Institutional Transformation

Shirley Ann Jackson

*It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.*

*Charles Darwin*

*(1809–1882, British Naturalist)*

There might be several million words in print on the subject of strategic planning. Amazon.com lists 5,857 individual titles. By contrast, when “university” is added to the subject “strategic planning,” a search brings up 25 titles; of those, 13 are out of print. It is unclear whether this indicates insufficient interest in higher education strategic planning or an untapped market. Nonetheless, those who lead the complex institutions of higher education know that, like other entities, universities exist in a climate where change is a constant. Those entities that do not adapt—strategically—likely will not survive.

Despite reading few books on strategic planning, I have now led the process twice—first during the four-plus years I served as Chairman of the U.S. Nuclear Regulatory Commission, and currently as President of Rensselaer Polytechnic Institute.
THE INTERNET AND THE UNIVERSITY

This chapter reviews the process involved in the second instance. I focus here on the two macro-level phases of the process: “planning the work”—how we developed The Rensselaer Plan; and “working the plan”—how we are living The Rensselaer Plan in order to realize it.

Rensselaer Polytechnic Institute

Rensselaer is the nation’s oldest technological university, founded in 1824 by Stephen Van Rensselaer, patron of a vast estate in what is now the New York State Capital Region, in partnership with educational innovator Amos Eaton. Rensselaer is distinguished by its enduring mission to “apply science to the common purposes of life.” Faculty number more than 500 and include a Nobel laureate, National Science Foundation Presidential Faculty Fellows and Faculty Early Career Award winners, and members of the National Academies of Sciences and Engineering and other eminent professional organizations.

Rensselaer has close to 10,000 students on three campuses—the main campus in Troy, New York; Hartford, Connecticut; and a small facility in Northern Virginia, just outside of Washington, D.C., with a focus on the education of working professionals. Nearly half of these students are graduate students, more than 1,100 are international students representing some 80 countries, and a number are enrolled in corporate-based distance education.
The university has an illustrious legacy, having educated scientists, inventors, designers, builders, corporate executives, and entrepreneurs, including the leader of the Apollo space program, the designer of the first microprocessor, the developer of the Internet e-mail protocol, the designer of the Washington, D.C., Metro (subway) system, and a world-renowned genomics researcher, to name a few.

The university also faces many challenges, however. It is small and under-resourced compared to its peer institutions. The pace of growth in research funding, advanced degrees, and endowment has lagged behind other major research universities. And, while Rensselaer has realized extraordinary accomplishments with limited resources, for more than a decade the gap between its aspirations and its means widened. Despite its excellence, the school needed to move to the next level.

When I arrived at Rensselaer in mid-1999 to assume the position of president, I came with a charge from the trustees to lead the 175-year-old Institute into the twenty-first century by piloting it through a transformation that would affect its organizational structure, its perception by others, its wealth and financial health, and, most importantly, the quality and the nature of the activities it pursues to fulfill its mission. In other words, the charge was to lead Rensselaer to a higher level of excellence.

The process started with a clear articulation of an ambitious goal: “To achieve greater prominence in the 21st century as a top-tier, world-class technological research university with global reach and global impact.”
Planning the Work

I was named president of Rensselaer six months before beginning my official duties. During that period, I visited the campus about once a month—getting briefed on issues and meeting with the acting president, the vice presidents, the acting provost, the vice provosts, and the deans, all of whom shared their views on the university’s strengths and weaknesses and the issues and challenges we faced. And I read a great deal of Rensselaer history, both recent and more distant.

As I met with the Rensselaer leadership team, the discussion began to focus on strengthening and leveraging the university’s assets, as well as possible changes to minimize its challenges and to optimize its opportunities. I shared with the leadership team what I thought I had learned and some of my early ideas. For instance, I was interested in the focus on undergraduate education and in the awards the Institute had won earlier in the decade, but I wanted to know, what is “the new news?” Also, I learned that some of the university’s five schools—architecture, engineering, science, humanities and social sciences, and management and technology—had developed separate strategic plans.

As I learned more about Rensselaer, I came to feel very strongly that there needed to be “one Rensselaer,” with an university-wide, overall, integrated strategic plan. It came to be named The Rensselaer Plan, from “The Rensselaerean Plan”—a concept developed by Eaton for hands-on education through
the discovery and communication of new scientific knowledge. The Rensselaer Plan, which directly involved students in laboratory demonstrations and lectures, revolutionized scientific education in its time, and the impact of it is still felt today. I thought *The Rensselaer Plan* sent a message of continuity to the entire Rensselaer community, including the alumni.

Shortly after I assumed the presidency, the leadership team held a retreat where we discussed the importance of an integrated plan. We reviewed process, boundaries, timelines, and an initiating document that would begin the process. The boundary conditions defined for each area in the initiating document were designed to raise the level of aspiration to one of excellence for the university as a whole.

In the fall of 1999 I set forth my vision for Rensselaer along with several “markers,” which would not change. Those markers were (1) to significantly increase research, with a specific focus on biotechnology and information technology; (2) to make excellence “the mantra and the metric”; and (3) to focus on the fact that the entire Rensselaer community mattered—the university as a whole.

- students—the university’s raison d’être,
- faculty—the intellectual core of the academic enterprise,
- staff—the great enablers, and
- alumni—the Rensselaer heritage and presence in the larger society.
In the address, I also posited five key “directive questions,” which Rensselaer had to address as a community:

1. What defines the intellectual core in key disciplines at Rensselaer? Is it important, and why?
2. In these disciplines, are we in a leadership position? Do we set the standard and the agenda? That is, do we have great impact nationally and globally?
3. If we are not in a leadership position, do we have the underlying strengths and capabilities necessary to move rapidly into a position of primacy given the proper focus and investment?
4. Are there areas that are so vital that we must create a presence in them (if we do not already have one) in order to stand in the community of world-class universities?
5. What areas of current endeavor must we be willing to transform—or to give up—in order to focus our resources and energies and create the impact we envision?

The questions would lead us to the difficult decisions required by a fundamental commitment to our highest ideals. They became the core of an elaborate strategic planning process involving all the constituencies to create an ambitious, integrated plan for the whole university, which was launched at a Town Meeting in early October.

We folded those five questions into the initiating document,
which defined and articulated the expectations in what was to be an exact and exacting process. The Rensselaer Plan would address fundamentals and serve as the basis for future, more detailed performance and operating plans. The initiating document laid out four core enterprises:

- Resident undergraduate education
- Research and resident graduate education
- Education for working professionals
- Scientific and technological innovation (through entrepreneurship and technology commercialization)

What really shaped the planning enterprise, however, was a three-dimensional concept—planning in three directions simultaneously:

- Across the Institute, or horizontally
- From the top down, or vertically
- From an outside, independent perspective, or orthogonally

First, we established the Rensselaer Assessment Leadership Committee (RealCom), consisting of approximately 15 people but weighted to faculty. RealCom conducted more than 20 public workshops to which the entire community was invited, focusing on each school and each division—that is, each portfolio. (See the sidebar “Portfolios.”) The task in each public workshop was to discuss and assess a particular portfolio using
Rensselaer Portfolios in 2002

Schools

- School of Architecture
- School of Engineering
- School of Humanities and Social Sciences
- Lally School of Management and Technology
- School of Science

Academic Functions

- Undergraduate Education
- Graduate Education
- Rensselaer at Hartford
- Enrollment Management
- Institute Diversity

Administrative Divisions

- Chief Information Officer
- Research (including interdisciplinary center/activities)
- Student Life
- Administration
- Advancement
- Finance
- Government and Community Relations
- Human Resources
- Intellectual Property, Technology Commercialization, and New Ventures
- Rensselaer Technology Park and Commercial Real Estate
the five directive questions, distilling out the issues and the opportunities in each. The portfolio owner could not lead the discussion; rather, it was led by RealCom. This was the horizontal aspect of the process.

Next, the deans and vice presidents did drill-down assessments of their schools or divisions, reporting out strengths, weaknesses, opportunities, and their vision of what they thought should happen. They used the five directive questions to structure their assessments. This was the vertical aspect of the process.

The orthogonal aspect of the plan was led by outside advisers—in this case, the Washington Advisory Group and an administrative executive from the Massachusetts Institute of Technology. They were asked to evaluate the Rensselaer strengths and weaknesses in relation to similar universities, focusing on the Rensselaer competencies and structure. Their work was submitted directly to me as president and shared as appropriate, in some cases with individuals and in most cases with a wider audience.

A great deal of material was produced over the next two months while the three-dimensional assessments continued. The cabinet and the Board of Trustees then assumed dual “wraparound” roles.

The cabinet was divided into two groups, the writers and the readers. The writers were the provost and the vice president for student life. It was their job to write a draft plan drawn from the three-dimensional inputs and insights from the cabi-
net as a whole. The provost also chaired RealCom. The rest of the cabinet became the readers. It was their job to read and review, and to enable the program elements that needed to go into the plan. The markers I had established—including the focus on research, especially biotechnology—remained. As this material came in, we distilled key themes and gave it to the writers. The writers drafted a plan and gave it to the readers. There ensued a series of lengthy cabinet meetings to evaluate and discuss the draft and its implications.

During the fall and early winter, the Board of Trustees Executive Committee met every month, usually by telephone. During these meetings, standard business could be gotten out of the way so that regular board meetings could focus on the unfolding planning process, key themes, and emerging issues.

The first draft, crafted to be provocative, was complete by late 1999. It was made available for comment on the university's internal Web site, accessed through a special password, and also mailed out for individual comment to students, faculty, staff, alumni, corporate partners, local politicians, and the trustees. We included “binning” questions we asked everyone to address and invited whatever other comments people wished to make. As comments came in, RealCom analyzed the feedback, vetting recommendations for altering the first draft. Another series of intense cabinet sessions followed. A final draft of the plan resulted from this process.

A second review ensued—this time parallel, structured reviews by representative bodies. The first arm of the second
review consisted of representatives of university constituencies: the Faculty Senate, Student Senate, Rensselaer Alumni Association Board of Directors (25 members), key executives (corporate leadership advisers), several local elected officials, and Pillars of Rensselaer, a group of staff recognized and nominated by their peers for a special “Pillars” award given to one person once a year. Although we sought reaction to the second draft plan, all understood that the focus on strengthening research and biotechnology and, by then, information technology, would not change.

The second arm of the second review, or wraparound, was conducted by the Board of Trustees, which reviewed this final draft at a retreat in early 2000. The trustees discussed what we had found, where we were going, and the overarching context of research at the university within the greater context of a global environment. We discussed why change was necessary and the nature of a research university, tying the conversation into the trustees’ own assessments. A former MIT president facilitated, explaining how the research-teaching relationship need not be an oxymoron. By the end of the retreat, the trustees were ready to approve the final draft plan. I suggested they allow the process to finish, but took the sense of the board’s discussion back to inform the process. Following the completion of the structured reviews, we made some modifications in detail—but not in concept—and the final plan was sent to the Board of Trustees in April 2000. In May 2000, the board unanimously approved The Rensselaer Plan.
The Rensselaer Plan

The Rensselaer Plan articulates a strategic vision and delineates the means to achieve it. It is an “evergreen” plan, designed to be refreshed on a regular basis. Its overarching goals are

- Achieving greater prominence to become a top-tier, world-class university
- Becoming a true technological research university
- Establishing global reach and global impact

The plan sets out three markers to guide activities: excellence, leadership, and community.

Institute-wide goals include enhancing education, expanding research, increasing scientific and technological entrepreneurship, achieving diversity, enhancing the vitality of the Rensselaer communities, and redesigning and reinvigorating enabling activities. The plan delineates the university’s core enterprises as resident undergraduate education, research and graduate education, education for working professionals, and scientific and technological entrepreneurship.

To drive commitments, the plan posits resource reallocation from discontinued programs and services; redirection and reallocation of personnel and facilities; the use of discretionary funds, incentive funds, and new resources including general funds, grants and contracts; and a capital campaign.

For a snapshot of the timetable followed in developing and carrying out The Rensselaer Plan, see the sidebar.
The Rensselaer Plan Timetable

July 1999
Leadership retreat is held with vice presidents, provost, vice provost, and deans.

September 24, 1999
President Jackson’s Inaugural Address establishes markers.

October 5–7, 1999
RealCom formed and organized. Initiating document issued to guide the planning process.

October 11–29, 1999
RealCom hosts town meetings and workshops addressing the five directive questions for each portfolio.

October 11–29, 1999
Deans, vice presidents, and provost assemble performance data as requested by the Washington Advisory Group and other consultants. The Washington Advisory Group provides external assessments and benchmarks for academic and research activities. Other consultants provide assessments and benchmarks for administrative activities.

October 16, 1999
President begins strategic discussions with the Board of Trustees, which continue throughout the planning process, and lead
The Rensselaer Plan Timetable (continued)

to final discussion and approval of *The Rensselaer Plan* in May 2000.

**October 11–November 15, 1999**
Deans, vice presidents, and provost conduct portfolio assessments with staff and constituents, assembling information for use by the cabinet in preparing the draft plan.

**November 1–30, 1999**
RealCom distills input from town meetings and workshops into summary papers for portfolio areas.

**November 15–December 15, 1999**
Cabinet produces draft plan using markers and boundary conditions, portfolio assessments, RealCom summary papers, and information provided by the Washington Advisory Group and other consultants.

**December 15, 1999–January 31, 2000**
Draft plan put on the Institute intranet and mailed out to constituencies for comment.

**January 15–February 15, 2000**
Cabinet revises and develops final draft plan.
The Rensselaer Plan Timetable (continued)

February 15–March 15, 2000
Final draft plan is vetted by key leadership groups: deans, faculty leadership, student leadership, Pillars of Rensselaer (staff representatives), Rensselaer Alumni Association leadership, key executives, and others.

March 1–31, 2000
Cabinet writes and approves The Rensselaer Plan.

April 1–10, 2000
President reviews and approves The Rensselaer Plan.

April 15, 2000
The Rensselaer Plan is sent to the Board of Trustees.

May 12, 2000
Board of Trustees approves The Rensselaer Plan.

June 2000 and Beyond
Performance plans are developed in each portfolio, then prioritized. The Rensselaer Plan and the performance plans (prioritized and resource loaded) become the basis for budget formulation and execution.
Working the Plan

*The Rensselaer Plan* contains 147 “we will” statements—promissory notes on a blueprint for the future. But it is one thing to make a plan and another to “work” it. To work the plan we require each university portfolio to develop an annual performance plan, following detailed guidelines provided to each portfolio owner.

In advance of performance planning each year, a retreat and workshop of the Rensselaer leadership (deans and vice presidents, the portfolio “owners”) identifies university-wide highest priority initiatives. In its planning, each portfolio addresses these priorities as they affect, or are affected by, the portfolio. Each year, through its own consultative process, each portfolio also identifies its own priorities and ranks them. The resulting performance plans define the means by which academic and administrative units achieve *The Rensselaer Plan*. They are three-year, forward-looking plans, resource-loaded on a year-to-year basis dependent on the ranking of activities and prior-year accomplishments against the plan.

Performance planning identifies priorities, lays out clear milestones, and forms the basis of resource allocation through prioritization, restructuring, reordering, and realignment. Performance planning also identifies the metrics for measuring progress toward achieving goals.

Taken together, performance plans comprise a complete road map of activities and commitments for the year to come.
Resources are allocated based on assessment by the president and the cabinet of how well the plans contribute to the realization of The Rensselaer Plan: its overarching goal, institute-wide goals, and portfolio-specific strategic goals. This ongoing process is repeated each year, with plans and goals revisited, revised, and updated accordingly.

The Story So Far

How is The Rensselaer Plan playing out? What has been achieved? The story is still unfolding, but there is clear progress.

Less than a year after adoption, The Rensselaer Plan drew an unrestricted gift commitment of $360 million from an anonymous donor. That in and of itself constituted a powerful endorsement of the transformational goals embedded in the plan. It also enabled the university to leverage the resources needed to begin construction projects totaling $255 million, including the design and construction of two transformational platforms. The Biotechnology and Interdisciplinary Studies Center will rank among the world’s most advanced research facilities, housing constellations of world-class faculty in biotechnology and related research. The design of the Experimental Media and Performing Arts Center (EMPAC), which will enrich the intellectual and cultural life of the campus, is also under way. Rensselaer broke ground in spring 2002 on the biotechnology center and broke ground for EMPAC in summer 2003.
Leadership

When I arrived at Rensselaer, several important positions were vacant, and other vacancies occurred within the first few months. I established and filled several new vice presidential level offices, including research and human resources.

Between mid-1999 and mid-2002, I assembled a new senior leadership team including the provost, secretary, and general counsel to the university; chief information officer; chief of staff and associate vice president for policy and planning; vice president and dean for Rensselaer at Hartford; vice presidents for research (a new position), advancement, administration, student life, and human resources (a new position); deans for engineering, science, management and technology, humanities and social sciences, graduate education, and enrollment management; as well as an athletics director and a director for EMPAC. The vice presidents for finance and government relations remained filled by those who held these positions previously.

Research

anchored by focused investments in biotechnology and information technology, research funding (and recognition) at Rensselaer is rising, although we have set our sights on more than doubling the annual level to $100 million. The vice president for research provides leadership in this arena. As the plan unfolds, accomplishment in one area generates comparable achievement in another.
The prospect of a state-of-the-art biotechnology research facility has spurred funding to provide comparable education within the new platform. The Howard Hughes Medical Institute has provided substantial funding to improve undergraduate science education through the development of new biotechnology-related courses and student and faculty exchanges with other universities.

Other accomplishments of note include the following:

- In 2001, Rensselaer was one of six U.S. universities to receive a $10 million award and designation as a National Science Foundation Nanoscale Science and Engineering Center, which is located within the Rensselaer Nanotechnology Center.
- As reported in the national press, Rensselaer researchers are developing novel nanoscale fabrication methods involving carbon nanotubes, which will facilitate next-generation computer chips, integrated circuits, and the microelectromechanical (MEMS) devices that will power them.
- A new Center for Terahertz Research has been established in recognition of the university’s role as a leader in the development and application of terahertz technology. The center will house the new $1 million W. M. Keck Laboratory for Terahertz Science.
- The U.S. Department of Energy has granted Rensselaer $2.5 million to advance fundamental research on terascale simulation.
In partnership with IBM, Rensselaer has established a $33 million Broadband Research Center to create an information technology infrastructure that can handle any level of Internet traffic, data storage, and new scientific challenges that require immense computing power, such as bioinformatics.

Major new funding from the State of New York is supporting fuel cell research and research into a new microelectronics insulating material.

Rensselaer has been awarded more than $9 million and designation as a Center for Advanced Interconnect Systems Technologies (CAIST) by the Semiconductor Research Corporation (SRC).

The State of New York is providing $22.5 million to equip the new Biotechnology and Interdisciplinary Studies Center.

Faculty

Significant progress has been made in attracting and retaining a world-class faculty of teachers and researchers from diverse backgrounds, forming the foundation of the Rensselaer enterprise. During the three-year period that includes the 2004 fiscal year, Rensselaer will have added 105 new tenure and tenure-track faculty members—50 in newly created positions. Among these are the first “constellations” of senior faculty in biotechnology and information technology. (A constellation is a multidisciplinary team of world-class senior faculty, rising star junior faculty, post-docs, graduate students, and undergradu-
ates in a particular research field of strategic and focal interest to the university.)

Over the past three years, 17 Rensselaer faculty members have received the prestigious Faculty Early Career Award from the National Science Foundation.

Undergraduate Experience

The new Office of the First Year Experience, led by a new dean, offers a comprehensive array of programs and initiatives for both students and their primary support persons, beginning before students arrive on campus and continuing well beyond their first year. “First year” refers to transfer and graduate students as well as to freshmen.

We elevated undergraduate admission standards and have seen selectivity and yield improvements, especially with respect to the strongest students. We have increased geographic, intellectual, gender, and ethnic/cultural diversity of incoming classes, as well. Sixty-five percent of the members of the Class of 2006 were in the top 10 percent of their high school classes. The average SAT score for the Class of 2006 is 1310, continuing a five-year trend that has seen this metric increase by 44 points. Among undergraduates, 24 percent are women and 9 percent are underrepresented minority students. In 2002, more than 20 percent of our graduates went on to seek advanced degrees. For those who entered the workforce, average starting salaries ranged from $51,735 for those with bachelor’s degrees to $70,854 for those with master’s degrees (not including MBAs).
A new freshman residence hall, a new student fitness center, and the renovation of the student union are complete, as are several major deferred maintenance projects, including a renovation of two residence halls and microbiology laboratory, new earthquake simulator, and extension of campus gigabit backbone. More than 60 classrooms have been converted for laptop computers and have extended connectivity for mobile computing across the campus. A new upperclass residence hall is due to open in fall 2004; construction has begun on a new graduate residence for single, first-year graduate students; and we are planning a new athletics administration and training facility.

Expanding the Resource Base

Fund raising nearly doubled between 1999 and 2002. Rensselaer went from $30 million annually prior to 1999 to $60 million annually today. Total giving is at its highest level in the university’s history. In 2001 Rensselaer jumped to 48th position (from 61st) in the percent of alumni giving, according to the U.S. News & World Report ranking. Rensselaer has received private support for two faculty constellations, in information technology and in biotechnology. In addition, we are in the nucleus phase of a capital campaign.

Administrative Policies

Rensselaer leadership initiated a new performance/activity-based budget process and crafted a new intellectual property
policy. Additionally, elevating human resources to a vice presidential–level division has enabled examination and redefinition of several policy systems, including development of new hiring protocols, a total compensation system, performance management tools, and career ladders for staff. A rebaselining of salaries and redefinition of positions prompted salary adjustments for environmental, administrative, and clerical staff. A similar review of faculty compensation is underway.

Community Initiatives

The university is actively engaged in a variety of projects to improve and enhance the immediate neighborhood surrounding its campus, as well as the city of Troy and the Capital Region of New York State. We initiated a home ownership incentive program encouraging faculty and staff to purchase and restore homes in a neighborhood in need of revitalization, and students and faculty are involved in streetscape improvement projects. We relocated certain academic and administrative activities to downtown Troy to assist with economic redevelopment. We continue to support the Rensselaer Technology Park and business incubator program to help revitalize technological entrepreneurship and business in the region, and a fiberoptic backbone now extends into downtown Troy. The Institute regularly holds “communiversity” events in Troy, bringing students and residents together for joint events. Last, but not least, Rensselaer students are involved in a multitude of community service projects.
Other Measures

Universities sometimes believe they live and die by rankings, especially those issued by *U.S. News & World Report*—although many would deny this. Overall, we are pleased with our results, but we are impatient because the rankings are based on old data, and our data change rapidly.

The 2002 *U.S. News & World Report* rankings once again placed Rensselaer among the nation’s top 50 universities, where we have been for some time. The undergraduate engineering program was ranked 15th in the nation, a jump from 17th in 2001. In the “great school at a great price” category, Rensselaer is 34th, up from 42nd last year. Our Lally School of Management and Technology rose in the rankings from 49th to 47th.

Total giving is at the highest level in our history. The *U.S. News & World Report* 2002 rankings for alumni giving showed that Rensselaer jumped from 61st to 51st position between 2000 and 2002.

How Have We Done This?

Rensselaer accomplished these results through careful, assiduous planning, remaining true to our strategic goals. The continued and resolute support of the Board of Trustees has been crucial, as has been winning the hearts and minds of influential faculty, given that there are always those who resist
change. A dedicated and focused cabinet and deans’ council are also essential. Finally, the true secret to success is creating belief by getting things done.

The transformation process continues to unfold. All of our goals are not yet fully achieved. The university community is still learning to “work the plan,” and the end of the story is yet to be written. Many challenges lie before us, including, for example,

- Establishing assiduous metrics to fully measure achievement and assess outcomes on a diligent timetable.
- Making provision for altering the detailed performance plans developed by divisions, departments, and schools to reflect changing realities after budget allocations have been made.
- Similarly, extending the performance plan concept to the individual level so that faculty and staff would write individual annual plans and be evaluated on their achievement.

An evaluative process is important to measuring outcomes, but it cannot become cumbersome, thereby stifling the natural excitement and enthusiasm implicit in contributing to the attainment of a larger goal.

Change is discernable at Rensselaer, as is palpable excitement and renewed enthusiasm and energy. I believe we have in place a plan that will enable Rensselaer Polytechnic Institute
to realize its goals and move to the next level as it succeeds in its mission.

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