in STEM fields  
in the U.S. in 2012. By  
2018, their ranks are  
expected to grow to  
8.65 million.\*

To receive a STEM-designated code for a course or program, administrators must determine which code is applicable and then submit a proposal that argues for the classification (or reclassification, in the case of an existing program) to the appropriate governing body at the university. Until recently, CIP codes

**MORE THAN**  
**40%**  
of awarded degrees  
in China are in  
STEM. In the  
U.S., that number is  
just over 12 percent.

were used primarily for institutional research, so the university may not have measures in place to change a code. Those submitting the proposal must be prepared to work through this process.

Traditional business disciplines such as accounting, economics, entrepreneurship, finance, information systems, marketing, operations, and statistics can participate in STEM programs that focus on information technology, IT auditing, actuarial science, analytics, cybersecurity, and project management. Because such programs often are collaborative and cross-disciplinary, they place the business school at the center of the universitywide STEM conversation.

### THE PARTNERSHIP ADVANTAGE

Business schools can tap into their deep partnerships with industry to drive innovation and develop programs relevant to industry needs. The Fox School of Business at Temple University achieves this through its universitywide entrepreneurship programs and industry-focused competitions on digital innovation and analytics. The Carey School of Business at Arizona State University sponsors programs like the Edson Student Entrepreneur Initiative to support innovation across the ASU campus. Other schools have started STEM-centric incubators in partnership with local industry, capital funding programs, and collaborations on National Science Foundation Small Business Innovation Research (SBIR) grant programs.

\*Data sources: The 2012-2013 report "Where Are the STEM Students?" from STEMconnector and MyCollegeOptions, [www.stemconnector.org/sites/default/files/store/STEM-Students-STEM-Jobs-Executive-Summary.pdf](http://www.stemconnector.org/sites/default/files/store/STEM-Students-STEM-Jobs-Executive-Summary.pdf); and the 2011 report "No Shortage of Talent: How the Global Market Is Producing the STEM Skills Needed for Growth" from Accenture, [www.accenture.com/SiteCollectionDocuments/Accenture-No-Shortage-of-Talent.pdf](http://www.accenture.com/SiteCollectionDocuments/Accenture-No-Shortage-of-Talent.pdf).



Business schools also can create certificate programs that integrate innovation and entrepreneurship activities and further the training of STEM workers pre- and post-graduation. Such targeted programs will help students from traditional STEM fields recognize that the basics of business—communication, engagement, collaboration, teamwork, presentation, and the ability to tell meaningful and compelling stories—are prerequisites to success.

### THE ADVOCACY ADVANTAGE

As Larry Dignan, a co-author of this article, writes in a November 2013 piece that appeared on the news site ZDNet, “Business schools have a bigger megaphone and can promote STEM better in the field” than traditional STEM disciplines such as physics and computer science. The business school can be both cheerleader and catalyst for STEM initiatives, communicate and transfer new STEM innovations, and

serve as a partner in the creation of new programs.

Most important, business schools must come together to raise awareness in two important ways:

■ **They can create a STEM directory for business schools.**

We currently do not know how many business schools have STEM programs. By creating an international survey and inventory, we could collect information about STEM programs

ABOUT  
**28%**  
of freshmen at U.S. colleges and universities—around 1 million—declare interest in entering STEM fields. More than 57 percent of them lose interest in STEM by the time they graduate.

and raise awareness of business schools’ contributions. We also could use the survey to share solutions to the challeng-

es involved in setting up STEM designations—information that will be critical as business schools seek to change the national conversation.

■ **They can participate in policy-making.** Administrators and faculty need to better engage in national STEM discussions and make policymakers more aware of business schools’ contributions. They should attend conferences focused on STEM and serve on national and local committees focused on policy-making, funding allocation, and awareness at the grassroots level.

Recognition of business schools’ contributions to the STEM issue will not come automatically. We will need to promote a sustained initiative on a national level to change perceptions.

### SHAPING THE FUTURE

Some have argued that the importance of STEM is overblown, including Robert Charette, president of the Virginia-based risk-management consultancy ITABHI Corp. In “The STEM Crisis Is a Myth,” his 2013 article in *IEEE Spectrum*, Charette argues that not enough jobs exist for STEM graduates and that employers are increasingly valuing acquired knowledge and skills over formal STEM degree programs. Others claim that it has become a national pastime in the U.S. to be anxious about sources of competitive advantage.

These arguments highlight the need to define more clearly the knowledge areas that drive interest in STEM. Even so, we believe that STEM offers great possibilities, and that business schools with STEM-focused programs will see many short-term and medium-term benefits, such as greater access to grants, scholarships, and visas, and more opportunities for cross-disciplinary teaching and research. They’ll attract students who understand the importance of combining business knowledge with STEM skills, encourage broader industry engagement, and design programs that better prepare students to solve problems and lead technological innovation.

To the casual observer, business schools may not seem relevant to STEM, but the opposite is true. In his 2010 working paper, “The Evolution of Science-Based Business: Innovating How We Innovate,” Harvard Business School professor Gary P. Pisano identifies challenges faced by science-based business organizations, such as the

**71%**  
of STEM jobs in the U.S. will be in computing by 2018.

need to manage risk, integrate across disciplines, and leverage community learning. “Addressing these challenges calls for a new ‘organizational technology,’” he writes. “While technological progress creates potential for economic growth, that

potential can be realized only with complementary innovation in organizations, institutions, and management.”

Achieving organizational innovation is at the center of the business school mission. But as long as we stay silent, we reinforce the impression that the business school’s role is akin to that of a historian, limited to “explaining what has been done.” Business schools can help shape STEM’s future, but if they aren’t more active in the national discourse, they risk becoming irrelevant. □

*Munir Mandviwalla is founding chair of management information systems and executive director of the Institute for Business and Information Technology at Temple University’s Fox School of Business in Philadelphia, Pennsylvania. Michael Goul serves as department chair and professor of information systems at the W.P. Carey School of Business at Arizona State University in Tempe. Larry Dignan is global editor-in-chief of ZDNet and SmartPlanet, as well as editorial director of ZDNet’s sister site TechRepublic. Brad Jensen is a former senior vice president and chief information officer of U.S. Airways.*

# BEST & BRIGHTEST

## The executive perspective on business and STEM

Every company seeks the best talent, but today, the “best” for many companies equates to individuals with clear understanding of both technology and business.

Take aerospace company Lockheed Martin. Its business is centered on technology so it obviously has a strong need for technical talent, especially in engineering and computer programming. But the business-technical mix has become more “crucial to long-term career success,” says Sondra Barbour, Lockheed Martin’s executive vice president, Information Systems & Global Solutions. Barbour herself has degrees in both computer and information sciences and accounting. “As I advanced in my career, I found that having a mixture of both skill sets became increasingly important,” she says. “We’ve found that some of our technical solutions—including those in our cybersecurity business—can be best developed with teams from different disciplines. For instance, sociology or psychology majors can provide great insight into the adversaries themselves. So, we look for the best candidates who we believe can provide the best solutions for our customers.”

Even companies that aren’t traditionally considered “high tech” are becoming more tech-oriented. At media company NBCUniversal, the pace of technological innovation has been accelerating since 2013, when cable company Comcast acquired a 100 percent stake in NBCU with its purchase of General Electric’s shares in the company. Like many other companies, NBCU has found itself competing for the same talent that once might have sought jobs only at high-tech firms such as Microsoft or Google, says Atish Banerjee, the company’s chief information officer. He holds a bachelor’s degree in commerce and a master’s in computer information systems.

“Technology increasingly has become the driver for how NBCU delivers products and services to its customers,” Banerjee explains. “That’s why we have architected the organization to have divisional CIOs for each of our different businesses in film, theme parks, broadcast and cable, sports, and news.” Each CIO makes sure that the people in his or her division understand how that business works, what the challenges are, and what solutions they’ll need to develop to reach their customers in the future, not just today.

“We need people with very strong technology skills *and* very strong business skills *and* very strong communication skills,” he says. “For us, hiring someone with skills in just STEM fields or just business has become largely irrelevant.”

On the following pages, Barbour and Banerjee speak further on how their industries are changing—and what skills their companies need from both sides of the STEM-business divide.

### Sondra Barbour of Lockheed Martin

**Does a lack of knowledge in either STEM fields or business slow career progression for some in your company?**

I wouldn’t say it slows career progression, but business acumen becomes more important as people move forward into leadership roles. For instance, entry-level engineers would need to understand the technical aspects of a program to be successful. More experienced employees who manage large portfolios need to understand the financial, human resource, and operational aspects of their portfolios.

In addition, as a technology business, we think it’s important to create a customer-centric culture to ensure our scientists and engineers are always looking at how a solution will benefit our customers’ ultimate goals. We need to make sure we aren’t creating elegant technology for technology’s sake—we need to keep our customers’ business requirements in mind as well.

**You made *Forbes*’ list of Most Powerful Women in Business in 2014, as well as STEMConnector’s Top 100 Women Leaders in STEM. What educational experiences were most valuable to you in bringing you to where you are today?**

I cannot emphasize enough the importance of problem-solving and project management skills. When a company’s mission is to solve large-scale, complex problems, these are going to be critical skills in whatever role you may take on.

Many moments in my career helped me grow as a businesswoman and an engineer, but they all have something in common—they occurred when I took on assignments or positions that stretched me outside of my comfort zone. One example was my decision to lead our corporate internal audit team. That required my relocation from the place I started my career—Philadelphia—to our headquarters in Washington, D.C. But, that experience provided me valuable insight into both our business globally and myself personally.



We need to make sure we aren’t creating elegant technology for technology’s sake—we need to keep in mind our customers’ business requirements as well.

**Women are still underrepresented in both STEM and business. What do you think needs to happen to bring more women into both?**

First, we need to make sure we are capturing the imagination of young people in the exciting world of STEM at an early age. We need positive societal role models in order to improve perceptions at the elementary and middle school levels. At Lockheed Martin, we've been focused on getting young girls excited about math and science through our sponsorship of the USA Science and Engineering Festival and through a US\$6 million partnership with Project Lead the Way to expand STEM programs in urban school districts. We also are

working with Girls Inc. in a program that connects some of our women engineers with girls ages nine to 12 to strengthen their interest and confidence in STEM.

Second, we need to tell women who are entering the workplace to say "yes" to opportunities. Any time I've checked back with those I have mentored and advised to take on new challenges, the feedback is the same. The scariest part was saying "yes"—they always learned a lot, grew personally and professionally, and ultimately are happy with the decisions they made. Uncertainty should never stop us from taking the next leap—that acknowledgement and support from others will allow more women to shine.

**Atish Banerjee of NBCUniversal**

**What skills in STEM and business do you look for in new hires?**

When GE was our parent company, we outsourced a lot of our intellectual property and engineering; in the process we lost a lot of our "engineering DNA."

We have been rebuilding that over the last two years. It's important for us to have people with strong programming and engineering skills; people who know about servers, networking, and operating systems; and people with skills in user interface design. Most people in senior positions need technical degrees and MBAs on top of that.

**What kinds of training opportunities does NBCU offer?**

We have a strong mentoring program, and we send employees with business degrees to third-party providers for technical training. In addition, we partner with institutions such as Temple University, which sends in faculty to offer training. One of the courses they created for us taught our technical people to discuss technology in layman's terms, so that businesspeople can understand them.

**In February 2014, NBCU opened its new US\$17 million Technology Center in New Jersey where employees, researchers, startups, and venture capitalists collaborate on new products. How does this center serve as a bridge between the tech-based and business-based aspects of NBCU?**

One reason we built the Technology Center is to attract the type of people interested in working for a pure tech company. The center was designed after facilities in Silicon Valley, with open floor plans, next-generation technology, games, and lounges for relaxation.

It also houses Media Lab, which focuses on incubating new technologies from startups and established companies, and applying those technologies to our businesses. We're playing with



location-based technologies, 3-D printing, virtual worlds, gaming, mobile—technologies that our customers are now using to consume content in new and different ways.


**What trends are affecting NBCU that business schools should be most aware of?**

The way that people consume content today is very different from the way they consumed it five years ago and very different from how it will be five years from now. That's why we now view ourselves as a technology company just as much as a media company. And technology is becoming one of the key business drivers—if not the main business driver—in many other industries. For that reason, business schools need to place technology at the front and center of their programs. Every faculty member, not just those teaching MIS or CIS, should have a solid understanding of technology. Every faculty member and student needs to take at least one course in programming—whether it's Ruby on Rails, C++, Java, or even something as simple as HTML—so they understand how technology is evolving.

**Every faculty member and student needs to take at least one course in programming—whether it's Ruby on Rails, C++, Java, or even something as simple as HTML—so they understand how technology is evolving.**

**You recently were named one of *Computerworld's* Premier 100 IT Leaders for 2015. What educational experiences have been most valuable to you in bringing you to where you are today?**

I completed my master's degree in the late '80s and early '90s, when it wasn't as important to have both technical and business backgrounds. But I was fortunate enough to have taken an educational path that gave me that experience. More people need to make sure they pursue that blend of education.

My daughter's in college now. She's not going to be a science major or a programmer—she's interested in writing. But I encourage her to develop other academic and technical skills, to build the left brain and right brain together. I think that blend of skills will enable her to be more well-rounded and successful in her career. 

# WIRED FOR BUSINESS

More business schools want to develop classes targeted at STEM students and professionals. Here's a look at a few programs already in place.



## PROMOTING STEM BUSINESS IN THE EU

In the European Union, a pilot program called MBA4PHD has been under way for two years. Funded by the EU's Lifelong Learning Programme, the pilot is focused on providing business skills to individuals in the

STEMMA fields of science, technology, engineering, medicine, mathematics, and the arts. Four schools now participate: the University of Turku in Finland, the University of Gothenburg in Sweden, the University of Wales in the U.K., and EM LYON in France, the sole business-only school in the alliance.

Students enrolled in the program continue their scientific or technical training at their home universities, but tack on 12 to 18 months to pursue a management curriculum in parallel with their doctoral studies. Business modules are conceived and coordinated at the consortia level and can be delivered by local or consortia faculty. Intensive modules bring together most participants for shared residencies three times a year, and the EU's Erasmus mobility

program helps integrate faculty and students. Kirsi Peura of the University of Turku has been instrumental in coordinating the project.

The curriculum focuses on innovation, entrepreneurship, and the business acumen needed to bring ideas to market. "Creativity and technology are changing our lives and redefining the landscape of our economies, and we are witnessing unprecedented innovation in the tools and techniques we use to live and work," says EM LYON's Rickie Moore, an associate professor in entrepreneurship who has engineered the pedagogy for the MBA4PHD program.

Moore believes the MBA4PHD program will help students develop the skills they need to compete in the knowledge economy while still allowing them to practice their initial disciplines. It also will make sure the world doesn't miss out on exciting inventions. "A lot of STEMMA graduates will come up with innovative ideas, but we want to see these ideas get to market and start transforming lives," he says.

So far, the pilot program is small—two cohorts of ten or fewer students—but di-

verse, including men and women from a wide range of backgrounds and countries of origin who share an average age of 30. Moore expects the program to expand to schools across Europe, but only after the first graduates enter the workforce and administrators can assess how they might need to tweak the program.

"We're applying our own methodology to ourselves," says Moore. "We're working on getting our prototype right before thinking about expanding."

One of the challenges is securing funding. In Europe, Moore notes, doctoral students traditionally receive stipends from their universities, whereas MBA students pay for their degrees. To complicate things further, funding models for education are different among all the participating countries, and that's likely to continue as the program goes forward. But the cost structure might see some changes. "We're working on a funding model that allows the doctoral programs to embrace some of the costs for the MBA program," says Moore.

While the MBA4PHD program is still in the pilot stage, Moore is also promoting what he calls the Contextualization



of Entrepreneurship Education for STEMMA graduates. He has worked with program partners to organize workshops on knowledge transfer and entrepreneurship education for STEM and nonbusiness graduates. These workshops allow peer groups to discuss critical issues related to adapting entrepreneurship techniques to fields such as the life sciences, the creative industries, the media, and information and communication technologies.

Students who emerge from the workshops and pilot program are likely to embark on varied and fascinating careers. Moore theorizes that some graduates might manage multispecialty medical practices; others might handle big data for big pharma. Moore has already coached individuals working on innovative projects such as the commercialization of a molecule that slows the degeneration of brain cells and the development of a test protocol for personalizing radiation treatment.

But, Moore says, other students might end up taking jobs that no one even visualizes now. He wants to help prepare graduates for whatever the future throws

at them. “Ten years ago, no one would have listed ‘app developer’ as a viable career choice,” he points out. “But today, mathematicians, statisticians, and artists are embracing entrepreneurship as they enter new careers in augmented reality, gamification, and digital animation. As wearable technology accelerates, we will see more collaboration and cross-fertilization among artists, stylists, designers, and engineers.”

#### **TRANSITIONING TO PRACTICE**

Since Texas Tech University already had a strong STEM orientation at its Lubbock campus, it seemed natural for the Rawls College of Business to develop a STEM MBA. The program, launched in 2013, is packed with STEM-related cases and STEM-specific electives, such as a commercialization class.

Students come primarily from science and engineering backgrounds; the rigorous application process has, so far, resulted in cohorts of about 20 students each. While administrators expect a jump in class size with the 2015 fall cohort, they don’t plan to admit more than 40 students in any group.

Classes are led by business faculty with STEM backgrounds or co-taught by cross-disciplinary instructors. For instance, a course called STEM Theory to Business Practice is co-taught by an adjunct STEM professional and a marketing professor who comes from an engineering and computer background. According to dean Lance Nail, “Our professors can say, ‘These are the theories that you learned in your STEM discipline, and this is how they can be applied to a financial pricing model.’”

#### **MAKING A FIVE-YEAR PLAN**

Launched in 2004, the BS/MBA program at Iowa State’s College of Business in Ames allows students to earn combined graduate and undergraduate degrees in five years. First offered mainly to engineering students, particularly those in industrial engineering, the program has expanded over the past decade to include students from chemistry, animal science, food science, and other programs. New majors are added only after undergoing a rigorous curriculum review process at both the department and university levels.

Each class is relatively small, with 2014's entering class of 21 being the largest yet. Undergraduates start taking MBA courses in their senior years while completing their STEM courses, occasionally taking courses that apply to both degrees. For instance, industrial engineering undergraduates must do a senior project that often involves acting as consultants for a manufacturer, which fits within the MBA program.

Students are placed in diverse four- or five-person teams that they stick with for ten core courses. Admission to the program is fiercely competitive and students know there's a lot of work ahead, says Ronald Ackerman, director of graduate admissions and student services. "They're taking 18 to 21 credit hours of MBA programming as well as 400-level engineering courses, so they're hard-working, focused, and mature. They're the best and the brightest."

### PREPPING PROFESSIONALS

The Krannert School of Management at Purdue University in West Lafayette, Indiana, has a strong STEM focus in most of its majors, as well as a tech commercialization stream within its two-year MBA. Therefore, an MBA geared to STEM professionals seemed like a natural fit, and the school launched a one-year program in June 2014. Among the first group of 20 students, the average level of work experience is five years.

At Purdue, the semester is broken into two modules, and students supplement their core courses with electives from the colleges of science, engineering, and technology. During the spring semester, they add an experiential learning component that involves either doing a project with a tech-based company or participating in the tech commercialization stream where they can work with researchers on campus or startups in the research park.

Students also can opt to take a series of Lean Launchpad courses, which are usually filled with a mix of MBAs and engineering students.

### MAKING THE CONNECTION

Temple University's Fox School of Business in Philadelphia, Pennsylvania, offers three STEM programs. The bachelor of business administration in management information systems (MIS) enrolls about 350 students each year, the BBA in actuarial science enrolls about 300, and the master of science in information technology auditing and cybersecurity (MS ITACS) enrolls about 50.

The second two programs have always been classified as STEM under federal standards, but the BBA in MIS, launched in 2000, was reclassified in 2013. The benefits were immediate. One hundred percent of the graduates have been placed, and a Fortune 10 firm has made a multiyear commitment to provide funding for and recruit from the program.

Now the school is making a concerted effort to remind financial aid administrators, corporate partners, students, and alumni about its STEM programs. For example, because these programs originate in the business school, financial aid professionals often do not suggest STEM scholarships for the students enrolled in them. To make students aware of STEM-based scholarships outside Temple University, the Fox School created a website at [community.mis.temple.edu/stem-scholarships-and-awards/](http://community.mis.temple.edu/stem-scholarships-and-awards/). The school also explains visa benefits to international students interested in its MS ITACS program.

### RAISING AWARENESS

Students at Arizona State University's W.P. Carey School of Business in Tempe can choose to pursue one of four STEM-related degrees, including bachelor of science degrees in computer information systems or business data analytics and master of science degrees in information management or business analytics. The newest is the bachelor's in business data analytics, which just launched in fall 2014 with 92 students.

To have these four programs classified as STEM with the U.S. Department of Education, the faculty had to demonstrate how the program contributed to the Arizona Higher Education Enterprise Plan, which emphasizes the need for graduates in high-demand fields. According to Michael Goul, department chair and professor of information systems at the Carey School, "The Board of Regents has created an online dashboard that details the degrees awarded in the state in high-demand fields in order to raise awareness and increase transparency of overall progress in the state of Arizona."


Many of the students in the program are double majoring in business data analytics and disciplines such as economics, finance, marketing, and computer information systems. Goul notes that accounting students also are increasingly expressing interest in the program as more accountants are required to work with unstructured data.



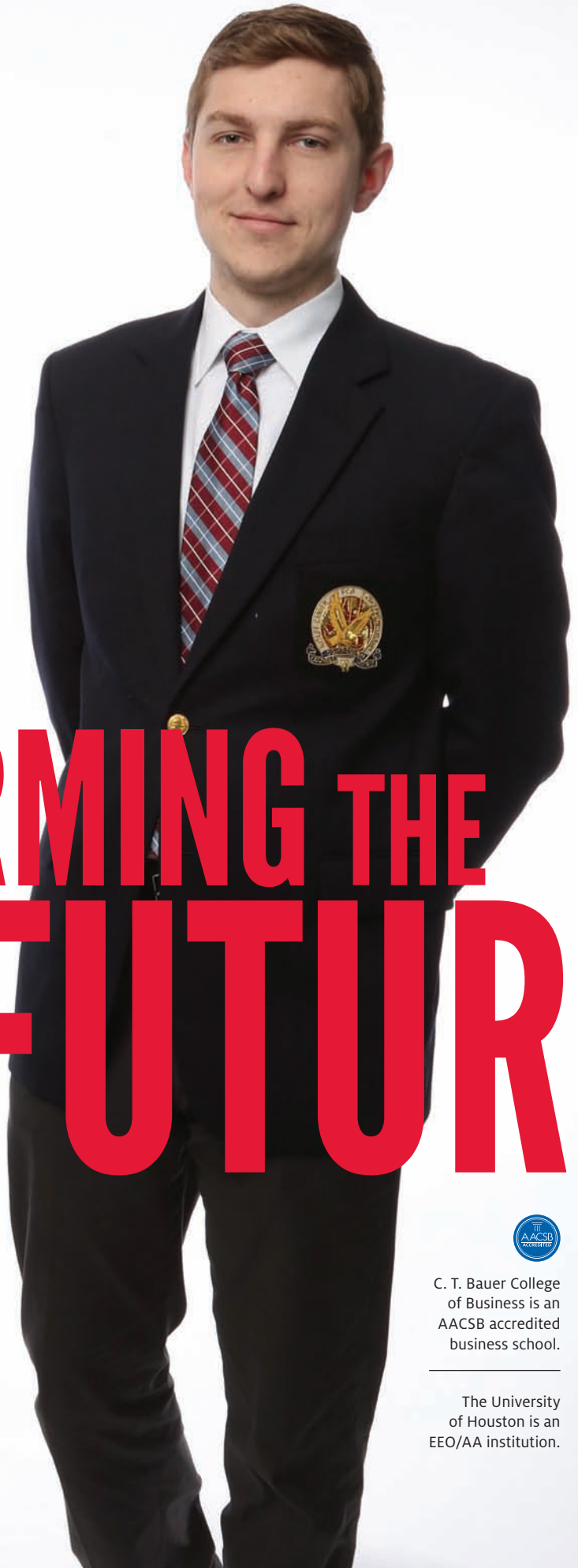
### 'MASTERING THE WAVE'

The next step for business schools is to make more students aware of the many opportunities available, attracting them to business training and retaining them in STEM fields, says Goul. "We want to help them master the emerging big data wave that is rushing ashore for virtually all business disciplines."

Whenever anyone asks Moore of EM LYON why scientific types—or anyone else, for that matter—should study entrepreneurship, he says, "It's about developing capacity. We can't predict the future, but we can help our graduates create their own. Who knows what roads graduates will take? But business schools can do our part in helping them make more effective contributions to society."

And for Moore, Goul, and many other business educators, that means designing programs that will make business students experts at applying management expertise to technical innovations. 

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# TRANSFORMING THE FUTURE

For alumni of the C. T. Bauer College of Business, no problem is without a solution.

Casey McNeil (BBA '14) and a team of entrepreneurs from the college's Wolf Center for Entrepreneurship have launched REEcycle, a business using intellectual property created on the University of Houston campus that is the first company to profitably reclaim neodymium and dysprosium, two critical rare earth elements necessary for a low carbon economy. REEcycle has received awards from the U.S. Department of Energy and several national business plan competitions, while Forbes is calling McNeil one of its "30 Under 30" this year for energy.

At Bauer College, we focus on experiential learning that prepares students to immediately enter the workforce and make an impact.

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C. T. Bauer College of Business is an AACSB accredited business school.

The University of Houston is an EEO/AA institution.

# CLOSING

# GENDER | THE GAP

BY PATRICIA M. FLYNN, KEVIN V. CAVANAGH, AND DIANA BILIMORIA

It's time for business schools to make the issue of gender diversity a priority—and begin forming their plans of action.

**BUSINESS SCHOOLS SHOULD** not only prepare women to succeed as leaders, but also lead the way in helping organizations welcome and support gender diversity. Yet business schools themselves are characterized by significant gender gaps at all levels, from administration and faculty to doctoral candidates and MBAs. Male and female business students lack role models of successful women in business schools, and women increasingly are opting to earn bachelor's degrees in fields other than business. Even as some business schools actively recruit more women, women still are underrepresented in business programs.

We recently conducted research on gender at business schools that highlights the extent of the problem. We found that many gender gaps can be traced back to pipeline issues. For instance, certain business disciplines such as finance and economics generate few female doctorates, which constrains the pool of potential faculty who pursue leadership positions. But the problem of gender inequality goes well beyond the pipeline. After being hired as full-time business faculty, women are less likely to become full professors than men. And, women hold relatively few associate dean and academic department chair positions, both major stepping stones to the dean's office.

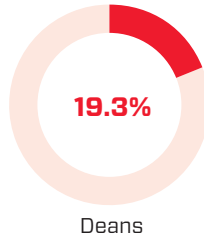
The fact that so few women are deans, full-time faculty, or tenured faculty is likely to reinforce gender inequality in business schools. This scarcity creates an organizational culture that might deter women who graduate with BBAs from enrolling in master's and doctorate programs in business, because they fail to see how careers in business and academia will benefit them.

Here, we share some of our data, as well as steps business schools can take to bring more women into business and management education. A scarcity of data on business school faculty and deans outside the United States restricted our ability to analyze these key global trends; however, we have good data on student graduates around the world. We conclude from our research that if business schools are to achieve gender equality, they must honestly assess their track records in supporting gender diversity. Then, they must implement policies and procedures that will make them role models for gender equality in business.

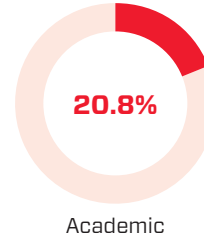


# WHAT THE DATA SHOW\*

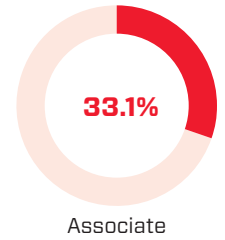
AMONG B-SCHOOL LEADERS IN THE U.S., WOMEN MAKE UP



Deans

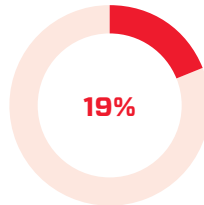


Academic Department Chairs

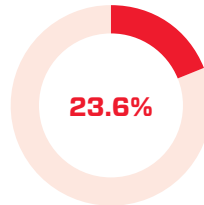


Associate Deans

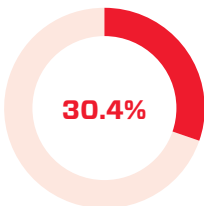
AMONG BUSINESS FACULTY IN THE U.S., WOMEN MAKE UP



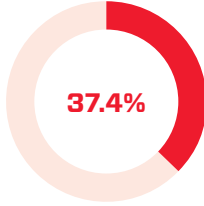
Full Professors



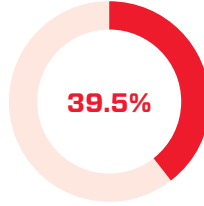
Tenured Faculty Positions



Associate Professors



Assistant Professors



Instructors

OUTSIDE THE U.S., WOMEN FILL **8.1%** OF DEAN POSITIONS AND **26.6%** OF ASSOCIATE DEAN POSITIONS. IN THE U.S., WOMEN REPRESENT ONLY **12%** OF FULL PROFESSORS IN ECONOMICS AND QUANTITATIVE METHODS/STATISTICS—AND ONLY **10.7%** OF FULL PROFESSORS IN FINANCE.

IN 2012-2013, WOMEN AT BUSINESS SCHOOLS EARNED

OUTSIDE THE U.S.

IN THE U.S.

**562** doctorate degrees, up **34.1%\*\***

**13,150** specialized master's degrees, up **35.2%**

**42,852** bachelor's degrees, up **54.4%**

**9,471** general MBA degrees, down **5.1%**

**9,671** specialized master's degrees, up **11.8%**

**76,034** bachelor's degrees, up **3.5%**

**336** doctorate degrees, down **5.4%**

**16,889** general MBA degrees, down **17.3%**

DISCIPLINES IN THE U.S. WITH THE MOST WOMEN

**43.2%**  
Behavioral Sciences

**43.2%**  
Human Resource Management

**37.3%**  
Accounting

**36.1%**  
Management

**35.8%**  
Business Law

**33.0%**  
Marketing

DISCIPLINES IN THE U.S. WITH THE FEWEST WOMEN

**23.6%**  
Quantitative Methods/Statistics

**22.8%**  
Strategy

**22.5%**  
Economics

**20.1%**  
Finance

\*Unless otherwise noted, all data are based on AACSB International's 2012-2013 surveys of member schools and its 2013 Salary Survey

\*\*Since 2009-2010

# Fostering Change

To achieve gender parity, we believe that business schools must acknowledge a problem exists, move away from the way things were done in the past, and take these actions in their programs:

**INTEGRATE GENDER ISSUES INTO COURSEWORK.** This includes developing more case studies that feature women managers and leaders and portray them as positive role models across the curriculum.

**NURTURE THE PIPELINE FOR FEMALE FACULTY.** Business schools can expand the pool of female doctorates—especially in fields where women are scarce, such as finance, economics, and strategy. They can hire more women as full-time faculty and offer them more support throughout their careers. Women on the tenure track, for instance, would benefit from guidance on how to acquire research funding, spend their pre-tenure

time most productively, and evaluate the benefits of different types of institutional service to their careers.

**ENCOURAGE AND APPOINT MORE WOMEN AS ACADEMIC LEADERS.** Educate women faculty on the rewards of academic leadership and encourage them to apply for positions such as department chair and dean. Provide both men and women with mentors and professional development opportunities in areas such as fundraising, negotiation, and social networking.

**FOSTER AN INCLUSIVE EDUCATIONAL ENVIRONMENT.** That means developing programs that train deans and department chairs—both women and men—to better challenge stereotypes, as well as creating and implementing best practices for hiring, promoting, tenuring, and supporting women faculty. Faculty across all departments should be coached on how

unconscious gender bias can affect their teaching, advising, and service on committees for hiring, promotion, and tenure. Similar coaching and training should be provided to recruitment, placement, and other administrative staff who will support women in their career development.

Ultimately, business schools that create positive and balanced gender climates will achieve one of management education's core missions—to promote positive change in the practice of management and leadership.

► One key source of materials that integrate gender issues, gathered by faculty worldwide, is the [Global Repository](#) launched by the United Nations PRME Working Group in Gender Equality. Visit [prmegenderequalityworkinggroup.unprme.wikispaces.net/Resource+Repository](#).

## WOMEN BY DEGREES\*

**37.1%** of new business doctorates awarded in the U.S. and **36.4 percent** of those awarded outside the U.S. in 2012-2013 were earned by women. From 2009-2010 to 2012-2013, the number of new business doctorates awarded by business schools **shrank by 11.6 percent** in the U.S. and **expanded by 34.5 percent** outside the U.S.

**36.4%** of MBA degrees awarded in the U.S. in 2012-2013 were earned by women. Outside the U.S., that number was **38.1 percent**. The number of students earning their MBA degrees actually is declining across the globe. In the U.S., **16.8 percent fewer** MBA degrees were awarded in 2012-2013 than in 2009-2010; outside the U.S., the number of MBA degrees **dropped by 10.2 percent**.

**46.7%** of graduates with specialized master's degrees in the U.S. in 2012-2013 were women, compared to **50.5 percent** outside the U.S. In contrast to MBA degrees, the number of specialized master's degrees conferred at business schools worldwide is steadily increasing, **up by 12.9 percent** in the U.S. and **26.6 percent** outside the U.S. from 2009-2010 to 2012-2013.

**42.7%** of bachelor's degrees in business in the U.S. and **50.4 percent** of those outside the U.S. went to women in 2012-2013. The number of bachelor's degrees in business granted between 2009-2010 and 2012-2013 **increased by 5.5 percent** at business schools in the U.S., and rose by **55.2 percent** at schools outside the U.S.

\*Data on business graduates are based on surveys of AACSB member schools worldwide.

Patricia M. Flynn is a trustee professor in economics and management at Bentley University in Waltham, Massachusetts. Kevin V. Cavanagh is a doctoral student in organizational behavior at the Weatherhead School of Management at Case Western Reserve University in Cleveland, Ohio. Diana Bilimoria is chair of the organizational behavior department at the Weatherhead School. The data in this article are based on research highlighted in "Gender Equality in Business Schools: The Elephant in the Room," a chapter in the forthcoming book *Integrating Gender Equality into Management Education: Lessons Learned and Challenges Remaining*. The book is part of the United Nations Principles for Responsible Management Education/Greenleaf Publishing book series.



Dianne Bevelander

## BALANCE IN B-SCHOOLS

The numbers show that women are still a minority among business school students, faculty, and administrators. But those numbers only scratch the surface of a deeper problem—that business schools promote an ecosystem in which administrators, faculty, case study protagonists, guest speakers, and even textbook authors are predominantly male, says Dianne Bevelander, professor of management education at the Rotterdam School of Management at Erasmus University in the Netherlands. “Students get the impression that intellect and leadership are male-driven,” she holds.

While women make up 40 percent of the students at RSM, only a quarter of its faculty are female, of which only 10 percent are full professors, says Bevelander. In addition, “women constitute 77 percent of administrative personnel, but senior administration remains largely Dutch male.”

To address the disparity, last September the university opened the Erasmus Centre for Women and Organisations (ECWO) as part of a universitywide effort to bring more women into academic leadership positions. That effort has been driven largely by Pauline van der Meer Mohr, Erasmus University’s president. “Since her appointment we now have the first female dean of the Erasmus School of Law, and the pipeline

of female academics and researchers has significantly improved,” says Bevelander, the ECWO’s executive director.

The ECWO will serve as the official umbrella for many activities at RSM, including career coaching, workshops, and customized leadership programs for executive

women. It also is actively channeling faculty research to organizations—through workshops, consulting, and master classes—to help them improve their understanding and handling of gender in the workplace. For example, one workshop, Women in Leadership, helps both men and women understand how “executives of both genders often swim in a sea of unrealized professional gender bias,” says Bevelander.

For instance, because women are seen as more caring than men, women often are expected to show more concern for others in the workplace. Those who don’t risk being

perceived as cold or bossy; those who do often spend too much time on activities that don’t advance their careers. Men and women can choose either to ignore this bias or to respond to it, says Bevelander.

Now under the aegis of the ECWO are the Successful Women in Business program and the MBA Kilimanjaro Leadership Project. Launched in 2013, Successful Women in Business is a suite of workshops designed to help women learn to trust their intelligence and creativity and empower themselves in the workplace. The Kilimanjaro project, started by Bevelander in 2011, challenges a group of women to climb to the top of Tanzania’s Mount Kilimanjaro. While the climb accommodates only 18 women each fall, the project has had a “multiplier” effect, inspiring discussion about gender issues throughout the school, she says. Bevelander also has been asked to speak about the project at companies, resulting in requests from several female executives to join the group. Best of all, the school has seen an increase in the number of female students taking leadership positions in student clubs. RSM also has adopted a diversity policy for administrative staff and plans to appoint a diversity officer.

Bevelander would like to see more business school deans, department chairs, and search committees address gender diver-

“A diversity policy without commitment, concrete goals, and some form of accountability does not drive execution.”

—DIANNE BEVELANDER, PROFESSOR OF MANAGEMENT EDUCATION AT THE ROTTERDAM SCHOOL OF MANAGEMENT AT ERASMUS UNIVERSITY IN THE NETHERLANDS

sity in concrete ways, she says. “A diversity policy without commitment, concrete goals, and some form of accountability does not drive execution.”

In the end, Bevelander believes that business schools have not achieved gender parity because they simply have been focused on other areas. “Business schools that are committed to the cause of gender-based equality of opportunity have achieved an amazing amount,” she says. [▶](#)

▶ For information about the ECWO, visit [www.rsm.nl/ecwo](http://www.rsm.nl/ecwo).

# WHAT IT MEANS TO BE

**WHAT'S THE AVERAGE TENURE** of currently sitting business school deans? What position serves as the most common springboard into the dean's office? What are the most critical issues and pressures business school administrators face today? AACSB International's recently released 2014-2015 Deans Survey explores these and other questions

related to leadership at its member schools. The survey, which is based on responses from 574 deans and 76 interim deans in 61 countries, shows that new deans continue to outnumber their veteran counterparts. And when deans rank their most pressing priorities, improving their schools' reputations and achieving accreditation come out on top.

## AGE & GENDER

**36** AGE OF YOUNGEST DEANS IN THE SURVEY, LEADING SCHOOLS IN ASIA AND LACC\*

**76** AGE OF OLDEST DEAN IN THE SURVEY, LEADING A SCHOOL IN NORTH AMERICA

**57** MEAN AGE OF CURRENT DEANS      **69%** DEANS IN FIRST DEANSHIP

Women make up **19 percent** of responding deans in the 2014 survey, compared to **17 percent** in 2012.

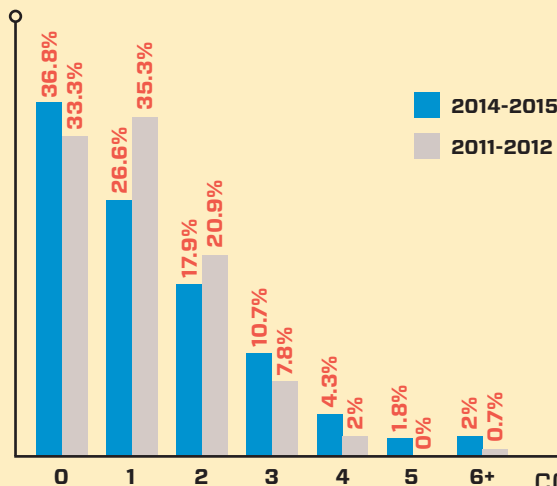
	FEMALE	MALE	NOT REPORTED	ACCREDITED	NON-ACCREDITED
NORTH AMERICA	81	252	9	280	62
EUROPE	12	66	5	40	43
ASIA	10	91	4	19	86
LACC*	4	15	2	7	14
OCEANIA	2	16	-	10	8
AFRICA	-	5	-	3	2

\*Latin America & Caribbean

## WORLD TRAVELS

**29%** of deans have spent 6+ years outside their current schools' home countries

**43%** of deans have spent 6 months or less outside their current countries

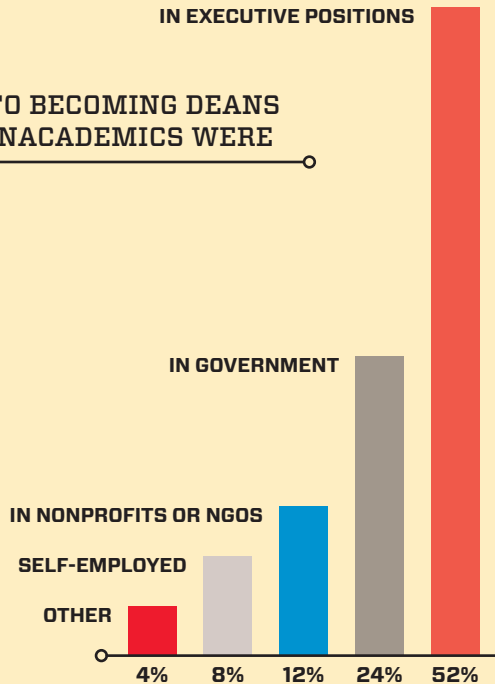


COUNTRIES DEANS HAVE LIVED IN, OTHER THAN THOSE OF THEIR CURRENT SCHOOLS

# DEAN

## PRIOR POSITIONS

### PRIOR TO BECOMING DEANS THE NONACADEMICS WERE



Of survey respondents, **394** are in their first deanship, up from **356** in the 2011–2012 survey. Among first-time deans, **50.3 percent** have been in the position three years or less. About **48 percent** were hired from within the institution, and **35.4 percent** of new deans were encouraged by mentors to pursue the position.

### LAST POSITION BEFORE CURRENT DEANSHIP

Dean	20.8%
Department Head/Chair	16.8%
Associate Dean	15.9%
Faculty Member	12.5%
Interim/Acting Dean	10.6%
Vice Dean	6.9%
Other Academic	6.7%
Nonacademic	4.8%
Program Director	4.6%
Assistant Dean	0.4%

### LAST POSITION BEFORE FIRST DEANSHIP

Department Head/Chair	21.9%
Associate Dean	21.7%
Interim/Acting Dean	14.4%
Faculty Member	13.6%
Vice Dean	8.9%
Other Academic	8.1%
Nonacademic	5.5%
Program Director	5.5%
Assistant Dean	0.5%

## IN THE INTERIM

Region	# of Interim Deans
NORTH AMERICA	49
EUROPE	10
ASIA	13
LACC	3
OCEANIA	1
AFRICA	-

Among interim deans who responded, nearly **69 percent** are serving their first appointments. The majority previously served as associate deans (**25.7 percent**), faculty (**24.3 percent**), or department chairs (**17.6 percent**). On average, they expect to spend **1.6 years** in the position before a full-time dean is hired, and **58.3 percent** are interested in the job. The majority were internal candidates who were either invited to serve without a search process (**31.5 percent**) or received the job after an internal search (**32.9 percent**). Only **5.5 percent** came to the interim position from outside the school—up from **0 percent** in 2011–2012.



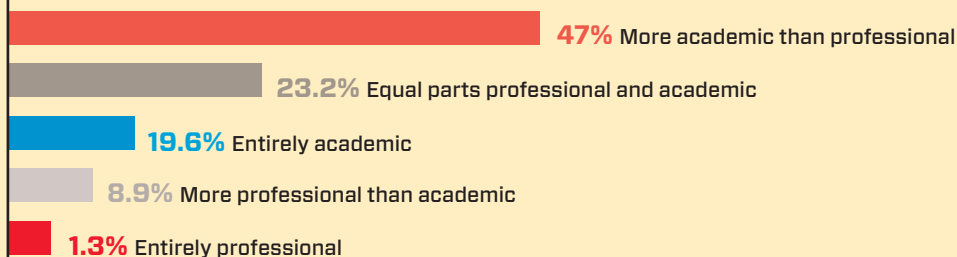
**76**

INTERIM DEANS RESPONDED, INCLUDING 16 WOMEN AND 58 MEN\*

\*2 did not specify

## PAST EXPERIENCE

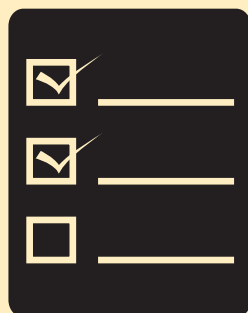
### TYPES OF EXPERIENCE DEANS BRING TO THEIR JOBS



Deans have spent a mean **4.3 years** in their positions, down from **4.6 years** in 2011–2012. Those in their posts the longest are in Northern America (**31.7 years**), Europe (**30 years**), and LACC (**15 years**). The mean tenure of the previous deans at responding schools is **6.1 years**, with the longest prior term at **41 years** and the shortest, six months. Only **28.5 percent** of these deans have fixed terms—of these, **42.4 percent** are at accredited schools. The survey finds that **12.9 percent** of deanships are endowed—among them, nearly **82 percent** are at U.S. schools. [D](#)

## THE PRESSURES

### HOW DEANS RATE TASKS ON THEIR TO-DO LISTS



ON A SCALE OF 1 (LOWEST) TO 5 (HIGHEST)

Improve school reputation	4.2
Achieve initial or reaffirmation of AACSB accreditation	4.2
Develop faculty	4.1
Develop strategic plan	4.0
Improve relations with business	3.9
Increase external funding	3.9
Improve educational programs	3.9
Develop or solidify school mission	3.8
Improve faculty research	3.7
Improve faculty teaching	3.7
Improve alumni relations	3.7
Leverage technology for competitive advantage	3.2
Improve in rankings	3.2
Improve image across campus	3.1
Reduce conflict between departments	2.4

### HOW DEANS RATE THE MOST CRITICAL PRESSURES THEY FACE



ON A SCALE OF 1 (LOWEST) TO 5 (HIGHEST)

Budget issues	4.0
Faculty recruitment & retention	3.9
Fundraising	3.7
Student enrollments	3.6
Accreditation	3.6
Competition from other schools/providers	3.6
Faculty development	3.4
Faculty demands	3.4
Internationalization	3.2
Rankings	3.1
Technological adoption in the curriculum	3.0
Changes in student demographics	2.5
Nontraditional student programs	2.4



When it comes to employees behaving badly, Marie Mitchell has seen it all during her tenure as a professional in human resource management. Now, as a professor of management at the Terry College of Business, her past informs her present. Mitchell studies deviant and unethical behavior in the workplace, learning how employer-employee interactions and organizational factors impact employees' behavior at work. Mitchell's research is indicative of the quality scholarship that Terry professors and graduate students contribute to academia and business practice every day.

Terry College of Business: Research that informs, inspires, and contributes.

[terry.uga.edu/research](http://terry.uga.edu/research)

The University of Georgia  
TERRY COLLEGE OF BUSINESS 

# THE HUMAN CORE

Why and how to make human resources management a critical part of the business curriculum.

BY LISA A. BURKE-SMALLEY  
ILLUSTRATION BY DAN PAGE



**“TODAY EVERY MANAGER**, regardless of his or her functional specialization, is on the front line of people management.”

That statement was offered by Elissa Perry and Carol Kulik in a 2008 article in *The International Journal of Human Resource Management*. It’s spot-on. Despite a popular theory that “managing people is all just common sense,” the bulk of managers face perplexing trials when it comes to managing employees. In fact, in the 2013 Conference Board CEO Challenge survey, 729 CEOs reported that their most critical challenge is “managing human capital.” In addition, business alumni, business leaders, policymakers, and business faculty all supply bountiful data about the importance of managing employees.

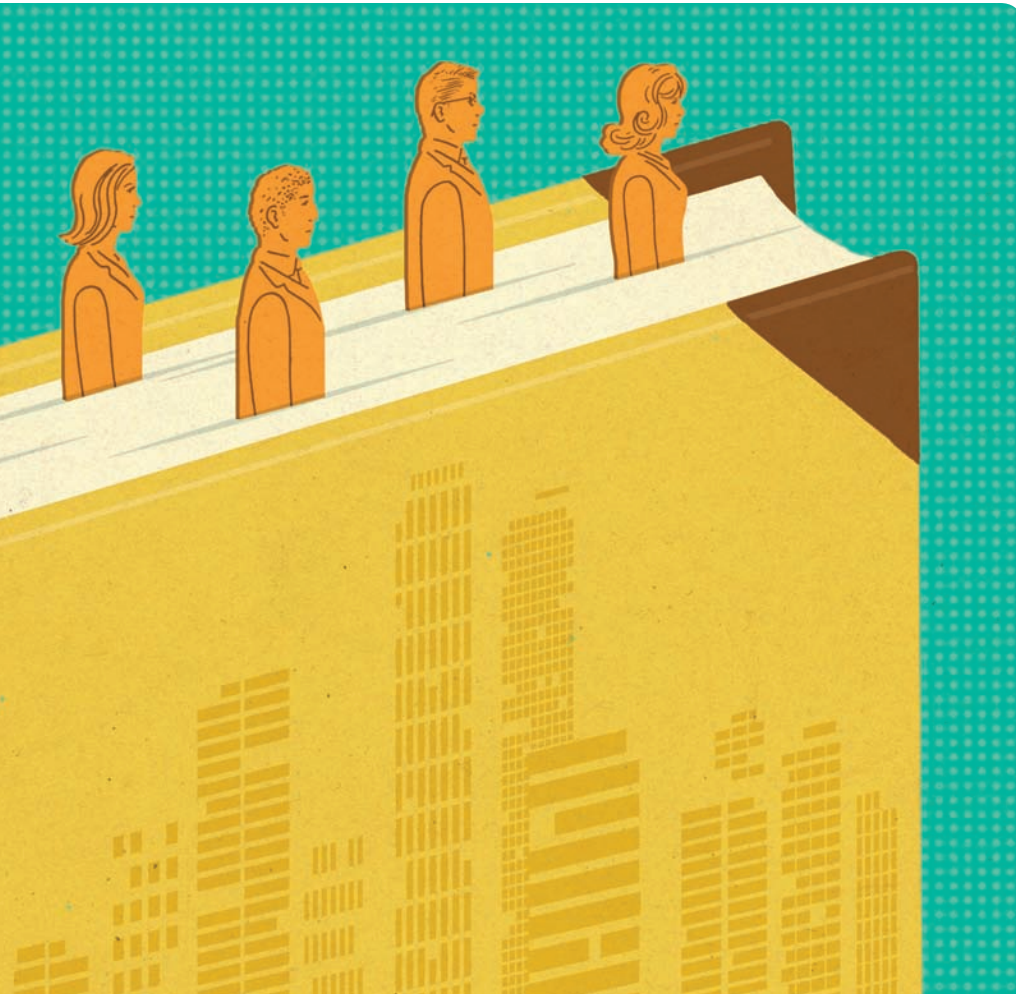
Even so, the human side of business typically is subjugated, sidelined, or flat-out ignored in business schools’ core requirements. Indeed, it is rare for business programs to require a human resource management (HRM) course except for students who major, minor, or complete a specialization in HRM. I believe that, as a result, business schools are failing to prepare graduates for the real world of work.

One reason HRM is so overlooked is that many business

school administrators aren’t sure what it is, so they assume that HRM courses are interchangeable with courses in organizational behavior (OB). While there are important synergies, the two disciplines are different—and, just as important, not all HRM and OB faculty can commendably teach both. OB is to HRM as economics is to finance; one lays a foundation for the other more applied course.

Furthermore, some programs and faculty approach HRM solely from the viewpoint of managing the human resources department. But the more valuable perspective, particularly for broad-based business programs, is to teach it from the perspective of managing human capital in the organization. HRM is essential to the organization, which means it should be central to business education.





## THE MANY FACETS OF HRM

Because there are so many different aspects to managing people, HRM is one of the few knowledge domains that truly transcends function. If the subject is to be thoroughly covered in the classroom, a wide number of topics should be addressed. These include:

- The role of HRM in organizations, including the ways it supports business strategy and workforce planning.
- Demographic, economic, social, political, and legislative trends.
- Global HRM challenges.
- The legal environment, including equal employment opportunity laws; basic wage, hour, and benefits laws; employment at will; and safety rules and risk management.
- Job/competency analysis and job descriptions.

- All aspects of talent management, such as recruiting, interviewing, training, and compensating employees; measuring performance and offering performance counseling; and developing and retaining employees, as well as disciplining or terminating them.

It can take a significant amount of time to address those HRM topics adequately, and most business programs are already packed with required courses. Still, a school can introduce HRM into its core curriculum in a variety of meaningful ways.

## HRM AT THE CORE

Business schools can adopt one or more of the following strategies to bring HRM into their programs. Each approach comes with some advantages and possible drawbacks.

**Reduce elective hours in the business degree.** While this option makes room for HRM courses in the business core, it does reduce opportunities for students to customize their degrees.

**Allow students to choose OB or HRM.** Schools that place a high value on student choice could allow students to decide whether they take OB or HRM courses in the business core. Unfortunately, some students might not choose wisely, merely selecting the course that fits conveniently into their schedules. This option is also imperfect because, as previously mentioned, there are significant differences between OB and HRM, and students who study only one or the other will learn only part of what they need to know to become effective managers.

**Reduce the credit hours for courses in the core.** This option requires faculty to streamline their classes, as professors and administrators do the tough work of determining the essential skills, experiences, and content that business graduates actually require. The result is likely to be a mix of two-, three-, and four-credit courses, which might be a challenge for administrators to schedule, but which will allow for valuable room to introduce new courses, such as HRM.

## Require HRM in a “department core.”

If faculty resist giving up core courses in their own disciplines, another option is to make HRM a requirement only in a single major, such as management. The disadvantage is that students majoring in other disciplines, such as accounting and marketing, will not learn critical HRM skills.

**Combine HRM with an existing core course.** If there’s still no room for HRM in the business core, schools can consider combining it with other related core material, such as analytics, information systems, or organizational behavior. Unfortunately, this choice sends a weaker signal to students about the importance of HRM skills. Another downside is that most faculty will merely teach the content they are most comfortable with, and each domain might get only superfi-

cial coverage. Schools could counter this disadvantage by embedding and evaluating learning goals in the course to make certain students acquire the requisite knowledge of HRM.

### **DELIVERING HRM SKILLS**

Once administrators decide how to integrate HRM content into the curriculum, they must determine how to deliver it. One option is to offer modules on key topics such as performance coaching, communication, conflict management, internal consulting, interviewing, feedback, negotiation, and teamwork. Depending on how much time or money they want to invest, schools can create these modules internally or use pre-existing ones available from vendors such as Skillsoft, MindLeaders, and NetCom Learning. Such learning modules can be delivered in the classroom, online, or through a hybrid format.

At the University of Tennessee-Chattanooga, we recently proposed a modular HR skills-based course that covers feedback/coaching, teamwork, and leadership skills. The three-credit course is divided evenly among the three skills, and each section can be taught by a different faculty member who specializes in that skill.

I plan to teach the first module on feedback and coaching and incorporate many hands-on application exercises, lab simulations, and role-playing activities. I'll also incorporate reusable learning objects, which are short, self-contained, web-based learning units that include content, practice, and assessments. In addition, I will administer frequent skills tests to evaluate student learning. Currently the course is an elective, and we anticipate that many HRM majors as well as general management majors will be interested in it.

We originally developed the module as a one-week intercession course to nurture students who had enrolled in summer school, although some campus administrators aren't sure how to schedule such a compressed and creatively

timed course. Long-term, my desire would be for such a course to become a required part of the business curriculum.

### **CHAMPIONING CHANGE**

As we have learned at my school, substantive curricular changes won't happen quickly and will always entail politically motivated starts and stops. Therefore, faculty champions need to be patient, courageous, and well-informed as they overcome resistance and entrenched bureaucracy, deal with faculty turf battles, and continually point out the importance of HRM in the workplace.

But when champions exhibit these traits, they can accomplish a great deal. For example, at the University of Wisconsin Oshkosh, the business school first launched a three-credit OB/HRM course that later evolved into two separate two-credit courses. More recently, UWO expanded each of these courses into three-credit classes; in this format, each content area receives its due focus and faculty course loads can be maintained smoothly. All of these classes are required for all business majors. Therefore, in this case, combining HRM and OB was a short-term option that ultimately led to a standalone HRM course—although the process took 22 years.

While faculty champions sometimes must battle to get HRM into the core curriculum, I believe it's a noble fight. Because HRM has become decentralized across organizations, business leaders across all disciplines need to understand how to manage human resources. Managers in every functional area of the firm share responsibility for dealing with employees. If business graduates are going to succeed in the contemporary workplace, all of them must be exposed to human capital management.

That's a point made extremely clear by Maggie Carrington, vice president of human resources for CBL & Associates, which owns and manages shopping malls across the U.S. In today's work environment, she points out, it's critical for managers to mitigate risk, and managers who don't have a full understanding of HRM are inadequately prepared to deal with certain potential hazards. Managers also must understand HRM, she says, "so that they're truly able to capitalize on what is essentially an organization's last remaining competitive edge: its people." 

*Lisa A. Burke-Smalley is a professor of management and UC Foundation Professor in the College of Business at the University of Tennessee in Chattanooga.*

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## ADDITIONAL MATERIALS

The Society for Human Resource Management (SHRM) offers a number of resources for educators. These include overview materials for graduate and undergraduate courses, which are available for a fee, as well as the National SHRM white paper "Executive Briefing—Moving HR into the Business Core: Critical Information & Creative Ideas" by Lisa Burke-Smalley and Barbara L. Rau. Contact [academics@shrm.org](mailto:academics@shrm.org) for more information. Additional resources—such as cases, lectures, and experiential exercises—are available at [shrm.org/Education/hreducation](http://shrm.org/Education/hreducation) and [merlot.org](http://merlot.org).

More information about covering human resource management in the classroom can be found in "Making HR part of the core business curriculum: A case study," a working paper by Dale Feinauer, E. Alan Hartman, and Barbara Rau. Those interested in reading the study can contact Rau at [rau@uwosh.edu](mailto:rau@uwosh.edu).



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As John Fernandes prepares to retire after 15 years at AACSB, he reflects on his accomplishments, his leadership style, and the challenges that still lie ahead.

# LOOKING ON A LEG

**BY SHARON SHINN**  
PORTRAIT BY WIDOFF PHOTO

**JOHN FERNANDES THINKS** a leader's style is a direct reflection of the people being led.

"If you don't have the right people in place in the organization, I don't know that your leadership style will do any good," he says. Therefore, he believes a leader's first task is to build a superb staff—acting as a mentor until employees develop their own managerial acumen, then stepping back to become more of an enabler.

That's the path he has followed since he was named president and CEO of AACSB International in 2000. Working with the board, he quickly developed key goals: Make the association more global; update the accreditation standards; relocate from St. Louis, Missouri, to the more international city of Tampa, Florida; and assemble a staff that could smoothly handle all these directives. Now that each one of these goals has been achieved, Fernandes is set to retire on April 30. Thomas Robinson will take over the office on May 1.

During the 15 years that Fernandes was in office, the association achieved many impressive milestones. International membership grew from 18 percent to 52 percent of the total; the number of international accredited schools grew from 4 percent to almost 30 percent. The accreditation standards were updated twice, in 2003 and 2013, and each revision created standards that were more straightforward, more efficient, and more accessible to global members. In 2001, the association launched *BizEd*; in 2004, it moved to Tampa; in 2009, it opened its new headquarters office in Singapore; and in early 2015 it opened its headquarters in Amsterdam.

As Fernandes prepares to step down, *BizEd* talked to him about his proudest achievements, his greatest challenges, and his predictions about what's ahead for management education.

# BACK ACY

I'm most proud of the quality of the people we've assembled here to further AACSB's mission. That's what makes me feel best about turning the organization over to a new person.

—JOHN FERNANDES, PRESIDENT AND CEO OF AACSB INTERNATIONAL

**What do you think your most important accomplishments have been at AACSB?**

First, I'm most proud of the quality of the people we've assembled here to further AACSB's mission. That's what makes me feel best about turning the organization over to a new person. Second, I'm pleased with the way we've been accepted globally. Third, I'm pleased that each time we've opened a new office—in Tampa, Singapore, and now Amsterdam—we've chosen the right location. These achievements are all sustainable for the organization.

**What was your biggest challenge?**

Changing staff culture to help the staff develop a more global mindset. Changing culture is the hardest thing to do, because it is embedded in long-standing practices.

My other greatest challenge was managing the relocation from St. Louis to Tampa. Many of the St. Louis staff members couldn't make the move to Tampa, and leaving people behind was the hardest part of the relocation.

**Why did you believe it was so critical for the association to globalize?**

In recent years, management education has been growing much more quickly internationally than in the U.S. While the most experienced business schools were located in the West, student growth was in Asia and Africa and the Middle East. We needed to recognize and address that.

**You oversaw two major overhauls of the accreditation standards. Why was it important to revise the standards? What still remains to be done?**

We revised the standards in 2013 to be more applicable to a diverse set of schools worldwide, but they still could be improved. The biggest deterrent to globalization remains our narrow model of faculty definitions. In the long run, we can't continue to legislate these inputs of quality. We're on much more valid ground when we measure the outcomes of degree programs.

I also think we eventually will need to generate standards for technology-delivered programs. Technology is emerging as such a powerful delivery mechanism that we ought to be the leader in saying when it's good and when it's reliable. We're still claiming online courses are homogeneous with face-to-face education. It's not true.

**What did the new standards get right?**

They embrace executive education, which is important for the future of management education. Executive education represents a very high percentage of revenue in Europe and Asia, and it's growing in the U.S. Degree programs are getting shorter, but we're expecting more capacity from our graduates. Nondegree executive education programs can fill a lot of holes left by MBA programs that are too short, too generic, or too specialized.

The new standards also broaden some of the curriculum requirements. Now, we want schools not only to help their students develop a strong sense of ethics, but also to make sure students understand social responsibility and sustainability—of the planet, of the organization, and of society. Someone could be highly ethical without being socially responsible or committed to having a positive effect on society.

**ment Education (GFME), a joint venture of AACSB and the European Foundation for Management Development (EFMD). How was that service beneficial to AACSB and the industry?**

The PhD Project is an important organization in the U.S. because we're facing a big change in demographics. By 2050, the current minority will be the majority. We need to produce more minority professors, particularly African Americans and Hispanics, because we want minority students to come to our traditional schools. Right now, far too many of these students go to for-profit educational providers.

Through GFME, both AACSB and EFMD tried to determine how many business schools there are in the world. So far we've found close to 16,000. I think GFME has benefited management education because it reinforced something we already knew—that the number of business schools grows as economies grow. The numbers have proved that out.

**What changes do you expect to see in management education in the future?**

Most of the growth in management education is coming out of emerging economies in parts of the world, from Africa to Latin America. Yet

“Technology is emerging as such a powerful delivery mechanism that we ought to be the leader in saying when it's good and when it's reliable.” —JOHN FERNANDES, PRESIDENT AND CEO OF AACSB INTERNATIONAL

In the end, the themes of innovation, engagement, and impact are the icing on the cake. These are three concise messages that serve as capstones to the new standards.

**You've served on the boards of several organizations, including The PhD Project and the Global Foundation for Manage-**

students in these nations don't always have access to education, and many business schools there aren't yet as strong as those in developed nations. Institutions in developed nations can help schools in emerging economies develop their educational prowess, and in the process make their own brands more visible.

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I believe AACSB should facilitate mutually beneficial relationships between schools in developed nations and those in emerging economies. We can be the eHarmony of business schools.

**What other challenges do you see ahead?**

In the developed world, the cost of a business school degree is frequently so high that many students are left with huge amounts of debt. How can we provide high-quality management education at a lower cost? One way, as I mentioned, is through forming partnerships

with schools in emerging nations, which will allow business schools in developed nations to enroll more students.

Another way is through faculty leveraging, in which academic faculty teach low courseloads while they supervise teaching professionals who teach four or five courses a semester. Under this model, teaching costs can be cut by half.

**What part will technology play in the future?**

We have to use technology to enable the global classroom so that schools can

share the teaching load and expand the volume of students they serve. We have to get better at assessment and validation of technology-delivered programs, but we will!

**You originally studied business at Babson College. If you were going to business school today, what would you study?**

I'd study financial planning and investments. Let's face it, I'm an old guy who worked for a nonprofit—I have to manage on a budget! In fact, I will study financial planning—I'll just do it through MOOCs.

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## HONORING A LEADER

To get additional perspectives on the challenges John Fernandes faced as AACSB's CEO, *BizEd* spoke to three past board chairs: Andrew Policano, former dean of the Paul Merage School of Business at the University of California Irvine and currently Dean's Leadership Circle Endowed Professor of Economics/Public Policy; Carolyn Woo, former dean of the University of Notre Dame's Mendoza College of Business and current president and CEO of Catholic Relief Services; and Robert Taylor, retired dean of the University of Louisville College of Business and part of the committee that selected Fernandes.

**ANDREW POLICANO:** When John started, the association wasn't doing very well financially, and it had a very focused strategy on the U.S. and North America. John recognized that we needed to become a global force for the quality of management education.

John really impressed me as someone who was going to learn every single part of the association. Shortly after he started, John went on an accreditation visit to the University of Washington with me and two other deans. On that visit, we were given 35 boxes of material—for a business school that had been accredited for a long time. John said, "This makes no sense whatsoever." He told the membership it was time to redo the standards, and we put a lot of effort into making the accreditation process shorter and more efficient.

John is uncanny when it comes to political sensitivity. He's very careful to listen as much as he can and solicit information from the rest of the membership. He will take a somewhat meandering course to move us ahead without creating a lot of undue strife and tension.

**CAROLYN WOO:** Because AACSB's membership is so diverse, John had to respond to the divergent expectations of the members and the roles they wanted the association to play. He also had to do this in a very dynamic environment as schools became more interna-


tional, faculty and student profiles changed, and schools adopted more technology.

John always made things happen while giving credit to the AACSB board. He always kept moving the ball forward, even though there was never full consensus on anything. But, compared to the individual members, he had a better understanding of management education trends. He saw the realities and challenges facing many different schools, so the picture he saw was much richer and more complex, and he was able to articulate those challenges.

For instance, John saw that St. Louis was not serving the association well. It was difficult to have that conversation with the board and staff, but step by step, study by study, John convinced us to make the move. People now see the benefit of being in Tampa.

**ROBERT TAYLOR:** We wanted someone who understood the association's potential—who realized that serving the members is key, but who also would take a leadership position in the world of business education. We also needed someone who could understand and work with academics. John had an accounting background, so he understood the academic point of view, and he was full of energy, enthusiasm, and confidence.

After he became CEO, John quickly became friends with his counterparts at EFMD and other global groups, which helped the organization connect with others around the world. He also exercised incredible patience and asked thoughtful questions to lead the board to crafting standards that were flexible enough to allow quality schools throughout the world to be accredited.

We appreciated that John never told anything but the truth, even when it would be hard for people to digest. He was careful about how he said things, because he did work for the board, but he always said what he thought. 



# THANK YOU, JOHN

FOR 15 YEARS OF YOUR LEADERSHIP,  
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On behalf of the AACSB  
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community, we thank you.



**JOHN J. FERNANDES**  
PRESIDENT AND CEO  
AACSB INTERNATIONAL





# A Classroom Covenant

MAKING AND KEEPING PROMISES **BY MARK E. HASKINS**

**WHEN TWO PEOPLE MARRY**, they speak their vows aloud, promising to cherish each other in sickness and in health. When a manufacturer sells a lawn mower, it makes an implicit and sometimes explicit promise to consumers about what the product will do (i.e., cut grass) and how it will do it (i.e., evenly and without spewing oil). Often, no such public covenants exist between faculty and students regarding how we will interact and what we expect from each other.

I have come to believe that it is important for faculty to craft and communicate a covenant they will abide by—giving voice to mutually beneficial expectations. To this end, I have developed a list of 15 promises I am willing to make to my students and a corresponding set of promises I want them to make to me in return. In the covenant presented here, I use language that is compact and core to the mission at hand, making my message “sticky,” to borrow a concept presented by Dan and Chip Heath in their 2007 book *Made to Stick*. I believe that, if we all abide by our promised behavior, we can create a classroom where enjoyable and effective learning regularly occurs.

## **FIFTEEN COMMITMENTS**

In my classroom, I promise to:

- 1. BE THOROUGHLY PREPARED AND ON TASK.** I will not “wing it” or engage in self-serving stories or irrelevant musings. If I do not know the answer to a question, I will say so and suggest how we might find it.
- 2. BE INCLUSIVE.** I will not show favoritism when I grade or when I offer my time, assistance, and counsel.
- 3. BE FAIR IN WHAT I ASK STUDENTS TO DO.** I will not burden students with assignments that add minimal value or carry unreasonable standards.
- 4. BE UP-TO-DATE IN MY FIELD.** I will not present outdated principles, practices, or examples.
- 5. BE ENTHUSIASTIC.** I will not—by word, action, or body language—suggest I am inconvenienced or bored by the teaching task at hand or by the students enrolled in my class.
- 6. SPEAK WELL OF COLLEAGUES.** I will not criticize my colleagues’ capabilities or belittle the importance of their courses.
- 7. LISTEN ATTENTIVELY AND POSITIVELY TO STUDENTS.** I will avoid anticipating what students will say when I call on them in class, and I won’t simply look for the errors in their logic, analysis, conclusions, or explanations.
- 8. CONNECT MY SUBJECT MATTER TO OTHER COURSES AND REAL-WORLD BUSINESS.** I will avoid giving the impression that my course is the most important one students will take, and I will relate it, in practical ways, to other disciplines, current events, and leadership issues.
- 9. BE OPEN-MINDED.** I will avoid conveying an attitude of “I know best.” I will assume there is merit in other ways to see an issue.
- 10. PROVIDE USEFUL AND TIMELY FEEDBACK.** On graded assignments, I will avoid feedback that is late, terse, and only evaluative. Instead, I will seek every opportunity to provide developmental feedback.
- 11. ENCOURAGE STUDENTS TO SHARE THEIR QUESTIONS AND INSIGHTS IN CLASS.**

I will invite questions, and I will push for comments that are more than a regurgitation of what I have presented in class or what students have read in a textbook.

**12. BE UNSELFISH WITH MY TIME.** I will welcome students at my office and make sure my availability there is generous. I will avoid regularly closing my office door.

**13. PROPERLY SOURCE THE MATERIALS I USE.** I will observe copyright laws and not misrepresent whose ideas and insights I am conveying.

**14. START AND STOP CLASS PUNCTUALLY.** I will not disrespect others' time.

**15. AFFIRM, CELEBRATE, AND ENCOURAGE STUDENTS.** I will not embarrass, denigrate or discourage students by word or action.

### THE RECIPROCAL PROMISE

Great basketball teams, jazz bands, and dance troupes bring several key ingredients to their accomplished tasks—talent, preparation, commitment, and clarity of purpose. Moreover, the members of each group rely on each other to do their respective parts, and when they do, the fluid and flexible blending of parts creates harmonic, elevated outcomes.

A classroom is another group enterprise that performs best when all participants engage with each other in ways they have agreed upon in advance. If my students and I are to create an effective and enjoyable learning experience, we must all have an active, understood role to play. I believe students benefit from knowing what I expect of them—there should be no ambiguity. The most eager and conscientious students will promise to:

**1. BE PREPARED**—for each class and each graded event.

**2. BE SUPPORTIVE AND ENCOURAGE** their classmates.

**3. OWN THEIR SHARE OF THE LEARNING JOURNEY** by exercising initiative and responsibility.

**4. BE ON TASK.** They should ask purposeful questions and offer suitable examples.

**5. BE COURAGEOUS.** They should push

for understanding, defend a well-reasoned view, and provide a good-faith response when called on in class.

**6. SHOW RESPECT TO CLASSMATES,** the institution, and the faculty.

**7. DO MORE THAN MEMORIZE FACTS OR THEORIES.** They should internalize knowledge, articulate it in their own words, and be prepared to explain what they have learned to others.

**8. LOOK FOR CONNECTIONS**—to other courses, current events, and prior work experiences.

**9. HAVE FAITH IN ME.** They should believe that learning will result from my approach and course design.

**10. PROVIDE ME WITH CONSTRUCTIVE FEEDBACK.** They should conscientiously and professionally let me know what I did well and also what I could do more effectively.

**11. LISTEN ATTENTIVELY.** Build on the comments and contributions of classmates.

**12. BE REASONABLE** in requests for my out-of-class time.

**13. REFRAIN FROM CHEATING** or violating copyright laws.

**14. BE ON TIME.**

**15. REGULARLY REFLECT** on class insights to clarify and cement lessons learned.

### CREATING THE COVENANT

Faculty who like the idea of a classroom covenant but want to create their own versions should first spend some time in individual reflection to crystallize the promises they want to make to, and ask of, their students. They also could actively seek ideas by observing and interacting with other professors in formal and informal settings.

For instance, at my school, instructors who teach different sections of the same course frequently hold weekly meetings to share experiences, expectations, and plans. We also visit each others' classrooms often—because we're interested in the topic, because we're interested in new insights, because we're on a sup-

portive team-teaching task, or because we're part of a tenure/promotion review process. In addition, we periodically attend schoolwide teaching forums. All of these more formal interactions can provide instructors with ideas about professional norms and shared teaching values, which can be translated into classroom covenants.

More informally, small groups of faculty frequently gather for lunch. Naturally, we play Monday-morning quarterback as we discuss what the university's sports team did wrong that weekend, but we also talk about classroom dynamics. Additionally, many of us connect with colleagues at the end of the teaching day to discuss that day's classroom experience. These seemingly mundane encounters often bring subtle points into sharper focus and lead to better ways to engage and interact with students. Thus, they too can provide ideas to be incorporated into a classroom covenant.

### KEEPING THE PROMISE

During a couple hundred course introductions in my 37 years of teaching, I have mentioned many of the points I present in this covenant. Recent reflections, however, lead me to want to make a classroom covenant that is robust, explicit, and based on experience. At the beginning of the next course I teach, I plan to do just that, outlining both my part and the part I hope students will perform. I do not want there to be any ambiguity about the tasks, attitudes, and expectations I want students to embrace during their learning journey in my course. Intentionality, accountability, specificity, and shared commitment—the underpinnings of a well-honed covenant—can be extremely beneficial to the teaching/learning exchange. ■



*Mark E. Haskins is a professor of business administration at the University of Virginia's Darden Graduate School of Business in Charlottesville.*

# ideas in action



## First Impressions

ONLINE PORTFOLIOS PACK PROFESSIONAL PUNCH **BY JEANNE SPREIER**

**WHEN STUDENTS** at the Naveen Jindal School of Management (JSOM) at the University of Texas at Dallas enroll in the required course Advanced Business Communication, most don't realize that they'll finish the semester with game-changing résumés. During the class, each must complete a Professional Online Portfolio (POP), which could be the most persuasive piece of their job-hunting arsenal. As part of the course since it was first offered in fall 2013, the POP requires all soon-to-be graduating JSOM students to tackle oral presentations, teamwork, and technology, as well as learn to become more professionally savvy. Each semester, the course enrolls approximately 500 students in 14 sections.

In today's job market, online portfolios have become crucial for business students, says McClain Watson, who directs the school's business communication programs. He also teaches the course and developed the POP project. "How do employers get from 60 résumés to six?" he asks. "They Google your name."

Students use free web platforms such as Wix, Weebly, or

Moonfruit to create and host their POPs. Each POP must include a PDF of the student's résumé, a video introduction to give employers a sense of the student's verbal skills and poise, links to at least three class or work projects, a professional photo, contact information, and links to the student's Facebook and LinkedIn pages.

Each POP also must include links to sources representing two professional or personal interests—perhaps a video from a study abroad trip or volunteer project, or a summary of an internship with photos of the student on the job. Although the type of POP content is prescribed, students have wide latitude in design and presentation.

By developing their POPs, students are able to better identify their strengths. “I didn’t think I’d have a lot to talk about, but that was hardly the case,” says Salik Shariff, a management information systems major who completed the class last year. “It allowed me to open up. It basically forced the shyness out of me.”

Just as important, students also take to heart the need for them to create—and manage—their online presence. Caleb Ward, a finance major who completed the class last spring, learned that “first impressions no longer happen when you shake someone’s hand, but when they Google your name to see if you may be a suitable applicant.”

There’s no requirement for their sites to stay live after the class is over, but most students keep them up, Watson says. Students direct potential employers to their POPs with links from their LinkedIn and Facebook profiles; they include links to them on business cards, cover letters, and résumés, and even in their text messages. Watson believes that these professional presentations give employers “a 360-degree sense of contributions” that students could make as employees, beyond their credentials to their communication skills and compartment.

“At the start of the assignment, students think it’s just a website,” Watson says. “As they work on it and see the potential value, they say, ‘This matters because it’s my name and my future.’”

For other faculty interested in starting similar projects for their students, Watson offers two pieces of advice. First,

because most students don’t take Advanced Business Communications until their junior or senior years, freshmen and sophomores “must be told loudly and often to keep their projects, spreadsheets, PowerPoints, and other materials from semester to semester, so they have material to feature on their POPs,” says Watson. Otherwise, “many of them trash their files at the end of each semester, which leaves them unable to feature their best work.”

Second, POPs must be graded with the mindset that they belong to the students, not the professor. “We want students to own their POPs and not treat the project like ‘just another grade.’ This requires giving students a lot of leeway with what they do on the site,” says Watson. “We want them thinking like networking-minded professionals who are sharing their stories in the way they want to share them, *not* in the way the teacher wants them to be shared.” That can make grading a tricky balance between allowing students to express their personalities and assuring that their sites present them in a professional light.

With hundreds of thousands of business students graduating each year, “if all you have is a GPA, résumé, and cover letter, you might get lucky,” Watson says. “But you don’t want to have to rely on getting lucky.”

*Jeanne Spreier is a member of the PR/Communications office at the Naveen Jindal School of Management at the University of Texas at Dallas.*

## CAREERS IN THE CURRICULUM

Career development is a crucial element in any business program, but it can be difficult to get students into the career services office to take advantage of the tools and guidance it has to offer. This can be especially true for schools that serve large, geographically dispersed student populations. That’s why, in January, Webster University’s Walker School of Business and Technology in St. Louis, Missouri, launched its Career Management Program for its more than 11,000 master’s level students studying at any of its campuses in the U.S., Europe, Africa, and Asia.

Offered through global talent and workforce firm Right Management, the program will be delivered in two phases. In phase one, students will enroll in a required one-credit online course, “Career Success for the 21st Century,” and work with a Right Management career coach.

After completing the course, students have the option to complete phase two, which includes 12 months of personalized career development, including one-on-one career coaching; creation of a career action plan; and concentrated work on their résumés, interviewing skills, and negotiation skills. Those who complete phase two will receive lifetime career and job search support through Right Management.

### SOCIAL MEDIA AND HIRING

**91%** of employers use social networking sites to screen prospects  
**76%** check Facebook; **53%**, Twitter; **48%**, LinkedIn  
**69%** say they have rejected a candidate based on what they saw on a social network  
**68%** say they have hired a candidate based on what they saw on a social network

Source: The Repler Report, 2011

# The Business of Luxury

**MARKETING HIGH-END PRODUCTS** requires a special blend of business and design knowledge, and that's what students learn in an interdisciplinary program called the Design and Marketing of Luxury Goods. The semesterlong course is offered by Columbia Business School and Parsons The New School for Design, both in New York City. Teams of six to eight students work with luxury brands such as Cadillac, Cartier, Ferragamo, Lalique, and Van Cleef & Arpels. The schools also partner with the Luxury Education Foundation (LEF), a not-for-profit that brings students together with senior executives in the luxury sector.

Late last year, as the semester ended, students presented their final proposals to executives. For instance, one team of students focused on developing an integrated branded communications plan to market the Cadillac ELR model in the U.S. Another team focused on helping Cartier gain a higher share of the men's

watch market while appealing to millennials. Other students explored how Lalique could expand into the home interiors sector.

According to Ketty Maisonrouge, professor of marketing at Columbia Business School and president of the LEF, interdisciplinary approaches



are particularly important when the product for sale is a luxury item. "Luxury brands sell dreams, beauty, design, and craftsmanship," she points out. "In order

to succeed in this sector, business executives need to understand the design process—which includes ideation, sketching, modeling, creating, and producing. At the same time, designers need to understand the reality of budgets, schedules, scalability, commercialization, and promotion. A program that allows creative and business minds to discover and appreciate their different perspectives before entering the workforce gives students a unique experience that will guide their future careers."

## FIELD NOTES

A new digital textbook called *Research Methods for Business Students, Managers and Entrepreneurs* is available for free download via Apple's iBooks store. The book, which includes audio and video, was developed at the **UNIVERSITY OF SOUTH WALES** in the United Kingdom to guide readers through the research process, including defining the scope of research, understanding different methods for data collection, and interpreting results. Content was provided by Ramdane Djebarni, senior lecturer; the project was led by Sue Burnett, managing editor of iTunesU at USW. See a video in which Burnett explains the textbook at [youtu.be/UIKrOhPUGDO](https://youtu.be/UIKrOhPUGDO). The book can be downloaded at [bit.ly/USWRResearchMethods](https://bit.ly/USWRResearchMethods).

**STRATASYS**, a 3-D printing technology provider, will offer a free online 14-week curriculum for educators to use to prepare students to use 3-D printers effectively. The course, "Introduction to 3-D Printing: From Design to Fabrication," includes a guide, presentations, 3-D models, and grading tools, as well as projects that guide students through the process of designing and printing a functional moving part. For information or to download materials, visit [www.stratasys.com/industries/education/educators/curriculum](http://www.stratasys.com/industries/education/educators/curriculum).

The **UNIVERSITY OF MICHIGAN'S** Ross School of Business in Ann Arbor has created an online hub for videos, briefs, and articles based on its faculty's research on a new website called Ross Thought in Action. Directed to practitioners and journalists, the site translates research into easy-to-understand, accessible language. The hub can be found at [michiganross.umich.edu/rtia](http://michiganross.umich.edu/rtia).

## FUNDING MADE SIMPLER

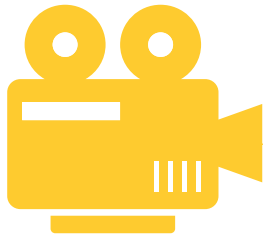
One of the most time-intensive tasks for research faculty is securing funding for their projects. Stanford University in California has found a way to streamline the process through the creation of DoResearch, an online portal where faculty and centers can find comprehensive information and upload applications for funding more easily.

The DoResearch portal lists internal and external funding opportunities, including feeds from grants.gov. It features a faculty directory, a library of documents and university policy information, and an option to receive alerts when submitted documents need to be updated. Administrative staff and principal investigators also use the site for training, in everything from the proper use of animals as research subjects to research ethics. The portal is located at [doresearch.stanford.edu](http://doresearch.stanford.edu).

▶ The portal is located at [doresearch.stanford.edu](http://doresearch.stanford.edu).

# idea exchange

## PUBLISH AND PERFORM



A still from a video based on the study “Fiedler’s Contingency Model of Leader Effectiveness.”

### THE IDEA

Ask professors to “perform” study findings to make research more accessible to the public.

### THE LOCATION

Towson University’s College of Business and Economics in Maryland.

### ACTING ON AN IDEA

Seen any good research studies lately? Bart Debicki hopes that soon more people will answer “yes” to this question. Debicki, a management professor at Towson, is also a stage and screen actor who has appeared in films such as *Killing Kennedy*. Through performance, he says, academics can make their research more accessible and compelling to nonacademics.

Inspired by that idea, Debicki and Julita Haber, an assistant professor at City University of New York, created “Act on Your Research,” a new kind of competition for business professors. The pair’s idea became the basis of a session at the Southern Management Association’s 2014 Annual Meeting last November. Two months in advance of the session, they emailed registrants to ask them to create short videos or live skits that depict their research. They provided each team with a link to an online document that outlined the principles of great storytelling and the basics of filmmaking.



### RESEARCH WITH REACH

Debicki often asks his students to act in his classroom—whether in simulations or through role-playing exercises—so, he asks, why shouldn’t faculty use acting to serve their scholarship? “There is usually a gap between our research and the business community, which rarely reads academic journals,” he says. “A short video about a study’s results and practical implications is much easier to understand than a 30-page discourse written in academic jargon and riddled with high-end statistics.”

### WINNING RESULTS

The competition resulted in a variety of performances—one professor created a stop-motion version of the video game character “Super Mario” to illustrate how executive characteristics affect corporate acquisition. The winning team, which received the US\$500 prize, performed its version of “Shark Tank,” evaluating different pitches to demonstrate how an entrepreneur’s passion for an idea can influence that idea’s success.

The judges, who included management scholars and several SMA officers, had access to the videos two weeks before the session and viewed the live performances during the session. Towson University provided the first-place cash award, and other universities provided promotional items in gift bags for each participating team.

The session attracted a large live audience to view the performances and films. The event was so popular that Debicki and Haber will hold the event again this year at SMA’s conference. They plan to create separate categories for video and live performances, find more sponsors, and ask participants to sign a consent form that allows the event’s organizers to post their films unrestricted on social media platforms. [D](#)

▶ [Video entries to the inaugural “Act on Your Research” competition are available at southernmanagement.org/meetings/2014/actresearch.asp.](http://southernmanagement.org/meetings/2014/actresearch.asp)



## Merger Complete

THUNDERBIRD JOINS THE ASU SYSTEM

**ARIZONA STATE UNIVERSITY IN TEMPE** and the Thunderbird School of Global Management in Glendale, Arizona, have signed a final agreement to make Thunderbird part of ASU. After reaching a tentative agreement in July, the two schools spent months discussing financial and operational details. The announcement of the deal was made in December 2014. Beginning this fall, students who enroll in Thunderbird programs will graduate from ASU's Thunderbird School of Global Management and receive their degrees under the auspices of ASU.

"In addition to receiving a top-notch education, students enrolled in Thunderbird at ASU will benefit from access to a broad array of student resources, including recreation facilities, arts programming, guest speakers, athletic events, and the expansive ASU library system," says Allen Morrison, Thunderbird's new CEO and director general. Morrison most recently was the Kristian Gerhard Jebsen Chair for Responsible Leadership in the Maritime Industry at IMD in Switzerland. The integration of the two schools also will provide new international opportunities for ASU students.

Degree programs offered by the Thunderbird School of Global Management at ASU initially will include a master of global management, which

is a one-year, three-semester degree program; and a master of art in global affairs and management, a two-year degree. In addition, graduate certificates requiring the completion of five courses will be offered in global management, global affairs, and global development. The school also plans to emphasize opportunities in executive education.

"The portfolio of programs will build on prior program success, including the launch of an online/hybrid masters, as well as an executive masters," says Morrison. "In addition, dialogue has already begun around the launch of an undergraduate program in global management."

In the future, Thunderbird plans to take advantage of the educational opportunities provided by the merger. For instance, the school is developing multidisciplinary programs designed to tap into the subject matter expertise of other schools at ASU, says Morrison. He also expects to develop programs that involve joint faculty appointments, though Thunderbird faculty will deliver most of the school's core courses.

In addition, students from across ASU will be able to apply to Thunderbird classes. However, Morrison notes, "Each school at ASU maintains a separate set of admission requirements beyond those of the university, and Thunderbird will be no different." Admittance also will depend to some extent on prerequisites and classroom sizes.

Earlier in 2014, many Thunderbird alumni expressed their disapproval of a planned joint venture with Laureate Education as a way to keep the school financially solvent. Morrison says that, by contrast, alumni have been supportive of the merger with ASU. He adds, "After several years of uncertainty, our alumni are happy that a new partnership with ASU has been created. Even more important to them is the knowledge that ASU respects the distinct culture and approach that Thunderbird brings to the equation."



# Seeing Business Differently

ALEX OSTERWALDER DELVES INTO THE PRACTICAL SIDE OF RESEARCH **BY TRICIA BISOUX**

**AS A DOCTORAL STUDENT** in management information systems at the University of Lausanne in Switzerland, Alex Osterwalder didn't plan to become a traditional academic—instead, he wanted to create real-world tools for practitioners. His 2006 dissertation on business model innovation led to the book *Business Model Generation*, which he co-authored with his doctoral supervisor Yves Pigneur. It also inspired the creation of the Business Model Canvas, a tool now taught at business schools worldwide. Unlike traditional business plans, the canvas depicts the business model as a single visual—a nine-block grid. Users fill each block with ideas related to one of nine areas: problem, solution, key activities, unique value proposition, competitive advantage, channels to customers, customer segments, cost structure, and revenue stream. The canvas allows users to view all the functions of a business as a whole.

Among Osterwalder's latest projects is the website Strategyzer.com, which helps users build and manage their canvases. In October, he released the book *Value Proposition Design*, which presents a tool similar to the Business Model Canvas that helps people lay out how they're creating value for customers.

*BizEd* recently spoke to Osterwalder about his work, the pitfalls of publishing, the nature of innovation, and the impact he hopes to have on business practice.

## **How did you develop the Business Model Canvas concept?**

Because we were in information systems, we wanted to create a computer-aided design tool to help business leaders prototype business models, just like architects prototype buildings.



In my dissertation, we use the nine building blocks, but we refer to them as the “business model ontology.” We use phrases like “core capabilities.” You can get away with terms like that in academia, but we wanted to attract businesspeople. We didn't want to scare them away! So we dropped “ontology,” and we replaced “core competencies” with terms like “key resources.” We wanted this to be extremely practical, with as little jargon as possible. As soon as you have to explain something, you create a barrier to adoption.

## **Did you feel pressure to keep the jargon because you were in academia?**

You bet. The incentive is to publish, not create tools that are relevant to practitioners. There's a lot of cool stuff going on in management thinking at business schools, but little of it makes it into the toolbox of practitioners.

We faced another obstacle because what Yves and I were doing fell between two disciplines: information systems and management/entrepreneurship. As soon as you're interdisciplinary, it

becomes complicated to publish in the top journals.

The final obstacle was that, in academia, the more quantitative a study is, the easier it is to publish. Relevance is often the least important criteria to get published in a top journal. But Yves and I weren't interested in doing something really quantitative, so we used an approach called “design science,” a third methodology that falls between qualitative and quantitative research. We knew our approach worked when I put the PhD online, and people started downloading it. Because of the dissertation, I started getting invitations to offer workshops in real companies. This was long before the book. It was a surprise.

## **How do you think the Business Model Canvas changes the way someone thinks about a business?**

The business model canvas gives a holistic view of a company. It requires you to ask, “What are the questions I need to answer to create value for my customers and for my company?” The whole thing is grounded in Michael Porter's value chain, which made sense in 1985, when most companies were in manufacturing. But the value chain isn't as effective to describe a Facebook or an AT&T today. The business model canvas is in that same tradition, just updated for the 21st century.

## **It's also very visual.**

Yes, Yves and I underestimated the value of this. Traditionally, managers sit around a table and have long conversations about how they should innovate and create value. But visual tools change the way people interact. So Yves and I bring that into the classroom by having

students put sticky notes up on the canvas. Students' understanding of companies goes through the roof. Yves has used this method with 400 students at a time, and I've done it with 2,500.

## What advice would you give professors?

When we work with students, we teach concepts, but we make them extremely practical. Students don't just learn about methods, they apply methods. So I think business schools need to get students to apply these methods again and again and again. The dual approach of learning and then doing should be essential.

Business schools also teach in a very disconnected way, separating topics like accounting, marketing, and leadership. It's no wonder that graduates don't know what a company is. They can't see it as a whole thing, where everything's connected.

That's why I think entrepreneurship is a better business school than business school will ever be. I think even somebody who becomes a manager or a CEO should at least have tried entrepreneurship. You will be a better CEO if you understand how all these pieces are connected.

## What about capstone courses?

A capstone course gives a holistic view of the organization—but it's at the very end of the program! It's one little class to help you understand the most fundamental things about a company. It should be the first thing students see.

## What impact do you most hope your work will have on business education?

We're trying to create tools and languages for strategy and innovation, which are still young disciplines. That's why we came up with our books, and I hope others will come up with new tools just as we did.

## NEW APPOINTMENTS

**Lei Lei** is the new dean of Rutgers Business School in Newark and New Brunswick, New Jersey. Lei was founding director of the Rutgers Center for Supply Chain Management and founding chair of the department of supply chain management and marketing sciences. She follows **Glenn Shafer**, who has led RBS as dean since 2011.

**Deborah Merrill-Sands** will take over leadership of the Peter T. Paul College of Business and Economics at the University of New Hampshire in Durham in late March. She previously served as dean at both the Lorry I. Lokey Graduate School of Business at Mills College and the Simmons College School of Management.

**John Chenoweth** has become the new dean of the College of Business and Economics at the University of Wisconsin-Whitewater. Chenoweth, a faculty member in the department of information technology and supply chain management, most recently served as associate dean.

In January, **Mark Higgins** became the new dean of the John Cook School of Business at Saint Louis University in Missouri. Most recently,

Higgins was dean of the University of Rhode Island's College of Business Administration in Kingston. Under his watch, the college launched new degree programs and majors, increased resources for faculty, and enhanced student support services. Higgins will succeed **Scott Safranski**, interim dean since 2013.

**Scott C. Beardsley** has been selected as the ninth dean of the University of Virginia's Darden School of Business in Charlottesville. He also will occupy the Charles C. Abbott Professorship in Business Administration, traditionally held by the dean. Currently a senior partner of McKinsey & Company, Beardsley will assume the role August 1. He succeeds **Robert F. Bruner**, who will be returning to the faculty after serving as dean for ten years.

Portland State University in Oregon has announced **Daniel Connolly** will become dean of its School of Business Administration. Connolly most recently was senior associate dean at the University of Denver's Daniels College of Business. He will lead the school as it breaks ground on a US\$60 million renovation and expansion this summer. Connolly replaces **Scott Dawson**, who left PSU last year to become

## AACSB Announces New CEO

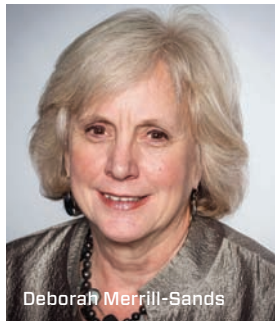
AACSB International's Board of Directors has selected Thomas Robinson as the next president and CEO of the organization. He is currently Managing Director of the Americas at the CFA Institute in Charlottesville, Virginia, a global non-profit that oversees the credentialing for the CFA (Chartered Financial Analyst) designation. Robinson is also responsible for the Key Stakeholder Services Division and is co-executive sponsor of CFA Institute's Future of Finance Initiative.

Prior to joining CFA Institute, Robinson was a tenured accounting faculty member for 14 years at the University of Miami. He also practiced public accounting and financial planning for ten years. He holds a bachelor's degree in economics from the University of Pennsylvania and both a master's and a doctorate from the Weatherhead School of Management at Case Western Reserve University. He begins his new position March 1. Retiring CEO John Fernandes will remain on board until the end of April to assist with the transition.

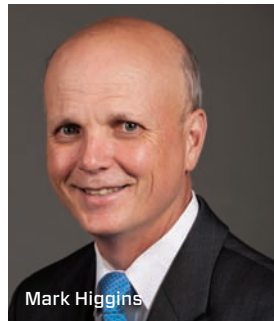




Lei Lei



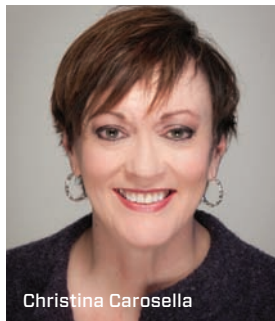
Deborah Merrill-Sands



Mark Higgins



Scott C. Beardsley



Christina Carosella



Philippe de Portzamparc

dean of Orfalea College of Business at Cal Poly, San Luis Obispo. Business faculty member **Scott Marshall** is serving as interim dean until Connolly starts this summer.

In July, **Kathleen A. Getz** becomes the new dean of the Sellinger School of Business and Management at Loyola University Maryland in Baltimore. She served as dean of the Quinlan School of Business at Loyola University Chicago from 2011 through December 2014 and is currently on a research sabbatical leave.

**Len Jessup**, dean of the Eller College of Management at the University of Arizona in Tucson, has been selected as the tenth president of the University of Nevada, Las Vegas. Jessup was previously dean at Washington State University and president of the university's foundation.

In January, **Jonathan Greenblatt**, formerly Special Assistant to the President and Director of the Office of Social Innovation and Civic Participation in the Domestic Policy Council in the U.S., became a senior fellow at the Wharton School at the University of Pennsylvania in Philadelphia.

**Christina Carosella** has been named the new CEO of Beta Gamma Sigma, the lifetime honor society for business students. She assumes the role following

the retirement of **Jim Viehland**, who served as the society's executive director for more than 35 years. Carosella previously has held executive positions in the nonprofit, consulting, and corporate worlds.

**Teemu Kokko** has been appointed as the president and CEO of HAAGA-HELIA University of Applied Sciences in Helsinki, Finland. He was previously vice president of the university. When he begins his term June 1, he will replace the current president, **Ritva Laakso-Manninen**, who will retire after leading the school for eight years.

**Karin Wiström** of the Stockholm School of Economics was elected chair of the Executive MBA Council (EMBAC) Board of Trustees in September.

**Philippe de Portzamparc**, president of the brokerage firm Portzamparc, has been named president of Audencia Group. The French consortium includes Audencia Nantes School of Management, SciencesCom, and the Ecole Atlantique de Commerce. Portzamparc succeeds **Gérard Estival**, who has been president for the last eight years.

### NEW PROGRAMS

The Henry W. Bloch School of Management at the **University of Missouri-Kansas City** is launching an Intensive Full-Time MBA that will enable students to earn their degrees within one

year. For the inaugural two years of the selective program, students will receive free tuition financed by the Marion and Henry Bloch Family Foundation. Students will be required to complete 42 hours of coursework during the year, which includes a paid internship and a three-week global experience.

Last December, the McCombs School of Business at the **University of Texas at Austin** launched its Texas Business Foundations Program (BFP) Online. The program delivers accelerated courses through interactive learning modules, animated storytelling, gamification, video lectures, real-world simulations, and self-paced courses. Administrators say it is designed to fill the gap between a nonbusiness degree and an advanced degree such as the MBA. The curriculum covers six business fundamentals, including accounting, finance, IT, marketing, business law, and organizational behavior.

The **University of Miami** School of Business Administration in Florida is expanding the programs it offers online with a new master's of professional accounting program. The fully online program, which begins in May, is designed for those with no prior accounting experience or coursework. Participants have the option of earning a certificate in accounting practice or completing the certificate while earning a master's degree.

A 12-month master's program in arts management and administration (MAMA) will be launched at **SDA Bocconi** in Italy in September. Offered in English, the program targets humanities graduates and professionals working at arts organizations. It also will offer concentration courses in areas such as opera and festival production, museum management, and digital media. To deliver the program, SDA Bocconi will collaborate with the Italian Environment Fund, as well as institutions such as the Filarmonica della Scala, the Fondazione Arena de Verona, MUVE (Foundation for the Civic Museums of Venice), the Teatro Franco Parenti, and the Vatican Museums. The school also has debuted a 12-month master of public administration degree designed for professionals who want to tackle public management issues with a global approach. Students enrolled in the 2015 program will participate in the Make a Wish competition, which encourages students to raise funds to finance scholarships for talented, disadvantaged applicants.

A Chinese customer firm of Air France Industries, KLM Engineering & Maintenance, has asked **Toulouse Business School** in France to deliver part of an aeronautical management training course for its high-potential senior managers. The school will draw on the expertise of its TBS Aerospace MBA to design the content.

The **Stevens Institute of Technology** of Hoboken, New Jersey, has entered a three-year collaboration with Accenture Analytics, a division within global consulting firm Accenture. The collaboration will include conducting research projects and workshops on analytics with Accenture's financial services clients. In addition, in January, Stevens launched its new Financial Services Analytics (FSA) graduate certificate program to cover topics such as data quality and composition; advanced data mining and visualization; and creation of databases and decision-making tools. Qualified students will have opportunities to intern at Accenture and other firms. Accenture also will fund scholarships to two FSA students each year.

The **University of Tampa's** Sykes College of Business in Florida will offer major and minor undergraduate programs in cybersecurity starting this fall. The curriculum will focus on the fundamentals of information systems, as well as areas such as network security, cryptography, risk management, security governance, business continuity, security architecture, physical security, and critical infrastructures. The program also will prepare students for the Certified Information Systems Security Professional (CISSP) exam.

**HEC Paris** has created three new MOOCs on the Coursera platform. The first is "Time to Reorganize," opened for registration in January, which explores how organizations can protect or renew a sense of belonging in individuals. The second, opened in February, aims to inspire entrepreneurs to make a difference in society. The third, which will open on April 1, focuses on how to launch a tech startup. In addition, the school has launched an executive education certificate program on corporate finance in partnership with First Finance Institute. The French version of the three-MOOC series began on January 30. A second version is offered in Mandarin via China's NetEase Cloud Classroom platform and in partnership with Tsinghua University School of

## Learning Alliance for Exec Ed

IE Business School in Madrid, Spain, has joined with *The Financial Times* to launch the FT | IE Corporate Learning Alliance (FT|IE CLA), which will provide custom learning for business leaders. Other schools partnering with the alliance for its launch include the Yale School of Management in the U.S., Fundação Getulio Vargas in Brazil, Antai Business School at Jiatong University in China, Renmin Business School in China, Singapore Management University, and EGADE at Tec de Monterrey in Mexico.

The customized programs will combine face-to-face modules with online and offline learning methods that provide participants with real-time news and analysis delivered by local and international experts. Programs can be delivered in multiple languages, including Arabic, English, Mandarin, Portuguese, and Spanish. The program includes a measurement framework developed by FT parent company Pearson.

▶ For information, visit [www.ftiecla.com](http://www.ftiecla.com).

Economics and Management in China. The Mandarin version started on January 5.

The **Stanford Graduate School of Business** in California will offer its Stanford Ignite certificate program in London for the first time in September. The ten-week, part-time program covers strategies to formulate, develop, and commercialize ideas. Incorporating high-definition distance learning technology, the program will be held at Canary Wharf in London, with faculty in London as well as those beamed in via video technology from Silicon Valley. Stanford Ignite now is offered in seven locations, including Stanford; London; Bangalore; Beijing; Paris; New York City; and Santiago, Chile.

## COLLABORATIONS

**Audencia Nantes** in France has partnered with **University Politehnica of Bucharest** in Romania to create a dual degree in management and engineering. Creating the program was simplified after the education ministers from France and Romania recently signed an accord to recognize degrees earned at schools in either country. Because only 39 percent of Romanians who study abroad wish to return to their home country as part of their career, the joint masters is designed to keep students who graduate from Politehnica Bucharest in Romania for their masters study, so that they will be more likely to stay to work for local companies.

**Babson College** in Wellesley, Massachusetts, and the Tokyo University of Science (TUS) have signed

a long-term alliance to offer Babson's Symposium for Entrepreneurship Educators (SEE) in Japan. This is the first time that the SEE series country program has been offered in the Asia Pacific region. The first event was held in November at TUS and covered topics such as teaching entrepreneurship, evaluating opportunities for feasibility, testing and experimenting, developing a pitch, and assessing acceptable failure and loss.

**INSEAD** has partnered with the Singapore Economic Development Board to launch the Emerging Markets Institute (EMI) at its Asia campus in Singapore. The EMI will address the pressing problems faced by emerging economies, such as the lack of trained talent who can leverage opportunities effectively. The EMI will feature the Global Asia Fellowship Programme, which will bring together academics and senior corporate executives to perform and guide research, particularly on topics related to the drivers, challenges, and opportunities in Asian emerging markets. The EMI also will include an Emerging Markets Case Center that focuses on developing cases about emerging market successes and failures.

**Baruch College's** School of Public Affairs in New York City and The New York Community Trust have designed a professional development certificate program aimed at training leaders for nonprofit groups in New York and the suburbs. The Leadership Fellows program will provide training and mentoring for midcareer professionals.

## HONORS & AWARDS

The Center for Responsible Business at the Haas School of Business at the **University of California, Berkeley**, has awarded its 2014 Moskowitz Prize, which recognizes research in socially responsible investing. This year's prize went to **Allen Ferrel**, a professor of securities law at Harvard Law School in Cambridge, Massachusetts, and doctoral candidate **Hao Liang** and professor **Luc Renneboog**, both from the finance department at Tilburg University in the Netherlands. They were honored for their study "Socially Responsible Firms." They used two independent ratings systems—the MSCI's Intangible Value Assessment and Vigeo's ESG Ratings Database—to measure a firm's compliance with national and international guidelines for corporate social responsibility (CSR), as well as its environmental and social risks and opportunities. Their findings suggest that good corporate governance correlates with higher CSR initiatives, which increase shareholder wealth. The study is available online at [ssrn.com/abstract=2464561](http://ssrn.com/abstract=2464561).

## NEW CENTERS & FACILITIES

At the start of this year, **HHL Leipzig Graduate School of Management** in Germany opened SpinLab—The HHL Accelerator. Housed in a space within an old cotton mill, SpinLab will offer infrastructure to entrepreneurs, as well as coaching, consulting, and access to HHL's network of entrepreneurs and investors. SpinLab will be open to both startups and established businesses. Information is available at [www.hhl.de/SpinLab](http://www.hhl.de/SpinLab).

The Haas School of Business at the **University of California, Berkeley**, will construct a US\$60 million six-story 80,000-square-foot building devoted to student learning and interaction. Designed by the architecture firm Perkins+Will, the North Academic Building will include eight tiered lecture rooms, four flat flexible-use experiential learning spaces, 28 team-based study rooms, and group study rooms; it also will feature an indoor/outdoor café, a 300-seat event space, and lounge areas with configurable seating, but no administrative offices. The building's design is on track to qualify for LEED Gold certification for its sustainable design elements. Construction is scheduled to be complete in the fall of 2016.

Security consultant firm ARC Group of New York has donated more than US\$500,000 in software

and services to create the NYS Cyber Security Center at the **University of Albany** School of Business in New York. The new lab will develop tools to defend against data breaches and predict future attacks. Sanjay Goel will head the center.

The **University of Maryland** in College Park recently received a US\$5 million gift from a foundation formed by Ed Snider, owner of the professional hockey team the Philadelphia Flyers, and a \$1 million gift from a foundation formed by Charles Koch, chief executive officer of the multinational corporation Koch Industries. The gifts will be used to create the Ed Snider Center for Enterprise and Markets. Although the center will be housed within the Robert H. Smith School of Business, it will involve academics from across the entire university in interdisciplinary research that explores how institutions and mar-

kets affect the well-being of individuals and society as a whole.

**Brandeis International Business School** in Waltham, Massachusetts, will use a US\$2.5 million gift from the family of Hasbro co-founder Henry Hassenfeld to establish the Hassenfeld Family Innovation Center. The center will support faculty research and the commercialization of technologies being developed on campus in areas such as life sciences, clean energy, and information technology. Center director will be Lisa Lynch, professor, provost, and senior vice president for academic affairs.

**Quinnipiac University's** School of Business in Hamden, Connecticut, has created a new center dedicated to enhancing women's business acumen, their presence in leadership and decision-making roles, and their overall experiences as professionals.

## Gehry-Designed B-School Opens at UTS

Australia's first building designed by architect Frank Gehry is for the Faculty of Business at the **University of Technology, Sydney**, in New South Wales, Australia. The Dr. Chau Chak Wing Building is named for the Australian-Chinese businessman and philanthropist who donated AUS\$20 million to the project. The new building, which had its official opening in February 2015, comprises about 52,600 square feet over 11 floors.

Like all Gehry buildings, the new Faculty of Business facility is full of fluid surfaces and unexpected details. The building has two external facades—one of undulating brick that mimics the sandstone prevalent in urban Sydney; and one of large, angled sheets of glass that reflect the city around the school. Gehry has said he imagined a building that was a cluster of "tree houses," or vertical stacks of office floors with spatial cracks in between. The building includes classroom spaces of various sizes with movable furniture, student lounges, and outdoor roof terraces. Office areas feature open-plan workstations and extensive shared meeting spaces spread over multiple levels to encourage faculty and staff to move between floors and interact with colleagues.

The Gehry building earned a five-star Green Star design rating from the Green Building Council of Australia. It is part of a \$1 billion renovation master plan for the UTS City Campus. Among other projects completed in 2014 were a new building for the Faculty of Engineering and IT, the first stage of a subterranean robotic library retrieval facility, and a science and health education precinct that includes a research "super lab."



## Investing in Women

The Macquarie Graduate School of Management (MGSM) in Sydney, Australia, has announced that it will invest AUS\$8 million in postgraduate business education for women. Because MGSM research found that time and cost are the primary barriers for women seeking MBAs, the first step of the new initiative is a scholarship program that will reduce or eliminate the fees women pay to obtain their degrees.

Those fees will be paid in part by the school and in part by the students' employers or sponsors. Sponsors also must pair students with mentors for the duration of the program, as well as provide logistical and practical support.

"In Australia today, 20,000 students are currently passing through the 65 MBA programs delivered by Australian universities and other educational institutions, but less than one-third of this pool of aspiring leaders is female," notes Alex Frino, dean of the school. "To put this into perspective, there are 13,500 men but only 6,500 women enrolled in MBA programs at the moment."

Six foundation partners have already signed on, including CPA Australia, Echo Entertainment, Johnson & Johnson Family of Companies, Philips, Qantas, and the Royal Australian Navy.

"Our Women in MBA partnerships program is a pilot which we hope other universities can adopt in their own schools," says Frino. "This is the only way we will be able to make a real, long-lasting, and meaningful impact on the numbers of women completing MBAs and advancing into leadership roles."



Kathleen Simone



Rowena Ortiz-Walters

**Rowena Ortiz-Walters**, professor and chairperson of management, and **Kathleen Simone**, associate professor of accounting, will serve as co-directors of the center. The center grew out of the university's Business Women in Search of Excellence initiative, which was co-founded by Ortiz-Walters and Simone in 2007. The center will run educational programs and professional development seminars and host networking events showcasing successful businesswomen. It also will connect women in for-profit and non-profit business sectors to each other and to the university community, particularly undergraduate and graduate female business students.

## GRANTS & DONATIONS

The Leavey School of Business at **Santa Clara University (SCU)** in California has received a US\$10 million gift from entrepreneurs Phil and Peggy Holland, as well as ownership of their website, [www.myownbusiness.org](http://www.myownbusiness.org). With more than 500,000 views each month, the site provides free course content and training for small business owners. The school will use the funds to create My Own Business Institute (MOBI), establish a related fellows program for entrepreneurs, and expand and improve the online platform. SCU will use the site in two of its existing programs: the California Program for Entrepreneurship, which provides MBA-level courses and mentoring to up to 35 entrepreneurs each year, and the Neighborhood Prosperity Initiative, which supports small businesses in disadvantaged neighborhoods.

The Third Frontier Commission of the state of Ohio will provide US\$1 million to the **University of Cincinnati** Technology Commercialization Accelerator, double the amount that the commission provided to help create the accelerator in 2012. The

accelerator assesses the potential of technologies generated by the university community and provides funding and support to the ones that are most promising. As of November 2014, it had funded 13 projects.

## OTHER NEWS

As of January 2015, the **Bill & Melinda Gates Foundation** has adopted an Open Access policy, which requires unrestricted online access to any peer-reviewed

research completely or partially funded by the foundation, immediately upon publication. The new policy is effective for all new research agreements; agreements already in place before January must be phased into the new policy by no later than January 1, 2017. According to the foundation's announcement, the action will promote "information sharing and transparency" to ensure that foundation-supported research is "promptly and broadly disseminated."

In January, the **New York Institute of Finance (NYIF)**, a financial education training provider, transitioned all of its exam preparation courses to Open edX, the open-source learning platform that supports the nonprofit MOOC provider edX. The courses, which offer preparation for all five major designations in finance (CFA, FRM, MTA, CPA, and Series 7), includes video lectures, interaction with students, and 24/7 access to an on-call instructor. For information, visit [exam-prep.nyif.com/](http://exam-prep.nyif.com/).

**Groupe INSEEC**—a consortium of French institutions of higher learning, continuing education, and training—has announced new development projects for 2020, including the creation of a new think-tank and the development of a MOOC. It also will launch its new brand identity, which includes renaming the flagship business program, a grande école of management, INSIGNIS Business School. Currently, Groupe INSEEC has locations in the French cities of Paris, Bordeaux, Lyon, and Chambéry and the international cities of Monaco, London, Chicago, Shanghai, and Geneva. A campus in San Francisco, California, will open in 2015. The Groupe intends to strengthen its expertise in the areas of luxury, hospitality, wine and spirits, and digital innovation. **D**

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- Promote your organization at events
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From 2010-2014  
there was a

# 36%

increase in the  
number of fully  
online programs  
among a  
controlled group  
of accredited  
schools.

Source: AACSB  
International Business  
School Questionnaire

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**Questions?** Contact Debbie Wiethorn at +1 813 769 6522 or [debbie.wiethorn@aacsb.edu](mailto:debbie.wiethorn@aacsb.edu).

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International  
Business School  
Suzhou at XJTLU  
西浦国际商学院

**Department: The Business School**

**Ref: BEM1322**

**Closing date for receipt  
of applications: 6 March 2015**

**Applications are invited for  
accounting positions in the  
International Business School  
Suzhou (IBSS) at Xi'an  
Jiaotong-Liverpool University,**

a Joint Venture established in 2006 by the  
University of Liverpool, UK and Xi'an  
Jiaotong University, China.

Applicants from a wide range of fields in accounting are welcome. In particular, applicants with a teaching interest in financial accounting and reporting, auditing and UK taxation are strongly encouraged.

Successful applicants will have a PhD, and/or be able to demonstrate appropriate professional experience. Applicants will have teaching experience and evidence of the ability or potential to produce high quality research publications. Applicants with a good publication record in accounting are strongly encouraged. Teaching experience at postgraduate level would be welcomed. Applicants with professional backgrounds, who are not currently active in research, will also be considered.

Candidates for the position of Associate Professor should also have a strong track record of excellence in teaching and academic supervision, as well as an international research profile in their field and a successful record of research funding.

**Applications should be received by 6 Mar 2015 (please quote reference BEM1322).**

Informal inquiries should be addressed to the Head of the Accounting and Finance Group, Dr Peng Cheng: [peng.cheng@xjtlu.edu.cn](mailto:peng.cheng@xjtlu.edu.cn).



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**“How you deal with uncertainty as you move ahead puts you in one of two worlds. The first is the legacy world of core competencies, incremental gains, and defensiveness. The second is...the world of large-scale entrepreneurs who create a new need, scale it up quickly, and put a bend in the road for the traditional players.”**

—RAM CHARAN, *THE ATTACKER'S ADVANTAGE*

“The people in the C-suite may not have an unvarnished view of how their company is viewed by the public, or whether sourcing cocoa from the Ivory Coast will tarnish their reputation, but their recently hired MBAs coming back from a recruiting visit know.”

—GERALD F. DAVIS AND CHRISTOPHER J. WHITE,  
*CHANGING YOUR COMPANY FROM THE INSIDE OUT*

**“I studied political science to understand why institutions are the way they are: Why is the economy the way it is? Why are institutions the way they are? None of these things were cast in stone. But it’s rare to find courses that ask these basic philosophical questions. If business schools did more to encourage students to ask why things are the way they are, they would create better businesspeople.”**

—ALEX OSTERWALDER, CREATOR OF THE  
BUSINESS MODEL CANVAS

“In corporate culture there is a language of gender bias that we are unaware of: It’s called ‘benevolent sexism.’ An example of this is when a male colleague or supervisor refers to a highly trained, qualified female engineer as ‘honey’ or ‘meisje.’ Everyone acts as if it’s okay. It’s not.”

—DIANNE BEVELANDER, PROFESSOR OF MANAGEMENT EDUCATION AND  
EXECUTIVE DIRECTOR OF THE ERASMUS CENTRE FOR WOMEN AND ORGANISATIONS  
AT THE ROTTERDAM SCHOOL OF MANAGEMENT, AS QUOTED IN *RSM OUTLOOK*

“For anyone looking to grow as a leader, I encourage you to say yes to opportunities that come your way. Don’t pigeonhole yourself in one way or another. You aren’t just a scientist or just a business leader. Challenge yourself to take a role that enables you to learn something new.”

—SONDRA BARBOUR, EXECUTIVE VICE PRESIDENT, INFORMATION  
SYSTEMS AND GLOBAL SOLUTIONS, LOCKHEED MARTIN



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