Our People Our Impact

John Sterman

Bethany Patten

Linda Cheung

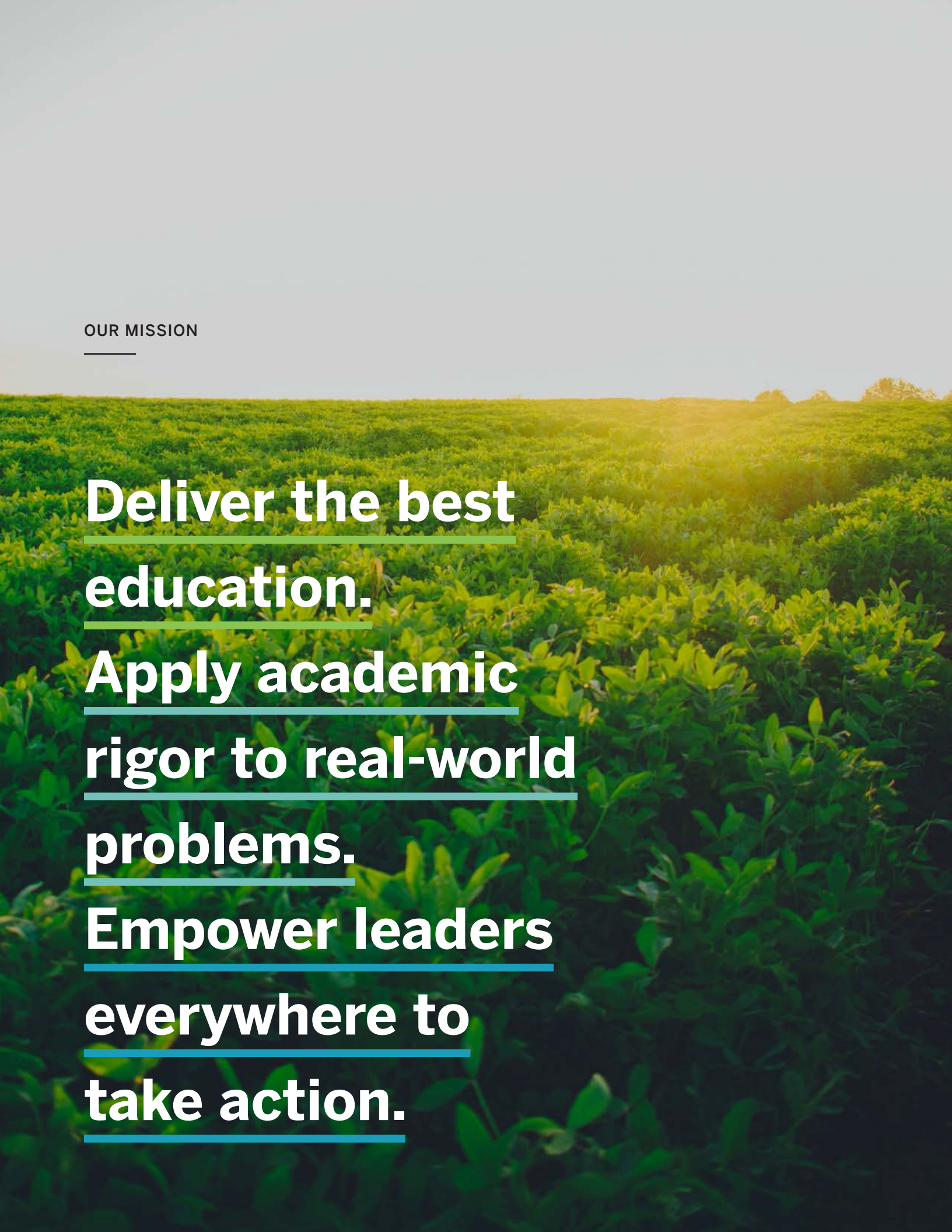
Florian Berg

Roberto Rigobon

2018–2019 ANNUAL REPORT

MIT Sloan Sustainability Initiative

MIT MANAGEMENT



OUR MISSION

Deliver the best education. Apply academic rigor to real-world problems. Empower leaders everywhere to take action.

Our Impact Defines Us

Our mission drives our choices and actions every day, but it is our impact that really matters. If our ultimate goal is to protect and restore the stability, integrity, and health of our planet so that humans and nature can thrive for generations to come, we must use the power we have as big thinkers to help leaders make informed decisions that improve lives—for everyone, everywhere.

A BETTER WORLD IS OUR BUSINESS

As global challenges arise, we train leaders to guide companies and organizations to become part of the solution. As the climate crisis deepens, we seize the opportunity to advance evidence-based climate policy using interactive tools. As companies embrace corporate social responsibility, we see avenues to sustainable supply chains and fair wages. As investors explore ways to measure sustainability, we strive to standardize ESG rating systems.

IDEAS MADE TO MATTER

- A systems approach helps us see and prevent the unintended consequences of sustainability policy.
- Research shows that showing people research doesn't work —experiences and simulations do.
- With the climate crisis, there is no silver bullet, only silver buckshot.
- If we want sustainable social well-being, we have to measure it better, similar to market and economic indicators.
- People are motivated to do good for others and society when their efforts are visible and recognized.
- Sustainability involves trade-offs, among personal, organizational, and social well-being.
- To break trade-offs and bridge conflicting perspectives, progress requires shared commitment and innovation.

OUR PEOPLE. OUR IMPACT.

Our impact is grounded in our mission, but it is driven by people. People in our community invest their time, energy, and thought to create ideas that matter in the world. Ideas that educate. Ideas that solve real-world problems. Ideas that empower leaders everywhere to take action. We can't wait to introduce you to some of our people—students, faculty members, alumni, and partners —who made a sustainability impact this past year.

People, Planet, Profit: Measuring Impact

EDWARD FISH
MBA '12, Sustainability Certificate
Advisory Board Member, Sustainability Initiative
Vice President and General Manager, Bay State Milling

Bay State Milling's Entrepreneur-in-Residence, Dan Collins, was touring fields across North America a few years ago, when a farmer handed him a gluten-free oat variety that grew without a hull—a naked oat.

To most people it meant nothing. To Dan, it was an exciting moment. No hull meant 30% less waste, 30% less fuel, and 30% less processing. If the company could develop a robust identity-preserved supply chain, it could deliver meaningful impact to its customers and a broader set of stakeholders. That's how SowNaked™ Oats were born.

"SowNaked™ Oats are better for consumers, farmers, the planet, and business," says Ed Fish, Bay State's leader responsible for scaling and commercializing varietal-specific innovation. "Creating sustainable supply chains is the foundation from which we can produce differentiated, nutrient-dense plant-based ingredients."

NO HULL MEANS

30% LESS

waste, fuel, and processing

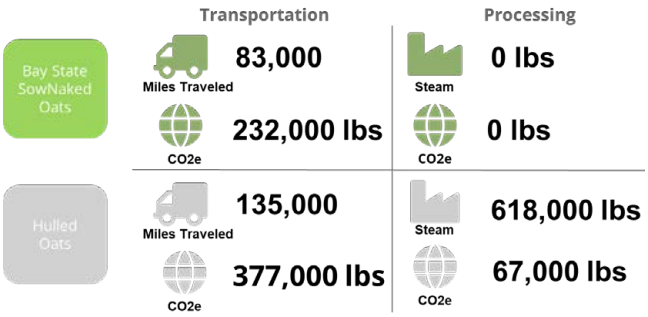
The hull-less oats idea moved quickly—production went from 600 acres in 2017 to 6,000 acres in 2019. At the same time, Bay State Milling went to market with a value proposition comprised of social, economic, and health attributes, but it didn't seem to be striking the right note.

"The multifaceted value proposition was presenting a challenge," Ed says. "Customers could clean up their ingredient labels, increase the nutritional density of their products, and reduce costs, but they weren't getting to yes fast enough."

Ed had a hunch. To complement the array of social and nutritional benefits, the company needed to strike an emotional chord with decision makers. They needed to promote the sustainability story, which they hadn't yet quantified. For answers, Ed turned to MIT Sloan and a team of students from the Laboratory for Sustainable Business (S-Lab).

Edward Fish

This past spring, Zhenya Karelina, MBA ’20; Lara Ortiz-Luis, MS/MBA ’20; Joshua Reed-Diawuoh, MBA ’20; and Dillon Wiesner, MBA ’20 set out to measure the environmental impact of the SowNaked™ Oats supply chain. Among other things, the team constructed a comparison model to measure the CO_2 emissions produced in the supply chains of traditional hulled oats versus SowNaked™ Oats. Their analysis was based on a mere 5,000 acres of SowNaked™ Oats replacing traditional hulled oats.



CO2e Emissions= SowNaked™ vs. Hulled Oats

The result was a CO2 emission reduction of 217,000 pounds—the equivalent of the CO2 emitted from charging 12.2 million smartphones.

With this new information, Bay State Milling is sharing a more complete story of the product in a way that resonates with their customers’ values, and in return, grows the product line and its impact on people and the planet.

“The students’ enthusiasm translated into an exceptional product and a tremendous experience for everyone involved with the project,” Ed says. “We have had the pleasure and benefit of hosting a Sustainability Initiative intern and an S-Lab project, and hope to continue our relationship with the program.”

Responsible Political Engagement

AMY MEYER
MCP ’19

Many companies have embraced corporate social responsibility and have begun taking steps toward sustainability, but they often unintentionally thwart their own efforts. Meaningful sustainability initiatives are often canceled out by a mismatch between the organizations’ CSR activities and objectives and their corporate political engagement practices.

Amidst growing calls for corporations to take greater responsibility for their corporate political contributions, Amy Meyer is examining the obstacles food and beverage companies face in aligning their CSR strategies with their political engagement activities. An independent study with the Sustainability Initiative, supervised by Jason Jay, director of the MIT Sloan Sustainability Initiative, led to her work.

“As a believer in the power of corporations to have a real impact on issues of sustainability,” Amy says. “I’m motivated to better understand what it will take for more companies to practice responsible political engagement.”

Despite their best intentions, many corporations continue to directly engage in political activities that deter climate change policy.

In her research, Amy has identified barriers to meaningful action and strategies for change.

“Climate change is a wicked and all-encompassing issue for which the responsibility and impact reaches across all stakeholders at the local, national, and global level,” says Amy. “It is an issue that demands attention and requires a multi-faceted approach, and, particularly in the U.S., it is an issue that has faced extreme resistance to meaningful policy response. In choosing the direction of this research, I wanted to build on this urgency and contribute to our collective knowledge and possible tools of response.”

Art and the Environment

LINDA CHEUNG
MBA '17, Sustainability Certificate
Founder & CEO, Before It's Too Late

The climate crisis is perhaps our planet's biggest threat, yet somehow it remains distant and amorphous for many people. As a Sustainability Certificate MBA student, Linda Cheung came to a realization: To spur action, we need to change how people feel about the problem, not just drown them in data and statistics.

"I think a lot of us numb ourselves," Linda says, "not because we don't care, but because we don't know what to do."

That's when she got the idea to create Before It's Too Late. With a small startup grant from the Sustainability Initiative, Linda launched the nonprofit that uses public art and technology, like virtual reality and augmented reality murals, to awaken and engage people on the climate crisis. Linda and the startup's art have been featured in the Miami Herald, Fast Company, the New Yorker, PBS NewsHour, and more.

After her time at MIT Sloan, Linda moved to Miami, a low-lying region where the impact of climate change is all too real. Floridians stand to lose more homes to flooding this century than any other state. And most climate models show that by 2070, Miami's streets could flood every single day. Using what she learned from MIT Sloan faculty like John Sterman and Jason Jay, Linda is focused on the grassroots level, building the public support necessary to drive political action.

"The quickest way to radical change," she says,"is to shift paradigms."

Before MIT Sloan, Linda worked on Wall Street. Back then, everything was about the numbers. She classified the climate problem as a systems problem that could only be solved through technical tools like policy change and investment dollars. After connecting with the Sustainability Initiative, her paradigm radically shifted. "I started to realize, no, that's not the problem."

> **"The problem is cultural. Our economic system is entirely focused on producing more to make more money. And yet, we can't have endless growth on a finite planet."**

While earning her MBA, Linda never imagined she'd be painting murals in Miami. Her background was in finance, not art or technology. In fact, she used to scoff at art. Now, Linda merges the power of visual arts and storytelling with science to evoke emotion and create social change. Her first mural addresses the impact of sea level rise on the city. The second focuses on mass biodiversity extinction, featuring local animals. Her team is currently working on its third mural about native plants and pollinators.

This past February, Linda welcomed the Sustainability Initiative leadership team to Miami, along with 15 advisory board members, for a weekend retreat. They spent the day with activists from Little Haiti, one of the city's fastest gentrifying areas, and visited the Everglades to learn firsthand about climate-driven societal inequality.

"There's this belief that it's either care about the environment or care about people's economic welfare," Linda says. "And I want people to realize, these are one and the same. If you don't care about the environment, you end up with more poverty and harming more people."

To learn more about Linda and her work, go to beforeitstoolate.earth or find her on Instagram @bitl.earth

Sustainable Mobility

DAVID R. KEITH

PhD '12, *Mitsui Career Development Professor*, Assistant Professor, System Dynamics

David Keith has three big concerns about sustainable mobility: pollution and climate change, traffic congestion, and safety and accidents. Can the wave of innovation toward electric, autonomous, shared vehicles actually solve these problems or make them worse? Will the transition happen fast enough to matter?

With funding from the Sustainability Initiative, David is exploring these concerns. Most recently, he's examining consumer behavior and the electric vehicle transition. Drawing on his work experience in the automotive industry, David has gathered data about electric vehicle registrations that he's using to help understand who really buys electric cars and when they actually substitute for gasoline cars in everyday behavior. At this year's student-led Sustainability Summit, David shared how his research will help policymakers, auto manufacturers, and researchers understand how electric vehicles are being used in the U.S.

"Our hope is that this research will inform how public policy measures and electric vehicles themselves can be designed to maximize consumer acceptance and reduce emissions."

David R. Keith

Small Changes, Big Impact

David Rand

Erez Yoeli

DAVID RAND

Erwin H. Shell Professor, Associate Professor of Management Science & Brain and Cognitive Sciences

EREZ YOELI

Research Scientist

David Rand and Erez Yoeli are figuring out how to get people to do more good. As co-directors of the Applied Cooperation Team at MIT Sloan, they use lessons learned from the social sciences to motivate people to be more altruistic and contribute to the public good. Bridging the fields of behavioral economics and psychology, the team works with government agencies, nonprofits, and for-profits. They helped an energy utility reduce demand during peak hours by tripling participation in a citywide conservation program. Their secret? A simple paper sign-up sheet posted in apartment building lobbies.

Erez uses game theory to study puzzling aspects of people's sense of rights, ethics, and altruism. In his widely viewed 2018 TEDx talk, he explained how the energy company's sign-up sheet made customers' willingness to participate observable to their neighbors, a factor that motivated them to do good.

"These tools don't require that you raise additional funds or that you develop any more fancy technologies," he said. "They just require harnessing reputations by increasing observability, eliminating excuses, and communicating expectations."

"These tools don't require that you raise additional funds or that you develop any more fancy technologies."

Erez Yoeli

Thanks to funding from Itau Unibanco, Brazil's largest private sector bank, we are supporting a new line of Erez's research, looking at how to use these social incentives to increase the spread of sustainable agriculture and fishing practices in Latin America.

Erez and David are proving that small changes can yield surprising results, which is a behavioral approach we're excited to see them apply to all types of sustainability challenges in the future.

Sustainable Entrepreneurship

INGO MICHELFELDER
Postdoctoral Researcher MIT Sloan Sustainability Initiative

Imagine if we could value new ventures based on their potential impact on society, the environment, and their contribution to sustainable economic development. Ingo Michelfelder believes we can.

"Sustainable entrepreneurship has great potential to help solve some of the major social, environmental, and economic challenges we face," says Ingo. "However, we still need to better understand how we can be more efficient in leveraging these types of ventures and investments."

Ingo came to MIT Sloan as a postdoc researcher, where he started and guided a research team with partners at the Technical University Berlin in Germany. With the support of academic advisor Jason Jay, the team helped new ventures understand, measure, forecast, and benchmark their sustainability impact, while also generating precise data useful for investors, accelerators, research, and policymakers.

Ingo engaged heavily with the vibrant entrepreneurship ecosystem at MIT. He taught in Jason's class, Innovating for Impact, and coached students and ventures at the Martin Trust Center for MIT Entrepreneurship, the MIT Global Ideas Challenge, the MIT Legatum Center, and the MIT Entrepreneurship Lab.

"We help startups to understand, measure, compare, and improve their sustainability value," says Ingo. "We offer an iterative method that respects the resource limitations and fast-changing business models of new ventures."

The project has already attracted interest from multiple stakeholders around the world, including startups, investors, accelerators and policymakers. In response, Ingo and his team recently launched startupimpactbenchmark.org, where they share tools, offer workshops, and provide a knowledge platform focusing on impact measurement and impact forecasting for startups.

Ingo is headed to the Harvard Kennedy School next year to continue the work he started here at MIT Sloan. We're thrilled to see him expand his impact.

Sustainability Certificate

MIT Sloan's Sustainability Certificate is the only one of its kind among our top-tier peer schools. The certificate represents a serious commitment to completing five sustainability courses during a student's time at MIT.

COHORT

50-60

students per year from across nine different masters programs at MIT

CONTENT

5

courses across the Institute

CAREER

291

certificate alumni taking action

Building Shared Commitment

JASON JAY
PhD '10, Senior Lecturer
Director, MIT Sloan Sustainability Initiative

Heading into his 15th year at MIT, Jason has learned a lot about the sustainable business field. And with each new insight, he has generated tools that empower leaders to take action.

01 There are often trade-offs—real or perceived—between Personal, Relational, Organizational, Market, Institutional, Social, and Environmental well-being. The PROMISE framework Jason developed with Roberto Rigobon makes these tensions visible and discussable.

02 It's sometimes possible to break trade-offs with innovations in technology (like high-efficiency electric cars) and business models (like "servicizing" products). Jason's work on sustainability-oriented innovation led to his "Innovating for Impact" toolkit for entrepreneurs and intrapreneurs.

03 Engaging people in this kind of innovation requires high-quality conversations that can handle differences in values, priorities, and beliefs. With Gabriel Grant, Jason wrote a book and curriculum resources on *Breaking Through Gridlock* to support people in having authentic, effective conversations about values-laden issues.

04 The most transformative innovations will be at a larger scale than any one-on-one conversation can handle—across supply chains, industry coalitions, and public policy. Jason's latest work focuses on building shared commitment toward big sustainability goals, among groups of people and organizations.

The most transformative innovations will be at a larger scale than any one-on-one conversation can handle—across supply chains, industry coalitions, and public policy.

These insights and tools apply to a variety of companies, investors, advocates, and policy makers, but Jason sees one arena holding huge untapped potential–family business. As asset owners, high-net-worth families are already providing the majority of seed-stage impact investing capital. As business owners and managers, families can consider a longer time horizon for performance and impact than publicly traded firms whose stock price hinges on quarterly earnings reports. Working with John Davis, a fellow MIT Sloan senior lecturer and intellectual founder of the family enterprise field, Jason will increasingly focus on galvanizing business families as the vanguard of sustainability.

Jason Jay, *How to keep conversation alive in a polarized world*, TEDxBocaRaton

Accelerating Climate Action

JOHN STERMAN
PhD '82, *Jay W. Forrester Professor of Management*, Faculty Co-Director, MIT Sloan Sustainability Initiative, Director, MIT System Dynamics Group

BETHANY PATTEN
EMBA '13, Lecturer & Senior Associate Director, MIT Sloan Sustainability Initiative

MICHAEL SONNENFELDT
SB '77, SM '78, Founder, Chairman, MUUS & Company, Tiger 21


Bethany Patten


Michael Sonnenfeldt

Is the key to sparking climate action a game? John Sterman's research suggests it is—even across political divides.

Data and evidence make clear that humanity faces a climate crisis, and that limiting climate damage to our economy, health, and lives means global greenhouse gas emissions must fall dramatically, and as soon as possible. But data and evidence have not been enough to change minds … or spur action.

"Research shows that showing people research doesn't work," says John, who has been studying why people have difficulty understanding the dynamics of the climate crisis.

According to John, the best way to engage policymakers in supporting meaningful climate policy is not to tell them what should be done, but to give them tools so they can learn for themselves. That's why he and the team at Climate Interactive have just launched the latest version of their En-ROADS climate simulation model—a simulation and interactive workshop that helps policymakers, business leaders, and civil society make sense of the climate crisis—and what we can all do about it—for themselves.

Grounded in the best available science, En-ROADS gives people the chance to experiment first-hand with different policies and get immediate feedback showing their likely effects on global energy production, prices, greenhouse gas emissions, and our climate system. Using ordinary laptops, participants can imagine a future with more renewable energy or less coal or more electric cars or less deforestation, or combinations of dozens of policies. Whatever their choices, in the end, showing rather than telling is the key to learning, insight … and to advancing effective climate policy.

"There is a growing sense of urgency to reduce the harm caused by climate change. Yet with so many possible interventions, making sense and prioritizing the most effective can be overwhelming," says Bethany Patten, who is part of the team facilitating En-ROADS workshops. "This tool is a simple way to educate leaders on specific actions that are more likely to lead to positive outcomes for our environment."

Thanks to the financial support of alumnus Michael Sonnenfeldt, En-ROADS is being deployed across high-level business and policy sectors. Response has been extremely enthusiastic. Recent research suggests that participation in the simulation not only increases people's knowledge of the causes and impacts of climate change, but intensifies their sense of urgency, their desire to learn more, and their intent to take action in the real world. The interactive simulations are highly effective for people across the political spectrum, including those who favor free-market policies and those who support government regulation.

"Backed by the expertise of MIT, this climate simulator will become THE globally recognized reference tool for policy-makers worldwide," says Michael.

"People learn best from experience and experiments," John says. "But, in settings where the costs of failure are extreme, and where the consequences of our decisions are irreversible—in short, for climate change and many other complex settings—experiments are impossible and experience comes too late. Whether learning to fly a new jet, use new surgical techniques, prepare for the next pandemic—or develop policies to save our society from climate catastrophe—simulation is the best way for people to learn for themselves and identify high-leverage policies that can lead to sustained benefits."

> **Engaging with the En-ROADS climate simulation has been one of the best ways for me, as a policy-maker, to learn about how solutions to tackle climate change can reinforce or interfere with one another."**
>
> U.S. Senator Sheldon Whitehouse (D-RI)

WHO HAS EXPERIENCED EN-ROADS SO FAR?

- **39** out of **100** members of the U.S. Senate
- About **60** staff members of U.S. Senate and House of Representatives
- **6** governors
- Leaders of businesses, nonprofits, civil society, and education

Corporations and Society

Faina Rozental

Alina Xu

FAINA ROZENTAL
MBA '19

ALINA XU
MBA '19

What is the role of the corporation in society? Is it solely to deliver profits to shareholders? As business is increasingly being viewed as a major cause of social, environmental, and economic problems, many CEOs are expanding their focus on the bottom line to also take into account how their companies impact society. But are business schools keeping pace with this shift?

Alina Xu and Faina Rozental believe that schools of management can do more to engage students in high-level conversations about the role of the corporation in society, and they'd like to see MIT Sloan take the lead. This aspiration motivated them to do an independent study on the topic this past spring with the Sustainability Initiative, under Bethany Patten's supervision.

As future leaders in a variety of sectors, MBAs have enormous responsibility over social and economic outcomes," says Alina. "We wanted to explore the idea that business education should train us not only to excel at technical problem-solving, but also to develop our ability to critically evaluate our decisions."

The duo's research, including surveys and interviews, identified a clear demand for such discussions from MIT Sloan MBAs of all backgrounds, given that few structured opportunities currently exist in the MBA core semester for students to explore this topic.

"In our research, we strived to give voice not only to our peers, but also to faculty and staff," says Faina. "Transforming the classroom experience should be a collaborative undertaking."

At the culmination of their project, the two made several recommendations, including a plan for piloting case-based workshops in fall 2019 to test facilitation techniques and teaching materials for potential incorporation into the MBA experience.

Their vision for every MIT Sloan student is to have the opportunity to challenge their assumptions about the purpose of business and the role they can or should play in shaping it.

The research done by Alina and Faina took on even more relevance this past summer as the Business Roundtable, a group of some of the country's most powerful CEOs, reversed its position on this debate. The group is now committing their companies to a "free market economy that serves all Americans." Along with profits for shareholders, the group said, companies must "deliver value" to customers, employees, suppliers, and the communities where they operate.

Clearing up ESG Confusion

FLORIAN BERG
Research Associate

JULIAN KOELBEL
Postdoctoral Fellow

ROBERTO RIGOBON
Society of Sloan Fellows Professor of Management, Professor of Applied Economics, Faculty Co-Director, MIT Sloan Sustainability Initiative


Florian Berg


Julian Koelbel


Roberto Rigobon

Environmental. Social. Governance. In recent years, ESG, also known as sustainability or corporate social responsibility, has moved from the feel-good fringes to the center of business decision making. Consumers want to purchase products from companies that reflect their values. Investors, meanwhile, want to know if they are financing activities that might pose a reputational risk.

But it's hard to assess corporate social responsibility when ESG ratings diverge so dramatically. Supported by the Sustainability Initiative, newly released research from Florian Berg, Julian Koelbel and Roberto Rigobon suggests ways to work around the "aggregate confusion."

By one estimate, some 80% of CEOs believe demonstrating a commitment to society is important and look to sustainability ratings for guidance and benchmarking.

An estimated $30 trillion of assets are invested worldwide that rely in some way on ESG information, a figure that has grown 34% since 2016. The challenge then becomes how to accurately measure a company's environmental and social impact, particularly given that ESG remains an evolving concept and reporting standards are still in their infancy.

Currently, interested parties typically contract with one or more independent agencies that evaluate and assign ESG ratings to firms. The problem, according to Roberto's team, is that ESG ratings diverge substantially among those agencies. Their new working paper, "Aggregate Confusion: The Divergence of ESG Ratings," documents the disagreement among the ESG ratings of five prominent agencies—KLD, Sustainalytics, Vigeo-Eiris, Asset4, and RobecoSAM. The team found the correlation among those agencies' ESG ratings was on average 0.61; by comparison, credit ratings from Moody's and Standard & Poor's are correlated at 0.99. That means "the information the decision-makers receive from [ESG] ratings agencies is relatively noisy," the paper states—a condition researchers call "aggregate confusion."

"The ambiguity around ESG ratings is an impediment to prudent decision-making that would contribute to an environmentally sustainable and socially just economy," the paper states.

What drives the divergence of existing ESG ratings? The authors break down the differences in measurement noise and different concepts of sustainability. Measurement noise accounts for a bit more than 50% of the overall divergence. In addition, the authors detect a rater effect, i.e., the rating agencies' assessment of firms' attributes seems to be influenced by the view of the analyzed company as a whole.

Armed with an awareness of the substantial discrepancy between ESG ratings organizations, how should companies and investors proceed? Florian says companies should work with individual ratings agencies to establish open and transparent disclosure standards and ensure that data is publicly accessible—both moves that will discourage agencies from basing their ratings on sources prone to divergence.

"Without proper measurement we can't include ESG criteria in regulation," says Roberto. "We can't use them to create proper incentives. We can't use evidence to convince the doubters, and very likely we will not be able to move toward a fair and sustainable society."

Roberto and his team hope investors will use their methodology as a framework to disaggregate ratings and impose their own weighting on indicators, hopefully leading to the development of a more coherent decision-making process. In the short term, Florian says, companies should conduct a thorough due diligence before choosing one rating agency over another.

"Keep in mind that ESG rating is still a young field," Florian adds, "and the definition of sustainability is by nature a fluid one. What's important today might not be important tomorrow."

AGGREGRATE CONFUSION FINDINGS

- Divergence among ESG rating agencies
- Measurement noise
- Different concepts of sustainability
- Rater effects

Carbon Offsets

YAKOV BERENSHTEYN
LGO '19

ROSIE MATE
MBA '19, Sustainability Certificate

Yakov Berenshteyn

MIT Sloan students travel the world to study and learn. It's a hallmark of a Sloan education and a wonderful experience—but there's a problem. Air travel carries with it a significant carbon impact. For example, one study trip across the globe for 100 students can produce more than 300 tons of carbon dioxide. One student, Yakov Berenshteyn, believed the school could do better.

Yakov didn't want to do away with student travel; he just wanted to lessen its impact on the environment. After talking to Professor John Sterman, he realized that applying carbon offsets and carbon-neutral practices was the best way to make a difference. And thus, the idea for Jetset Offset was born.

"When MIT Sloan students plan a trip," Yakov says, "we want their checklist to include insurance, emergency numbers, and carbon offsets."

Yakov didn't develop his plan alone. Classmate Rosie Mate, wanting to keep the momentum going, took on an independent study with the Sustainability Initiative. Working with Bethany Patten, she explored the possibility of expanding Yakov's program to all student trips, and scale a solution that might work for other departments within MIT Sloan and MIT. Her findings formed the basis of a pilot program with a handful of other departments across the Institute.

"It all starts with awareness," Rosie says. "We want offsets to be part of every travel conversation. We'd love for everyone at MIT to be doing this, but we're starting in manageable chunks."

> **"When MIT Sloan students plan a trip, we want their checklist to include insurance, emergency numbers, and carbon offsets."**
>
> Yakov Berenshteyn

In its first year, the Jetset Offset pilot program purchased carbon offsets for four study tours over spring break 2018—three MBA groups and one Master of Finance group. The offsets were purchased through Gold Standard, an independent nonprofit that guards against 'greenwashing' by certifying sustainable projects that would only be financially viable with offset investment. After the student trip success, other MIT Sloan groups showed interest in the program.

So far, Admissions, the Sustainability Initiative, and Student Life are working to offer offsets for recruiting trips, faculty and staff travel, and selected student treks and trips, but many hope to see it expand across Sloan and MIT.

"As we move forward to institutionalize this practice of offsetting travel at MIT," says Yakov, "we will expand our thinking both with respect to our broader impacts and to more immediate and tangible mitigation options."

Supply Chain Management

JOANN DE ZEGHER

The Maurice F. Strong Career Development Professor,
Assistant Professor of Operations Management

"Supply chain management has a significant impact on key social and environmental challenges, like deforestation, ocean conservation, and forced labor," says Joann de Zegher, a recent addition to the MIT Sloan faculty. "A company's supply chain determines nearly 80% of its environmental impact and supply chains that traverse national borders employ over one-in-five workers." The trouble is that we can't manage what we can't measure or even see. In Indonesia, for example, half the palm oil comes from smallholder farmers whose business is off the grid and hard to trace.

"Supply chain management has a significant impact on key social and environmental challenges, like deforestation, ocean conservation, and forced labor."

Joann's innovation was to achieve that traceability as a byproduct of some more basic improvements to smallholder businesses. She figured out that if she gave farmers digital tools to help them access new markets and better prices for their products, in the process, she could get digital traceability of their supply chains, and help those farmers make improvements. The outcome is farmers who get rewarded for implementing sustainable supply chain best practices, and groundbreaking research on the "first mile" of global supply chains.

Joann joined the MIT Sloan faculty last year and soon found herself at home in the Sustainability Initiative. When she isn't doing research in the field or at MIT, she's teaching our S-Lab students and sharing her latest findings with them.

"I'm thrilled about the opportunity to engage with MIT faculty, students and partner organizations working on topics I care so deeply about," says Joann. "The approach and core values of the Sustainability Initiative align strongly with mine, and S-Lab is the type of class I have always wanted to be a part of."

Joann de Zegher (center)

Internal Carbon Pricing

RICH WILNER
EMBA '19, Head of Project and Portfolio Management Office, Global Manufacturing and Supply, Takeda

For Rich Wilner, it all started with John Sterman telling his EMBA class that today, the ecological footprint of humanity is 1.5 Earths, which is obviously unsustainable.

"I freaked out," recalls Rich. "John crystalized the problem for me in a way that nothing else could. In the end, it would completely transform my career path."

Rich came to the EMBA program as a new employee of Takeda. In the first week, John Sterman introduced Rich and his classmates to the discipline of System Dynamics and C-ROADS, the world-famous climate model John developed with the nonprofit think-tank, Climate Interactive. That presentation sparked something in Rich. He felt he had to do something … and he knew he could.

"Operations activities in manufacturing sites are the largest source of direct carbon emissions at Takeda," Rich says. "We wanted to change behaviors at those sites."

Rich developed an internal carbon pricing program at Takeda and implemented a pilot project, called CRISP (Carbon Reduction Investment Sustainability Program), at the company's manufacturing site in Los Angeles. With the help of the Sustainability Initiative's Bethany Patten, who advised him on his final project for the EMBA program, and Emma Caldwell, who supported his project with research, the project took less than a year (9 months to be exact).

As a result of implementing CRISP at the LA facility, the project team identified a pathway to achieve about 2,300 tons of CO_2 equivalent net reduction in two years, which is about a 10% gross reduction from 2018 levels. That reduction trajectory, should the facility sustain it, would enable it to hit an interim target of about 6,000 tons reduced by 2025. And, the success of the pilot provides the potential to roll out CRISP across the global network of manufacturing sites, which would drive emissions reductions for the entire operation. These reductions are essential if Takeda is to reduce emissions in accordance with the 1.5-degree science-based target identified in the Paris Climate Accord, notes Rich. Without CRISP, the LA site would be looking at a net increase in carbon emissions over that same two-to-five year time period.

> **Removing carbon from our industrial operations is a strategic thing to do."**
>
> Rich Wilner

"Removing carbon from our industrial operations is a strategic thing to do," Rich says. "Increasingly, colleagues across our organization are beginning to understand this—from the executive level to the shop floor. That end-to-end understanding is essential to achieving lasting, meaningful behavior changes."

Like a conventional federal or municipal carbon price, an internal carbon price attaches an economic cost to carbon emissions. However, an internal carbon price is unique in that the level at which the price is set is driven directly by the company's strategy; and the implementation of the price is informed by the company's distinct operational envelope.

"The Sustainability Initiative enabled an end-to-end refocusing of my career," says Rich. "John's system dynamics model of our consumption in the first week of the program lit the fire to animate my purpose, and the coursework provided the tools to transform that purpose into practice. The initiative provided me not only with a practical and comprehensive understanding of the interaction between business and the climate crisis; it provided me with a pathway to use my unique abilities to have a material impact on it."

Sustainability Initiative Advisory Board 2018–2019

The preceding pages of this report feature just a sampling of the Sustainability Initiative's people, projects, and research making an impact this year. We hope they've inspired you to think about your own impact.

It's important to note that none of our work would happen without the support of our donors and Advisory Board members. We realize that they have many choices about where they can give back. We're grateful they have chosen to invest their time and resources in our mission.

Our board members are committed to making real change. In return, we've structured the board so that members can be involved in efforts that are most meaningful to them. Some members are helping us rethink our financial planning process; some are participating in the Renewable Energy Finance and Impact Investing roundtables; while others are involved in one of our three working groups addressing: climate policy, executive education, and international outreach.

In February, our leadership team, along with 15 advisory board members, traveled to Miami for our first-ever, off-site strategic planning retreat. We spent one day with activists from Little Haiti, one of the city's fastest gentrifying areas. On an afternoon trip to the Everglades, we learned firsthand about climate-driven inequality.

> **"En-ROADS is the culmination of 40 years of work at MIT Sloan. I've never felt as invigorated as I am now about my work with the initiative on this important project."**
>
> Michael Sonnenfeldt

This past winter, we held our first annual off-site Advisory Board retreat in Miami to work on strategic planning.

ADVISORY BOARD

Robert Ackerley, SB '80
Co-Founder and Director
Smith and Smith Associates

Thippaporn Ahriyavraromp
Group CEO
DT Group of Companies

Nina (Yue) Chen,
SM '02, PhD '05
Director of Conservation Investments, The Nature Conservancy

Carolyn duPont, MBA '16
Growth and Partnership Lead, Upstream Tech

Michael Even, SM '84
Investment Manager

Ed Fish, MBA '12
Vice President, General Manager
Bay State Milling Company

William Hilliard, SM '84
Vice President
Generate Capital

John Mazzarino, SM '77
Founder and Managing Principal
Cherokee Fund

Cecilia Melin, SM '89
Managing Partner
Asian Technology Advisors

David Miller, SB '90,
SM '91, PhD '07
Investment Manager
Co-Founder and Managing Director, Clean Energy Ventures

Cherie Nursalim
Vice Chairman
GITI Group

Liesbet Peeters, MBA '05
Managing Partner
VOLTA Capital

Nancy Pfund
Managing Partner
DBL Partners

Keishin Sasaki, SM '89
President, Representative Director, e-solutions

Serge Schoen, MBA '96
Founding Partner, Ambrosia Investments, Eightstone

Liesel Pritzker Simmons
Co-Founder and Principal
Blue Haven Initiative

Michael W. Sonnenfeldt,
SB '77, SM '78
Founder, Chairman
MUUS & Company, Tiger21

Raymond Wood, SM '90
Managing Director Co-Head Natural Resources Bank of America Merrill Lynch

Sustainability Initiative photography by Marty Nee. SowNaked™ Oats photography by Lara Ortiz-Luis, pages 4-5.

Our Team

LEADERSHIP TEAM

Roberto Rigobon
Society of Sloan Fellows, Professor of Management; Faculty Co-Director, MIT Sloan Sustainability Initiative

John Sterman
Jay W. Forrester Professor of Management; Director, MIT System Dynamics Group; Faculty Co-Director, MIT Sloan Sustainability Initiative

Jason Jay
Senior Lecturer, MIT Sloan; Director, MIT Sloan Sustainability Initiative

Bethany Patten
Lecturer, MIT Sloan; Senior Associate Director, MIT Sloan Sustainability Initiative

STAFF

Emma Caldwell
Academic Program Manager

Dominic Farello
Program Assistant

Tracey Palmer
Communications Consultant

FELLOWS AND TEACHING ASSISTANTS

Jiang (John) Huang, MBA '19

Charlie Lai, MBA '19

Caroline Lee, MBA '19

Uvini Lokuge, MBA '19

Amy Meyer, MCP '19

Lee Stroman, MBA '19

RESEARCHERS AND AFFILIATED FACULTY

Florian Berg
Research Associate

Jasmina Burek
Postdoctoral Associate

Erez Yoeli
Research Scientist

Valerie Karplus
Assistant Professor, Global Economics and Management

David Keith
Mitsui Career Development Professor, Assistant Professor, System Dynamics

David Rand
Erwin H. Shell Professor, Associate Professor, Marketing

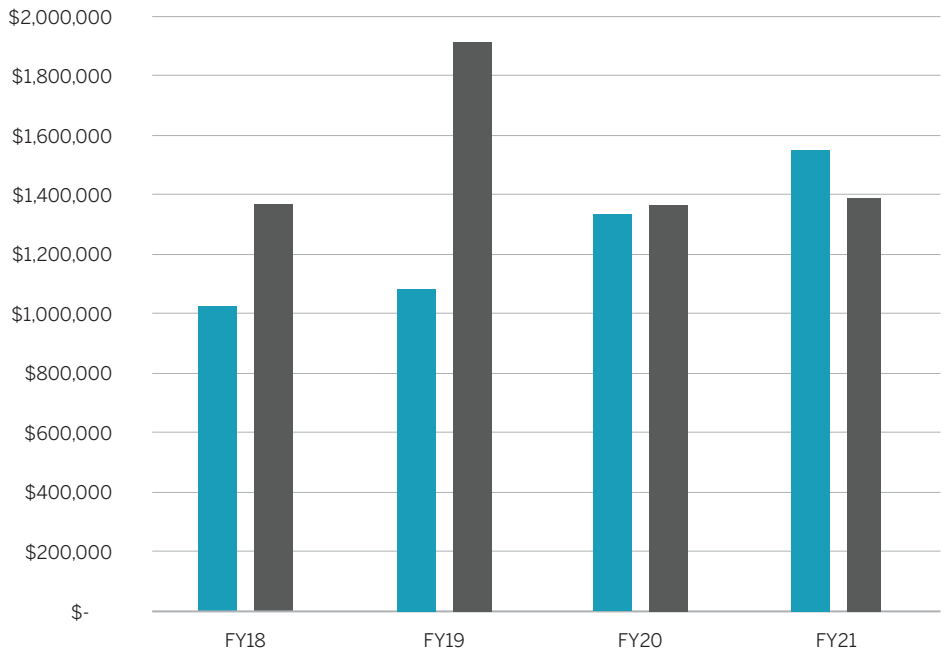
Joann de Zegher
The Maurice F. Strong Career Development Professor, Assistant Professor of Operations Management

Expense vs. Revenue

Expense

Revenue

Includes only revenue that has already been pledged. Revenue is a combination of school funding and philanthropic gifts from individuals and organizations.



Expense Details

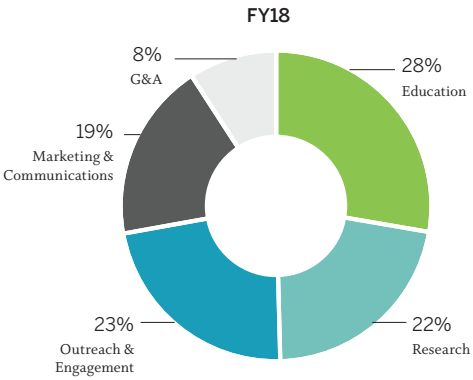
Education

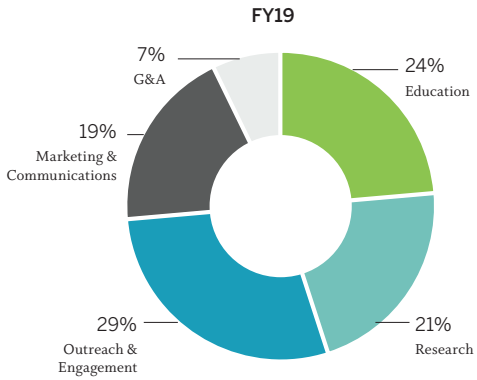
Research

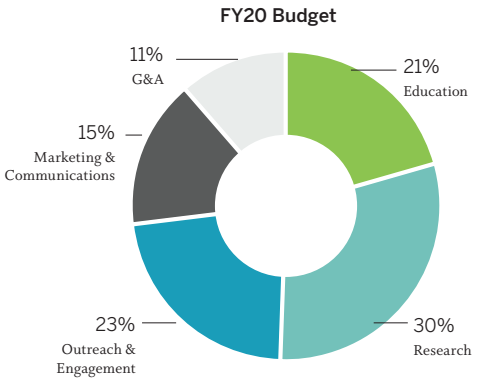
Outreach & Engagement

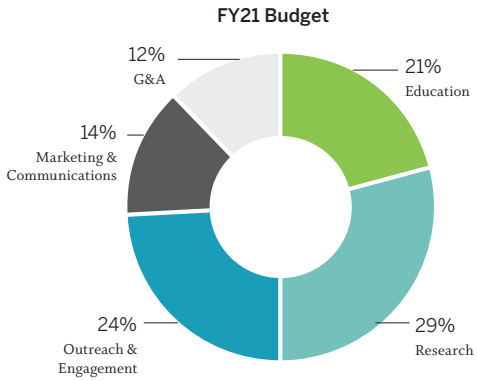
Marketing & Communications

G&A









Our Donors

We are grateful to the following donors who have helped us work toward achieving our mission this year.

Robert Ackerley, SB '80

Lam Yiu Chu*

William C. Ford Jr., SF '84

Julis-Rabinowitz Family

Ricardo V. Marino, MBA '00

John Houston, SM '94

John A. Mazzarino, SM '77

John D. SF '94
and **Aedie McEvoy**

Cecilia Melin, SM '89

Keishin Sasaki, SM '89

Michael W. Sonnenfeldt, SB '77, SM '78

Akira Sugano, SM '86

Raymond S. Wood, SM '90
and **Mary Anne J. Kim**

The World Business Council for Sustainable Development

William and Flora Hewlett Foundation

*previously endowed gift

We are ramping up our research activities and broadening our impact, but we can't continue to make progress without your investment in our work. Are you ready to have an impact? We invite you to get involved. We hope you will join us.

Get in touch.
mitsloan.mit.edu/sustainability
@MITSloanSusty

Sandhya Murali

Joann de Zegher

David R. Keith

Rich Wilner

Michael Sonnenfeldt

MIT MANAGEMENT

Sustainability Initiative

100 MAIN STREET, E62–435, CAMBRIDGE, MA 02142

mitsloan.mit.edu/sustainability

@mitsloansusty