

IMPACT  MULTIPLIED

WORCESTER POLYTECHNIC INSTITUTE

READY, SET...

The past five years have been full of extraordinary achievements, including the highlights I share on these pages of our aspirational community coming together to finish strong on Elevate Impact, our strategic plan.

We saw myriad successes: in the experiences of our undergraduate and graduate students; in our research enterprise; by expanding our global activities; toward making our community a more diverse, equitable, and inclusive place where all can thrive; and for the role of project-based learning in higher education, and its subsequent transformation.

Our goals were bold, but so is WPI. This community thrives on challenge in the spirit of exploration and growth. When we didn't outright succeed, our willingness to pivot and retool assures we are prepared to redefine what's possible.

I'd say the sky's the limit, but at WPI we're all about breaking boundaries.



Laurie Leshin
President





A Distinctive Approach to STEM Education and Research

WPI, a purpose-driven community of educators and researchers, is the global leader in project-based learning. An impact maker for higher education and the world, our approach to STEM immerses students in solving authentic, real-world problems. Our faculty and students focus on discovery and innovation that is critical to the future prosperity of our country and to the health and well-being of people worldwide.

ELEVATE IMPACT

They're simple words that pose a multifaceted challenge—how would WPI, already offering a distinctive approach to education that's often imitated but impossible to duplicate, do even better, across the local, regional, and global scales?

We set our sights on becoming the premier global polytechnic, building on our pioneering leadership in project-based learning and a growing cadre of engagements that connect our faculty, students, staff, and alumni to challenges and opportunities, scholarship and research, in our home city of Worcester, our capital city of Boston, and at universities and public and private partners from Asunción, Paraguay, to Zurich, Switzerland.

#1

**Faculty That Best Combine
Research and Teaching**

—*The Wall Street Journal /Times Higher Education*





We are sending more students around the world as part of WPI's signature **Global Projects Program**; applying more than \$2 million in funding from the Kern Family Foundation to help our community embrace the **entrepreneurial mindset** and find unexpected ways to create value; and credentialing **Grand Challenge Scholars** through the National Academy of Engineering program, even as we provide all students with more support for **mapping their life's mission** in concert with their academic major.



We are advancing **transformative research**, achieving a landmark 60 percent more funding over the past four years; providing more than 40 percent of doctoral students with internships while increasing **graduate professional development** programs by 200 percent; and, having launched and learned from a small cohort, are better prepared to meet market demand for **personalized online learning**.



We're expanding our reach to higher education institutions both here and abroad through WPI's **Center for Project-Based Learning** and to our alumni, partners, and peers across the globe who are opening doors in return—and in its second year of operation, the **Foisie Innovation Studio** is abuzz with makers on a mission.

All achieved as part of Elevate Impact, these points of pride reflect our progress while also serving as the impetus we need to keep us moving forward.

The Foisie Innovation Studio's Class of 1964 Connections Gallery features amphitheater-style seating and a video wall, ideal for regular gatherings to hear faculty and student lightning talks—or to watch Battlebots, the WPI alumni-led team Bite Force having just won its third championship.

BUILD THE FUTURE, ONE PROJECT AT A TIME

As the global leader in project-based learning, we are driven to reinforce our successes, to continue to set the standard for undergraduate education domestically and around the world, and to provide the pathway for even more WPI students to create impact of their own through project work.



50+

project centers on
six continents



100%

of students receive a
**Global Scholarship to complete
life-changing project work**

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My project work at WPI has revealed and prepared me for the challenges and rewards of real-life problem-solving in a powerful, firsthand way.

— *Daniel Wivagg '19*

100%

of students are accepted to
one of their top-choice project centers

Faced with an increasing demand for off-campus project experiences, students and faculty created an algorithmic matching tool to simplify the entire project center selection process for program directors, administrators, and students—many of whom chose WPI specifically for the Global Projects Program.

Building Foundations for Future Success

WPI's campus is a special place, oftentimes sealing the decision for many undergraduates who fall in love with the environment and community that comes with it, but that's just half of the equation. They also come here with the full intention of leaving, of immersing themselves in endeavors focused on social changes as they grow as contributors and leaders.

With the regular addition of new project centers and co-op experiences with companies like Disney, Tesla, and Boston Scientific, the opportunities are as varied as the students themselves, allowing them to lay the groundwork essential to their success.

In 2017, WPI was named a Grand Challenges Scholars school by the National Academy of Engineering in recognition of how the university prepares scientists and engineers to look beyond their technical skills and use their education to do social good, which also helps them connect their education with their passion.



Sonia Zarate '17 takes a seat in the captain's chair of a Panama Canal Authority tugboat during a break in her project work, which focused on preserving the canal's longevity after its expansion of operations. Photo courtesy of Panama Canal Authority.

ADVANCE THE WORLD'S POTENTIAL

Research at WPI is focused on discovery and innovation with a purpose. The university's longstanding emphasis on applied research means faculty and students do research, first and foremost, to solve problems and make the world a better place. It's a recognition that when there is personal impact, a spark for global change can be ignited. WPI's home city may be Worcester, but its students and faculty take up residence on the cusp—of progress, change, and the next big innovation.



10

Faculty Early Career
Award Winners



60%

increase in funding

Support from agencies including National Science Foundation, National Institutes of Health, U.S. Department of Education, U.S. Army, and other public and private entities

4x

**the national average for
research universities' invention
disclosures and licenses**

(2019)

WPI provides the infrastructure to foster ideas, move them forward, and protect them—benefiting inventor and society alike.

Advancing Research Collaborations

Several significant growth and investment areas benefit from WPI's collaborative approach.

PracticePoint

This membership-based healthcare initiative brings research, development, and testing of revolutionary devices under one roof, channeling WPI's multidisciplinary approach to education and research in pursuit of better patient care.

Materials- and Manufacturing-Related Research

A commitment as old as WPI itself, these research ventures have led to WPI's involvement in Manufacturing USA, and have seen major funding from the Department of Defense, National Science Foundation, and U.S. Department of Energy.

Learning Sciences and Technologies

WPI faculty, staff, and students are committed to revolutionizing America's educational system, taking deep-dives into learner characteristics, applying machine learning to the classroom, and creating learning visualizations and simulations—all to help students learn.

Neuroscience

In true WPI fashion, students and faculty from different disciplines come together in this multidisciplinary research program, complementing and building upon each other's expertise to better understand the brain and nervous system.

wpi.edu/+research

AMPLIFY THE POWER OF INNOVATION

Project-based learning transformed our campus in 1970, and now we're sharing what we've learned with universities around the world to further the scope of its strength and influence—while providing our own students with the skills and support necessary to create lasting impacts of their own.



212

invention
disclosures filed



139

academic institutions around
the world served by the
Center for Project-Based Learning

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WPI's model offered a whole new way of interacting with students, getting beyond teaching and helping me understand how to motivate groups of students to truly collaborate to solve a problem.

— *Steven McAlpine, assistant director of interdisciplinary studies, University of Maryland, Baltimore County*

180

students submitted provisional patents,
increasing from eight submissions
four years ago

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It's remarkable how fast
this enterprise is growing at WPI.

— *Brian Hanlon '90, director, Office of Patent Legal Administration, U.S. Patent and Trademark Office*

Amplifying WPI in the World

Entrepreneurship is more than a class or a program—it's a mindset that is woven into the fabric of WPI.

By integrating entrepreneurship throughout the WPI curriculum, students see problems as opportunities and learn to develop innovative solutions that create personal, economic, and societal value.

Making space for experimentation and discovery on the campus is also critical—and the Foisie Innovation Studio is the front door and hub for innovation, entrepreneurship, active learning, making, and collaboration. There, students in the McDonough Makerspace and Fitzgerald Prototype Lab can access state-of-the-art tools, technology, resources, and support to ideate, design, model, and tinker to take an idea from concept to prototype.

With resources and advice from the Global Lab, students, faculty, and staff collaborate in a different way, bringing ideas to life through transmedia storytelling, participatory art, and mixed reality experiences, among other forms of expression.



Andrew Nagal '19 (left) and Mitch Gaines '20 give a presentation on their medical device manufacturing company, Bakku Technologies.

MULTIPLY IMPACT ACROSS ALL LEVELS

The successes achieved, lessons learned, and visions inspired from Elevate Impact reinforce WPI's continuous drive toward the forefront of global education and research.

Alumni around the world support the university's aspirations with their time and talent, and also their financial gifts: the 2019 fiscal year was WPI's second-best fundraising year ever, with a philanthropy total of just over \$60 million.

We're broadening our global engagement while gleaning insights into industry needs, ensuring that we're preparing our students for success.

Building on the first quarter's \$26.5 million in funding, WPI's research enterprise is on track for another momentous year, and we've broken ground on new programs as well as a new building that will soon play host to history in the making as students and faculty multiply impact in ways only they know how.

Through a curriculum rooted in hands-on project work, a WPI education prepares students to use their skills in solving the world's most pressing challenges.





One of Money Magazine's

Top 10

Most Transformative Colleges

(2019)

... MOVE FORWARD

Having finished strong on the strategic plan, the WPI community is more focused than ever on making an impact. We've set our sights on new goals and are revisiting others, while continuing on our journey to be the premier global polytechnic. At WPI we never stop pushing boundaries because we know we are pushing open doors for future generations of students, so they can take their own steps forward in the world of STEM.

In an increasingly global society, preparing our undergraduate and graduate students with an expanded worldview is more important than ever. WPI's faculty recently approved the formation of The Global School. WPI is poised to transform the educational narrative once again, just as we reimagined the curriculum nearly 50 years ago with the WPI Plan.

Asking questions has been essential to the WPI experience since the university's founding, and it's a tradition we continue to uphold. What's possible? What's next? How do we get there? How do we do better? With the passions and talents of our faculty, students, and staff, we're more prepared to answer those questions than ever before.

WPI is committed to igniting the STEM spark through educational, immersive, hands-on—and fun—outreach programs during the summer and school year.







WPI

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