

# BECOMING “The Knowledge State”

*The Vital Importance of Higher Education  
in Vermont's 21st Century Economy*



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A Report from the  
Vermont Business Roundtable



## **Vermont Business Roundtable**

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Vermont Bread Company

Kinvin Wroth, President and Dean  
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# BECOMING "The Knowledge State"

## AN EXECUTIVE SUMMARY

### I. Higher Education in the Changing Vermont Economy

**H**igher education is an enormous contributor to Vermont's quality of life and cultural vitality — but less well-recognized is how much higher education brings to the Vermont economy. With more than 10,000 employees and over \$856 million per year in direct spending, the state's flagship university, its five state colleges, and its 18 independent colleges are a mainstay of our state's marketplace.

But that's only the first part of the picture.

Through the wide variety of additional spending and business it generates, and through its own construction projects, higher education's overall fiscal impact on Vermont can be estimated at more than \$1.71 billion every year. People with bachelor's degrees earn 80 percent more, over their lifetimes on average, than those with only a high school education; college graduates are also far more likely to be employed and to contribute to their communities, and to the civic life of Vermont.

There's still more. In tandem with the world's economy, Vermont's economy is changing fast — it's becoming more based in the knowledge and skills of people. Even our most traditional businesses depend more and more on sophisticated skills. Among the

state's 50 fastest-growing occupations, 44 require significant postsecondary education or training. For the state as a whole, higher education is the vital provider of generally well-educated adults and of specific, career-related knowledge and learning opportunities. Higher education is also a magnet for attracting and keeping well-educated, talented, productive people who make their careers in Vermont.

In a knowledge-based economy, the potential for growth relies largely on innovation and ideas. In response, higher education in Vermont has been learning to work together with business, in a fast-expanding array of ways, to nurture innovation, support new enterprise, and bring together ideas, knowledge, facilities, and expertise so that businesses and jobs can grow.

"Vermont is the maple syrup state, and the dairy state — but I would argue that it's also the knowledge state," observes Fred Hackett, a business leader and member of the Governor's Council of Economic Advisors.

At the same time, in a world of intense competition for business growth and well-educated people, Vermont faces some significant challenges that center on higher education:

- **State support for higher education and student financial aid remains among the nation's lowest.** Despite recent increases in state support for the

University of Vermont, the Vermont State Colleges, and the Vermont Student Assistance Corporation (VSAC), Vermont still ranks 49th in state appropriations for public higher education, measured per capita.

- **Vermont students are facing intimidatingly high debt to pay for college.** The average loan debt accumulated by senior year, among recipients of financial aid from VSAC, grew by 91 percent between 1994 and 2003 — from \$14,242 to \$27,188.
- **Too many high school graduates are choosing not to attend college — and financial barriers are the main problem they cite.** Thirty-six percent of 2000's high school graduates chose not to start college that year, VSAC found. Among those who did not continue their education, 15 percent said they could not afford to go to college. That number was 63 percent higher than in 1994.

"Our model used to be high-tuition, high-aid," says business leader Chris Robbins of St. Johnsbury, chair of the VSAC board. "Now we have high tuition and not high-enough aid, though in recent years that has picked up. We're going to have to find ways to gain ground."



## II. The Multiplying Links Between Higher Education and Vermont Business

For businesses across Vermont, it's a new world — one in which active links to higher education are often vital to success.

Vermont Bread Company in Brattleboro and E.H.V. Weidmann Industries, a manufacturing firm in St. Johnsbury, are just two examples. These days, the bread company's employees have to understand computers, computer controls, and systems theory.

"We certainly access higher education more than we did 20 years ago," says Vermont Bread CEO Lisa Lorimer.

With its employees needing to be part of a complex, teamwork approach to cutting costs, E.H.V. Weidmann has worked with Lyndon State College and Vermont Technical College to offer its employees a new associate's degree program in manufacturing. This helps the employees to "be part of the solution," says company President Chris Robbins.

Across the business sector today, higher education is an essential provider of sophisticated skills and knowledge, through both its graduates and its programs for workforce education and training.

More broadly, from the fast-growing number of campus-based business development centers to the importance of university research and development in

creating technology and inventions that lead to new business, Vermont higher education interacts with the business world in hundreds of often-new ways.

"In spite of the progress we've made, we need to continue to emphasize the connections," says Fred Hackett. "There's a lot of room to grow, and it helps both ways. It's good for the institutions, and it's good for the business community."

## III. Recommendations for Significant, Long-Term Positive Impact

All of Vermont has a very large stake in working to:

- make and keep higher education more affordable;
- increase the state's support for public higher education, and for student financial aid; and
- support and nurture the connections between higher education and the business community.

There is a great deal of collaborative work underway to meet Vermont's needs in workforce education and training. Vermont's colleges and universities, public and private, have joined in these efforts. They are also working together, more than ever before, to make higher education more accessible to students of varying ages and financial resources.

At the same time, higher education in Vermont faces a twin challenge: to invest in meeting the demands and opportunities of a fast-changing, knowledge-based economy, and to find ways of controlling costs and restraining tuition increases.

"We're all trying to keep costs down," says Kinvin Wroth, president of Vermont Law School. "But some costs are increasing uncontrollably ... while others have to do with maintaining quality, with smaller classes, new technology, student support, and improved faculty salaries."

If higher education is to fulfill its tremendous potential for contributing to Vermont's long-term economic future, it needs higher levels of state appropriations. It also needs to develop more revenue from business and others in the private sector — not just contributions from alumni.

Through its Higher Education Task Force, made up of business leaders and college executives, the Vermont Business Roundtable calls for Vermont's state appropriations to higher education to rise to 40th in the nation, measured per capita; for the tax exempt status of public and private postsecondary institutions to remain; for the state to consider conducting a comprehensive study on higher education's economic impact; and for support for the development of college and university business incubators. **For the complete VBR resolution, please see page 23.**

# I. “We Don’t Know What We’ve Got”

## *Higher Education in the Changing Vermont Economy*

In strictly practical, economic terms, how important is higher education to Vermont? There are not one but, in today’s economy, three answers to that question.

The first is straightforward. With more than 10,000 employees and over \$856 million per year in direct spending, the state’s flagship university, its five state colleges, and its 18 independent colleges are a mainstay of our state’s marketplace — and one whose budgets and good-paying jobs are especially stable.

“These are high-quality jobs that we’re bringing to Vermont,” notes Richard Schneider, president of Norwich University.

Add in the additional business that higher education generates — through its students, visitors, parents, and alumni, its athletic and cultural events, and its construction projects — and this sector’s overall, annual fiscal impact on Vermont can be estimated at more than \$1.71 billion. (See the table on p. 5.) Also, the Vermont Student Assistance Corporation is making loans and grants to Vermont students that total \$397 million this fiscal year.

The second answer digs both deeper and wider. Higher education is an enormous contributor to the cultural vitality and general quality of life in Vermont, which is so much a part of our state’s well-being and economic attractiveness. And as Vermont’s economy evolves speedily toward knowledge-based businesses, with even our most traditional enterprises — farming, manufacturing, and travel and recreation — requiring ever more sophisticated skills to compete in a globalized marketplace, higher education is

increasingly vital. It is the primary supplier of well-educated, well-rounded young graduates, who are far more likely than non-graduates to be active citizens throughout their careers, contributing to both their communities and Vermont’s economy. It is also the main resource for meeting the learning needs and desires of working adults — and it’s the partner that businesses must have to meet their workforce education and training requirements, which will only increase in the coming years.

“We are by no means a monolithic economy,” notes Bill Stenger, president and CEO of Jay Peak Resort and chair of the Newport Workforce Development

*This sector’s fiscal impact on Vermont can be conservatively estimated at more than \$1.71 billion every year.*

### **Vermont’s Fastest-Growing Occupations, w/ Salaries & Education Needs**

*Based on State Occupational Projections, 2000-2010*

Rank	Job Title	Annual Job Growth	Average Wage	Education/Training
1.	Computer Support Specialist	5.1%	\$19	Associate Degree
2.	Physician Assistant	4.8%	\$30	Bachelor’s Degree
3.	Postsecondary Voc-Ed Teacher	4.8%	\$21	Work Experience in Related Occ.
4.	Software Engineer, Systems Software	4.5%	\$34	Bachelor’s Degree
5.	Network & Computer System Admin.	4.4%	\$23	Bachelor’s Degree
6.	Desktop Publisher	4.3%	\$14	Post-Secondary Voc. Training
7.	Hotel, Motel & Resort Desk Clerk	4.0%	\$9	On-the-Job Training
8.	Network Syst. & Data Comms. Analyst	4.0%	\$27	Bachelor’s Degree
9.	Medical Assistant	3.9%	\$13	On-the-Job Training
10.	Med. Records & Health Info. Technician	3.8%	\$15	Associate Degree

*Source: Vermont Dept. of Employment & Training, Labor Market Information*

### Total Full- and Part-Time Faculty and Staff at Vermont Higher Education Institutions

University of Vermont . . . . . 3,440

#### Vermont State Colleges

Castleton State College . . . . .	222
Community College of Vermont . . . . .	652
Johnson State College . . . . .	190
Lyndon State College . . . . .	167
Vermont Technical College . . . . .	333

Total, Vermont State Colleges . . . . . 1,564

#### Independent Institutions

Bennington College . . . . .	318
Burlington College . . . . .	101
Champlain College . . . . .	461
College of St. Joseph . . . . .	93
Goddard College . . . . .	165
Green Mountain College . . . . .	146
Landmark College . . . . .	233
Marlboro College . . . . .	122
Middlebury College . . . . .	1,304
New England Culinary Institute . . . . .	426
Norwich University . . . . .	397
Saint Michael's College . . . . .	564
School For International Training . . . . .	233
Southern Vermont College . . . . .	109
Sterling College . . . . .	30
Vermont College, Union Institute . . . . .	140
Vermont Law School . . . . .	178
Woodbury College . . . . .	33

Total, Vermont Independents . . . . . 5,053

Total, All Institutions . . . . . 10,047

*Note: Graduate teaching and research assistants are excluded, as are contract employees.*

*Source: 2001 IPEDS Staff Report, IPEDS Web-based Peer Analysis System. Updated & revised, 12/16/03*

Board. "Each of the components are interrelated — and the education that provides stability for each of those components has its foundation in higher education."

The third answer digs deeper still. As both the business and the higher education communities seek to meet the challenges of a fast-changing world, they are learning to work together. A diverse array of campus-based business incubators has sprung up in the past few years, where the two communities often partner to nurture entrepreneurship — and that's only part of the picture. In a much broader way, there is a new scale of collaboration, built on a shared awareness that in today's world, with knowledge and technology advancing constantly, business and higher education need each other.

"We think the university and the state colleges are the best chance Vermont has to grow new businesses, through the utilization of intellectual property, intellectual capital, to create new jobs," says John O'Kane, manager of government relations for IBM Vermont.

"There's been a dramatic change in Vermont, in the business sector," observes Fred Hackett, CEO and chairman of Hackett & Co. and Yankee Captive Management of South Burlington, and a member of the Governor's Council of Economic Advisors. "We're not the great megalopolis — but the kinds of change that are taking place worldwide, every single one of them is here. This process of change is fundamentally all driven by knowledge, and we have been blessed to have a very substantial number of institutions of higher education here. That has made a tremendous difference. It's meant that there are no ideas anywhere that aren't also here.

"These institutions of higher education are making changes to essentially reflect the change in the wider world, particularly the scientific and the business world," Hackett observes. "That's played an enormous role, in my view, in giving Vermont great opportunities for its own youth to be educated here — but also

bringing faculty, researchers, scientists, engineers. It isn't just Chittenden County, it's all over the state. And it's been quiet. For a long time, it went pretty much unrecognized. We don't even know what we've got.

"Vermont is the maple syrup state, and the dairy state — but I would argue that it's also the knowledge state," Hackett concludes. "Higher education has been the only economic driver with its kind of size and relative growth in the last few years. It's here to be built on, to be enhanced and strengthened — and it's already a significant factor in the Vermont economy."

"In the sense that there are all different kinds of companies, serving all different kinds of market niches, so too in higher education there are 'different strokes for different folks,'" observes Nordahl Brue of Burlington, founder of Bruegger's Corp. and current chair of Franklin Foods, PKC Corp., and Green Mountain Power.

"There are people for whom the large research university, UVM in our case, is just the right kind of thing. For others, it's a college with a liberal arts mission, like Middlebury, or Saint Michael's with its origin in the Catholic tradition. For others, there's a more technical bias; for still others, more focus on the performing arts, or on business, or on the military. All these and many others are complementary pieces of the higher education mosaic in Vermont."

### Economic Growth and Educated Minds

On a Saturday morning at Middlebury College, a lecture hall in the school's magnificent new science building is filled with students and with businesspeople. They're entrepreneurs and investors, primarily, some Middlebury alumni and others not. Many are influential figures in Vermont's business world.

The group has just listened to a morning of presentations by Vermonters seeking backers for new businesses: a recruitment firm for schoolteachers, a catalog for seniors, a company based on soy wax, and



an Internet retailer of earth-friendly products. Each entrepreneur has spent several weeks working with a team of students from the Middlebury Solutions Group, which provides volunteer consulting work to promising startups.

Now Michael Claudon, the economics professor who started this project — the day is called an "Enterprise Forum and Boot Camp" — asks a question.

"Everybody who's been an entrepreneur — who's attempted to start a business — raise your hand," he says. Three-fourths of his listeners hold up a hand. "Those whose business is still in business, please raise your hand." About three quarters of the first group again raise a hand.

"Amazing," Claudon says. "I thought most startups failed."

Among the listeners is Paul Mendelsohn, president of Windham Financial Services in Charlotte, which does consulting for institutions that manage billion-dollar endowments and mutual funds. When a college brings together entrepreneurs, business leaders, investors, and motivated students, "it's a great exchange of ideas," he reflects over lunch.

"It's networking with people, and it opens up new concepts that you might not run across in your day-to-day business." (See p. 15 for briefings on the various business-development projects now on Vermont campuses.)

The morning's events, which took place last November 22 at Middlebury, illustrate, first, the ways that people from Vermont colleges and businesses are learning to make the most of each other, and of each other's resources. Section II of this report looks more broadly at that subject.

The college event also shows how knowledge and ideas have become a key resource — perhaps the key resource — for growth and opportunity in today's economy.

"In the early 1970s, a fundamental change occurred that marked the advent of the 'human capital economy': income growth after 1973 was limited to

### Estimated Overall Economic Impacts of Higher Education in Vermont

*The following figures use a multiplier of 2.0 to estimate the overall economic impacts of Vermont's institutions of higher education on the state's economy, using data from fiscal 2002. According to a recent economic-impact study by Rutgers University, "a multiplier of two is the most commonly reported among studies estimating the economic impact of institutional spending. This multiplier assumes that for every dollar spent, another dollar is generated and spent within the state."*

University of Vermont, Total Direct Expenditures:	\$345,610,000
x multiplier	x 2

<b>Estimated Overall Economic Impact</b>	<b>\$691,220,000</b>
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Vermont State Colleges, Total Direct Expenditures:	\$101,371,669
x multiplier	x 2

<b>Estimated Overall Economic Impact</b>	<b>\$202,743,338</b>
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Independent Institutions, Total Direct Expenditures:	\$409,267,979
x multiplier	x 2

<b>Estimated Overall Economic Impact</b>	<b>\$818,535,958</b>
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Public & Private Institutions, Total Direct Expenditures:	\$856,249,648
x multiplier	x 2

<b>Estimated Overall Economic Impact</b>	<b>\$1,712,499,296</b>
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*Source for expenditure data: Vermont Higher Education Council. Research source for multiplier, as cited by Rutgers study: Elliot, Donald S., Stanford L. Levin, and John B. Meisal. "Measuring the Economic Impact of Institutions of Higher Education." Research in Higher Education, 28:1 (1988): 17-33.*

## Two Ways to Serve the Future

### CHAMPLAIN COLLEGE: Changing with the Economy

When Roger Perry came to Champlain College from St. Louis in 1982, the small, business-oriented Burlington school was largely focused on traditional career skills, with about a third of its freshmen in secretarial programs. As a management professor in the Midwest, Perry had already seen the world of business begin to transform — first with heavy industry and union jobs drained away by overseas competition, then with new information technology enabling large companies to slim down management and decentralize production control.

"The brave new world, in terms of global competition, was right there in front of me," Perry recalls.

As Champlain's president since 1992, Perry has overseen a transformation of the school that both parallels and partners with the changing economy. Champlain became a pioneer in offering online courses, which today bring in about \$2.5 million in annual revenue. It opened residential degree programs in Israel, Dubai, and India. In Burlington, the college has created a host of degree programs involved with information technology for business: multimedia and Web design, Web development, software engineering, e-business, computer networking, and communications/public relations.

"They're all blending now," Perry notes. "These are the value-added, clean-industry jobs that Vermont is fighting for."

Since 1988-89, Champlain's total budget has grown from \$13 million to \$33.5 million, its total faculty from 101 to 225. Students have worked with dozens of Vermont businesses on semester-long projects aimed at business development. Courses across the curriculum employ technology, with the online courses mainly serving adults who want new workplace knowledge and skills. Ninety-seven percent of Champlain's graduates find jobs, with 70 percent each year entering the Vermont workforce.

Last May, the college began building a \$10 million Center for Global Business and Technology, which will include an international resource center for Vermont businesses seeking to enter global markets.

"We had to reinvent ourselves," Perry reflects. "In terms of impacting the Vermont economy, that pays off handsomely."

### SAINT MICHAEL'S COLLEGE: Thinking Into the Future

A short drive from the Champlain campus in Burlington is Saint Michael's College in Colchester, where President Marc vanderHeyden believes the most valuable thing a liberal-arts school like his can do for Vermont's future, economic and otherwise, is fulfill its traditional mission.

"Hopefully we are not preparing our students for their first job, but for a life that will be challenged and challenging, in which they will feel that we've given them the tools to address the challenges and take charge of their own lives," vanderHeyden says. "This means making sure they can continue to think for themselves, and analyze, and that they can continue to write and communicate in all the new ways that we communicate with one another — including technology. But it is primarily a question of making certain that we create a whole person and a really good citizen."

"Some of the young minds that we have in front of us today are going to be sufficiently creative to change the profile of things 15 years from now. Two of our alumni that came from outside Vermont were math majors, and they created IDX," he says of Saint Michael's grads Robert Hoehl, '63, and Richard Tarrant, '65. In 1969 the two founded IDX Systems, a South Burlington-based medical software corporation that now reports over \$400 million in annual revenues.

"How can you predict something like that?" vanderHeyden asks. "It's tricky for me to jump on the bandwagon that says we have to make an immediate response to particular needs. I think it's much more important to keep educating people who want to be here, who want to contribute, to look long-range, to find other ways of doing business."

"Those," he concludes, "are the people we need."



those with college educations," policy analyst Thomas G. Mortenson wrote last April in *Connection*, the journal of the New England Board of Higher Education.

New England has the largest share of adults with bachelor's degrees of any region in the country — and "between 1973 and 2001 ... New England's per-capita personal income increased by nearly 70 percent, compared with 46 percent nationally and 55 percent in the Southeast, the nation's second-fastest growing region," Mortensen wrote. (See the graph on p. 11 for more on degrees and income.)

During those years, "real incomes of those with high school educations or less began to decline," he added. "Real incomes of college graduates continued to increase. Economic welfare and the prospects of individuals, families, cities, and states began to be redistributed according to educational attainment. This continues today."

"Higher education is now the gatekeeper to a middle-class income and standard of living," wrote Bridget Terry, assistant professor at the Harvard Graduate School of Education, in *Ed. Magazine* last August. "Those with a college degree on average make \$1 million more over the course of their lifetimes than those without a degree."

"However, institutions of higher learning are more than just places to get degrees," she continued. "Colleges offer second chances to students who leave the K-12 system unprepared to do advanced work. Estimates suggest that approximately 40 percent of college students require remediation in English or math; more and more, our society relies on colleges to meet this need. Colleges have also accepted the

***"Higher ed has been the only economic driver with its kind of size and relative growth in the last few years. It's here to be built on, to be enhanced and strengthened — and it's already a significant factor in the Vermont economy."***

— Fred Hackett,  
CEO and chair, Hackett & Co.

burden of educating adults who require further training in order to keep their jobs or find new ones after being laid off."

"I think higher education fuels the Vermont economy at least three times," reflects Nordahl Brue. "In a way it's like a Vermonter with a woodpile. It's said the firewood warms you three times: when you cut it, when you stack it, and when you burn it. Higher education has the direct economic effect of employing its staff and faculty, its tuition income, the non-tuition revenue, and all of those impacts — it's a powerful economic engine in and of itself."

"Second, higher education gives usable skills to many young people, and many who are not so young, Brue continues. "Non-traditional education is very big, and it's very important to the Vermont economy. And I think the Vermont economy benefits in a third way, from knowledge workers — from attracting and retaining, to live in Vermont, the kinds of folks who share many of the values of the people in the state. I know so many people in business who came here to go to college, and stayed."

### **Advantages, Issues, and the Opportunities**

Here are some key numbers, from the Vermont Department of Employment and Training and the Vermont Commission on Higher Education Funding:

- People with a bachelor's degree earn an average of 80 percent more than people with only a high-school diploma, on average over their lifetimes. Those with an associate's degree earn 30 percent more.

## Total Expenditures by Vermont Higher Education Institutions

*Fiscal Year 2002*

University of Vermont . . . . . \$345,610,000

### Vermont State Colleges

Castleton State College . . . . . \$19,732,889  
Community College of Vermont . . . . . \$16,771,103  
Johnson State College . . . . . \$20,452,839  
Lyndon State College . . . . . \$16,656,560  
VSC, Office of the Chancellor . . . . . \$2,003,924  
Vermont Technical College . . . . . \$25,754,354

**Total, Vermont State Colleges . . . \$101,371,669**

### Independent Institutions

Bernington College . . . . . \$19,327,962  
Burlington College . . . . . \$2,412,047  
Champlain College . . . . . \$25,670,474  
College of St. Joseph . . . . . \$4,947,448  
Goddard College . . . . . \$7,854,580  
Green Mountain College . . . . . \$11,525,326  
Landmark College . . . . . \$16,432,725  
Marlboro College . . . . . \$12,850,935  
Middlebury College . . . . . \$135,132,000  
New England Culinary Institute . . . . . \$26,473,987  
Norwich University . . . . . \$43,420,416  
Saint Michael's College . . . . . \$49,945,575  
School For International Training . . . . . \$28,678,604  
Southern Vermont College . . . . . \$5,801,991  
Sterling College . . . . . \$2,082,394  
Vermont Law School . . . . . \$14,613,979  
Woodbury College . . . . . \$2,097,536

**Total, Vermont Independents . . . \$409,267,979**

**Total Expenditures, All Public and  
Private Institutions . . . . . \$856,249,648**

- College graduates are twice as likely to be employed as are high school graduates. They are far more likely to vote, to volunteer, and to be involved in civic activities.
- Of the 50 fastest-growing occupations in Vermont, 44 require significant postsecondary education or training.
- Through 2010, Vermont businesses need to find an annual average of 11,587 new workers, to fill open jobs. Forty-six percent of those will need significant training beyond high school.

Vermont higher education is a magnet for attracting and keeping talented people who make their careers here. Seventy-two percent of UVM's freshman class this year came from outside the state; the university alone has some 25,000 alumni in the state. UVM President Daniel Fogel is fond of pointing out that five of Vermont's six top elected-office holders went to college in the state; two came to UVM from out of state, and future Governor Jim Douglas came here to attend Middlebury College.

"One of the things independent colleges offer to the state is that we import a large number of students who bring tuition dollars, and more dollars as well, into Vermont," notes Roger Perry, president of Champlain College. "Also, a large number of the students we attract to the state end up staying here, and filling jobs in their communities."

"I think one thing that is under-appreciated about the importance of higher education is this magnet effect, and its impact on the rise of the creative economy," says Charlie Kireker, managing director of Fresh Tracks Capital, a venture capital firm in Middlebury. "Smart, creative people want to be

around other smart, creative people."

At the same time, in a world of intense competition for business growth and well-educated people, Vermont faces some urgent challenges that center on higher education — and on the state's support for higher education.

Section III of this report examines those key challenges, and gives the recommendations of the Vermont Business Roundtable's Higher Education Task Force. Here are some facts that sketch the issues:

- State support for higher education and student financial aid, though it has improved in recent years, remains among the nation's very lowest. State support for public higher education in Vermont increased by 11.4 percent from 2001-2003. That was the fifth-highest rate of increase in the nation — yet Vermont's state support had fallen so low during the 1990s that our state still ranks 49th in state support for public higher education, measured per capita, according to the Vermont Higher Education Council.
- Vermont college students, and potential students, are facing intimidatingly high debt loads to pay for their education. The average loan debt accumulated by senior year, among recipients of financial aid from the Vermont Student Assistance Corp. (VSAC), grew from by 91 percent — from \$14,242 to \$27,188 — between 1994 and 2003.

### Full-Time Equivalent (FTE) Student Enrollments, Fall '02

Institution	Vermonters	Out of State	Total
University of Vermont	3,506	5,475	8,981
Vermont State Colleges	5,474	1,651	7,125
Independents	3,594	11,295	14,889
<b>Total, All Institutions</b>	<b>12,574</b>	<b>18,421</b>	<b>30,995</b>

*Source: "Fall 2002 Enrollment Report," Vermont Higher Education Council*



## Constructionists

*Colleges Keep Investing in Bricks, Mortar — and Jobs*

When St. Michael's College built its new, \$4.6 million Hoehl Welcome Center recently, all members of the contracting team — architects and interior designers, general, mechanical, and electrical contractors, and landscapers — were Vermont companies. And to turn 10 red oaks, thinned from college property, into 88 custom chairs for the conference room, Shelburne furniture makers Beeken-Parsons worked with a Hardwick sawmill, drying kilns in Shelburne, Lincoln, and Wolcott, a parts shaper in Newport, a finisher's cooperative in Island Pond, and a brander in Middlebury.

When Vermont colleges build things, Vermont businesses benefit. So does a wide range of professionals, contractors, and wage-earners. In fact, capital spending by colleges often stimulates a lagging economy — "because the high point of their endowment growth, donations, and government funding commitments occur late in the boom cycle," notes Otto Engelberth, CEO of Engelberth Construction, Inc. "The actual bulk of their expenditures occurs after the boom is over."

Here is a sampling of construction projects undertaken by Vermont colleges since 2000:

**Champlain College:** Center for Global Business & Technology, three floors with computer labs, international business resource center, market research room, videoconference room, additional conference rooms, multimedia editing suites, and additional facilities to enhance the college's capacity to put students to work on real business challenges, \$10 million. Construction begun May 2003, expected completion August 2004.

Student Life Complex, \$14 million, to be fully completed in August 2005. Main Street Suites and Conference Center, \$6 million, was completed in August 2003.

**Marlboro College:** New wing to library, doubling size of what is now named the Rice Aron Library, \$2.7 million, to be completed in early 2004.

**Middlebury College:** Bicentennial Hall, \$50 million science center, 2000. Ross Commons, \$20 million residential hall with dining and academic support spaces, 2002. Renovations to Nelson Arena and Pepin Gymnasium, \$3.4 million, 2002. New recycling center, \$1.5 million, 2002. Replacement of Fletcher Fieldhouse with air-supported structure, \$1.4 million, 2003. New college library, \$43 million, to open summer '04. Atwater Commons, two new residential halls with 225-seat dining hall, \$32 million, to open autumn '04.

**Norwich University:** Modernization and expansion of Crawford Hall, adding another floor to the residential building, \$2.7 million, 2003.

**St. Michael's College:** Cashman Hall, new residential hall, \$8.5 million, opened 2002. Hoehl Welcome Center, \$4.6 million plus \$1.5 million for landscaping and road rerouting, opened autumn 2003. Two new residence halls, \$14.9 million, to be completed in summer '04, enabling 100% of students to live on campus.

**University of Vermont:** Completed: Health Science Research Facility, 118,000 square feet, \$25 million, opened spring 2001. Replacement of roof on

Williams Hall, on main campus green, \$1.2 million, 2002. Won city historic-preservation award. Current and planned through 2007: Catamount Apartments, 203 beds in 69 apartments, \$15 million, planned completion fall '05. New residence hall, 800-bed complex, \$47 million, first half completion fall '05, second half winter '06. Living/Learning residence hall, renovation of 600-bed complex, \$22.6 million, planned over next three summers. Family student housing, renovation of 116-unit apartment complex, \$6 million, summer '04. Delehanty Hall, renovation for Geology Dept., \$4.6 million, summer '04. Replacement of underground steam heat line, \$8.1 million, two sections complete in phased project. University Commons, new 196,000 sq. ft. student center, \$70 million, fall '07.

**Vermont Law School:** Renovation of Debevoise Hall, original school classroom building, \$6 million, to be completed late 2004. Building dates to 1893, is on National Register of Historic Places.

**Vermont State Colleges:** New student housing complex at Lyndon State College, currently in design, \$6.1 million. New residence hall and fitness center at Castleton State, \$8 million, construction to begin January '04. New Upper Valley academic facility for Community College of Vermont will be located at the Billings farm in Wilder, \$2.7 million, now in architectural selection and permitting phase.

- Too many high school graduates are choosing not to attend college — and financial barriers are the main problem they cite. Thirty-six percent of 2000's high school graduates chose not to start college that year, VSAC found. Of those, 15 percent said they couldn't afford to continue their education. "Since we began collecting this information in 1994, there has been a 63 percent

increase in the number of students who answered 'I applied for financial aid and didn't receive enough,'" VSAC reported.

Vermont has tremendous potential to become, in Fred Hackett's words, the Knowledge State, with all the clean growth and long-term prosperity that implies. But to fulfill that potential, these issues and challenges need to be addressed.

## Economic Impacts: A Revealing Sample

**A**s all market researchers know, one close sampling can give insight to a larger reality. In the effort to add up the economic impacts of Vermont's higher education institutions on their communities, Middlebury College recently compiled the most detailed sampling so far.

Carrying out a study of the college's measurable impacts on the economies of the town of Middlebury and of Addison County were well-known Vermont economists Richard Heaps and Arthur Woolf, of Northern Economic Consulting in Westford, who reported their findings in March 2003.

Among the study's insights and estimates:

- With 1,253 employees, Middlebury is the largest employer and largest source of wage income in both its town and its county.
- Spending by college employees, students, and the institution creates another 736 jobs in the county.
- Through its direct revenues, fundraising, sponsored research, and other enterprises, the college brings almost \$120 million into its community each year.

- The college's 2,300 students spend over \$2.7 million at local businesses each year.
- On average, each student brings in 3.4 guests per year, who spend another \$2,007,000 in hotels, restaurants, shops, and other local businesses.
- Another \$781,400 is spent by parents, alumni, visitors to athletic events, and the 4,000 prospective students and their families who visit the college each year.
- The college invested \$153 million into capital construction projects between 1992-2002, with most of the work done by Vermont firms.
- The college spends a total of \$18.7 million each year on goods and services provided by Vermont companies.

Middlebury is just one of 16 members of the Association of Vermont Independent Colleges. Altogether each year, the "independents" enroll 16,000 students, pay \$223 million in salaries and benefits to 5,053 employees, make over \$25 million in capital investments and \$120 million in local purchases, pay \$5 million in state income taxes, and have a direct economic impact of more than \$409 million.

## Working Together: The Recent History

This report follows on a sequence of initiatives, beginning in the mid-90s, that have encouraged and reported on collaboration among Vermont higher education, the business community, and the state.

Overall, these efforts reflect a new spirit and reality of collaboration, says Robert Clarke, chancellor of the Vermont State Colleges (VSC) and chair of the Roundtable's Higher Education Task Force.

"We couldn't be in competition with each other — we had to work together," he says. "To make things better for Vermont, we had to have all the higher education community and the business community working in concert."

In 1994, when Clarke chaired the Vermont Economic Progress Council, it issued a 10-year economic development plan that called for a compact between higher education, the Legislature, and the Governor. This led to the signing, in 1998, of the "Compact with the State of Vermont: An Investment Strategy for a Changing World."

The Compact was rewritten and reaffirmed in 2003. It has been signed by the current Governor, the speaker of the House, the Senate president pro tem, the VSC chancellor, and the presidents of UVM, VSAC, and the Association of Vermont Independent Colleges.

The Compact calls for the state to make it a high priority that higher education receive "an appropriate,



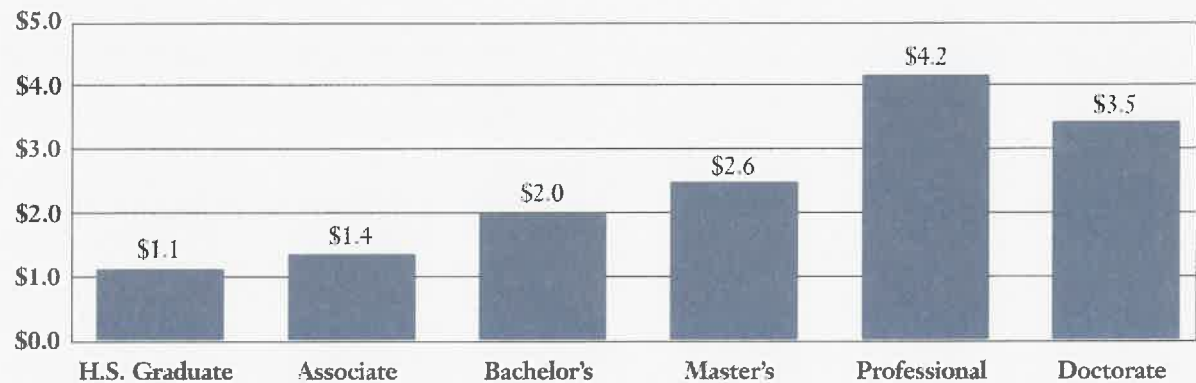
predictable, multi-year level of support," and that Vermonters have access to affordable, high-quality postsecondary education. It also commits UVM, VSC, and VSAC to working to contain costs, keep programs affordable, and "support collaborations with K-12 schools, technical centers, other educational institutions, the private sector, and government agencies in order to develop a truly lifelong learning system in Vermont."

In 1998 came the creation of the Vermont Commission on Higher Education Funding, which brought together representatives of the Governor, the House and Senate education committees, higher education, and VSAC. Direct advocacy and annual reports by the Commission were key in securing the 11.4 percent increase in state support for higher education during 2001-2003.

Below are briefings on four additional, major statewide collaborations underway in Vermont. There are a large number of two- and three-party partnerships at work among the various postsecondary institutions as well.

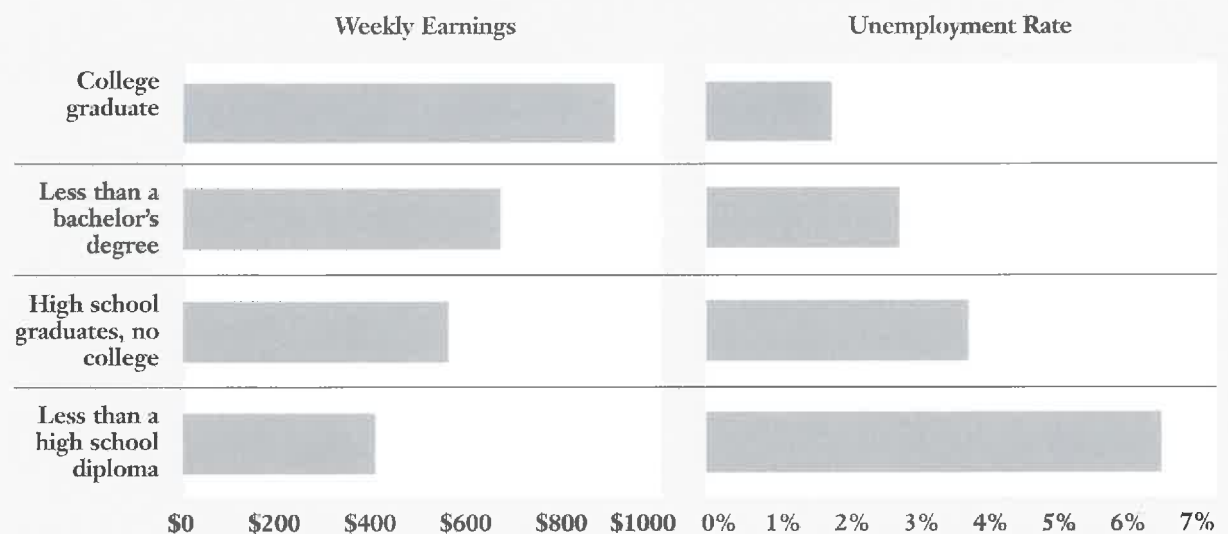
- The Vermont Public Education Partnership, begun in 1998, has brought together the leaders of Vermont State Colleges, UVM, the Department of Education, the Vermont Student Assistance Corporation, the Vermont Institutes, and the Agency for Human Services, to pursue selected initiatives to meet pressing needs and improve public education at all levels.
- The Vermont Workforce Education & Training Consortium, begun in 2001, links all the public providers of workforce education and training in Vermont, including VSC and UVM, to create a more integrated, effective system for meeting the needs of individuals and businesses.
- The Vermont Technology Council, formed in 1992,

### Estimated Worklife Earnings (Ages 25-65) by Highest Degree, U.S.



Source: U.S. Census Bureau, Statistical Abstract of the United States, 2002

### Earning and Unemployment Rates: Persons over 25, U.S.



Source: U.S. Department of Labor, Bureau of Labor Statistics

is a collaborative effort to foster competitive research and development, and business enterprise, based on science, technology, and engineering. Board members represent VSC, UVM, Champlain College, Norwich University, and New England Culinary Institute, along with several Vermont businesses, business organizations, and non-profit groups.

- The Human Resources Investment Council was created by the Legislature in 1994 to build better coordination among the state's workforce development programs. It includes leaders of UVM, VSAC, the Vermont State Colleges, the Department of Education, and the Agency of Human Services; membership also includes business leaders from all sectors across the state, representatives of organized labor, and four key legislators. HRIC also coordinates the work of 11 regional workforce investment boards (WIBS), which assess local

training needs and organizes coordinated responses, and whose members represent colleges, businesses, and local public agencies.

“Vermont is too small a state for us to work at odds with each other — but the reality is that our smallness gives us an advantage,” Chancellor Clarke notes. “We can bring all the key players together, and take meaningful actions that most larger states could never do.”

The next section reports on the fast-growing connections and relationships that are linking Vermont business and higher education.

Collaborations like these are not an add-on, argues Tim Donovan, president of the Community College of Vermont. They are essential to meeting today's needs.

“I think higher education institutions will be identified by the partners they have,” Donovan suggests. “That has been true of business in the last decade. It's just reality.”



## II. "Part of the Solution"

### *The Multiplying Links Between Higher Education and Vermont Business*

**T**wenty years ago when she joined the Vermont Bread Company in Brattleboro, Lisa Lorimer recalls, "I used to say that I could teach someone who knew the basics of auto mechanics how to be a bakery mechanic. I can't any more."

Today Lorimer, now the company's CEO, says her employees "need to understand about computers and about computer controls, and they have to have systems thinking. They understand that if you impact the system over here, you're going to see the results way over there."

To meet her company's education and training needs, Vermont Bread works with the Community College of Vermont, with the Vermont Manufacturing Extension Center, with the American Institute of Baking.

"We pick and choose from the higher education menu — but we certainly access higher education more than we did 20 years ago," says Lorimer. Her own work is a glimpse of the global economy: She watches the world commodities market, buying spices from Sumatra, oils from Italy, gluten from Australia, and equipment from Germany, and noting closely when a big wheat buy in Egypt drives domestic prices high.

For businesses across Vermont, it's a new world — one in which active links to higher education are very often vital to success. Dairy farmers, facing intense pressures to maximize productivity and minimize costs, prepare for their careers at Vermont Technical College and UVM, then work closely with UVM

Extension Service. IBM Vermont, the state's largest employer, contracts with UVM and the Vermont State Colleges to meet all its workforce-education needs (see the article on p. 17).

At any modern ski resort, especially as it moves into year-round operation, "you'll find numerous college-educated employees," says CEO Bill Stenger of Jay Peak. And at a manufacturing firm like E.H.V. Weidmann Industries, makers of electrical insulation in St. Johnsbury, workers on the shop floor are involved with complex cost-reduction methodologies, says Chris Robbins, company president.

"Manufacturing is under more and more pressure to keep our costs in line. It takes some degree of understanding to be able to do it," Robbins says. In response, Weidmann has worked with Lyndon State College and Vermont Technical College to put together a manufacturing associate's degree program. Robbins says the education helps enable his employees to "be part of the solution."

These are just a few of the literally hundreds of active connections between higher education and the business community in Vermont today.

"When you're talking about the role that higher education plays, it's not just educating students, it's not just employing people," notes Janice St. Onge, who works with technology firms at the Vermont Agency of Commerce and Community Development.

"Research and development is a big piece," she says. "Higher education leads to R&D work, which leads to commercialization of technology, which leads to new business.

*"When you're talking about the role that higher education plays, it's not just educating students, it's not just employing people. Research and development is a big piece."*

— Janice St. Onge  
Department of Economic Development  
Vermont Agency of Commerce and  
Community Development

"Whether it's UVM, or Middlebury or Norwich or whatever higher-ed institution you're talking about, there's also the element of giving businesses the chance to partner with these institutions in a variety of ways. To find research expertise that they can't afford to have in-house, and business planning expertise, and linkages with the graduate and undergraduate student base for internships — inexpensive means to get a fresh eye into the business.

"Especially for the companies I work with, you can't buy this kind of expertise," she adds. "And the ability to partner with an institution of higher education adds credibility, both from an investment

and a grant-money standpoint."

"We develop new drugs, we discover things, we develop new ways of doing business, we work with scientists, we are the scientists who help take the economy further," notes Rocki-Lee DeWitt, dean of the UVM School of Business. "Bright people, creating ideas and solutions — you've got to love that!"

### **"Greater Efforts Are Needed"**

At UVM, the state's only research university with a full graduate-studies program, external funding for sponsored research has skyrocketed, from \$53 million in 1996 to \$118 million last year. The university "has 20-25 invention disclosures per year and has been issued 18 patents in the last three years. However, too often the University of Vermont's available technology has remained 'on the shelf' or in some instances left the state to be developed elsewhere," says a proposal for creating the new Vermont Center for Emerging Technologies, or VCET, linked to UVM (see the article on p. 16). "Greater efforts are needed to nurture technology business startups that can fuel job creation and product development in our local economy."

With the VCET proposal and a new commitment to a major expansion and upgrade to the university's engineering program (see p. 20), UVM is moving to make the most of what's often called "tech transfer."

"We don't believe that Vermont can succeed as an enterprise unless its flagship university succeeds," President Fogel says. "It is partly the scientific and technological expertise that we can leverage to drive economic development, to support business enterprises — but it's partly simply having the advanced degree programs that others don't have."

Those programs are a key reason for IBM's location and success in nearby Essex Junction, says John O'Kane. "It's very important to our company that our employees have access to continuing education," he explains, so that new hires with bachelor's degrees can

## **Aiding Entrepreneurs and Opening Doors**

**I**n downtown Montpelier, thanks to the Vermont Small Business Development Center, two very different stores are in business today.

Housed at Vermont Technical College, the SBDC is a partnership of the Vermont State Colleges, the U.S. Small Business Administration, and the state Agency of Commerce and Community Development. Its business advisors provide free advice and coaching to entrepreneurs, help with regulatory compliance and technology development, and affordable, high-quality training programs.

On Montpelier's Main Street, the SBDC helped two aspiring young businesswomen do a feasibility study and a business plan for an upscale women's shoe store. The new entrepreneurs were young and lacked credit history, but their SBDC advisor helped them secure financing from the Central Vermont and City of Montpelier revolving loan funds. Pasco Shoe Store opened last July, expecting to generate \$295,000 of business in its first year.

Around the corner on State Street, Somers

Hardware has been in business since 1907 — but a basement flood and a key supplier's bankruptcy had the local institution on the verge of closing. The family proprietors' SBDC advisor helped them to assemble a business plan and secure financing. Today Somers is fully restocked, and expected its 2003 sales to surpass the previous year's by about \$315,000.

"Without his help, we wouldn't be back in business today," says Somers owner Tip Ruggles of his SBDC advisor, Pat Travers. Add Paseo owners Shane Farrel and Raina Launderville: "He has treated us with a kindness and respect that made us more confident to turn our idea into reality."

Since its 1992 creation, the Small Business Development Center has served over 60,000 Vermonters. The state estimates that its work has led to 1,600 new jobs, \$48 million in new income, and \$3.2 in annual state tax revenues. That's a return of more than ten times the state's \$290,000 annual investment.

## Campuses Are Growing Business Development Centers

**E**ight out of 10 new technology companies that were started across the U.S. in fiscal 2000 were located close to the university that developed their foundation technology, according to the Association of University Technology Managers.

For this reason and many others, often aimed at connecting Vermont entrepreneurs with the support, knowledge, and financing they need, business incubators and similar programs have sprung up at a variety of Vermont colleges and universities. Here are brief profiles of several, all created in the past several years:

### Digital Bridges and Middlebury Solutions

**Group, Middlebury College:** Students in an applied-economics course run the annual Digital Bridges conference on cutting-edge business issues, attracting entrepreneurs, investors, alumni in business, and others. One outgrowth is the Middlebury Solutions Group, whose student volunteers do consulting, market analysis, and development work for promising early-stage Vermont businesses. (See p. 4.) Overall, the program "increases the critical mass of knowledge, awareness, networked encounters, and investors saying 'Himm, there's some interesting things going on in Vermont,'" says Charlie Kircker, co-owner of Fresh Tracks Capital, a Middlebury venture capital firm that grew in part out of its involvement with Digital Bridges.

### National Center for the Study of Counter-Terrorism & Cyber-Crime, Norwich

**University:** Created in 2002, the Center recently received a \$4.5 million federal contract to do research and technology development for the U.S. military in nanotechnologies, computer networks, and other areas. The Center has already contracted with three Vermont companies to work on the project, and has created six new jobs, with plans for more. In the future, "We will be competing for contracts to work with the federal government," says university President Richard Schneider. "We will do some of the work in-house; much of the rest will be passed out to Vermont firms."

**Persons School of Marlboro College:** Created in 1998 in Brattleboro, this innovative graduate-studies center is designed for working professionals and entrepreneurs, with degree programs in Internet strategy management, Internet engineering, and teaching with Internet technologies. Marlboro "perceived a need and an underserved market ... society was furiously wiring businesses and schools, and we weren't very well preparing people to lead those efforts," former President Paul LeBlanc told *Vermont Magazine*. With its "high tech, polish and modernity," as the magazine described it, the Persons School challenges grad students to complete "Capstone Projects" that last year included a startup wireless communications company.

### Technical Extension Division, Vermont

**Technical College:** Funded by \$1.5 million in U.S. Dept. of Labor grants, VTC Technology Extension takes a team approach to assessing and meeting the training needs of Vermont businesses of all sizes. In three years, the program has worked with 262 Vermont businesses, and provided 9,800 people with workforce training that ranged from soft skills to technical knowledge. To meet the needs of Vermont-located firms like General Dynamics, Ben & Jerry's, GE, and IBM, the program delivered trainings in nine states last year. With DET, Technology Extension also runs the successful Vermont Registered Plumbing and Electrical Apprenticeship Program, which serves some 650 Vermonters a year in a successful model for providing workforce training while participants are employed full-time.

**Vermont Business Center, UVM School of Business Administration:** The School of Business is collaborating with UVM Continuing Education to offer a menu of courses, customized training, management programs, needs assessments, and other services to executives, managers, and family businesses. "The idea is to be part Extension Service for business, part resource center, part management developer and executive educator," says Rocki-Lee DeWitt, the business school dean. Last spring, the school delivered its first "Business

*continued on page 16*



## The Incubation Evolution

*continued from page 15*

Savvy," a two-week immersion for UVM students, from any discipline, in how businesses work, think, and plan. Business people and others talked, taught, and simulated management, strategic planning, and finance. The school is now looking to offer Business Savvy programs for high schoolers, students at other colleges, and adults.

### Vermont Center for Emerging Technologies,

**UVM:** In 2002, UVM passed the milestone of \$100 million in research funding, mostly from federal grants and contracts — but the university is challenged to connect more of its technology innovations with startup businesses that can develop them into products and create jobs. The Vermont Center for Emerging Technologies is in the process of becoming a self-sustaining nonprofit. It will offer selected early-stage businesses a menu of incubator services, linking

client firms with UVM technology, specialized university laboratories, and a network of faculty, staff, student interns, and alumni — from not only UVM but other Vermont higher education institutions as well.

### Vermont Women's Business Center, Woodbury

**College:** Since late 2002, the adult- and career-focused college in Montpelier has been home to this statewide program, which offers classes, events, and one-on-one help to women who want to start or grow their own business. A project of Central Vermont Community Action, partly funded by the U.S. Small Business Association, the center served 1,193 women in its first year through individual assistance, workshops, and networking events, delivered at the college and at Community Action sites in Barre, St. Johnsbury, Burlington, Rutland, and Westminster. The center also offers two classes each semester at Woodbury, on varying subjects, along with an ebusiness course at Woodbury and, soon, at four CCV locations as well.

earn the advanced degrees they need "if they want to have the full horizon of technical potential.

"Consequently, the people we hire are very interested in what the opportunities are for them to pursue their education. So having nearby educational facilities is important."

Not only UVM but the whole Vermont State College system and many of Vermont's independent colleges are working with businesses to build active learning connections that benefit both partners. At Norwich University, President Schneider has created a new vice president's position for technology and strategic partnerships. The university is now home to a new center for the study of cyber-crime (see page 15), and to the Vermont Environmental Consortium, which enables a number of environmentally related businesses to collaborate and bid together on jobs.

"I realigned my administration to be much more aggressive in reaching out to companies and institutions to create partnerships," Schneider says. "I want to connect my students, connect my faculty, connect my curriculum."

Indeed, *connection* may be the word of the year — even the decade — in Vermont higher education.

"In spite of the progress we've made, we need to continue to emphasize the connections," says Fred Hackett. "Extend them, broaden them, between each of the centers of higher education and the business community. There's a lot of room to grow, and it helps both ways. It's good for the institutions, and it's good for the business community."

## Learning to Order

*IBM, UVM & VSC's Unique Relationship*

In what could be a model program for cost-effectiveness and flexibility, the state's largest employer, IBM, contracts with UVM and the Vermont State Colleges to meet all its employees' workforce education needs.

"We can do it significantly less expensively than they can do it themselves," says Brent Sargent, who manages the IBM/UVM/VSC Education Consortium at the Essex Junction facility. "We find the best training, the best fits for the company — at the best price."

The relationship and its process are unique within the corporation, says John O'Kane, manager of government relations at IBM, which does research and development for the semiconductor industry.

"They become in effect our education department," he explains. "They have a group located here on our premises; they work with an advisory council, in terms of what our needs are; and they design education solutions to the problems that are brought to them. They will go

out and seek individuals to provide the education, to meet those needs."

Trainings are often taught by IBM employees, whom the UVM/VSC program trains to be good teachers. Other instructors are university and college professors, and outside vendors.

"We are what you would call an honest broker of training," says Sargent.

The relationship has continued for 10 years, serving all employees at IBM Vermont. The consortium runs about 1,250 classes per year, with about 18,000 enrollments. It also sponsors and creates online learning opportunities, and runs the site's technical library.

"They provide thousands of hours of instruction to our employees," John O'Kane says. The consortium has even scheduled classes late at night, to fit with employees' schedules.

"They're very flexible," he adds. "Much more flexible than we might have been able to be, if we were trying to manage it ourselves."

*Not only UVM but the whole Vermont State College system and, indeed, many of Vermont's independent colleges are working with businesses to build active learning connections that benefit both partners.*

### Growth in Sponsored Program Awards at UVM

Fiscal Year	Sponsored Program Awards
1996 . . . . .	\$52.83 million
1997 . . . . .	\$56.16 million
1998 . . . . .	\$63.22 million
1999 . . . . .	\$70.42 million
2000 . . . . .	\$74.52 million
2001 . . . . .	\$87.71 million
2002 . . . . .	\$103.10 million
2003 . . . . .	\$117.55 million

*Sponsored program awards include funding for research and instruction, and are a significant source of revenue for UVM.*

*Source: "FY 2004 Sourcebook," University of Vermont*

### III. “The Challenge Is Cost”

#### *Recommendations for Significant, Long-Term Positive Impact*

This report has sought to make and to verify these key points:

- Higher education is an indispensable contributor to Vermont’s economic well-being, its communities, its cultural and civic vitality, and its overall quality of life;
- Higher education is vital for Vermonters who wish to earn a good income and get the most desirable jobs;
- The economy of today and tomorrow needs a well-educated workforce, with the capacity to keep on learning and solving problems;
- The research and development work done by higher education provides important innovations, which lead to new business and new jobs; and
- Businesses and higher education increasingly need to connect and work together, to provide the graduates that businesses need, and to meet the ongoing education needs of the adult workforce.

It follows, then, that all of Vermont has a very large stake in working to:

- make and keep higher education more affordable for all Vermonters;
- increase the state’s support for Vermont higher education, and for financial aid to Vermont

students; and

- support and nurture the connections between higher education and the business community.

The sophistication of tomorrow’s workforce, in terms of education, skills, and the capacity to create, communicate, and solve problems, is so vital that repeating its importance has almost become a mantra in the business and higher-education worlds. Equally vital is that access to postsecondary education not stop at college graduation, but stay available as a lifelong opportunity.

“If people, by the end of their formal education, haven’t learned to be in a continuous learning mode, we’ve got problems,” says Nord Brue of Burlington, the Bruegger’s Corp. founder, who is also Board chair of Grinnell College in Iowa.

“We need people who can solve problems as they occur. The people we are educating, who are in our institutions of higher education today, will have to solve different kinds of problems that we haven’t even heard of. If you go back just a few years, nobody’d even heard of the Internet — couldn’t even imagine it. So we’ve got to learn how to learn. We have to learn how to renew ourselves — because it seems the more we develop, the faster the cycle of change.”

There is a great deal of collaborative work being done to meet Vermont’s particular needs for specific, job- and career- related workforce education and training. Coordinating many of those efforts are the leadership collaborations described on pages 11-12: the Vermont Public Education Partnership, the



Low state support for higher education has affected students at both public and private colleges and universities in Vermont. Low levels of state appropriations for UVM and the Vermont State Colleges have meant relatively high tuition at those schools, even though their rates of tuition increase have been below the national average the past several years. Students attending both public and private colleges, in Vermont and elsewhere, receive financial aid — and changes in state support for VSAC have paralleled increases in student indebtedness in recent years.

\* Does not include Alaska, Delaware, Hawaii, Wyoming

Source: Vermont Higher Education Data Book, Vermont Higher Education Council, 2001

### In-State Undergraduate Tuition and Fees at Public Flagship Universities

	1989-90	1996-97	2000-01
UVM	\$3,986	\$7,229	\$8,288
% increase		81.4%	14.6%
U.S. Average	\$1,968	\$3,360	\$4,000
% increase		70.7%	19.0%

### In-State Undergraduate Tuition and Fees at Resident State Colleges

	1989-90	1996-97	2000-01
Vermont State Colleges (CSC, LSC, JSC)	\$2,843	\$4,248	\$4,944
% increase		49.4%	16.4%
U.S. Average*	*\$1,599	\$2,645	\$3,168
% increase		65.4%	19.8%

### Changes in State Support for Student Financial Aid, and in Student Indebtedness

State Appropriations to the Vermont Student Assistance Corp			
	1989-90	1996-97	2000-01
	\$12.3M	\$11.9M	\$14.8M
% change		-3.9%	+24.8%
Changes in Vermont Student Indebtedness (average per student)**			
	\$8,622	\$13,894	\$17,617
% change		+61.1%	+26.8%

\*\*Includes the following student loans only:  
subsidized Stafford, Perkins, and institutional loans

Source: Vermont Student Assistance Corporation

Vermont Workforce Education and Training Consortium, and the Human Resources Investment Council. Space limitations in this report preclude describing the large number of additional partnership efforts in workforce education that are ongoing in the state.

There is also a new spirit and reality of collaboration among Vermont's postsecondary institutions that has emerged in the past several years. For example, the Community College of Vermont recently signed articulation agreements with several Vermont private colleges, so students can most easily transfer

credits and courses of study from one school to the next. In the past five years, CCV has become much more of a gateway to college success for students of traditional age, who see the community college as an affordable way to complete their first two years and then move on, says President Tim Donovan. Similar movement is being made easier within the public postsecondary system, he adds.

"I think that's an enormous part of all this: we're removing the barriers to people taking full advantage of the entire higher education system, just within the state," Donovan observes. "I think that transforms the landscape into one that's much more collaborative."

Meanwhile, leaders of Vermont higher education institutions are thinking in broad ways about how to meet the demanding and exciting challenges posed by a fast-changing world and an emerging, knowledge-based economy.

At UVM, for example, "We understand and intend to pursue, with a level of savvy and intensity that they haven't seen before, the university's role in partnering with business and industry in the creation of jobs and prosperity," President Fogel recently told *Vermont Business* magazine. Broadly speaking, he said he hopes "to position the university within the state to play a much fuller role, and to be recognized for playing that role, as a partner in problem-solving in the state, and in the creation of not only social well-being but prosperity."

But meeting complex challenges requires new investments, in faculty, equipment, programs, and facilities. And those are only some of the budget pressures that colleges and universities face as they try to become 21st century institutions while also restraining tuition increases, and becoming more affordable to an ever-widening range of students.

"The challenge is cost — the high cost of a quality education," says Chris Robbins, the president of E.H.V. Weidmann Industries of St. Johnsbury, who is also Board chair of the Vermont Student Assistance

## Engineering a New Era

### *UVM Invests in Major Program Expansion*

**A**iming for major growth in a key connector between the university and Vermont's economic growth, UVM is seeking a million dollars per year, over the next five years, in new state funding for its engineering programs.

"We're investing ourselves: We created the budget for two new tenure-track faculty positions, out of internal resources," says Daniel Fogel, UVM's president. Overall, he says, the university aims to add more than 20 "high-powered" faculty positions, to both improve and expand UVM engineering education — "to kick its quality up a couple of notches."

"It matters," adds Frances Carr, university vice president for research and dean of graduate studies, about the planned expansion. "It's central to our academic growth, it's central to UVM's research growth — and it will be integrated into other disciplines, such as the sciences, natural resources, and medicine.

"Because of engineering's focus on applied

research, it should be a centerpiece for synergies across the disciplines," she adds. "In order to support economic vitality in Vermont, we are turning our attention directly to engineering, and to research and graduate education."

To support the expanded faculty creates "a big facilities challenge," Fogel says. To add about 80,000-90,000 square feet of new lab, office, and teaching space, "we're talking about spending something in the area of \$30 million on new facilities."

"The ugly flip side of this is, if you have a weak, poorly supported engineering college in shabby quarters, a lot of your best and brightest kids who want to be engineers are going to go elsewhere — and they're never going to return," the UVM president says. "We're determined to make sure that the opposite will be true in Vermont, and we know we can do so through our own efforts and strong partnerships with business, industry, and the state."

Corporation. "I think that's the biggest issue right now. The quality is there; we have excellent quality."

"In 2004, colleges and universities will experience financial pressures that could reduce a hardened corporate CEO to tears," noted a special report published in December by *The Chronicle of Higher Education*. "Across the country, institutions are struggling to balance their books."

"We're all trying to keep costs down," says Kinvin Wroth, the president of Vermont Law School and chair of the Association of Vermont Independent Colleges' Presidents' Assembly.

"The 'publics' have the Legislature looking over their shoulders, and the 'privates' have donors and trustees and accountants telling us to balance our budgets and spend resources wisely," Wroth observes. "But some of the costs are increasing uncontrollably — for health care, salaries, technology, ADA accommodations, building maintenance and upgrading — while others have to do with maintaining quality, with smaller classes, new technology, student support, and improved faculty salaries."

If higher education is to fulfill its tremendous potential for contributing more and more to Vermont's long-term economic well-being, while also making itself more accessible in terms of tuition costs, then the key challenge is clearly to find more financial support — from sources other than students and their families.

"If education at Vermont institutions is to be accessible for all Vermonters, and for the best and the brightest from other states — who may stay in Vermont as 'value-added' citizens — there has to be a strong and continuing commitment to financial aid," Wroth argues.

"And even with more student aid, the support we need can't all come from the tuition-payers or the taxpayers. We need to look to businesses, and to others in the private sector — not just our own alumni

— to provide support for programs that serve their needs, to provide basic instructional support, to partner in efforts that will draw in new funding, and to assist in obtaining foundation and federal grants."

Nationally, the "sticker price" of tuition at four-year public colleges rose for 2003-04 by 14 percent, the highest rate in three decades. (The state's private colleges have also had to raise tuition, and are also heavily dependent on VSAC grants and loans to students.) In comparison, UVM's tuition and fees rose by just 5.4 percent, while the rate of increase at the traditional four-year Vermont State Colleges was just 5.5 percent.

Yet even though both UVM and the VSC system have kept their rates of tuition increase below the national average for the past several years (see the table on p. 19), their tuitions remain among the nation's highest.

In large part that's because, despite the increased appropriations of the past several years, Vermont remains 49th in the nation in state support for public higher education, measured per capita, and 48th in state support measured per \$1,000 of personal income. And even though VSAC is among the nation's most active and effective providers of student loans and grants, indebtedness among Vermonters receiving VSAC grants (the neediest of Vermont students) who completed four-year degree programs has climbed dramatically — by 91 percent from 1996 to 2003.

VSAC notes that it strives to reduce this burden by providing one of the nation's largest rebate programs. Since 1995, VSAC has used rebates to reduce its customers' debt load by more than \$91 million, and expects to rebate more than \$14 to its customers this year.

Even so, says Robbins, the VSAC chair, "our model used to be high-tuition, high-aid — now we have high tuition and not high-enough aid, though in recent years that has picked up.

"We're going to have to find ways to gain ground."



## THE VERMONT BUSINESS ROUNDTABLE • HIGHER EDUCATION TASK FORCE

# Guiding Principles and Resolutions: The Role of Higher Education in Economic Development

## Preamble

The Vermont Business Roundtable (VBR) is committed to a vision of Vermont as the best place in America to do business, be educated, and live life. The membership recognizes that an important element for achieving this vision is a strong system of education that works in partnership with business and government.

## Resolution

**Whereas** higher education is a growth industry, is currently the third largest industry in Vermont, and contributes to the state's economic base through significant employment, livable wages, tax revenues, and the high volume purchase of goods and services by employees, students, and their families; and,

**Whereas** higher education contributes significantly to Vermont's quality of life as a clean industry that promotes the intellectual, cultural, and social well-being of individuals, communities, and the state, through a wide range of services to local communities, including cultural and athletic events, conference and meeting facilities, and community service and volunteerism; and,

**Whereas** Vermont's future in a knowledge economy depends on its intellectual capital, which has its impact through knowledge generation and transfer resulting from the critical mass of research and development activities, venture capital spin-offs, and synergistic relationships between the academic community and business; and

**Whereas** higher education contributes to Vermont's economic development infrastructure through the development of a skilled, knowledgeable, and productive workforce that is facilitated by workforce education and training programs; and,

**Whereas** that economic development infrastructure is further strengthened through a wide range of support to business and industry, such as technical assistance programs and incubators; and,

**Whereas** the majority of well-paying jobs in the future knowledge-based economy will require postsecondary education; an education that is central to the ongoing prosperity and development of intellectual capital of Vermont;

*Now, therefore*, be it resolved that the Vermont Business Roundtable endorses a vision for higher education that:

- Encourages the growth of our wide diversity of public and private institutions in Vermont, such that they continue to complement each other rather than detract from each other;
- Supports access to education and training opportunities for Vermont high school graduates and returning adult learners;

- Recognizes the vital role that education plays in fostering a healthy economy through various business retention and recruitment strategies;
- Provides access for every Vermont business to Vermont's intellectual community;
- Ensures both state matching funds for critical external funding and access to low-cost capital funds;
- Increases, within five years, Vermont's state ranking in terms of funding for higher education to 40th (top of the bottom quintile);
- Requires that serious consideration be given by the state to conducting a comprehensive economic analysis impact report on higher education;
- Maintains the tax exempt status for both public and private institutions;
- Encourages and supports the development of college and university incubators; and,

- Meets critical state needs through investments in its colleges, universities, and students.

*For its part*, the business community recognizes that it has an obligation to actively work toward fulfillment of this vision, by:

- Actively collaborating with the higher education system to help fulfill the vision for higher education in Vermont, by assisting in defining a systematic list of skill sets required for future competitiveness, identifying adjunct faculty from the ranks of its employees, contributing paid internships and co-ops to students throughout the year, and supporting an improved telecommunications network that includes broadband access throughout Vermont;
- Addressing the long term capital investment needs for facilities and programs by partnering with higher education in the creative identification and solicitation of sources of capital funds for higher education from the full range of potential sources,

such as the federal government, private philanthropists, and corporate foundations; and

- Advocating for the long-term affordability of higher education in Vermont, and its competitiveness in regional and national markets for a shrinking pool of graduating high school seniors, by working with the Vermont higher education community to develop creative overall accountability systems for cost control.

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