

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

WILLIAM BARTON ROGERS FOUNDER

2016 MIT in Cambridge

Collaboration
Engagement
Impact



Massachusetts
Institute of
Technology

On the Front Cover:

A view of 77 Massachusetts Avenue

The Alchemist sculpture at 84 Massachusetts Avenue

Two students working in the Architecture Department

Credit: Christopher Harting

20-smoot marking on the Harvard Bridge

This unique unit of measurement was developed in October 1958 when Lambda Chi Alpha brother Oliver Smoot was laid down end to end to measure the bridge. It was determined that the bridge measures 364.4 smoots +/- one ear.

Credit: MIT News Office

On the Back Cover:

Student demonstrating her invention
at the MIT IDEAS Global Challenge

ReachOut tutor and student

Credit: Laura Anca Chichisan

MIT Dome

Sailboats on the Charles

Credit: Christopher Harting

On the Facing Page

President L. Rafael Reif

Credit: Dominic Reuter

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2016 MIT in Cambridge

One hundred years ago, MIT moved to Cambridge. As we celebrate that creative century, we take note of the many ways that MIT and Cambridge work together to make each other stronger—from fueling the innovation economy to getting kids excited about science.



When MIT's leaders sought a new home for their institution of the future, they found the perfect spot right here in Cambridge: a city full of energy, industry, curiosity, and vision, a city eager—then, now and always—to join with MIT in racing towards the horizon.

—MIT President L. Rafael Reif



Education for Impact

Teaching is central to MIT's mission. We serve not only students on campus, but learners of all ages in Cambridge and around the world.



Research & Innovation

Combining breakthrough science, real-world problem-solving, and an entrepreneurial spirit, MIT fuels and is fueled by Cambridge's innovation ecosystem.



Community Engagement

MIT faculty, students, and staff strive to be good neighbors, engaging with their host city and area nonprofits to address local challenges and needs.



Sustainability

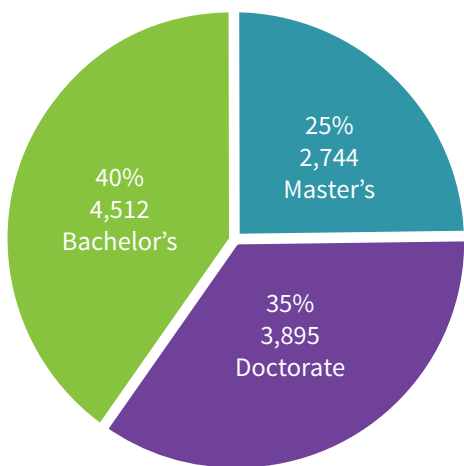
MIT approaches sustainability locally and globally, seeking solutions for the campus, the City, and the world.

Education for Impact

MIT students reflect the diversity, curiosity, and openness of their host city. They come from all 50 states and 116 foreign countries, with 32% describing themselves as members of a U.S. minority group and 23% identifying as non-native English speakers. Fifteen percent are the first in their families to go to college. Additionally, students have their full demonstrated financial need met for all four undergraduate years. Here's a glimpse into the student experience at MIT:

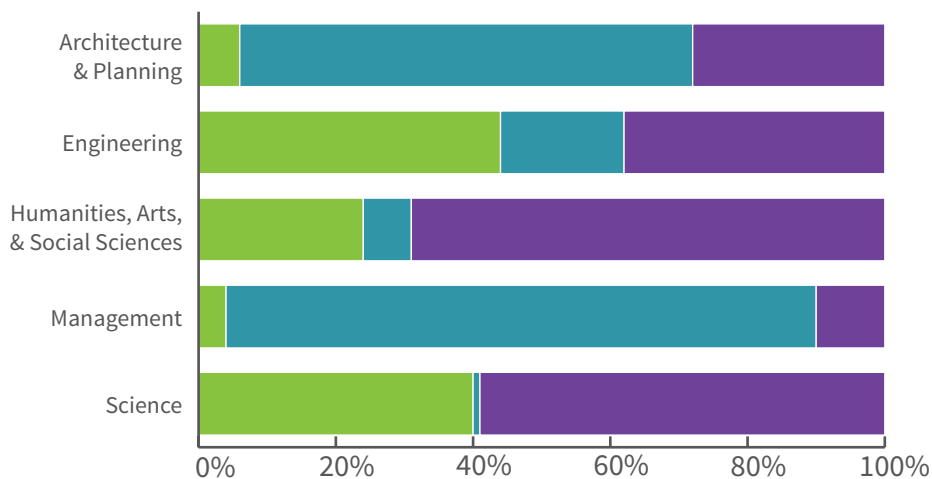
MIT student body

By degree type



What are they studying?

School affiliation by degree type



Where are they coming from?



Greatest distance travelled?
10,249 miles
Canberra, Australia



Shortest distance?
Down the street
Cambridge, USA

Percentage of freshmen who return for sophomore year:

99%

60%

of undergraduates report participating in public service activities during their time at MIT.

The first semester at MIT is graded on a pass/no record basis, and to encourage academic exploration, students do not select a major until sophomore year.

500+

student organizations on campus. Whether it's culture, arts, hobbies, or creating community, students can find a group to share their interests—from Quidditch to Quiz Bowls.

50%

of MIT undergraduates enroll in arts courses, including music, theater, film, and design every year. They understand how to put the "A" in STEAM (science, technology, engineering, arts, and math).

4

courses required to obtain the **MIT Pirate Certificate**: archery, fencing, sailing, and pistol. Just in case they have to walk the plank, all undergraduates have to pass a swim test to graduate.

Inspiring learners, locally and globally

The MIT community's innovative spirit and passion for teaching and learning have created a diverse array of impactful educational programs.



MIT is using digital learning to help kids unlock their creativity. For example, **Scratch** introduces K-12 learners in Cambridge and around the world to a programming language they can use to create interactive stories, games, and animations. With the help of the internet, these programs reach global audiences.

127M

Unique visitors have viewed content on MIT **OpenCourseWare** (OCW). The 2,332 courses available have resulted in 1,176,007,250 page views.

1.71M

Learners have taken advantage of 90 free online courses offered through **MITx** on the **edX** platform. Those learners have earned 61,595 "verified certificates" after successfully completing a course.

Number of educational outreach programs administered by MIT departments, labs, centers, and student groups:

120+

outreach.mit.edu



A large majority of the 120+ programs focus on K-12 educational outcomes. Offerings include tutoring, workshops, summer camps, competitions, and internships.

Examples include:

Edgerton Center: Fun, hands-on science and engineering workshops held at MIT.

KeyPals & NetPals: One-on-one communication and mentoring between MIT staff and Cambridge Public School students.

Cambridge Science Festival: An annual 10-day celebration of STEAM in Cambridge.



MIT offers a variety of professional development programs for teachers, including intensive week-long workshops, research immersion, and lesson plans that make learning scientific concepts fun for students.

Cambridge is participating

5,327

Cambridge residents have completed 9,478 **MITx** courses on **edX**. 1,500 of those users do not have a high school or college degree.

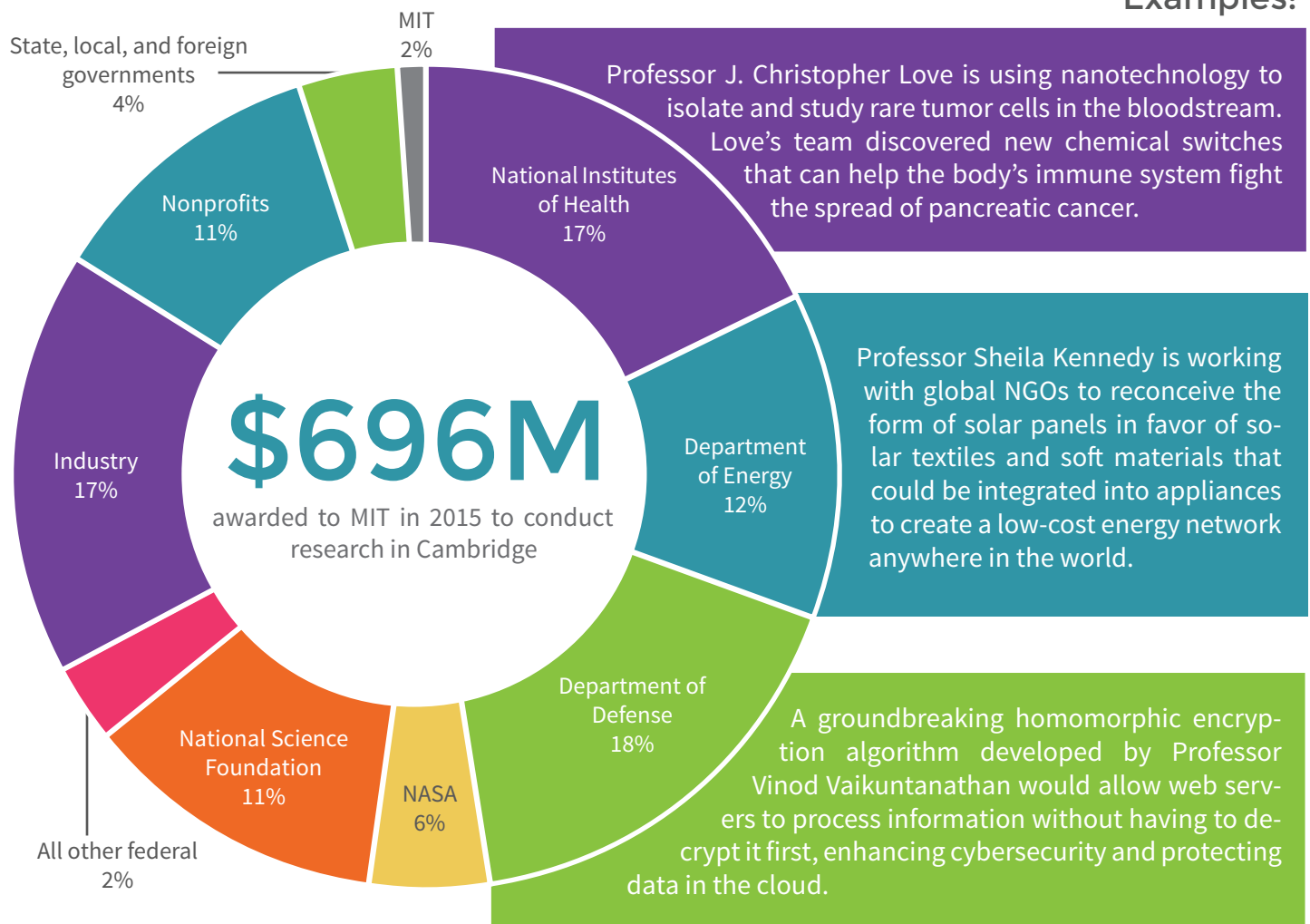
2.13M

unique visitors from Cambridge have viewed educational content on **OpenCourseWare** since 2009. There were 203,343 visits just in the last six months.

Research & Innovation

Like other leading U.S. research universities, MIT produces innovations and innovators who play a key role in driving economic growth. Close to home, researchers, inventors, and entrepreneurs from MIT thrive in Cambridge's innovation ecosystem.

MIT's Cambridge-based research funding by source



795

inventions disclosed by MIT in 2015, with 314 patents issued.

172

Number of MIT faculty who are considered "serial entrepreneurs." Some have founded or cofounded more than 30 start-ups.

700+

companies are collaborating with MIT faculty and students on projects of mutual interest. 500 of those companies are within walking distance of MIT.

How it works

Idea



Ideas come from all over campus, from research labs to hallway conversations. The challenge: turning them into market-ready solutions.

63

courses on entrepreneurship offered in 2015. MIT's entrepreneurship education approach is founded on three principles: hands-on education, teamwork, and cross-disciplinary collaboration.

28

Number of major maker spaces currently available to students across campus for coursework, community building and independent projects.

31%

of surveyed alumni have at least one patent or invention. 25% have started a company.

Investment



Ideas need time, money, and guidance to make the journey to market. Two examples of MIT programs that support the process:

\$15M

The Deshpande Center for Technological Innovation has funded more than 125 MIT projects with \$15 million in grants. Nearly 30% of projects funded by the center have spun out into new ventures.

160

Number of mentors who advise budding MIT entrepreneurs through the Institute's Venture Mentoring Service.

31%

of companies founded by MIT alumni are based in Massachusetts. Cambridge boasts the highest proportion of MIT alumni-founded companies in the world with 8% of the total.

Impact



All of these forces contribute to building and sustaining a powerful entrepreneurial ecosystem on campus and in Cambridge.

30,000

Currently active companies were founded by MIT alumni. They employ approximately 4.6 million people and generate annual global revenues of \$1.9 trillion.

10th

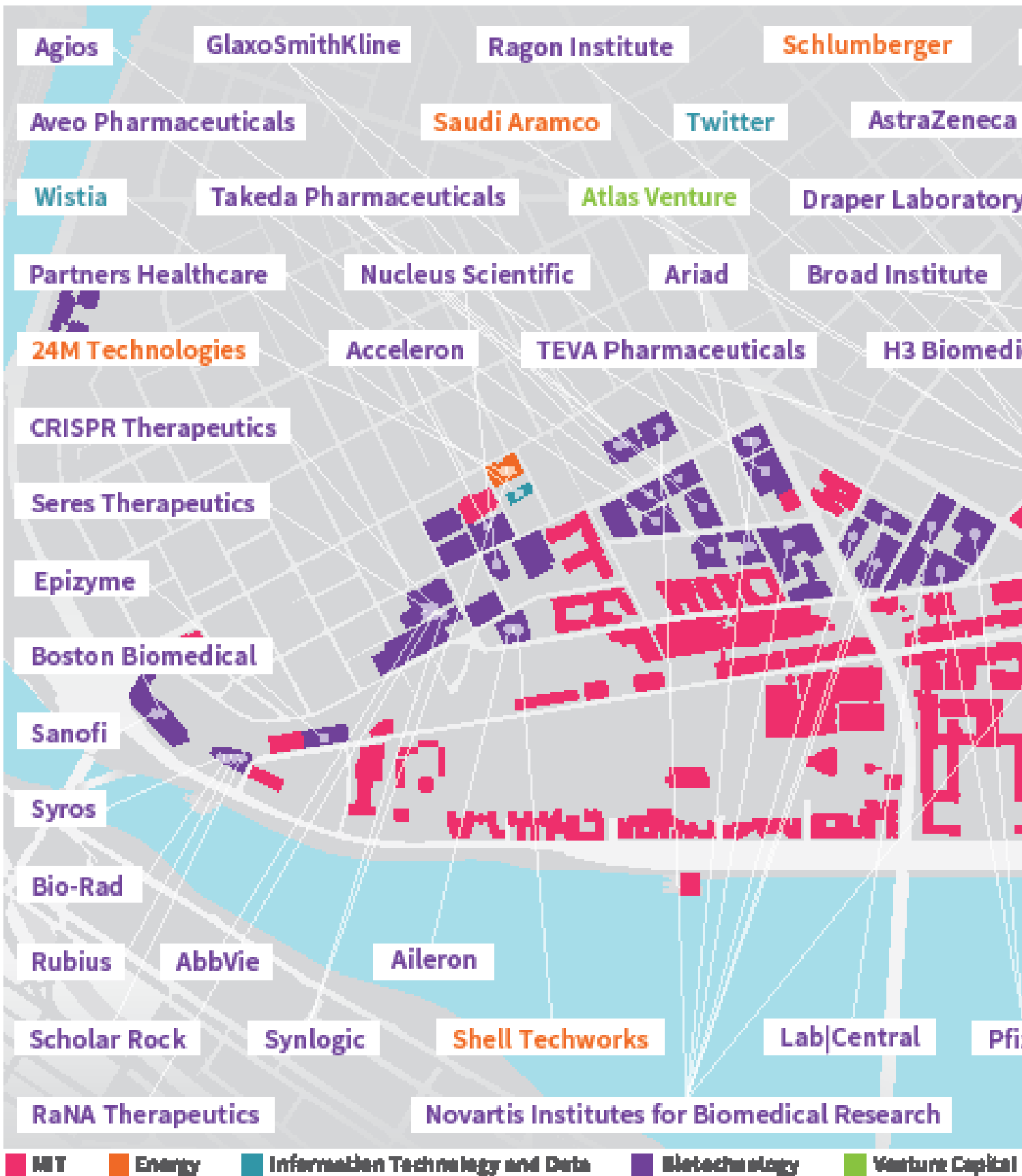
Together, these companies would make up the world's 10th largest economy, between India and Russia.

29

The average age of alumni entrepreneurs when they start their first company. Forty years ago, the average age was 39.

Cambridge Innovation Ecosystem

The synergistic work of these Cambridge companies and organizations is advancing the pace of discovery in science and technology to address important global challenges, from clean energy to human health.





Community Engagement

MIT cares deeply about its neighbors. The Institute's students, faculty, and staff are committed to supporting the City and nonprofit partners in addressing the needs of our local community. An overview of MIT's impact and involvement:

#1

MIT is Cambridge's number one taxpayer, accounting for 13.1% of the City's total tax revenue in 2015. The Institute's \$44.9 million real estate tax payment and \$2+ million payment in lieu of taxes (PILOT) was enough to cover the operating costs of the Cambridge Public Library system, Cambridge Rindge and Latin School, Fletcher Maynard Academy, and Morse Elementary School.

MIT's community engagement approach



Agassiz

West Cambridge

Riverside



3,000

The number of events held in 2015 on MIT's campus that were free and open to the public.
events.mit.edu



130+

Through volunteerism, direct donations, in-kind contributions and the use of MIT event space, MIT collaborated with more than 130 local nonprofits in 2015.

A snapshot of neighborhood partnerships



The Catalyst Collaborative@MIT is a collaboration between MIT and the Central Square Theater to create plays that open the door between art and science.



Through the Kendall Community Group, MIT works closely with three long-standing nonprofits in The Port that support youth and families—Margaret Fuller Neighborhood House, Community Art Center, and Tutoring Plus.



MIT supports the East End House through the ReachOut program, which matches MIT students with Cambridge children for one-on-one and small-group mentoring.



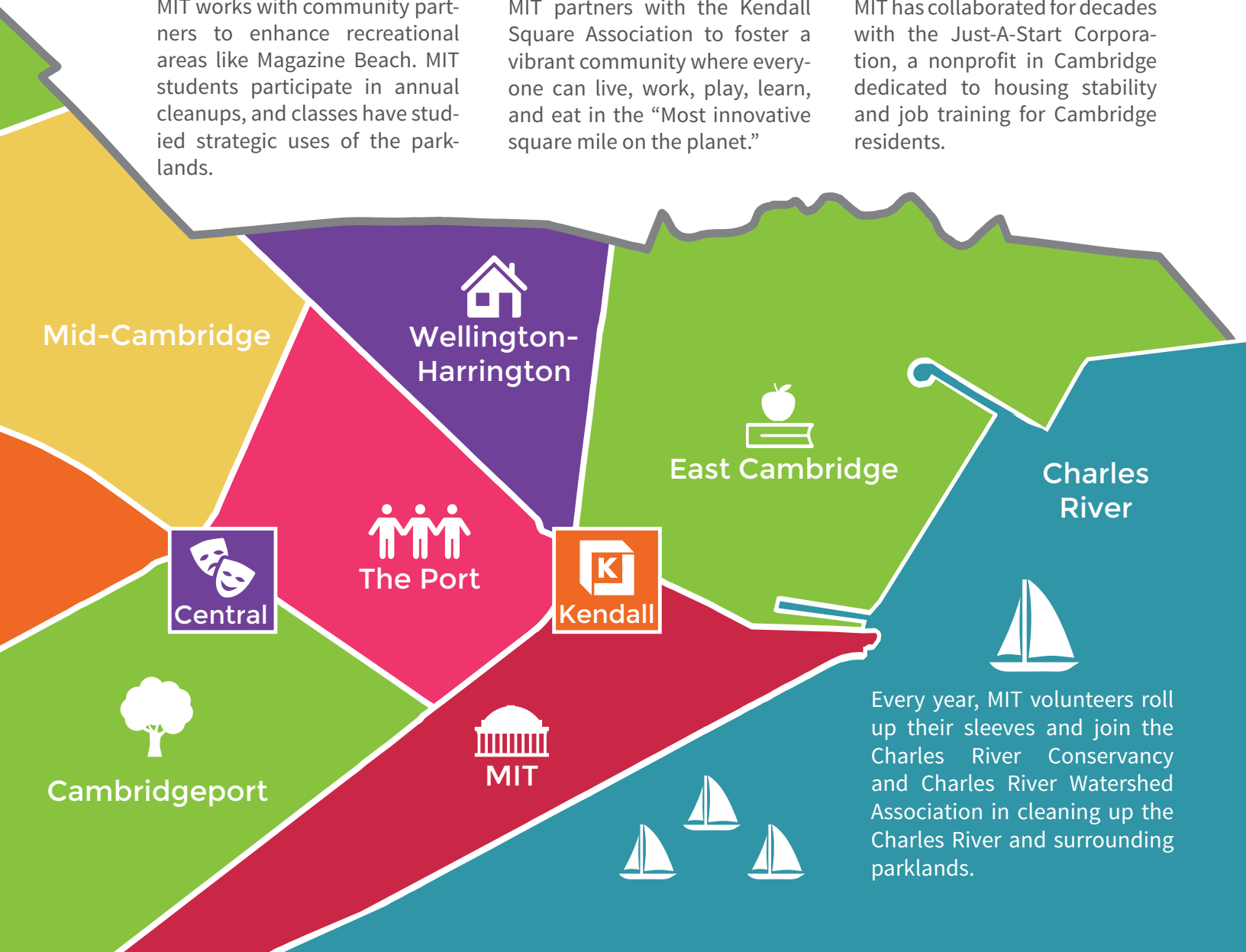
MIT works with community partners to enhance recreational areas like Magazine Beach. MIT students participate in annual cleanups, and classes have studied strategic uses of the parklands.



MIT partners with the Kendall Square Association to foster a vibrant community where everyone can live, work, play, learn, and eat in the “Most innovative square mile on the planet.”



MIT has collaborated for decades with the Just-A-Start Corporation, a nonprofit in Cambridge dedicated to housing stability and job training for Cambridge residents.



Every year, MIT volunteers roll up their sleeves and join the Charles River Conservancy and Charles River Watershed Association in cleaning up the Charles River and surrounding parklands.

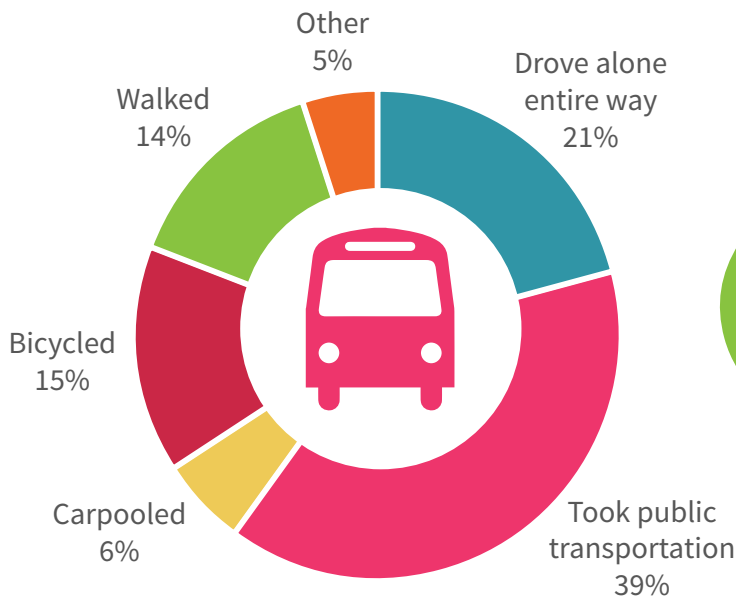
Sustainability

MIT engages with the local community to help find solutions to our shared sustainability and climate change challenges. For example, faculty and students helped Cambridge “go solar” with the launch of the Solar Map of Cambridge (cambridgema.gov/solar). Also, in partnership with the City and Harvard University, MIT founded the Cambridge Compact for a Sustainable Future, which now includes 18 of the largest stakeholders in Cambridge working together to accelerate progress towards sustainability.

MIT's community of commuters

45% of all commuters to Cambridge drive alone to work.

MIT's **Commuter Connections** program encourages employees to choose “greener” options.



32%

MIT's Plan for Action on Climate Change sets a goal to reduce campus greenhouse gas emissions by at least 32% by 2030 and to reach carbon neutrality (net zero) as soon as possible. climateaction.mit.edu



10,402

The length (in smoots) of bicycle paths on the MIT campus. The 11 total miles include a buffered bike lane that runs the length of Vassar Street.

5,000

The number of bicycle parking spaces on campus. We use them! MIT won the 2015 Mass Commuter Challenge for most bike commuter miles traveled.

2,391

The number of Cambridge residents who work on MIT's Cambridge campus. Many employees can walk or bike to work.

How MIT thinks about sustainability

Campus

This effort starts at the campus level, where we work with students and professionals to create solutions to common challenges that serve MIT's needs and have potential applications for the broader community.



For instance, we are:

- Performing an Institute greenhouse gas inventory.
- Engaging faculty on the forefront of sustainability research.
- Promoting courses that examine sustainability challenges and solutions.

City

The challenges of sustainability are interconnected and require deep collaboration with our neighbors. MIT is committed to enabling sustainability solutions that impact Cambridge, Boston, and beyond.



For example we:

- Worked with the City to create a solar map of Cambridge.
- Are using innovative imaging software to identify energy-efficiency opportunities.

Globe

MIT's goal is to make the structures, processes, and solutions developed at the Institute accessible for application across the globe.



The campus is a test bed for new policies, programs, and technologies that, when proven effective, could change the world.

-50

7,200

MIT saves 55 million kilowatt hours of electricity a year through its Efficiency Forward partnership with Eversource—enough to power 7,200 Cambridge homes.

-60

1,703

Total tons of material recycled by the MIT community each year, including nearly 1,300 tons of mixed paper and plastics, and 300 tons of construction materials.

-70

30%+

Nearly one-third of MIT's 1,021 faculty members engage in energy-related education or research; much of it is dedicated to advancing low-carbon energy technologies.

2016 Voices of Cambridge

The unique relationship between MIT and the City of Cambridge is brought to life through the Voices of Cambridge, a collection of musings and personal accounts shared by 26 current and former civic, business, cultural, nonprofit, educational, and neighborhood leaders from throughout the City. We invite you to explore the Voices of Cambridge online at mit2016.mit.edu.

My hope for MIT moving into the next 100 years is to continue having a relationship based on open communication, where we listen to each other, share, celebrate together, and take Cambridge to the next level.

Robin Harris
Principal, Fletcher Maynard Academy



I feel like MIT really values the diversity of Cambridge and that includes homeless people. MIT says, "They're part of our community too. We need to live together and work together. Let's figure out how to do that in the best way."

Odessa Deffenbaugh
Director of Emergency Services, CASPAR Inc. of Bay Cove



I think one thing that comes through is MIT's willingness to participate, provide resources, and be an active steward of the interests of the community.

George Metzger
Senior Principal, HMFH Architects, Inc.



If people are coming to you with authenticity and purpose, they are with an institution that is providing them the space to be that kind of person. I have a lot of faith in MIT because I have met people at MIT that I have faith in.

Eryn Johnson
Executive Director, Community Art Center



Sources:

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MIT Town Gown Report to the City of Cambridge, 2015

MIT Offices and Centers

Deshpande Center for Technological Innovation

Institutional Research

MIT Investment Management Company

Office of Admissions

Office of Campus Planning

Office of Digital Learning

Office of Sustainability

Parking & Transportation Office

Recycling Office

Priscilla King Gray Public Service Center

Technology Licensing Office

Venture Mentoring Service

