

RE INVENT



MIT INITIATIVE ON THE DIGITAL ECONOMY

STAYING AHEAD OF THE CURVE REQUIRES REINVENTION.

Change is the only constant, and the world faced and endured many painful challenges in 2020. The changes we introduced this year make us more prepared than ever to support our mission.

The MIT Initiative on the Digital Economy (IDE) constantly looks toward the future—anticipating, exploring, and fine-tuning our focus to the critical challenges and questions of tomorrow.

In early 2020, we began to refresh our approach and accelerate in new directions. After co-founding the IDE in 2014, Professor Erik Brynjolfsson handed over the reins to our new director, Professor Sinan Aral, who along with co-director Andrew McAfee will now lead our organization.

Aral's energy, fresh vision, and expertise position the IDE to continue our cutting-edge research on the most prevalent and pressing issues facing the digital economy today.

During our annual conference in May, the IDE introduced six new Research Groups led by familiar rock stars (Andrew McAfee, Sandy Pentland) and rising stars (Renée Richardson Gosline, David Rand, Dean Eckles, and John Horton).

Then, the global pandemic set in. While no one could have anticipated its upending effects, we were prepared to engage and support stakeholders as the growth of the digital economy gained explosive prominence. We mobilized resources and formed the [COVID-19 Research Hub](#) to lead new research that would aid in the prevention and spread of the virus.

Through timely research, insightful events (now virtual), and educational offerings, the IDE continues to reinvent the digital future when the world will move beyond the challenges of 2020 and into a more economically, socially, and politically healthy era.

RISING TO THE CHALLENGE

From our response to COVID-19 to introducing new leadership and research groups, the IDE demonstrated resilience and commitment to our mission throughout the year.

New Leadership Takes the Helm

Longtime member of the IDE research team, Professor Sinan Aral, joins our senior leadership as Director, bringing with him a fresh perspective and focus. Aral's groundbreaking and highly relevant research into social networks, social media, and fake news have made him a leading and sought-after expert and thought leader in these unprecedented times. **PAGE 4**

IDE Forms Six New Research Groups

We've updated our research agenda to expand into additional critical issues facing the digital economy—from fake news to algorithmic bias, platforms to digital societies. A team of stellar academics, both familiar and new, will lead our six new areas of research. **PAGE 5**

New Book from Sinan Aral

IDE Director Sinan Aral released his much heralded book, *The Hype Machine*, which examines how social media affects our elections, our economy, and our health.

Events Move to Virtual Format

Even as we pivoted to online events, our 2020 calendar was as jam-packed as ever. IDE events drew double the number of previous years' attendees, who tuned in for discussions with leading thinkers and industry experts. **PAGE 9**

A-Lab Drives Actionable Outcomes

The IDE's Analytics Lab (A-Lab) continues to be a cornerstone opportunity for MIT students and IDE stakeholder companies. A total of 89 graduate students engaged in 23 projects with host companies. **PAGE 11**

Global Press & Media Coverage Soars

IDE research and events continue to attract worldwide attention from the press and media, advancing the public understanding of the digital economy. Our social media channels experienced widespread growth, as we launched informative content across Twitter, LinkedIn, Medium, Instagram, and our soon-to-be refreshed website.

IDE Responds to the Pandemic

When the global pandemic hit in early 2020, our research team quickly sprang into action. The team worked tirelessly to provide timely, accurate, and data-driven analysis of the pandemic and its effects.

IDE researchers engaged with Facebook, Safegraph, Praekelt, Graphika, and other companies to analyze millions of data points with the goal of advising global leaders on the most effective ways of lowering the infection curve and re-opening the economy.

The result of this tremendous effort was the COVID-19 Rapid Response Hub, an open-source repository for timely, fact-based, and actionable information that includes more than 60 papers and citations to date. This resource provides information and solutions for policymakers, business leaders, and citizens alike.

VISIT THE COVID-19 RESPONSE HUB



IDE researchers are continuing their analysis of COVID vaccination data that will help stem the impact of the virus.

IDE Researchers Garner Attention and Accolades

Our researchers and their ahead-of-the-curve insights and analyses have been recognized with many awards over the years: 2020 was no exception.

Best eBusiness Paper

IDE Researchers Dean Eckles, Sinan Aral, Jeremy Yang, and Paramveer Dhillon garnered this year's Best Paper Award at the INFORMS Annual Conference in the eBusiness category. Their research, *Targeting for Long-Term Outcomes: Evidence from Large-Scale Field Experiments*, examines how businesses can more quickly optimize and realize revenue from targeted marketing campaigns.

Rand Receives Two Coveted Awards

Research Group head David Rand received two prestigious awards this year. First, the Federation of Associations in Behavioral & Brain Sciences presented Rand with the 2020 Society for Judgment and Decision Making Award, which recognizes early career scientists who have made major research contributions to the sciences of mind, brain, and behavior.

He also won the inaugural AMA-EBSCO Annual Award for Responsible Research in Marketing from the American Marketing Association for his paper, *Credibility-Enhancing Displays Promote the Provision of Non-Normative Public Goods*.

Lifetime Achievement for Pentland

Alex "Sandy" Pentland was honored with a Lifetime Achievement Award at the virtual MIT AI Conference 2020, AI for a Better World, held in July. The award recognizes individuals who have "already achieved several lifetimes' worth of breakthroughs, founding or funding new innovations and launching new industries."



SINAN TAKES THE HELM

Social media is front and center, and so is the IDE's new leader.

Can we protect democracy from social media? Why are uncoordinated responses to COVID so deadly? Should Facebook be broken up?

These are some of the most pressing and provocative digital economy questions today, and they're also subjects that our new director, Sinan Aral, has studied and researched well for many years.

Sinan is the David Austin Professor of Management at MIT Sloan, where he is a Professor of IT and Marketing, and Professor in the Institute for Data, Systems and Society.

Sinan is a leading expert on social networks, social media, and digital strategy. He has worked closely with Facebook, Yahoo, Microsoft, IBM, Cisco, Intel, Oracle, SAP and many other leading Fortune 500 firms on realizing business value from social media and IT investments.

Sinan has come full circle back to MIT, where he was a stand-out PhD student. Before that he was a Phi Beta Kappa graduate of Northwestern University, and holds master's degrees from the London School of Economics and Harvard University.

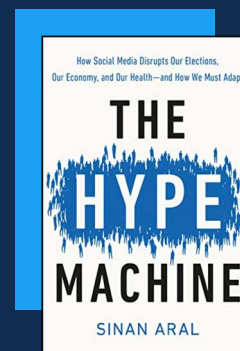
In the interim, his achievements as an entrepreneur were abundant. He was the chief scientist at SocialAmp, one of the first social commerce analytics companies (until its sale to Merkle in 2012), and at Humin, a social platform that the *Wall Street Journal* called the first "Social Operating System" (until its sale to Tinder in 2016).

Sinan is currently a founding partner at Manifest Capital and on the Advisory Board of the Alan Turing Institute. He also served as the scholar-in-residence at The New York Times R&D Lab in 2013.

Sinan's research has won numerous awards including the Microsoft Faculty Fellowship, the PopTech Science Fellowship, an NSF CAREER Award, and a Fulbright Scholarship. In 2014, he was named one of the "World's Top 40 Business School Professors Under 40," by *Businessweek*.

A global speaker and frequent media contributor, Sinan also leads the CoDE and A-Lab programs at the MIT IDE and is an Executive Education speaker and faculty leader at MIT Sloan.

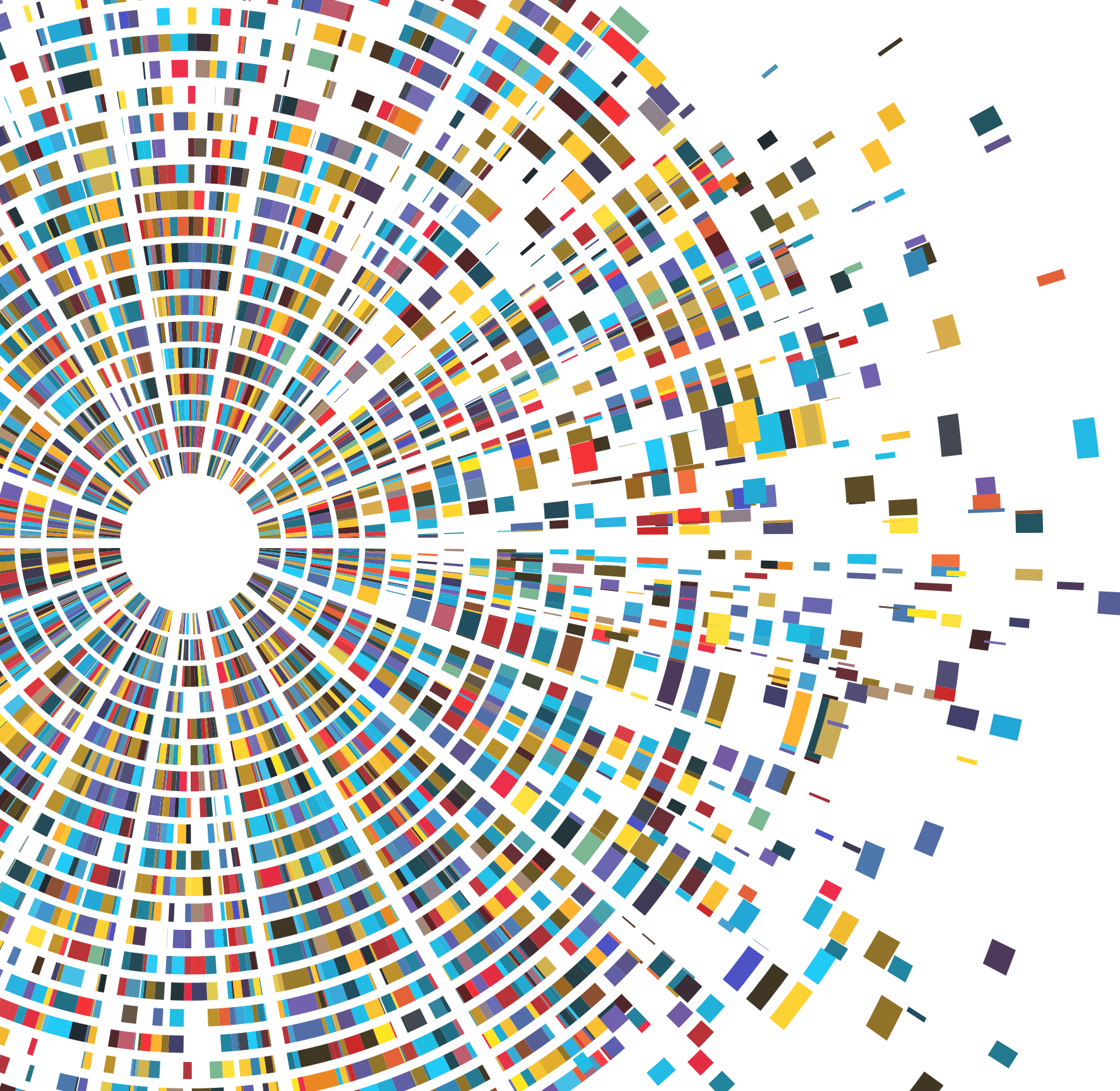
[Follow Sinan on Twitter @sinanaral](#)



A Book for These Times

In September, Sinan released *The Hype Machine*, which culminates his research over the past 20 years. *Wired* named it one of the "Top 8 Books on AI", which "offers a God's-eye view of the latest experimental research into the inner workings of social media. The result is something like a textbook—an engagingly written shortcut to expertise on what the likes of Facebook and Twitter are doing to our brains and our society."

[PURCHASE ON AMAZON](#)



NEW YEAR, NEW RESEARCH GROUPS

Since our inception in 2014, the IDE has conducted research through the lens of four Research Pillars. This year, we announced six new Research Groups that represent profound questions facing the digital economy today:

- The Human/AI Interface
- Misinformation and Fake News
- Social Networks and Digital Experimentation
- Online Marketplaces and Labor Economics
- Data-Driven Societies
- Tech For Good

The reorganization enables our world-renowned faculty and research scientists to generate findings that will equip businesses and society to adapt as digital technology races ahead.


Each group is led by an internationally recognized faculty member from the MIT Sloan School of Management. Learn more about our new Research Groups in the pages ahead.

[VIEW LATEST PROJECTS AT IDE.MIT.EDU](https://ide.mit.edu)



The Human/AI Interface Research Group

Renée Richardson Gosline leads The Human/AI Interface Research Group. She is a Senior Lecturer in the Management Science group at the MIT Sloan School of Management and a Principal Research Scientist at IDE.

 @reneegosline

How do we optimally divide decision-making between humans and AI? When and where should we trust machines? How do we prevent bias in algorithms?

As organizations experience rapid digital transformation, the effective adoption of AI by employees, partners, and customers, becomes critical for competitive advantage. It's imperative to examine when humans trust algorithms and how to develop mutual learning between humans and algorithms for optimal decision-making.

The IDE explores the symbiosis between human and AI and how the balance varies by task. Using experiments and mixed-method approaches, the Human/AI Interface Research Group will proffer strategic, policy, and behavioral solutions.

Misinformation and Fake News Research Group

David Rand leads the Misinformation and Fake News Research Group. He is the Erwin H. Schell Professor and an Associate Professor of Management Science and Brain and Cognitive Sciences at MIT Sloan, and the Director of the Human Cooperation Laboratory and the Applied Cooperation Team.

 @DG_Rand

Why do people share inaccurate content online? What can be done to reduce the spread of misinformation and fake news?

Cognitive science research and digital field experiments are tools to advance the fight against online misinformation. Through the Misinformation and Fake News Research Group, we drive transparency in our digital lives.

We shed light on the basic science of how people decide what to believe and share, and leverage these insights to design anti-misinformation interventions. We then run experiments to test the impact of these interventions, and collaborate with technology companies like Google and Facebook to translate our science into real-world impact.





Online Marketplaces and Labor Economics Research Group

John Horton leads the Online Marketplaces and Labor Economics Research Group. He is the Richard S. Leghorn Career Development Professor at MIT Sloan.

 @johnjhorton

What are the implications of the prevalence and importance of online marketplaces and computer-mediated transactions? How can they be designed to create widespread benefits for all?

The IDE works to understand the rise of online marketplaces and to guide entrepreneurs and existing companies to successful platform strategies and best practices. We also conduct research using these markets, both to inform practice and to understand what these new markets can teach us about old questions. Some of the more interesting markets have a substantial labor component, raising compelling questions about practice, strategy, and public policy.

Social Networks and Digital Experimentation Research Group

Dean Eckles leads the Social Networks and Digital Experimentation Research Group. He is the Mitsubishi Career Development Professor at MIT Sloan.

 @deaneckles

How do new technologies and new means of social interaction and contagion impact productivity, consumer demand, political mobilization, and public health? How is human persuasion and behavior change caused by interactive technologies?

The IDE examines the profound impact social behavior and digital experimentation has on our lives, including how it affects aspects such as political mobilization, consumer demand, information sharing, worker productivity, and even stock prices. Through our research, we show how social networks can improve social and business policy through a dramatic new scientific understanding of human behavior.

Recent projects include a study of how social media can help proactively manage epidemics through social media, as well as how mobilization and tracking impact voter democratization. We conduct our research using applied statistics, experimental design, machine learning, and causal inference.





Tech for Good Research Group

Andrew McAfee leads the Tech for Good Research Group. He is a principal research scientist at MIT Sloan and co-directs the IDE.

 @amcafee

How can technology progress help us lighten our footprint on the planet? Do we need to constrain growth or embrace it in order to improve both the human condition and the state of nature?

During the Industrial Era, technological progress and market-based economies combined to enable unprecedented growth in human populations and prosperity. But this growth came at a high planetary price: pollution rose, ecosystems suffered, and we drove species to the brink of extinction and beyond.

IDE researchers are investigating whether we've entered a new era — one of sustainable and healthy growth. Our work helps identify solutions to the remaining challenges such as global warming and oceanic plastic pollution.

Data-Driven Societies Research Group

Alex "Sandy" Pentland leads the Data-Driven Societies Research Group. He also directs MIT's Human Dynamics Laboratory and the MIT Media Lab Entrepreneurship Program, and co-leads the World Economic Forum Big Data and Personal Data initiatives.

 @alex_pentland

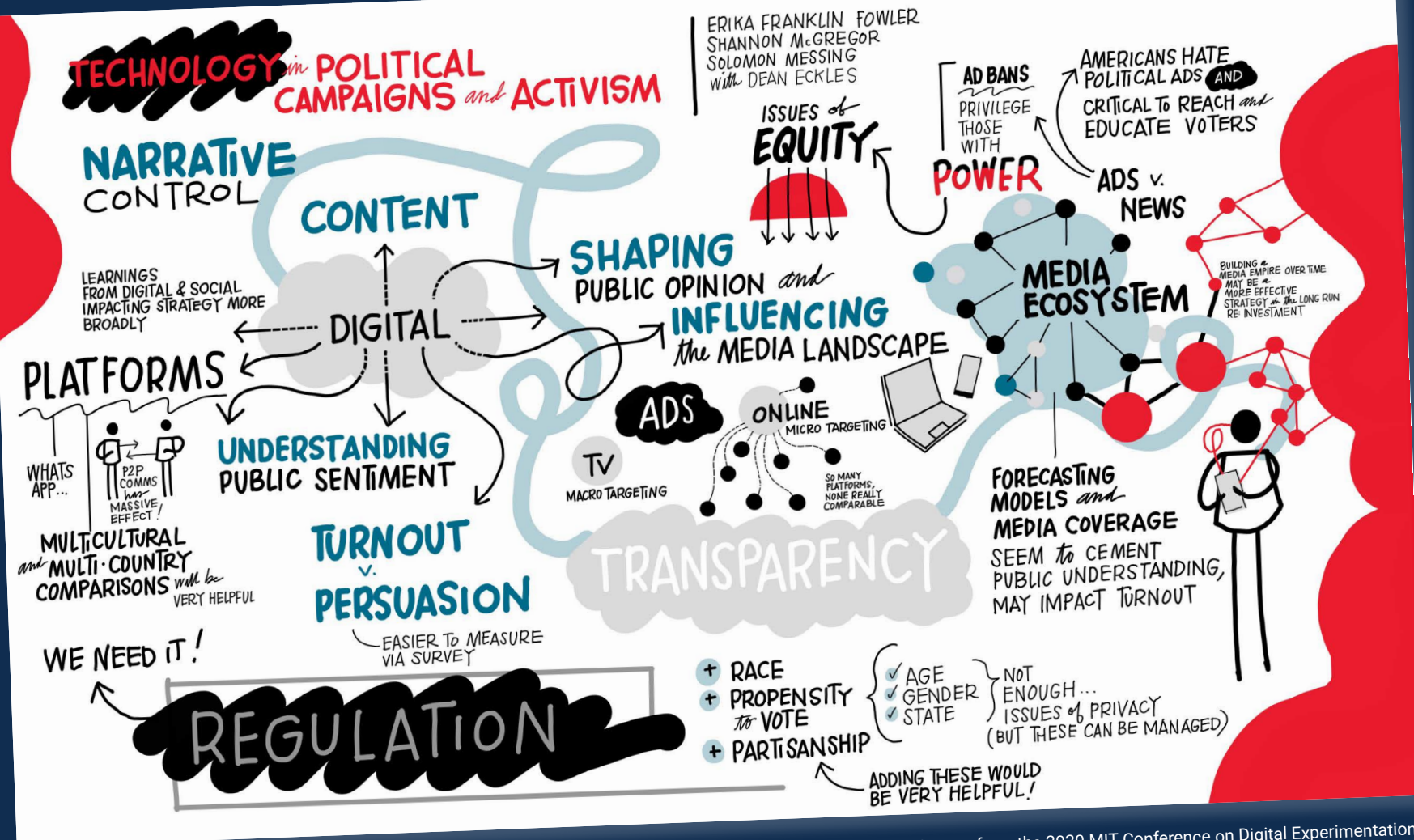
How can we build data and AI ecosystems in which all partners—citizens, companies, and government—are winners?

The Data-Driven Societies Research Group aims to explore and establish equitable frameworks and infrastructure upon which our digitally enabled world is based.

Data and AI are now primary means of production, along with capital and labor. Scalable, sustainable, and socially acceptable data and AI ecosystems require new ways to think about data ownership, new ways to quantify impact, and new ways to manage trade.

We are working with multinational companies, national governments, tax and monetary authorities, and citizen organizations, to build and test new software and legal architectures that better leverage data and AI. Examples include helping create some of the first Central Bank Digital Currencies, the first national blockchain systems, new government tax and antitrust methods, and data architectures that are far more resistant to crime and misuse of personal data.





Standout themes from the 2020 MIT Conference on Digital Experimentation (CODE@MIT) session "Technology in Political Campaigns and Activism."

VIRTUALLY ENGAGING

In this unprecedented year, we pivoted to deliver all of our events online, while maintaining our high standards for thought-provoking content and increasing our attendance.

- 25 events
- 4,000+ attendees
- 105 speakers

Conference on Digital Experimentation
11.19-20.2020

The two-day Conference on Digital Experimentation (CoDE) virtually assembled leading researchers who are conducting and analyzing large-scale, randomized experiments in digitally mediated social and economic environments. Led this year by Dean Eckles, the event attracted more than 400 attendees from several scientific disciplines—including economics, computer science, and sociology—to gain better insights into human behavior. CODE hosted over 90 presentations, including a Fireside Panel on algorithms, transparency and accountability.

[WATCH VIDEO](#)

Platform Strategy Summit
07.08.2020

The IDE hosted this internationally recognized workshop for the seventh year running. An impressive and engaging line-up of leaders and researchers examined the economics and management of platform-centered markets and discussed their implications for managers, industry, and governmental policy. The virtual format enabled us to amp up our program with a guest performance by Billboard chart-topping musician Steven Page of the Barenaked Ladies.

[VIEW REPORT](#)

MIT AI and the Work of the Future Congress
11.18.2020

The IDE, the Computer Science and Artificial Intelligence Lab (CSAIL), and the Work of the Future Task Force teamed up again this year to deliver our fourth consecutive event. More than 1,500 viewers from around the world tuned in to hear experts from academia, industry, and public policy discuss how technology is fundamentally transforming work and how business and society must adapt during this era of profound technological change.

[VIEW REPORT](#)

IDE Annual Conference
05.20.2020

During our first virtual IDE Annual Conference, researchers revealed their latest research results, discussed our new areas of research going forward, and engaged special guests in dialog about the most pressing issues facing the digital economy. This annual event provided an exclusive opportunity for members and stakeholders to "drink from the firehose" and learn about the cutting-edge research and big changes at the IDE.

MIT Analytics Lab
Pitch Day: 09.18.2020 Final Presentations: 12.11.2020

The MIT Analytics Lab, or A-Lab, offers an opportunity for IDE Stakeholders to submit projects and data to MIT graduate student teams that will use analytics, machine learning, and other methods of analysis to develop results that will diagnose, enable, or uncover solutions to real business issues and opportunities.

IDE Seminar Series

THE SHARING OF IDEAS

Our informal seminars feature early results from current research projects and provocative new ideas.



LEARNING IN ACTION

The IDE's Analytics Lab (A-Lab) is one of the most sought after Action Learning courses at MIT Sloan. During the past seven years, this flagship offering of the IDE has enrolled 500+ students from more than a dozen departments to work on 130+ projects.

In A-Lab, student teams select and deliver real-world projects using analytics, machine learning, or other digital technologies to solve actual business problems. Taught by MIT IDE Director Sinan Aral and MIT Sloan Professor Abdullah Almaatouq, A-Lab enlists host companies to engage with students and benefit from their analysis and insights.

This year's A-Lab boasted 89 students who worked on a total of 23 projects. During the annual Final Presentations event in December, a panel of academic and business experts selected one winning team and two runners-up based on their project results and methodologies.



A Healthy Win

This year's winning A-Lab team focused on "Healthy Food: Can We Identify a Correlation Between Healthy Foods and Cost Savings?" Retail Business Services (Ahold Delhaize) sponsored the project.
[READ ABOUT THE PROJECT](#)

Digitally Delivered Executive Education

During a year when many schools canceled or limited in-person learning, online education has become more critical than ever. In 2020, IDE faculty and researchers continued to launch and contribute to best-in-class executive education courses. Here are just a few executive education courses taught by MIT IDE faculty and researchers.

Advanced Management Program
Renée Richardson Gosline

Artificial Intelligence
Alex "Sandy" Pentland

Digital Business Strategy: Harnessing Our Digital Future
Andrew McAfee

Digital Marketing and Social Media Analytics
Sinan Aral with Dean Eckles

Social Media Strategy: Creating Engagement, Insight, and Action
Sinan Aral

Digital Marketing Analytics
Sinan Aral

Entrepreneurship Development Program
Michael Schrage

Machine Learning
Sinan Aral



New Course Focuses on the Customer Experience

Coming in 2021: Renée Richardson Gosline will launch the Executive Education course, [Breakthrough Customer Experience \(CX\) Strategy](#). The course will explore how to use data and technology as a tool to craft a superior CX.

THE IDE TEAM

An impressive new group of leaders and thinkers joined the IDE this year. Our entire team pulled together during these uncertain times to accelerate our mission.

* new to IDE

Leadership

Sinan Aral
Director, MIT IDE
Professor, MIT Sloan School of Management

Andrew McAfee
Co-Director, MIT IDE
Principal Research Scientist

Research Group Heads

Dean Eckles *
Assistant Professor, MIT Sloan School of Management

Renée Richardson Gosline
Professor, MIT Sloan School of Management

John Horton *
Associate Professor, MIT Sloan School of Management

Andrew McAfee
Co-Director, IDE Principal Research Scientist

Alex “Sandy” Pentland
Professor, MIT Media Lab

David Rand *
Associate Professor, MIT Sloan School of Management

Researchers

Daron Acemoglu
Professor, MIT Economics Department

Wang Jin
Research Scientist, IDE

Kristina McElheran
Assistant Professor, University of Toronto

Geoffrey Parker
Professor, Dartmouth College

Jonathan Ruane
Research Scientist, IDE

Neil Thompson
Research Scientist, MIT Sloan School of Management & CSAIL

Digital Fellows

Tim Aepfel
Reporter, Reuters

Allan Alter
Strategist, Researcher, Writer

Matt Beane *
Assistant Professor, Technology Management Program, University of California, Santa Barbara

Thomas Davenport
Professor, Babson College

Alan Davidson
Digital Economy Director, U.S. Department of Commerce

Paramveer Dhillon *
Assistant Professor, University of Michigan

Joshua Gans
Professor, University of Toronto

Shane Greenstein
Professor, Harvard Business School

John Irons *
former Director of Inclusive Economies at the Ford Foundation

Tod Loofbourrow
CEO, ViralGains

Christos Makridis
Assistant Professor, W.P. Carey School of Business in Arizona State University

Christos Nicolaides
Assistant Professor, University of Cyprus

Claudia Perlich *
Chief Scientist, Distillery

Maria Ressa *
CEO, Rappler

Michael Schrage
Visiting Fellow, Imperial College Department of Innovation and Entrepreneurship

John Van Reenen *
Professor, MIT Sloan School of Management

Irving Wladawsky-Berger
Professor, MIT Engineering Systems

PhD Candidates & Postdoctoral Fellows

Jennifer Allen

Zanele Munyikwa

Seth Benzell

Georgios Petropoulos

Avi Collis

Daniel Rock

Morgan Frank

Sebastian Steffen

Dave Holtz

Jeremy Yang

Alex Moehring

Yuan Yuan

Congratulations to Seth Benzell (Chapman University), Avi Collis (University of Texas, Austin), Morgan Frank (University of Pittsburgh), and Daniel Rock (The Wharton School) on their new faculty positions.

Visiting Scientists

Sarah Jaballah
Capgemini Consulting

Erik Metz
BASF

Staff

Joanne Batziotegos
Finance Administrator

Tammy Buzzell
Financial/Contract Administrator

Devin Cook
Associate Director

Paula Klein
Contributing Writer and Editorial Content Manager

Adjovi Koene
Administrative Assistant II

Carrie Reynolds
Program & Events Coordinator

David Verrill
Executive Director

THANK YOU

During these turbulent times, your support is more critical than ever. You enable us to continue delivering insights that help the world progress toward a more prosperous and healthy future.

Advisory Board

Mitchell Baker
Chairwoman and Co-Founder, Mozilla

Carl Bass
Former President and CEO, Autodesk

Marc Benioff
CEO, Salesforce

Mary Callahan Erdoes
CEO of Asset and Wealth Management,
J.P. Morgan

Reid Hoffman
CEO, LinkedIn

James Manyika
Director, McKinsey Global Institute

Marissa Mayer
Co-Founder, Lumi Labs

Eric Schmidt
Technical Advisor, Alphabet

Robert Solow
MIT Professor of Economics
and Nobel Laureate

Michael Spence
NYU Professor of Economics
and Nobel Laureate

Corporations

Accenture (Founding Member)

Deutsche Bank (Founding Member)

3M

Autodesk

BASF

Benefitfocus

The Boston Globe

Capgemini

Center for Global Enterprise

Dell EMC

Facebook

Gradus Management

Grant Thornton

Graphika, Inc.

ING

IRC4HR

KMPG

MassMutual

Merck & Co.

Microsoft

Netflix

Nomura Research Institute, Ltd.

Prækelt

Safegraph

Schneider Electric

Suruga Bank

The SWIFT Institute

WeChat

Foundations

Center for Global Enterprise

Ewing Marion Kauffman Foundation

Ford Foundation

Google.org

Joyce Foundation

JPMorganChase Foundation

Nasdaq

Ralph C. Wilson Jr. Foundation

Russell Sage Foundation

Rockefeller Foundation

TDF Foundation

Individuals

Wesley Chan

Aaron Cowen

Joe Eastin

Michael Even

Ellen and Bruce Herzfelder

Ed Hyman

Gustavo Marini

Tom Pappas

Gustavo Pierini

Jeff Wilke

and other individuals who prefer to remain anonymous





David Verrill Reflects on 2020

Wow, what a year! No one could have predicted a global pandemic. Our response? Turn a bug into an opportunity at every turn.

Our faculty and researchers quickly pivoted to put resources into a COVID-19 Rapid Response Hub, an open-source repository for timely, fact-based, and actionable information for policymakers, business leaders, and citizens alike. We hope more public policy makers will embrace the type of science we are creating at the IDE.

Our events were pushed to live, but virtual, and lo and behold, attendance doubled—and in some instances tripled! You had time on your hands, and we are so pleased you chose to spend it with us!

I'd like to give a special thanks to our team. While we found it logistically easy to go remote, working from home wasn't easy in any other way. Like you, we've been child and elderly care providers, educators, chefs, and more. Joanne Batziotegos, Tammy Buzzell, and Jovi Koene are the IDE's engine under the hood, and their amazing efforts have kept the machine running. You see Paula Klein's editorial touch in all of our content.

Devin Cook went from the executive producer of our Inclusive Innovation Challenge (a huge success), to our new associate director. And our events coordinator, Carrie Reynolds, adroitly and seamlessly moved all our events online—a heroic effort.

And to our colleagues who have fled to the West, Erik Brynjolfsson and Christie Ko, you are dear friends. We miss you and wish you luck.

And to our stakeholders—the individual donors, foundation grant providers, and corporate members—we very much appreciate your support, now more than ever. Your support has helped us thrive in a difficult situation and enabled us to add the next MIT Sloan superstars to our roster. You've also helped us start the next chapter of the IDE with Sinan Aral as our new director.

I look forward to 2021 and beyond.

David Verrill
Executive Director



MIT INITIATIVE ON THE DIGITAL ECONOMY

