

Capital District

	Regional totals	% of total in region	Independent Sector state totals
No. of Independent Sector institutions	16		145
Degree Productivity ¹			
Bachelor & graduate degrees, Independent Sector	7,513	54%	127,073
Bachelor's in engineering	626	100%	3,082
Bachelor's in mathematics	87	60%	856
Bachelor's in physical sciences	115	37%	884
Economic Impact ²			
Employees	21,177		360,158
Economic impact (millions)	\$2,931		\$54,296
Payroll (millions)	\$1,012		\$19,576
Capital construction (millions)	\$53		\$1,637
Student/visitor spending (millions)	\$267		\$3,925
Quality Measures			
2010 National Merit Scholars Entering College ³	24		355
Doctoral/Research Universities (Carnegie Classification) ⁴	1		18
U.S. News Top 50 Universities and Liberal Arts Colleges ⁵	3		13
Nobel Laureates ⁶	1		135
National Academy of Sciences members ⁷	1		160
Proven Expertise			
Licensing income ⁸	\$722,881		\$347,706,425
Start-up companies formed ⁸	1		46
Licenses executed ⁸	10		172
Total active licenses ⁸	61		1,298
New patent applications ⁸	33		615
U.S. patents issued ⁸	14		304
National Science Foundation FY2009 ⁹	\$102,819,000		\$3,009,877,000
National Institutes of Health FY2009 ¹⁰	\$21,714,039		\$1,297,720,896

Sources:

1. New York State Education Department, Office of Research and Information Services. Degrees granted are public and Independent Sector, 2008-09.
2. Center for Governmental Research, January 2011.
3. The National Merit Scholarship, <http://www.nationalmerit.org/nmsp.php#entryreq>
4. The Carnegie Classification, <http://classifications.carnegiefoundation.org/>
5. U.S. News university and college rankings 2011, <http://colleges.usnews.rankingsandreviews.com/best-colleges>
6. Nobel Laureates through 2010.
7. National Academy of Sciences, http://www.nasonline.org/site/PageServer?pagename=MEMBERS_Main
8. Association of University Technology Managers, FY2009, <http://www.autm.net/Home.htm>
9. National Science Foundation, College and University R&D FY2009, data file.
10. National Institutes of Health, http://report.nih.gov/award/trends/State_Congressional/StateOverview.cfm

Independent Sector: Centers of Research, Innovation, and Economic Development Capital District

Institution	Center	Description	Category
Union Graduate College	Capstone course	Develop comprehensive no-cost business plans for Capital Region companies. Over 120 plans developed in the past 8 years.	Business Consulting
Rensselaer Polytechnic Institute	Center for Automation Technologies and Systems	Automation.	Centers for Advanced Technology
Rensselaer Polytechnic Institute	Future Energy Systems	Renewable energy.	Centers for Advanced Technology
Rensselaer Polytechnic Institute	The Severino Center for Technological Entrepreneurship (SCTE)	SCTE fosters entrepreneurs through, education and support systems and focuses on new business initiatives driven by novel or advanced technology.	Entrepreneurship/ Business Acceleration
Siena College	Center of Innovation and Entrepreneurism	Integration of innovation and commercialization processes to accelerate start up success.	Entrepreneurship/ Business Acceleration
Skidmore College	Skidmore-Saratoga Entrepreneurial Partnership	The Partnership allows students engage with local businesses and not-for-profits as business consultants, writing business plans, conducting marketing research, and financial analyses, and incubating ideas emanating from coursework in applied marketing and entrepreneurship.	Entrepreneurship/ Business Acceleration
Union Graduate College	Innogen	Provide business training, mentoring and sources of financing to start-up companies.	Entrepreneurship/ Business Acceleration
Rensselaer Polytechnic Institute	Emerging Ventures Ecosystem (EVE)	EVE accelerates the growth of new businesses and boosts the transfer of scientific and technological breakthroughs from the laboratory and classroom to the marketplace.	Incubator
Siena College	Siena Collge Business Incubator	The Incubator gives all students real-world business experience by working alongside executives and making decisions to increase the productivity and success of new companies.	Incubator
The Sage Colleges Russell Sage College	INVEST – Incubator for New Ventures in Emerging Sciences and Technologies	INVEST is a nanotechnology incubator provides space and resources to help high tech companies grow and expand while advancing Sage's science and technology programs. http://www.sage.edu/invest/	Incubator
The Sage Colleges Russell Sage College	ESTEVEES Center for Innovation and Entrepreneurship (CIE)	CIE provides office space and support for a range of business ventures from additional support for the wet-chemistry lab facility to IT, non-tech businesses, and micro-enterprises having standard office needs.	Incubator
Rensselaer Polytechnic Institute	Nanoscale Science and Engineering Center for Directed Assembly of Nanostructures	The center integrates research, education, and technology dissemination to serve as a leading national and international resource for fundamental knowledge and applications in nanoscale science and technology.	National Science Foundation
Rensselaer Polytechnic Institute	Focus Center - New York (FC-NY)	The Center's mission is to build integrated top-down and bottom-up nanostructures, devices, and systems for information, biological, and broadband communication applications.	National Science Foundation, NTSTAR
Rensselaer Polytechnic Institute	Center for Advanced Interconnect Systems Technologies	The Center's mission is to build integrated top-down and bottom-up nanostructures, devices, and systems for information, biological, and broadband communication applications.	National Science Foundation, NYSTAR
Rensselaer Polytechnic Institute	The Smart Lighting Research Center (ERC)	ERC develops LED technologies for greater energy efficiency and applications from biotechnology and transportation to computer networking and displays. The ERC has 18 industry partners.	Research Center
Rensselaer Polytechnic Institute	The Lighting Research Center (LRC)	The LRC is the world's leading university-based research and education organization devoted to lighting.	Research Center
Rensselaer Polytechnic Institute	Interconnect Focus Center (Focus Center - NY)	Portfolio ranges from microprocessor and memory chips to biochips, micro- and nano-systems, and ultra-high frequency communication devices and equipment.	Research Center

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Albany Medical College	The Center for Cardiovascular Sciences	Cardiovascular disease is the number one killer in America today. By conducting research and providing training to young scientists the Center for Cardiovascular Sciences serves as a resource to the greater Capital Region to combat cardiovascular disease.	School-based Center
Albany Medical College	The Center for Cell Biology and Cancer Research	The Center for Cell Biology and Cancer Research (CCBCR) offers graduate and postdoctoral training programs based on a comprehensive approach to the study of the Cell Biology of Cancer. The Center's faculty is comprised of an interdisciplinary group of scientists with expertise in cell biology, molecular biology, biochemistry and physiology.	School-based Center
Albany Medical College	The Center for Immunology and Microbial Disease	The Center for Immunology & Microbial Disease has an emphasis on infectious disease pathogenesis and protection. The emergence of new pathogens, the increasing development of drug resistance and the threat of bioterrorism have combined to create an increased demand for investigations into the mechanisms of disease and the body's ability to combat these diseases.	School-based Center
Albany Medical College	The Center for Neuropharmacology and Neuroscience (CNN)	One major purpose of the CNN is to facilitate and strengthen collaborations in neuroscience research. It also provides a unique interface for interactions among clinical and basic scientists. Neuropharmacology and Neuroscience are large and diverse fields that encompass physiology, pharmacology, anatomy, behavior, development, neural disorders and diseases.	School-based Center
Albany Medical College	The Neurosciences Institute	The Neurosciences Institute is a leading center of excellence in northeastern New York and is committed to providing comprehensive, multidisciplinary specialized care for patients with diseases or disorders of the brain, spine, and nervous system.	School-based Center
Rensselaer Polytechnic Institute	Computational Center for Nanotechnology Innovations (CCNI)	Manufacturing, nanotechnology, biomedical research.	School-based Center
Rensselaer Polytechnic Institute	The Computational Center for Nanotechnology Innovations (CCNI)	CCNI is a partnership between Rensselaer Polytechnic Institute, IBM, and New York State. Together, the three partners have created one of the world's most powerful university-based supercomputers. The CCNI, based on the Rensselaer campus and at its Rensselaer Technology Park is designed both to help continue the impressive advances in shrinking device dimensions seen by electronics manufacturers, and to extend this model to a wide array of industries that could benefit from nanotechnology.	Strategic Partnership
Rensselaer Polytechnic Institute	Nanoelectronics and Optoelectronics Research and Technology Center (STAR Center)	The University at Albany and Rensselaer Polytechnic Institute STAR Center serves as a fully integrated, long-term, visionary research and development resource that provides the science and technology base for future generations of integrated circuitry (IC). It will target a portfolio of nanoelectronics-based products ranging from microprocessor and memory computer chips with higher functionality and complexity to the rapidly evolving areas of micro- and nanosystems-based "system-on-a-chip" (SOC) technologies including biochips, optoelectronics and photonics devices, sensors for the energy and environment, and ultra-fast communication equipment.	Strategically Targeted Academic Research Centers
Rensselaer Polytechnic Institute	Rensselaer Technology Park	The park links tenants and the university to enrich the educational environment and help companies stay on the leading edge of their technologies.	Technology Park

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Below are just a few examples of how independent (private, not-for-profit) colleges and universities nurture startup companies, provide valuable expertise to private sector businesses, and harness intellectual property that helps to generate new products and ideas that create economic vitality throughout the State.

Start-Up Companies

Vicarious Visions (<http://www.vvisions.com>) is a leading developer of video game software founded by **Rensselaer Polytechnic Institute** graduate Karthik Bala and his brother Guha when they were in high school. In brief: Sold to Activision in 2005; 150 employees; created over 100 software titles selling more than 25 million units and accounting for over \$1 billion in retail sales. Karthik Bala picked Rensselaer because he could bring his company with him; the firm moved to the RPI incubator during his freshman year; following graduation, Vicarious migrated to the Rensselaer Technology Park.

Start-Up Companies/Licensees

Microrganic Technologies (www.microrganictech.com) is a pre-seed company founded by a student at **Rensselaer Polytechnic Institute** that is focused on using microbotic technology to reduce the volume of solid food wastes. Their process reduces the volume of solid waste by 80 percent, creates heat that can be converted to electricity, and produces commercial-grade compost.

WindMec (www.windmec.com) was founded by a student at **Rensselaer Polytechnic Institute** and is pre-seed company working on a new design for a wind turbine that is can be used for light industrial and commercial applications.

Founded by a student at **Rensselaer Polytechnic Institute**, L.I.M.B. is a pre-seed company working on an artificial hand that is designed to have all the functionality of the human hand.

Paper Battery located in Troy, NY (www.paperbatteryco.com) is a seed company that uses technology developed at **Rensselaer Polytechnic Institute**. The company is developing an advanced energy storage device utilizing nanotechnology on a paper-like substance to develop a device that is six times more effective than current supercapacitors.

Definitions:

Start-Up Companies – A new company created at a college or university.

Start-Up Companies/Licensees – A new company created to commercialize and take to market an innovation(s) arising from college and university R&D.

Research Partnerships – Public-private partnerships between a college or university and a private company.

Licensees – Companies licensing R&D technologies.

Ithos in Troy, NY (www.ithosglobal.com) is a seed company developed at **Rensselaer Polytechnic Institute** that licenses a software product from Atrion International used to track regulatory changes and publishes hazardous material content lists to monitor product safety.

Seed company Ethermetrics in Troy, NY (www.ethermetrics.com) is associated with **Rensselaer Polytechnic Institute** and manufactures the DataCube®, a data management system that is used to monitor the consumption of energy and water usage.

HeliOptix (www.helioptix.com) is a seed company that is licensing **Rensselaer Polytechnic Institute** technology to develop a solar building product known as the Integrated Concentrated Solar Facade System (ICSF System). This is an architectural day lighting system, designed to reduce the mechanical cooling system costs while simultaneously capitalizing on high-efficiency concentrating photovoltaic cells with active heat capture and transfer, resulting in a highly integrated and powerful system for both energy savings and production.

Software Company Bluestone Telecommunications (www.bluestonetel.com) is a seed company at **Rensselaer Polytechnic Institute** that has developed a cloud-based telephony product that mirrors all the features of big box phone systems without the complexity, reducing operating costs and the carbon footprint through more efficient use of server technology.

The seed company Voice Flight in Troy, NY (www.voiceflight.com) began at **Rensselaer Polytechnic Institute**. The software company that has developed the only FAA-certified voice-activated GPS flight control system for light aircraft. They are currently working on a version of the product for commercial airline applications.

The early stage company, Prospect Genius located in Troy, NY (www.prospectgenius.com) is a software company that utilizes **Rensselaer Polytechnic Institute** licensed technology to deliver qualified sales leads to small to mid-sized companies in specific geographic locations.

1st Playable Productions in Troy, NY (www.1stplayable.com) is an early stage company that was started by a **Rensselaer Polytechnic Institute** graduate. The company seeks to make games specifically aimed at children that stimulate, entertain, and leave lasting, positive impressions.

Ecovative Design located in Green Island, NY (www.ecovatedesign.com) is an early stage company that produces 100 percent biodegradable products that are used for insulation and packing utilizing **Rensselaer Polytechnic Institute** licensed technology.

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The company has been recognized throughout the world as a leader in the development of sustainable, green products.

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