



Education

Research

Action

2017-2018 ANNUAL REPORT

Sustainability Initiative
at MIT Sloan



OUR MISSION

**Deliver the best
education.**

**Apply academic
rigor to real-world
problems.**

**Empower leaders
everywhere to
take action.**



This year marks a pivotal moment in the Sustainability Initiative’s history.

We are now 11 years old, and in that time have seen incredible growth in the number of people taking part in our programs, classes, and alumni events. Building on this momentum, we are well on our way to making the shift from a successful education initiative to an education, research *and* engagement initiative. This exciting move is unlocking new opportunities to model, measure and implement new ideas, inspired by a welcome addition to our leadership team—Roberto Rigobon.

Coming from the Applied Economics department, Roberto has joined us as a co-faculty director, alongside John Sterman. Known around the world for his Billion Prices Project, Roberto advises heads of state and ministers of finance, is faculty director of MIT Sloan’s Latin American office, and is often called upon to represent MIT in conversations with alumni leaders around the world. Now he is setting his sights on measuring sustainability in organizations, with the goal to support better decision making by managers and investors.

With Roberto and John at the helm thinking about measurement and modeling of sustainability challenges, we are poised to bring energy, discipline, and rigor to the rapidly growing field of sustainable business. As we look ahead, we expect student interest will only grow, that organizations will continue to want to be a part of our research agenda, and that we will have a unique platform at MIT Sloan to empower leaders everywhere to take action informed by the best available knowledge.



Meet Roberto Rigobon

Many of you in the MIT Sloan community know him well, but just in case, here’s Roberto’s bio:

Roberto is obsessed with measurement; a research associate of the National Bureau of Economic Research, he is a member of the Census Bureau’s Scientific Advisory Committee and a visiting professor at the Instituto de Estudios Superiores de Administración (IESA). A Venezuelan economist, he has a research portfolio in international economics, monetary economics, and development economics. He is one of the two founding members of the Billion Prices Project, and a co-founder of PriceStats. Roberto joined MIT Sloan in 1997 and has won both the Teacher of the Year award and the Excellence in Teaching award at MIT three times. He earned his PhD in economics from MIT in 1997, an MBA from IESA (Venezuela) in 1991, and his BS in Electrical Engineering from Universidad Simon Bolivar (Venezuela) in 1984.

Roberto Rigobon, *Society of Sloan Fellows Professor of Management*, and Professor of Applied Economics at the MIT Sloan School of Management





Deliver the Best Education

Delivering the best education means that our students graduate knowing how to evaluate business-critical questions with a sustainability lens. Not only do they learn this in the classroom, but also apply it in real-world experiences and projects. Partnering with organizations around the globe, our students put their knowledge and abilities to the test.

We are able to deliver the best education by staying at the forefront of the field. Rigorous research that crosses disciplines and perspectives informs our educational programs, whether it's our work or the work of others. By the time our students leave here, they know how to model, measure, and implement the most pressing sustainability strategies to improve the world.



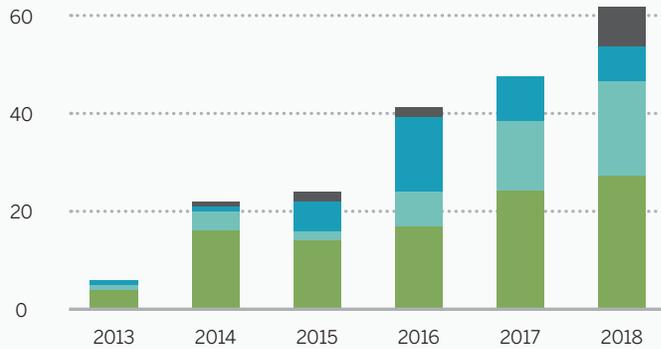
Education Highlights

- | Grew our team by hiring a new academic program manager
- | Integrated sustainability cases into MIT Sloan classes
- | Continued to support growing student interest in social impact investing
- | Incorporated our PROMISE framework (see page 3) into an expanded list of course offerings



Sustainability Certificate

We are proud to note that a record number of students earned a Sustainability Certificate this year, a total of 61. The Certificate represents a serious commitment to completing five sustainability courses during a student's time at MIT.



- **MIT Sloan:** MBA, SM in Management Studies
- **MIT Sloan Executive:** Executive MBA, MIT Sloan Fellows MBA
- **MIT Sloan/Engineering:** Leaders for Global Operations, System Design and Management, Supply Chain Management, Technology and Policy Program
- **Department of Urban Studies and Planning:** MCP

Certificate graduates include students from both MIT Sloan and MIT master's programs.



The PROMISE Framework: What does sustainability mean?

Our vision of sustainability encompasses more than just the environment. We believe true sustainability is complex, taking into account economic, social and personal factors. To help us find the fundamental alignment among these critical factors, we are employing the PROMISE framework. PROMISE helps us define the dimensions we see as essential to sustainability, and allows us to expand the global conversation beyond the narrow conceptions that exist today.

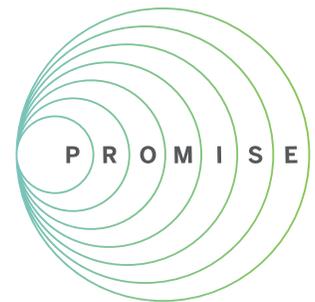
We're using the PROMISE framework internally, and for several objectives in our master's and executive level classes:

To help us align our actions (time and effort we devote to each dimension) with our values (how much we care about each dimension).

To understand how the quality of measurement differs across dimensions. For instance, we measure economic outcomes relatively well, but we tend to measure sadness too late and only concentrate on extreme outcomes (such as suicide). Measurement is important because our actions and incentives are related to the variables we measure, while our motivation is related to the dimensions we value.

To highlight where there are conflicts and tradeoffs and where there are win-win opportunities that can improve multiple dimensions of human well-being and sustainability. For example, insulating the homes of the elderly and disadvantaged simultaneously increases economic well-being, improves health, and cuts greenhouse gas emissions.

As we incorporate PROMISE into more of our classes and initiatives, we will continue to improve the framework. We'll keep you posted!



PROMISE stands for:

- P** | Personal Well-Being
- R** | Relationships
- O** | Organizations
- M** | Markets and Economy
- I** | Institutions and Culture
- S** | Society and Politics
- E** | Environment



Apply Academic Rigor to Real-World Problems

Our faculty members are driven to conduct rigorous research because they want their data and discoveries put into action. Whether it's statistics collected to improve global water management, myth-busting research on biofuels, or a more effective way to measure an organization's environmental, social and governmental performance (ESG), our faculty members are engaged with industry, governments, and organizations—mobilizing action and using good science to move the sustainability field forward.

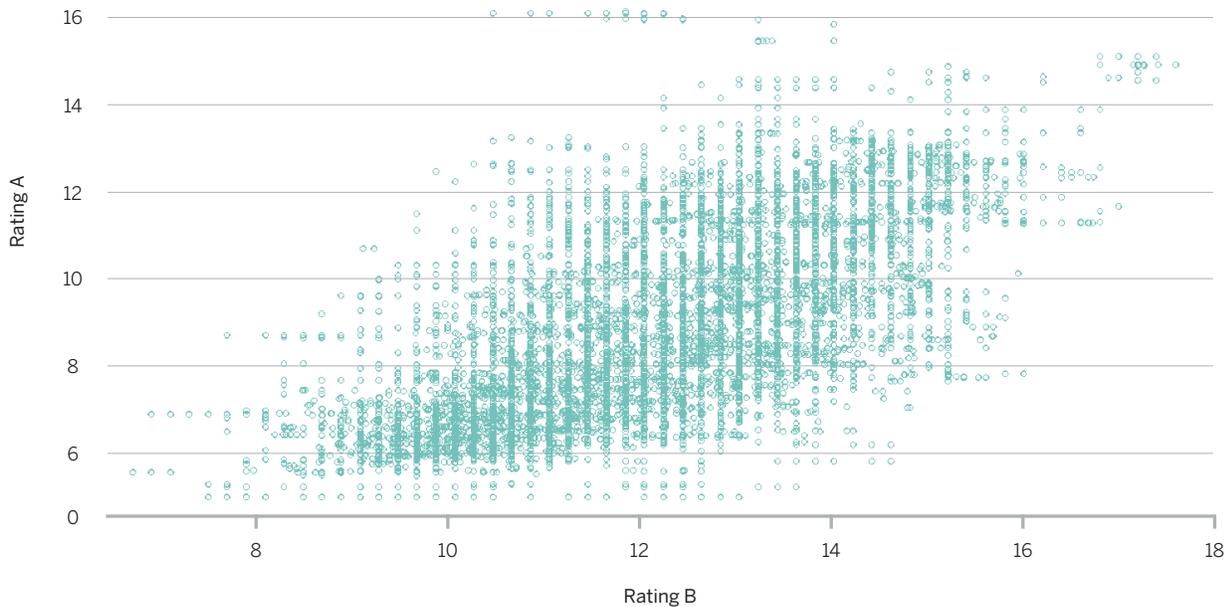
Aggregate Confusion: A Better Way to Measure

ESG ratings purport to measure a company's environmental, social and government performance. They are important factors in evaluating an organization's sustainability efforts. The problem is that ESG factors are poorly measured. ESG rating agencies exhibit extraordinary discrepancies when measured by the correlation of their ratings — less than 30 percent (see graph below). Enter the Aggregate Confusion Project.

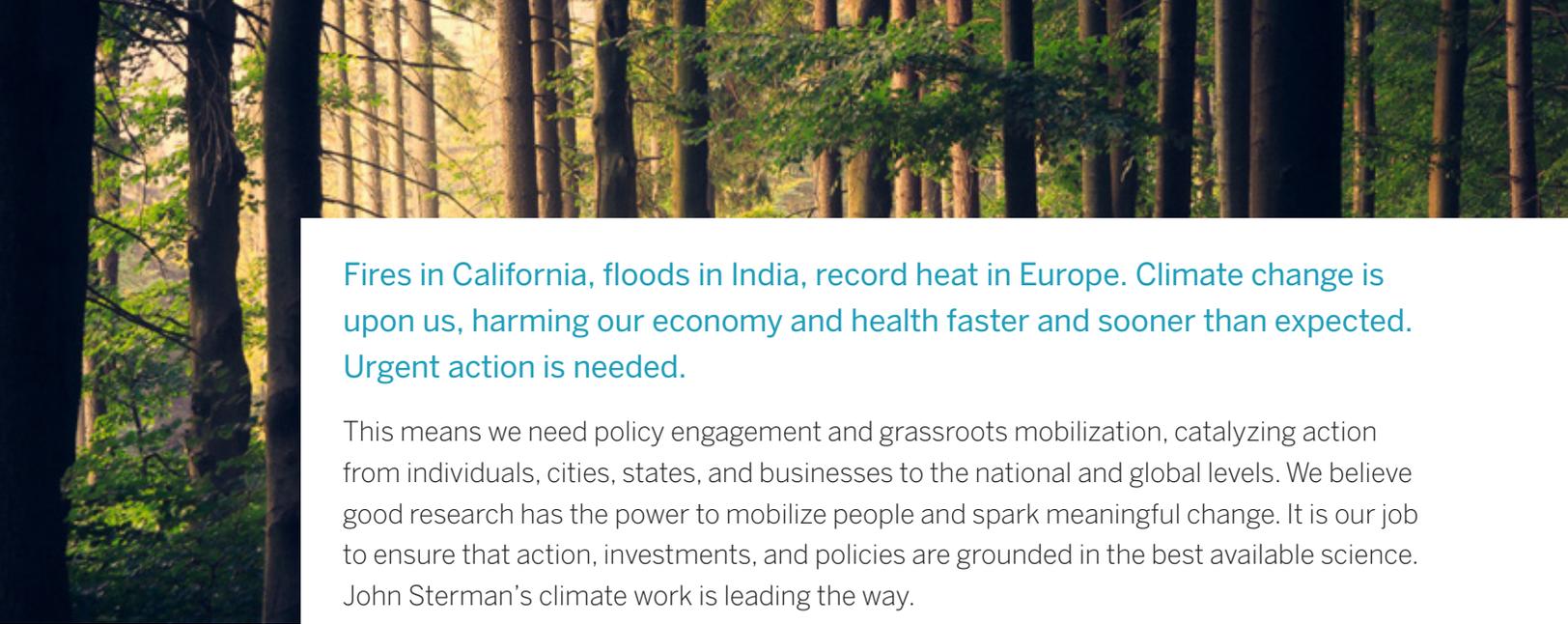
Launched by Roberto Rigobon last year, this research effort is working to evaluate the reason for ESG rating discrepancies. How much is measurement error? How much is due to the fact that the rating agencies concentrate on different subjects? And how much is due to the rules that they use to create the overall rating? The answers have important implications for multiple sectors. More accurate ESG measures will help investors better evaluate their portfolios and firms better evaluate their performance. With more reliable ESG measures, rating agencies could improve their measurement and aggregation rules, and policymakers and advocates could more accurately target and evaluate their efforts.



Scatterplot of Two ESG Ratings



The Aggregate Confusion Project has analyzed data from five ESG rating agencies. This graph shows a typical pattern of divergence between two prominent agencies. Note that there are firms in the bottom quartile of one rating while making the top decile of the other. Our team's first paper will explore the sources of this divergence, and how it could be mitigated.



Fires in California, floods in India, record heat in Europe. Climate change is upon us, harming our economy and health faster and sooner than expected. Urgent action is needed.

This means we need policy engagement and grassroots mobilization, catalyzing action from individuals, cities, states, and businesses to the national and global levels. We believe good research has the power to mobilize people and spark meaningful change. It is our job to ensure that action, investments, and policies are grounded in the best available science. John Sterman's climate work is leading the way.

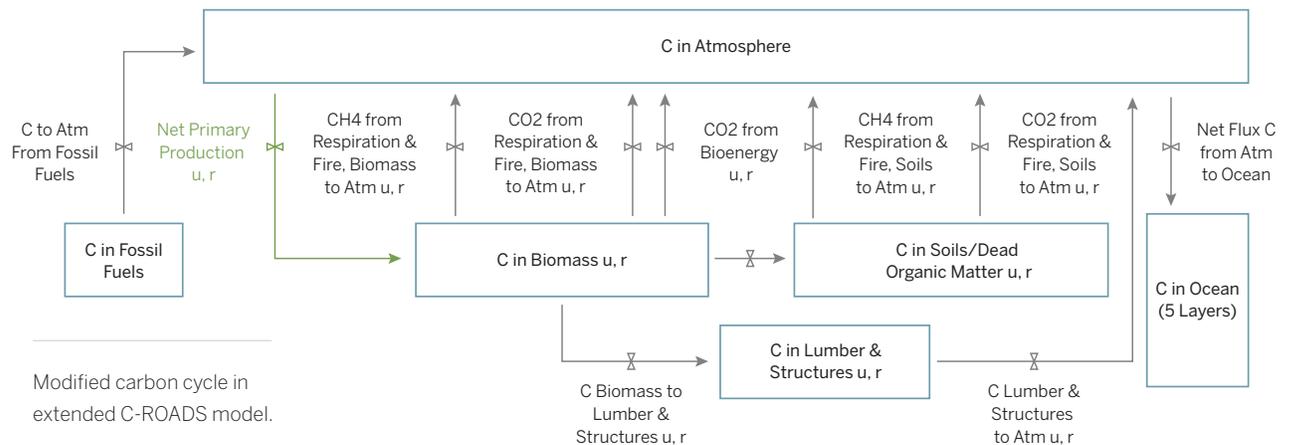


Read the paper, "Does replacing coal with wood lower CO2 emissions?" (2018), in *Environmental Research Letters*, 13(1).

From Science to Public Policy

Recently, the Environmental Protection Agency (EPA) declared the burning of wood from managed forests for energy production to be "carbon neutral." John Sterman's research team proved this was not accurate. John and his co-researchers did a lifecycle analysis of U.S. forests, using the Climate Rapid Overview and Decision Support (C-ROADS) simulator, which illustrated what would happen if an electric plant transitioned from coal power to wood pellet energy, and the results of replanting a variety of U.S. forests. John's study pointed out that the water content in the wood would make it less efficient to burn and that it would take 80 years to regrow forests burned for fuel—too long for the precarious state of our current climate.

The findings challenged the popular belief that biofuels are better for the environment, and inspired scientists, activists, and policymakers to take action. John and 795 other scientists sent a letter to the European Union Parliament warning against their plan to classify wood pellets burned in power plants as a low-carbon fuel source. "Even if forests are allowed to regrow," they wrote, "using wood deliberately harvested for burning will increase carbon in the atmosphere and warming for decades to centuries." And that is the case, the scientists added, "even when wood replaces coal, oil, or natural gas." The letter and findings were brought to light in dozens of scientific and news outlets around the world, spurring others to take action.



Modified carbon cycle in extended C-ROADS model.

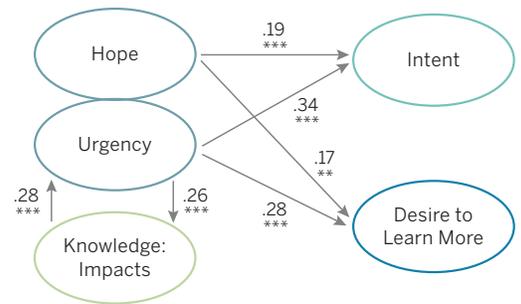
The Power of Simulation-Based Learning

Research co-authored by John Sterman found that 81 percent of participants in the World Climate Simulation, a role-playing game of the United Nations climate talks, showed increased motivation to combat climate change. This feeling was noted even among Americans who say they are free market proponents, a belief strongly linked to denial of human-caused climate change in the United States.

“Research shows that showing people research doesn’t work,” says John. “World Climate works because it enables people to express their own views, explore their own proposals, and thus learn for themselves what the likely impacts will be.”

The simulation has been reviewed by independent educators and scientists, found to support national science education standards in the United States, and designated as an official resource for schools in France, Germany, and South Korea.

See page 10 for more on C-ROADS and the World Climate Simulation.



Read the paper, “Combining Role-Play with Interactive Simulation to Motivate Informed Climate Action: Evidence from the World Climate Simulation” (2018), in *PLoS ONE* 13(8).

Crowdsourcing Water Management Data on a Global Scale

Water supplies depend on more than just rainfall and water quality—how utilities and local governments manage the supply is just as important. But right now, worldwide information on how governments and utilities manage water at the local level doesn’t exist. Thanks to a collaboration between the World Resources Institute (WRI) and the Sustainability Initiative at MIT Sloan, this data gap could be closing.

In a technical note co-authored by MIT research associate Julian Koelbel, *Mapping Public Water Management by Harmonizing and Sharing Corporate Water Risk Information*, WRI and MIT pointed out that the pieces of this water management puzzle are already embedded in corporate water risk assessments around the world. Multinational companies monitor and internally report information on local water regulations, the state of water infrastructure, and other water management aspects through routine assessments. WRI and MIT’s new method details how crowdsourcing from these companies can be used to create a comparable, global dataset on local water management—a better form of measurement. The team has already pilot-tested the method with six companies across 41 facility locations in 14 countries.

Julian Koelbel, WRI, and the Pacific Institute are now moving beyond the initial pilot program to gather additional data via crowdsourcing. The resulting water management geodatabase built from this effort will join with WRI’s Aqueduct Water Risk Atlas to provide users—and the public—with a full picture of water risks around the world.

The WRI/MIT paper is available at www.wri.org/publication/mapping-public-water

To submit data or support the crowdsourcing effort, please email: sustainability@sloan.mit.edu



Julian Koelbel, MIT research associate, co-author of *Mapping Public Water Management by Harmonizing and Sharing Corporate Water Risk Information*





Empowering Leaders Everywhere to Take Action

Our goal is to help leaders, no matter where they are, find the right strategies, tools, and training to take action. To this end, we offer student internships, Sustainable Business Lab projects (S-Labs), access to faculty research, conferences, summits, executive courses, and online games and tools.



Scholarly Leaders Taking Action

“CSR needs CPR.” This was a common refrain at the 10th Annual Alliance for Research on Corporate Sustainability (ARCS) Conference held at MIT Sloan in June. Hosted by the Sustainability Initiative, the event pushed scholars to think about corporate political responsibility (CPR) as well as corporate social responsibility (CSR). A panel moderated by Jason Jay, director of the Sustainability Initiative at MIT Sloan, challenged the 106 ARCS participants from all over the world to become more engaged in policy research and political action. Many who attended signed a pledge to back climate advocacy and action based on science.

Keynote speaker Mindy Lubber, CEO of Ceres, talked about driving sustainability in the business sector and the need to collaborate with academic thought-leaders. “Without the data and facts,” she said, “business as usual, is just business as usual.”

Several scholars earned Best and Outstanding Paper awards. Winner of the People’s Choice Award was Greg Distelhorst, MIT Sloan, and Anita McGahan, University of Toronto. “It was inspiring to see the next generation of young business scholars so interested in sustainability,” said ARCS President Tom Lyon.

Read all the winning papers here: <https://corporate-sustainability.org/awards/>



It was inspiring to see the next generation of young business scholars so interested in sustainability.”

ARCS President **Tom Lyon**



“We’re working to transform capital markets for a sustainable future and we need you, the academic thought leaders of our world, to work alongside us.”

CEO of Ceres **Mindy Lubber**

Sustainability and Jobs

Faculty members working with the Sustainability Initiative are not only studying sustainability but also expanding the definition. In March, the student-led Sustainability Summit went one step further and began to change the dialogue, adding “bad jobs” into the mix—jobs that offer poverty-level wages and unpredictable schedules.

With Adjunct Associate Professor Zeynep Ton leading the discussion, a wide range of expert speakers and panelists from the worlds of business, academia, labor, policy, and nonprofits came together for the summit to learn how to take action that would put an end to bad jobs in the United States.

Conference organizers Hilary Gram, MBA '18, Catherine Wright, MBA '18, and Tiffany Ferguson, MCP '18, say they chose the good jobs topic because they wanted to highlight the expertise of the MIT Sloan faculty and respond to rising discontent with stagnant wages and income inequality in the United States.

Zeynep has studied retailers and identified a good jobs strategy that would show them how to pay frontline workers more and still be financially successful. The good jobs strategy is not easy to implement, she says, “but it is possible, profitable, and very much worth the effort.”

Read more about the Good Jobs Strategy here: goodjobsinstitute.org



Conference organizers
Hilary Larsen, MBA '18,
Catherine Wright, MBA '18,
and **Tiffany Ferguson**, MCP '18



The good jobs strategy is not easy to implement, but it is possible, profitable, and very much worth the effort.”

Adjunct Associate Professor **Zeynep Ton**





Alumni Leaders Taking Action



Drew Jones, SM '97, is co-founder and co-director of Climate Interactive.

Drew Jones, SM '97, is co-founder and co-director of Climate Interactive, a nonprofit organization that creates scientifically rigorous interactive tools that help people play out scenarios and see what works to address the biggest challenges we face. Creation of the award-winning climate-related tools C-ROADS and the World Climate Simulation was a team effort, with Drew, John Sterman, and the Sustainability Initiative all playing a role. Drew has successfully built a network of skilled trainers who have brought the game to over 40,000 people, including students, oil company executives, religious groups, former Secretary of State John Kerry, U.S. senators, and many others. Collaborating with MIT Sloan and the Sustainability Initiative, Drew and Climate Interactive inspire people to take action.

“We believe that when people learn by experiencing rather than being told the facts,” Drew says, “they gain a deeper understanding of a challenge and the best ways to address it. And we believe that, with the right information and experience, people will take the actions necessary to create a future in which we all can thrive.”

As of October 2018, more than
46,000 people in 85 countries
around the world had participated in
World Climate Simulation.



Our Team

Leadership Team



John Sterman

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



Roberto Rigobon

Society of Sloan Fellows, Professor of Management; Faculty Co-director, Sustainability Initiative at MIT Sloan



Jason Jay

Senior Lecturer, MIT Sloan; Director, Sustainability Initiative at MIT Sloan



Bethany Patten

Lecturer, MIT Sloan; Senior Associate Director, Sustainability Initiative at MIT Sloan

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Research Affiliate

Ingo Michelfelder

Postdoctoral Fellow

Sustainability Initiative Fellows, Teaching and Research Assistants

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Tiffany Ferguson, MCP '18

Hilary Gram, MBA '18

Ankita Kaul, MBA '16

Hillary Larsen, MBA '18

Abraham Stein, MBA '18

Catherine Wright, MBA '18

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. As we ramp up our research activities, we expect a shortfall in revenue and will seek additional funding to support that work.



Expense Details

- Education
- Research
- Outreach & Engagement
- Marketing & Communications
- G&A



The Michael Sonnenfeldt Challenge

In 2017, Michael Sonnenfeldt, SB '77, SM '78, pledged \$250,000 in support of the Sustainability Initiative. But he wasn't done there. At the same time, he outlined a challenge to our community. If those of you who care about sustainability and our work at the Initiative make gifts and pledges totaling \$450,000 over the course of the next year, Michael will commit an additional \$50,000. With the help of leadership donors who have stepped up early, we are well on our way to reaching the goal, but we will need everyone's help to meet this exciting challenge.

Please make your gift today. Contact us at: sustainability@sloan.mit.edu

Our Partners and 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

Ricardo V. Marino, MBA '00

John A. Mazzarino, SM '77

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

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

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

*previously endowed gift

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