



# INNOVATION IMPACT REPORT

JULY 2017- JUNE 2018

Brandeis University



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# I. A Letter from Rebecca Menapace

Associate Provost for Innovation and Executive Director of the Office of Technology Licensing and Hassenfeld Family Innovation Center

Brandeis University has been a home for aspiring change-makers since it was founded in 1948. Ever since then, it has served as a platform for students and professors to participate in the advancement of education, scientific research and social transformation. Throughout the history of Brandeis, innovation has always been at its center.

Today, innovation at Brandeis continues to bring students and faculty together to push the boundaries of knowledge and to confront some of the most demanding challenges in our society and world. We are thrilled to support anyone who wants to partake in research, invention, entrepreneurship, and discovery.

We are proud to offer training, networking opportunities, mentorship, and grant programs to our Brandeis community through Brandeis Innovation, comprised of the Office of Technology Licensing (OTL) and the Hassenfeld Family Innovation Center (HFIC). In this report, you will find indicators of how our students, faculty, researchers, alumni, and staff have collaborated to see through ideas from conception to tangible impact. It will allow you to envision our commitment to building a dynamic innovation infrastructure for our researchers and entrepreneurs as we honor diversity and equal access to opportunities.

This report aims to illustrate the many ways Brandeis meets the needs of students, faculty and staff as they work to solve the world's most pressing problems. It is also a celebration for a generation of Brandeis thinkers, innovators, and most importantly, change-makers.



## II. A Look into our Own Ecosystem

Our innovation ecosystem model allows us to understand how to create long-lasting impact within our community through optimal innovation practices and collaborative partnerships with different players and stakeholders throughout campus. The innovation ecosystem at Brandeis University is a dynamic network of campus resources, leadership, programs, and partners that champion and elevate interdisciplinary research and entrepreneurship.

The success of our innovation ecosystem as an institution of higher learning lies on its ability to utilize fundamental research as provision for commercialization and improved business processes that can have a positive local and global impact.



**Brandeis Innovation**, housing the Hassenfeld Family Innovation Center (made possible by a generous donation from Alan Hassenfeld and the Hassenfeld Family Foundations) and the Office of Technology Licensing, is a focal point for innovators and aspiring change-makers in the Brandeis community. Brandeis Innovation's mission is to put Brandeis values and ideas to work in the world, by providing a platform for innovations created at Brandeis to reach a wider audience.



**Brandeis International Business School** has a worldwide reputation for academic excellence offering five graduate programs and two accelerated graduate programs as well as opportunities for undergraduates. By teaching rigorous business, finance and economics, connecting students to best practices and immersing them in international experiences, the school prepares exceptional individuals from around the globe to become principled professionals in companies and public institutions worldwide.



**The Heller School for Social Policy and Management** is consistently ranked as one of the top ten schools in social policy in the United States since 2013 by the U.S. News and World Report. It is the first school of its kind to bridge the gap between social welfare and social policy.



**Graduate School of Arts and Sciences (GSAS)** is a center for pioneering investigation embedded in the cooperative environment of a student-centered, medium-size research university. It is driven by academic excellence, reverence for learning, and inclusivity. The smaller size of its doctoral, master's and postbaccalaureate programs enables scholars to build close relationships with world-class faculty and conduct interdisciplinary research across traditional academic boundaries.



### Rabb School of Continuing Studies

**Rabb School of Continuing Studies** is dedicated to developing innovative educational offerings and providing a collegial community for its on-campus and online learners. The Rabb School actively provides support to Brandeis Innovation through the continuous development of digital tools for its innovation programs.



**The Brandeis MakerLab** supports educational, social and technological innovation, enabling students, faculty, and staff to improve the world by creating things with their hands, hearts, and minds. It provides a 3D digitization and fabrication room, with kits for spec'ing embedded systems prototypes and VR development.



**The Brandeis University curriculum** offers multiple courses and programs that give students an analytical framework to learn about innovation strategies and challenges. Professors at Brandeis are major supporters of innovative thinking as they opt for hands-on and experiential projects that bring in relevant players from our larger ecosystem into the classroom.



**Departments** ranging from chemistry and physics to the humanities and business are increasingly integrating innovation into their programming each year.

### III. Innovation at Brandeis— An Overview of Fiscal Year 2018<sup>1</sup>

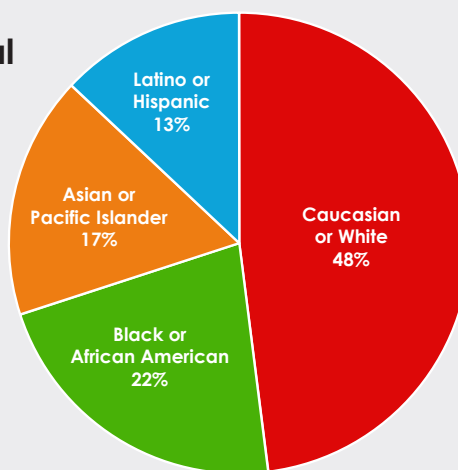
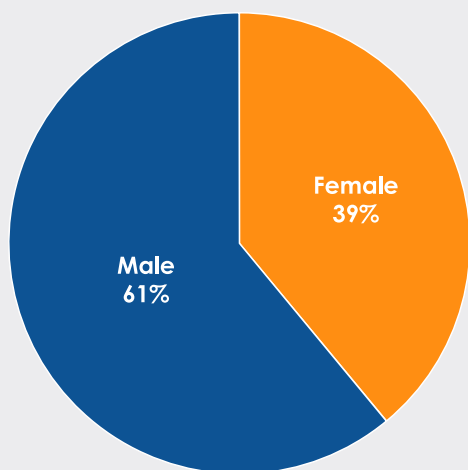
**1527+**

individuals  
participated in  
campus-wide  
innovation activities<sup>2</sup>

#### SPARK, SPROUT, and I-Corps Programs coming from Brandeis University:

- **\$177,100** in seed-funding for entrepreneurs
- **30** projects and startups generated
- **77%** of projects and startups are still active

#### Entrepreneurial Leaders identify as:



#### 9+ Industries Impacted:



Financial  
Activities



Utilities



Information



Internet/Apps



Food &  
Beverage



Transportation



Educational  
Services



Clothing



Healthcare



Environmental  
Sustainability

**\$627,000** in follow-on funding for past years' participants

<sup>1</sup> For methodology on data collection, see section XI

<sup>2</sup> Includes entrepreneurship & innovation programs, events, and courses

## IV. Brandeis Innovation Programs

Through a variety of efforts and activities, Brandeis Innovation serves as a “collision” place for the formation and gestation of interdisciplinary research and entrepreneurial teams.

### SPARK

Funded by HFIC, SPARK offers a compelling value proposition for Brandeis Innovators looking to develop entrepreneurial skills, gain knowledge from mentors, and to accelerate their startup ideas.

The SPARK Program is designed to encourage and support entrepreneurship within the Brandeis community, including students (graduate and undergraduate), postdocs, faculty and staff. SPARK applicants are encouraged to participate in Lean LaunchPad training as they develop their innovative ideas with the help of customer discovery and validation processes. The SPARK Program is industry agnostic, focusing on startups with potential for high impact.

Each year, \$50,000 in SPARK funding is divided among the most promising projects. The amount of funding is commensurate with the scope of the project and is distributed based on achievement of project milestones. Applications for SPARK open in the Fall semester every year.

**Technology | Social Innovation | Business**

#### BY THE NUMBERS

<b>2017-2018 ACADEMIC YEAR COHORT</b>  10 startups went through the SPARK incubator program	<b>80% OF STARTUPS ARE STILL ACTIVE</b>  50% of active startups launched a pilot product or service, as well as formed a legal entity	<b>5 OUT OF 10 STARTUPS</b>  participated in startup competitions and joined external accelerator programs  A.I. Capital Management, an A.I. powered investment manager system, was a finalist for MassChallenge Boston's 2018 Cohort	<b>\$44,600 IN TOTAL FUNDING FROM BRANDEIS UNIVERSITY</b>  \$100K+ raised in total follow-on funding
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#### — ENTREPRENEUR SPOTLIGHT —

##### **African Women Energy Solutions | 2017-2018 SPARK Cohort**

“The business coaching on how to present our idea was very valuable. It contributed to us being one of the semi finalists at Boston Hult 2017 Regional Finals, Winner of 3 day Startup and Finalist at BIG Pitch Competition. All these experiences have helped us develop our business.” —Enet Mukurazita

*African Women Energy Solutions economically empowers African women by bringing renewable sources of energy to their communities in a sustainable manner.*



## SPROUT

The SPROUT Program--funded by the Provost's Office, OTL and HFIC--is designed to encourage and support entrepreneurial activity within the Brandeis community for students, postdocs, faculty and staff in the Division of Science. The awards are intended to help bring research and entrepreneurial ambitions to life by unlocking the commercial potential of research through opportunities to communicate with industry audience. This program focuses on projects that seek solutions to the world's most challenging public health and environmental challenges.

Grants range from \$1,000 to \$25,000 with higher amounts going toward more advanced research with strong potential to be patented, licensed or commercialized. Applications for SPROUT open in the Spring semester of every year.

### BY THE NUMBERS

<b>\$90K+ IN TOTAL FUNDING</b> awarded by Brandeis University for Spring 2018 Cohort	<b>7 TEAMS</b> completed the program	<b>PREVIOUS SPROUT TEAMS</b> have achieved the following results: <ul style="list-style-type: none"><li>• 25 Newly filed patents<ul style="list-style-type: none"><li>• Formation of 3 startup companies</li></ul></li><li>• Income for Brandeis University via patent reimbursement, royalty payments, and licensing fees totalling \$199,600.</li></ul>
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### — ENTREPRENEUR SPOTLIGHT —

#### TRIBE Therapeutics | 2018 SPROUT Cohort

"It's not just about the funding. It's about all the opportunities that arise from participating in SPROUT" - Nobel Laureate Michael Rosbash, PI of SPROUT awardees team, now in discussion with multiple VC firms on creating a spin-off.

*TRIBE Therapeutics is working on a new method to detect in-vivo RNA targets of RNA-binding proteins (RBPs), especially in a small number of discrete cells.*

## National Science Foundation (NSF) I-Corps™ Sites Program Housed at HFIC



Brandeis was only one of six new sites nationally awarded a five-year grant from the National Science Foundation (NSF) Innovation Corps (I-Corps™) Sites program in 2017. The I-Corps program prepares scientists to extend their focus beyond the university laboratory, accelerating the economic and societal benefits of basic research. Completion of the program makes participants eligible for follow-on NSF funding.

The \$237,050 grant provides funding for innovative startups and technologies developed by Brandeis students, faculty and staff.

Our I-Corps program equips Brandeis researchers with the skills needed to identify viable product opportunities. Up to \$3,000 is provided to each team for expenses related to customer discovery and modest amounts of equipment or materials. Teams that successfully complete the I-Corps Sites program then become eligible to apply to the NSF I-Corps National Program to receive additional support (up to \$50,000) - to accelerate the translation of knowledge derived from fundamental research into emerging products and services that can attract subsequent third-party funding.

### BY THE NUMBERS

 <b>\$54K+ IN TOTAL</b> funding awarded by Brandeis University for Fall 2017 Cohort	 <b>9 TEAMS</b> completed the program	 <b>6 OUT OF 9</b> projects are still active
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### — ENTREPRENEUR SPOTLIGHT —

#### PlusFluidics | Fall 2017 NSF I-Corps Cohort

"It was like a compact Business learning course. I am a science major student with no background in business. I learned about some major requirement for making a startup. How to do customer discovery. Making a Business Model Canvas. Ultimately, I can focus better on those scientific fields that have a good potential for commercialization." —S. Ali Aghvami

*PlusFluidics developed a new Protein Crystallization screening chip, which can inspect hundreds of different crystallization conditions by x-ray diffraction and can be used to find novel targets for drug discovery.*

## NEW: Summer I-Corps Fellowship for PhD Students

According to the latest NSF report on Doctorate Recipients from the U.S. Universities, 40% of life science and engineering PhDs did not have a job placement at time of graduation. In addition, PhD candidates have a low rate of exposure to non-academic careers.

The NSF I-Corps Summer Fellowship is a program that was launched in 2018 designed to offer a hands-on experiential program enabling the development of the entrepreneurial competencies and confidence PhD students need to build any combination of an academic and entrepreneurial career. Throughout the program, housed at the Brandeis NSF I-Corps Site, participants created novel products and solutions, while getting exposed to new opportunities and building the ability to take ownership of their careers.

Development of entrepreneurial and professional competencies is at the core of the program. Students who completed the program learned how to identify valuable product opportunities at the intersection of life science and technology and understand the actions of building a startup.

### BY THE NUMBERS

**4 TEAMS**

participated in the 2018 Summer Fellowship Program

### — ENTREPRENEUR SPOTLIGHT —

#### GreenLabs | 2018 SPROUT & NSF I-Corps Summer Fellowship Program

"The I-Corps program was essential to better understanding the market and overall business plan for GreenLabs. It provided us with a clear vision of our customers and our service, and helped us to identify business-killing assumptions embedded in our thinking. Using the fellowship funds, we are now launching several pilot programs at area research facilities to collect data and establish GreenLabs as a trusted service provider in the Greater Boston area." —David Waterman

*GreenLabs is working on a project to recycle America's 6 Million tons of plastic lab waste.*

#### I-Corps Site expands participation across the University

I-Corps, undergraduate and graduate students from the Brandeis International Business School and the Heller School at Brandeis had the opportunity to learn to identify valuable product opportunities that emerge from science and technology research, gain hands-on entrepreneurial experience, and expand their network in the startup space.

"... It was a great experience for me and I actually landed my summer internship in Biomedical Device company because of it." —Yawai Soe, Brandeis '19 MBA



## Going National

The National NSF I-Corps curriculum enables teams to benefit from a customer discovery journey and learn what it will take to achieve commercial impact.

One NSF I-Corps Sties team from Brandeis University was selected to become part of the prestigious National NSF I-Corps program in 2018.

## Female Leadership in Science: Her Voice

The Co-Entrepreneurial Leads for this team are both female; one is a current student from the Biotech Program and the other is recent Brandeis PhD graduate from the chemistry department.

### Leana Silverberg and Rong Zhou, Entrepreneurial Leads for PicoCell

"We came into the program from an academic setting. When it comes to using technology in academia versus industry, people have different mindsets for why they are doing research. In academia, research is focused on discovering and advancing knowledge. When it comes to industry, it is about application. How is this research going to contribute to company progress? We needed to figure out if and how our technology came into play." —Rong Zhou

"Before we spoke with potential customers, we developed hypotheses about what our customers wanted and how to target them, but we didn't have a clear idea about the key players involved. After we created a real dialogue with people in the space, our understanding of the unmet need and how it should be solved came into view. Through this process I had to dive head first into the current research so that I could have quality conversations with scientists, executives, lawyers, and businesspeople. Customer discovery taught me about the ecosystem, about the technology, and about myself. When it comes to entrepreneurship, you are never going to be 100% prepared because the future is unknown. You get to make the path, pushing away the weeds and the thorns to help and guide the people behind you. I learned to put myself out there - speaking in large groups of people with little preparation and thinking through complex processes based on the little amount of information I had. I learned from others and myself how to always evaluate new information to properly integrate it into our plan." —Leana Silverberg

*PicoCell replaces existing cryo-electron microscopy sample preparation techniques for structural biologists to increase throughput and the success rate of structure optimization attempts in drug discovery.*

## Brandeis Innovation Mentoring Program

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The Brandeis Innovation Mentoring Opportunity connects aspiring Brandeis entrepreneurs to experienced business professionals, startup founders, investors and thought leaders. Over the course of FY' 18, 58 active mentors supported Brandeis entrepreneurs as they were undergoing the transition from an idea or project to an actual enterprise. Brandeis mentors are Brandeis alumni who are motivated to give back and build the next generation of successful Brandeis alumni. Some of the current mentors are Brandeis friends, supporters, and local industry experts who are inspired by Brandeis's mission of using business and technology for scalable scientific and social impact.

In addition to mentoring, Brandeis mentors and volunteers come on campus for innovation and entrepreneurship guest lectures, review funding applications and provide industry insights to Brandeis teams or judge on-campus startup competitions.

### Mentor-Mentee Spotlight

*Daniel Garcia, Noosphere | Alan Ringvald, Relativity 6*

"After participating in the discussion led by speaker and mentor, Alan Ringvald, where I basically talked about my SPARK idea and got feedback, he told me he wanted to work with me. I then showed him a demo of my project and he showed a lot of interest. He even briefly mentioned he could offer me a job at his AI company. After that, my plan was to email him after the competition in which I managed to win \$4,000. We met and I offered to help him at his company with my project. I went on an internship and got to see a startup and participate in all its activities while also building part of my project. The experience and opportunities were incredibly helpful for me to understand the entrepreneurship world. I met and had the opportunity to be mentored by a lot of new and successful people in such a short time and I've been really grateful for that. I'm now back at Brandeis and have been continuing working on my project with a fresh perspective." —Daniel Garcia Murillo

*Noosphere transforms the research and learning experience online into an interactive interface that displays webs of concepts tied to interdisciplinary connections and applications.*

## Hack My PhD

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Hack My PhD is a one day event that congregates I-Corps Fellows, other PhD students and postdocs, and experienced entrepreneurs who have successfully utilized their doctoral degree skills in both the academic and non-academic space. Through a day of inspiring stories, actionable advice, and informative sessions, participants understand what an entrepreneurial path entails and specific steps to undertake to pursue that path.



Learn more about the Hack My PhD program here: <https://www.hackmyphd.com/>



## MassChallenge Collaboration

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Brandeis Innovation and the Brandeis International Business School collaborate closely with MassChallenge, a global non-profit startup accelerator and competition with a focus on high-impact, early-stage entrepreneurs. Each year, a couple of the most promising Brandeis entrepreneurs get referred to MassChallenge and have the chance to compete to take part in the prestigious accelerator program.

In 2018, A.I. Capital Management (AICM), a Brandeis IBS startup seeking to build one of the world's first hedge funds fully managed by artificial intelligence, was invited to participate in the MassChallenge Boston accelerator program. AICM hopes to reinvent the money managing business by eliminating human error and emotion. By participating in the 2018 MassChallenge, A.I. Capital Management gained access to top corporate partners, expert mentorship, a tailored curriculum, scholarship opportunities and more than 26,000 square-feet of co-working space in the Innovation and Design Building all at zero cost and for zero equity.

"MassChallenge is a great opportunity for us to accelerate our hedge fund formation process, also a chance to represent Brandeis University on this big stage," says founder Marshall Chang, BA '16, MA'17. We couldn't have made this much impact this early on without the Brandeis Innovation Center's support from the very beginning."<sup>3</sup>

## Brandeis Shines in the Boston Innovation Ecosystem

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Brandeis Innovation strives to connect and collaborate with the wider innovation ecosystem in the Greater Boston area by hosting events on campus, sponsoring events off campus and sending university startups to pitch competitions. Below is a cross-section of such events:

- In November SPARK winner Wafaa Arbash, Co-Founder and CEO of WorkAround, took home the grand prize at the Beantown Throwdown during Boston's annual HUBweek.
- On April 11, Brandeis University opened its doors to the Boston innovation community as part of NewCo Boston, a region-wide festival of tech innovation, sponsored by the Massachusetts Technology Leadership Council. Our panel addressed how to increase representation and diversity in STEAM.
- Also in April, Brandeis Innovation teams made a big impression on the Boston innovation community, showcasing at two major Venture Café events. African Women Energy Solutions (AWES) showcased their biofuel technology at Earth Night on April 19. The following week, two Brandeis teams spoke at BIOConnect, a biotech conference. Prof. Isaac Krauss discussed his breakthroughs in developing vaccines for HIV and cancer, while Ph.D candidate Ingrid Marko demoed her 3D-printed scoliosis device.

3 Excerpt from Brandeis Alumni in the News

## Startup Champions: Students Leading Innovation

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The Startup Champions are Brandeis students that enable the development of an entrepreneurial ecosystem within Brandeis and beyond. Selected students have the opportunity to participate in formulating an innovation strategy for Brandeis, while gaining hands on experience working with early stage startups. Startup Champions proactively support the development of the startups, record their needs, and ensure that all Brandeis entrepreneurs have adequate assistance. This on-campus role, funded by the Hassenfeld Family Innovation Center, has proven to generate internship and job opportunities for Brandeis students who undertake the position.



### Weiwei Jiang

Weiwei completed her master's degree at Brandeis in the field of International Economics and Finance. Her undergraduate study is also related to Finance. Currently, she works at Chinaccelerator as a Community Manager. It is one of the most active accelerators in the Asia region and backed by SOSV, an investment fund with \$400M AUM. Before her first job took off, she worked at Brandeis Innovation

as an Entrepreneurship and Innovation Specialist. There, she helped with IP valuations, improved and executed the SPARK program, and organized events.



### Leana Silverberg

Leana began working for the Brandeis Innovation Center during her Junior year as a Lean Startup Champion consulting and organizing startup teams. During the same year, she was accepted into the Brandeis five-year BS/MS biotechnology program and continued her passion in STEM entrepreneurship. While continuing her position at the Brandeis Innovation Center, she is currently the Entrepreneurial Lead for the

National Science Foundation I-Corps grant of \$50,000 to better understand the market for a new cryo-electron microscopy technology. In May 2019, Leana will graduate from Brandeis University, but will continue to contribute to the biotechnology and entrepreneurship ecosystem.



### William Kannengieser

Wil is from the UK and he is now living in America. He has always been passionate about startups. Entrepreneurs were his idols growing up and starting a company was what he dreamed about. Within three weeks of arriving at Brandeis, he had applied to work at the Innovation Center and has worked there since. He also has interned as the personal assistant to the Managing Director of MassChallenge. Despite being

the youngest person at the Innovation Center, he has always been treated as an equal. He loves his work and is passionate about the program succeeding.



### Camila López

Camila discovered her passion for startups and innovation her Senior year when she joined the Brandeis Innovation Center team as a Startup Champion. Her role included proactively supporting the development of startups, administering communications with startup team members, and designing a new mentorship program involving renowned entrepreneurs. She particularly enjoyed participating

in the planning of SPARKTank, a pitch competition in which Brandeis students, faculty, and staff compete for \$50,000 in funding to seed their ventures. She recently graduated from Brandeis with a BA in Business and Psychology and currently works as a Global Community Coordinator for MassChallenge.



## Brandeis Innovation History Through Numbers

Brandeis Innovation activities have rocketed since the year 2011, when the first SPROUT program was launched. Since its founding as a pioneering grant program, **49** projects have completed the incubator process. **\$520,500** has been awarded in total seed-funding by Brandeis University to SPROUT entrepreneurial projects. **Eighteen** projects have gone on to have a patent or pending patent. Now going onto its 8th year, SPROUT continues to be the signature Brandeis innovation program supporting bench research.

The SPARK program was created in 2015 with the purpose of supporting entrepreneurial activity and education at Brandeis. **Thirty-one** early-stage ideas and projects have completed the program since then, with several going onto other Brandeis programs or external accelerators, such as MassChallenge. **\$184,538** has been awarded in total-seed funding by Brandeis University to SPARK entrepreneurial activities.

NSF I-Corps is the youngest program at Brandeis, being founded in 2017. It often serves as the continuation of the SPROUT program, as it supports more advanced scientific research. Yet, **21** projects have successfully completed the rigorous and prestigious program. **Five** entrepreneurial teams have gone on to own intellectual property rights. **\$100,500** has been awarded in total funding by Brandeis University. NSF I-Corps projects have gone on to raise **\$627,000** in follow-on funding. This year, **2** projects were selected to advance into the National NSF I-Corps program.

### 101 PROJECTS AND STARTUPS

generated through SPROUT, SPARK,  
and NSF I-Corps programs since 2011

### \$805,538 AWARDED

in total funding by Brandeis University to support  
innovation activities since 2011

49

**SPROUT** projects  
completed incubator  
process since 2011

31

**SPARK** ideas and  
projects completed  
since 2015

21

**I-Corp** projects  
successfully completed  
the program

18

**SPROUT** projects have  
had a patent or a  
pending patent

\$184,538

in funding awarded  
by Brandeis University  
to **SPARK** entrepreneurial  
activities

5

**I-Corp** entrepreneurial  
teams went on to own  
intellectual property rights



## V. Innovation and Entrepreneurship at the Brandeis International Business School

The Brandeis International Business School (IBS) enables entrepreneurial learning opportunities through its diverse set of courses, events, awards, centers, and initiatives. In addition to its partnership with OTL through the Hassenfeld Family Innovation Center, IBS houses several other centers, institutes, and initiatives highlighted below.

### **International Business School Strategy and Innovation Concentration**

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The Strategy and Innovation concentration teaches students concepts and methods useful in strategic planning and in driving innovation across a range of industries. Students can design a curriculum from a broad range of courses and get involved in consulting projects or startup competitions.

### **The Asper Center for Global Entrepreneurship**

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The Asper Center for Global Entrepreneurship serves as the school's platform to examine and understand the key trends affecting entrepreneurship across cultures and borders. The Center supports multiple entrepreneurial courses, seminars, conferences, internships, business plan competitions, field visits, and meetings with global entrepreneurs. Below is an overview of events supported by the Asper Center during FY'18.

#### **FinTech Day**

In October 2017, Brandeis IBS hosted a FinTech Day featuring a disruption panel, live interviews with FinTech leaders from China, India, Europe, Latin America, as well as virtual career sessions.

#### **Asper Award**

The Asper Award for Global Entrepreneurship is given annually to a person who best exemplifies the values of entrepreneurial spirit and independent thinking, while achieving outstanding success in the global marketplace through creative marketing and business strategies. In April 2018, the school celebrated the Israel-Massachusetts economic relationship and awarded two Israeli entrepreneurs who scaled their global businesses in Massachusetts: Udi Mokady, CEO of CyberArk, and Lior Div, CEO of Cybereason.

At the awards event, speakers shared current research on the economic impact of cybersecurity and Israeli cybersecurity companies in Massachusetts. The program also featured a "fireside chat" with Mokady and Div moderated by Bloomberg TV anchor Anne Mostue.



## MassChallenge Israel

The Asper Center is also a proud sponsor of MassChallenge Israel, bringing the cutting edge technologies of the Startup Nation to a global community of multinational businesses, innovators, philanthropists, and public sector stakeholders.

## Global Initiatives

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### Israel Initiative

#### Hassenfeld Fellow Overseas Immersion Program

The Hassenfeld Immersion Program is an in-country student experience that gives participants an intensive introduction to the business and economy of a dynamic overseas market. This program was established through the generosity of Alan Hassenfeld, co-chair of the Board of Overseers for Brandeis IBS and former Chairman and CEO of Hasbro. The program immerses students into the inner workings, political dynamics and local business practices of key overseas markets.

The Program entails two immersion trips, with one of them exploring and immersing into the Israeli startup scene, allowing students to gain significant exposure to lessons learned from the start-up to scale-up nation.

### India Initiative

#### Smart Fifty

In the fall of 2017, IIM Calcutta Innovation Park in association with the Government of India's Department of Science and Technology, with Brandeis International Business School and TiE Boston launched Smart Fifty – 50 solutions to transform India. Focus areas included smart learning, smart agriculture, smart money, smart sustainability, smart living and smart health.

Sixteen SMART companies were chosen to present at the Smart Fifty Boston Finals Round and Demo Day at Brandeis IBS on February 9. Of that group, six companies were rewarded with a grant, business support and the opportunity to pitch for \$1.5M in equity funding in Kolkata, India.

Learn more about SmartFifty here: <https://www.brandeis.edu/global/about/centers/india/smartfifty.html>

## VI. Social Impact Entrepreneurship at the Heller School For Social Policy and Management

Heller offers a variety of competitions, workshops and classes to give every student the opportunity to pursue a social venture, develop a plan and get feedback from professionals. Whether pursuing an MBA or not, students learn how to bring a business idea to life.

### **Social Impact MBA (Social Entrepreneurship and Impact Management Concentration)**

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The Social Entrepreneurship and Impact Management MBA prepares students to lead successful social impact initiatives across a broad range of contexts that include founding an organization with a social mission or working on corporate social responsibility agendas.

### **Our Generation Speaks**

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The Heller School is proud to host Our Generation Speaks (OGS), a fellowship program and incubator where emerging Israeli and Palestinian leaders create high-impact ventures. OGS provides an alternative model of cooperation through the creation of high-impact ventures that change facts on the ground in Israel and Palestine. Each cohort works to inject optimism back into the public discourse and promote a more productive conversation regarding Israeli-Palestinian affairs.

Learn how to get involved here: <https://www.ogspeaks.com/>

### **Innovation Lab at the Center for Global Development and Sustainability (GDS)**

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The Center for Global Development and Sustainability iLab develops and conducts on-site trials of practical and novel applications of technologies that have the potential to transform global development problems. GDS addresses issues of vulnerability that erode or deny the benefits of development to populations at risk. It is an applied research center and think tank that produces scholarship and plans practical solutions to sustain and enhance wellbeing throughout the world.

## VII. Innovation Programs Across Campus

Brandeis offers its students a comprehensive curriculum, both at an undergraduate and graduate level, that is designed to help students succeed in their personal and professional lives. Interdisciplinary and experiential education are at the heart of the programs, as students learn how to communicate effectively, assess and manipulate quantitative information, understand historical and cultural context, operate efficiently within a digital domain, and most importantly, how to make sound evidence-based arguments and decisions.

For students interested or involved in entrepreneurship and innovation, there are several opportunities to be enrolled in courses that can further develop their knowledge of key concepts and best practices to start and nurture a new business ventures. These courses typically have a significant hands-on focus.

### **Campus-wide Courses and Programs Stimulating Innovation:**

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#### **The Professional Science Master's Program in Biotechnology**

The program provides student-centered, interdisciplinary training in the biological sciences and in business, drawing upon the world-class Life Science departments and International Business School at Brandeis University. The two-year program integrates laboratory training through Research Project Labs with a summer internship in an industrial or academic setting. Skills are developed step-by-step, and reinforced in multiple elements of the curriculum. Professional development opportunities include seminars and meetings with experienced workers in biotechnology, pharmaceuticals and medical research from the thriving Massachusetts life sciences community.

#### **BUS 230A: Entrepreneurship and BUS 231A Entrepreneurial Finances and Business Plans**

*Instructor: Charles Reed Jr.*

The Entrepreneurship course prepares students to start and nurture their own business. Students completing this course gain skills to identify and evaluate potential opportunities, determine various ways of defining and securing start up resources, determine sources of finance, determine methods of working with investors, learn methods of creating a positive corporate culture, creating a sales and marketing force, hiring talented people and managing cash.

The Entrepreneurial Finances and Business Plans course introduces techniques for preparing business plans and explores the process of using a business plan to acquire funding. Students prepare a business plan for a new venture and learn how to present the plan in front of a critical audience.

#### **BUS232F: Digital Fabrication with Robotics**

*Instructor: Ian M. Roy*

The goal of the course is for students to walk away with the ability to imagine a design and produce it in physical reality. Students learn the fundamental underlying technologies in digital fabrication, 3D scanning, 3D design, and robotics. Through a combination of real world examples and hands-on experiences, students experience taking a design from concept to reality.

## **BUS 261A: Managing Technology and Innovation**

*Instructor: Benjamin Gomes-Casseres*

Focuses on skills and strategies needed to develop businesses based on new technologies. Through discussion of cases and concepts, the course explores innovation and technology management, strategy, marketing, financing, and performance of new ventures in entrepreneurial or existing firms. This course includes an "Innovation Challenge Project," which are posed by project sponsors from inside and outside of Brandeis. Students are matched with sponsors to develop a strategy to tackle specific challenges related to innovation.

## **BUS 295A: Field Projects**

*Instructor Fall course: Gene Allen Miller*

*Instructor Summer course: Enrique Levin*

Students work in teams on projects for external sponsors. The fall course focuses on nonprofits, while the summer course focuses on startups. The course provides an opportunity for students to apply their skills and knowledge to solving real-world problems under the supervision of a faculty member. The course culminates in a final presentation to the sponsor before the end of the semester in which it is undertaken. Field Projects serve as a transition point for students from education to professional practice.

## **COSI 165A: Software Entrepreneurship**

*Instructor: Pito Salas*

Covers the fundamental concepts needed to transform an idea for a software application into a viable IT business. The focus of the course is on software-based IT enterprises and the specific challenges and opportunities they present. Learn the "Lean Startup" process in this course with a significant hands-on focus. This course includes a team driven project where students work together to drive a fully realized product concept, prototype, market validation, and business plan. The students take the perspective of the 'technical co-founder' of a computing startup.

## **FIN 240A: Venture Capital and Entrepreneurial Finance**

*Instructor: Debarshi K Nandy*

Emphasizes financial decision making skills for entrepreneurs. The course follows the firm's life cycle, with modules on contracting, valuation, and financial planning in the entrepreneurial context, raising capital, security choice, and the structure and valuation of exit decisions in the presence of information uncertainty.

## **HS 228A: Social Entrepreneurship and HS234F International Social Entrepreneurship**

*Instructor: Carole Carlson*

The Social Entrepreneurship course explores how entrepreneurship has become a driving force in the social enterprise sector, provides tools for developing and evaluating new ventures, and explores the blurring line between for-profit and nonprofit social initiatives. The course also teaches hands-on social venture business plan development tools, from assessing markets to developing financial and operating plans.

The International Social Entrepreneurship course enables students to explore the fundamentals of social entrepreneurship in an international context.



## HS 343F: Health Care Entrepreneurship

*Instructor: Abdullah Baaj*

The Health Care Entrepreneurship course explores how entrepreneurship has become a driving force in the healthcare sector, providing tools for developing and evaluating new ventures. The course is designed to provide an intellectual and practical framework for combined degree MD/MBA students interested in exercising their entrepreneurial energy to solve problems in the healthcare sector.

## HSSP 107B: Health Care Technology: Evaluating Emerging Medical Services, Drugs and Devices

*Instructor: Cindy Thomas*

An overview of the role of medical technology in the U.S. healthcare system, with a focus on the impact of prescription drugs on the healthcare system, their promise for the future, and inherent risks.

## Justice Brandeis Semester Programs

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### Voice, Web, and Mobile Applications

*Instructors: Prof. Timothy Hickey and Prof. Marie Meteer*

In 9 weeks, students learn the fundamental concepts behind the voice model of interaction and quickly put theory into practice - using state-of-the-art algorithms to build rapid-scaling servers in the cloud, as well as apps for Web browsers and mobile devices. Participants learn from innovators at Boston-area software companies, strengthening their professional networks as well as knowledge.

This program includes a project-based assignment in which students work in teams to design and build their own working apps

### Bio-Inspired Design

*Instructor: Prof. Maria Miara*

Over 10 weeks, in a variety of settings - including laboratories, museums, zoos and the Brandeis MakerLab - students work with biologists, engineers and artists to explore intriguing life forms and develop the quantitative tools needed to work at the intersection of form and function.

In this program, students design a nature-inspired product to solve an important societal problem. They present their concept to the Brandeis and local scientific communities in an interactive, TED-like forum.

## Rabb School: Graduate Professional Studies

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The Brandeis University Graduate Professional Studies (GPS) extends the benefit of a Brandeis University graduate education to a diverse working professional population. They offer online, part-time master's degrees in today's in-demand fields such as Digital Innovation for FinTech and Technology Management. Courses are led by industry experts who deliver individualized support and professional insights. Brandeis students can audit GPS courses as part of their undergraduate and graduate degree programs.

Learn more about the many offerings at Rabb here: <http://www.brandeis.edu/gps>

## The Brandeis MakerLab

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Supporting educational, social and technological innovation, the Brandeis MakerLab enables students, faculty, and staff to improve the world by creating things with their hands, hearts, and minds.

### Services

1. Teaching and learning
2. Hackathons and Events
3. Research and Technology
  - a. Prototyping physical objects and new workflows
  - b. Digitization
  - c. Digital fabrication

### Tools

1. Digital fabrication
2. VR/AR
3. Digitization and 3D Scanning
4. Embedded systems

Learn how to get involved here: <http://brandeismakerlab.com/>

## VIII. Brandeis Funded Awards and Grants

### Provost Research Awards

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The Provost's Office at Brandeis University puts a call out for proposals to initiate innovative scholarly inquiry and creative activities that have the potential for significant, sustained impact. The evaluation committee focuses on proposals for early stage activities rather than for projects that are well underway. The committee prefers collaborative proposals that involved multiple departments or schools, and proposals with convincing plans to develop and sustain a long-term activity. In FY'18, 20 teams received \$296,084 in total funding.

#### **Awardee Highlight:**

##### **Grandparents as Parents: Unplanned consequences of the opioid epidemic**

*By Margot Davis, Marji Warfield, Janet Boguslaw, Sharon Reif at Heller*

Parenting is increasingly shifting to grandparents as a consequence of the opioid epidemic. The proposed project will (1) build understanding of the challenges faced by those who are custodians of children whose parents have opioid use disorders (OUDs), and (2) assess the financial, health, and psychological well-being of grandparent caregivers.

Learn more about the Provost Awards and other awarded projects here: <https://www.brandeis.edu/research/provost-awards/>

### Teaching Innovation Grant

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Grants to support innovation in teaching are funded by the Provost's Office and administered through the Center for Teaching and Learning. These grants are intended to promote excellence in teaching through the development of innovative instructional methods, new methods of assessing learning or the redesign of courses using technology. While each year has a particular focus, all proposals that address innovation in teaching, assessment, or course design are considered.

Learn more about the 2017 Teaching Innovation Grants here: <http://www.brandeis.edu/teaching/2017%20Round%204%20TI%20Grants.pdf>

### Brandeis Sustainability Fund

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The Brandeis Sustainability Fund (BSF) provides financial support for Brandeis undergraduate students willing to undertake projects and/or activities to improve Brandeis's environmental sustainability. Recognizing the importance of environmental stewardship for the future of Brandeis University and the larger global community, this fund provides a student driven funding mechanism that allows undergraduate engagement in the efforts to improve Brandeis's overall environmental legacy.

Learn more about the competition here: <https://www.brandeis.edu/sustainability/fund/>



## IX. Annual Innovation-Related Campus Events

### Innovation Showcase

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The annual Innovation Showcase is a space in which Brandeis entrepreneurs exhibit their projects to peers, mentors, and possible investors. The event also aims to celebrate the creative endeavors of entrepreneurial individuals from the university community.

Learn more about the 2018 Innovation Showcase here: <https://www.brandeis.edu/innovation/in-the-news/showcase-18-blog.html>

### Heller Startup Challenge

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60 hours. Dozens of students. \$1,000 prize. This intensive, three-day social enterprise initiative, open to Heller students as well as undergraduates and alumni, gives students who aren't in the Heller MBA program or the International Business School an opportunity to put their ideas to the test. Participants form or join teams around an idea to solve a pressing social issue, develop a business plan with the help of a mentor, learn from peers with different skill sets and pitch their plan at the end of the weekend.

Learn more about the 2017 competition here: <https://heller.brandeis.edu/news/items/releases/2017/heller-startup-challenge.html>

### Hult Prize at Brandeis

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Brandeis University was selected to be one of the institutions that hosts local editions of the Hult Prize as students answer the United Nations Challenge and go head-to-head for US\$1 million Prize. The winner of the intra-campus event automatically advances to compete in Boston. One winning team from each host city then moves onto a summer business accelerator, where participants receive mentorship, advisory and strategic planning as they create prototypes and set-up to launch their new social business. A final round of competition is hosted in September, where the winning team is awarded the \$1,000,000 prize.

Learn more about the 2017 competition here: <https://heller.brandeis.edu/news/items/releases/2017/hult-prize-brandeis.html>

### Codestellation

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A friendly hackathon where participants get to build a team of 3 to 4 other people to create an innovative application or software over the course of 24 hours.

Check out a video for the 2017 hackathon here: <https://www.codestellation.io/>



## Printathon

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A 24-hour hack-event in which teams from educational institutions gather and compete to design and pitch a 3D-printed creation.

Learn more about the 2018 hack-event here: <http://printathon.org/#information>

## 3DS

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The 3 Day Startup (3DS) program, sponsored by the Asper Center for Global Entrepreneurship at Brandeis IBS, aims to create a living entrepreneurship laboratory on university campuses by bringing together students with diverse backgrounds ranging from freshmen to freshly-minted PhDs. Participants gain experience in cross-disciplinary collaboration, brainstorming and ideation, and group productivity, including ad-hoc leadership under severe time constraints. They also become a proud partner of a startup, ready to be launched at the end of the event. To add to this, participants gain tremendous opportunities to network with mentors who are thought-leaders and experts in the field of entrepreneurship.

Learn more about the 2018 Seventh Annual 3DS here: <https://www.brandeis.edu/global/3DS/>

## Brandeis Mass Innovation Nights (MIN)

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On March 14, 2018, the Brandeis Innovation Center and the Brandeis International Business School sponsored the first Mass Innovation Nights (MIN) event. MIN is a monthly event where local innovators and startups showcase their products to an audience of 100+ people. Their mission is to help local entrepreneurs get more visibility for their new products and to connect members of the local innovation community. The Brandeis event showcased solely companies and innovators with ties to Brandeis.

Learn more about Mass Innovation Nights here: <https://mass.innovationnights.com>

# X. What's Next?

## What is next for innovation at Brandeis?

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Our goal is to **position Brandeis at the forefront of inclusive innovation**, where we empower and engage all aspiring innovators and build structures that allow for collaboration between disciplines, backgrounds, and cultures, a place where one is sure to find highly dedicated people with significantly diverse interests and backgrounds successfully pursuing wide-ranging passions.

### Brandeis University Innovation Council (BUIC)

The Brandeis University Innovation Council (BUIC) is being formed to offer strategic and tactical advice to Brandeis Innovation, to connect the Brandeis community to the wider innovation ecosystem in Boston and beyond, and to assist in creating a distinctive identity for Brandeis Innovation. BUIC would further support Brandeis Innovation in exploring avenues to diversify research and innovation funding sources. 15 to 20 members including leaders in biotech, software and AI, venture capital, social enterprise, corporations, and foundations are expected to join the inaugural Council.

### An Innovation Hub

A convening space for everyone on campus where people and skills across sectors connect in unforeseen ways, serendipitously instigating new discoveries. This hub will be able to host regular informal pitch events, innovation hours with entrepreneurs in residence and mentors, and co-working time and space for teams where innovators-to-be can share their ideas, get immediate feedback, and form strong interdisciplinary teams.


Our current virtual Innovation Hub is expanding innovation activities beyond the Brandeis campus, supporting innovation in Waltham and communities on the Route 128 suburban beltway that circles the city of Boston. As the only research institution in Massachusetts, situated on Route 128, Brandeis has the potential to further ignite innovation and startups creation in the area. Our upcoming 2019 events, like Mass Innovation Nights, will feature local startups, while we'll support local ideas and entrepreneurs through our SPARK and I-Corps programs.

### A Brandeis Accelerator

We have an opportunity to build an accelerator stage that would further support and invest in promising technology and startups going through SPARK, SPROUT, I-Corps Programs. Leveraging on our early success, we strive to ensure successful startup exits and increased royalty revenue streams. The Brandeis Accelerator stage consists of two main parts:

#### ■ A Brandeis Innovation Bridge Fund

The Brandeis Innovation Bridge Fund aims to provide a solution to market challenges associated with the development of technologies stemming from Brandeis students, faculty, staff, and recent alumni. Establishment of the Bridge Fund represents a timely opportunity to build on the success in fostering innovation across campus through existing Brandeis programs. It would be dedicated to accelerating vetted high-impact academic technologies into later-stage opportunities sought by investors and industry partners. Operating as an evergreen fund, with



part of royalty income derived from licensed technologies going back into the fund, the Bridge Fund is a sustainable structure that can support multiple generations of Brandeis inventors and entrepreneurs.

### **An Entrepreneur in Residence (EIR) Program**

EIR supports access to further external funding and support, both by curating industry connections and working with potential startups as they validate their business model. The position is filled by a seasoned entrepreneur who forms strategic partnerships within the startup community, supports creation of symbiosis between academic technologies and venture development, and coaches inexperienced entrepreneurs in key start-up activities.

### **Online Innovation Portal**

A cross-disciplinary, multi-department working group is currently creating a dedicated page on the Brandeis website to compile the multitude of innovation-related courses, clubs, programs, career opportunities and external activities available to the entire Brandeis community. Stay tuned for a launch in the spring 2019.

# XI. Methodology


Our methodology included both quantitative and qualitative data. We collected the data from our own and departmental primary sources, questionnaires, interviews, and historical data. Seven discrete data collection methods and sources were utilized to ensure completeness and accuracy:

1. **Publicly available primary materials:** These consisted of departmental websites, course descriptions, and printed reports.
2. **Brandeis Innovation historical data:** This consisted of program applications, which contained the majority of self-reported data from SPROUT, SPARK, and I-Corps applicants. Such data included projects, industries, participant demographics, and inventions.
3. **Non-public primary sources collected by department administrators:** This consisted of event attendee reports, program participant counts, funding amounts and program strategies.
4. **Interviews with twelve (12) recent and past Brandeis Innovation program participants:** These were conducted via phone. A representative selection, as closely as possible, were chosen for these interviews. Participants selected included both recent and past grant recipients, and were drawn from both student and faculty, as well as, as near as possible, being drawn from disciplines proportionally representative of program disciplines as a whole.
5. **Survey 1 Data:** A quantitative and qualitative survey was emailed to FY'18 program participants in SPARK/I-Corps. The survey had an 80% response rate.
6. **Survey 2 Data:** A quantitative and qualitative survey was emailed to those participants in SPARK/I-Corps who participated in years prior to FY '18. The survey had a 20% response rate.
7. **SPROUT Final Reports:** Every year, recipients of SPROUT must complete a final report. These reports include data on project outcomes and the data are similar to that collected in Survey 1 and Survey 2, which is why SPROUT recipients were not included in the above two surveys.



All quotes in this report are expressed verbatim from primary data collection, ie, the interviews and the surveys.

We hope that the documentation of data and testaments from entrepreneurs that have been positively affected by these innovation-driven activities serve to the betterment of Brandeis as a leading knowledge institution. We will continue to collect data on an annual basis and foresee a future where Brandeis increasingly becomes a leader in ground-breaking innovation meeting the challenges of tomorrow.



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