IDE Director Erik Brynjolfsson examines the effects of information technologies on business strategy, productivity and performance, Internet commerce, pricing models, and intangible assets.
THE MIT INITIATIVE ON THE DIGITAL ECONOMY (IDE) EXPLORES HOW PEOPLE AND BUSINESSES WILL WORK, INTERACT, AND PROSPER IN AN ERA OF PROFOUND DIGITAL TRANSFORMATION.

The IDE experienced a leapfrog year in 2015. Fueled by new and significant individual gifts, foundation grants, and corporate memberships, the Initiative was able to advance all of our programs — including research, events, education, fellowships, and our first annual Inclusive Innovation Competition. In two short years, the IDE has gone from launch to full function — a testament to our mission and the passionate effort of so many people.

A sincere thanks to all who supported the IDE throughout the year.
ACHIEVEMENTS

A big thank you to all who have contributed to the Initiative’s success during the past two years. We have much more to do, but we’ve started off with a bang.

The Second Machine Age
The success of The Second Machine Age continues to grow, with printings now in 16 languages. Co-authors Erik Brynjolfsson and Andrew McAfee garnered numerous awards during the year, including being honored as winners of the 2015 Thinkers50 Digital Thinking Award. Overall, the IDE averages two press hits a day from our faculty and researchers. Clearly we have struck a chord.

Inclusive Innovation Competition
We announced the launch of our Inclusive Innovation Competition at MIT Solve. In the inaugural year of the program, the IDE will award $1 million in prizes to organizations whose work creates greater economic opportunities for workers in the digital age.

IDE Advisory Board
We formed the IDE Advisory Board featuring an amazing group of luminaries, including Eric Schmidt, Marc Benioff, Reid Hoffman, Carl Bass, James Manyika, and Bob Solow.

An Eventful Year
Our events were oversold throughout the year. In April, we jammed the Congress Centre in London with alumni from across Europe. A month later, it was standing room only for our Annual Conference in Cambridge. At our Platform Strategy Summit in July, we were forced to close registration two weeks in advance. And our October Conference on Digital Experimentation was attended by nearly three-quarters of the world’s greatest thinkers and practitioners focused on the digital economy. We are asking the right questions. We are including the most thoughtful and provocative speakers. And we are advancing the conversation to find actionable solutions.

In The News
The IDE experienced a significant increase in press coverage in 2015, with more than 1,000 hits in over 20 countries, including China, U.K., France, Germany, Brazil, and Japan. IDE-related research topics covered by the media include: “Will your skills fit with tomorrow’s tech employment demands?” (The Wall Street Journal); “Should we worry about robots taking away jobs?” (The Japan Times); and “Saving work in the age of automation” (The Washington Post). We also enjoyed extensive coverage of IDE conferences, events, and initiatives.

IDE faculty and researchers referenced in the media included IDE Director Erik Brynjolfsson, IDE Co-Director Andrew McAfee, IDE Digital Fellows Marshall Van Alstyne and Michael Schrage, and Principal Investigators George Westerman and Renée Richardson Gosline.

The Second Machine Age by Erik Brynjolfsson and Andrew McAfee (pictured) enjoyed continued success in 2015. The bestseller is now translated into 16 languages.
We are proud of our sensational and growing staff at the IDE who work tirelessly and selflessly to carry out our mission.
The IDE supports and conducts groundbreaking research — often in partnership with corporations, governments, and foundations — focused on four aspects of the digital economy.
During 2015, the IDE initiated, continued, or completed more than 35 research projects. Here’s a look at five of our newest projects.

The Digital Organization of the Future: Co-existing as One with Your Customer
Renée Gosline

The Internet of Things is constantly changing. That means organizations must accept that the nature of customer relationships are changing as well. Businesses must engage with consumers in a framework that grasps the essence and purpose of co-creation: to co-exist with your customer as you live and breathe as an organization. A co-existing business model has the potential to enable long-term brand resonance, customer loyalty, and sense of community. By studying how organizations and customers interact, we can derive a typology of strategic options on how organizations and customers can harmonize as one fluid entity.

Are Occupational Licenses Needed in a Digitized World?
Andrey Fradkin

How do you verify the quality of a service provider? One traditional solution is government regulation of services through certification and mandatory licensing. However, occupational licenses have potential drawbacks, such as price increases and a rationing of the workforce. And while there are over 800 licensed occupations in the United States, little is known of the effect licenses have on performance. More recently, the popularity of digital reputation systems are providing consumers an alternative method of rating service providers. In this project, we use data from Thumbtack.com, an online marketplace for services, to study the effects of licensing on market outcomes and examine the efficacy of licensing compared to online reviews.

New Measures of Our Economy
Erik Brynjolfsson

Much of the world still uses “GDP growth” as a synonym for “economic growth,” yet we know less about the sources of value in the economy than we did 30 years ago. Official GDP statistics estimate that the information sector, which includes software, publishing, and information and data processing services, occupies about the same share of the economy as it did three decades ago — between four and five percent. But how is this possible when information goods and services like Google, Facebook, and Instagram are experiencing exponential growth? The project “New Measures of Our Economy” explores the opportunities to create more modern measures of economic health.

Personality Traits and Job Performance
George Westerman

Many companies use paper assessments to screen job applicants, structure interviews, or even help employees improve their performance. Yet these instruments do not measure actual behaviors, since they can be subject to employee manipulation and unconscious biases. A new class of assessments attempts to reduce potential biases by measuring a large number of difficult-to-measure traits, such as persistence and creativity, through actual behavior in online games. This research project aims to investigate the relationship between employee personality traits and performance in different occupations using these new digital assessments.

Understanding Platform Business Models in the Telecom Industry
Marshall Van Alstyne

The continued business disruption and dynamic change in platform-based industries is driving more start-ups and established enterprises — including telcos — to consider platform-based business models as a key ingredient to their survival. Such models create an enormous opportunity for growth, yet they also increase risk in the platform-centric competitive ecology. What is less clear is the role telcos plays as their customers interact in that context. This project examines the possible methods telecommunications companies can take to become platform-based entities.

view more research projects at mitsloan.mit.edu/ide/research
The IDE sponsors fellowships, supports competitions, hosts conferences and roundtables, and promotes other events that inspire new ideas around the digital economy.

Marshall Van Alstyne talks about his work with platform strategies at the IDE Annual Conference.
The IDE held 17 events during the past year. In total, our events were attended by 886 people.

**MIT and the Digital Economy: The Second Machine Age**  
London, April 10, 2015

The Congress Centre in London was filled to capacity for The Second Machine Age Conference, led by Erik Brynjolfsson and Andrew McAfee. The event featured lively discussion and a series of presentations from Roberto Rigobon (Billion Prices Project), Marshall Van Alstyne (Platform Strategies), Andrew McAfee (2MA Lessons), and Erik Brynjolfsson (Economic Challenges).

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**IDE Annual Conference**  
Cambridge, MA, May 21, 2015

Our annual “drink from the firehose” event featured brief presentations on all of our current research projects. Presenters included Sinan Aral, Sebastian Schwiening (BMW), Glen Urban, Renée Gosline (Social Analytics and Experimentation); Sandy Pentland (Big Data and Data Privacy); Kristina McElheran, Guillaume Saint-Jacques, Sonny Tambe, Erik Brynjolfsson, Frank MacCrary (Work and Value in the Digital Economy); Andy McAfee, George Westerman, Hossein Ghasemakhani, and Marshall Van Alstyne (Digital Business Strategies). The conference also featured keynotes from Steven Althaus (BMW) and Mustafa Suleyman (Google DeepMind), as well as a poster session of IDE research projects and A-Lab teams.

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**Platform Strategy Summit**  
Cambridge, MA, July 10, 2015

Platform business models are rapidly reshaping various industries, including media, energy, telecommunications, social networking, publishing, academia, gaming, and retail. Organizations are finding their current business models to be insufficient or ineffective in addressing the challenges and behavior of platform-based markets. Our faculty co-chairs, Marshall Van Alstyne and Geoff Parker, literally wrote the book on two-sided markets, network effects, and platform strategies. This annual event was attended by some of the largest and newest platform companies. Audience members were also provided with a platform strategy toolkit to implement in their own organization.

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**Conference on Digital Experimentation**  
Cambridge, MA, October 16-17, 2015

Each year, the Conference on Digital Experimentation at MIT (CODE) brings together leading researchers who conduct and analyze large-scale randomized experiments in digitally mediated social and economic environments across various scientific disciplines. This year’s event examined one of the most significant innovations in modern social science: the emerging capability to rapidly deploy and iterate micro-level, in-vivo, randomized experiments in complex social and economic settings at population scale. This new toolkit portends a sea-change in our scientific understanding of human behavior and dramatic improvements in social and business policy as a result.

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**VIEW UPCOMING EVENTS AT**  
mitsloan.edu/ide/events
The Action Learning Lab provides MIT students the opportunity to work with companies leading the digital transformation.

Alex “Sandy” Pentland heads the Big Data research program of the IDE. Forbes magazine named Professor Pentland one of the ‘seven most powerful data scientists in the world.’
The rise of big data and analytics is changing how companies build strategies and do business. More than that, their popularity has created a strong demand for a skilled workforce armed with the knowledge to tackle real-life business problems.

In the MIT Sloan Analytics Lab, students learn about analytics, machine learning, large data sets, and other digital innovations that are transforming business today. Working in teams, students execute projects based on proposals by a set of companies and organizations, including sponsors of the IDE.

In fall of 2015, students of the Analytics Lab tackled 13 real-world projects. The course culminated with presentations of their findings to an audience of experts, entrepreneurs, and executives. Four projects were honored: (1) identifying causes of patient re-hospitalization; (2) applying deep learning analysis to football videos; (3) assessing online customer buying preferences from a set of over 1 million data points; and (4) predicting the buying behavior of participants in a commercial goods exchange platform based on click analysis.

While the MIT Sloan Analytics Lab is designed to provide a stimulating learning experience for students, it can often lead to career opportunities. In fact, several students in our 2015 lab received job offers as a result of their work.

MITSLOAN.MIT.EDU/ACTIONLEARNING
CALLING ALL CHANGEMAKERS: THE MIT IDE INCLUSIVE INNOVATION COMPETITION SEEKS TO CREATE ECONOMIC OPPORTUNITY FOR WORKERS IN THE DIGITAL ERA.

The acceleration of technology has created remarkable benefits for business and the economy, but not everyone is sharing in this bounty. Low- and mid-skilled workers grappling with wage stagnation and job insecurity are finding the benefits of digital technology increasingly inaccessible.

The IDE seeks to solve this fundamental challenge: How do we find ways for this segment of the workforce to benefit from the rise of digital technology?

The first annual MIT IDE Inclusive Innovation Competition (IIC) focuses on digital innovations that are helping earners in the middle of our society and raising the base. The competition will identify, celebrate, and award $1 million in prizes to organizations that are inventing a more sustainable, productive, and inclusive future for all in this time of digital transformation.

Our panel of judges — which includes IDE Advisory Board members, MIT leadership, and industry experts — will select award winners and honorees through a rigorous evaluation process. The IDE will award grand prizes in four categories: Skills, Matching, Human + Machines, and New Models. The competition will also name runner-up awards and “Judges’ Choice” honors.

The IIC would not be possible without the generous support of the Rockefeller Foundation, the Joyce Foundation, Eric and Wendy Schmidt, and other donors. The IIC also works in partnership with the MIT Innovation Initiative, which enables us to accelerate our shared mission of driving impact through innovation. With the help of our donors and partners, the IIC will create opportunities for workers in the Second Machine Age.
The IIC focuses on solutions that will provide opportunities to workers in four distinct categories:

**SKILLS**
How do we re-skill workers to prepare them for opportunities of the future?

**MATCHING**
How do we connect qualified workers with open opportunities for work? How do we better match labor supply with demand?

**HUMANS + MACHINES**
How do we use technology to augment human labor so that the outcome is greater than either human or machine could achieve alone?

**NEW MODELS**
How do new operational practices and business models revolutionize the existing labor market and thus create new opportunities for workers?

We are very excited to support the Inclusive Innovation Competition so we can motivate the type of change that provides more and better jobs in this new era of technology-driven innovation.

Eric Schmidt: Executive Chairman, Google and MIT IIC Supporter
Hear some of the leading economists of our time discuss the underlying economics of the digital economy. Available in podcast or text format at mitsloan.mit.edu/ide/podcasts

Sinan Aral is the David Austin Professor of Management and Professor of Information Technology and Marketing at the MIT Sloan School of Management.
LOOKING AHEAD

You ain't seen nothing yet. Here's what the IDE has in store for 2016 and beyond.

Inclusive Innovation Competition
The Inclusive Innovation Competition kicks off in March. At MIT SOLVE 2016, we will announce and celebrate the most innovative and impactful organizations driving economic opportunities for workers in the digital age. Visit MITinclusiveinnovation.com or follow us on Twitter at @MIT_IIC for updates.

On Demand Economy Conference
On March 15, 2016, the IDE and the Institute for Work and Employment Research are hosting an event that will bring together academics with other stakeholders to share their knowledge and perspectives on the digital economy. We'll discuss recent trends on the organization of work, examine the data and research required to track and assess these developments over time, and explore how firms, workers, and other labor market institutions are influencing and adapting to these changes in work. The conference will help us gain a better understanding of how on-demand platforms are transforming traditional industries and occupations as well as job search and matching processes. We'll also discuss new forms of worker voice and organizing, and debate over public policies governing employment.

Executive Education
In June 2016, the IDE will launch our first digitally delivered executive education course in partnership with MIT Sloan ExecEd. The first offering will focus on Platform Strategies. All IDE stakeholders will have free access to this course.

New Publications

New Hires
The IDE continues to grow! We have positions available for two new research scientists and two new post-doctoral associates. If you or someone you know is interested in joining the IDE, please contact David Verrill at dverrill@mit.edu.

Get updates about events, research projects, book releases, and competitions. Subscribe to the IDE monthly newsletter at mitsloan.mit.edu/ide
The IDE welcomed a number of new faculty, PhDs, and post-docs in 2015. We also added to our roster of digital fellows. Thanks to the support of our stakeholders, we have grown our team to help us deliver on our products and services.

RESEARCH PILLAR HEADS

**Erik Brynjolfsson**
Director, IDE
Professor, MIT Sloan School of Management

**Andrew McAfee**
Co-Director, IDE
Principal Research Scientist

**Alex “Sandy” Pentland**
Professor, MIT Media Lab

**Sinan Aral**
Professor, MIT Sloan School of Management

RESEARCHERS

**Glen Urban**
Professor, MIT Sloan School of Management

**George Westerman**
Principal Research Scientist, IDE

**Renée Gosline**
Professor, MIT Sloan School of Management

**Michael Siegel**
Principal Research Scientist, MIT Sloan School of Management

- **Roberto Rigobon**
  Professor, MIT Sloan School of Management

- **David Autor**
  Professor, MIT Economics Department

**Catherine Tucker**
Professor, MIT Sloan School of Management

- **Scott Stern**
  Professor, MIT Sloan School of Management

**Deborah Soule**
Research Associate, IDE
NEW FACES
• New additions to the IDE team are denoted by a red dot

DIGITAL FELLOWS
• Tim Aeppel
  Reporter, Reuters

Thomas Davenport
Professor, Babson College

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

Joshua Gans
Professor, University of Toronto
  Rotman School of Management

Shane Greenstein
Professor, Harvard Business School
  • Lorin Hitt
    Professor, University of Pennsylvania
    Wharton School

Tod Loofbourrow
CEO, ViralGains

Kristina McElheran
Assistant Professor, University of Toronto

Geoff Parker
Professor, Tulane University A. B. Freeman
  School of Business

Michael Schrage
Visiting Fellow, Imperial College Department of Innovation and Entrepreneurship
  • Sonny Tambe
    Associate Professor, NYU Stern School of Business

Marshall Van Alstyne
Professor, Boston University Questrom
  School of Business

Irving Wladawsky-Berger
Professor, MIT Engineering Systems

Lynn Wu
Assistant Professor, University of Pennsylvania

PhDs AND POST-DOCTORAL FELLOWS
  Sagit Bar-Gill
  Paramveer Dhillon
  • Andrey Fradkin
  Shan Huang
  • Mohammad Jalali
  Wang Jin
  • Jeff Lee
  Frank MacCrory
  • Yael Marzan
  • Abhishek Nagaraj
  • Christina Patterson
  Guillaume Saint-Jacques
  • Erina Ytsma

VISITING SCIENTISTS
• Akshita Puram
  Kengo Suzuki
  • William Lesieur

STAFF
David Verrill
Executive Director

• Christie Ko
  Associate Director

Justin Lockenwitz
Program Coordinator

Susan Young
Program Administrator

Tammy Buzzell
Financial/Contract Administrator

• Joanne Batziotegos
  Finance Administrator

• Kristin Silver
  Program Assistant

• Devin Cook
  Executive Producer,
  Inclusive Innovation Competition

• Shannon Farrelly
  Marketing and Communications
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Prudential Insurance
SAS
Schindler
Suruga Bank
Zensar
Gifts
Eric & Wendy Schmidt
Media 2050
Opera Solutions
Telefonica

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Reid Hoffman
CEO, LinkedIn
James Manyika
Director, McKinsey Global Institute
Eric Schmidt
Executive Chair, Google
Robert Solow
MIT Professor of Economics and Nobel Laureate

EXECUTIVE COMMITTEE
The IDE Executive Committee is composed of key contacts from the organizations and corporations listed on this page.

THE IDE IS ALSO SUPPORTED BY GENEROUS INDIVIDUALS WHO PREFER TO REMAIN ANONYMOUS.
THANK YOU

IN 2015, WE EXPANDED OUR FUNDRAISING AND STEWARDSHIP EFFORTS TO SUPPORT THE IDE MISSION. A SINCERE THANK YOU TO THE FOUNDATIONS, INDIVIDUALS, AND CORPORATIONS WHO HELP US PROMOTE AND DIVERSIFY OUR PROGRAMS.

David Verrill
Executive Director