

## UNIVERSITY OF VERMONT'S "INNOVATION AND ENTREPRENEURSHIP ECOSYSTEM" HIGHLIGHTS, ACHIEVEMENTS, AND RECOGNITIONS SINCE 2013

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The "Innovation and Entrepreneurship Ecosystem" concept and initiative set was created by UVM Provost Rosowsky in 2013. It was driven by concomitant initiatives and investments in STEM (programs, facilities), interest in creating opportunities (curricular and co-curricular programs as well as business development programs) for students and faculty around innovation and entrepreneurship, and a quickly evolving startup ethos (several tech, software, bioscience, and fintech startups; business incubators; new co-working spaces) in Burlington, VT.

Provost Rosowsky laid out a bold and ambitious vision for creating an innovation culture on the UVM campus, where one had not existed previously, that would respond to growing interest in innovation and entrepreneurship on the campus and leverage nascent activities in and around Burlington, helping to establish Burlington, VT as a viable and compelling location for startups, innovators, tech entrepreneurs, and investors.

### **Examples of successful initiatives:**

Under the leadership of the provost, we have created entirely new **branding, marketing, and communications** strategy at the University to focus on academic initiatives, research, and innovation. Effort commenced with a three-year contract with a marketing and branding firm with considerable experience creating visibility and engagement for major academic institutions, allowing in-house talent, expertise, and capabilities to be developed. Results include more successful student recruitment from expanded and new markets (new revenue), greater national press for academic and research programs (greater visibility), creation and adoption of a university-wide style guide (consistent messaging), and university-wide strategies (print, web, social media) for consistent and effective marketing, branding, and both internal and external communication. This has transformed the way we message (to stakeholders ranging from prospective students to major donors) the value, impact, and potential of the University.

The provost has significantly increased opportunities for faculty and student engagement in the Vermont Center for Emerging Technologies (VCET). **VCET** provides space, services, mentorship, seminars, as well as connections to investors and other financing opportunities. With co-working space downtown (just blocks away from the UVM campus, and now also embedded in the UVM campus, VCET has become an integral part of UVM's innovation and entrepreneurship ecosystem. The provost serves on the board of VCET along with other technology, innovation, and economic development leaders.

Under the provost's leadership, UVM's Office of Technology Transfer was reimagined and rebranded (with expanded staff and responsibility to meet growing needs with the increase in

innovation activity across the campus) as **UVM Innovations**. Plans are underway to relocate UVM Innovations to a new space in 2019 that will also include space for SPARK teams, student entrepreneurship activities, embedded industrial researchers, entrepreneurs-in-residence.

Recognizing the early success of the nascent **SPARK-VT** program in the Department of Medicine, the provost provided visionary leadership, resources, and direction in expanding the program first to the broader College of Medicine, and then to the entire University. Scaling this innovative program (based on the SPARK program at Stanford, and now recognized as one of the most successful such SPARK spin-offs) resulted in broader faculty engagement, greater investor engagement, and increased IP, patent, tech transfer, and startup activity at the University. Now part of the University's innovation culture, the success of the SPARK-VT program is helping to attract faculty and researchers to UVM, and has resulted in the launch of a new (and highly successful) brown-bag series for researchers. In 2017, and with support from the Provost and the Vice President for Research, a student entrepreneurship organization on campus launched their own SPARK program specifically for students.

At the request of the provost, the University of Vermont Foundation created and hired staff for a new office for **Corporate and Foundation Relations**. The model was built on successful models at other universities, and was accompanied by a strategic plan for engaging deans, chairs, faculty, and researchers in appropriate fields. University leadership was provided by the provost. Corporate engagement was entirely new for the University of Vermont, and this transition required both a compelling case statement and patience. Persistence in messaging the importance and value of corporate engagements and partnerships has paid off. In addition to several new major corporate partnerships (through gifts, research contracts, or both), in 2018 the University of Vermont announced its first *Center of Excellence*, the MassMutual Center of Excellence in Complex Systems and Data Science. Additional *Center of Excellence* discussions are underway with several other large companies.

The provost has advocated for (and provided support for) new **innovation spaces** for use by students and faculty. These include innovation classrooms, open-access project spaces, and shared-use spaces. The first such space, "Hills 20," has served as a model for other innovation spaces. **Innovation and active learning classrooms** now exist in several buildings in the Larner College of Medicine, the College of Engineering and Mathematical Sciences, and the Grossman School of Business. In the coming year, we expect to establish two new innovation spaces on campus, including one for the new Innovation and Entrepreneurship Residential Learning Community.

### **UVM Research: growth and highlights**

In his first year (2013), the provost re-envisioned the Office of the Vice President for Research and appointed a new VPR, Dr. Richard Galbraith. The new VPR was given the charge to elevate research and scholarship, and serve faculty to accomplish the same, across the University. Resources were made available for strategically investing in the most promising research directions, the most innovative cross-college teams interested in pursuing large center-level

grants, support for faculty grant-writing, seed grants, equipment and matching funds. The VPR also works closely with the provost providing leadership, direction, and resources to support the innovation and entrepreneurship ecosystem.

The VPR also was charged with supporting and growing scholarly activity in those parts of the university without doctoral or research programs. While such scholarship generally requires far less financial investment than laboratory-based, engineering, basic science, and clinical research, its impact can be just as significant in advancing the visibility and reputation of the University as a comprehensive public research university, and provides meaningful learning and discovery opportunities for our students.

Each year the University invests millions of dollars in direct faculty research support, matching funds, faculty startup packages, seed grants, and tech transfer. As part of the provost's commitment to transparent communication, the magnitude and targets of these investments are reported to the campus annually.

Among the eight *Academic Excellence Goals* established by the provost in 2013 (to undergird and animate the *President's Strategic Action Plan*) was to grow extramural research across the University. Ambitious goals were established by the provost and VPR in 2013. Despite changes in the federal funding landscape and policies in Washington that presented challenges for all research universities in recent years, UVM's research portfolio has been able to grow in scope (range of units across the campus seeking extramural support for research) and in magnitude (total extramural grant support annually).

One strategy implemented by the provost was aimed at growing the number of large (e.g., center-level) grants obtained by faculty and faculty teams at the University. Beginning in 2014, resources were directed specifically toward achieving this goal within three years. In FY18, 24 grants above \$1M were awarded to UVM researchers, more than six times the average number just four years ago.

**Outcomes (2013-present):**

Annual research expenditures increased more than 30%

Number of grants of \$1M or more awarded increased six-fold to 24 in FY18

UVM's first university-wide institute, the Gund Institute for Environment, launched in 2017

UVM's first Center of Excellence, the MassMutual Center of Excellence in Complex Systems and Data Science, established in 2018

Innovation and Entrepreneurship Residential Learning Community launched in fall 2018

The second building (*Innovation*) in UVM's ambitious STEM Complex is opened in summer 2019 (following the opening of the first building, *Discovery*, in summer 2017)

UVM Innovations, previously the Office of Technology Commercialization, launched in 2015 SPARK-VT program expanded to be university-wide in 2015. Now in its fourth year, SPARK-VT has invested in 18 early stage companies and launched 3 startups (with 3 more launches expected in the next 12 months)

Of 185 patents issued, 52 (28%) have been in the last five years; average invention disclosure rate now exceeds 45/year, and patent application rate now exceeds 10/year

12 spinoff companies created based on technologies created at UVM since FY15 (an average rate of three per year, up from an average rate of less than one per year prior to FY15)

31 companies created since 2000, 10 in the last four years

More than a dozen new innovation spaces, maker spaces, and active learning classrooms have been created since FY14

In fall 2018, nearly 40% of UVM undergraduate students indicated they have an interest in innovation and entrepreneurship; nearly 10% of survey respondents indicated they are already involved in a small business or startup

Several innovation and entrepreneurship-themed student organizations have been established in the last three years; and a forum is now organized by the Office of the Vice President for Research to bring students and faculty together to learn about technology commercialization, creating a startup, presenting to potential investors, etc.

UVM is a founding partner and/or is providing ongoing financial support to VCET, BTV Ignite, and Generator, each year engaging more UVM students and faculty

The Office of the Provost, the Office of the Vice President for Research, and UVM Innovations now host an annual event celebrating patents awarded to, and startup companies launched by, UVM faculty

UVM's Innovation and Entrepreneurship Ecosystem is now regularly highlighted in several university publications (e.g., Vermont Quarterly, Across the Green, and reports to both the UVM Board of Trustees and the UVM Foundation Board)

**What others are saying:**

“Vermont ranked #5 for Startups” (Kaufmann Foundation, 2017)

“Burlington a Top-10 Tech Hub” (Forbes, 2015)

“Burlington is one of the country’s most promising tech hubs” (Techie.com, 2017)

“UVM/VCET ranked 11<sup>th</sup> best university-oriented business incubator globally, and #5 in the US” (University Business Incubator Index, 2015)

“As Provost, Dr. David Rosowsky has been the University of Vermont's biggest champion for public-private partnerships that drive innovation and attract resources to the state of Vermont. He is a tireless advocate for progress, bringing vision and courage to his daily work when others might not be able to imagine the scale of potential outcomes. With his leadership we built the largest corporate partnership in UVM's history, the MassMutual Center of Excellence in Complex Systems and Data Science, a \$5M, five-year collaboration likely to be a source of significant funding in the future. He personally championed this partnership, joining meetings and planning sessions where it was critical to have university leadership at the table along with faculty. He is a great partner and leader, allowing others to shine while knowing when to step in and lead – a rare emotional intelligence that goes a long way when establishing strategic, impactful partnerships.”

- Alexa Woodward, Director of Corporate and Foundation Relations, UVM Foundation

“As a long-time observer of and participant in the Vermont entrepreneurial system it has been very exciting to see the University of Vermont become an increasingly critical contributor. Provost Rosowsky has been an extraordinary leader and advocate for increasing the engagement of UVM throughout the State. The impact of these efforts on the economy and jobs in our region is immeasurable.”

-John Evans, President, Vermont Technology Council

“The transformation at the University of Vermont around innovation and entrepreneurship has been remarkable. Over the last six years, UVM has built capacity and engagement, created opportunities inside and outside the University, and established UVM as a major contributor to innovation in Vermont. David Rosowsky, UVM’s provost, relentlessly pursued his ‘ecosystem’ vision to transform UVM from a relatively static public university to a vibrant and dynamic, forward looking and engaged research university that embraces its mission to create new technologies, jobs, and businesses. Today, UVM is a valued partner for business and for economic development in the State of Vermont.”

-Mary Powell, President and CEO, Green Mountain Power

"As technology-driven change continues to accelerate, universities must adapt to fulfill their potential as innovation leaders. This includes enabling the right culture, new forms of engagement, and dedicated support needed for successful, continuous innovation. David Rosowsky’s blueprint for innovation includes the university’s partnership with Vermont’s Center for Emerging Technologies (VCET), the creation of UVM Innovations for efficient tech transfer, establishing the SPARK-VT innovation program, and the development of corporate research partnerships. Through David's leadership and vision for an innovation ecosystem, UVM now has new capabilities essential for building tomorrow’s solutions."

-Otto Berkes, Technology Executive and Xbox Co-Founder

"An innovation economy doesn't magically appear based upon someone's speech or fundraising plan. It takes strategic direction, sustained commitment, creative collaborations, relevant infrastructure, leadership that "gets it" and entrepreneurial grit. Like never before, and thanks to the leadership and vision of Provost and Senior Vice President Rosowsky, UVM is firing all pistons in supporting the innovation and entrepreneurship ecosystem here in Vermont."

-David Bradbury, President, Vermont Council on Emerging Technologies