SOCIAL DATA ANALYTICS

BROWN

📍 IN THIS ISSUE

Where Research Meets Reality

Professors share insights on their innovative methodology

Bright Future for Data Specialists

IN ITS LATEST ASSESSMENT OF LABOR MARKET TRENDS, the US Bureau of Labor Statistics (BLS) predicts that the demand for skilled market research analysts and data scientists will grow by 19% and 36%, respectively, within this decade. Given that this rate of expansion far outpaces expected growth in other professions, Master of Social Data Analytics (MSDA) graduates can look forward to wonderful career opportunities. Even during the economically challenging first years of the pandemic, our graduates have found rewarding positions, suggesting that the growth the BLS predicts has already begun.

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Now in its eighth year, the MSDA program continues to grow and evolve, too, with more course offerings at the cutting edge of social science research and increased emphasis on professionalization. In the past year, the Department of Sociology has hired several new faculty members who are developing new course offerings in advanced research methods. In May 2022, we held our first commencement weekend breakfast reception for MSDA graduates and their families, with research presentations by each graduate. And this year, we organized an alumni speakers' dinner that brought recent graduates back to Brown to speak with current MSDA students about strategies for landing the right job and fully leveraging their graduate-level education in the labor market.

In this issue of *Social Data Analytics*, several of our graduates describe their learning and career trajectories, and faculty discuss their methodological approaches to research and teaching. If you have any questions about the program and/or suggestions for future coverage of our community and the field itself, please let us know. We would love to hear what's on your mind.

David P. Lindstrom PhD
Program Director/Professor of Sociology

Carrie Spearin PhD '07
Associate Program Director / Senior Lecturer

Visualizing Outcomes Among the Most Vulnerable

THERE'S SOMETHING SUPREMELY SATISFYING about seeing a natural passion blossom into a rewarding career that impacts people around the world. For Assistant Professor **Kevin Mwenda**, the initial pull towards understanding the world in terms of mapping—or visualizing location in space—started very early. "I was always fascinated with maps, even as a young kid," he says, yet at that point he had never heard of what he now teaches and practices: the intricacies of Geographic Information Systems (GIS), along with the latest concepts and methods in spatial research and analysis.

In 2018, Mwenda arrived at Brown fresh from earning a PhD in Geography from the University of California at Santa Barbara. Despite Brown's lack of a stand-alone Geography department, he has found a home as a faculty affiliate in both Sociology and Data Science, as an assistant professor of Population Studies, and since July 2022, as interim director of Spatial Structures in the Social Sciences—better known as simply S4, the scholarly space for spatial research at Brown.

Mwenda's multiple titles match his multidisciplinary interests in exploring the nexus of people, place and environment—precisely where that interaction plays out. It's a space that may sound abstract and esoteric, but spend a moment asking him about it and you'll immediately discover that for him the world of GIS and spatial analysis means everything—a field where his interests in mapping, geography, global inequality and human wellbeing come together. His face lights up when he speaks about his work researching changing spatial patterns in health outcomes among vulnerable populations around the world, looking at how these patterns are influenced by environmental, climatic and socioeconomic factors.

As the principal investigator from Brown, Assistant Professor Mwenda recently wrapped up an intense, two-year research project to help countries around the world track and report local conditions to the UN Convention to Combat Desertification. In developing a tool called Trends.Earth, he collaborated with colleagues from multiple institutions to address the serious impact of land degradation on local residents already at risk due to climate change.

cover photo by istockphoto.com/Madalin Olariu | left photo by istockphoto.com/mijko
above photo courtesy of Kevin Mwenda | right photos courtesy of the Department of Sociology

Students see more clearly how these skill sets help them connect with what is happening in the world.

SUSTAINING LAND & LIVELIHOODS

In 2022 Mwenda wrapped up an ambitious research project to develop a United Nations-backed toolkit for assessing and ameliorating land degradation and desertification due to climate change. Called *Tools for Land Degradation Neutrality* (tools4ldn.org), the far-reaching project was funded by the Global Environment Facility (GEF) to help countries around the world realize a key component of the UN's 2030 Agenda for Sustainable Development.

As the principal investigator from Brown, Mwenda discovered that the multi-institutional endeavor "really took a lot of bandwidth" over the past two years as various players came together for the first time ever to tackle the devastating human toll of land degradation in a unified manner.

"My take on it as the population studies faculty member on this project was to look at the impact of land degradation on the socioeconomic conditions of vulnerable communities in affected areas," Mwenda explains. The idea was to help UN member states integrate free and open source platforms that allow each country to monitor their progress on limiting or preventing land degradation and then report that to the UN Convention to Combat Desertification (UNCCD).

While Mwenda focused on the population side of the problem, others on the team worked to develop the Trends.Earth tool, which enables national agencies to identify and quantify where local residents are being affected by the most extreme effects of climate change and then implement measures to build resilience and safeguard against further desertification.

TEACHING GIS PRINCIPLES & METHODS

Whether researching a complex global project like land degradation neutrality (LDN) or helping to highlight racial disparities in early Covid outcomes in Rhode Island, Mwenda often invites students to assist with various aspects of his research.

"By training I'm a health geographer," he explains. So while much of his previous research involved looking at global spatial

patterns of health outcomes related to infectious diseases or malnutrition, for instance, environmental factors clearly contribute to these outcomes (and relate to his undergraduate degree in Environmental Studies from Dartmouth). "But if you take an eagle's eye view, I quantify and explore spatial patterns of vulnerability outcomes generally—so part of that might be about health, or human migration, or with the LDN project, it's about people affected by climate change and things like that."

In the four-plus years he has been at Brown, Mwenda has noticed a shift in student engagement and interests that has inspired him to adjust his own approach to teaching. "I think before the height of the pandemic, your average student was, of course, looking to learn," he explains. But in retrospect, he realized ▸▸▸

CONNECTING OUTSIDE OF CLASS

top: In September, the new MSDA cohort kicked off the fall semester with a welcome reception at Program Director David Lindstrom's farm and homestead in Foster, RI. An annual tradition, this gathering brings new students together to get to know each other in a relaxed setting.
l-r, front row: **Qiner (Angeline) Shi, Xinzhe (Gracie) Fan, Yukun (Krista) Wang, Yiqi (Elaine) Yao, Chuhan (Chelsey) Wen, Jing Duan** | *back row:* **Karthik Ramesh, Emma Toussenel, Yuning (Stephanie) Liu,** Professor **David Lindstrom, Qingzhou Zhang**

above: Later in October, MSDA faculty and students gathered for an informal mid-semester lunch at Flatbread Pizza in Providence. A hallmark of the small MSDA program is close interaction between students and faculty.

l-r: Professor **Carrie Spearin, Yiqi (Elaine) Yao, Chuhan (Chelsey) Wen, Jing Duan, Qingzhou Zhang**

Assistant Professor Mwenda helps MSDA students acquire and master GIS and analytical skills needed in the workplace.

▶▶▶ that many of the international studies he referenced in class to explain GIS mapping methodologies and applications "were a bit abstract." For students, it was often difficult "to picture what that might mean for the places being mapped and analyzed." But once the pandemic hit, "we all switched gears and things became more tangible," he says. "When you're mapping health outcomes in Rhode Island, suddenly it's this thing that students can see. It's right here." Data that once seemed nebulous and remote suddenly feels very real and relevant.

As a result, Mwenda says that in the past couple of years he has taken a more applied approach to teaching "so that students can really make a connection with what they see out there. I try to use a lot of contemporary examples now, which is what keeps it really interesting for me, too."

This fresh approach seems to be working, allowing students to "see more clearly how these skill sets can be used to understand society better," Mwenda says. Grad students and seniors in particular with an interest in GIS- or data science-related careers are learning these skills in order to flesh out their portfolios for the job market. "A lot of recent graduates have written to me to say how the labs that I designed and the learning experience overall were really helpful to them" in pursuing their careers, he says, adding with obvious satisfaction: "So to me as a teacher that's really rewarding." ▪

SELECTED MSDA COURSES
ADVANCED ELECTIVES IN A VARIETY OF METHODS

▶ Focus Groups for Market and Social Research
▶ Context Research for Innovation
▶ Market and Social Surveys
▶ Geographical Analysis of Society
▶ Spatial Thinking in Social Science
▶ Techniques of Demographic Analysis

▶ Event History Analysis
▶ Statistical Methods for Hierarchical and Panel Data
▶ Causal Analysis
▶ Computational Methods for Social Scientists
▶ Sociology of Race and Education
▶ Social Theory Now

Developing a Reliable Tool for Eliciting Honest Answers

FOR MANY YEARS, Professor **David Lindstrom** had been collecting and analyzing data on migration, family life and health in Mexico and Central America when he suddenly found himself wrestling with a new challenge in Africa. HIV and AIDS were ravaging local populations in southern Africa at the time and health experts worried that Ethiopia, which had very low levels of contraceptive use, would be next.

With funding from the Packard Foundation, Lindstrom was invited to partner with colleagues at several Ethiopian universities to co-direct a long-term program of training and research in reproductive health built on a longitudinal survey of adolescents.

"Throughout my career I have been actively engaged in primary data collection," says Lindstrom, who founded the MSDA program and continues to direct it. But in this case, he knew that conventional survey interview methods wouldn't work to get Ethiopian teenagers to reveal sensitive personal information about their sex lives. So he puzzled over alternative methods for collecting reliable information from these young people that would encourage honesty while protecting their privacy.

Given the rural population the team would be surveying—in the predominantly Muslim region of Jimma in southwest Ethiopia—Lindstrom knew they needed a simple, low-tech tool that would be easily understandable regardless of literacy levels. "I first thought about using something like a deck of cards with yes, no and numerical responses that respondents could point to," he explains. But he quickly switched to the idea of developing a larger, double-sided card divided into response cells, with one side facing the interviewer and the other facing the respondent. During the most personal and sensitive portion of in-person

The method can also be used to detect attitudes that tend to be stigmatized.

interviews, teens respond to survey questions by poking a stick through a hole in the center of each cell to silently select one of multiple response options.

Once Lindstrom and his team did two random trials to test the nonverbal response cards against the conventional verbal response method, they discovered that "the results were dramatic." By comparing responses to both approaches, they could see that "kids were clearly underreporting any kind of coercion or violence associated with sex" when they provided verbal responses to the survey, Lindstrom explains. But with the cards, both males and females were noticeably more forthcoming with what was really going on in their sex lives. "The results were pretty compelling," Lindstrom says—so much so that the team used the nonverbal response card method as the basis for the Jimma Longitudinal Family Survey of Youth (JLFSY), which tracked a cohort of 2,100 teens in the 13–17 age range over the course of eight years.

Since then Lindstrom has published several articles and given presentations at meetings of the Population Association of America and the American Statistical Association about the efficacy of the nonverbal response card method in various studies around the world, including most recently as part of a survey of violence and post-traumatic stress disorder in Burkina Faso. He continues to advocate for incorporating nonverbal response cards in eliciting accurate information about especially sensitive subjects, which are notoriously susceptible to social desirability bias (the tendency of respondents to try to make a good impression on the interviewer in the context of a face-to-face interview). Over the years, he has discovered that "the method can also be used to detect and understand which attitudes and behaviors are stigmatized in any given culture or situation," he says.

With a lifelong affinity for Latin America, Lindstrom has also been heavily involved in research in Mexico and Guatemala since the 1990s, when he was still a doctoral candidate at the University of Chicago. He recently took over as co-director of the Mesoamerican Migration Project (MMP) and

Professor Lindstrom developed a low-tech, nonverbal response card system to encourage Ethiopian teenagers to respond to questions about their sex lives with candor and honesty.

the Latin American Migration Project (LAMP), two long-running efforts that have generated huge survey databases for exploring migration in the Americas. In addition, he serves as a co-investigator on a survey of Venezuelan, Nicaraguan and Haitian migrants in major destination areas in Colombia, Costa Rica and Chile, and as a consultant on a survey of Venezuelan, Cuban, Dominican and Peruvian migrants in Uruguay.

This spring Lindstrom is making use of his strong connections in the region to take students in his *Migration in the Americas* class to Mexico City for a week of immersive learning about a topic that has been making headlines in the US as sorely needed immigration reform continues to stall out in Congress. There they will meet Mexican migration scholars to learn first-hand how migration data is being collected and analyzed. ▪

MULTIVARIATE STATISTICAL METHODS I

Media coverage of everything from healthcare concerns and the effects of global warming to presidential elections and police brutality is increasingly saturated with the use—and misuse—of statistics. In addition, statistical techniques play a central role in seemingly disparate fields, including research, marketing, medicine, tech and public service.

As the first required statistics course for grad students in both the MSDA and PhD programs, *Multivariate Statistical Methods I* offers an intro to the use of statistical methods in social research. "I teach the course as an applied introduction to statistical concepts and multiple regression for sociologists," explains Professor Margot Jackson. Students work intensively with Stata, the preferred software in the industry, becoming comfortable using the program in the process of completing weekly assignments focused on how to collect and analyze quantitative data.

By understanding basic statistical concepts and techniques, students become informed consumers of both popular media and scholarly knowledge.

Jackson often inspires her students to continue on to *Statistical Methods for Hierarchical and Panel Data*, a more advanced elective on the challenges of analyzing complex data with clustering. "Often, the data that exist about human behavior are not straightforward," the professor explains. "People are clustered within households, schools, neighborhoods or workplaces, and we need methods that allow us to account for the greater similarity of people who share environments." In this course, students explore topics such as random effects, fixed effects and growth models, among others, and produce a final empirical report with data of their own choice.

"By understanding basic statistical concepts and techniques, students become informed consumers of both popular media and scholarly knowledge," Jackson says, adding that they also graduate "better equipped to enter any profession." ▪

Natural Transitions

EVERY YEAR A NUMBER OF SENIORS who are about to complete their undergraduate studies at Brown apply to the MSDA program. Since the practice has gained in popularity, the department now offers a fifth-year MSDA option geared towards Brown students with a foundation in statistics and social science research who want to add advanced skills that give them an edge in the workplace.

For Sociology majors **Jamila Gilmore** BA '18/ScM '19 and **Bonjoo (Jenna) Koo** BA '19/ScM '20, the decision to continue on at Brown to earn a master's degree in data analytics made perfect sense. Both had good experiences as undergrads but also felt the need for more grounding in methodology—to build on the theory-based world of reading and writing that had drawn them to the field to begin with by adding practical experience with data analysis, both quantitative and qualitative.

This program was exactly what I was looking for.
Jenna Koo BA '19/ScM '20

"This program was exactly what I was looking for," Koo says—"one in line with the sociology work I had done as an undergrad but introducing more mathematics, showing how to put theories and numbers together, to understand data and explain that in a very concise and efficient way." She also appreciated that because most of the students in her cohort had at least a few years of post-college work experience, they brought "a different attitude and mindset" to being in school. "They took it more seriously, so that was a great transition for me," she says.

Gilmore concurs that "it was easy to decide to stay on for the data analytics program." After her first eye-opening social psychology class "explained so much about how we behave," she had gravitated towards other courses that were

a good fit for where she was coming from as a "low-income queer Black" student. Still, by senior year she didn't really know what she wanted to do next. "I had that theoretical foundation," she says, "and wanted to learn more about methodology and get experience with quantitative data, so doing the master's program made sense."

SATISFYING WORK
Both Koo and Gilmore landed their first jobs while still in the program and were so thrilled with the freedom and level of responsibility they were given so early on in their careers that they stuck with them for another year or two after graduation—Koo wearing all sorts of hats working for a tech startup called Tulip in Boston and Gilmore given equally much latitude in her position as a public opinion researcher/analyst at a nonprofit and foundation-focused organization called Topos in Providence.

Both recent graduates are equally excited about their current positions working for two very different companies. For Koo, her position as an associate product manager at CharterUP ("like Uber for buses") in Boston is a "perfect" fit for what she learned in the master's program. "It's what I had envisioned myself doing," she says. "I was never strong with numbers so doing all the data science work gave me a lot of confidence. Now, I don't analyze data on a day-to-day basis but I have to think about it a lot" in terms of how to use and communicate it in a meaningful way and how to translate it into tangible product improvements.

After almost three years of all-consuming ethnographic research on issues of race and inequity, Gilmore felt ready for something a bit less intense

With two degrees from Brown and the hard skills from the program, you stand out.
Jamila Gilmore BA '18/ScM '19

than her position at Topos. In 2022, when the big market research firm MetrixLab recruited her to be a qualitative research manager, she accepted the offer. "With two degrees from Brown and the hard skills from the program, you stand out," she says.

Based in Atlanta—her hometown—Gilmore now works as part of a team of 10 "really wonderful people" doing research for major commercial clients. "I'm still doing a lot of in-depth interviews and focus groups," she says, but she's also overseeing online mixed methods that she finds "kind of cool"—like five-day discussion boards with 10–20 people who respond to prompts. "We also do these very quick qual/quant hybrids where you take 80 people for an hour, show them a commercial, then ask these questions that they respond to in real time" before the group votes on each other's responses.

"This job is definitely lighter on the brain" than her previous position, Gilmore admits. "But I do find what I do to be interesting. I get to work on so many topics—from durable medical equipment to understanding race in the Quinault Nation in Washington state."

Koo is equally pleased with where she has landed. "I've found my niche and am so happy with the place I'm at," she says, adding: "I get to own so much, and feel very lucky to have such kind bosses."

As Gilmore reflects on her years at Brown, she says that even though she was figuring out what she wanted to do as she was doing it, "the throughline is that I wanted to do something with people, just talking to people and figuring out what's going on in their lives, what they want, and how to improve things." Given that abiding interest, she sees herself eventually gravitating towards work in human resources—"doing internal research to assess how employees experience their workplace and helping to make it better." ıl

Being True to Yourself

FOR RECENT MSDA graduate **Yue Zhao** ScM '18, coming to Brown just months after graduating from the University of Washington (UW) felt momentous. Growing up in Chengdu, China, she had studied at an international high school with the intent of pursuing her higher education abroad—preferably at a university in the US. Though she never explicitly set her sights on attending an Ivy League school, she landed at Brown for her graduate degree and is incredibly thankful she did.

Majoring in both math and philosophy at UW, Zhao began to form a loose idea of where she hopes to go professionally. "I wanted to do something I'm good at," she concedes, "and I'm good at math, I'm good at statistics." On the other hand, she knew herself well enough to realize that she wants to interact "with real people" not just numbers, screens and the internet. "I did a lot of online research to find the right program… and chose Brown because I know I'm a multi-area person who wanted to pursue the intersection between the quantitative and qualitative areas" of social data analysis.

Once she arrived on campus in the fall of 2017, Zhao immediately noticed a distinct difference from the large public university she had enjoyed on the West Coast—especially in terms of the caliber of students and the accessibility of faculty. "The first thing you learn as an Ivy League student is that you're no longer a big fish in a small pond," she admits with a smile. "Like, everyone was top in their undergraduate class, the best at whatever they wanted to achieve." Rather than feel inadequate or threatened by her peers, however, she simply felt "motivated to work really hard since everyone around me was crazy talented." That proved to be stressful at times—especially when it came to pushing beyond her comfort zone to write papers about her qualitative research—but in the end she says she "felt so lucky to be surrounded by great people," including faculty who make sure the program feels "personal," "supportive" and "very positive."

In just over four years since graduating, Zhao has already had three jobs—a fact she finds a bit surprising and yet understandable, especially given the pandemic. Her first job after Brown—at Miriam Hospital in Providence—was "an ideal, perfect match for the program," she explains, since it entailed research, analysis and data mining. But after staying on in Providence for a year and a half after graduation, Zhao says she "wanted to

explore and try different things." So she moved to Los Angeles to take a position as a business analyst for a startup. But shortly after Covid spread and impacted everyone's work and private lives, Zhao felt a strong pull to return to China to be closer to family. As a result, by late 2020 she had begun working as a client account manager at UBS Bank in Shanghai, a position she has now held for more than two years.

"In this job, I interact more with people—bank clients and prospects," Zhao says, "so I deal with data mining less and less." Still, she says, the year she invested in the data analytics program continues to impact her sense of self now and her confidence about the future.

"Brown taught me how to learn," Zhao explains. "I feel like the skills I learned can apply to anything else, wherever I am. I now know how to structure my time and keep productive, and adapt to new challenges. These are all soft skills I learned at Brown—in the program—and they are so valuable. That makes me feel confident about my future."

As for that future, Zhao intends to pursue an MBA—preferably in Canada or the US—within the next three to five years with the goal of going into consulting. "I know that getting an MBA will open the door to career opportunities," she says, while half-jokingly bemoaning the fact that Brown doesn't offer advanced business degrees.

Now in her late 20s, Zhao says she feels like a citizen of the world who is interested in living and working almost anywhere. "I don't feel that I belong to a specific location," she says, "and now I'm open to all possibilities. I could move to New York or London or—"

Brown taught me how to learn. I feel like the skills I learned can apply to anything else, wherever I am.
Yue Zhao ScM '18

Whether deciding on where to go to grad school or planning for a longer-term future, Zhao believes that self-knowledge is key. "You have to know your passions, your talents, your personality, and your values," she says. "I always encourage people to listen to their hearts rather than just the people around them. If you don't, you'll end up changing your path. For me, knowing myself is really important. It makes me feel like I'm independent. I know what works for me, what's good for me, that I'm the expert when it comes to knowing myself." ıl

MARKETPLACE
Alumni at Work

MSDA graduates work in a wide range of fields, from education and other nonprofit areas to entertainment, finance, marketing, technology, and more. Alumni are bringing their talents to:

- ▶ CharterUP
- ▶ DataReady DFW
- ▶ dscout
- ▶ Entertainment + Culture Advisors (ECA)
- ▶ Faithfulever & Associates LLC
- ▶ HBO Max
- ▶ Intel Corporation, China
- ▶ International Monetary Fund
- ▶ JOOR
- ▶ Keybridge Public Policy Economics
- ▶ L'Oreal
- ▶ Marketade
- ▶ MetrixLab
- ▶ Microsoft
- ▶ NewGlobe
- ▶ UBS Shanghai
- ▶ Weber Shandwick

# PROGRAM HIGHLIGHTS

BROWN
Department of Sociology

WHY CHOOSE THE SOCIAL DATA ANALYTICS PROGRAM AT BROWN?

Among the advantages of our one-year master's program:

▸ We offer more than 25 **quantitative**, **qualitative** and **mixed-methods courses**

▸ Courses are taught by **world-renowned**, **research-active faculty**

▸ Our one-year ScM is **STEM designated**

▸ Our **small program size** guarantees a high level of faculty/student interaction and advising

▸ We **emphasize data collection**, **analysis** and **interpretation**

▸ Students are encouraged to **participate in faculty research projects** and **professional internships**

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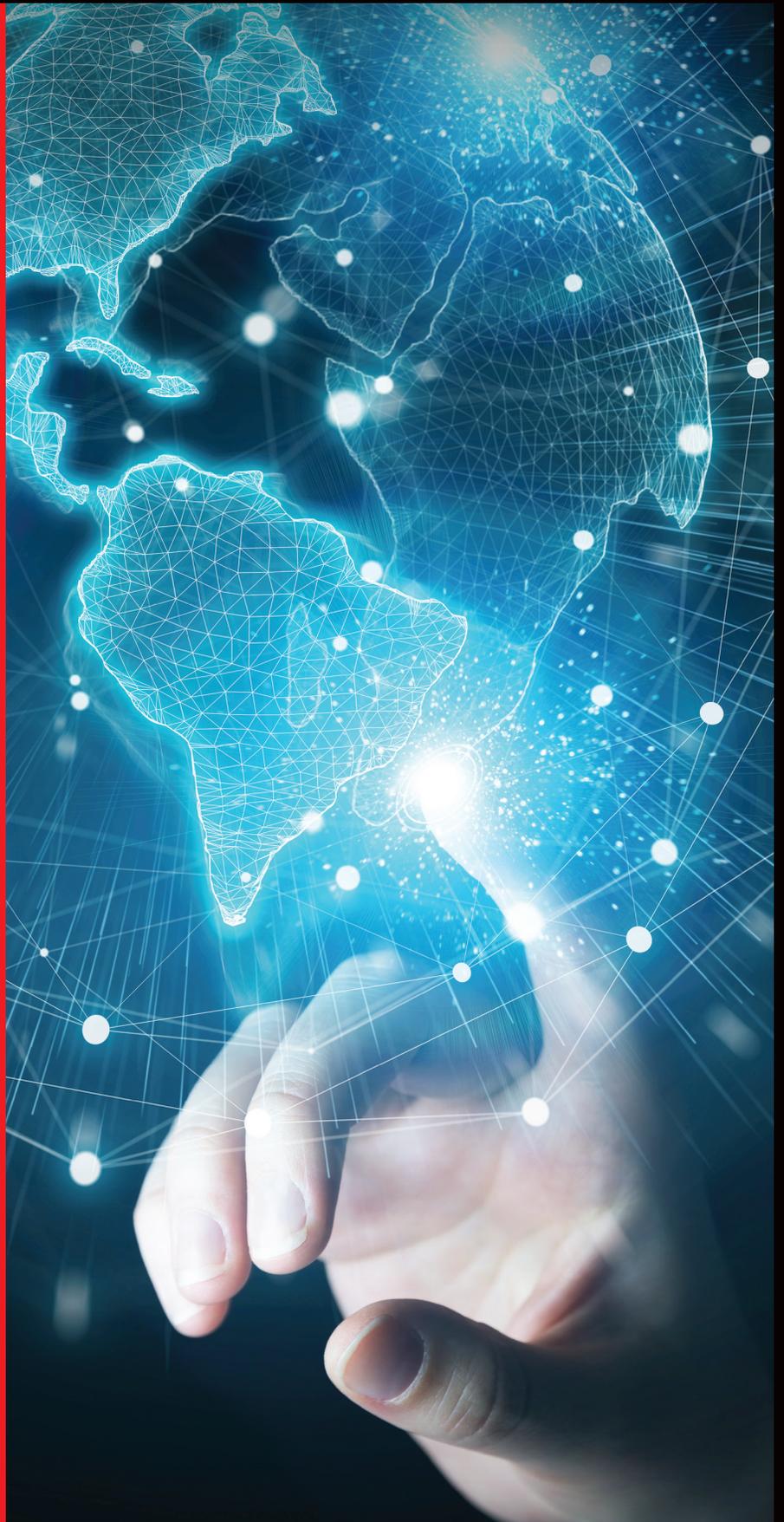
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