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BizEd

AACSB INTERNATIONAL JANUARY | FEBRUARY 2020



PREPARE FOR DISRUPTION
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OF POSSIBILITIES OFFERING BOTH PROMISE AND PERIL. WILL BUSINESS
GRADUATES BE PREPARED FOR WHATEVER IT HOLDS? P. 16



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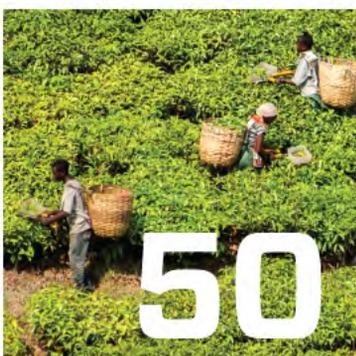
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▶ [ONLINE AT BIZED.AACSB.EDU](https://www.bized.aacsb.edu)

The Ethics of Data Visualization

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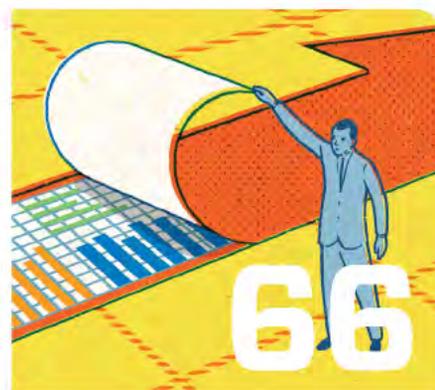
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▶ ONLINE AT [BIZED.AACSB.EDU](https://biz.ed.acsb.edu)

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FROM THE DESK OF DEAN GREGORY PRASTACOS

Dear colleagues,

I hope you are enjoying this issue of BizEd on digital transformation in academia and in the workplace.

Digital transformation is at the core of all we do at Stevens. I'm excited to be leading AACSB's initiative on Management Curriculum for the Digital Era (MaCDE). Alongside partners from around the globe, we're committed to helping students develop the knowledge, skills and mindset needed to thrive in a tech-driven business world.

I invite you to visit stevens.edu/macude to become involved in this initiative.

Sincerely,

Gregory Prastacos

MISSION

BizEd is the world's leading source for authoritative information, ideas, and insights related to international management education.

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CREATIVITY *at* WORK

Making statistics less static

In business, math is essential, but students don't always see the connection. That's why Pamela Burch does everything she can to bring her lessons to life. She teaches statistics at VCU's School of Business, using interactive projects to engage students rather than just showing formulas on a screen. Students taste foods to perform two-sample T-tests and play board games to analyze gender dynamics and productivity, just to name a few. By learning statistics in a fun and meaningful way, students build a valuable foundation for their upper-level courses and careers.

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Inquire Within

LOOKING FOR A JOB? It's a time-honored practice for shops and restaurants to place notices in their windows inviting customers and passers-by to come inside and apply for an open position. But in the past few weeks, I've seen digitized versions of the old "inquire within" sign as local retailers invite candidates to text a numerical code to corporate headquarters in order to start the job application process. And I recently heard that a fast-food company has partnered with Amazon's ubiquitous digital assistant so that people only have to say, "Alexa, help me get a job" to initiate the application.

This is the era of digital transformation, in which technology changes everything about our jobs, from how we get them to how we do them. While the possibilities are exciting, sometimes the realities are a little intimidating. Today's business leaders want to know how they can keep up with the changes that are reshaping their industries and how they can shepherd their organizations through massive digital restructuring. At *BizEd*, we want to know what business schools can do to help executives prepare for the tech-enabled future.

That's the topic we address in this issue. In "Moving Toward Disruption," we trace the formation of a new alliance dedicated to identifying the best practices in designing digital curricula that will meet the future needs of business. We also look at some of the ways business schools are already integrating coding, analytics, and digital technologies into their classrooms.

At Baylor University, for instance, students at the Hankamer School of Business conduct research projects on the potential effects of everything from virtual reality to the Internet of Things. After these projects, says Baylor's Cindy Riemenschneider, students report that they now understand that they will be the ones whose decisions will determine the timing, ethics, and even regulation of these technologies in the future.

In "The Digital and Human Future," experts and academics give their takes on the tech-driven workplace of the future. Most tellingly, they all stress that, unless people are involved, no digital transformation will succeed. "Technology can't conduct face-to-face meetings or connect the dots about developing trends," points out Terence Tse of ESCP Europe Business School. "Students will need to master cognitive skills if they are to lead digital transformation."

Similarly, Ritu Agarwal of the University of Maryland emphasizes that "gadgets don't drive change. Leaders do." She adds, "Nothing happens without a change in mindset—and that starts in the C-suite."

Raj Echambadi of Northeastern University believes that workers will have to focus on their very human abilities if they don't want robots taking their jobs in the future. He writes, "Creativity, entrepreneurial thinking, critical reasoning, and ethical thinking are among the abilities that make people different from machines—and that give humans skills that machines can't match in the workplace."

That's good advice for people deciding which abilities to hone for the next stage in their careers. And it's probably welcome news for the job seekers who are using their phones to apply for work. The robots aren't texting yet, are they—?

A handwritten signature in black ink that reads "Sharon Shinn".

Sharon Shinn
Co-Editor

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(#AACSBdeans)
Nashville, Tennessee

MARCH 4–6

B-School Communications &
Development Symposium
(#AACSBbcads)
Georgetown University
Washington, D.C.

MARCH 19–21

Assessment & Impact Conference
(see inset photo)

APRIL 26–28

International Conference &
Annual Meeting (#ICAM20)
Denver, Colorado

MAY 13–15

Graduate Curriculum Conference
(#AACSBcurriculum)
Indianapolis, Indiana

JUNE 2020

Annual Accreditation
Conference: Asia Pacific
(#AACSBap)
Location TBD

SEMINARS

JANUARY 12–17

AACSB Bridge Program
Arizona State University
Tempe, Arizona

JANUARY 22–23

Assurance of Learning I
Riyadh, Saudi Arabia

JANUARY 28–29 & 30–31

Assurance of Learning I &
Assurance of Learning II
Tampa, Florida

FEBRUARY 1

Leading Faculty &
Succession Planning
Nashville, Tennessee

FEBRUARY 6

Accounting Accreditation
Long Beach, California

FEBRUARY 11–12

Business Accreditation
Antwerp, Belgium

FEBRUARY 13

Accreditation Eligibility Workshop
Antwerp, Belgium

MARCH 2–4

New Deans
Berlin, Germany

MARCH 3

Continuous Improvement Review
Tampa, Florida

MARCH 3

Faculty Standards &
Tables Workshop
Innsbruck, Austria

MARCH 3–4

Advisory Council
Washington, D.C.

MARCH 4

Faculty Standards &
Tables Workshop
Tampa, Florida

MARCH 4–5

Assurance of Learning I
Innsbruck, Austria

MARCH 6

Continuous Improvement Review
Innsbruck, Austria



MARCH 19–21 *Houston, Texas*

Assessment & Impact Conference (#AACSBassessment)

Educators are invited to network with accreditation volunteers and learn about the latest innovations and best practices in assessment. The Assurance of Learning I and Assurance of Learning II seminars will be delivered in conjunction with the event (see dates below).

▶ For a complete listing of AACSB's seminars, conferences, and digital learning programs, visit www.aacsb.edu/events.

MARCH 16–17

Business Accreditation
Yogyakarta, Indonesia

MARCH 18–19

Assurance of Learning I
Yogyakarta, Indonesia

MARCH 18–19 & 22–23

Assurance of Learning I &
Assurance of Learning II
Houston, Texas

MARCH 30–31 & APRIL 1–2

Assurance of Learning I &
Assurance of Learning II
Birmingham, England

APRIL 21–22

Assurance of Learning I
Istanbul, Turkey

APRIL 23–25

New Deans
Denver, Colorado

APRIL 24–25

New Associate Deans
Denver, Colorado

OTHER DATES AVAILABLE

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www.aacsb.edu/events/on-campus

other events

JANUARY 14–17

GMAC Leadership Conference
Scottsdale, AZ
www.gmac.com

JANUARY 20–21 & 22–23

Case Teaching & Writing
Workshops
Copenhagen, Denmark
www.thecasecentre.org

APRIL 1–3

BALAS Annual Conference
Bogotá, Colombia
balas.org/BALAS2020

APRIL 16–17

EUA Annual Conference
Gdańsk, Poland
www.eua.eu/events

JUNE 7–9

EFMD Annual Conference
Lyon, France
efmdglobal.org

JUNE 8–11

Association for the
Assessment of Learning in
Higher Education Conference
New Orleans, Louisiana
www.aalhe.org

BREAK BOUNDARIES

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Dean Georgette Chapman Ph





Preparing for Digital Disorder

TECHNOLOGICAL ADOPTION COULD EVOLVE IN ONE OF FOUR WAYS—WHICH ONE WILL WIN OUT?

“WE ARE DESCENDING into a period of digital disorder.” That’s an opening sentiment of a new report from the Global Business Policy Council (GBPC), a unit of the global management consulting firm A.T. Kearney. The current technological environment is quickly evolving from one that followed a primarily predictable path to one that’s being transformed in unpredictable ways by new regulations (such as the European Union’s General Data Protection Regulation), advancing

technology (such as 5G wireless networks and artificial intelligence), and intensifying global competition.

Although it’s not yet clear how the use of digital technologies will change over the next decade, the GBPC predicts that, by the year 2030, businesses will be forced to contend with at least one of four possible future scenarios:

Techlash to Renaissance, in which the world sees a public backlash against overstepping tech companies. This so-called “techlash” inspires a wave of national policies and regulations. From this, the world emerges with a robust and effectively regulated cross-border digital environment.

Digital Crackdown, in which “high levels of nationalism and strict government control of digital platforms ... dominate the operating environment.” The global economy falters as governments increasingly focus on national and state-owned enterprises, and as bureaucratic obstacles hinder companies’ innovation and decision making.

Fake News Devolution, in which a weak regulatory environment spawns a “digital Wild West” that enables the proliferation of online fake news. The spread of disinformation further degrades the public trust in government and business institutions. As nationalism takes hold, consumers avoid foreign-born technologies, putting a damper on global economic growth. At the same time, companies must cope with “rampant hacking, IP theft, corporate espionage, and online smear campaigns.”

Surveillance Capitalism, in which tech giants in the U.S. and China are more powerful than national governments. These companies reach larger numbers of people through their digital platforms, quickly acquire competitors, and snuff out regulatory efforts that would stifle their growth. The global economy is robust—so robust that the public largely accepts the fact that tech

companies use people's personal data for "surveillance-based micro-targeting in advertising and politics." This practice wields disproportionate power in shaping popular opinion and government policy. Online content grows more homogeneous, as the world moves toward "one global Internet—and one global consumer base."

Each of these potential futures presents different challenges, but companies still can thrive—if they work now to embrace digital transformation. The GBPC has created what it calls its SCORE framework, which outlines five aspects of technology that companies should target: *strategy, customer experience, operations, risk management and compliance, and employees and culture.*

Companies will need to remain agile, tailoring their strategies to the scenarios that come to pass. To fight against fake news, for example, companies will need to offer more personalized customer experiences and nurture their talent pipelines. To respond to a digital crack-down, say the authors, companies should build relationships based on transparency and trust, while monitoring and adapting to new regulations in areas such as data privacy.

No matter the scenario, the report's authors emphasize that all companies will need to improve their cybersecurity, manage their digital risk exposure, and embed digital technologies in their corporate cultures.

"Companies cannot be passive observers of the ongoing digital revolution," the authors write. "They should be actively adapting to the current digital disorder while also preparing for future digital disorder by embarking on strategic end-to-end digital transformation."

► Find a link to the report, "Competing in an Age of Digital Disorder," on the GBPC's web page at www.akearney.com/web/global-business-policy-council.

Why—And How—to Teach Climate Change

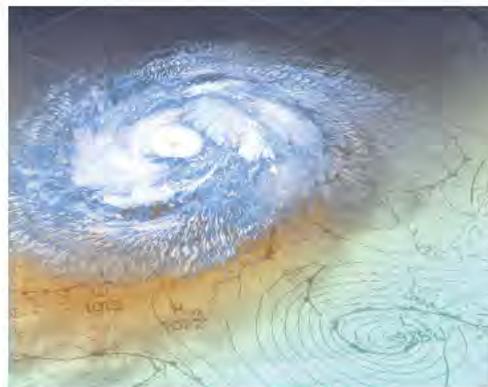
Many management professors discuss climate change in their classrooms because they believe it will impact business decisions for decades to come. (For more on this topic, see "Carbon Cutters" on page 40.) But is it beneficial to teach college students about the causes and effects of climate change? To find out, three professors at the University of Michigan in Ann Arbor surveyed nearly 400 students over two semesters in a large biology course to measure changes in their attitudes about climate change.

The research was conducted by Meghan Duffy, a professor in the ecology and evolutionary biology department; J.W. Hammond, a graduate student instructor at the U-M School of Education; and Susan Cheng, a data analytics and course assessment consultant at the U-M Center for Research on Learning and Teaching. They found that 98 percent of students in the class believed that climate change was a problem—but while the students became more convinced that climate change was real, they also became more fearful that nothing would be done about it.

The trio found that, by the time the class was over, the percentage of students who were "very sure" about the dangers of climate change rose from 44 percent to 70 percent. The percentage of those who saw humans as the primary cause of climate change went from 69 percent to 92 percent. At the beginning of the course, only 33 percent of students recognized that climate change is impacting people now. By the end, 63 percent said it is a problem now, 8 percent thought it would not be a concern for 51 to 100 years, and 2 percent thought it would not be a concern for 100 years or more.

But the researchers also found that students expressed a greater sense of hopelessness about climate change. Ninety-three percent were either unsure whether humans would take meaningful action in response to climate change or they were absolutely certain they would not. Only 4 percent thought humans would successfully address the problem. One student even reported a panic attack about the issue mid-lecture.

The researchers have been considering what approach to take when teaching the subject. Duffy and her colleagues suggest that instructors first assess what students know about the topic; then, focus on the "bright spots," or the things that have already been done to combat the problem; then, reframe the issue to focus on what can be gained in the fight, rather than fixating on what could be lost; and finally, design course activities that provide realistic roles for students to take in achieving climate change solutions.



UPTICK FOR EMBAS



More people than ever before are applying for EMBA programs, according to the Executive MBA Council, which recently released the results of its 2019 EMBAC Membership Program Survey. In fact, applications have increased by 31.6 percent since 2015.

The general profile of the typical EMBA student remains steady: He or she is a 38-year-old who has approximately 14 years of work experience and nine years of management experience. But there have been several significant changes in EMBA programs and attendees in the past five years, according to EMBAC:

	2019	2015
More EMBA students are women.	31.2%	27.6%
More programs offer distance learning options.	55%	42%
More students are fully self-funded.	53%	41%
Fewer students are fully sponsored.	15%	23.2%

According to EMBAC, a majority of people apply to EMBA programs to increase their skills, enhance career development, and gain new perspectives on the business enterprise through a more strategic lens. The healthcare/pharma/biotech sector continues to be the most popular field for new entrants to seek employment, with technology next in line.

The EMBA Council includes more than 200 colleges and universities that administer more than 300 programs around the world.

Fail, Then Succeed

Scientists who experience failure at the beginning of their careers fare better than those who have early successes, according to three researchers from Northwestern University's Kellogg School of Management in Evanston, Illinois. They found that scientists who narrowly missed winning grants from the National Institutes of Health (NIH) ultimately published more successful papers than those who just as narrowly qualified for the money.

"The idea that one gets stronger through failure is the kind of stiff advice that people may tell themselves in difficult times," says strategy professor Benjamin F. Jones in a Kellogginsight article. Jones conducted the research with Dashun Wang, associate professor of management and organizations, and postdoctoral researcher Yang Wang. "But is there any truth to it?"

The team studied more than 700,000 grant applications submitted to the NIH between 1990 and 2005. They focused on a grant called the R01, a common grant type deemed very important to biomedical researchers. Because applications receive numerical scores and funding is determined by what score the applications receive, the researchers could tell which applicants were "near misses" and which were "narrow wins."

Failure itself motivated the near-miss group to try harder.

Applicants in both groups published about the same number of papers that had earned about the same number of citations. After following the careers of 623 near-miss and 561 narrow-win scientists, the team found that the two groups published at similar rates over the next decade, but that those who had missed out on NIH grants were more likely to have highly successful papers—i.e., papers that were among the top 5 percent of citations in a specific field and year.

Did failing to receive a grant discourage weaker scholars, who stopped researching altogether? Did near-miss scientists begin collaborating with better-known researchers, move to different schools, or adjust their research topics? None of the researchers' analyses supported these theories, so the team concluded that failure itself was what motivated the near-miss group to try harder in their future endeavors.

"The advice to persevere is common," says Jones. "But the idea that you take something valuable from the loss—and are better for it—is surprising and inspiring."

► "Early Career Setback and Future Career Impact" was published October 1, 2019, in *Nature Communications* and can be found at www.nature.com/articles/s41467-019-12189-3.



THREE POSSIBLE FUTURES

JUST AS CONSULTING firm A.T. Kearney asked its analysts to imagine the future of digital technologies (see “Preparing for Digital Disorder” on page 10), The Millennium Project, a global think tank based in Washington, D.C., asked experts worldwide to imagine the future of work. In September, the organization released *Work/Technology 2050: Scenarios and Actions*, which describes the results of a three-year study. The think tank held 30 workshops in 20 countries, where it asked futurists to identify looming disasters and assess plans to address problems ranging from widening income gaps to the effects of AI and automation on employment.

The Millennium Project created three scenarios that might exist in 2050: a dark era of political and economic turmoil; a vibrant future in which humans pursue self-actualization; and a complicated future that includes elements of both. Experts from The Millennium Projects Nodes—groups of institutions and researchers—identified how their countries might address the issues raised by each possibility.

The think tank distilled hundreds of suggestions into 93 potential actions. These include establishing agencies to help governments forecast technology’s potential impacts, creating lifelong learning models, creating international standards for artificial intelligence, determining the feasibility of a universal basic income, and embedding memes in advertising to ease the transition to new forms of work.

Says Jerome Glenn, CEO of The Millennium Project, “The more of these actions are implemented, the smoother our transition will be to the next age.”

► For more information, visit www.millennium-project.org/publications-2.

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– *U.S. News & World Report, 2019*

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When Vets Seek Jobs

MILITARY VETERANS LOOKING for jobs may find themselves typecast as agentic and unemotional, leading them to be overlooked for work that requires emotional intelligence and interpersonal skills. In fact, managers tend to relegate veteran job candidates to roles where they would work with things rather than people, according to new research from Steven Shepherd, an assistant professor at the Spears School of Business at Oklahoma State University in Stillwater; Aaron Kay, a professor of management at Duke University's Fuqua School of Business in Durham, North Carolina; and Kurt Gray, an associate professor of psychology at the University of North Carolina at Chapel Hill. The research was funded by Microsoft Military Affairs.

For example, in a restaurant setting, veterans were perceived to be better suited for roles such as dishwashers or prep cooks, while similarly qualified applicants with no military experience were seen as better suited for customer-facing roles as hosts or servers. The research comprises ten studies and randomized experiments with almost 3,000 participants, from people with no hiring

experience to seasoned managers and recruiters.

"People may perceive a veteran job candidate as brave, calm under pressure, and having a get-it-done kind of attitude," says Kay. "But the way the economy is moving, many new types of jobs also require creativity, interpersonal skills, and emotional capacity. When choosing between two equally qualified job candidates, the average person and even prospective employers show a tendency to prefer the applicant without military experience for jobs requiring social-emotional abilities."

Veterans may be able to counteract some typecasting simply by editing their résumés. In one study, when a candidate's résumé included military service and volunteer experience demonstrating his emotional side—in this case, nurturing rescue animals—prospective employers considered his social-emotional skills equal to those of other similarly qualified nonveteran candidates.



"It has been assumed the main impediment to getting veterans the jobs they deserve has been articulating their work experience in ways civilians can understand," Kay says. But this new research indicates that veterans are perceived in a certain way and might need to take steps to combat that perception.

"Military veterans are morally typecast as agentic but unfeeling: implications for veteran employment" was published in the July 2019 issue of *Organizational Behavior and Human Decision Processes*.

Women and Startups

When women have more roles in founding a startup, opportunities for other women increase. That's according to a report from the Kauffman Fellows Research Center, which analyzed information from more than 90,000 companies over the past 18 years.

When there is already at least one female founder at a new venture, it's statistically likely more women will be hired for other executive roles. For example, nearly half of consumer service firms with woman founders had women serving as C-level executives, but only 10 percent of consumer service companies with all-male founders had women in C-level roles. The research center identified another advantage for companies with at least one female co-founder: They

raise more capital by stage than all-male founding teams.

According to the study, the percentage of women-founded companies has grown from just 4 percent in 2001 to 21.6 percent in 2018. "This is progress," says Tammi Jantzen, co-founder and CFO of Astarte Medical, a healthcare startup. "But given that this is over a 17-year period and we are very far from parity, we have a long way to go."

► **"Data Show That Gender-Inclusive Founding Teams Have Greater Success in Fundraising and Innovation" was published October 3, 2019, at www.kauffmanfellows.org. Find it under the Journal tab.**

HOW AI WILL LEARN

WILL MACHINES EVENTUALLY develop human-like intelligence? Members of a multidisciplinary team of scientists at Michigan State University in East Lansing don't believe that artificial intelligence will rival human intelligence any time soon. But as AI grows more advanced, it's likely to learn in the same way as natural organisms—over generations, as a result of both environmental factors and trial and error.

“Understanding how learning behavior evolved ... supplies clues to how our brains work and could even lead to robots that learn from experiences as effectively as humans do,” says lead author Anselmo Pontes, a doctoral student in computer science. Pontes completed the research with Robert B. Mobley, a doctoral candidate in zoology and ecology; Charles Ofria, a professor in the department of computer science and engineering; Christoph Adami, a professor of microbiology and molecular genetics; and Fred C. Dyer, a professor of integrative biology.

The team was inspired by the way animals such as honeybees learn to identify landmarks and navigate their environments. With that in mind, the researchers created a computer simulation to see if artificial organisms in a simulated environment could “evolve” to be able to use external signals to find food.



At the start of the experiment, organisms in the simulation had no ability to sense or move. But as the organisms reproduced, the simulation introduced forces such as genetic mutation, genetic inheritance, and competitive selection. Some mutations had neutral effects; others were lethal.

But certain mutations led to the ability to collect more resources and reproduce more often. From generation to generation, a small number of organisms evolved from stumbling onto food accidentally to being able to learn from mistakes and find food with greater reliability.

“Evolution in nature might take too long to study, but evolution is just an algorithm, so it can be replicated in a computer,” says Pontes. In the simulation, he adds, “we saw populations evolve through the same behavioral phases that previous scientists speculated should happen but didn't have the technology to see.” **D**

D “The Evolutionary Origin of Associative Learning” was published online August 23, 2019, in *The American Naturalist*. It is available at www.journals.uchicago.edu/doi/abs/10.1086/706252.

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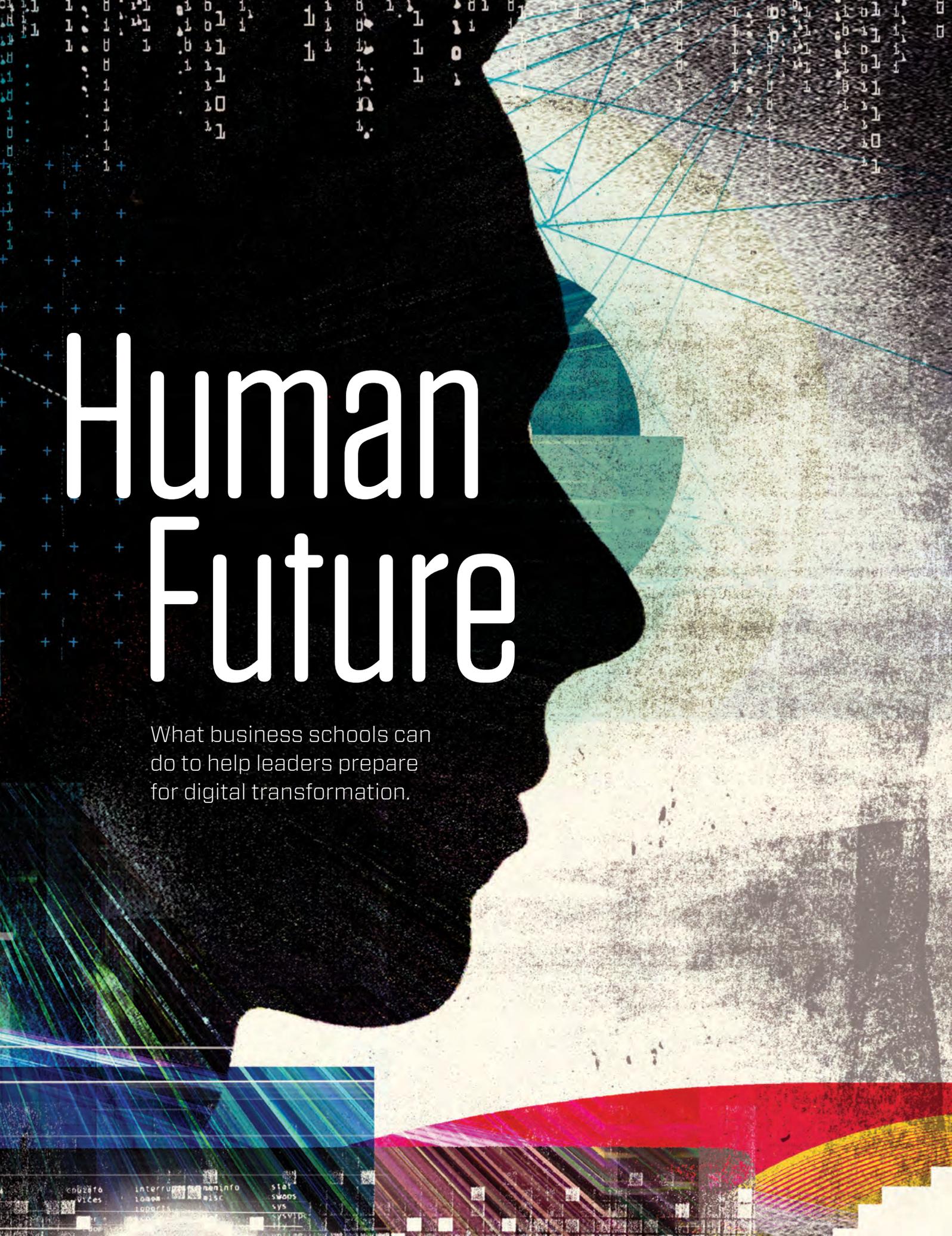
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Human Future

What business schools can
do to help leaders prepare
for digital transformation.

WHILE MOST EXECUTIVES AGREE

that digital transformation is imperative for the future, few know how to achieve it. They aren't sure which technologies will be most important, when to implement them, or how to measure their results.

Business schools face some of these same questions as they train students—from undergrads to executives—to be successful in the 21st century. What do their graduates need to know about formulating digital transformation strategies? How can schools design the right programs and find the right faculty to teach the right skills and behaviors? And how can they prepare graduates to be ready to learn the skills and behaviors that will be in demand five or ten years from now?

BizEd turned to six experts and educators to discover how digital transformation can be defined, taught, and implemented—and how both professors and practitioners can stay informed about the promises and possibilities of new technology. All of our contributors agree that the people are just as important as the technology itself and that no new software or system will succeed unless leaders understand why and how to use it. It's true, they say, that tomorrow's executives will need to constantly scan the horizon for the next disruptive technology. But they won't be able to benefit from it unless they have a deep understanding of change management, organizational behavior, and inspirational leadership.

That's good news for business schools, many of which have already developed programs that marry those competencies to technological expertise. But business schools, like corporations, will need to adapt quickly to changing trends so that they, and their students, are always prepared for what comes next.

Competing in a Digital Age

ORGANIZATIONS MUST RETHINK HOW THEY ORGANIZE, OPERATE, AND BEHAVE. BY ANH NGUYEN PHILLIPS

Digital transformation can be a misnomer. This idea became clear to me as I led a Deloitte research project on digital transformation in collaboration with the *MIT Sloan Management Review*. People often equate digital transformation with digitization of their organizations and the implementation of advanced technologies and tools. And while implementing technologies is part of navigating digital disruption, it's not necessarily the biggest or the hardest part. In fact, in our research we found that business leaders cited internal problems as their biggest barriers to integrating technology. They frequently said, "We're not agile enough. We're too complacent. We're risk-averse."

To overcome these challenges and to better compete in a digital age, organizations should rethink how they organize, operate, and behave. To accomplish this, their leaders should focus on developing talent and building cultures of experimentation and learning.

In our research, we've found that people want to work where they can learn and continue to develop their skills in a digital environment. In fact, we discovered that people were up to 15 times more likely to want to leave an organization within a year if they were not getting opportuni-

ties to grow. But to provide these opportunities for their people, organizations should recognize that learning is different today in three primary ways: *what* is being learned, *when* learning takes place, and *how* learning is done.

What: Over the past two decades, we've seen increased investment in science, technology, engineering, and mathematics (STEM) education. In the future, everyone might need technical competency in using tools, as well as technical literacy in understanding the implications and capabilities of emerging technologies. Our study shows that, in a digital age, technical literacy is among the top four skills valued in leaders.

At the same time, as the nature of work becomes more collaborative, organizations are also looking for people with soft skills. The World Economic Forum predicts the following competencies will be among the most valued in 2020: managing people, coordinating with others, negotiating, displaying emotional intelligence, and being oriented toward service. (Find the top-ten list at www.weforum.org/agenda/2016/01/the-10-skills-you-need-to-thrive-in-the-fourth-industrial-revolution.)

The result is that more companies are trying to fill hybrid roles in which employees will need strong

technical abilities as well as strengths in communication, emotional intelligence, and creativity. It might not be enough for data scientists to be skilled in data analysis; many also will need to identify the meaningful insights presented by the data and then communicate those insights effectively.

When: It used to be that our lives were divided into three distinct phases: education, which we undertook from kindergarten through university; work, which occupied the middle part of our lives; and leisure, which came with retirement. But that model no longer suffices when technologies evolve at a rapid pace, jobs and work are frequently redefined, and few people spend their lives in a single profession. Learning should be continuous, and much of it happens on the job.

How: When we think of learning, we typically think of structured, institutional situations: classrooms, training courses, online programs. But today's learning should go beyond the classroom and include new opportunities, new experiences, and new ways to access knowledge. People learn informally through books, articles, podcasts, webcasts, and conferences, as well as through interactions with mentors and coaches. But they also learn through experiences: by taking on new roles, projects, and challenges, and by being exposed to different people, problems, and cultures. In fact, some organizations

enable this broader exposure through job rotation and tours of duty.

Finally, there are some things that can't be taught or learned because that knowledge has not yet been created or discovered. This type of learning happens through exploration and experimentation, which involves discovery of the previously unknown.

While it's important for organizations to better support individual learning, it's critical for them to recognize that learning also should happen at the organizational level. But many companies were not designed to allow employees to learn well.

Twentieth-century companies were built on an industrial-age model of reducing variance and increasing productivity and efficiency. But the 21st-century model requires more experimentation, exploration, and creativity—things that *increase* variance. Technologies from AI to quantum computing are all at various stages of maturity and application, and they are all still evolving rapidly. Yet none of these new technologies comes with a field guide that tells managers how to use it to disrupt competitors or to break into new markets. People are discovering new capabilities and applications for these technologies through exploration and experimentation, which means companies should encourage such activity. This can require a pretty big shift in the corporate psyche, as experimentation means a certain amount of risk-taking and a certain amount of failure.

In our research, we found that one of the biggest hurdles organizations face in becoming more digital is overcoming their aversion to risk. In many established companies built on productivity and efficiency, failure and deviation typically have been punished. It takes time and considerable effort to shift that mindset.

There is much talk these days about testing and failing. But a more effective way to think of this process may be in

terms of testing and *learning*—whether from successes or failures. Organizations should figure out how to extract the learning derived from every test and feed it back through the next iteration of the product. They also should share the lessons learned across the organization so that others can learn from them as well.

Because ongoing education will be one of the keys to the success of tomorrow's workers, business schools can do their part by producing graduates who are lifelong learners. In addition, providing exposure to the latest technology trends will be important for all business programs, even those that are not tech-related. Schools won't necessarily need to offer specific courses about emerging technologies, but they should introduce students to the tech and provide access to excellent sources of information about it. Business programs also might collaborate with tech companies, professional services firms, or innovation labs that can give students a grounding in technology.

Just as important, business schools should offer courses in change management, organizational transformation, leadership, and even ethics. These can help prepare students to lead companies that adopt agile mindsets, develop cultures of learning, and successfully navigate digital transformation.



Anh Nguyen Phillips is a senior manager with Deloitte's CIO Program, where she studies the evolving role of the technology leader and the impact of emerging technologies on

an organization's leadership, talent, and culture. Along with Gerald Kane, Jonathan Copulsky, and Garth Andrus, she is the co-author of The Technology Fallacy, which is based on four years of research into digital disruption. This article contains general information only; Deloitte is not, by means of this publication, rendering any professional advice or services. Learn more at www.deloitte.com/about.

Employees need strong tech skills and strengths in communication.

Achieving a Digital Mindset

DIGITAL TRANSFORMATION RELIES ON LEADERS, NOT TECHNOLOGY. BY RITU AGARWAL

Companies in every industry must scramble to keep pace with artificial intelligence and machine learning. But people who believe digital transformation hinges on new technology miss a fundamental rule of business: Gadgets don't drive change. Leaders do.

True solutions to complex business problems cannot be ordered from a catalog. They don't come in a box. And they don't flow from the IT department. Digital transformation may require a change in technology. But nothing happens without a change in mindset—and that starts in the C-suite.

This reality raises the stakes for business schools, where many leaders in the rising generation come for their first lessons in strategy, change management, and data-informed decision making.

As promotions and pay raises come for these b-school graduates, they must be ready to infuse “digital everywhere” cultures within their units and organizations—cultures that can drive business transformation on a digital foundation. They can use these six principles to guide them on this journey:

Learn the language. Executives in the modern workplace do not necessarily need PhDs in information technology or data science. But they do need a threshold level of understanding about technology, so they can ask the right questions when talking to engineers, information technology specialists, and data scientists on their teams. At the University of Maryland's Smith School of Business, we require our MBA students to take courses in strategic and transformational IT before taking deep dives into topics such as business analytics and data modeling. Students learn how, why, and where to infuse technology into business processes.

Incentivize the people. Machines don't drive change, but they also don't resist it. Fear of the unknown is a human trait, and leaders must anticipate push-back against new ideas. Implementation typically requires broad participation, and leaders must incentivize teams to step outside their comfort zones.

Build the processes. Digital solutions are complex, and implementing them usually requires participation from workers in every functional area. Leaders must educate, encourage, and motivate their teams to think creatively and innovatively. Success often requires a reconceptualization of how business processes can be executed across the enterprise with greater speed, lower cost, and higher quality.

Think now and later. Things move fast in a digital economy. By the time organizations implement one solution, another opportunity will manifest itself. To navigate the uncertainty, leaders must learn to be ambidextrous. They must continue to generate value from the technological investments they already have made, while simultaneously seeking novel and innovative opportunities enabled by the latest advances.

Beware of the hype. Not every promised disruption will materialize. Leaders must be skilled at separating the hype from reality and understanding what specific technologies work best for them. They must continually scan the horizon to ensure they don't miss a development that could be critical to the company's future competitiveness.

Teach tech literacy. Computers used to be the domain of highly trained specialists in white lab coats. But improved user interfaces have put smart machines within reach of nearly everyone. Leaders today must appre-

ciate the importance of technological literacy among the entire workforce. The most creative ideas will emerge when frontline workers can match the right technology to their jobs.

The financial services and retail industries embraced the possibilities of digital technology decades ago. Currently, the healthcare industry is on a digital journey that promises to change the practice and delivery of medicine in ways that could improve health outcomes, patient safety, quality, and costs. My EMBA students marvel at the opportunities for achieving truly significant gains through data and health analytics across the entire ecosystem of insurance providers, pharmaceutical manufacturers, hospitals, and physician offices.

For the healthcare field—and nearly every other industry—machine learning and artificial intelligence offer almost endless possibilities. Technology is key to the metamorphosis. But real change starts with an active mindset.

Working together, business schools and the companies that hire their graduates will increasingly recognize information technology as a strategic and competitive differentiator. They will create awareness that digital disruption is inevitable and must be proactively managed. Only when this change occurs can organizations truly claim to be digitally transformed.



Ritu Agarwal is interim dean at the University of Maryland's Robert H. Smith School of Business in College Park and a Distinguished University Professor. She is also the founder and co-director of the Smith School's Center for Health Information and Decision Systems.



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Operating in the Gap

BUSINESS SCHOOLS MUST BRIDGE THE DISTANCE BETWEEN TECHNICAL WORKERS AND BUSINESS LEADERS. BY TERENCE TSE

The media likes to talk about how quickly technologies are moving into business, but in reality the adoption rate is very slow. Take artificial intelligence. In China, AI is used primarily by big, government-supported companies. In the U.S., it's used mostly by the tech giants, not by regular businesses. Why would that be?

The best reason I can see is that there is a gap between the people who are handling the technology and the people who are running the businesses. That needs to change. Business leaders don't have to understand how the technology actually works in great detail, but they do have to understand how to use it to improve their organizations.

While digital transformation has the potential to dramatically change a company's workflow, processes, and organizational structure, it often can be much quieter. Digital transformation is about implementing the right technology to achieve a specific purpose. For example, at one company the goal might be as mundane as getting employees to start using shared drives. If the company can do that, it's already had a very successful digital transformation.

Business schools are starting to see how important it is that they operate in the gap that exists between technical workers and business leaders. In the fall of 2019, my school, ESCP Europe Business School, launched an MSc in digital transformation management and leadership. When we began analyzing the market for our new program, we found that only a handful of business schools in Europe offered tech-related master's degrees. Six months later, that number had doubled—and it will only grow as demand increases.

We learned a great deal through the process of recruiting students to the program. We found that the study of digital transformation appeals to both engineering students who want to engage in digital transformation at their companies and business students who realize that technology is the future of organizations. We also found that many students are looking for practical degrees that will give them the skills they need to roll up their sleeves and get right to work. Many want to start their own businesses, rather than go to work for big companies, and that's another reason they're seeking practical skills.

Finally, we found that the students who are interested in tech-related business programs know that technology is important, but they don't know how to capitalize on the available opportunities. They come to business schools to learn how to use technology to create a competitive advantage.

To meet our goal of training people to become proficient in the business side of new technologies, we built our program around three pillars:



Students need cognitive skills to lead digital transformation.

Cognitive skills. Going forward, there will be many things technology can do, but there will be many things technology *cannot* do. Technology can't conduct face-to-face meetings or connect the dots about developing trends. Students will need to master cognitive skills if they are to lead digital transformation.

Technological understanding. Business leaders need to understand the capabilities, the deployment, and the ethics of technology. Knowing technology's cultural impact on society is just as important as knowing its economic impact on the business. Students can't just learn technology for technology's sake—they have to think about everything that surrounds it.

Transformation management. Technologies are only useful to an organization if people actually use them. Managers need to consider what social and operational constraints they will have to overcome to convince people to adopt new digital tools.

As more business schools begin offering tech-related programs, one of their biggest challenges will be finding the right people to teach the courses. One solution will be to bring in practitioners who are already working with the technology day in and day out. Another approach is to bring in faculty like me, who have one foot in academia and one in the business world. I am not only a professor conducting research in the business of technologies, but I also co-founded Nexus FrontierTech, which customizes artificial intelligence products for clients. Because of my dual role, I can observe how industry is adopting technology, and I can share my experience with my students.



Leading Conversations in the Insurance Industry – Including Gender

Saint Joseph's University's **Maguire Academy of Insurance and Risk Management** – and associated faculty in the University's Haub School of Business – continues to lead national and international conversations in the industry.

Through research and scholarship, the Academy explores a range of relevant topics for business students and professionals including gender representation, risks associated with climate change, and defining insurance in landmark tax law cases. One first-of-its-kind, signature study coming out of the Academy examines increases in gender diversity across the sector over time. The study and its results have been cited in articles and conference presentations around the world.

To learn more about our research and the Academy, visit [sju.edu/mairm](https://www.sju.edu/mairm).

I also expect business schools to begin collaborating more with technical schools—and technical schools to start offering business programs. In either case, schools will need to figure out how to deliver programs that actually integrate the tech and business elements instead of simply offering them in parallel. That is perhaps an even bigger challenge than finding the right staff to teach the courses.

To help executives through the process of digital transformation, business schools will need to provide continuous learning opportunities. These days, employees derive only half of their value from their work experience; the other half comes from their ability to update themselves. Learning is no longer a knowledge expansion, it is a behavior. This means individuals must develop the reflex, the self-motivation, to learn. Those of us in academia have a role to play in broadening the mindsets of our students. We can't just say, "We have taught you what we believe is the right body of knowledge." We have to say, "We are here to inspire you to do your best to absorb and explore new ideas."

Few schools have come up with the perfect formula for staffing tech-related programs, collaborating with outside partners, offering the right mix of business and technology courses, and providing lifelong learning opportunities—but many schools are working on it. They're creating "minimum viable products"—designing programs, testing them, and revising them based on feedback.

The future of work will be a very different place. So will the future of business schools.



Terence Tse is a professor at the London campus of ESCP Europe Business School. He also is an Jexecutive director and co-founder of Nexus FrontierTech, a company specializing in the development and integration of artificial intelligence solutions.

Committing to Responsible Digital Transformation

SCHOOLS MUST EMPHASIZE PERSONAL RESPONSIBILITY AS THEY EDUCATE THE NEXT GENERATION OF DIGITAL LEADERS.

BY RUBÉN MANCHA, STEVEN GORDON, AND DAVID NERSESSIAN

In previous industrial revolutions, the failure of businesses to deploy new technologies in responsible ways arguably created some of the global threats we face today, such as climate change, environmental degradation, and social inequality. Now that we are in the midst of the Fourth Industrial Revolution, the only way we can address such threats is through responsible digital transformation.

We define digital transformation as the integration of digital technology into all aspects of an organization's operations and strategy, in ways that deliver value for customers. But *responsible* digital transformation is an ethical framework that considers the impact that any organizational change or entrepreneurial effort has on society and the environment. It requires business leaders to look beyond shareholder value creation, to ask questions related to a wider purpose: How can they design sharing economy business models to best serve all stakeholders? How

can they deploy Internet of Things (IoT) solutions that eliminate production waste, track pollutants, or guide policy formulation? How can they build artificial intelligence algorithms without biases?

In short, how can they create value by solving big social and environmental challenges?

We hold that responsible digital transformation is not a different *kind* of transformation, but rather a different *process* that accounts for business and social outcomes. All organizations and all business graduates must be aware of the ethical dangers that digital technologies represent.

Ultimately, business leaders who do not understand how a digital technology is designed and built will be incapable of asking the questions required to responsibly use it. They will be unable to interpret its outputs or challenge its behavior. As technologies grow more complex, business leaders could come to value efficiency and reliability over transparency. They

could overlook the fact that technologists, who likely lack ethical training, are making critical design decisions divorced from ethical considerations. These decisions could lead to technologies that become “black boxes,” which execute algorithms in ways that users, decision-makers, or even the designers themselves do not fully understand.

Unethical digital transformations will be magnified, as cloud computing advances access to algorithms “as-a-service” and autonomous robotic systems insert them into our environment. At that point, these “black boxes” could become unquestioned sources of truth.

Many business leaders tell us that they feel unprepared to deal with such issues. They say they lack resources within their organizations to educate themselves about these technologies and their potential impact. Some have no training in change management, and others find that their organizations resist change no matter how skilled the change agents or how pressing the need.

And, yet, it’s clear that business schools have a key role to play in preparing business leaders to be responsible users of technology. That’s why an interdisciplinary team of faculty at Babson College in Wellesley, Massachusetts, has created the Digital Experience Initiative (dXi). In dXi, we research the launching and scaling of digital platforms. We teach students about the human side of digital transformation and the responsible deployment of emerging technologies.

For example, Rubén Mancha and Steven Gordon, co-authors of this article,

and associate professor Donna Stoddard completed a study of the digital platform LBRY.io. LBRY uses blockchain technology to enable multimedia developers to sell their intellectual property directly to end consumers, bypassing intermediaries such as the Apple Store or Google’s YouTube. The case analyzes the design and development of blockchain technologies, explores the founders’ goals and values, and examines the business model and its social challenges. We teach the LBRY case in our blockchain and graduate technology courses.

For another research project, David Nersessian, another co-author of this article, and Mancha surveyed experts in artificial intelligence about the ethics and legal consequences of AI solutions. The authors offer a framework to help AI users consider their own ethical framing and legal liability stemming from AI solutions. We teach their findings in a graduate technology course.

We also aim to create responsible digital leaders by emphasizing the following in our courses:

An understanding of digital technology principles. We provide students with mental models to anticipate digitally driven change in complex business environments. We want them to become active participants in the design of digital technologies.

A capacity for independently learning new technologies. To “future-proof” emerging business leaders, we design experiential projects and courses to create confident and independent learners. For example, in the course

“Agile Experimentation,” students conceive and prototype IoT solutions—building and programming a sensing device, as well as designing an app. The experience boosts the students’ resourcefulness and self-confidence in their ability to learn new technologies.

Self-awareness and exploration of personal goals, values, and assumptions. We use cases and experiential projects to guide students toward a better understanding of how they fit within larger societal contexts. This involves not only assessing their individual perspectives, but understanding others’ perspectives.

A sense of personal responsibility. We want students to know that just as digital technology presents opportunities for profit creation, it presents equal or greater opportunities to accelerate existing social ills. For example, big data analyses and algorithms can embed racial, gender, or other types of discrimination—or create new ones. As students build and justify digital innovations, they learn that they are personally accountable for the ends they serve.

Experience using ethical frameworks. We expose students to different ethical frameworks, from government-driven regulations such as the European Union’s General Data Protection Regulation (GDPR) to professional ethical guidelines such as the Association for Computing Machinery’s code of ethics (www.acm.org/code-of-ethics). In addition, Babson uses a model called Integrated Sustainability (IS), which blends innovation, value creation, and social responsibility. From the outset, IS asks students to weigh the economic value proposition of particular digital transformations against the social benefits and drawbacks.

Digital ambidexterity. To navigate times of high uncertainty, digital leaders must be both creative and experimental; in times of greater stability, leaders must be able to make reasonably reliable predictions so they can incrementally develop new products, services, and



All organizations and graduates must be aware of the ethical dangers that digital technologies represent.

processes. In short, they must be both adaptable and responsible when facing challenges and opportunities.

It is incumbent upon higher education institutions to teach students to harness the power of digital transformation—but we must inspire them to do so ethically. We must equip our graduates with the skills of digital innovation and the wisdom to apply those skills in responsible and socially useful ways.

Leading Change

TRANSFORMATION TAKES PLACE ACROSS MULTIPLE LEVELS AND DIMENSIONS OF AN ORGANIZATION. BY YING-YING HSIEH

Technologies such as artificial intelligence, blockchain, and big data are rapidly changing the way in which companies do business. In fact, it's safe to say that a digital transformation is taking place. In today's corporate context, this term refers to the process by which companies use digital technologies to solve traditional problems and become more efficient, effective, and transparent.

However, digital transformation is more than simply digitizing content and processes. For example, when a news outlet expands from being print-only to providing content online, it hasn't undergone real transformation—it's just changed the way it delivers its product.

Digital transformation does not occur when the IT department simply adapts new technology to the current business model; it does not occur when the company uses technology to improve existing products or services. Digital transformation takes place when the span and scope of technological change is so wide-reaching that it replaces many of the ways in which a firm previously did business. It takes place across multiple levels and dimensions of an organization and focuses on creating substantially better connectivity.

Change at this level can be clearly seen in many banking organizations that have launched digital solutions in the fintech space. For instance, ING has used technology to implement agile methods into its business structure, allowing the company to respond to customer needs in an effective and timely fashion. More important, digital solutions enable ING to design its future products and services around customer needs. Other banks in the U.K., such as Barclays and RBS, are also well on their

way to exploring new opportunities with digital transformation.

Within the financial services sector, such technological changes are becoming more commonplace. What is unique here is that many of these disruptions are being created by companies from outside of the banking industry—namely, tech firms. These firms have been able to pinpoint specific areas of the industry and use core technology to take business away from traditional banks. Similar scenarios are also playing out in other industries, as outsiders use technology to encroach on established incumbents.

This is just one of the reasons why business leaders need to be aware of, and understand, digital transformation. They need to consider how they can use technology to best address the pain points in their current business models and remain competitive.

Today, more than ever, business leaders must look at the entire ecosystem when attending to stakeholder needs. To create value, they must align the priorities of a whole host of different parties, including shareholders, potential partners, employees, and even competitors. Leaders need to ask, "How can new technologies help us tackle these existing challenges?" and "How can tech companies take business away from the traditional players in our industry?" By answering questions like these, leaders can develop strategies for using emerging technologies to strengthen their own businesses and to address critical issues.

It's essential that business leaders stay up-to-date on new tech trends and that they are aware of the scope of the digitalization in their fields. They also need to have a deep understanding of the nature of their businesses. There



Rubén Mancha (top photo) is an assistant professor of information technology and faculty director of the Digital Experience Initiative at Babson College in Wellesley, Massachusetts. His research

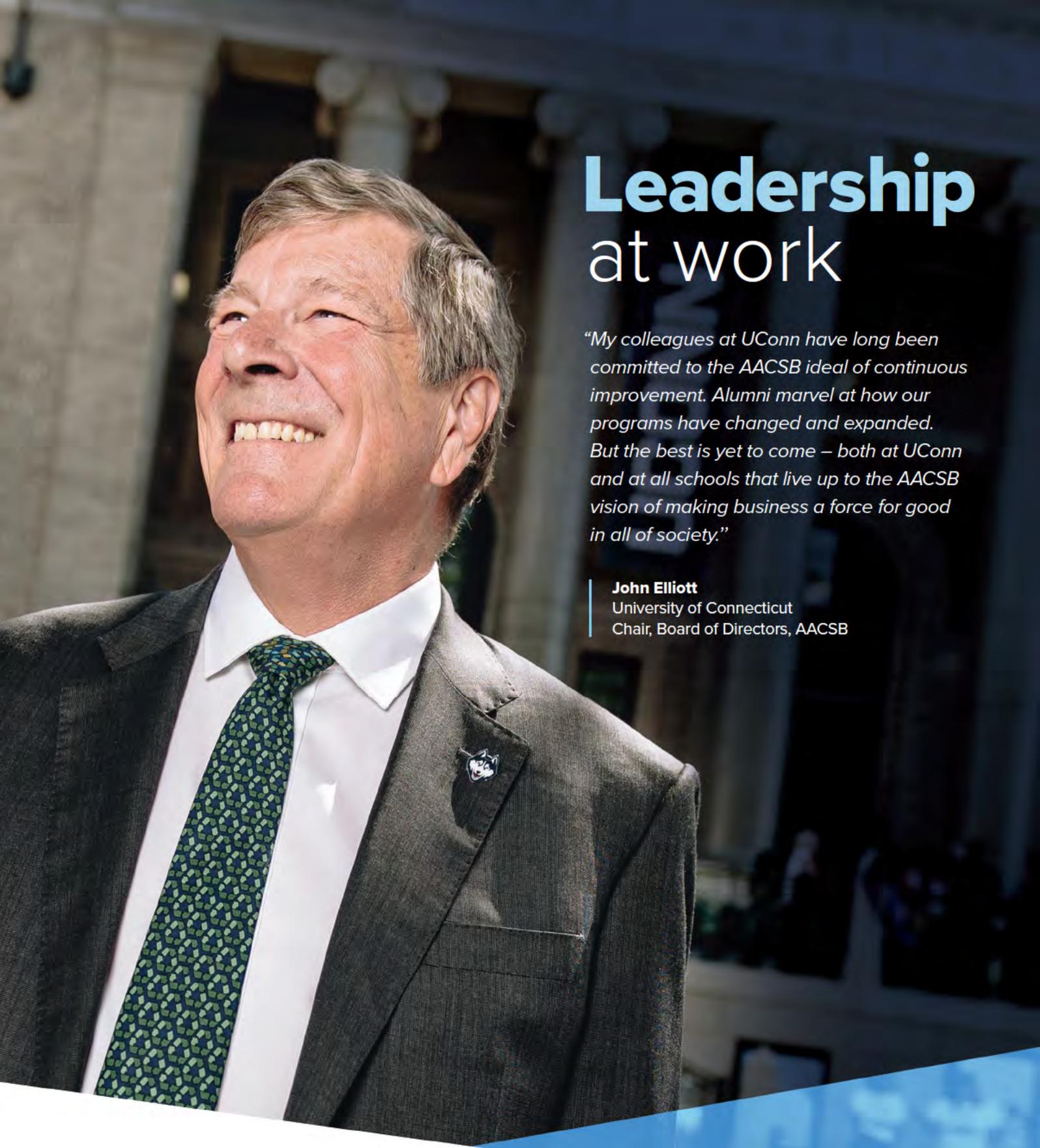


focuses on digital platforms and the responsible deployment of emerging technologies. Steven Gordon (middle)



is a professor of information technology at Babson, and his research focuses on blockchain theory and applications, digital platforms, and the role of social media in support of social movements. David Nersessian (bottom) is an associate professor of law at Babson, and his research focuses on human rights and business and the role of ethics in technological innovation.

► [Learn about the Digital Experience Initiative at babson.edu/dXi.](https://babson.edu/dXi)



Leadership at work

“My colleagues at UConn have long been committed to the AACSB ideal of continuous improvement. Alumni marvel at how our programs have changed and expanded. But the best is yet to come – both at UConn and at all schools that live up to the AACSB vision of making business a force for good in all of society.”

John Elliott
University of Connecticut
Chair, Board of Directors, AACSB

are three ways executives can take the pulse of their industries: engage as much as possible with stakeholders and experts working within the tech space, embrace open innovation, and take advantage of executive education offerings at business schools.

At Imperial College Business School, for instance, we have made digital transformation one of our core strategic directions. We offer an MBA, master's programs, and executive education courses designed to develop digitally driven leaders. Courses on digital banking, AI and machine learning in financial services, and fintech provide executives with the theory and practical experience they need to understand digital transformation. Our location in London enables us to expose students to industry experts who are using innovative technology across different sectors. This is essential for business leaders, who can often gain valuable insights about their own industries when they learn what is happening in other fields.

For business leaders, it is key to understand what technology is available and what this technology can achieve. Once they know the impact of harnessing new technologies, they can consider whether these technologies will actually support their strategic plans. The purpose of digital transformation is to improve a business, so it's not necessarily beneficial for a company to pursue new technologies simply because they are available. However, if business leaders are clear on the challenges they want to overcome and strategic about how to address those challenges, digital technologies can be their greatest asset.



Ying-Ying Hsieh is an assistant professor of innovation and entrepreneurship at Imperial College Business School in London. Her research focuses on technological innovation and the fintech industry, and she teaches innovation management and fintech courses.

Future-Proofing Education

BUSINESS STUDENTS MUST MASTER THREE DISTINCT LITERACIES TO THRIVE IN THE DIGITAL WORLD.

BY RAJ ECHAMBADI

Business leaders striving to build long-term success should think about “what’s *not* going to change in the next 10 years,” Amazon CEO Jeff Bezos recently recommended. This is also sound advice for business school deans. Building a strategy around predictable elements helps focus efforts and investments; it also allows organizations to reap potentially rich dividends.

We can predict with reasonable certainty that certain breakthrough technologies—including artificial intelligence, augmented and virtual reality, blockchain, and the Internet of Things (IoT)—will continue to change the way we live, learn, produce, and consume content. As these technologies are interwoven into every job, they will change how employees and enterprises work across all industries. In particular, they have the potential to transform sectors that involve a substantial share of knowledge work. These advanced technologies will seamlessly integrate the analog and the digital worlds as they usher in the age of digital convergence.

Business schools must prepare future leaders for this emerging reality. At Northeastern University’s D’Amore-McKim School of

Business, we believe three distinct “literacies” will be essential:

Technology literacy. Business leaders must understand the technology if they’re going to manage it. Matt Sigelman, CEO of analytics company Burning Glass, recently told me that a marketing major’s salary increases from US\$76,000 to \$101,000 when he or she has skills in the programming language SQL.

Analytics literacy. More than a year ago, *Forbes* magazine estimated that 2.5 quintillion bytes of data are created each day, and this pace is only accelerating with the growth of IoT. Data is now recognized as operational currency, so a facility with analytics will be a crucial competency for all firms.

Human-centered literacies. Creativity, entrepreneurial thinking, critical reasoning, and ethical thinking are among the abilities that make people different from machines—and that give humans skills that machines can’t match in the workplace. In his book *Robot-Proof*, Northeastern’s president Joseph Aoun argues that colleges and universities must help the next generation of workers develop these skills as a way to ensure that they continue to stay employable.



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Advanced tech will integrate the analog and digital worlds and usher in the age of digital convergence.

At our school, we call this unique combination of technology, data, and human literacies *humanics*. Leaders who want to be successful in the future will need to master each one.

But while we prepare our students for digital convergence, we also must ready our business schools for the transformation. I believe digital convergence has the potential to create five paradigm shifts in the way higher education operates:

We will acknowledge our dual role as content creators and content curators. To give our learners the best possible educational experiences, we will need to meld relevant content from many sources. While it's important that our faculty generate new knowledge through their own research, it's equally important that they read and disseminate the knowledge created by our corporate partners. But even as we include outside material in our classrooms, we can emphasize our unique internal strengths, such as our ability to engage deeply with students in synchronous settings.

We will rely on humanics to develop well-rounded students. Focusing too much on technology literacy could lead to what author Evgeny Morozov calls *technology solutionism*. In a September 9, 2013, article on PublicBooks.org, he defines this term as a tendency for people to develop the limited view that all their problems can be solved through technology alone. Of course, data points are critical, but they should never be viewed as cold, technical facts,

but rather as representations of people. In the blog post "Data Humanism, the Revolution Will Be Visualized," Giorgia Lupi describes how to design thoughtful visualizations that "connect numbers to what they really stand for: knowledge, behaviors, people." The more data we generate, the more data humanism we will need to make insights meaningful.

We will realize we cannot exist in silos. Humanics education obviously requires interdisciplinary experiences, so business schools will have opportunities to become the connective tissue across the university. At D'Amore-McKim, we attempt to do just that with our new "MBA x" program concept. With MBA x, students can develop multifaceted perspectives by blending their business studies with other areas of expertise, such as artificial intelligence or experiential design. We're also fully embracing combined undergraduate majors and interdisciplinary degree programs by allowing students to explore different academic fields—for example, math and finance or accounting and data science. By connecting students across a diverse array of knowledge, we set them on a path to solving the grand challenges of our times, driving significant impact, and living more rewarding lives.

We will promote lifelong learning as mandatory. According to the Bureau of Labor Statistics, the average worker stays at his or her job for 4.2 years. But this longevity is greatly reduced for workers between the ages of 25 and 34, whose median

tenure is 2.8 years. This means that they could have 15 to 20 jobs over the course of their working lives! These facts, coupled with current and impending technological change, make it clear that lifelong learning will become a key product line for business schools. We should be in the business of education, not just the business of degrees. One way we are meeting this need at D'Amore-McKim is by offering a range of educational products of varying lengths. This includes noncredit modules that, over time, learners can stack together to earn certificates and degrees.

We will make employers the cornerstone of our strategy. U.S. student debt is currently estimated to total \$1.52 trillion, and the average student debt is about \$38,000. To make education more accessible and affordable, business schools can put more focus on work-centered pathways. Employers can help us shape curricula, provide a pipeline of prospective students, enrich our learners with opportunities for cooperative education and experiential projects, and volunteer as subject matter experts that help marry classroom rigor with practical relevance. This collaborative strategy also offers pragmatic benefits to schools. A 2019 Strada-Gallup education survey points out that one-third of adults without college degrees are likely to enroll in courses offered by their employers.

In the era of digital convergence, business education will become a playground of unbounded opportunity where digital platforms will meld with physical locations to create new markets and new possibilities. If we play by the new rules, this may very well be the golden age for higher education in business. **D**



Raj Echambadi is the Dunton Family Dean of the D'Amore-McKim School of Business at Northeastern University in Boston, Massachusetts.

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A new AACSB affinity group has launched an ambitious global initiative to determine best practices for helping leaders stay current in the latest technologies.

Moving Toward Disru

BY TRICIA BISOUX

ILLUSTRATION BY ALEX WILLIAMSON

WHETHER IT'S DEVELOPING artificial intelligence to interact with customers, using blockchain to create more secure networks, or tapping the Internet of Things to automate processes, companies across all sectors are using technology to gain competitive advantage in their markets. But emerging technology is a moving target. For business leaders to hit that target on a regular basis, they will need ongoing training to keep their skills continually refreshed.

ption



While business schools are creating programs designed to help executives make the best use of emerging technologies, they find themselves in a position similar to that of the leaders they seek to train. With the market changing so quickly, how can faculty stay one step ahead of the technological trends? One way is by working together. That's the spirit behind the newly formed AACSB International Digital Transformation Affinity Group (DTAG). Comprising deans and faculty from business schools worldwide, DTAG first met in February 2019 in Vancouver, British Columbia, Canada. It now includes more than 85 schools, including 50 from the U.S. and 35 from 19 other countries.

The group was created to give business school administrators and faculty a forum to discuss and share best practices in digital business education. "We're in a truly transformative stage where we all are getting used to the idea that many of the skills that we are teaching our students today are not going to be sufficient in the future," says Gregory Prastacos, dean of the Stevens Institute of Technology School of Business in Hoboken, New Jersey. Prastacos co-founded DTAG with Sandeep Krishnamurthy, dean of the School of Business at the University of Washington in Bothell.

Late last year, the affinity group embarked on an initiative called Management Curriculum in the Digital Era (MaCuDE). As part of this initiative, DTAG members will examine the challenges of digital transformation in more depth and determine the best approaches to curriculum design in the digital era. The group has received funding from the global professional services firm PricewaterhouseCoopers (PwC), as well as ongoing support from AACSB.

MaCuDE is intended to address the challenges business schools will face as they embrace digital transformation in their programs, says Bendik Samuelsen, dean of BI Norwegian Business School in Oslo, Norway. These challenges, Samuelsen predicts, will come in five forms:

Faculty training. Professors must keep up with the latest in digital pedagogy and determine how the skills required for digital transformation will vary across disciplines and industries.

Customized education. Business schools will need to design educational paths that suit students' diverse schedules, learning styles, and career objectives. "This will require reshaping the modularity of our programs," says Samuelsen. "We will need to push boundaries when it comes to the individualization of learning."

Technological infrastructure. Business schools will have to keep their software platforms up to date and seamlessly introduce new technological tools as appropriate. At the same time, they'll



"We're in a truly transformative stage."

—GREGORY PRASTACOS,
STEVENS INSTITUTE OF TECHNOLOGY

need to maintain data privacy and integrity according to increasingly stringent regulations, such as the General Data Protection Regulation, or GDPR, recently enacted in the European Union.

Recruitment of ICT-ready faculty and staff. Business schools might find it especially challenging to hire faculty to support digital transformation, says Samuelsen. Their resources might not allow them to offer salary packages that are competitive with those data scientists could earn in the ICT industry.

The evolving business environment. "It will be difficult to continuously update our programs" according to the changing needs of industry, says Samuelsen. "Sometimes we will need to be conser-

vative and wait for disruptions to settle before 'moving in.' Sometimes we will need to participate in the disruption."

Robert Brunner, associate dean for innovation and chief disruption officer at the University of Illinois' Gies School of Business in Champaign, is serving on the MaCuDE steering committee. "Given the sheer number of emerging technologies and the broad opportunities being deployed across society and business," says Brunner, "the biggest challenge is simply staying on top of all of them!" He emphasizes that the impact of digital disruption will be too immense for any business school to manage alone.

With the rise of AI and robotic technologies, professions are changing, jobs are disappearing, and new jobs are being created so quickly that "it's hard to know what to do or where to start," says Prastacos. "The business environment we see today is not the same environment we'll see in even the near future. Digital transformation is coming whether we want it or not."

EXAMINING THE CURRICULUM

Currently, business schools are in an experimentation phase with digital technologies. (See "The Evolving Curriculum" on the next page.) One school might teach all students programming languages such as Python or R, while others might teach coding only to students in technical disciplines. Some schools are embedding digital consulting projects in every course, while others might confine such projects to capstone courses. Most are recruiting faculty who are up to speed with technology or willing to learn.

Business schools are already comfortable with flipped classrooms and blended learning formats, but they are entering an era in which it's harder to predict the future application of digital technologies, says Samuelsen. Even so, he believes students will have little patience if their schools experiment with technologies that aren't up to the task.

"Students don't want to use six to eight different digital systems just to

The Evolving Curriculum: What's Happening Now?

Even as task forces begin their analysis of best practices in digital education, as part of the Management Curriculum in the Digital Era initiative, business schools continue to refine their own approaches. Here is a sampling of ways that the schools featured in this article are integrating technological training into their curricula:

Layering programs. The Stevens Institute of Technology has created a curriculum where larger degree programs are layered atop short preparatory courses. These courses include software boot camps and one-credit lab courses in topics such as Python, R, SAS, Hadoop, Matlab, and Bloomberg Market Concepts. Moreover, Stevens faculty seek to help students build their technological skills in most courses, so that by the time they graduate, they will be prepared to learn new skills at any time.

Brennan Casey is pursuing a master's degree at Stevens while he works at Jet.com. "Nearly every course we take is lined with some kind of technology or tool that we have to learn," he says. "When something new comes along, I'll be able to learn it."

Stevens also offers an undergraduate major in accounting and analytics, and over the last five years the school has introduced courses in applied analytics, deep learning, digital innovation, creativity and innovation, data analytics and machine learning, social network analytics, web mining, cognitive computing, data visualization, and data stream analytics and the Internet of Things. The school has launched master's programs in financial engineering and financial analytics, as well as a new PhD program in data science, offered jointly with the department of computer science.

To further support its course content, the school organizes conferences and other events focused on digital technology and innovation, from blockchain to artificial intelligence to cybersecurity. Each year, for example, students in Stevens' master's program in business intelligence and analytics attend a networking event where they showcase their data-driven research projects to an audience of more than 100 employers and recruiters. "Our corporate partners tell us that they view their interactions with our students as a way to keep *themselves* informed of the latest trends in digital technology," says Gregory Prastacos.

Integrating departmental efforts. Each department at Baylor University's Hankamer School of Business (HSB) in Waco, Texas, incorporates digital technologies into its courses in different ways. For example, the department of management information systems (MIS) offers a cybersecurity concentration, and the entrepreneurship department offers courses in technology entrepreneurship.

In addition, the business school offers certificate programs in business analytics and cybersecurity at the undergraduate and graduate levels. It has introduced several artificial intelligence courses within the business school, as well as a mobile app development course that has no prerequisites and is open to any major.

HSB also is among those schools that are delivering the KPMG Master's in Accounting with Data and Analytics. Through this program, "students can gain hands-on experience with tools similar

to those they will use early in their professional careers on audit engagements and other projects," explains Cindy Riemenschneider. She points out that the accounting partnership with KPMG also allows HSB faculty to obtain the insights of professionals at KPMG on the skills students will need to be career-ready upon graduation.

HSB works to expose students to emerging technologies early in their programs. For instance, as part of HSB's introduction to management information systems course, students work in groups of three to five to conduct research on emerging technologies such as blockchain, autonomous vehicles, virtual and augmented reality, quantum computing, ethics in complex algorithms, the Internet of

Things, and drones. Each team delivers a 30-minute presentation on its assigned technology to the entire class, explaining the technology's potential impact on businesses, individuals, and society; its potential business value; legal and regulatory issues; privacy and ethics issues; and barriers to acceptance.

These students—most of whom are not MIS majors—tell faculty that they had no idea how pervasive and complex these new tools are becoming, says Riemenschneider. They suddenly realize, she adds, that they will be the ones making decisions to determine the timing, ethics, and regulation of many of these technologies.

Transforming educational delivery. BI Norwegian Business School has designed a collection of webinars, all of which emphasize digital interaction. These webinars support the flipped-classroom model, in which students view tutorial videos before class in quantitative topics such as mathematics, statistics, economics, finance, and accounting, freeing up face-to-face time in class for reflection on and the application of theoretical concepts.

The business school also has launched a bachelor's program and a two-year master's program in business analytics. The master's program includes the participation of companies such as the SAS Institute; representatives from companies such as Facebook, Google, and those in the fintech sector contribute to the school's other programs and participate on program-level advisory boards. "We want to ensure that companies are included in both the shaping of the curriculum and the delivery of courses and projects," says Bendik Samuelsen. He adds that plans are in the works for the school to establish a new academic department of data science, which will look at the field through a business lens.

On the strategic level, in 2018, BI Norwegian became part of the Future of Management Education (FOME) alliance, which also includes Imperial College Business School in the U.K., ESMT Berlin in Germany, Singapore Management University's Lee Kong Chian School of Business, EDHEC Business School in France, and Western University's Ivey Business School in Canada. FOME partner schools will work together to create new technologically enhanced pedagogies and provide faculty with training in using new digital tools for teaching. The partner schools will use Insendi, an online platform designed at Imperial, to deliver face-to-face, experiential, and online educational experiences.



BI Norwegian will eventually integrate digital technologies into its programs at all levels, says Samuelsen, in both their content and delivery. However, he recognizes that the level of skills required will vary by discipline and career focus. “We will leave it to the program directors and faculty to operationalize *how* this is done,” he says. “Clearly, digital transformation means something different in an MSc in business analytics than in an MSc in leadership and organizational psychology. It is complex and varied.”

Adopting a pervasive digital mindset. The University of Illinois’ Gies College of Business recently announced that it was phasing out its face-to-face full-time MBA to place its full attention on its iMBA offered fully online. (Read “Strategic Shift” on page 64 of the September/October 2019 issue of *BizEd*.) This move reflects an increasing emphasis on encouraging everyone at the school to adopt a digital mindset in all that they do.

Faculty also are working to integrate technology into the curriculum in a number of ways. One group of professors has created a virtual reality application that has been used in an accounting course on tax. Another has developed a blockchain simulator that provides insights into the future of supply chain management. At the university level, UI’s Deloitte Foundation Center for Business Analytics shares its research with institutions worldwide to help drive curricular innovation around data analytics, explains Robert Brunner, director of the center.

In addition, Gies College recently developed a data analytics track within its master’s of accountancy program. At the undergraduate level, last year the school began transitioning its curriculum so that all sophomores take a year of data analytics courses. The school’s faculty wanted to ensure that undergraduates gained significant exposure to tools like Excel and Tableau and became comfortable using these tools to perform statistical analyses. Students also will take an introduction to programming course, using Python as well as data storage and analysis techniques appropriate for large data sets.

In Gies’ Digital Making Seminar, business students and peers from fine arts and engineering are introduced to “human design principles” to prototype and build products for individuals living with disabilities. Last year, students used 3D modeling to develop a tread that attaches to prosthetic legs to keep users from falling on ice.

By emphasizing multiple points of exposure to emerging technologies, Gies faculty will lay the foundation for the redesign of other higher-level courses, says Brunner. The objective is for students to come into those advanced courses ready to apply a new set of technical skills.

Over time, the goal is to make Gies’ entire curriculum more “data-aware,” he adds. “Over the next few years, I expect we will develop considerably more new curricular elements and tools as we train our students to embrace technology and see disruption as an opening for a new business opportunity. Long term, I see our work in disruption creating opportunities for interdisciplinary student teams to incubate ideas and develop products that may cross the threshold to startup.”

follow a semester. They want seamless integration, and they want standardized use across courses,” he says. “When it comes to adoption, ‘ease of use’ and ‘usefulness’ must both be in place.”

The fact that schools will want to keep their experiments with technology invisible to students makes it even more imperative that they come together to share their experiences with particular platforms and determine common characteristics of digitally robust programs, says Prastacos. For instance, should all MBA students learn to code? How much course content should be devoted to governance issues related to digital transformation? How will the skills students need differ by discipline? What kinds of online courses and certificate programs will best serve lifelong learners?

To explore these questions, affinity group members will conduct their work for MaCuDE in three phases:

Phase 1: Determining the “state of the curriculum.” Ten MaCuDE task forces are currently surveying business schools about their educational content related to individual business disciplines. These task forces are asking wide-ranging questions: What technological training do students receive as part of the core curriculum before moving on to specialized courses? Do students learn to code, and if so, in what languages? Are they using data visualization tools such as Tableau? How many required courses must they take in analytics? Do they attend boot camps? How many prerequisites or preparatory boot camps must they complete before enrolling in advanced courses?

Survey responses will be used to determine how curricula differ from school to school, identify best practices in digital business education, and highlight gaps or challenges schools face in meeting the demand for training.

Phase 2: Engaging with industry. Next, task force members will reach out to industry to learn more about the skills businesses are looking for, both now and for the future. “Our external partners

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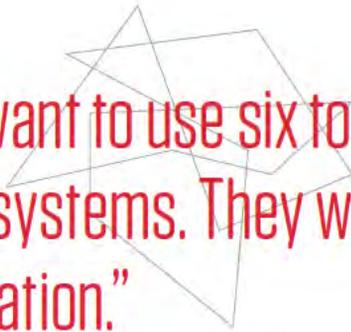
often express more urgency to explore possibilities, even if it means increasing the likelihood of failure for a specific project,” says Brunner of the Gies School. “Many companies are aware of the challenges and want to partner with academics to get ahead of the curve as disruption starts impacting their business.”

Phase 3: Identifying and sharing best practices. Finally, the task forces will determine best practices in re-designing the business curriculum at the core and discipline levels, explains Cindy Riemenschneider, a professor of information systems at the Hankamer School of Business at Baylor University in Waco, Texas, and a member of the initiative’s steering committee. They will produce a detailed report of their findings, along with a shorter summary report for wide distribution. “The reports derived from the MaCuDE initiative will inform curriculum changes, certificate offerings, and future strategic initiatives,” says Riemenschneider.

THE ERA OF THE ‘LEARN-IT-ALL’

The growing importance of lifelong learners could be one of the biggest challenges business schools face as they transform their curricula. “Having a workforce of *know-it-alls* will be far less important than having a workforce of *learn-it-alls*,” says Prastacos. “We must prepare students to become continuous learners who can leverage technology in ways that allow them to solve problems and make better decisions faster.”

Trends in industry bear this out, as companies are expanding digital “upskilling” programs, both in-house and in conjunction with educational partners, to ensure a technologically competent workforce. For example, in 2014, global cosmetics company L’Oréal hired a chief digital officer, who oversees the upskilling of the company’s executives in new technologies. In 2016, the company reported that more than 14,000 employees received training as part of its Digital Upskilling Plan—many on its in-house MyLearning training platform.



“Students don’t want to use six to eight different digital systems. They want seamless integration.”

—BENDIK SAMUELSEN, BI NORWEGIAN BUSINESS SCHOOL

Last November, J.P. Morgan announced its plan to spend US\$4.5 million on a research and upskilling initiative in Paris, France. The company has made a five-year commitment to train the city’s underserved residents to work in the digital sector. According to a company statement, its digital inclusion effort is meant to address the fact that 1.5 million Paris residents “live in neighborhoods with limited access to opportunity.” The company predicts that this year alone France will have 80,000 unfilled jobs requiring technological skills.

To ensure a pipeline of workers with the skills it needs, accounting firm KPMG launched the KPMG Master’s in Accounting with Data and Analytics program in 2017. (Read “When Accounting Met Analytics” in the May/June 2018 issue of *BizEd*.) Through the program, which is offered at a number of partner schools, KPMG provides students access to its proprietary software and auditing tools, as well as data visualization tools such as Tableau, Power BI, and IDEA.

PwC now requires all of its employees to take “technology IQ assessments” to determine how comfortable they are with digital technologies. To keep employees’ skills refreshed, the company also has launched a digital fitness app, which gamifies the training of its workforce in new technology via quests and personal trainers. PwC offers ongoing academies, mini courses, and microcredentials to help its consultants maintain a continual state of IT readiness.

“Literally everything we do—tax, audit, consulting—is affected by IT, data, and transaction processing,” says A. Michael Smith, a partner at PwC, in a Stevens Institute of Technology publication. Smith is also a co-leader of the MaCuDE initiative. “When it comes to

new employees, the biggest change in the last five years is an expectation of higher-than-standard IT IQ—specifically in analytics—and a general awareness of the prevalence and importance of data.”

In other words, companies want to ensure that their workers are ready to learn new skills throughout their careers. It’s an ability that business schools must also cultivate, says Brunner, especially as businesses start layering technologies in new ways to create an even more complex technological landscape. “Automation and drones are being combined for delivery services, and artificial intelligence and virtual reality are being used for personalized training,” he says. “There are too few hours in the day to explore the possibilities, develop new learning opportunities for our students, and publish lessons learned.”

It’s imperative, says Samuelson of BI Norwegian, that business educators engage in ongoing discussions about how to teach digital transformation effectively. “The need for BI with 20,000 students might be rather different from a specialized MBA-oriented school, but still I think it will be smart to find our common denominators,” he says. “We should be open about what has worked, and what has crashed and burned, because there will be a lot of crashing and burning in this transformation.”

He and his colleagues stress that the ultimate objective is to help every business school stay ahead of emerging technologies—not only by exchanging ideas, but by importing best practices from the industries they serve. ■

Administrators and educators who are interested in participating in the MaCuDE initiative can email Gregory Prastacos at gprastac@stevens.edu.



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These business schools are inspiring students to promote environmentally sustainable business practices by first modeling those practices in their own operations.

CARBON CUTTERS

TWO BUSINESS SCHOOLS have adopted wide-ranging initiatives to combat the effects of climate change. At Nottingham Trent University, business faculty have created a comprehensive workshop to help students and academics increase their knowledge about climate change. At the University of Victoria, administrators and faculty have made the necessary changes not only to offset their community's carbon emissions, but also to make the business school's operations completely carbon neutral.

As these schools work to ingrain sustainability into their campus cultures, they also intend to provide students with valuable opportunities to learn and to inspire other schools to follow in their footsteps. Administrators at both institutions have the same message: Business schools have a responsibility to teach students about sustainable business practices—and to lead by example.

ILLUSTRATION BY MICHAEL MORGENSTERN

REWRITING THE STORY OF CLIMATE CHANGE

A NEW TRAINING PROGRAM WORKS TO BOOST CARBON LITERACY.

BY PETRA MOLTHAN-HILL AND RACHEL WELTON

IF THE WORLD doesn't reduce its carbon emissions in the next 12 years, it could suffer catastrophic consequences as a result. That's a conclusion of "Global Warming of 1.5° C," a November 2018 report from the United Nations' Intergovernmental Panel on Climate Change. But is the next generation of leaders prepared to tackle the challenges of climate change?

Probably not. Recent data from "Rising Leaders on Environmental Sustainability and Climate Change," a 2016 report from the Yale School of Management in New Haven, Connecticut, indicate that 79 percent of 3,700 business students surveyed feel only "moderately" to "not at all" knowledgeable about how to make businesses more environmentally sustainable. The report's authors also found that 64 percent of students want environmental sustainability integrated into core curricula and career services at their business schools, and 96 percent think businesses should be leading efforts to address climate change. (For a Yale survey that looks at climate change from the faculty perspective, see "Time to Reframe the Climate Change Narrative" on page 45.)

These findings sound a note of urgency for business schools, which need to produce carbon literate graduates capable of achieving the required change as quickly as possible. That's why, at the Nottingham Business School at Nottingham Trent University in the United Kingdom, we have developed a carbon literacy training program to help faculty and their students assess their roles in reversing climate change.

TV AS ROLE MODEL

Although broadcast television might seem an unlikely place for inspiration, we turned to a popular U.K. soap opera, "Coronation Street," for guidance as we designed our program. The show's producers have made the television program one of the "greenest" in the world. Their efforts are part of a wider project undertaken by the British Academy of Film and Television Arts (BAFTA) in cooperation with the British Broadcasting Corporation (BBC), the Independent Television network (ITV), and other television channels in the U.K. The project also involved the U.K.-based Carbon Literacy Project, which offers any interested individual a day of carbon literacy training.

In 2011, the BAFTA Albert Consortium was created to promote sustainable practices in the screen art industry. The consortium was founded on the idea that significant carbon emission reduction can be achieved only if all employees in every department—whether lighting, sound, or costumes—understand how they contribute to carbon emissions.

The consortium's efforts are supported by three elements: a carbon calculator that production units could

use to measure and report their carbon emissions, carbon literacy training, and a certification. Productions that have earned the certification can display the logo in their end credits—those that have done so include series six of the popular program "Downton Abbey."

BAFTA, BBC, and ITV have achieved impressive reductions in carbon emissions. That's why we wanted to discover not only how "Coronation Street" has embedded Albert's training in its production, but also what part of the training managers and employees perceived as most influential in changing their behaviors. In a fact-finding mission, Nottingham faculty visited the station where "Coronation Street" is produced to interview 20 heads of department across the organization; we also went to the BBC's offices to speak to its director of sustainability and observe its carbon literacy training firsthand.

For instance, in one innovative exercise, employees were asked to imagine two possible outcomes—one was a dystopian future in which we had done nothing about climate change, and one was an optimistic future in which we had acted upon every insight we have about reducing the severity of climate

64% of business students want environmental sustainability integrated into core curricula and career services at their business schools.

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You've got to earn it.

change. Most interviewees told us that, when they saw these two stories in front of them, they realized that the decisions we make as individuals and as a society will determine which future we will get.

This exercise was followed by activities that highlighted changes that employees could integrate in their lives and at their workplaces that would contribute to achieving the more optimistic outcome. Their trainer emphasized to us just how important it was for the training to help participants believe that they have the power to do something to combat climate change.

TRAINING FOR B-SCHOOLS

We then took what we learned to develop a carbon literacy training program specifically for business school faculty. In our developmental workshop, organized in conjunction with the U.K. and Ireland chapter of the United Nation's Principles for Responsible Management Education (PRME), we welcomed 50 academics and senior managers from business schools around the world to participate in our pilot for the program.

The program took participants on organizational and personal journeys. The first part of the carbon literacy training was developed with the help of oikos International, a student-driven organization that promotes sustainability in economics and management; the Carbon Literacy Project in Manchester, U.K.; and the creators of the training used by "Coronation Street." This session introduced participants to the science behind climate change, the relevance of climate change to business, and the impact companies have on reversing its effects.

The second part of the training asked participants to consider climate change literacy in relation to their individual disciplines. They broke into separate customized sessions, where they delved deeper into climate change education tools currently being taught and used in their specific disciplines, which included accounting and operations.

Parallel to that session, the senior managers worked on designing the Carbon Literate Executive Leadership Package. In this training, executive leaders explored best practices for adopting environmentally responsible leadership and raising awareness of climate change within their institutions.

For the third and final part of the training, we created a session called Carbon Literate Action, in which participants were asked to make personal and organizational pledges for the future. In our pilot of the workshop, for example, individuals pledged to change energy suppliers and switch to reusable water bottles. Teams committed to making climate change a part of their institutions' strategic decisions and to discovering how their academic colleagues are incorporating climate change in their teaching.

The entire Carbon Literacy Training package is designed to equip academics with ideas that they can integrate into their teaching—some participants already have taken these ideas back to their institutions. The full version of the training was ready in August 2019.

Employees realized that the decisions they make will determine the future.

GETTING READY FOR ROLLOUT

We also plan to roll the program out to students. As a first step toward this goal, we have conducted research on how business school students conceptualize climate change, gathering feedback from focus groups of students in England, China, India, Pakistan, and South Africa. We especially wanted to know whether they could be considered "climate change skeptics," and, if so, whether this conceptualization is influenced by cultural or national factors. We wanted

to understand whether carbon literacy training could change business students' preconceived notions of the effects of climate change.

Once we had their feedback, we delivered three hours of training to participating students. Next, we asked them to complete a quantitative survey that assessed whether their knowledge and understanding had changed after the intervention. Initial findings show that the training improved the students' knowledge on the science and impacts of climate change. Our student participants also have indicated that the training provided them with information that they could use to evaluate and engage with climate change in a more systematic and authoritative manner.

After their training, these students made a range of personal pledges, from consuming less water to reducing waste generation to increasing education about climate change in the workplace. Perhaps not surprisingly, students from different cultures had different perceptions of climate change and made different pledges for future actions. For example, students in

South Africa focused on issues around poverty and equality of opportunity, largely due to South Africa's political and economic context.

MOVING FORWARD

The full training is now ready to be used by business schools worldwide. So far, we have trained academics from the United Kingdom, Denmark, South Africa, India, the United States, Germany, Austria, Sweden, and Russia. Our carbon literacy training became a major part of

TIME TO **REFRAME** THE CLIMATE CHANGE NARRATIVE

If business schools want to help businesses succeed in the coming years, they must integrate climate change into their curricula in substantial and meaningful ways. That's the majority opinion of 169 faculty from business schools in the Global Network for Advanced Management. The 30 institutional members of the Global Network, which was launched in 2012, represent 28 countries across six continents.

A founding member, the Yale School of Management of New Haven, Connecticut, surveyed these individuals in 2018 from December 12 through December 23. The survey reveals that most Global Network faculty members believe that climate change is an urgent issue facing businesses today. Among the findings:



93% agree or strongly agree that climate change poses material risk to the operations and supply chains of businesses across multiple sectors.

92% agree that the core MBA curriculum should place greater emphasis on the impact of climate change on business and society and teach students about the risks and opportunities that climate change presents.

86% agree that the business community cannot depend on government to address the threat.

70% believe that companies should incorporate climate change into their business decisions, especially as they create new products and services, adapt existing ones, and re-evaluate their supply chains.

69% either agree or strongly agree that a global carbon tax would be the most effective way to curb organizations' carbon emissions worldwide.

Whether or not they believe in the efficacy of a global carbon tax, most respondents agree that such a tax will be implemented by 2030. However, some emphasize that a carbon tax alone will not be enough. The advantages and disadvantages of tools such as tradable permits, which governments use to put a cap on the pollution an organization can generate, and command-and-control instruments, which would regulate specific industries, should be analyzed in business courses, says José Miguel Sánchez, dean of the Pontificia Universidad Católica de Chile School of Business in Santiago.

Edward A. Snyder, William S. Beinecke Professor of Economics and Management and former dean at the Yale School of Management, emphasizes that "a more immediate issue is whether China, the United States, and others will leave their country's coal in the ground."

Some respondents point to risks specific to their own regions. "Climate change, possibly with air pollution, will be one of the most serious business issues, at least in Korea and China, within the next few years," says Namgyoo Kenny Park, associate dean at Seoul National University Graduate School of Business in South Korea.

But overall, these deans and faculty are optimistic about the world's ability to achieve carbon neutrality—most believe it will happen by 2050. At the same time, the professors believe that this outcome will not be achieved without deliberate effort on the part of business schools.

The survey respondents send several clear messages to the business school community. One message is that businesses and business schools cannot wait for governmental bodies to take action to reduce carbon emissions and greenhouse gases. "It is up to individuals and businesses to come up with a solution and avoid the point of no return. Schools around the world have a fiduciary responsibility to help with raising awareness and teaching future managers to care and take more action than our [generation] and previous generations did," says Majid Ghorbani, associate professor at the Renmin University School of Business in Beijing, China.

Another message is that climate change presents "incredible opportunity to leverage the power of business to create a sustainable future," says Robert Strand, executive director of the Center for Responsible Business at Haas School of Business, University of California Berkeley. "To achieve this, we must collectively reframe the narrative of business [to be] about purpose first" in a way that makes profits "a byproduct" of that purpose.

Business schools have collective power to engage in experimentation and effect positive change, adds David Bach, deputy dean for executive programs at the Yale School of Management. "There is no single policy solution, business approach, or MBA course that will do the trick," says Bach. "What we need instead is broad-based, real-time experimentation, and rapid learning about what works and what doesn't."

▶ The complete survey results are available at globalnetwork.io/faculty-flash-survey-climate-change-urgent-business-priority-experts-say.

Nottingham Business School's role as a 2018–19 United Nations PRME Champion. Academics from PRME Champion institutions also are helping develop peer-to-peer materials that will enable more business schools to complete the training.

For our next step, we will pilot discipline-specific webinars with support from Copenhagen Business School in Denmark and the Gordon Institute of Business Science at the University of Pretoria in South Africa. We will collect best practices, from how to use climate change mitigation tools in operations and carbon accounting to how to integrate these tools into core curricula.

This training is meant to be a catalyst for business schools to engage with climate change, embed climate mitigation in their teaching, and commit to further developing discipline-specific teaching materials. Our hope is that all business schools will consider the impact they can have on the environment—and that all faculty will keep climate change at the forefront of their minds as they teach their students, conduct their research, and engage with business leaders.

Petra Molthan-Hill is head of the Green Academy at Nottingham Trent University in the United Kingdom, as well as an associate professor of sustainable management and education for sustainable development. Rachel Welton is a principal lecturer in tourism and international business at Nottingham Business School, Nottingham Trent University.

► Those interested in participating in webinars or obtaining information about the training can reach the authors at Petra.Molthan-Hill@ntu.ac.uk or Rachel.Welton@ntu.ac.uk. To find more information about the Carbon Literacy Project, visit www.carbonliteracy.com.

GETTING **CHARGED UP** ABOUT CARBON NEUTRALITY

HOW ONE BUSINESS SCHOOL ACHIEVED NET-ZERO CARBON EMISSIONS.

BY RICK COTTON AND SIMON PEK

SEVERAL YEARS AGO, the University of Victoria's Peter B. Gustavson School of Business in British Columbia, Canada, wanted to take direct responsibility for our carbon footprint—including indirect emissions we generated via travel and commuting. That meant setting an ambitious goal: to achieve carbon neutrality for all of our school's activities. We are a small, relatively young school—just 29 years old, with 52 full-time faculty. These factors worked in our favor as members of our community joined forces to achieve our goal.

We offset our carbon emissions through several new initiatives. Some of these initiatives were institutional in nature. For example, we opened our interdisciplinary Centre for Social and Sustainable Innovation in 2011 and formed a Carbon Neutrality Plus (CN+) committee in 2017. We also took steps to change the behaviors of members of our community by instituting a comprehensive recycling program, promoting Bike to Work Week, and installing a water fountain to encourage people to stop using bottled water. We held formal communitywide challenges that called, for example, for people to eat more plant-based diets or reduce their use of plastics.

We launched these activities after collecting data about our greenhouse gas emissions for nearly ten years. This step was critical to our understanding of our carbon footprint, including year-over-year changes and trends. We create our data reports in partnership with Synergy

Enterprises, a local carbon-management consulting firm that assists us with calculations and analysis.

Synergy not only provides us with independent measurement, but also benchmarks our performance against other organizations like ours and offers insights to help us move our sustainability efforts forward. We advise any school pursuing carbon neutrality to start with such systematic measurement, because “what gets measured, gets managed.”

UNDERSTANDING THE DATA

An analysis of our data from Synergy revealed that travel was the Gustavson School's greatest source of carbon emissions. This was not surprising, since 80 percent of our undergraduates and 100 percent of our master's students have an international study experience. In 2017 alone, travel by our faculty, students, and staff generated 73 percent of our school's measured carbon emissions—and that figure far surpassed the impact of our use of paper or electricity.

This realization presented a dilemma: We couldn't eliminate or even significantly reduce these emissions directly because travel is such an integral part of our programs. In fact, we are likely to increase our travel, as our programs and student intake expand. We concluded that the best way to achieve carbon neutral status was to purchase carbon offsets, at least for the short term. By purchasing carbon offsets, we support projects that reduce the amount of carbon being



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released into the atmosphere, pull carbon out of the atmosphere, or do both, via activities such as planting trees or installing fuel-efficient boilers.

COMPETING FOR NEUTRALITY

Members of our CN+ committee—who include students, faculty, and staff—work to identify ways to offset our travel and commuting emissions and reduce emissions in other areas. In 2017, the CN+ committee asked faculty, students, and staff to vote for one among a set of selected carbon offset projects. This process gave our stakeholders a voice in how we reduced our carbon footprint, as well as provided an opportunity for experiential learning for our students.

In 2018, the committee introduced our first annual Carbon Offset Pitch Competition. Teams of one to five students from our undergraduate, master's, and doctoral programs evaluated 26 carbon offset projects offered through Offsetters (www.offsetters.ca), a Canadian company that provides organizations and individuals with sustainable carbon management and offset project solutions. Using a set of 11 criteria developed by the CN+ committee, each team chose a portfolio of projects that its members thought would best align with our goals. Teams submitted 90-second videos about their offset portfolios, as well as calculations of their portfolios' collective environmental benefits. The committee chose five finalists whose projects demonstrated the greatest impact and best represented Gustavson's four descriptive core pillars: international, innovative, integrative, and sustainable/socially responsible. Finalists' recommendations included wind power projects in New Caledonia, a reforestation project on Quadra Island

of the coast of British Columbia, and the installation of more efficient cookstoves in homes in Uganda.

For the second phase of the contest, students, faculty, and staff voted for their favorite offset portfolios. The winning portfolio included the Bundled Solar Power Project in India and the Great Bear Forest Carbon Project in our own province of British Columbia. By investing in these projects, we were able to offset Gustavson's 796 tons of carbon emissions from the previous calendar year. The winning team received CAN\$250 in gift cards from sustainable local businesses, five passes for a whale-watching trip offered by Eagle Wing Tours, and lunch with Eagle Wing's execs.

"The Bundled Solar Power Project helps improve social and economic well-being for the surrounding communities in India," explains Dawn Hancock, client engagement manager at Offsetters. "The Great Bear Forest Carbon Project provides jobs for First Nations communities of the region and helps fund community improvement projects."

Among the First Nations that will benefit are the indigenous people known as Heiltsuk. Says Heiltsuk chief Marilyn Slett, "Whether it's daily stewardship activities to protect important cultural and ecological resources, or long-term protection of a keystone species, carbon offset credit funds are supporting a sustainable way forward for us."

For students, the offset pitch competition was an opportunity to engage in the carbon neutrality process in a concrete way. "We decided to take part in the competition because of our passion for the environment," says business communications student Mikiya Hobbs, a member of the winning team, The Re-

deemers. The competition, she adds, was "an opportunity for students to have a say in how the school spends its money."

HARNESSING CHANGE

For future Carbon Offset Pitch Competitions, we plan to ask students to connect their portfolios to the United Nations Sustainable Development Goals. We might even ask them to explore the possibility of the school generating its own carbon offsets. We hope to increase the number of submissions and boost voter turnout through classroom voting stations.

The CN+ committee has done extensive research on best practices for reducing the carbon emissions of our flights, procuring more sustainable supplies, and making small day-to-day changes on campus that are customizable at the individual level. In January 2019, the committee added a focus on projects related to education and behavioral change throughout our community.

Now that we've achieved carbon neutrality, our next goal is to collaborate with other schools, whether to help them create their own competitions or establish behavioral change challenges. In early 2018, Gustavson worked with other departments at the university to host a Shake and Fold awareness campaign. Shake and Fold is a U.S.-based nonprofit that encourages people to use fewer paper towels.

We hope to continue to harness students' insights regarding sustainability in our decision making and collaborate with academic colleagues at other schools as they engage in sustainability leadership initiatives. By working together, we can foster a new generation of business leaders who will embrace sustainable practices and have an increasingly positive impact on our world. ▣

Rick Cotton and Simon Pek are co-chairs of the Carbon Neutrality Plus Committee at the University of Victoria Gustavson School of Business in Oak Bay, British Columbia, Canada.

73% of our school's 2017 carbon emissions were generated by the travel of our faculty, students, and staff.

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Sustainable Objectives

Schools in Norway and Africa partner on programs designed to make supply chains more sustainable.

BY MARIANNE JAHRE

TANZANIA AND ETHIOPIA in Africa are among the fastest-growing economies in the world—but also among the least industrialized. Of their respective populations of 55 million and 110 million, 85 percent are farmers. Citizens in both countries lack access to sustainable food sources; healthcare; or reliable energy, transport, and waste management. They must cope with weak governance, corruption, unemployment, population growth, insecurity, droughts, and famine. In Ethiopia, only 45 percent of the population has access to electricity; in Tanzania, that number drops to 35 percent.

To address these problems, BI Norwegian Business School in Oslo, the School of Business at Mzumbe University (MU) in Tanzania, and the Business and Economics College of Jimma University (JU) in Ethiopia have created a partnership called SUSTAIN. Through the partnership, the schools will strive to improve the quality of education and research in the fields of supply chain management (SCM) and sustainable business development. These efforts will enable all three schools to work toward achieving the United Nations' Sustainable Development Goals (SDGs), which call for the world's institutions to work together to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity.

BASIC BACKGROUND

To grow their economies, Ethiopia and Tanzania must improve their infrastructures by investing in new roads, railways, hospitals, schools, and electric plants. But to use this infrastructure effectively, both countries will need forward-looking business leaders who can help businesses deliver on their wider social responsibilities.

However, most of the local workforce hasn't been educated with the requisite skills. A UNESCO report notes that, between 1990 and 2012, primary school enrollment in African countries more than doubled, to nearly 150 million. But higher education is still lacking. For instance, in Tanzania, youths represent

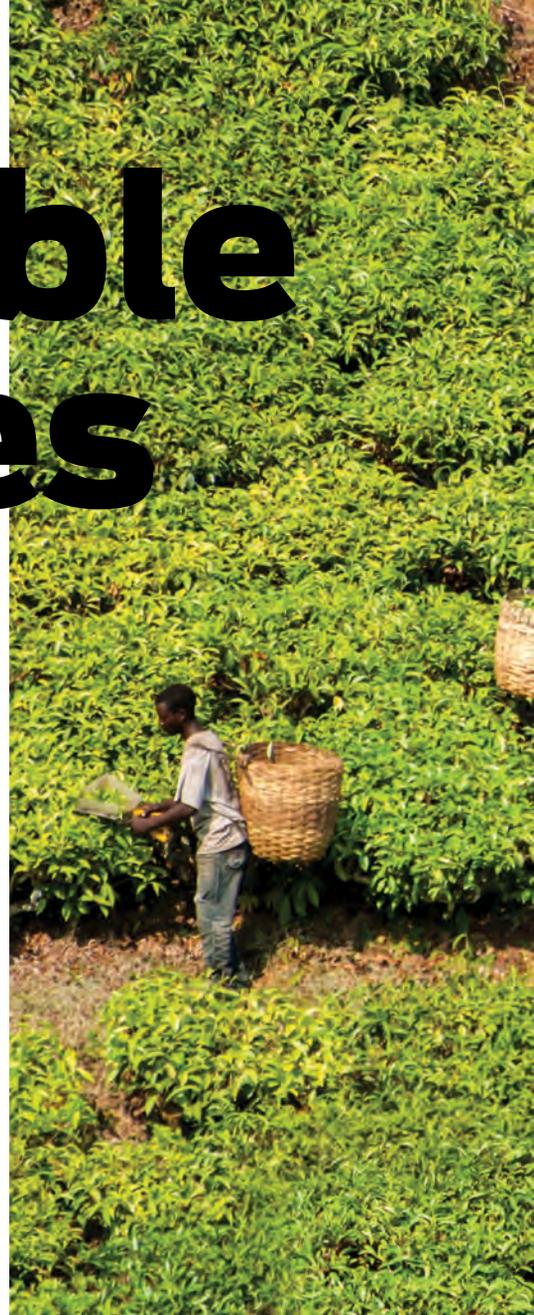
more than half of the country's total labor force, according to Emmanuel Chao of MU's Resource and Incubation Centre. Yet more than 25 percent of those youths are not in employment, education, or training.

The situation is similar in Ethiopia, which has a young population in need of education. "Ethiopia has established 35 new universities the last 15 years," explains Kenenisa Lemie Debela, dean of the College of Business and Economics at JU. "Senior universities serve as mentors and initially also as administrators for the new universities. Support for Jimma means indirect support for the whole country."

Both schools are poised to train the managers who will help bring their

countries economic prosperity. At MU, about 1,700 of the 10,000 students are in business; the school is known for its capacity in management, governance, and health management, but it needs development in the areas of entrepreneurship and supply chain management. In comparison, JU is Ethiopia's largest public university, known for its strength in health education. Of its 50,000 students, 6,250 are in business.

At BI, we believe we have the resources to partner successfully with these two schools. We not only have developed research and teaching in humanitarian logistics and risk management, we have developed other long-term partnerships with schools in China and the U.S. We





also have much experience setting up international exchanges and internships for our 20,000 students.

Furthermore, we can draw on the knowledge gained from Norway's own development of sustainable incentives, business models, and physical infrastructure of recycling. Dating from the 1990s, Norway has been a pioneer of "reverse logistics"—that is, managing the lifetime supply chain for household goods. In fact, two of the BI faculty participating in SUSTAIN pursued their own PhDs in this field—I did mine on household packaging, and Bente Flygansvør did hers on electronics recycling.

Finally, SUSTAIN builds on past connections BI has made with both

schools. In 2017, BI and MU collaborated on a graduate course called Doing Sustainable Business in Africa. BI became familiar with JU when JU was cooperating with the nearby University of Oslo on an initiative called Strategic and Collaborative Capacity Development in Ethiopia and Africa (SACCADE), which aimed to establish JU as a hub for health development in Africa. Because all three schools focus on delivering community-based education, we believe our approaches are complementary.

PROGRAM LAUNCH

In February of 2019, SUSTAIN organized inaugural workshops in Mzumbe and Jimma. There, representatives of

individual schools could get to know each other, sign a memorandum of understanding, agree on the details of student exchanges, compare academic calendars and local regulations, and organize anti-corruption workshops for faculty, students, and local stakeholders. SUSTAIN involves 21 faculty members with competencies in SCM, entrepreneurship, and sustainability. Nine are from BI and six each are from MU and JU. Administrative staff members are also involved in organizing the exchange.

In September of 2019, the first two students arrived at BI from MU for our one-term stay option. These students will spend one semester attending

courses, and they will also receive their master's thesis supervision at BI.

In the spring of 2020, the first four BI students will travel to Ethiopia and Tanzania for three to four weeks to work on their master's projects. While at the partner schools, they will collect data in the field, participate in university activities, and be co-supervised by faculty across the three institutions. Students for one project will be concerned with improving the supply chain for mangos by reducing waste, finding new markets, and scaling up production. Those working on another project will seek ways to reduce waste and improve supply chains in the coffee production industry.

While our students are in Africa, we want them to learn as much as they can from their host countries, especially about African culture and business development. For instance, we want them to observe lifestyle and consumption patterns in Ethiopia and Tanzania, because emerging nations generally cause fewer problems with climate change and pollution than industrialized nations do.

Through SUSTAIN, we also plan to create opportunities for faculty from all three institutions to work together. For instance, in October of 2019, BI hosted faculty from MU and JU at the fourth annual International Conference of Business and Management in Emerging Markets at our school.

Such interactions will continue to be important because one of the key goals of SUSTAIN is to help the African universities develop their faculty. Even the student exchanges support this goal, because we expect some students in the program to go on to become professors. For instance, in Ethiopia, master's students from JU are mostly recruited by the Ministry of Education to teach in the new public universities.

But the challenge is not just to develop business faculty, but to help them refresh outdated curricula. We also want to work with the African faculty to create new courses that address issues such as corruption.



Marianne Jahre of BI Norwegian Business School (left) and Kenenisa Lemle Debela of Jimma University

FUTURE BENEFITS

Over the next five years, we expect that the collaborations enabled by SUSTAIN will have produced at least three teaching cases, one from each country; six co-authored papers; and one book. We'd also like to create an ontology—a system for categorizing a shared vocabulary and common concepts—in which students describe their exchange experiences. In those five years, we will have taught six jointly revised courses at least once, exchanged 52 master's students, and jointly supervised six master's projects. Small teams of faculty from each school will have developed courses in entrepreneurship, sustainable supply chain risk management, and anti-corruption.

But we also have much longer-term goals. As students in these programs gain skills in supply chain management and become ethical leaders, we expect to see both countries improve their performance on several global rankings. These include the U.N.'s Human Development Index, which tracks the life expectancies, education levels, and incomes of people in 188 countries (Tanzania currently ranks 151, and Ethiopia ranks 174). There's also the Transparency International's Corruption Perceptions Index of 180 nations, where the countries are 99 and 114, respectively; and the World Bank's Logistics Performance Index of 160 countries (61 and 125, respectively).

The SUSTAIN partnership will benefit BI as well. First, as we integrate the SDGs into the courses we develop for JU and MU, we will find new ways to make the SDGs part of our own offerings.

Second, we will develop a model for expanding the types of international

agreements we maintain with other schools. We currently have close to 200 exchange agreements, but only one other one on the continent of Africa. Our hope is that we will lower the threshold for our ability to collaborate with universities in developing countries.

LESSONS LEARNED

Although the SUSTAIN program has just gotten underway, we already have realized it's essential to develop trust through personal interactions, which means that key parties must have the experience of working together. This requires extra funding to support travel expenses for students and faculty, as well as accommodations for participants. At BI, we have secured funding from the Norwegian Agency for International Cooperation and Quality Enhancement in Higher Education (DiKu), which will cover our travel costs of SUSTAIN through 2023.

We've also learned three lessons about establishing partnerships with universities in other parts of the world:

- We must start with small operations such as joint modules, workshops, and seminars. We also must involve administrative staff at all partner institutions.

- We must stay flexible, especially at the beginning. At the start, we must embed the activities in the structures and processes that already exist at the respective partners' institutions.

- We can develop sustainable partnerships only if all parties respond proactively to challenges and display patience, diplomacy, and sensitivity.

When we are flexible, patient, sensitive, and willing to move slowly, we can create alliances that benefit all parties—schools, faculty, students, and the very countries where we operate. □

Marianne Jahre is professor of logistics and supply chain management at BI Norwegian Business School in Oslo and a professor of engineering logistics at Lund University in Sweden.

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The Antifragile Entrepreneur

STARTUP CREATION ISN'T THE SOLE MEASURE OF SUCCESSFUL ENTREPRENEURIAL EDUCATION.

BY BILL AULET

WHEN I FIRST started as the managing director of the Martin Trust Center for MIT Entrepreneurship a decade ago, I thought my job was to help students create more and better startups. Fortunately, some wiser and more experienced faculty members reminded me that we were part of an educational institution. It made me think of the old adage that states, “It’s better to teach a man to fish than to give him a fish.” We wanted to teach our students not just how to launch one business—we wanted to teach them how to think like entrepreneurs.

As a result, we shifted our focus from creating companies to creating entrepreneurs. To that end, we developed programs for individuals we called the “ready-to-go entrepreneurs.” These are students who are determined to create their own standalone startups. As much as it pains me to say it, back then we were in fact creating people whom others might perceive to be like the characters in the television show “Silicon Valley”—except ours had a moral compass and were better at startup success!

In other words, we believed this group represented our own “beachhead market,” the term entrepreneurs use to describe the one market segment that has proven most open to their products or services. We believed the purpose of teaching entrepreneurship was to train students to build startups.

A funny thing happened, however, as we started to succeed in this strategy. Students who didn’t identify as ready-to-go entrepreneurs—our primary market, remember—would tell us our programs and content helped them as well. People who were interested in building entrepreneurial ecosystems in

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government, academia, or the private sector began taking our courses. These participants didn't intend to create startups, but, rather, to be active "entrepreneurship amplifiers"—the term we coined for members of this group. These amplifiers intended to support and promote entrepreneurial behaviors by building ecosystems of individuals and organizations that foster the creation of more startups in a region.

Interestingly, we next discovered that what students learned in our entrepreneurial programs was valuable even outside the startup arena. For example, one of my graduate students, a professional pianist turned e-commerce entrepreneur, told me that she reconnected with her joy of music by applying entrepreneurial principles to the planning and marketing of a campus piano concert. The reason? By first developing a targeted clientele profile, she found that organizing the logistics and content of the event was a much clearer and more manageable task. Her anxiety level before the concert went down and her satisfaction level afterward increased. For the first time, she said, she felt in charge of the process and better aligned with the concert's mission.

It was a revelation for me that the principles of startup success could be applied in such a radically different domain. Indeed, my understanding of entrepreneurship has evolved. Now, I view it as a mindset (spirit), a skill set (knowledge and capability taught in an apprenticeship model), and an operating model that people can apply to achieve their goals. It's a model that our students can apply in any community-based setting where they are utilizing resources that are not under their control.

Put more simply, my goal as an entrepreneurship educator is no longer to create entrepreneurs or grow startups. My goal now is to create antifragile humans and teams.

What does "antifragile" mean, exactly? It's a term I first heard used by professor

and author Nassim Nicholas Taleb who wrote a book titled *Antifragile: Things That Gain from Disorder*. When applying his systems analysis to humans, I would describe antifragile people as those who "grow when exposed to volatility, randomness, disorder, and stressors and love adventure, risk, and uncertainty."

Fragile people or teams, meanwhile, are those that break when exposed to unexpected events. Ironically, I believe

We often believe that being robust is the desired state for business leaders, but in actuality it is a neutral condition.

much of the study of management has been about optimizing and de-risking—it has been about making very predictable systems, teams, and individuals. Paradoxically, that approach ultimately creates a world with more fragility in it.

A key insight I took away from Taleb's book is that antifragile people and teams are not simply those who are "robust" or "resilient." In the practice of management, we often believe that being robust is the desired state for business leaders, but in actuality it is a neutral condition. Robust people and teams are those who "weather the storms" and keep marching straight ahead unaffected. Robust people and teams maintain their course when faced with adversity or unexpected events. But in our current world, maintaining course is not enough.

We should be promoting antifragility as the desired state in management endeavors. Antifragile systems, people, and teams actually grow *stronger* in the face of adversity and uncertainty.

I draw this analogy: We are unlikely to remember the athlete who's great early in the game when everything is going as planned, but whose performance fades as time goes on and the competition becomes more complicated. But we never forget the player who is a good

performer at the start of the game, but then turns into a great player as the game gets more chaotic and the stakes get higher. It's that player who is the antifragile human being—it's that player who accomplishes great things.

Speaking at MIT this past spring, GE Chief Innovation Officer Sue Siegel said, "The world will never be as slow as it is today." She is so right. Neither will it ever be as simple or predictable. The

future will be filled with more Brexits, Donald Trumps, technological disruptions, business model disruptions, societal disruptions, and all of the resulting adversities, uncertainties, and unpredictability. The future also will be filled with opportunities for people to come up with new creative solutions.

To deal with future challenges, we will need people who don't just survive in a chaotic, stressful, and complex world, but thrive. This is why, as management educators, we must make entrepreneurship about much more than startups. We must teach students that an antifragile entrepreneurial mindset is not just a "nice-to-have" skill we can teach to some of our students. It is a "must-have" skill we should be teaching to all of our students. Their future—and ours—depends on it. ▣

Bill Aulet is the managing director of the Martin Trust Center for MIT Entrepreneurship at the Massachusetts Institute of Technology in Cambridge and professor of the practice at the MIT Sloan School of Management. He is the author of Disciplined Entrepreneurship: 24 Steps to a Successful Startup and the Disciplined Entrepreneurship Workbook.



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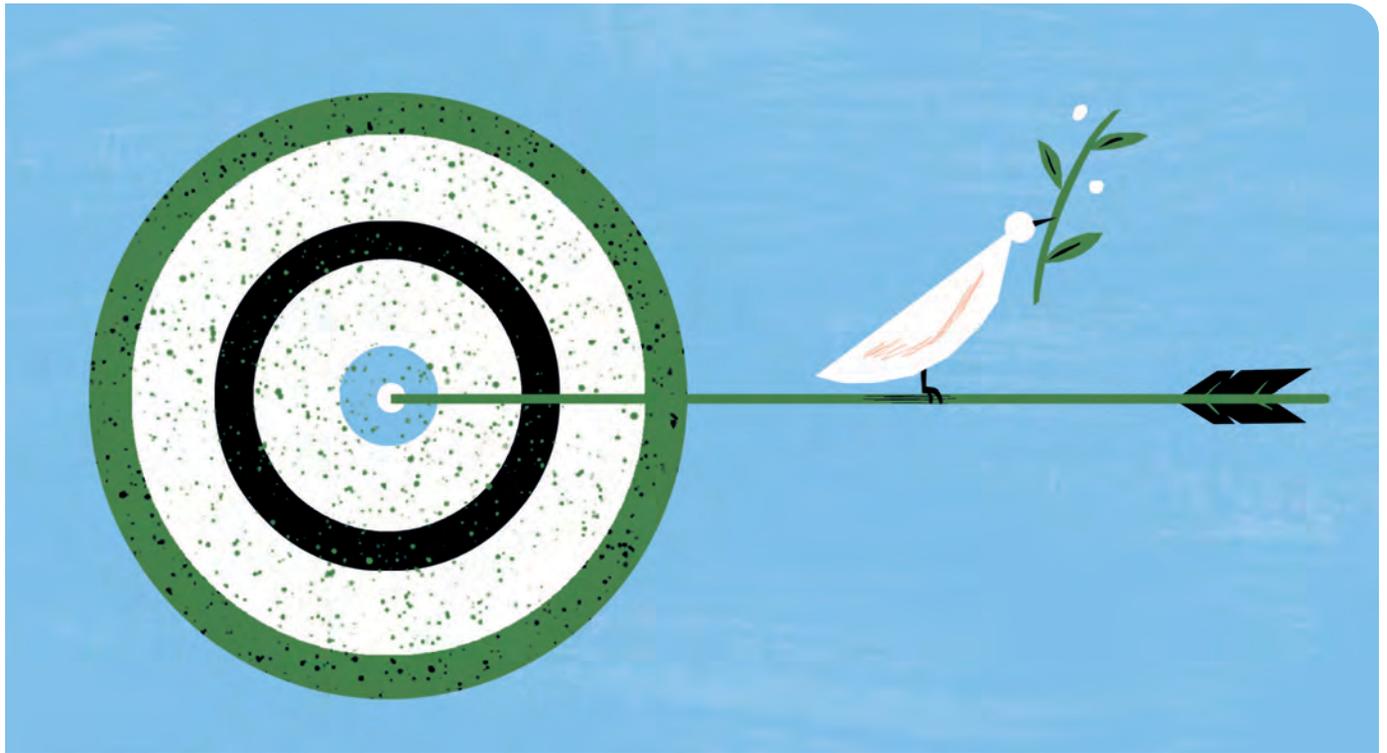
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Making Mission Count

THE COLLEGE OF BUSINESS AT LOYOLA MARYMOUNT UNIVERSITY CRAFTS A NEW MISSION STATEMENT THAT CAPTURES ITS CENTRAL OBJECTIVE: TO BE A FORCE FOR GOOD.

BY DAYLE M. SMITH

IN THE SUMMER of 2018, when I became dean of Loyola Marymount University's College of Business Administration (CBA), the college had just completed its AACSB peer review team visit for its maintenance of accreditation. As we were laying out our five-year strategic plan, I worried: How will we stay relevant? How will we create a distinctive mission that sustains us as a business college?

Founded in the Jesuit and Marymount traditions, the CBA historically has been well-grounded in ethics and a commitment to educating the whole person. But even so, we lacked a way of talking about who we were and why it mattered. I discovered this soon after I arrived at LMU. During my "dean's listening tour," I met with each faculty and staff member individually, and connected with alumni, students, and employers to learn what they believed were our greatest challenges,

opportunities, and aspirations. I wanted to better understand what LMU and the CBA meant to them, and get a feel for the values, norms, and underlying assumptions that characterized the organization.

I learned that our mission didn't capture what made us unique. To distinguish ourselves from our competitors, we would need to think differently.

The aggregated data I gathered during my listening tour provided a foundation for what would be a yearlong soul-searching process for our faculty

and staff. We wrestled with issues such as the changing nature of business disciplines and the goals for teaching and learning. We asked stakeholders to articulate what they thought constituted transformative business leadership in the Jesuit-Marymount tradition.

Once our strategic planning committee drafted a five-year plan, we posted its major tenets in the dean's conference room. Over three months, the CBA community was invited to provide feedback, written on Post-it Notes and in a common file on Dropbox. The committee also solicited feedback via open houses.

The results of this process were twofold. First, we now have a five-year strategic plan that is collectively owned by our stakeholders. Second, we have a clear and concise new mission statement: *"We advance knowledge and develop business leaders with moral courage and creative confidence to be a force for good in the global community."*

INTEGRATING THE MISSION

Once the mission statement was finalized in spring 2019, we looked to capture some early wins. As a first step, the CBA became a signatory to the United Nations' Principles for Responsible Management Education (PRME). Next, we charged our interdisciplinary Institute for Business Ethics and Sustainability with helping our faculty and students coalesce around the U.N.'s 17 Sustainable Development Goals (SDGs). In response, the institute hosted a summit on global sustainability.

In addition, the institute modified our annual intercollegiate business ethics competition. Held each spring, the competition brings college students from four continents to LMU to present original cases. This year, 30 teams tackled challenges inspired by the SDGs and presented arguments on how business can be a force for good.

Next, we worked with faculty to integrate the mission into a bold new

core curriculum. We asked each department to elucidate how its major might reinforce the mission. The marketing department, for example, developed the Applied Learning in Societal Transformation—or the A-List Pathway. Marketing faculty created new courses in which students worked with community-based organizations, explored nonprofit marketing, and analyzed advertising strategies for making a social impact.

Entrepreneurship developed three new pathways for its major—one in start-up/new venture management, one in corporate innovation, and one in social entrepreneurship. In the social entrepreneurship pathway, for instance, students and faculty study how social entrepreneurs in underrepresented communities develop profitable enterprises.

This past spring, students taking a course in this pathway hosted documentary filmmaker Thomas Morgan in our monthly film series, "CBA Night at the Movies: Cleaning Up Dirty Business." The students watched Morgan's film "Soufra," about a group of women living in a refugee camp in Beirut, Lebanon; it describes how these women launched their own food truck business with the help of a microloan. Students spoke with Morgan and our entrepreneurship faculty after the screening. The students also hosted a fundraising dinner and sold cookbooks authored by the refugee women to support the Soufra organization.

Our entrepreneurship faculty and students have worked with colleagues from science and engineering on sustainability activities. These include a startup weekend, pitch competitions, a universitywide fellows program, and new venture courses, all sponsored by our Fred Kiesner Center for Entrepreneurship. We encourage participants to design solutions that will help "create the world we want to live in."

Finally, this past summer, the CBA launched The Good Lab, an interdisciplinary center where students and fac-

ulty from different business disciplines collaborate on mission-related projects ranging from consulting to creating reports for external stakeholders. In one project, students worked with faculty and a university benefactor to create a marketing plan and profit-sharing scheme related to pet care products, to benefit animal shelters across the country. This fall, The Good Lab will work with Goodwill Industries in Southern California to use analytics to determine the impact of job training in local communities. The lab also will create an annual report to share information about companies doing good in the region.

LIVING THE MISSION

We knew that an even bigger challenge would be to engage students in "living the mission." For that reason, we developed a co-curricular component to the CBA experience that would cross disciplines and divisions. We call this component The CBA Advantage.

As part of this initiative, students complete curricular, extracurricular, and co-curricular activities that will help them develop knowledge, skills, and abilities (KSAs) related to five core competencies inherent to our mission. These include business knowledge, leadership, moral courage (and business ethics), creative confidence, and global citizenship. We worked with the university's career and professional development team to identify relevant offerings, campus events, and events in the nearby Silicon Beach community. (For more details, see "The CBA Advantage" at bized.aacsb.edu/articles/2020/january/making-mission-count.)

The next question we faced: How will we track students' progress toward achieving these competencies? For this, we asked a team of recent graduates from our entrepreneurship program to work with faculty and the dean's office to develop a mobile app students can use to track their own progress. In addition

to promoting relevant activities, the app will “gamify” the tracking process by enabling our undergraduates to earn points throughout their four-year programs for their participation in eligible activities, as well as track their KSAs—especially those required for degree completion.

Our app developers have formed a company outside of the university to continue working on this project—the CBA is acting as an angel investor. The hope is that eventually the app will be customizable for other schools that want to help students track activities aligned with the mission. Their company and the CBA are working with the registrar and our chief technology officer to integrate the app with Banner, the university’s administration software.

This effort has inspired us to re-evaluate our approaches to assessment, assurance of learning, and impact in the years ahead. We are experimenting with new metrics in the app for assessing students’ progress toward KSAs and the CBA’s PRME activity. We will pilot the app in the 2019–2020 academic year and plan its full roll-out in the fall of 2020.

DEFINING SUCCESS

I find it rare that a college’s faculty know the school’s mission statement by heart. But at the CBA, I now hear our mission more often in our faculty’s presentations. When student tour guides walk prospective students through our building, I hear them describe how the CBA lives its mission as they point to the mission statement on the wall.

Sometimes our mission is communicated in more unexpected ways that might be even

bigger indicators of success. For example, I attended an annual student-run accounting awards banquet, for which the theme of the evening program was “moral courage and creative confidence.” One of the student co-chairs told me they had chosen that theme after a professor had “challenged us to think about how the words in the mission apply to accounting practice.”

Next on our agenda? We plan to challenge our first-year students in a required course called Business as a Force for Good, where they will explore the impact of business on sustainable development in the global community.

When we started this journey, we had many questions: Will faculty, staff, and students get excited about the mission? Will they make it part of their courses and value systems? Will we get buy-in from across the university to make mission-driven activities requirements for graduation? Will faculty integrate our new app into their courses and other activities?

In short, if we build it, will they come?

Early results have been promising, but we must continue to live the mission every day. To quote one of our marketing professors, our mission statement must be “wearable and shareable.” We’ve worked hard to capture our mission in one bold sentence that is not just memorable, but meaningful enough to inspire our community to be a force for good in the world.

Dayle M. Smith is the dean of Loyola Marymount University’s College of Business Administration in Los Angeles, California.

EXPERIENCE RULES

GEORGIA TECH TEACHES SUSTAINABILITY THROUGH EXPERIENTIAL LEARNING.

BY L. BERIL TOKTAY AND MICHAEL OXMAN

RESEARCH FROM THE *Michigan Journal of Community Service Learning* indicates that project-based learning deepens students’ understanding of difficult concepts and better prepares them to assess business challenges and design solutions. Additionally, studies show that students in project-based classrooms are more likely to view learning as a way to acquire valuable skills—not simply as a means to pass a test.

At the Georgia Institute of Technology’s Scheller College of Business in Atlanta, we have made experiential learning a priority for teaching sustainability, an area in which companies face especially complex business challenges. Our Ray C. Anderson Center for Sustainable Business, founded in 2013, acts as an experiential learning hub, coordinating projects and programs that enable students to apply their knowledge of sustainable business practices to real-world issues in professional settings.

HANDS-ON PRACTICUM

The center has created a strategic sustainability concentration, as well as an educational track that encourages students to develop deep expertise in emerging areas of sustainability. The Innovating for Sustainability track includes the Sustainable Business Consulting Practicum, co-taught by the center’s managing director and professor of sustainable business and a managing director of information and technology services at global consulting firm Accenture. In it, students form teams and work with a volunteer coach to solve sustainability problems submitted by companies.

For example, one team of MBA students

worked with software company Autodesk on the design and implementation of an internal carbon pricing scheme. Another provided recommendations to Coca-Cola on its World Without Waste initiative. A team of undergraduate students helped a local startup market its pet food protein that it manufactures from grubs instead of fish.

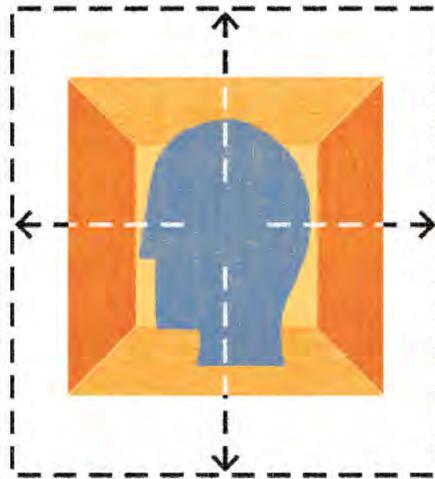
SELF-DIRECTED LEARNING

The center's Sustainability Fellows program, launched in 2015, offers MBAs opportunities to learn about sustainable business outside their coursework. Our Sustainability Fellows complete self-directed projects that are designed to benefit a community or business partner.

Each fellow is assigned an advisor and provided stipends when permissible. The center provides fellows with opportunities to network, work with nonprofits, and attend career development events. At the end of each semester, fellows present their projects in a forum open to peers, professors, and industry professionals.

For his project, Mark Jacobson, a 2016–17 Sustainability Fellow, developed a model to help executives at Walmart forecast the economic viability of solar energy projects. Blais Hickey, a 2018–19 Sustainability Fellow, helped organizers of the AJC Peachtree Road Race, the world's largest 10K race, improve the sustainability footprint of the event while maintaining low costs.

Another 2016–17 fellow, Eric May, collaborated with an undergraduate engineering student, Ben Ibach, on a project for the Mattress Recycling Council (MRC), which promotes mattress recycling efforts throughout the U.S. May and Ibach provided the MRC with recommendations for diverting mattress components away from landfills by identifying viable uses for their components. The MRC's president, Ryan Trainer, noted that the students' insights would help guide the organization's future market development efforts.



The Sustainability Fellows program has proved so popular among MBAs that we created the Sustainability Ambassadors program for undergraduates. The 2019–20 academic year marks the second in which undergraduates have access to co-curricular experiences that mirror those of our Sustainability Fellows.

AN INTERNSHIP CHALLENGE

The center extends its experiential learning offerings to non-MBA students via an immersive learning initiative pioneered in collaboration with Georgia Tech's Global Change Program. Known as the Carbon Reduction Challenge (CRC), this competition places students in summer internships, where they identify areas where their employers could reduce carbon emissions and save costs. They then present their recommendations to executives for approval.

In 2017, students on the first-place team came from the Scheller College and the H. Milton Stewart School of Industrial and Systems Engineering. Together, these students incorporated the CRC into their internships at SunTrust, a financial institution located in Atlanta. The students discovered that the company could encourage employees to rent compact cars instead of midsize cars while on business trips. SunTrust executives implemented the team's pro-

posed changes, which are projected to reduce the company's carbon emissions by 100,000 pounds and save US\$40,000 each year. Four of the six students on the team were subsequently offered full-time positions with SunTrust and are now working to scale up the program.

In 2018, the first-place team recommended that the restaurant chain Chick-fil-A install new dishwashers in 500 restaurants and LED lights in 12 parking lots. In another project, students helped Delta Airlines reduce the weight of its planes by decreasing the number of in-flight *Sky* magazines on board each flight.

Since its inception, the Carbon Reduction Challenge has placed more than 75 students as interns at 23 organizations. Their application of sustainable business practices has helped companies reduce carbon emissions by 20 million pounds. The CRC has inspired similar programs at the University of Buffalo in New York and Emory University in Atlanta.

EMPOWERING LEADERS

To teach students to become sustainability champions, we must provide them with multiple opportunities to gain exposure to sustainable business strategies and solve the environmental and social problems that companies face. Through its experiential learning portfolio, the Ray C. Anderson Center for Sustainable Business fulfills its important mission: empowering tomorrow's leaders to create sustainable businesses and communities.

L. Beril Toktay is a professor of operations management and Brady Family Chair, ADVANCE professor, and faculty director of the Ray C. Anderson Center for Sustainable Business at the Scheller College of Business at the Georgia Institute of Technology in Atlanta. Michael Oxman is a professor of practice in sustainable business and the center's managing director.

► For more about Georgia Tech's CRC, visit www.carbonreductionchallenge.org.



The Workplace of the Future

STUDENTS LEARN TO BE COMFORTABLE WITH AMBIGUITY.

BY DOMINIC IACOBUCCI AND AARON BRADLEY

WHAT'S THE BEST way to prepare students for the rapidly changing workplace of the future? Teach them to address complex problems through ideation and creative problem-solving techniques. And, most important, help them recognize that some problems have no easy—or right—answers.

That's the approach of Inquiry to Innovation: The Future of Work, a transdisciplinary honors class at the University of Cincinnati (UC) in Ohio. In the class, which was launched in 2013, students consider topics ranging from autonomous vehicles to workplace diversity to contract-based work environments. The semester culminates with a showcase of the students' research insights, implications, and actionable solutions.

The university developed Inquiry to Innovation in partnership with BHDP Architecture, which sponsors the course and outlines deliverables for

each semester. Up to 24 students can enroll in each 15-week course, which is considered a professional elective for several departments at the university. Classes meet in a variety of campus locations—including UC's 1819 Hub, a 100,000-square-foot building that includes makerspaces, classrooms, and gathering spaces—as well as BHDP's offices. Classes are taught by both UC faculty and creative leaders from BHDP.

A typical class meeting might start with a theoretical discussion related to the project, followed by timed rapid ideation and brainstorming exercises to stimulate ideas. As they brainstorm, students might use a word association or visualization exercise related to the discussion topic. Over the course of the semester, students will employ design thinking, ethnographic research, and rapid ideation techniques to look beyond their initial thoughts and biases to consider the impact of factors such as cul-

tural norms and societal trends. Other techniques, such as building relational or journey maps, help students visualize and communicate abstract ideas. In addition, students examine situations and products unrelated to the future of work for sources of analogous inspiration.

Throughout the course, students work in interdisciplinary teams, where they learn the value of exposure to perspectives of people from a range of different backgrounds. Students consistently report that interacting with a diverse group of individuals is their favorite part of the experience.

A main objective of the course is helping students become comfortable with ambiguous situations where there is no one right answer. Many students find it challenging and uncomfortable to embrace ambiguity in this manner, but it's a skill they need to develop if they are to push past boundaries to address complex problems and succeed in a rapidly changing society.

Another objective of the course is to encourage students to consider real-world challenges that might have major implications in the future workplace. This is an area where co-teachers from BHDP can really share their expertise, making the course a more meaningful experience for both students and businesses.

In the academic world, students are used to taking specific and concrete steps to complete final projects, papers, or exams. In the professional world, many problems do not have clear-cut processes or answers. By teaching students to use creative problem solving, ideation, research, and cross-disciplinary teamwork to solve problems, Inquiry to Innovation prepares students to succeed in a rapidly changing professional world. ▣

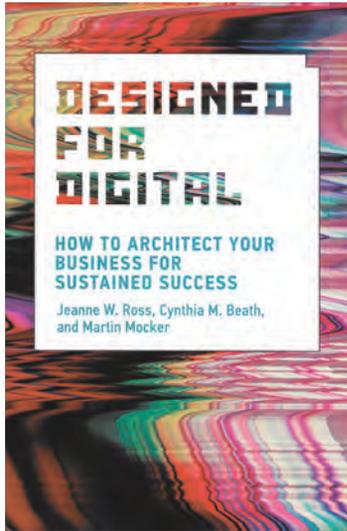
Dominic Iacobucci is a workplace client leader and partner at BHDP Architecture in Cincinnati, Ohio. Aaron Bradley is an associate professor of the Design and Arts Initiative at the University of Cincinnati.

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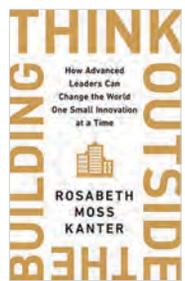




DESIGNED FOR DIGITAL

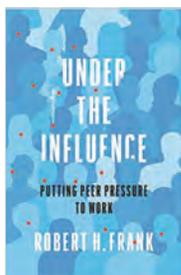
While digital transformation is the key to future success, most “big, old companies are simply not designed for digital,” write Jeanne Ross of MIT, Cynthia Beath of the University of Texas, and Martin Mocker of Reutlingen University. One problem is that digital initiatives are often shunted off to the IT unit, when they should be part of the core management strategy. The authors identify five essential building blocks companies need for transformation: customer insights on what buyers want; the operational backbone that can support the work; the right digital platforms; an accountability framework; and an external developer platform that allows companies to expand their offerings. But companies also need a responsive culture and managers who understand that digital transformation is an ongoing process. While the authors note that few companies have made much progress on the digital journey, they examine some that have, including Royal Philips, LEGO, and Northwestern Mutual. And they provide helpful signposts for other organizations that want to take the first steps. (The MIT Press, US\$34.95)

THINK OUTSIDE THE BUILDING



Today’s messy, complex problems will be solved only by what Harvard’s Rosabeth Moss Kanter calls *advanced leadership*. “It stems from a sense of purpose oriented toward changing the system,” she writes. While advanced leaders might come from anywhere, she sees the most potential among “values-carrying millennials” with fresh ideas and seasoned veterans seeking new challenges. These older leaders, in particular, have “accumulated the three Cs of capabilities, connections, and cash” that they can invest in working on issues they truly care about. She offers plenty of examples, such as financial executive Torsten Thiele, who left the banking field to launch the multi-stakeholder Global Ocean Trust. Kanter is an optimist overall, and her book is “a field guide for the journey toward leadership with significant positive impact.” (PublicAffairs, US\$28)

UNDER THE INFLUENCE



Laws that regulate cigarette smoking are designed to protect other individuals from the harmful effects of secondhand smoke. But the real danger is that smokers make the activity look attractive, so nonsmokers take up the habit, too. This *behavioral contagion* affects every choice humans make, from buying clothes to investing in solar panels. But economists and policymakers tend to overlook how human decisions are influenced, for good or bad,

by the behavior of their peers, says Cornell professor Robert H. Frank. To achieve better outcomes, he writes, “taxation is often more effective and less intrusive than regulation.” When polluters are taxed, they often reduce their harmful emissions, and air quality improves. Frank believes an understanding of behavioral contagion could help solve some of the great challenges of our times. (Princeton University Press, US\$24.95)

SEE SOONER, ACT FASTER



The only survivors in a rapidly changing business environment will be vigilant companies that respond to risks and opportunities before their competitors do, according to George S. Day of the Wharton School and Paul Schoemaker of Q2 Tech. Vigilant leaders, they write, “focus externally and are open to diverse perspectives, they apply strategic foresight and probe for second-order effects, and they encourage others to explore widely by creating a culture of discovery.” Day and Schoemaker share stories of vigilant companies that paid attention to background signals and reacted more quickly than their rivals—such as Adobe, which was an early adopter of software-as-a-service. “Today’s environment of digital turbulence ... increasingly penalizes tardy responses,” they write. They show business leaders how to think—and act—fast. (The MIT Press, US\$29.95)

DIVERSITY, INC.

Despite decades’ worth of diversity initiatives, minorities are still underrepresented in America, even in progressive fields



like education, writes New York University journalism professor Pamela Newkirk. “While racial/ethnic minorities make up roughly 38.8 percent of the national population, they comprise

just 17 percent of full-time university professors, which includes faculty at Historically Black Colleges and Universities,” she writes. Businesses and their boards have also largely failed to integrate, she notes, even though companies spend billions on diversity efforts. Why spend so much to achieve so little? One reason might be that companies are less likely to lose discrimination lawsuits if they have diversity programs in place. Another is that diversity is big business for those who offer training sessions and conferences on the topic. Newkirk asks compelling questions as she takes a hard look at the American mosaic. (Bold Type Books, US\$27)

FIT TO COMPETE



Companies often fail in their transformation efforts because senior managers don't know how to solicit information from lower-level employees who have hands-on knowledge, says Har-

vard's Michael Beer. Beer and colleagues have created the *strategic fitness process* that facilitates open dialogue between managers and employees to identify problems or gain consensus around proposed strategies. The interviews focus on what the interviewees think about the new strategy, what organizational strengths should be preserved, and what the barriers to implementation might be. Beer writes, “Honest conversation is arguably the best method of organizational transformation.” (Harvard Business Review Press, US\$32) □

From INQUIRIES To INNOVATIVE ANSWERS

In 2018, Lerner College faculty disseminated new business knowledge in the following top-tier journals:

Bruce Weber, Dean

JACK BAO
Associate Professor of Finance
Journal of Financial Economics

ADRIENNE LUCAS
Associate Professor of Economics
American Journal of Health Economics

BINTONG CHEN
Professor of Operations
Management, Director of Institute
for Financial Services Analytics
*European Journal of Operational
Research*

JI KYUNG PARK
Associate Professor of Marketing
Journal of Consumer Psychology

ANDONG CHENG
Assistant Professor of Marketing
Journal of Marketing Research

SEONYOUNG PARK
Assistant Professor of Economics
*European Economic Review
Journal of Economic Dynamics
and Control*

KYLE EMICH
Associate Professor of Management
*Academy of Management Journal
Journal of Consumer Psychology*

DUSTIN SLEESMAN
Associate Professor of Management
Academy of Management Annals

XIAO FANG
Professor of MIS,
JPMorgan Chase Fellow
MIS Quarterly

GEORGE TSAKUMIS
Associate Professor of Accounting
Journal of Business Ethics

LAURA FIELD
Donald J. Puglisi Professor of Finance,
Chairperson of Finance Department
Journal of Accounting and Economics

BRUCE WEBER
Dean of Lerner College, Professor
of Business Administration
*Journal of Management
Information Systems*

MARY KERNAN
Associate Professor of Management
Journal of Management

FEI XIE
Associate Professor of Finance
Contemporary Accounting Research

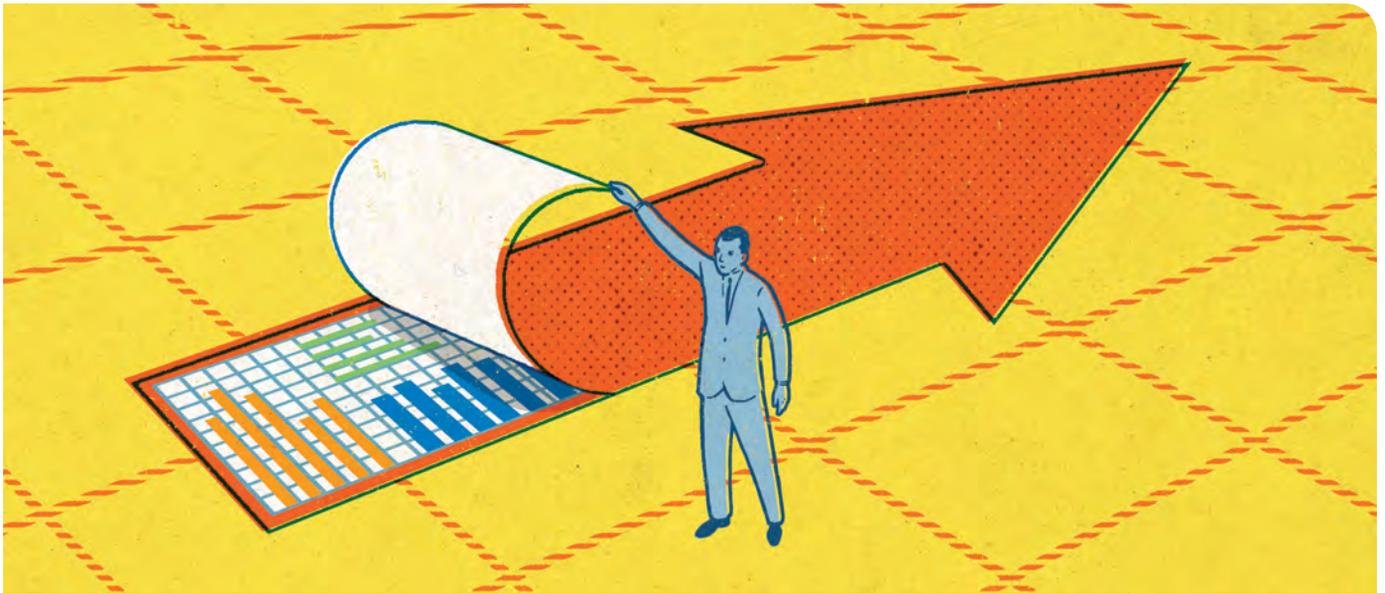
XIAOXIA LOU
Associate Professor of Finance
*Journal of Financial and Quantitative
Analysis*



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Measuring for Impact

A NEW RATING SYSTEM IS DESIGNED TO HELP SCHOOLS GAUGE THEIR SERVICE TO SOCIETY.

BY TRICIA BISOUX

THE WORLD INCREASINGLY expects business schools to produce solutions to societal challenges, as well as graduates who give back to their communities. But whether because of resource constraints or competing stakeholder interests, many business schools still don't match their actions in the market to their aspirations to make a difference.

They also face pressure from the rankings, which effectively measure a business program according to the salaries of its graduates but are less useful when it comes to gauging a school's social impact.

This disconnect has inspired a large group of business educators—brought together by the Mission Possible Foundation based in Switzerland—to design the Positive Impact Rating (PIR). Its creators are calling the PIR the first “by students for students” rating of business schools. These educators hope the PIR will encourage more business schools to couple their actions with social impact.

They spent two years developing the rating and completed the first prototype of the system in May 2017. Subsequent versions were tested in schools of different sizes, missions, and locations. The final version was adopted by the endorsing organizations in September 2018.

In January 2019, the steering committee released a white paper

introducing the PIR. The paper's co-authors include Katrin Muff of the Mission Possible Foundation, Switzerland; Thomas Dyllick of the University of St. Gallen in Switzerland; Mathias Falkenstein, CEO of XOLAS (formerly the Higher Education Management Group) in Berlin, Germany, and executive policy advisor at LUISS Business School in Rome, Italy; Clémentine Robert, president of oikos International; David Scicluna, former country manager of AIESEC Switzerland; and Léo Gillard of World Wildlife Fund Switzerland.

The new rating system is intended “to support fundamental change in the business school landscape with regards to the school's societal responsibility,” the co-authors explain.

The PIR asks stakeholders questions about nine areas that fall under a business school's purview. These areas are organized in four dimensions: *energizing* (which includes the areas of governance and culture), *educating* (programs, learning methods, and student engagement), *enabling* (research and continuing education), and *engaging* (institution as a role model, public engagement). Participants are asked to assess their perceptions related to each area on a ten-point Likert scale, from "I don't agree" (1) to "I completely agree" (10). They also can respond "I don't know" (0).

Schools can choose one of two forms of the assessment. The 20-question student assessment asks students and alumni to provide their perceptions of their schools along seven of the nine areas. Or, schools can conduct the full 36-question assessment, which elicits feedback from a complementary pair of stakeholders from each of the following groups: faculty, alumni, administrators, career services staff, and program

managers. By choosing two stakeholders from each group, the rating can identify any difference—or spread—in score between the two respondents.

A school's score in each dimension determines its impact rating on a scale from 1 to 5. Level 1 schools are perceived by stakeholders to be mostly unaware of the opportunity of creating social impact, while Level 5 schools are perceived to be changing society for the better.

PIR provides student organizations and schools their own data for detailed analyses. They also receive stakeholders' qualitative answers to the question, "What is the most important thing your school should stop, start, and continue doing in support of its commitment to providing management education that results in positive impact for the world?"

Members of the PIR General Assembly will be tasked with verifying each school's rating, based on the data collected. Schools that wish to publicize their verified ratings can use the PIR logo for external and internal communications.

The results of the first PIR student rating will be unveiled at the World Economic Forum in Davos in January 2020. Schools that receive Level 5 ratings will be invited to be recognized at the forum.

The PIR introduces a stronger sense of accountability, which in turn could help business schools measure the real relevance and impact they provide for society, says Falkenstein. He argues that this could lead to a "radical rethinking of management education paradigms."

Falkenstein and his colleagues hope that the PIR will inspire schools to embrace disruptive, rather than incremental change; design curricula that train students to become management innovators; and prioritize research with relevance and impact on society.

As business schools adopt more responsible management education practices, says Falkenstein, "they can become an important interface between business, government, and society."

► Visit www.positiveimpactrating.org.

Peers and Mentors

A peer mentorship program is being piloted at the Martin V. Smith (MVS) School of Business & Economics at California State University at Channel Islands (CSUCI). The new MVS School Peer Mentorship Program is funded by a US\$34,000 grant from the Martin V. & Martha K. Smith Foundation.

High-achieving, upper-division students with demonstrated academic aptitude and leadership skills will serve as embedded mentors in courses that business students often find the most challenging, such as microeconomics, macroeconomics, finance, and managerial accounting. The mentorship program is expected to be especially useful to first-generation students.

The mentors will spend several hours each week providing tutoring and small-group

learning sessions. In addition, the mentors will hold walk-in hours and organize events to help their fellow students navigate the "hidden curriculum" on campus. For instance, they will help their mentees find and access academic resources, seek out internships, or approach faculty members during office hours. The program is being piloted in the MVS School's upper-division business finance course.

"Research shows that many of our first-generation students and students from underrepresented backgrounds may feel more comfortable seeking additional academic and social support from a peer," says Susan Andrzejewski, interim dean of the MVS School. She adds that the benefit of the program is twofold. "Not only does it allow us to provide additional leadership and campus job opportunities to students who have performed very well, but these students can help 40 or so of their peers succeed as well."



UCI TARGETS LIFELONG LEARNERS

AS SHORT-TERM microcredentialing programs continue to gain popularity among learners, more institutions are expanding their offerings. Among them is the Division of Continuing Education (DCE) at the University of California, Irvine, which recently announced its partnership with FutureLearn, one of the largest online learning programs in Europe. The partnership will support the delivery of microcredentialing programs to lifelong learners on a global scale.

These microcredentialing programs will fit within the DCE's larger portfolio of learning experiences, which include boot camps, customized corporate education offerings, and 95 certificate programs (of which 65 are fully online). To earn a microcredential, students will need to complete a minimum of 12 units, or 120 hours of coursework. Among the DCE's first FutureLearn offerings will be a program in predictive analytics.

About 40 percent of the DCE's overall portfolio is devoted to business disciplines, says Brian Breen, DCE's chief corporate engagement and partnerships officer. This includes a selection of specializations and certificate programs the DCE delivers over the Coursera

platform. These MOOC-based programs have offered the school opportunities to engage with organizations for their training needs. "More companies are looking for shorter, faster, and cheaper ways to train their workforces," says Breen. "We've found that they're sending their employees to our MOOCs for foundational knowledge before coming to the DCE for something more customized."

At the same time, he has seen companies scale back their tuition reimbursement funding to target only training tied to an employee's functional role and performance goals. "They're looking for courses where their employees can pick up skills quickly and apply them back in the workplace," Breen says. "Going to a full-time MBA program for two years is a lot of money and commitment. Taking a ten-week online course for \$500 or \$600 is more accessible."

In the future, Breen expects short-format options to provide the kind of portable educational programs that will support learners throughout their careers. The new partnership, he believes, is one way the school can realize its vision "as a provider and supporter of the 60-year curriculum."

Second Partnership

In September, the University of Michigan in Ann Arbor announced its own partnership with FutureLearn, which will allow it to expand its online offerings. Among the university's first courses on the platform, offered in fall 2019 in partnership with U-M's Center for Academic Innovation, were an introduction to the programming language Python and a course on successful negotiation strategies.

The fact that FutureLearn supports a global community of 10 million learners—60 percent of whom are women—aligns with U-M's mission to "transform access to education" via a range of interactive, mobile, and local learning opportunities, says James DeVaney, associate vice provost for academic innovation and founding executive director of U-M's Center for Academic Innovation. "In order to create a more informed, peaceful, equitable, and empowered society, we need to help learners everywhere learn with and from each other."

TRANSITIONS

Sarah Fisher Gardial has been appointed the new dean of the Belmont University Massey College of Business in Nashville, Tennessee. She currently is dean and professor of marketing for the Henry B. Tippie College of Business at the University of Iowa in Iowa City, where she has served since 2012. During her tenure at the University of Iowa, Gardial led the Tippie College's expansion into specialty master's programs; she also oversaw the closure of its full-time MBA and expansion into an online part-time MBA program. She takes her new position March 1.

Bernard J. Milano, the longtime president of KPMG U.S. Foundation, retired in January. He also stepped down from his position as head of The PhD Project, an organization dedicated to recruiting minority professionals into business doctoral programs. Milano began his career at KPMG in 1961 and in 1975 became KPMG's first national partner in charge of university recruiting. He eventually became president of the KPMG U.S. Foundation, where he became a leader in promoting academic diversity and orchestrated the creation of The PhD Project. **Blane Ruschak**, KPMG's executive director for campus recruiting and university relations, will assume the presidency for both organizations.

HONORS AND AWARDS

The Royal Swedish Academy of Sciences awarded the 2019 Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel to **Abhijit Banerjee**, the Ford Foundation International Professor of Economics at the Massachusetts Institute of Technology in Cambridge, Massachusetts; **Esther Duflo**, an economics professor at MIT; and **Michael Kremer**, the Gates Professor of



Sarah Gardial



Bernard J. Milano



Blane Ruschak

Developing Societies in the department of economics at Harvard University in Cambridge, Massachusetts. The three won the Nobel Prize "for their experimental approach to alleviating global poverty." Duflo is the second woman to be awarded a Nobel Prize in economics.

Last fall, the American Institute of CPAs (AICPA) recognized innovative accounting educators with the 2019 Effective Learning Strategies Awards, which are co-sponsored by Grant Thornton and the Federation of Schools of Accountancy. **Stephanie Grimm** of the University of St. Thomas won the Bea Sanders/AICPA 2019 Teaching Innovation Award. The George Krull/Grant Thornton 2019 Teaching Innovation Award went to **Ethan Kinory** at Rutgers University–Camden in New Jersey, **Kimberly Church** of the University of Missouri–Kansas City, and **Sean Stein Smith** of Lehman College. **Mahendra Gujarathi** of Bentley University received the Mark Chain/FSA 2019 Teaching Innovation Award. For a full list of winners, visit www.aicpa.org/press/pressreleases/2019/aicpa-recognizes-innovative-accounting-educators.html.

Global Consortium of Entrepreneurship Centers has recognized **Saras Sarasvathy** with its Legacy Impact Award for her impactful work in the field of entrepreneurship. Sarasvathy received the honor for her research in effectuation, a framework for building successful entrepreneurial ventures. Sarasvathy holds two appointments: She is the Paul H. Hamaker Professor of Business Administration at the University of Virginia Darden School of Business in Charlottesville and the Jamuna Raghavan Chair Professor in Entrepreneurship at the Indian Institute of Management in Bangalore.

Two schools have received 2019 WRDS–SSRN Innovation Awards. Southampton Business School at the **University of Southampton** in the U.K.

Data Services and the Social Science Research Network to recognize emerging business schools that are advancing impact-focused research.

Two schools have won 2019 Innovator Awards from the MBA Roundtable, a nonprofit organization dedicated to sharing information about MBA curricula. The award for early-stage innovation went to the **Asia School of Business** in Kuala Lumpur, Malaysia, for its action learning program. The award for established innovation went to **Colorado State University** in Fort Collins for its Global Social and Sustainable Enterprise MBA.

NEW PROGRAMS

The **Johns Hopkins Carey Business School** in Baltimore, Maryland, is redesigning its flagship full-time MBA program to place a greater emphasis on analytics, leadership, and career development. New features include the Big Data Consulting Project, in which students partner with companies to analyze a data set related to a business challenge; and the Innovation Field Project, in which students work onsite with partner organizations throughout the U.S. MBA students will be able to choose from health, technology, and innovation specializations.

This fall, **Warwick Business School** in the U.K. launched an MSc in global central banking and financial regulation. The program was designed in partnership with the Bank of England. Topics include comparative central banking, monetary policy, big data, and behavioral finance; classes are taught by academics, central bankers, and regulators. Participants can earn the MSc by completing six of seven modules plus a dissertation, but they also have the option of completing just one module and earning an award certification.

Starting in September 2020, **IE Business School** in Madrid, Spain, will launch its full-time one-year

received the award for the Europe, Middle East, and Africa region. The **National University of Singapore Business School** was recognized in the Asia Pacific region. The WRDS–SSRN Innovation Award was created by Wharton Research

Tech MBA, designed for managers who want to advance their careers in the technological sector. Eligible candidates for the program must have university degrees in science, technology, engineering, or math fields, as well as skills to manage technological projects. The program will expose participants to topics such as fintech, blockchain, robotics, automatic learning, and emerging technologies. It will include a Digital Female Leadership Mentorship to support women from STEM backgrounds.

In April, the **University of Chicago Booth School of Business** in Illinois will launch the Physician Leadership Program, an executive education program designed to help physicians in administrative roles become more effective leaders. Participants will learn to use data analytics to make sound financial decisions, explore ways to increase productivity, and take steps to reduce burnout.

The **Stanford Graduate School of Business** (GSB) in California has added an Action Learning Program to its curriculum. As of the 2019–2020 academic year, students in the school's MBA program and one-year MSx, a one-year program for mid-career professionals, will complete hands-on projects as part of the program. Throughout ten weeks of immersive courses, students will work in teams on assigned projects that require them to solve challenges faced by participating companies.

In the fall of 2019, the O'Malley School of Business at **Manhattan College** in Riverdale, New York, launched an Honors Program to help enhance students' professional development. First-year undergraduates accepted into the Honors Program will participate in additional career-related networking activities and field trips, receive enhanced mentoring opportunities, be assigned dedicated honors advisors, and have a special designation placed on their official transcripts.

The **University of Southern California's** Marshall School of Business has partnered with the global professional services firm BTS USA to create Accelerating Women Executives (AWE), a six-month development experience for high-potential women leaders. The executive education program will include five elements: pre- and post-program assessments examining participants' behaviors

and mindsets; workshops that allow participants to face realistic challenges in a risk-free environment; executive coaching before, during, and after the workshops; executive sponsorship; and an expanded peer network.

COLLABORATIONS

Kedge Business School in France and global asset manager Candriam have launched a research chair dedicated to sustainable finance. The chair will be led by **Christophe Revelli**. The chair will explore how sustainability and accountability issues create additional value and have an impact on businesses and the economic development of society as a whole.

The MIT Sloan School of Management at the **Massachusetts Institute of Technology** in Cambridge has entered into a five-year agreement with **Queensland University of Technology Business School** in Australia. The partnership will support academic exchange and provide students in QUT's entrepreneurship program access to MIT Sloan's global entrepreneurial networks. The schools also will create a two-week entrepreneurship and digital transformation immersion program that will launch in the summer of 2020 and enroll up to 60 QUT MBA and EMBA students.

Five universities in Florida have created an alliance to accelerate the advancement of women of color in the academic fields of science, technology, engineering, and math. The Florida AGEP Pathways Alliance, which has received a US\$2.4 million grant from the National Science Foundation, will work with 300 doctoral, postdoctoral, and early-career minority women faculty to advance their careers in STEM. About \$1.3 million of the grant will go to the **University of South Florida St. Petersburg** and **Florida A&M University** in Tallahassee. The remainder will go to **Florida International University** in Miami, **Florida Memorial University** in Miami Gardens, and **Bethune-Cookman University** in Daytona Beach.

ESSEC Business School in Cergy, France, is launching a beauty program in collaboration with cosmetics company Estée Lauder, fragrance and cosmetics company IFF, and perfumery Nocibé of the Douglas Group. The new Leading a Beauty Brand Chair will be headed by **Véronique Dreccq**,

Aston University in Birmingham, England, is partnering with online program management provider Keypath Education to deliver an online executive DBA program. The online executive DBA offers niche courses in subjects such as financial management, engineering and technology, and public administration.

GRANTS AND DONATIONS

Carolyn L. and David B. Miller have committed US\$50 million to **Southern Methodist University's** Edwin L. Cox School of Business in Dallas, Texas. The money will enable the Cox School to modernize its curriculum, offer more scholarships, enhance its facilities, and develop interdisciplinary cross-campus collaborations. Previous gifts from the Millers have supported the Cox School's David B. Miller Endowed Professorship, the Don Jackson Center for Financial Studies, and the EnCap Investments & LCM Group Alternative Asset Management Center. David Miller was co-founder of EnCap Investments.

The Tuck School of Business at **Dartmouth College** in Hanover, New Hampshire, has announced a US\$25 million gift commitment from the Bakala Foundation USA. The gift will endow Tuck Global Opportunities—or TuckGO—a portfolio of for-credit immersive educational experiences that make up Tuck's global learning requirement. The gift also creates the Bakala Global Suite, which will be the future home of the TuckGO offices and a hub for student, faculty, and staff collaboration. The Bakala Foundation was established by investment banker Zdeněk Bakala and his wife, Michaela.

The Stern School of Business at **New York University** in New York City has received a US\$5 million gift from alumna and entrepreneur Elizabeth Elting. Over the course of ten years, the gift will support 40 female MBA students and provide seed capital to 20 women-led businesses through the Elizabeth Elting Venture Fund, in association with the school's Endless Frontier Labs program. Elting was founder and co-CEO of TransPerfect, a language solutions company she started out of a NYU dorm room.

CENTERS AND FACILITIES

Babson College in Wellesley, Massachusetts, has opened the Kerry Murphy Healey Center for Global Healthcare Entrepreneurship with US\$10 million in

funding from the Steven C. and Carmella R. Kletjian Foundation. The center's mission will be to establish a global community dedicated to developing innovations in healthcare systems and processes that lead to advances in global health and surgery.

Arizona State University's Thunderbird School of Global Management has broken ground on its new global headquarters on ASU's downtown Phoenix campus. Thunderbird's new home will include five stories and 112,000 square feet of space; an interactive Global Forum where speakers from any remote location can address and engage with students; an Innovation Lab for experiential learning that includes a Global Situation Room; and a Language Lab enhanced by augmented reality and virtual reality technology.

Naming Gift for University of Miami

The **University of Miami** Business School in Florida has been renamed the Patti and Allan Herbert Business School in honor of a couple who, with a new gift to the business school, have donated more than US\$100 million to the university over their lifetimes. To spur others to support the Miami Herbert Business School, the donors also have created the Herbert Challenge, which will match gifts up to an established amount.

Money from the challenge will support endowed chairs, academic programs, and student scholarships. The gift and the challenge initiative also will support interdisciplinary academic clusters, such as a planned new Center for Sustainable Business. In addition, a portion of the Herberts' gift will be used to attract challenge grants to build out other centers of excellence, including those dedicated to entrepreneurship, leadership, decision making, analytics, and global operations.

In October, the **University of Pittsburgh** in Pennsylvania launched its Center for Sustainable Business (Pitt CSB) within the Joseph M. Katz Graduate School of Business and College of Business Administration. The new center will work with global and regional companies to integrate environmental and societal concerns into their business models. It will be led by **CB Bhattacharya**, the H.J. Zoffer Chair in Sustainability and Ethics.

New York University's Stern School of Business has renamed its Volatility Institute. The center now will be known as the Volatility and Risk Institute (VRI). The VRI will continue to assess financial volatility and risk while now also considering risks related to climate, cybersecurity, and geopolitics.

OTHER NEWS

Effective October 1, 2019, the Naval Postgraduate School in Monterey, California, changed the name

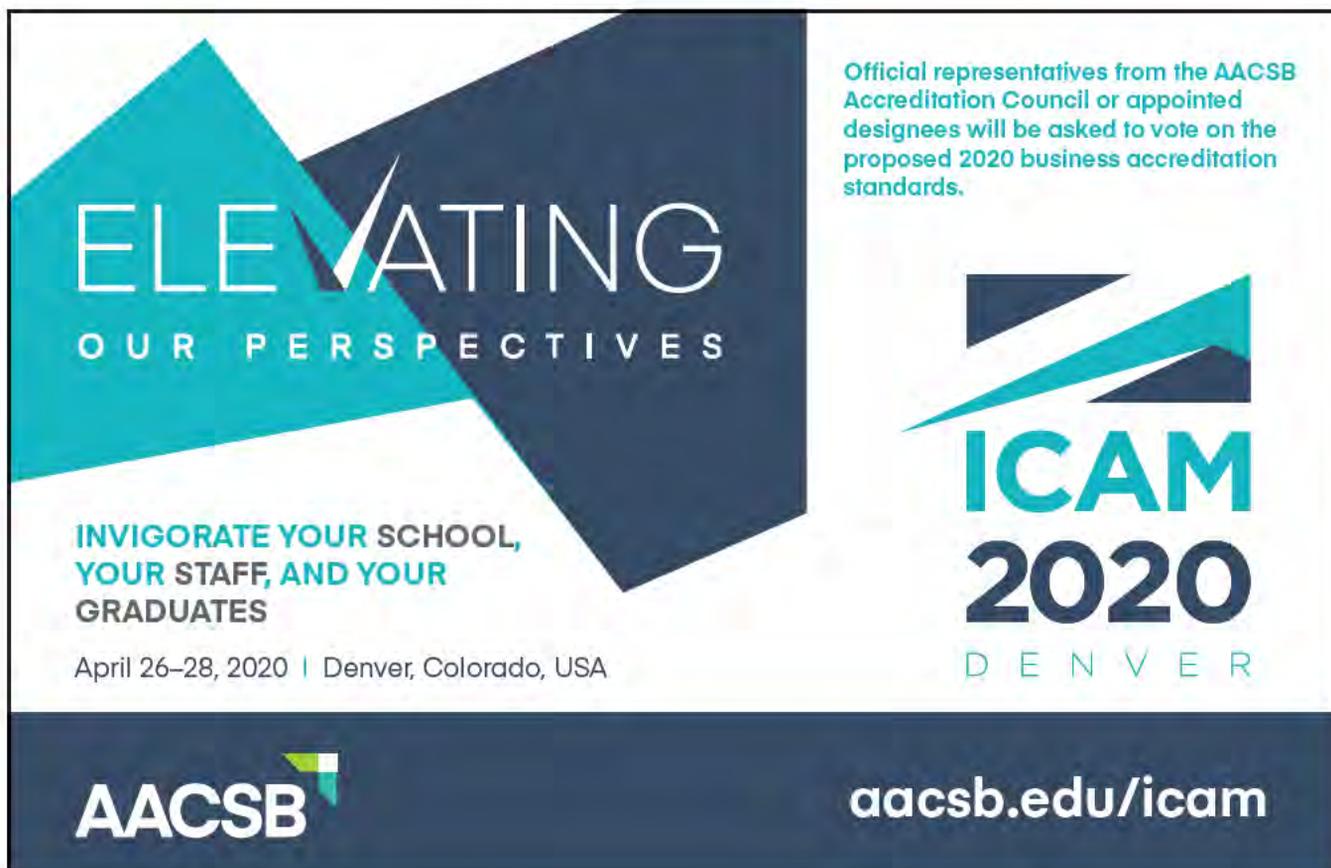
of its Graduate School of Business and Public Policy to the **Graduate School of Defense Management**. According to dean Keith Snider, this new name better signals to the school's stakeholders its defense-focused identity and mission. The Graduate School of Defense Management offers MBA, EMBA, and MSc in management degrees, as well as several specialized certificates.

Starting this year, all students in the Master in Management (MiM) Grande Ecole program at **HEC Paris** in France will follow the Purposeful Leadership track throughout their studies, thanks to the Joly Family Endowed Chair in Purposeful Leadership. First-year students will have opportunities to engage in reflection at the island commune of Mont Saint-Michel; practice teamwork with the French army; and question the societal purpose for organizations in the mountain town of Chamonix, an area particularly vulnerable to global warming.

The Wharton School at the **University of Pennsylvania** in Philadelphia has launched Wharton Business Daily, a morning show that will air weekdays on SiriusXM Channel 132. The show will focus on both topical news stories and emerging trends. The Wharton School has also announced that its publishing arm is changing its name from Wharton Digital Press to **Wharton School Press**. The press was launched in 2011 with the goal of leveraging emerging digital publishing technologies. The change underscores the Wharton School name, which the press acknowledges is one of its key selling points.

CORRECTION

In "The Seminar Reimagined" in the November/December 2019 issue, the author's name was misspelled in her biographical information. She is **Dena Hillison** of the University of Delaware's Lerner College of Business & Economics in Newark. 



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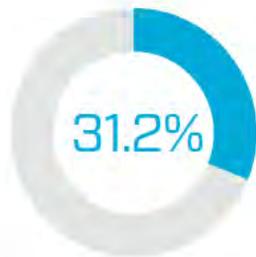
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The percentage of EMBA students in 2019 who were women, compared to 27.6 percent in 2015, according to a survey by the Executive MBA Council.

READ "UPTICK FOR EMBAS" ON PAGE 12.

20 MILLION POUNDS

The amount of carbon emissions that companies have removed from the air with the help of students taking part in the Georgia Institute of Technology's Carbon Reduction Challenge.

READ "EXPERIENCE RULES" ON PAGE 60.

93% The portion of 3,700 business students, surveyed by the Yale School of Management, who agree or strongly agree that climate change poses a risk to businesses. At the same time, 79 percent feel only "moderately" or "not at all" knowledgeable about sustainable business practices.

SEE "CARBON CUTTERS" ON PAGE 40.

RESILIENCY ISN'T ENOUGH

Teaching entrepreneurship isn't just about helping students launch startups, writes Bill Aulet of the Massachusetts Institute of Technology. It's about teaching them to be open to new challenges—what author Nassim Nicholas Taleb calls being *antifragile*. "Antifragile people and teams are not simply those who are 'robust' or 'resilient,'" writes Aulet. "Antifragile systems, people, and teams actually grow stronger in the face of adversity and uncertainty."



READ "THE ANTIFRAGILE ENTREPRENEUR" ON PAGE 54.

PARTNERING FOR SUSTAINABILITY

Tanzania and Ethiopia are among the fastest-growing economies in the world, but they lack access to healthcare, reliable energy, and sustainable food sources. To help address these problems, BI Norwegian Business School has partnered with Mzumbe University in Tanzania and Jimma University in Ethiopia on educational initiatives focused on supply chain management and sustainable business development.

READ "SUSTAINABLE OBJECTIVES" ON PAGE 50.

LEADING TRANSFORMATION

"People who believe digital transformation hinges on new technology miss a fundamental rule of business: Gadgets don't drive change. Leaders do," writes Ritu Agarwal of the University of Maryland. She adds that machines don't resist change; people do. "Fear of the unknown is a human trait, and leaders must anticipate pushback against new ideas."

READ "ACHIEVING A DIGITAL MINDSET" ON PAGE 20.

LEVEL 5

The highest rating a business school can achieve under the new Positive Impact Rating, created by an international team of educators. The 1-to-5 scale is based on how stakeholders perceive a school's social impact across four dimensions: *energizing, educating, enabling, and engaging*.

READ "MEASURING FOR IMPACT" ON PAGE 66.

4% → 21.6%

The growth in the percentage of women-founded companies from 2001 to 2018, according to the Kauffman Fellows Research Center.

READ "WOMEN AND STARTUPS" ON PAGE 14.



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