

**REPORT OF THE
SECRETARY OF TECHNOLOGY,
CENTER FOR INNOVATIVE TECHNOLOGY, AND THE
VIRGINIA RESEARCH AND TECHNOLOGY ADVISORY COMMISSION**

Accelerating the Commercialization of Virginia University Research Results Through Improved Management of Intellectual Property

**TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA**



HOUSE DOCUMENT NO. 25

**COMMONWEALTH OF VIRGINIA
RICHMOND
2003**



Virginia Research & Technology Advisory Commission
Commonwealth of Virginia

John B. Noftsinger, Jr.
Co-Chair

December 27, 2002

John B. Noftsinger, Jr.
Co-Chair

Members

Robert L. Ash
Del. Jeannemarie A. Devolites
James H. Dixon
Delma C. Freeman
Catherine H. Giordano
R. Ariel Gomez
Stephen D. Halliday
Christopher T. Hill
Rodney P. Hunt
Gary A. Kreps
Christoph W. Leemann
Richard J. Martin
Del. Joe T. May
N. Miller
S. Murphy
Sec. George C. Newstrom
Thomas C. Pendergraft
Leonard K. Peters
Linda F. Powers
Sec. Michael J. Schewel
Robert J. Stolle
Del. Walter A. Stosch
Ping Tcheng
Marsha R. Torr
Sec. Belle S. Wheelan

The Honorable Mark R. Warner
Governor
Commonwealth of Virginia
State Capitol, 3rd Floor
Richmond, VA 23219

Dear Governor Warner:

The Virginia Research and Technology Advisory Commission (VRTAC) herewith submits its final Intellectual Property Report in accordance with the HB 530 and HJ 88 enacted by the 2002 Virginia General Assembly.

The HB 530 directed VRTAC and the research universities to develop and adopt a statewide policy and uniform standards for the commercialization of university intellectual property, and HJ 88 directed the Secretary of Technology, Virginia's Center for Innovative Technology to recommend incentives for the commercialization of university R&D in conjunction with the VRTAC.

This report was prepared under the guidance of the two Co-Chairs of the Intellectual Property Subcommittee of VRTAC and they are: (1) Mr. Robert J. Stolle, Executive Director, Greater Richmond Technology Council, and (2) Dr. Christopher T. Hill, Vice Provost for Research, George Mason University.

The report includes seven recommendations, four of which call for legislative actions. These four recommendations (# 1, 5, 6, and 7) are currently being reviewed for legislative actions under the able leadership of Delegate Jeannemarie Devolites. The remaining three recommendations (# 2, 3 and 4) call for actions by the presidents of research universities.

Executive Director
K. C. Das

On behalf of VRTAC we request that you encourage the presidents to implement these recommendations in a timely fashion. Your support for these recommendations would strengthen the IP structure and policy process. We also believe that the support for these recommendations from the business community would be both broad and deep.

Respectfully,



John C. Backus
Co-Chair



John B. Noftsinger, Jr.
Co-Chair

cc: The Honorable Jeannemarie Devolites
The Honorable Belle S. Wheelen
The Honorable Michael Schewel
The Honorable George C. Newstrom
Dr. Carl N. Kelly, Chairman, SCHEV



Virginia Research & Technology Advisory Commission



Report of the Intellectual Property Committee

ACCELERATING THE COMMERCIALIZATION OF
VIRGINIA UNIVERSITY RESEARCH RESULTS
THROUGH IMPROVED MANAGEMENT OF
INTELLECTUAL PROPERTY

December 2002

VRTAC Co-Chairs

John Backus, Managing Partner
Draper Atlantic Venture Fund

John Noftsinger, Jr., Associate Vice President for Research
James Madison University

Intellectual Property Committee Co-Chairs

Christopher Hill, Vice Provost for Research
George Mason University

Robert J. Stolle, Executive Director
Greater Richmond Technology Council

VRTAC COMMISSION

Robert Ash, Vice President for Research
Old Dominion University

John C. Backus, VRTAC Co-Chair
Managing Partner
Draper Atlantic Venture Fund

The Honorable Jeannemarie A. Devolites
Member, Virginia House of Delegates

James H. Dixon, Chief Information Officer
DDL Omni Engineering

Delma C. Freeman, Acting Director
NASA Langley Research Center

Catherine H. Giordano, President and CEO
Knowledge Information Solutions, Inc.

R. Ariel Gomez, Vice President for Research & Graduate Studies
University of Virginia

Stephen D. Halliday, Director of Corporate Acquisition &
Strategy
Kaufman and Canoles Consulting LLC

Christopher T. Hill, Vice Provost for Research
George Mason University

Rodney P. Hunt, President and CEO
RS Information Systems, Inc.

J. Douglas Koelemay, Executive Vice President & CPO
Williams Mullen

Gary A. Kreps, Vice Provost
The College of William & Mary

Christoph W. Leemann, Lab Director
Jefferson Lab/CEBAF

Richard J. Martin, President
Noesis, Inc.

The Honorable Joe T. May
Member, Virginia House of Delegates

Harris N. Miller, President
Information Technology Association of America

Kent A. Murphy, President & CEO
Luna Innovations

The Honorable George C. Newstrom
Secretary of Technology
Commonwealth of Virginia

John B. Noftsinger, Jr., VRTAC Co-Chair
Associate Vice President for Research
James Madison University

Thomas C. Pendergraft, Executive Director
Department of the Navy Naval Surface Warfare Center

Leonard K. Peters, Vice Provost for Research
Virginia Tech

Linda F. Powers, Managing Director
Toucan Capital Corporation

The Honorable Michael J. Schewel
Secretary of Commerce and Trade
Commonwealth of Virginia

Robert J. Stolle, Executive Director
Greater Richmond Technology Council

The Honorable Walter A. Stosch
Member, Virginia Senate

Ping Tcheng
VISINET, Inc.

Marsha R. Torr, Vice President for Research
Virginia Commonwealth University

The Honorable Belle S. Wheelan
Secretary of Education
Commonwealth of Virginia

TECHNOLOGY SECRETARIAT

Eugene Huang, Deputy Secretary of Technology
Commonwealth of Virginia

STAFF

K.C. Das, Executive Director
Virginia Research and Technology Advisory Commission

INTRA & INTERAGENCY SUPPORT

Judith Heiman, CTRF Coordinator
Department of Planning and Budget

Richard B. Campbell, Counsel
Deputy Attorney General
Office of the Attorney General

Leonard A. Ferrari, Vice Provost for Special Initiatives
Virginia Tech

Peter Jobse, Executive Vice President & COO
Virginia's Center for Innovative Technology

Nancy Vorona, Vice President Research Investment
Virginia's Center for Innovative Technology

PREFACE

This study of ways to accelerate the commercialization of intellectual property from Virginia universities has been carried out by the Intellectual Property Committee of the Virginia Research and Technology Advisory Commission (VRTAC). The study was carried out in response to two actions taken in early 2002 by the Virginia General Assembly: HB 530, which directed VRTAC and the research universities to develop and adopt statewide policy and uniform standard for the commercialization of university intellectual property, and HJ 88, which directed the Secretary of Technology, the Center for Innovative Technology and VRTAC to recommend incentives for the commercialization of university research and development (R&D).

The study was carried out by two committees of VRTAC in sequence. The first committee was chaired by Dr. Brandon Price. It met in the summer of 2002 to gather data and perspectives on the challenges to more effective commercialization of intellectual property. This committee was superseded by the present committee, a change that was occasioned by a reorganization of VRTAC pursuant to a modification of its authorizing legislation, also in early 2002, and by a change in the leadership and some of the membership of VRTAC. The current committee wishes to thank Dr. Price and his committee for their work on this project.

The committee has been ably supported by staff of Virginia's Center for Innovative Technology and especially by Ms. Linda H. Green of the CIT office in Danville, VA. The earlier part of the study was also assisted by Dr. Maxine Lunn, formerly of CIT.

The members of the VRTAC Intellectual Property Committee are:

Christopher T. Hill, Co-chair, Vice Provost for Research, GMU

Robert J. Stolle, Co-Chair, Executive Director, Greater Richmond Technology Council

Clifford E. Greenblatt, Veridian Corporation

David J. Hudson, Research and Public Service, UVA

Hon. Jeannemarie Devolites, VA House of Delegates

Delma Freeman, Acting Director, NASA Langley

Kent Murphy, President and CEO, Luna Innovations

Hon. Walter A. Stosch, VA Senate

CONTENTS

VRTAC Commission Membership	ii
Preface	iii
Contents	iv
Executive Summary	v
Report	
Background	1
Approach	2
Recommendations	3
Appendix A HB 530	10
Appendix B HJ 88	11

Accelerating the Commercialization of Virginia University Research Results Through Improved Management of Intellectual Property

EXECUTIVE SUMMARY

The Intellectual Property Committee of the Virginia Research and Technology Advisory Commission (VRTAC) reviewed the present intellectual property (IP) framework in the Commonwealth, and evaluated its propensity to create economic opportunity within the existing structure. Benchmarks of other universities and states were analyzed along with their incentives and ability to provide a return on taxpayer investment. The resulting report provides suggested policies and procedures that will improve the existing IP structure, lead to an increase in private sector investment in R&D performed in Virginia's universities, and enhance the environment and opportunities for creating innovative start-up companies driving new economic growth in the Commonwealth.

This report is in response to two pieces of legislation addressed by the Virginia Research and Technology Advisory Commission's Intellectual Property Committee. The Honorable Jeannemarie Devolites, Member of Virginia's House of Delegates, patroned HB530, which directed the development of a statewide policy and uniform standard for the commercialization of intellectual property developed through university research. Delegate Devolites also patroned HJ88, which requested recommendations for incentives necessary to encourage the commercialization of university research and development.

The committee considered and debated a broad range of IP issues and ultimately developed a series of recommendations that could be addressed without immediate budgetary considerations, due to the difficult economy. These recommendations represent the second phase of an evolutionary process for improving management of Virginia's IP resources, building upon the VRTAC IP Committee's efforts in the November 2000 report. The first recommendation explicitly stresses a commitment to continue to address strategies for enhanced IP; it is anticipated that VRTAC will continue to actively pursue evolutionary refinements to Virginia's intellectual property policies. Current recommendations include:

- (1) Develop and implement a statewide strategic plan for research and development in the Commonwealth
- (2) Facilitate conflict of interest waivers for research and technology commercialization
- (3) Make success in technology commercialization a consideration in faculty promotion and tenure decisions
- (4) Virginia's research universities must agree on, adopt, and promulgate a uniform statement of policy regarding technology transfer to industry
- (5) Authorize university boards of visitors to assign title to university-owned inventions
- (6) Establish a uniform, web-based protocol for initiating industry-supported research projects and technology transfer agreements with Virginia's universities
- (7) Create a university technology commercialization support fund

Accelerating the Commercialization of Virginia University Research Results Through Improved Management of Intellectual Property

BACKGROUND

Industry increasingly depends on university-based research for new ideas that can be the basis for new and improved products and processes produced in existing firms, as well as for entirely new products and concepts that can be the foundation for new firms and industries. Traditionally, these new ideas reach industry through publications and presentations by faculty and student researchers as well as by being carried into the industrial world by recent graduates employed in industry. However, spurred by the Bayh-Dole Act of 1980 and by extraordinary successes in technology transfer from universities to industry in the past two decades, university-based inventors now turn to formal patent protection to ensure that their ideas can be effectively and profitably transformed by industry into profitable products and processes.

Thus, it is important to the growth of technology-based industry in Virginia that the Commonwealth's universities conduct research of potential or acknowledged interest to industry, that they pursue patent protection on inventions made by their faculty and students, and that they have a well-functioning system for making those patents available for use by industry under licenses to existing firms or through active participation in building new firms around those patents.

The research universities in the Commonwealth have created policies, procedures and organizational units in an effort to ensure that faculty inventions are disclosed and patent protection is considered and obtained as appropriate. Each institution has an intellectual property policy that describes the rights and obligations of university inventors. Most of the universities with significant research activity have created associated private, non-profit intellectual property foundations that are able to conduct business-like relationships with business and industry for technology commercialization.

On a number of national comparative performance measures, such as numbers of invention disclosures, numbers of patents obtained, and numbers of license agreements and start-ups created, the more senior institutions are performing well in this regard, and the other research institutions are moving up rapidly. For example, in comparison with the University of Maryland at College Park and with North Carolina State University, the University of Virginia, Virginia Tech and Virginia Commonwealth University all score significantly higher on invention disclosures per dollar of research expenditure and on patent applications per dollar of research. Similarly, UVA and VT score higher than UMD and NCS on numbers of licenses and options per invention disclosure and on number of new company start-ups per dollar of research expenditure. (AUTM 2000 Survey of Technology Transfer)

On the other hand, there is a widespread belief that Virginia's universities could provide substantially greater impetus to economic development and growth in the Commonwealth by growing and strengthening their research programs, by better focusing their research in fields with potential industrial application, and by accelerating the commercialization of the results of the research that they perform.

This belief is strengthened by the complexity of the system of research universities in Virginia. For a state of its size and wealth, Virginia has a relative large number of public universities that are active in research, along with several private institutions that have research efforts. However, none of the Virginia universities has risen into the upper echelons of research performing institutions in the United States, and none of the private institutions are anywhere close to the higher levels in their sector. This is not to take away from the superb reputation for excellence in education of Virginia's higher education system, nor is it to deny that several of the universities have very strong, nationally ranked programs in specific areas. However, the aggregate of all the research spending in Virginia's universities is somewhat less than the amount spent at the top university in the country, and the university ranked twentieth alone represents two-thirds of the total Virginia research budget. Since no one of the institutions dominates or is especially large, and since each institution operates as an independent agency of the Commonwealth with its own statements of policy and procedures, its own organizational structure, and relatively limited state-wide oversight and strategic direction, it is very difficult for industry to access the research capabilities and results that do exist.

One of the several keys to enhancing the contributions of research universities to economic growth in Virginia is to accelerate and facilitate the commercialization of new technologies arising from them through new firm start-up and licensing to existing firms in the Commonwealth. This study focuses on this opportunity. It should be noted, however, that the committee took note of a number of other steps that could be taken to build the overall capability of the universities to invent, which would complement any improvements in technology commercialization effectiveness. Thus, our study is only a step toward better utilization of universities in Virginia for economic ends.

APPROACH

The VRTAC Intellectual Property Committee met four times over the summer and fall of 2002, reviewed several previous studies of technology transfer and commercialization in Virginia, heard from several interested parties from industry and universities, and considered the practices of institutions in several other states.

This report is intended to reflect the general, consensus views expressed in the Committee's meetings and in presentations of its work to the full VRTAC. Not every Committee member necessarily agrees with every recommendation or every statement in the report. In addition, the Committee realizes that not every avenue for improvement has been identified or thoroughly explored, and it looks forward to continued examination of how to improve technology transfer and commercialization from Virginia's universities.

RECOMMENDATIONS

We have chosen to focus on recommendations for actions that can be taken without requiring any significant additional expenditures of funds by the Commonwealth. We have done so in recognition of the current difficult budget situation. Only the seventh and final recommendation calls for any new funds to be spent, and even that recommendation is, we think, modest. The budget limitation excluded from consideration such incentive programs as new appropriations for the Commonwealth Technology Research Fund, a new business tax credit for increased research and development expenditures, tax incentives for business funding of research in universities, financing of early stage venture funds for small business start-ups, increased financial support of research and graduate education in key fields in the Commonwealth's universities, or increased general support for university operations that would enable reductions in teaching loads to facilitate greater faculty engagement in research and outreach to industry. Each of these measures has been suggested to the committee as potentially useful incentives to enhanced technology commercialization, and each deserves further consideration when the Commonwealth's financial situation is more favorable.

Realization of some of the recommendations would require action by the General Assembly, and we have noted those cases clearly in the text.

The Intellectual Property Committee offers the following recommendations.

RECOMMENDATION #1: DEVELOP AND IMPLEMENT A STATEWIDE STRATEGIC PLAN FOR RESEARCH AND DEVELOPMENT IN THE COMMONWEALTH

The General Assembly should adopt legislation requiring a comprehensive strategic plan for research and development that would be jointly developed by the Secretaries of Technology, Education, and Commerce & Trade. Completion of this plan should be the primary objective of the VRTAC in 2003 with staff support from CIT, SCHEV, and VEDP. The plan must include a top-down analysis of future government and industry research needs, and a bottom-up assessment of the strengths and research capabilities within Virginia's Universities. Other related issues that need to be addressed include:

- In what types of research is the federal government most likely to invest over the next five years?
- What are Virginia's R&D assets (inventory) and what areas of research are they best suited to support?
- In what areas do our universities and labs lead the nation?
- In what types of research does Virginia wish to establish its reputation?
- What are Virginia's current and future growth industries?

- How can applied R&D support their continued success?
- What is the role of venture capital in growing our technology industries, and how can we attract more venture capital to Virginia (particularly to those areas that today are under-represented by VC)?
- What are the strengths and weaknesses of Virginia's R&D assets?
- Is there a need for an Advanced Research Lab in Virginia, and if so, for what?
- What partnerships or strategic alliances would strengthen Virginia's assets and make them more competitive?
- What position, nationally, should Virginia set as a reasonable goal, and what must happen for us to achieve that goal?

Clearly there is tremendous benefit for our universities and all sectors of our economy in maximizing the amount of federal R&D (both basic and applied), and subsequent commercialization of related intellectual property. Additionally, industry supported R&D at Virginia's universities provides unique educational opportunities and spurs economic development.

Virginia's universities and technology transfer offices share information and provide assistance to each other through an organization called ALCOVe (Academic Licensing Community of Virginia). For the most part, however, university research, technology transfer, and patent offices operate independently and are self-funded.

The reality of the state budget situation is that the Commonwealth will most likely not be able to provide additional research grants, personnel, or other financial assistance to university research efforts in the coming year. It can, however, conduct a rigorous strategic planning process that independently assesses strengths and weaknesses, showcases opportunities, and defines long-term goals and priorities. Activities should lead to development of current and accurate information resources that support strategic decision-making and establish a baseline from which to measure success. It should enable us to clearly and concisely define a five-year plan including specific roles for state and federal lawmakers.

Without this front-end rigor, it seems that we have no choice but to continue using anecdotal and third party information in an effort to "come up with some good ideas" for supporting R&D efforts. Recommendations should include specific strategies aimed at enhancing "the global competitive advantage of both research institutions and technology-based commercial endeavors within the Commonwealth."

RECOMMENDATION #2: FACILITATE CONFLICT OF INTEREST WAIVERS FOR RESEARCH AND TECHNOLOGY COMMERCIALIZATION

The General Assembly should amend the Virginia Conflict of Interests statute to grant University Board of Visitors the authority to delegate to the University Presidents the authority to make decisions on their behalf to extend waivers of employee conflicts of interest in the case of employee contracts for research or technology commercialization. Under this proposal,

presidents would not be able to delegate this authority to lower ranking officials. Furthermore, presidents should be required to notify their boards of each such waiver. All other provisions of the conflict of interest law would remain unchanged.

Under current Virginia law, it is a criminal offense for a state employee to enter into a contract with his or her employing agency if that employee will enjoy a benefit from that contract of more than \$10,000 or if that employee has more than a 3 percent ownership interest in an outside entity entering into a contract with the employing agency. The conflict of interest statute is complex, confusing and potentially intimidating.

The law now provides that Boards of Visitors may extend waivers of such conflicts of interest for contracts for research or for the commercialization of university technology. This provision permits university faculty, if approved, to license university-owned technology to use in their external business or to use an external entity to enter in a research contract. This waiver process is typically embodied in formal university policy statements that must be approved by the State Coordinating Council on Higher Education for Virginia (SCHEV). The authority of the Boards to extend waivers cannot be delegated to university administrators or other officials

The practical effect of the engagement of the Boards in the waiver process is that it can take one to six months for the preparation of a waiver request, submission of the request to a board, and board approval. However, research and technology transfer decisions involving faculty often need to be agreed to within a matter of a few weeks, or less, rather than in several months. The result is that complying with the formalities of the waiver process can become a significant practical and psychological barrier to faculty contracts, especially those that contemplate a faculty member engaging in a start-up enterprise based on his or her research results.

RECOMMENDATION #3: MAKE SUCCESS IN TECHNOLOGY COMMERCIALIZATION A CONSIDERATION IN FACULTY PROMOTION AND TENURE DECISIONS

It is recommended that each state institution of higher learning incorporate within its guidelines and criteria for faculty promotion and tenure ("P&T") demonstration of accomplishment in invention, technology transfer and technology commercialization.

University faculty are subject to highly formalized, even ritualized, processes of peer and administrative evaluation when being considered for promotion to higher rank or for appointment to a position "without term" (tenure.) These evaluation processes are multilevel, involving disciplinary colleagues, levels of administrators, deans, provosts and presidents, as well as external peers. At each level of decision, universities adopt guidelines and expectations regarding faculty performance in teaching, research and service. Evaluators are held to strict adherence to stated criteria when considering actions of this sort. It is recommended that the Governor encourage leaders in higher education to implement this recommendation when next he

meets with them; for example, in the planned Spring Conference on Higher Education in spring 2003.

Each institution and major academic unit within each institution adopts tenure and promotion guidelines reflective of its institutional role, needs, history and culture. The specific guidelines are necessarily diverse, reflecting the diverse expectations of institutions, disciplines and the like. These guidelines are arrived at through negotiation among faculty, administrations, and boards of visitors.

VRTAC recommends that the president and provost of each institution review their stated P&T guidelines and ensure that they incorporate specifically and positively faculty accomplishments in invention, invention disclosure, patents awarded, and patents commercialized, as well as other similar measures of commercialization success as appropriate. VRTAC also recommends that SCHEV review all such guidelines at the institutional level to ensure that they fulfill the letter and spirit of this recommendation. VRTAC recommends that the General Assembly require of SCHEV a report on this activity no later than November 30, 2004.

RECOMMENDATION #4: VIRGINIA'S RESEARCH UNIVERSITIES AGREE ON, ADOPT, AND PROMULGATE A UNIFORM STATEMENT OF POLICY REGARDING TECHNOLOGY TRANSFER TO INDUSTRY.

The seven public doctoral research universities in the Commonwealth, along with their associated intellectual property foundations, should agree on, adopt and promulgate publicly a uniform statement of their key policies that influence the terms and conditions under which they can (1) conduct research sponsored financially by industry and (2) transfer inventions made at the university to industry. This should be added to the agenda of the Spring Conference of Higher Education in 2003.

All of the Commonwealth's institutions of higher education conduct their technology transfer and commercialization activities under the same array of state and federal laws. However, each has adopted internal policies and procedures at different times and in different circumstances, and each has arrived at final wording and presentation of its policies as a result of different local resolutions of competing interests and preferences of faculty, administrators, boards, and external advisors. The result is that, to companies considering supporting research at Virginia institutions or considering taking a license to a university invention, it appears that the universities do not follow uniform standards and policies.

It is also a truism in business contracting that "every deal is different." Even as universities do not have obviously uniform policies and procedures for technology transfer, companies differ far more among themselves than do the universities in the terms and conditions of contracts into which they are willing to enter. Furthermore, the specifics of each invention and market lead inevitably to differences among the contracts finally negotiated by universities and companies for sponsored research or for patent licenses.

Nevertheless, for several years, efforts have been made, with some success, to develop similar if not uniform policies and procedures for technology commercialization across the institutions, but much more is needed. The universities, working with ALCOVE and the intellectual property foundation officials, should develop a common statement of basic terms and conditions for the transfer of intellectual property, should promulgate that statement in a common form and format at each university, and make that statement widely available to industry, local leaders and the General Assembly no later than October 1, 2003.

RECOMMENDATION #5: AUTHORIZE UNIVERSITY BOARDS OF VISITORS TO ASSIGN TITLE TO UNIVERSITY-OWNED INVENTIONS

The General Assembly should consider a statutory change that would empower university boards of visitors to assign title to university-based inventions to industrial firms in cases when (1) those inventions were not made using federal funds and (2) a compelling case is made by a company that ownership of the invention by the company is critical to its commercialization.

University inventions made using state funds (“substantial state resources”) are the property of the Commonwealth, with ownership lodged in the universities. Under existing law, title to such inventions can be transferred only to the Innovative Technology Authority (CIT), to a nonprofit foundation established for the sole benefit of the university, or to other entities upon the personal approval of the Governor. Title, therefore, cannot be assigned to private entities. Furthermore, even if the research leading to the invention is made using private funds granted to the university, the Commonwealth treats such funds, when expended, as state funds, so title to such inventions can only be assigned under the conditions named above. (It should be noted that universities may elect title to inventions made with federal funds under the Bayh-Dole Act, and such title may not be assigned under federal law to private entities.)

Under most circumstances, companies can enter into a licensing agreement for the commercialization of a university invention that gives them a “bundle of rights” and control over the invention that is functionally equivalent to ownership. On occasion, however, companies believe it is essential to own the title to such inventions. This is particularly the case when a company perceives that it has paid for the research and should, by right, own the results. Under present interpretations of state statutes and guidelines, Commonwealth universities operate under the principle that they are unable to assign title to firms in such cases.

The proposed change in statutory language would enable the universities’ boards of visitors to assign title to industrial firms under limited circumstances. Such assignments would need to be justified, as well as examined to ensure that they do not encompass (prohibited) assignment of inventions made with federal funds. In addition, it is expected that Boards would only approve such assignments in return for just compensation equal to, at minimum, the anticipated revenue stream to the universities of equivalent licensing of the invention without assignment.

RECOMMENDATION #6: ESTABLISH A UNIFORM, WEB-BASED PROTOCOL FOR INITIATING INDUSTRY-SUPPORTED RESEARCH PROJECTS AND TECHNOLOGY TRANSFER AGREEMENTS WITH VIRGINIA'S UNIVERSITIES

In most cases, each research project or intellectual property agreement will include requirements and/or conditions that ultimately make it unique. There are, however, procedures and terms that are common among all such contracts for Virginia's universities. The Commonwealth should establish a uniform set of procedures and documentation that allows interested parties to find information and complete initial steps in this process through a common point of entry and using standard documentation regardless of the university.

The intent of this recommendation is not to standardize every step of the agreement process but, instead, to simplify the early, pre-negotiation phase. CIT should review individual university policies, and identify the potential common ground for establishing uniformity. This process should be made accessible to prospective clients via a state-sponsored on-line service that also serves as a search and promotional tool for Virginia's research assets, capabilities and opportunities. This on-line service could be used by (and linked to) universities through their research and/or patent offices to refer clients for initial assistance and information. A "smart" system could guide clients to universities and/or labs with specific capabilities based on client interest. Through this process, the client could narrow his/her search to one or two universities, and also be made aware of grants, incentives, assistance, etc., before ultimately being provided with specific patent office or faculty contact information.

RECOMMENDATION #7: CREATE A UNIVERSITY TECHNOLOGY COMMERCIALIZATION SUPPORT FUND

The Commonwealth should fund universities and their associated intellectual property foundations to enhance their capacities to commercialize university-based inventions. A continuing investment of \$3 million annually could be administered by the Innovative Technology Authority (CIT) through competitive grants that would be conditional upon commitments by awardees to achieve agreed-upon performance targets for technology commercialization. This fund could be managed within the Commonwealth Technology Research Fund (CTRF), which should be administered by Virginia's Center for Innovative Technology and the Virginia Research and Technology Advisory Commission. This recommendation could be implemented through an action of the General Assembly to amend the act creating the Commonwealth Technology Research Fund by adding 'grants in support of technology commercialization' as a fourth purpose of the Fund.

In making this recommendation, the committee is aware that even a "modest" \$3 million annual program cannot be adopted in the next session of the General Assembly. Thus, we offer this recommendation in hopes that it can be considered a high-priority option when budget pressures become less severe.

There is an important bottleneck that limits rapid and effective commercialization of university inventions in Virginia: the responsible university entities are severely understaffed and under funded. At present, the Commonwealth provides no direct financial support of the commercialization process at the universities, with the result that their intellectual property foundations are heavily dependent on income from immediate licensing of their patents to existing firms, often outside the Commonwealth. This lack of financial support means that not all patentable inventions are appropriately brought to the point of commercialization in a timely and most efficient manner, that negotiations with industrial partners over intellectual property agreements and licenses can take much longer than seems necessary or desirable to industry, and that the incentives for faculty to develop, disclose and participate in the patenting of inventions are weakened. Evidence from similar efforts elsewhere shows that overall technology commercialization performance can be significantly enhanced by greater investment in the technology transfer function than is currently being made in Virginia.

Most of the technology transfer operations at Virginia's universities, including their associated intellectual property foundations, have only a handful of professional staff; several have only one or two, and most have very limited funds to cover the costs of market assessment, partner identification and review, and negotiation of licenses to inventions. Using technology commercialization grant funds to add new staff and to enhance operating budgets could make a major difference in how effectively Virginia's universities commercialize their technologies and in the quality of the interaction of those universities with partner companies.

We envision a multi-year investment of \$3 million annually in a fund to be administered by CIT. Universities or their intellectual property foundations could apply to the fund for grants of up to \$400,000 annually for periods of up to three years to meet demonstrated needs for new staff and/or operating funds. In return for such awards, the awardees would be required to negotiate one or more performance measures to guide their use of the funds and under which they would be evaluated if and as they seek additional funding in the future.

Requiring progress toward meaningful and measurable performance goals would create a climate of expectation within the universities and establish strong incentives for both institutional and individual staff performance. Technology transfer and commercialization takes time both to accomplish and to bear fruit, so it is important that the performance goals be long-term in nature, and that they not have the effect of incentivizing the most expedient commercialization efforts--such as licensing to large, out-of-state firms--rather than the most effective efforts--such as using patent licenses as the foundation for creation of new firms in the Commonwealth. At the same time, there should be a strong expectation that awards from the fund would be used to build capacity in the organizations and that permanent dependence on such funding is not contemplated.

The Virginia Research and Technology Advisory Commission, VRTAC, should be charged with periodic evaluation of the technology commercialization support fund.

CHAPTER 382

An Act to direct the Virginia Research and Technology Advisory Commission (VRTAC), in conjunction with the research universities of the Commonwealth, to develop and adopt a statewide policy and uniform standard for the commercialization of intellectual property developed through university research.

[H 530]

Approved April 1, 2002

Whereas, the Virginia Research and Technology Advisory Commission was established to advise the Governor on appropriate research and technology strategies for the Commonwealth with emphasis on policy recommendations that will enhance the global competitive advantage of both research institutions and technology-based commercial endeavors within the Commonwealth; and

Whereas, the commercialization of intellectual property developed within the research universities will enhance the global competitive advantage of both research institutions and technology-based commercial endeavors within the Commonwealth; and

Whereas, each research university has very different policies and standards in this area; now, therefore,

Be it enacted by the General Assembly of Virginia:

1. *§ 1. The Virginia Research and Technology Advisory Commission (VRTAC), in conjunction with the Center for Innovative Technology (CIT), the Office of the Attorney General and the research universities of the Commonwealth, shall develop a statewide policy and uniform standard for the commercialization of intellectual property developed through university research. The Commission shall provide such policy and standards to the Governor and the General Assembly and recommend any changes to the Code of Virginia by December 1, 2002.*

HOUSE JOINT RESOLUTION NO. 88

Requesting the Secretary of Technology, in cooperation with the Center for Innovative Technology and the Research and Technology Advisory Commission, to recommend incentives necessary to encourage the commercialization of university research and development.

Agreed to by the House of Delegates, February 12, 2002

Agreed to by the Senate, March 5, 2002

WHEREAS, the Commonwealth of Virginia has extensive assets in its institutions of higher education and federal laboratories which can significantly impact economic, social, and educational opportunities of the 21st century; and

WHEREAS, within the confines of Virginia's institutions of higher education and federal laboratories, a wealth of knowledge, information, and experience has accumulated; and

WHEREAS, efforts have been made to encourage the commercialization of these assets by institutions of higher education and the private sector; and

WHEREAS, there is currently no comprehensive plan for the utilization and commercialization of these valuable research and development assets; and

WHEREAS, a statewide effort to commercialize the research and development of science and technology assets housed within the confines of the institutions of higher education and the private sector would result in greater economic growth and opportunity; and

WHEREAS, such an effort would enhance the facilitation of resources, capture the opportunities, and optimize the use of resources to benefit the economic prosperity of the Commonwealth; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Secretary of Technology, in cooperation with the Center for Innovative Technology and the Research and Technology Advisory Commission, be requested to recommend incentives necessary to encourage the commercialization of university research and development.

All agencies of the Commonwealth shall provide assistance to the Secretary of Technology, the Center for Innovative Technology and the Research and Technology Advisory Commission, upon request.

The Secretary of Technology, the Center for Innovative Technology and the Research and Technology Advisory Commission shall complete their work by November 30, 2002 and shall submit their written findings and recommendations to the Governor and the 2003 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents.

