INTELLECTUAL PROPERTY AND GOVERNMENT R&D FOR HOMELAND SECURITY

HEARING

BEFORE THE

SUBCOMMITTEE ON TECHNOLOGY AND PROCUREMENT POLICY

OF THE

COMMITTEE ON GOVERNMENT REFORM

HOUSE OF REPRESENTATIVES

ONE HUNDRED SEVENTH CONGRESS

SECOND SESSION

MAY 10, 2002

Serial No. 107–181

Printed for the use of the Committee on Government Reform

Available via the World Wide Web: http://www.gpo.gov/congress/house
http://www.house.gov/reform

U.S. GOVERNMENT PRINTING OFFICE

85–839 PDF WASHINGTON : 2003

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INTELLECTUAL PROPERTY AND GOVERNMENT R&D FOR HOMELAND SECURITY

FRIDAY, MAY 10, 2002

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TECHNOLOGY AND PROCUREMENT POLICY,
COMMITTEE ON GOVERNMENT REFORM,
Washington, DC.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2154, Rayburn House Office Building, Hon. Thomas M. Davis (chairman of the subcommittee) presiding.

Present: Representatives Tom Davis of Virginia, Jo Ann Davis of Virginia, Horn, and Turner.

Staff present: George Rogers, Chip Nottingham, and Uyen Dinh, counsels; Victoria Proctor, professional staff member; John Brosnan, GAO counsel; Teddy Kidd, clerk; Mark Stephenson, minority professional staff member; and Jean Gosa, minority assistant clerk.

Mr. TOM DAVIS OF VIRGINIA. Good morning. I want to welcome everybody to today's oversight hearing on intellectual property and government procurement of research and development. Acquisition legislation in the 1990's streamlined and improved the procurement process. Unfortunately, 92 percent of the Fortune 500 industrial do little or no R&D for the government, and the Wall Street Journal reports that three-fourths of the country's top 75 information technology companies refused to do research for the government because of the intellectual property and red tape concerns.

Moreover, none of the firms that plays a valuable role for our Nation as traditional defense contractors are among the companies that each year receive the most number of patents. While agencies continue to find companies that will do R&D without negotiating on IP, the question that needs to be addressed is why the leading-edge innovative companies are refusing to participate.

During the cold war and space race years, the government in general and the Pentagon in particular drove R&D. While the President has increased R&D spending in the fiscal year 2003 budget, recent trends indicate the private sector's investment is much greater than the Federal Government's. According to the National Science Foundation, the Government share of R&D funding was 67 percent in the 1960's; 47 percent in the 1980's; and 26 percent in 2000.

In an environment where private sector R&D spending accounts for almost three-fourths of the total spent in the United States, the Government's role has changed to become a partner in innovation

rather than the sole driving force. Because intellectual property rights are the most valued assets of companies, the government must ensure that its policies and procedures reflect this partnership for innovation.

Agencies have recognized the need to address IP rights as a precursor to ensuring access to the very best technologies. For example, the Department of Defense published a guide for the acquisition community entitled Intellectual Property, Navigating Through Commercial Waters. This guide was a good first step. However, evidence presented to the subcommittee's July 2001 hearing showed that the treatment of intellectual property rights in government R&D can be an impediment to taking the best innovations possible.

After September 11th, there has been a dramatic realignment in the mission of government. The first priority of the Nation has become homeland security. To win this fight, the government must be able to prevent, detect, and respond to terrorist activity. We also must be ready to manage the consequences of future attacks, treat casualties, and protect critical infrastructure. R&D will play a critical role in our ability to generate the new ideas and the innovations needed to win the war on terror and to move the Nation forward.

Technology now accounts for 50 percent of the Nation's long-term growth. And as the Federal Reserve chairman Alan Greenspan has recognized, information technology and intellectual property have played a substantial role in the remarkable U.S. productivity gains. The Government is challenged today to find ways to entice innovative companies into collaborating with it on vital R&D and information technology efforts.

In addition, it is important for the Government to recognize that the treatment of intellectual property rights will greatly impact the viability of competing alternatives for any government contract as well as the implementation of leading-edge innovation.

Intellectual property and research and development procurement are both very complex subjects, and the Government's new role as a partner in innovation, contracting officers, program managers agency legal staff all need to understand how flexibilities for the treatment of intellectual property can be used to attract and retain the leading-edge companies. Today's hearing will examine public and private sector views on intellectual property and research and development issues. It will also explore the experiences of successful R&D organizations such as DARPA, In-Q-Tel and others for lessons that can be learned and problems that need to be addressed in the procurement of government R&D and IT.

The subcommittee will hear testimony today from Mr. Jack Brock, the Managing Director for Acquisition and Sourcing Management at the U.S. General Accounting Office. Mr. Ben Wu, Deputy Undersecretary for Technology at the Department of Commerce; and Dr. Anthony Tether, Director of the Defense Advanced Research Projects Agency [DARPA].

On the second panel, we're going to hear from Gilman Louie, president and CEO of In-Q-Tel. Mr. Richard Carroll, legislative chairman of the Small Business Technology Coalition and president of DSR, Inc. Mr. Stanley Fry, director of contracts and legal affairs at the Eastman Kodak Co.; and Mr. Stan Soloway, the president of the Professional Services Council.

[The prepared statement of Hon. Thomas M. Davis follows:]

SUBCOMMITTEE ON TECHNOLOGY AND PROCUREMENT POLICY

OVERSIGHT HEARING

"Intellectual Property and Government R&D for Homeland Security"

OPENING STATEMENT OF CHAIRMAN TOM DAVIS

May 10, 2002 at 10:00 a.m.

Room 2154 Rayburn House Office Building

Good Morning, I would like to welcome everyone to today's oversight hearing on intellectual property (IP) and government procurement of research and development (R&D).

Acquisition legislation in the 1990's streamlined and improved the contracting process. Unfortunately, 92% of the Fortune 500 industrial do little or no R&D for the Government, and the *Wall Street Journal* reports that three-fourths of the country's top 75 information technology companies refuse to do research for the Government because of IP and red tape concerns. Moreover, none of the firms that play a valuable role for our nation as traditional defense contractors are among the companies that each year receive the most number of patents.

While agencies continue to find companies that will do R&D without negotiating on IP, the question that needs to be addressed is why the leading-edge innovative companies are refusing to participate. During the Cold War and Space-Race years, the Government in general and the Pentagon in particular drove R&D. While the President has increased R&D spending in the FY 2003 budget, recent trends indicate the private sector's investment is much greater than the Federal government's. According to the National Science Foundation, the Government's share of R&D funding was 67% in the 1960's, 47% in the 1980's, and 26% in 2000. In an environment where private sector R&D spending accounts for almost three-fourths of the total spent in the United States, the Government's role has changed to become a partner in innovation, rather than the

sole driving force. Because IP rights are the most valued assets of companies, the Government must ensure that its policies and procedures reflect this partnership for innovation.

Agencies have recognized the need to address IP rights as a precursor to ensuring access to the very best technologies. For example, the Department of Defense published a guide for the acquisition community titled "Intellectual Property: Navigating Through Commercial Waters." This guide was a good first step. However, evidence presented in the Subcommittee's July 2001 hearing on IP and R&D showed that the treatment of intellectual property rights in government R&D can be an impediment to obtaining the best innovation possible.

After 9/11/01, there has been a dramatic realignment in the mission of the government. The first priority of the nation has become homeland security. To win this fight, the government must be able to prevent, detect, and respond to terrorist activity. We also must be ready to manage the consequences of future attacks, treat casualties, and protect critical infrastructures.

R&D will play a critical role in our ability to generate the new ideas and innovation needed to win the war on terror and to move the nation forward. Technology now accounts for 50% of the nation's long-term growth. And, as Federal Reserve Chairman Alan Greenspan has recognized, information technology and intellectual property have played a substantial role in the remarkable U.S. productivity increases.

The Government is challenged today to find ways to entice innovative companies into collaborating with it on vital R&D and information technology (IT) efforts. In addition, it is important for the Government to recognize that the treatment of IP rights will greatly impact the viability of competing alternatives for any government contract as well as the implementation of leading-edge innovation.

Intellectual property and R&D procurement are both very complex subjects. In the government's new role as a partner in innovation, contracting officers, program managers, and agency legal staff all need to understand how flexibilities for the treatment of IP can be used to attract and retain leading-edge companies. Today's hearing will examine public and private sector views on IP and R&D issues. It will also explore the experiences of successful R&D organizations, such as DARPA, In-Q-Tel, and others for lessons that can be learned and problems that need to be addressed in the procurement of government R&D and IT.

Mr. TOM DAVIS OF VIRGINIA. I now yield to Congressman Turner for any opening statement he may wish to make.

Mr. TURNER. Thank you, Mr. Chairman. Our purpose, of course, today, is to examine the nexus between intellectual property and procurement. The underlying issue is whether current intellectual property laws and practices prevent the Federal Government from gaining access to the very best and most up-to-date technological advances. As the hearing's title suggests, this issue is particularly important when considered in the context of our current war on terrorism. If the government's intellectual property laws are inhibiting agencies from gaining access to advanced R&D needed for homeland security, that is something we need to know about, and I look forward to hearing from our witnesses.

The world of research and development obviously has changed dramatically since the 1980's when most of the Federal laws governing access to intellectual property were written. Today the Federal share of R&D spending is much less than, and private sector spending is much more than it was then. While the trend has clearly been for greater private sector R&D funding, it is important to remember that the Federal Government still spends up to $70 billion on research and development. Expanding the use of so-called other transactions to civilian agencies is one approach that has been suggested to increase flexibility in addressing intellectual property concerns.

While I do have an open mind on the subject, I do not feel the case has been made to date that civilian agencies need other transaction authority. It would be interesting to hear from our witnesses regarding this issue. Other transactions authority was originally designed to attract nontraditional defense contractors who did not want to enter into contracts in part because of concerns about how intellectual property rights were treated. Unfortunately, other transactions do not seem to have achieved this goal.

As the Department of Defense Inspector General reports, 95 percent of the money for other transactions from 1994 to 2001 went to traditional defense contractors. I believe we must be cautious about expanding the use of this authority since it eliminates many of the safeguards of Federal procurement law.

Current law and regulation was designed to strike a delicate balance between the needs and the rights of government as representatives of the people and those of private industry. We need to examine the sometime conflicting priorities in prospective as we examine these issues. I look forward to hearing from all of our witnesses, and I thank the chairman for calling this hearing on this very important issue. Thank you, Mr. Chairman.

Mr. TOM DAVIS OF VIRGINIA. Thank you very much.

[The prepared statement of Hon. Jim Turner follows:]

Opening Statement – Rep. Jim Turner
"Intellectual Property and Government R&D for Homeland Security"
Subcommittee on Technology and Procurement Policy

May 10, 2002

Thank you Mr. Chairman. This hearing is our second to examine the nexus between intellectual property and procurement. The underlying issue is whether current intellectual property laws and practices prevent the federal government from gaining access to the best and most up-to-date technological advances.

As the hearing's title suggests, this issue is particularly important when considered in the context of the current war on terrorism. If the government's intellectual property laws are inhibiting agencies from gaining access to advanced R&D needed for homeland security, that is something we need to know about, and I look forward to hearing from our witnesses on that point.

The world of research and development has changed dramatically since the 1980's, when most of the federal laws governing access to intellectual property were written. Today the federal share of R&D spending is much less, and the private sector's spending is much more, than it was then. While the trend has clearly been toward greater private-sector R&D funding, it is important to remember that the federal government still spends to $70 billion on R&D.

Expanding the use of so-called "other transactions" to civilian agencies is one approach which has been suggested to increase flexibility in addressing intellectual property concerns. While I have an open mine on the point, I do not feel the case has been made to date that civilian agencies need other transaction

authority. I would be interested in hearing about what specific technology or research the government has been unable to procure.

Other transactions authority was originally designed to attract non-traditional defense contractors who did not want to enter into contracts in part because of concerns about how intellectual property rights were treated. Unfortunately, other transactions do not seem to have achieved this goal. As the DOD Inspector General reports, 95% of the money for other transactions from 1994 through 2001 went to traditional defense contractors. I believe we must be cautious about expanding the use of this authority, since it eliminates many of the safeguards of federal procurement law designed to ensure reasonable prices and expenditures for allowable costs.

Current law and regulation was designed to strike a delicate balance between the needs and rights of the government, as the representative of the public, and those of private industry. We need to keep these sometimes conflicting priorities in perspective as we examine these issues. I look forward with interest to the testimony of our witnesses.

Thank you Mr. Chairman.

Mr. TOM DAVIS OF VIRGINIA. Mr. Horn, you have no opening statement? OK.

I would now call our first panel to testify. Mr. Brock, Mr. Wu and Dr. Tether. As you know, it's the policy of this committee that all witnesses be sworn before you testify. If you would please rise with me and raise your right hand.

[Witnesses sworn.]

Mr. TOM DAVIS OF VIRGINIA. Thank you very much. Please be seated. To afford sufficient time for questions, if you'd try to limit your comments to 5 minutes. We've got a goal to move this along today.

We've read the testimony, and we'll have questions ready for that. So you can just highlight that. And all of the written statements are going to be made part of the permanent record. We'll start with Mr. Brock, and then Mr. Wu and then Dr. Tether. Thank you, and thanks for being with us, Mr. Brock.

STATEMENTS OF JACK BROCK, DIRECTOR, ACQUISITION AND SOURCING MANAGEMENT, U.S. GENERAL ACCOUNTING OFFICE; ANTHONY J. TETHER, DIRECTOR, DEFENSE ADVANCED RESEARCH PROJECTS AGENCY; AND BEN WU, DEPUTY UNDER SECRETARY FOR TECHNOLOGY, TECHNOLOGY ADMINISTRATION, DEPARTMENT OF COMMERCE

Mr. BROCK. Thank you very much, Mr. Davis. Good morning Mr. Turner, Mr. Horn as well. As my statement today is largely focused on rights to intellectual property and related data acquired through contracts——

Mr. TOM DAVIS OF VIRGINIA. You need to turn your microphone on.

Mr. BROCK. OK. Is this better? I think it is on.

Mr. BROCK. OK.

Mr. TOM DAVIS OF VIRGINIA. It should sound like this. Move it closer to you.

Mr. BROCK. No, it is not on.

Mr. TOM DAVIS OF VIRGINIA. This is the technology policy committee. This is just unacceptable. Can you see—one of our leading technical experts is going to be coming up here. Try it now.

Mr. BROCK. OK. Can you hear me, sir? Now, I notice I've already used a minute and 10 seconds. I hope——

Mr. TOM DAVIS OF VIRGINIA. Unanimous consent you'll be able to start again.

Mr. BROCK. Thank you.

Mr. TOM DAVIS OF VIRGINIA. We'll take that out of Mr. Turner's time. No problem.

Mr. BROCK. Well, thank you again for inviting us to testify here today. The flow of technology from the commercial sector to government applications is frequently a source of real tension. A concern on both the part of the commercial entities as well as the government agencies. Your subcommittee did ask us to look at this a while ago, and I'm pleased to report back to the subcommittee with our results. And as you indicated, I will briefly summarize my statement. And in doing so, I'd really like to cover four basic points.

First, what is the nature of the concern, and is it a real concern? Second, what are the challenges or underlying problems which re-

quire action? Third, what, if any, are the implications that might arise or continue if these concerns aren't addressed? And fourth, what are some of the options you might have for moving forward?

To address the first point. The current concern is real and it is derived from an inherent tension between government needs and commercial entities' fears. The tension arises from the government's very real need for rights to intellectual property and data that is necessary to provide critical services and to meet program objectives. These rights were a lot easier to secure when the government funded most of the R&D. They flowed naturally from that funding. However, as you mentioned in your opening statement, now that the government's R&D spending, while still substantial, no longer is predominant, the rights are no longer as free-flowing, and as such, the government has an increasing need to negotiate for rights to commercially generated technology. And this trend is only going to increase. It's going to become more of an issue rather than less of an issue.

At the same time, the intellectual property sought by the government represents the very lifeblood of the commercial companies, its crown jewel, so to speak. The companies don't always trust the government's intentions, nor its ability to protect the data associated with intellectual property.

The second point I wanted to make are what are the underlying issues that really represent the barriers to most effectively meeting the government's needs? Agencies—the agencies we went to, and we covered almost all of the agencies doing over 90 percent of the R&D in the government, had three concerns. Its first and most prevalent was they felt that there was a lack of awareness and/or willingness within their own agency to take advantage of flexibilities that are already in place. This was the biggest problem. Second, they felt that there was perceived risk—I want to emphasize that word "perceived risk" on the part of commercial companies largely associated with Bayh-Dole, which limit their willingness to participate in government contracts or in development efforts.

And finally, there were concerns that both they and the commercial sector had in dealing with multiple parties, such as subcontractors or universities where they—the data rights or the patent rights were not always clear-cut.

Commercial companies identified some concerns that were really very similar. First of all, they also identified a lack of understanding or an unwillingness to use flexibilities that were available. They frequently stated, or used the term a "comfort zone," that government contractors would get in, an unwillingness to go beyond that comfort zone. Second, they had a more defined, not a perceived concern over certain Bayh-Dole provisions, such as march-in rights or the definition of what a subject invention was.

Third, cumbersome agency processes and procedures were perceived as barriers. And fourth, very strong concerns over the span of rights the government wants over technical data and equal concerns over the government's protection of proprietary data.

The third point I wanted to make today are the implications of these concerns, and before getting into these implications, I do want to emphasize that no agency official raised or cited a specific instance where they did not have access to commercial technology

they felt that they needed. But nevertheless, there are some implications from this, the most simple ones, that if you don't really have a well-defined way of acquiring intellectual property rights, you may buy more than you need. And that's that comfort zone question, well, we're not sure we're going to need. Let's buy everything. If you do that, you're going to pay too much.

On the other hand, if you don't buy enough, you may be getting what seems to be a good price now, but you're going to pay for it later when you have to go back and secure the data rights you might need to maintain a particular system.

But the most important concern—and this was one that was raised more by DOD than by any other agency—was their concern that they weren't able to attract some of the leading technology companies that they would like to have involved in ongoing research and application development. And the problem with this is to the extent that companies may not choose to participate in Federal contracting, the government may not get the best solution, or it may not get the best pricing and that is the real implication from this.

This brings me to the final point, Mr. Chairman, and that is the options for moving forward. The first step I think is pretty obvious, that agencies clearly need to define their intellectual property and data needs and use the available flexibilities they already have to meet these needs. And I don't think this is a very simple, or it would already be done and you wouldn't have to have the hearing this morning. Tools such as the Defense's intellectual property guide that you referred to are excellent, both as a reference and a how-to guide. The problem resides in getting the right people to effectively use the tool, and that has been the issue to date. More substantive action may be warranted, but not without more in-depth examinations of the specific impediments that were cited by both the industry and the agencies and the effectiveness of flexibilities already available and the potential impact of any suggested changes.

The current framework anchored by the Bayh-Dole Act has generally been considered to be a success story and leading to greater commercialization of federally sponsored research. And more recent additions to that framework, such as DOD's other transaction authority, can serve as potential models for enhancing the government's contracting flexibility in commercial firms that traditionally have not worked for the government.

But in conclusion, the challenge here is to address not whether the government should have rights but rather, what rights it should hold, when these rights should be exercised and what authority should be granted to waive these rights when it's in the best interest of the government. That concludes my summary.

Mr. TOM DAVIS OF VIRGINIA. Thank you very much.

[The prepared statement of Mr. Brock follows:]

United States General Accounting Office

GAO

Testimony

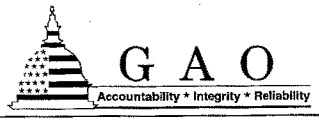
Before the Subcommittee on Technology and Procurement Policy, Committee on Government Reform, House of Representatives

For Release on Delivery
Expected at 10:00 a.m., EDT,
Friday, May 10, 2002

INTELLECTUAL PROPERTY

Industry and Agency Concerns Over Intellectual Property Rights

Statement of Jack L. Brock, Jr., Managing Director,
Acquisition and Sourcing Management



GAO-02-723T

Mr. Chairman and Members of the Subcommittee:

Thank you for inviting me to participate in today's hearing on intellectual property. Intellectual property represents the very essence of the creative process that results in unique products and processes. As such, any transactions that affect the ownership, control, or transfer of intellectual property can have enormous implications for parties on both sides of those transactions. Improperly defined rights to intellectual property in a government contract can result in the loss of an entity's critical assets or in limiting the development of applications critical to public health or safety. Conversely, successful contracts can spur economic development, innovation, and growth and dramatically improve the quality of delivered goods and services.

The government acquires intellectual property in two ways. First, it typically owns the intellectual property produced by federal employees. Secondly, it acquires certain rights—although not necessarily ownership—of the intellectual property produced by others under federal research contracts, grants, and other agreements. Our statement today is largely focused on rights to intellectual property and related data acquired through contracts. Your charge to us, Mr. Chairman, was to determine if the government's ability to contract with commercial companies for goods and services needed to support essential government services, such as homeland security and national defense, was restricted by concerns over rights to intellectual property.

It is clearly appropriate to address these concerns. The government's need for advanced technologies is growing at a seemingly exponential rate. While the needs are growing, the government's control over the development of the underlying intellectual property supporting those technologies is declining. The government is no longer the leading supplier of research and development (R&D) dollars in the United States. While the government's share of R&D funding was as high as 67 percent of R&D dollars in the 1960s, its share fell to below 47 percent in the 1980s and to 26 percent in 2000, according to the National Science Foundation. Instead of driving research and its outcomes, the government must increasingly rely on the commercial sector. The government's ability to successfully deal with issues over intellectual property constitutes a key factor in being able to acquire the new technologies necessary to meet increasingly sophisticated operational needs.

To address your question, we held extensive interviews with agency officials, commercial companies, and industry associations involved in

intellectual property rights. We also analyzed agency and industry studies on this issue as well as agency guidance and requirements.

Generally, the framework for promoting and protecting intellectual property rights in the government has been considered a success. However, our work revealed a broad range of concerns from both agency and industry officials. Contracting for intellectual property rights is difficult. The stakes are high, and negotiating positions are frequently ill-defined. Moreover, the concerns raised by both parties must be tempered with the understanding that government contracting—especially those contracts dealing with new or large applications or having loosely defined objectives—can be challenging even without the additional complexities associated with intellectual property. Further, commercial contractors often have a variety of reasons for not wanting to contract with the government, including concerns over profitability, capacity, accounting and administrative requirements, and opportunity costs.

Nevertheless, our work leads us to the following observations:

- First, within the commercial sector, companies identified a number of specific intellectual property concerns that affected their willingness to contract with the government. These included perceived poor definitions of what technical data is needed by the government, issues with the government's ability to protect proprietary data adequately, and unwillingness on the part of government officials to exercise the flexibilities available to them concerning intellectual property rights. We believe some of these concerns were based more on perception than experience, but, according to company officials, they nevertheless influenced decisions not to seek contracts or to collaborate with federal government entities.
- Second, agency officials shared many of these concerns. Poor upfront planning and limited experience/expertise among the federal contracting workforce were cited as impediments to contracting for intellectual property rights. However, while agency officials indicated that problems related to intellectual property rights may have limited access to particular companies, they did not raise or cite specific instances where the agency was unable to acquire needed technology.
- Third, there was general agreement among agency officials that improved training and awareness as to the flexibility already in place as well as a better definition of data needs on individual contracts would generally improve the situation.

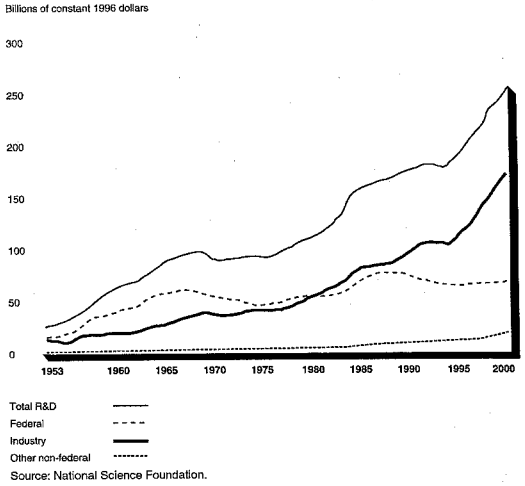
Intellectual Property and Its Value to Government

Intellectual property has a broad range—anywhere from inventions, to technological enhancements, to methods of doing business, to computer programs, to literary and musical works and architectural drawings. Government-sponsored research has an equally broad range—from research in mathematical and physical sciences, computer and information sciences, biological and environmental sciences, and medical sciences, to research supporting military programs of the Department of Defense (DOD) and the atomic energy defense activity of the Department of Energy. The objective of some of this research, for example, cancer research, is to gain more comprehensive knowledge or understanding of the subject under study, without specific application. According to the National Science Foundation, about 3 percent of DOD's R&D funding and 41 percent of R&D funding by other agencies goes toward this type of study. Other research is directed at either gaining knowledge to meet a specific need or to develop specific materials, devices, or systems—such as a weapon system or the International Space Station. About 97 percent of DOD's R&D dollars and 55 percent of R&D dollars from other agencies supports applied research.

The primary vehicles for funding research efforts are grants, cooperative agreements, and contracts. Today, our focus is largely on intellectual property rights that the government acquires through research done under contracts, which primarily fund applied research.

As illustrated in the figure below, the R&D landscape has changed considerably over the past several decades. While the federal government had once been the main provider of the nation's R&D funds, accounting for 54 percent in 1953 and as much as 67 percent in 1964, as of 2000, its share amounted to 26 percent, or about $70 billion, according to the National Science Foundation.

Figure 1: Trends in R&D Funding

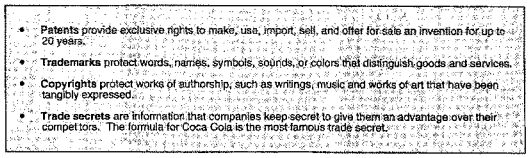


Source: National Science Foundation.

Intellectual Property Protections and Legislation

Patents, trademarks, copyrights, and trade secrets protect intellectual property. Only the federal government issues patents and registers copyrights, while trademarks may also be registered by states that have their own registration laws. State law governs trade secrets. Anyone who uses the intellectual property of another without proper authorization is said to have 'infringed' the property. Traditionally, an intellectual property owner's remedy for such unauthorized use would be a lawsuit for injunctive or monetary relief.

Figure 2: Definitions of Patents, Trademarks, Copyrights, and Trade Secrets



Source: U.S. Patent and Trademark Office.

Prior to 1980, the government generally retained title to any inventions created under federal research grants and contracts, although the specific policies varied among agencies. Over time, this policy increasingly became a source of dissatisfaction. First, there was a general belief that the results of government-owned research were not being made available to those who could use them. Second, advances attributable to university-based research funded by the government were not pursued because the universities had little incentive to seek use for inventions to which the government held title. Finally, the maze of rules and regulations and the lack of a uniform policy for government-owned inventions often frustrated those who did seek to use the research.

The Bayh-Dole Act[1] was passed in 1980 to address these concerns by creating a uniform patent policy for inventions resulting from federally sponsored research and development agreements. The act applied to small businesses, universities, and other nonprofit organizations and generally gave them the right to retain title to and profit from their inventions, provided they adhered to certain requirements. The government retained nonexclusive, nontransferable, irrevocable, paid-up (royalty-free) licenses to use the inventions.

A presidential memorandum issued to the executive branch agencies on February 18, 1983, extended the Bayh-Dole Act to large businesses. It extended the patent policy of Bayh-Dole to any invention made in the performance of federally funded research and development contracts, grants, and cooperative agreements to the extent permitted by law. On April 10, 1987, the president issued Executive Order 12591, which, among

[1] The Bayh-Dole Act is the common name for the Patent and Trademark Laws Amendments of 1980 (P.L. 96-517, Dec. 12, 1980).

other things, required executive agencies to promote commercialization in accordance with the 1983 presidential memorandum. Below are highlights of requirements related to the Bayh-Dole Act and Executive Order 12591.

Figure 3: Highlights of Requirements

- The contractor or grantee must disclose to the appropriate agency any invention created with the use of federal funds within 2 months of the date the inventor discloses the invention in writing to the contractor or grantee.
- If the contractor or grantee decides to retain title to the invention, it generally must notify the agency within 2 years of the date of disclosure that it has elected to do so.
- The contractor or grantee must apply for a patent on the invention within 1 year of its election to retain title or within 1 year of the publication, sale, or public use in the United States, whichever is earlier.
- In applying for a patent, the organization must add a government interest statement that discloses the government's rights to the invention.
- The contractor or grantee must attempt to develop or commercialize the invention.
- If the contractor or grantee is a nonprofit organization, it generally must give priority to small businesses when licensing the invention.
- When granting an exclusive license, the contractor or grantee must ensure that the invention will be "manufactured substantially" in the United States.

In addition to the traditional categories of intellectual property protections, government procurement regulations provide a layer of rights and obligations known as "data rights." These regulations describe the rights that the government may obtain to two types of data, computer software and technical data, delivered or produced under a government contract. These rights may include permission to use, reproduce, disclose, modify, adapt, or disseminate the technical data. A key feature of the DOD framework for data rights, and one implicit in the civilian agency framework, is that the extent of the government's rights is related to the degree of funding the government is providing.[2]

[2] For a contract with DOD, the Defense Federal Acquisition Regulation Supplement (DFARS) contains the applicable data rights framework. The Federal Acquisition Regulation (FAR) provides the framework for civilian agencies and the National Aeronautics and Space Administration.

Figure 4: Highlights of Technical Data Requirements

DOD Framework		
Type of Data Rights	Definition	Applies to
Unlimited Rights	Right to use and disclose the data publicly, in any manner and for any purpose and to permit others to do so.	Data created exclusively with government funds and certain types of other data delivered to the government regardless of funding.
Government Purpose Rights	Right to use or disclose within the government without restriction or disclose to third parties for government purposes only. Third parties cannot use the data for commercial purposes.	Data developed with a mix of government and private funds.
Limited Rights	Right to use or disclose data internally. No disclosure to third parties without written permission except under limited conditions (e.g., emergency repair)	Data pertaining to items, components, or processes developed at private expense.
Civilian Agency Framework		
Unlimited Rights	Right to use and disclose the data publicly, in any manner and for any purpose and to permit others to do so.	Data first produced or delivered in the performance of the contract; form, fit and function data; and data needed for repairs or maintenance.
Negotiated Rights*	Right to use data for agreed-to governmental purposes. Other rights may be tailored as needed and negotiated.	Data developed with a mix of government and private funds.
Limited Rights	Right to use or disclose internally. Cannot disclose outside the government without permission except for certain agreed-on purposes.	Data (other than computer software) developed at private expense that embody trade secrets, or are commercial or financial and confidential or privileged.

*The term "negotiated rights" does not actually appear in the Federal Acquisition Regulation. However, the regulation allows for the tailoring of rights for cosponsored research and development activities.

In some cases, the government may decide that it is in its best interest to forgo rights to technical data. For example, if the government wants to minimize its costs of having supercomputers developed exclusively for

government use, it could waive its rights in order to spur commercial development. At the same time, situations arise where the government has a strong interest in obtaining and retaining data rights—either unlimited rights or government-purpose rights. These include long-term projects, such as cleanup at nuclear weapon sites, where the government may want to avoid disrupting the program if a change in contractors occurs. These also include projects that affect safety and security. For example, the Transportation Security Administration recently purchased the data rights for an explosives detection system manufactured by one company. The agency believed data rights were necessary in order to expand production of these machines and meet the congressionally mandated deadline for creating an explosives detection capability at airports.

Agency and Commercial Sector Concerns over Intellectual Property Rights

We contacted multiple agencies responsible for $191 billion or 88 percent of federal procurements in fiscal year 2001.[3] At these agencies, we met with those officials responsible for procurement, management and oversight of contractor-derived intellectual property. We also analyzed agency and industry studies as well as agency guidance and requirements. In addition, we met with representatives from (1) commercial enterprises that either contract with the government or develop technologies of interest to the government as well as (2) associations representing commercial firms doing business with the government.

Both industry and agency officials covered by our review had concerns about the effectiveness and the efficiency of successfully negotiating contracts with intellectual property issues. These concerns include a lack of good planning and expertise within the government and industry's apprehensions over certain government rights to data and inventions as well as the government's ability to protect proprietary data.

Industry officials were particularly concerned about the span of rights the government wants over technical data. Industry officials asserted that rather than making a careful assessment of its needs, some contracting officers wanted to operate in a "comfort zone" by asking for unlimited rights to data, even when the research built on existing company

[3] These included major participants in R&D efforts at the Defense Department, such as the Defense Advanced Research Projects Agency, the Army, the Air Force and the Navy, and civilian agencies such as the National Aeronautics and Space Administration, the Department of Energy, the National Institutes of Health, the General Services Administration, and the Departments of Justice and Transportation.

technology. This was disconcerting to potential contractors because it meant that the government could give data to anyone it chose, including potential competitors. Some companies mentioned specific instances in which they delayed or declined participation in government contracts. These situations occurred when companies believed their core technologies would be at risk and the benefits from working with the government did not outweigh the risk of losing their rights to these technologies.

Most agency officials said that intellectual property issues were at times hotly contested and could become the subject of intense negotiations. While agency officials indicated that problems related to intellectual property rights may have limited access to particular companies, they did not raise or cite specific instances where the agency was unable to acquire needed technology. In some situations, agencies exerted flexibility to overcome particular concerns and keep industry engaged in research efforts.

DOD officials viewed intellectual property requirements and the manner in which these requirements are implemented as significantly affecting their ability to attract leading technology firms to DOD research and development activities. This concerns DOD, which believes it needs to engage leading firms in joint research efforts in order to promote development of commercial technologies that meet military needs.

Last, agency officials, particularly DOD officials, voiced concerns about having access to technical data necessary to support and maintain systems over their useful life as well as the ability to procure some systems competitively, especially smaller systems. These officials stated that if they did not obtain sufficient data rights, they could not use competitive approaches to acquire support functions or additional units. We have reported[4] on the difficulties that occurred when appropriate data rights were not obtained. In one instance, when the Army tried to procure data rights later in the system's life cycle, the manufacturer's price for the data was $100 million—almost as much as the entire program cost ($120 million) from 1996 through 2001. We have recommended, among other things, that DOD place greater emphasis on obtaining priced options for

[4]U.S. General Accounting Office. *Defense Logistics: Opportunities to Improve the Army's and Navy's Decision-making Process for Weapons Systems Support,* GAO-02-306, (Washington, D.C., February 2002).

the purchase of technical data at the time proposals for new weapon systems are being considered—when the government's negotiating leverage is the greatest.

Figure 5: Specific Concerns Cited By Agency and Industry Officials

Agency	Industry
Limited awareness of flexibilities and expertise. Contracting and programming officials are not always aware of options they have in negotiating rights to intellectual property. They also do not adequately define data requirements.	*Limited awareness of flexibilities and expertise.* Government contracting and programming officials are not always aware of options they have in negotiating rights to intellectual property. They also do not adequately define their data requirements. The government's fallback position, or "comfort zone" is to resort to standard clauses. Unlimited rights or even government-purpose rights can dissuade companies from participating in contracts because it raises the possibility that sensitive data will end up with competitors.
Concerns over perceived risks. Industry perceives risks that sometimes limit their participation in contracts. These involve requirements related to patentable inventions, including "march-in rights," the definition of subject inventions, and protection of trade secrets.	*Apprehensions over the government's "march-in rights."* Inventions coming out of federally funded research become the property of the contractor; however, the contractor must attempt to commercialize the invention. If the contractor breaches this obligation, the government may "march in" and grant a license to a third party to use the patent. This action may also be taken to alleviate health and safety concerns. While "march-in rights" have reportedly never been exercised, some companies claim these rights deter them from doing business with the government.
	Apprehensions about the definition of "subject invention." Industry was concerned that this provision could mean that the government could have rights to inventions that get to the company's core technology. This particular concern caused some companies to decide not to engage in government-sponsored research at all.
	Concerns about protecting trade secrets. There is some information companies may want to keep secret to maintain an advantage over competitors. Yet the Bayh-Dole Act requires companies to disclose to the government inventions created with federal funds.
Projects involving multiple parties can be difficult. Projects involving multiple parties may also complicate negotiations because of competing interests for intellectual property rights.	*Projects involving universities can be difficult.* Universities may demand patent rights that industry is not willing to give up.
	Cumbersome agency processes. Agencies have cumbersome acquisition processes, which lengthen contract negotiations. The rapid pace of technological change and advances demand quicker turnaround times. Otherwise, industry will lose its competitive advantage.
	Inadvertent disclosure of proprietary data. Research projects often involve a range of contractors—some that work in a research capacity and others that work to support management, contract, or logistics-related functions. The concern of companies responsible for research is that their data will be improperly disclosed to or misused by these other contractors, or even the public. This could be the fault of either the government or the company itself for not properly marking data as proprietary. In either case, if the data is inadvertently disclosed, there is no remedy, and the company's intellectual capital may be devalued.

Actions that Can Be Taken to Address Concerns

Agency officials we spoke with generally agreed that some actions could be taken to address concerns about limited awareness of flexibilities and expertise without any legislative changes. Specifically, agencies could promote greater use of the flexibilities already available to them. DOD, for example, is advocating greater use of its "other transaction authority." This authority enables DOD to enter into agreements that are generally not subject to the federal laws and regulations governing standard contracts, grants, and cooperative agreements. By using this authority, where appropriate, DOD can increase its flexibility in negotiating intellectual property provisions and attract commercial firms that traditionally did not perform research for the government.

A second example of agency flexibility to address industry concerns over the allocation of rights under the Bayh-Dole Act is a form of waiver, known as a determination of exceptional circumstances. This waiver has been used, for example, to work out intellectual property rights between pharmaceutical companies and universities or other firms. In these cases, pharmaceutical companies provide compounds that NIH tests to identify whether these compounds are effective in treating additional diseases or ailments. Universities and other commercial firms perform these tests. The exceptional circumstances determination allows the pharmaceutical companies to retain the intellectual property rights to any discoveries coming out of these tests, rather than the performer of the tests. An NIH official explained that a determination of exceptional circumstances could be made in these cases because the program would not exist in the absence of such a determination.

Agencies could also strengthen advance planning on data requirements. For example, attention needs to be paid to what types of maintenance or support strategies will be pursued and what data rights are needed to support alternative strategies. Also, consideration could be given to obtaining priced options for the purchase of data rights that may be needed later.

Moreover, agencies could provide guidance on intellectual property issues to alert the workforce of potential concerns and solutions. Last year, for example, DOD issued an intellectual property guide that provides a description of the fundamental principles and concepts of negotiating intellectual property rights, a framework of the key aspects of intellectual property and how it is treated in government contracting, and a description of the major intellectual property issues that keep some

companies from responding to solicitations as well as possible solutions to attract their involvement. Lastly, agencies could undertake training and outreach programs to reinforce their guidance and further develop workforce expertise. DOD, for example, is developing training targeted at contracting officers and attorneys.

More substantive action may be warranted, but not without more in-depth examination of specific impediments cited by industry, the effectiveness of flexibilities already available, and the potential impact of suggested changes. The current framework, anchored by the Bayh-Dole Act, has generally been considered a success story in leading to greater commercialization of federally sponsored research. Further, more recent additions to that framework, such as DOD's other transaction authority, can serve as models for enhancing government's contracting flexibility in attracting commercial firms that traditionally have not worked for the government.

The challenge to address is not whether the government should have rights, but rather what rights it should hold, when these rights should be exercised, and what authority should be granted to waive these rights when it is in the best interest of the government.

Mr. Chairman, this concludes my statement. I would be happy to answer any questions that you or members of the subcommittee may have.

Contact and Acknowledgement

For further information, please contact Jack L. Brock, Jr., at (202) 512-4841. Individuals making key contributions to this testimony include Cristina Chaplain, Frank Fulton, John Hunt, Lorene Sarne, Christina Sklarew, Ralph White, and Karen Zuckerstein,

Mr. Chairman and members of the Subcommittee:

Thank you for inviting me to appear before you today to discuss intellectual property issues. My statement today is largely focused on rights to intellectual property and related data acquired through contracts.

As noted in your opening remarks the flow of technology from the commercial sector to government applications is frequently a source of real concern or tension on the part of both commercial entities as well as government agencies.

You asked us to take a look at these concerns and I'm pleased to report back to the Subcommittee.

With your permission, I can briefly summarize my statement.

In doing so I would like to make 4 basic points: First, what is the nature of the concern and is it real; second, what are the challenges or underlying problems which require action; third, what—if any—are the implications that might arise or continue if these concerns aren't addressed; and fourth, what are some of the options for moving forward.

First, let me tell you that the concern is real and is derived from an inherent tension between government needs and commercial entities' fears. The tension arises from the government's very real need for rights to IP and data necessary to provide critical services and meet program objectives. These rights were easier to secure when government R&D funding was predominant and the rights flowed from the government's investment. While government R&D spending is still substantial, it is no longer predominant. As such the government increasingly relies on commercially-generated technologies to meet its needs. This trend will only increase.

At the same time, the intellectual property sought by the government represents the very life-blood of the commercial company – its crown jewels. These companies don't always trust the government's intentions or its ability to protect the data associated with the intellectual property.

My second point gets to those underlying issues which really represent the barriers to most effectively meeting government's needs. Agencies identified three primary concerns. First and most prevalent, limited awareness and/or willingness among their own program and contracting officials to take advantage of the flexibilities already in place. Second, perceived risks on the part of commercial companies which limits their willingness to participate in government contracts or development efforts. And third concerns identified in dealing with multiple parties such as subcontractors or universities.

Commercial companies identified very similar concerns. First, a lack of understanding and/or an unwillingness to use available flexibilities. Second, a more defined – not perceived – concern over certain Bayh-Dole provisions such as "march in" rights or apprehensions over the definition of subject invention. Third, cumbersome agency processes and procedures. And fourth, very strong concerns over the span of rights the government wants over technical data and equal concerns over the government releasing proprietary data.

Third point: What are the implications of these concerns? Before moving into the implications, I need to add a point of emphasis—agency officials did not raise or cite specific instances where the agency was unable to acquire needed technology.

- The government may be buying more technical data than they need – thereby unnecessarily increasing the cost of the goods or services being contracted for.
- The government may not be buying enough data rights—also increasing the costs of the goods and services being purchased.
- Perhaps most important is the concern that some DOD components-in particular-raised: that they were not able to ~~get~~ attract some leading technologies companies to department research and development activities. To the extent companies choose not to participate in federal contracting, the government may not always be getting the best solutions for the best price.

> This brings me to my final point: options for moving forward. The best first step is fairly obvious. Agencies need to clearly define their IP and data needs and use the available flexibilities already in place to meet those needs. Clearly not as simple as I just stated or the level of concern would be far less. Although tools such as Defense's intellectual property guide are excellent as reference and how-to guides, the problem resides in getting the right people to effectively use the tool.

More substantive action may be warranted, but not without more in-depth examination of specific impediments cited by industry or the agencies, the effectiveness of flexibilities already available, and the potential impact of suggested changes. The current framework, anchored by the Bayh-Dole Act, has generally been considered a success story in leading to greater commercialization of federally sponsored research. Further, more recent additions to that framework, such as DOD's other transaction authority, can serve as potential models for enhancing government's contracting flexibility in attracting commercial firms that traditionally have not worked for the government.

The challenge to address is not whether the government should have rights, but rather what rights it should hold, when these rights should be exercised, and what authority should be granted to waive these rights when it is in the best interest of the government.

Mr. TOM DAVIS OF VIRGINIA. Mr. Wu, thanks for being with us.

Mr. WU. Good morning, Chairman, Ranking Member Turner and members of the subcommittee. I'm pleased to be here with you today to discuss the Department of Commerce initiatives on government research and development and intellectual property rights, especially relating to the transfer of government technology to the private sector for commercialization, which we commonly refer to as technology transfer. I commend you for your leadership on this issue and for holding this hearing. It's particularly relevant as our Nation has been marshalling our R&D resources to winning the war on terrorism and protecting our homeland security and defense.

The Department of Commerce, through our Technology Administration, has specific roles and responsibilities in the areas of technology transfer, particularly through our Office of Technology Policy, OTP. As the agency that represents industry, the Department serves as the administration's main focal point for the discussion of technology transfer issues. Our OTP coordinates and works closely with the Interagency Working Group on Technology Transfer. It's a group of technology transfer managers from all the Federal agencies.

With OTP leadership, this working group discusses a wide range of agency activities and issues related to technology transfer, recommends policies and coordinates the submission of congressional reports. In our role as the coordinator and leader of the Interagency Working Group, OTP has crafted administration support for a number of technology transfer-related provisions and legislation, including the most recently passed Technology Transfer Commercialization Act of 2000.

As the administration considers ways to improve the efficiency and speed of technology transfer, the Interagency Working Group will continue to be a strong asset in organizing consultations with private and public technology transfer organizations, coordinators, identifying recommendation and also prioritizing appropriate administrative and regulatory action.

The Working Group is aware of the changing landscape of the Federal research and development. As you said, Mr. Chairman, there has been a great change in our Federal R&D. And our Federal Government is no longer the primary driver for U.S. science and technology investment. It has become the private sector, and as a result, we must pay greater attention to how technology gets developed and how the results of research and technology make their way to the marketplace, including the important impact of intellectual property rights in these priorities, especially from a technology transfer vantage point.

Technology transfer tools, such as cooperative research development agreements [CRADA's], and patent licensing, are relatively simple ways for U.S. businesses to develop federally funded innovations into commercially useful products and processes. And Congress has led the way in technology transfer. As you know, Mr. Chairman, I had the pleasure of working with Congresswoman Morella, who was the sponsor of two significant technology transfer laws affecting CRADA's and technology licensing, as well as your former committee, the House Science Committee, which helped cre-

ate in 1980 the most seminal technology transfer laws, the Stevenson-Wydler Innovation Act and the Bayh-Dole Act.

The manner in which the Federal Government works with the private sector in developing and distributing technologies changed fundamentally with the passage of Stevenson-Wydler and Bayh-Dole. The agencies in the private sector began to find ways to partner in the development of technologies that both furthered agency missions and advanced competitiveness of industry and the overall strength of our economy. And as a result, Federal tech transfer has developed everyday products such as GPS, the HIV home test kits, stronger materials for more fuel-efficient cars; hybrid corn, that are more resistant to drought and disease. And these are just few of the many hundreds of examples of technologies that the Federal Government originally held intellectual property title to and either licensed out the technology or have collaborated with industry to commercialize.

And through the years, Congress based on inputs elicited from industry and working also with our Interagency Working Group has attempted to improve and streamline the technology transfer process, because it's clear for a strong and effective research and development enterprise, we need to partner with the three entities that perform research and development in this Nation, and they are the Federal Government, universities and industry.

And for effective commercialization of a new innovation or technology, industry must be given adequate incentives to bring a product to the marketplace. For commercialization to be appropriately incentivized, industry needs to have sufficient intellectual property rights and a procedure that is as streamlined and impediment-free as possible. And that is precisely what Congress tried to do in your most recent consideration of technology transfer laws in consultation with our Working Group.

For CRADAs, for example, originally the law was designed to protect a great deal of flexibility for intellectual property rights, but then they found out that in negotiations with CRADA's, which are essentially contracts, that it became too cumbersome. There wasn't a uniform standard for intellectual property rights, and so a law was passed in 1995, the National Technology Transfer Advancement Act, that provided for exclusive license in the field of use for a CRADA, and that helped provide some uniformity and certainty for intellectual property rights. And this also helped decrease the time and effort acquired in negotiation that hindered collaboration by private sectors at Federal laboratories.

And the same was the case with the Bayh-Dole Act with technology licensing. There was such a long laborious negotiation and process time for a company to license at the Federal laboratory, that the Technology Transfer Commercialization Act of 2000 helped to streamline these efforts. So it's clear that we need to remove the procedural obstacles, and to the greatest extent possible, within the public interest, the uncertainty involved in the licensing and also the collaboration of working with Federal partners. And given the importance and the benefits of technology transfer, the Department of Commerce has assisted Congress to refine the technology transfer process, facilitate greater university, government and industry collaboration. And as a result, the ability of the United States to

compete has been strengthened and a new paradigm for greater collaboration among the scientific enterprises has been created.

We look forward to working with you, Mr. Chairman, and the members of the committee, in our Interagency Working Group to try to improve and enhance the technology transfer law so that we can meet the national priorities at hand. Thank you very much.

Mr. TOM DAVIS OF VIRGINIA. Thank you very much.

[The prepared statement of Mr. Wu follows:]

Statement of
Benjamin H. Wu
Deputy Under Secretary for Technology

Technology Administration
U.S. Department of Commerce

Before the

Committee on Government Reform
Subcommittee on Technology and Procurement Policy

House of Representatives
United States Congress

"Intellectual Property and Government R&D"

May 10, 2002

TESTIMONY OF
BENJAMIN H. WU
DEPUTY UNDER SECRETARY FOR TECHNOLOGY
U.S. DEPARTMENT OF COMMERCE

BEFORE THE
SUBCOMMITTEE ON TECHNOLOGY AND PROCUREMENT POLICY
HOUSE COMMITTEE ON GOVERNMENT REFORM
MAY 10, 2002

Good morning, Chairman Davis and Members of the Subcommittee. I am Ben Wu, Deputy Under Secretary for Technology at the Department of Commerce and I am pleased to be here with you today to discuss the Department's efforts on government research and development (R&D) and intellectual property rights – especially relating to the transfer of government technology to the private sector for commercialization. This issue is particularly important as our nation is marshaling our R&D resources towards our national priority of protecting our homeland security and defense.

In my testimony, I will review the Department of Commerce roles and responsibilities in technology transfer, the importance of intellectual property rights in creating greater innovation partnerships with the Federal government, recent technology transfer laws and its impact on intellectual property rights, and offer some suggestions regarding the future of technology transfer.

The Department of Commerce Roles and Responsibilities in Technology Transfer

The Department of Commerce's Technology Administration has specific roles and responsibilities in the area of technology transfer, particularly through two of its component bureaus: the Office of Technology Policy and NIST. These functions are detailed below.

Technology Administration, Office of Technology Policy (OTP)

The Office of Technology Policy plays a significant role in the development, implementation, and analysis of technology transfer policies and practices, in close consultation with Congress and other agencies. As the Administration's focal point for discussion of technology transfer issues, OTP also coordinates and works closely with the Inter-Agency Working Group on Technology Transfer (IAWG). This group is made up of technology transfer practitioners and coordinators from all federal agencies with extramural research programs. With OTP leadership, the IAWG discusses a wide range of agency activities and issues related to technology transfer, recommends policies related to technology transfer, and coordinates the submission of data for congressional reports.

OTP's statutory responsibilities include:

- Assisting agencies in the implementation of relevant laws, including the Bayh-Dole Act and the Stevenson-Wydler Act;

- Developing policies and issuing regulations governing the ownership of patents arising from federally funded research and the licensing of federally owned inventions (see implementing arrangements in 37 CFR Parts 401 and 404); and

- Compiling and analyzing information and reporting on agency implementation of technology transfer mechanisms such as Cooperative Research and Development Agreements (CRADA) and patent licenses.

Through FY 2000, the Office of Technology Policy was responsible for producing a biennial report to Congress on the technology transfer activities of all federal agencies. Requirements in the Technology Transfer Commercialization Act of 2000 (TTCA) shifted this reporting responsibility to an annual basis. Beginning in the current fiscal year and based on the law, each agency with a federal laboratory must produce with its budget submission an annual report on its technology transfer activities and outcomes. In addition, the Secretary of Commerce is required to prepare a government-wide summary report, based on agency submissions.

The Office of Technology Policy is responsible for: (1) coordinating the submission of the Department of Commerce's annual technology transfer report, and (2) producing the Secretary's summary report to the President and the Congress each year after the President's budget request for the next fiscal year becomes public.

In the role of coordinator and leader of the IAWG, OTP has crafted administration support for a number of technology transfer–related provisions and legislation, including the recently passed Technology Transfer Commercialization Act of 2000. As the Administration considers ways to improve the efficiency and speed of technology transfer, it is important to consult the technology transfer practitioners throughout the government, as well as their counterparts in industry and universities. TA's experience and relationship with the IAWG has been, and will no doubt continue to be, a strong asset in organizing such consultations, identifying recommendations, and prioritizing appropriate administrative or regulatory action.

Technology Administration, NIST

NIST's mission is to develop and promote measurement, standards, and technology to enhance productivity, facilitate trade, and improve the quality of life. The NIST laboratories develop and disseminate measurement techniques, reference data, test methods, standards, and other infrastructural technologies and service that support U.S. industry, scientific research, and the activities of many federal agencies. NIST works directly with industry partners (and consortia), universities, associations, and other government agencies, and utilizes diverse mechanisms to transfer the knowledge and technologies that result from its laboratory research.

In keeping with its mission, NIST's technology transfer activities are focused on pursuing the most efficient and effective path to utilization and commercialization, which often

necessitates the broad dissemination of research results, rather than the creation of intellectual property and associated licenses.

Activities carried out by NIST related to technology transfer include:

- NIST's Office of Technology Partnerships manages NIST's formal technology transfer activities, such as CRADA participation and the protection and licensing of intellectual property.

- Pursuant to the Technology Transfer Commercialization Act of 2000, NIST will report on its technology transfer activities annually to the Technology Administration's Office of Technology Policy. This information will be incorporated into a report submitted with the Department's annual budget documents. A copy of NIST's FY 2001 report submission is attached, for your information.

- NIST works closely with the Office of Technology Policy on other technology transfer-related issues, through participation in the IAWG, the Federal Laboratory Consortium for Technology Transfer (FLC), and informal consultation.

The Importance of Intellectual Property Rights in Creating Greater Innovation Partnerships with the Federal Government through Technology Transfer

Mr. Chairman, I appreciate your review of this important issue. As you have stated before, since government has ceased to be the sole driving force in United States R&D, we need to ensure that our Federal policies and procedures must reflect a growing government partnership innovation role.

Indeed, for many decades, R&D was a decidedly government affair. That world as we knew it is now gone and has been replaced by a global science and technology enterprise, dominated by the private sector, generating new developments at an accelerating rate, changing the very foundations on which we build our economy and our security.

Driven by the Cold War and the Space Race, in the 1960's, Federal R&D investments exceeded industry R&D by a factor of 2 to 1. Today, things are quite different. U.S. industry now outspends the Federal government on R&D by more than 2 to 1, reversing the Cold War/Space Race-era ratio.

As a result of these trends, Federal government funding of R&D, while still very important, is no longer the primary driver of United States science and technology investment. Thus, the primary focus on how to improve the overall effectiveness of U.S. R&D, and the broader environment for innovation must shift from a focus on Federal science and technology programs to the broader view of U.S. R&D and innovation.

The drivers of technological advancement increasingly reside in the private sector. As a result, this has significant implications for policies related to our economy. We must pay

greater attention to how technology gets developed and how the results of research and technology development make their way to the marketplace or get deployed throughout the economy – including the important impact of intellectual property rights in these priorities.

Technology transfer tools such as Cooperative Research and Development Agreements (CRADA) and patent licensing are relative simple ways for U.S. businesses to develop Federally funded innovations into commercially useful products and processes. Congress created these tools in the 1980's at a time of unprecedented technological challenge to U.S. industry, but they are useful even in today's dynamic technology markets.

The manner in which the Federal government works with the private sector in developing and diffusing technologies changed in fundamental ways with the passage of the Bayh-Dole, Stevenson-Wydler, and Federal Technology Transfer Acts. The agencies and the private sector began to find ways to partner in the development of technologies that both furthered agency missions and advanced the competitiveness of industry and the strength of our economy.

Federal technology transfer has helped develop everyday products such as stronger and lighter materials for more fuel efficient cars, the Global Positioning System (GPS) that offers precise pinpoint precise locations for navigation on the seas or on the highways, and the HIV home test kit that allows people to conduct a preliminary test in the privacy of their own home. These are just a few of the many hundreds of examples of technologies that the Federal government originally held intellectual property title, and either licensed out the technology or have collaborated with industry to commercialize. These examples demonstrate the power of Federal technology transfer stimulating our American economy.

Recent Technology Transfer Laws and Intellectual Property Rights

Congress has a rich and long history of promoting technology transfer. Federal technology transfer began with the Stevenson-Wydler Technology Innovation Act in 1980 (P.L. 96-480). The Stevenson-Wydler Act required Federal laboratories to take an active role in partnering with industry and established technology transfer offices at all major Federal laboratories.

That landmark legislation was expanded considerably with the Federal Technology Transfer Act of 1986 (P.L. 99-502) and the National Competitiveness Technology Transfer Act of 1989 (P.L. 101-189). The Federal Technology Transfer Act of 1986 allowed a government-owned, government-operated laboratory, which we know as a GOGO, to enter into a Cooperative Research and Development Agreement (CRADA) with industry, universities, and others. A CRADA allows a laboratory and an industrial partner to negotiate patent rights and royalties before they conduct joint research. This gives the company patent protection for any inventions and products that result from the collaboration. This patent protection provides an incentive for the companies to invest in turning laboratory ideas into commercial products.

A CRADA also provides a Federal laboratory, in fulfilling its mission, with valuable

insights into the needs and priorities of industry, and with the expertise available only in industry. The National Competitiveness Technology Transfer Act of 1989 extended the CRADA authority to a government-owned, contractor-operated (GOCO) laboratory such as the Department of Energy labs. It also protected information and innovations, brought into and created through a CRADA, from disclosure.

Since 1986, over 2,000 CRADA's have been signed, resulting in the transfer of technology, knowledge, and expertise back and forth between our Federal laboratories and the private sector. Under current law, the work done under a CRADA must not detract from the mission responsibilities of a Federal laboratory.

Yet despite the success of the CRADA legislation, there were existing impediments for companies that Congress felt needed to be addressed. The law was originally designed to provide a great deal of flexibility in the negotiation of intellectual property rights to both the private sector partner and the Federal laboratory. However, it provided, little guidance to either party on the adequacy of those rights a private sector partner should receive in a CRADA.

Agencies were given broad discretion in the determination of intellectual property rights under CRADA legislation. This often resulted in laborious negotiations of patent rights for certain laboratories and their partners each time they discussed a new CRADA. With options ranging from assigning the company full patent title to providing the company with only a nonexclusive license for a narrow field of use, both sides had to undergo this negotiation on the range of intellectual property rights for each CRADA.

This uncertainty of intellectual property rights, coupled with the time and effort required in negotiation, hindered collaboration by the private sector with Federal laboratories. The fact is companies are reluctant to enter into CRADA's, or equally important, to commit substantial investments to commercialize CRADA inventions, unless they have some assurance they will control important intellectual property rights.

The enactment of the National Technology Transfer and Advancement Act of 1995 (Public Law 104-113) enhanced the possibility of commercialization of technology and industrial innovation, by providing assurances that sufficient rights to intellectual property will be granted to the private sector partner with a Federal laboratory. The Act guarantees to the private sector partner the option, at minimum, of selecting an exclusive license in a field of use for a new invention created in a CRADA. The company would then have the right to use the new invention in exchange for reasonable compensation to the laboratory.

In addition, the Act addresses concerns about government rights to an invention created in a CRADA. It provides that the Federal government will retain minimum statutory rights to use the technology for its own purposes.

Another one of the most successful legislative frameworks for advancing Federal technology transfer has been the Bayh-Dole Act of 1980 (P.L. 96-517, Patent and

Trademark Act Amendments of 1980). The Bayh-Dole Act permits universities, not-for-profit organizations, and small businesses to obtain title to inventions developed with Federal support. The Bayh-Dole Act also allows Federal agencies to license Government-owned patented scientific inventions nonexclusively, partially exclusively, or exclusively, depending upon which license is determined to be the most effective means for achieving commercialization.

Critical pressures originally prompted the passage of the Bayh-Dole Act. Prior to its enactment, many discoveries resulting from Federally funded scientific research were not commercialized for the American public's benefit. Since the Federal Government lacked the resources to market new inventions, and private industry was reluctant to make high-risk investments without the protection of patent rights, many valuable innovations were left unused on the shelf of Federal laboratories.

With its success licensing Federal inventions, the Bayh-Dole Act is widely viewed as an effective framework for Federal technology transfer. For example, the Association of University Technology Managers (AUTM) conducted a study on the effect of the Bayh-Dole Act. AUTM said that the Bayh-Dole Act not only encourages the commercialization of Government-owned patents that would otherwise gather dust on the shelf, but it also brings in revenues to the Federal Government through licensing fees.

Nevertheless, both past and prospective private industry partners voiced their concerns regarding the Federal technology licensing process. The private sector has already demonstrated a strong interest in the strategic advantages of partnering with a Federal laboratory through a Cooperative Research and Development Agreement (CRADA) or through the licensing of Government-owned technology.

Companies were deterred, however, by the delays and uncertainty often associated with the lengthy Federal technology transfer process. These procedural barriers and delays could increase transaction costs and are often incompatible with the private sector's need for a swift commercialization calendar. The regulations governing Federal technology transfer also made it difficult for a Government-owned, Government-operated laboratory (GOGO) to bring existing scientific inventions into a CRADA even when its inclusion would create a more complete technology package.

A GOGO did not have the flexibility that small business and non-profits had in managing their inventions under the Bayh-Dole Act. Also, a GOGO, unlike a GOCO, faced statutory notification provisions when granting exclusive licenses, and more importantly, it could not include existing inventions in a CRADA.

By reducing the delay and uncertainty created by existing procedural barriers, and by lowering the transactional costs associated with licensing Federal technologies from the Government, Congress believed it could greatly increase participation by the private sector in its technology transfer programs. This approach would expedite the commercialization of Government-owned inventions, and through royalties, could reduce the cost to the American taxpayer for the production of new technology-based products

created in our Nation's Federal laboratories.

As a result, the Technology Transfer Commercialization Act of 2000 (P.L. 106-404) was enacted. The law sought to remove the procedural obstacles and, to the greatest extent possible within the pubic interest, the uncertainty involved in the licensing of Federally patented inventions created in a Government-owned, Government-operated laboratory, by applying the successful Bayh-Dole Act provisions to a GOGO. The ability of the United States to compete has been strengthened and a new paradigm for greater collaboration among the scientific enterprises that conduct our nation's research and development – Government, industry, and universities – is being created.

Conclusions

Successful technology transfer is a constantly evolving effort. In its biennial technology transfer report entitled *Tech Transfer 2000,* the Department of Commerce's Office of Technology Policy found the following:

- Managing intellectual property must become more of an agency priority;
- More help is needed to make it easier for industry partners to find the right laboratory;
- A CRADA can be used effectively in many different circumstances and is an extremely flexible instrument; and
- Measures of success in technology transfer must be developed by agencies in partnership with the business community.

Additionally, Arden Bement, the Director of NIST, performed a recent technology transfer review at his laboratory to determine where NIST could streamline or improve the processes for technology transfer. For example, NIST is considering: (1) if there is a need to clarify our licensing regulations, particularly with regard to definitional issues associated with the "substantially manufactured" and "reasonable and necessary" requirements; (2) establish time limits on the appeals process that both preserve the right of appeal of an aggrieved party, while at the same time preserving the ability of an agency to proceed with the granting of an exclusive license; and (3) In addition, efforts already are underway, as a result of the Technology Transfer Commercialization Act of 2000 (TTCA), to improve the annual reporting procedures of agencies. This also provides an opportunity for agencies to identify the efficacy of their technology transfer programs, and provide information demonstrating how the technology transfer tools employed support each agency's unique mission. Of course, we have to remember that the preparation of reports is a time-consuming task. We need to avoid imposing too much detail requirements; otherwise laboratory and management personnel are diverted from fulfilling the agency's key mission.

For NIST, technology transfer activities are focused on pursuing the most efficient and effective path to utilization and commercialization, which often necessitates the broad dissemination of research results, rather than the creation of intellectual property and associated licenses. To reflect the diverse ways in which NIST transfers technology and knowledge to its customers, NIST's FY 2001 report provides data for Cooperative Research and Development Agreements (CRADA), invention disclosures, licenses, and license income, but also for other important tools utilized by the laboratories, such as Standard

Reference Materials available, technical publications produced, items calibrated, and guest researcher collaborations.

Thank you, Mr. Chairman. The Department of Commerce plays a significant role in promoting effective technology transfer and I appreciate the opportunity to present our views today on R&D and intellectual property rights from a technology transfer viewpoint. I will be pleased to answer any questions that you and the other members of the Committee may have.

Mr. TOM DAVIS OF VIRGINIA. Dr. Tether. Thanks for being with us.

Mr. TETHER. Thank you, Chairman Davis, Congressman Turner and Horn. I'm pleased to be here. I'm Tony Tether, director of DARPA, which is the Secretary of Defense's corporate research center, is one way to look at us.

I'm not an expert on IP. However, I've had experience at industry both at Ford where I was the chief technology officer in using patents as a measure of success through the internal IR&D program, and also at DARPA, where we constantly worry about maintaining IP rights and bringing in firms that might not want to do business with us.

In general, the existing policies for allocating IP created under Bayh-Dole works reasonably well. Companies that are used to working with the government are typically comfortable with the policies. But that doesn't mean that everything is perfect. The policies and their complexity worry people who are unfamiliar with the government.

Bayh-Dole is uniform, which is good. You know how somebody is going to apply it. But it is inflexible, which is bad. The terms and conditions are largely defined by regulations. And you can't negotiate different terms, even if you think they would be sensible.

DARPA and the services have funding instruments called Other Transactions that allow us to avoid these problems in some cases. Basically, I agree with Congressman Turner that Other Transactions, which were designed to bring in nontraditionals, on the surface appears that all you're really doing is going to people who most certainly know how to deal with the FARS. Since I'm not sure 95 percent—I accept your number of 95 percent, but I do know it's a large number. But the real value of the Other Transactions is what it allows us to do with the prime contractors who are used to dealing with the government is to avoid the flow-down provision.

In other words, we allow them to go out to the small firms in their area and not have to flow down Bayh-Dole so they could possibly bring in people who have a product and have research ongoing and have them enter into a research with the company without the small supplier—small business worry that for 50K they're going to lose all of their intellectual property rights to the government.

If we didn't allow this flow-down, then the prime contractor would have to flow down Bayh-Dole to those small companies. It appears basically that is the strongest advantage we have of having the OT efforts with respect to intellectual properties, allowing the primes to not have to flow down the Bayh-Dole provisions, when it makes sense to not do so, and thereby bringing in small firms that otherwise would not want to deal with them.

I know that from my own personal experience with Ford, that there were many small companies that we really just wanted a little bit of help, but they were concerned about doing anything with this, if it meant that they had to enter into provisions as to what—who would own what they—what they learned on that little piece of effort, because all of their other intellectual property was now put at risk because of the difficulties separating what you knew before and after.

In short, we do believe that our flexibility in IP and other issues through the OT system have really helped us deal with people we otherwise couldn't deal with. So with the OT provisions at DARPA, I do feel that we do have the flexibility to reach out and bring in nontraditional firms directly as primes, and even in those cases where we don't reach out and have nontraditional—we have a prime contractor, a typical defense firm, by allowing them to not have to flow down—that the flexibility has really been great.

At our place speed is everything. We basically have an organization that is based upon two premises, replenishment and innovation. We do that by basically having people replenished at the rate of 25 percent a year. Everyone turns over at DARPA about 4 or 5 years. And also speed of execution. And by having the capability to have Other Transactions, we are able to get to contract with firms, both nontraditionals who we would never get the contract with, and also prime contractors that normally deal with the FAR much faster than we otherwise would have to. We don't force them to have to go and form a separate company, a joint venture, which takes time, which they all would have to do, and so the other transactions allow a great deal of flexibility in that regard.

And with that, I'll be happy to take any questions.

[The prepared statement of Mr. Tether follows:]

Statement by

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Submitted to the

Subcommittee on Technology and Procurement Policy
Committee on Government Reform
United States House of Representatives

May 10, 2002

NOT FOR PUBLICATION UNTIL RELEASED BY THE SUBCOMMITTEE

Thank you, Mr. Chairman and members of the Subcommittee, for the opportunity to testify about the intellectual property issues facing the research and development community within the Department of Defense (DoD).

My name is Dr. Anthony Tether and I am the Director of the Defense Advanced Research Projects Agency (DARPA). DARPA's mission is to develop imaginative, innovative, and often high-risk ideas offering a significant military technological impact well beyond normal evolutionary developments and to pursue these ideas from the demonstration of technical feasibility through the development of prototype systems.

DARPA is a small organization. Our employees, recruited from Government, academia, and industry, are highly educated technical experts who understand the advances and state-of-the-art in their technical areas. These experts rotate through DARPA on limited term appointments, thus ensuring that DARPA has continual access to experts with cutting edge knowledge in their fields.

In the 44 years of DARPA's existence, we have seen a surprising shift in research and development in the United States. For the first few decades, DoD was the leading force in pushing new and innovative high-tech inventions into application by first pursuing these technologies for the benefit of the Government; the technologies then migrated into the commercial marketplace for use by the public. Examples of this phenomenon include the laser, Global Positioning System, microwave technology, and the Internet. Those entities that performed the majority of the fundamental research in America, the universities and nonprofit research centers, relied heavily on the Government to fund their projects and usually found it difficult to obtain funding from commercial sources.

In the last 25 years, this paradigm has shifted radically. Instead of the Government dominating the market in many technology areas, such as microelectronics, computing, and network communications, commercial companies are taking the lead in creating many new technologies. Commercial companies are now investing substantial amounts to stay on the cutting edge, amounts that rival the Government's investments in many cases. Instead of being the leader in all fields, the Government is now sometimes one of many customers for a technology and often not even the largest or most influential customer. The Government now must use flexible business deals that will accommodate the needs and desires of both parties in order to attract those high-tech companies and individuals with creative inventions and solutions.

As head of a research and development organization whose prime focus is on radical innovation, I am here today to provide you with our perspective on intellectual property rights. We have been told by contractors who were reluctant to work with the Government that their main issues included Government unique requirements and processes, and limitations on the Government's ability in many instances to fully negotiate intellectual property rights. I am sure that other organizations within DoD have had different experiences, given their diverse missions and concerns.

The creation and protection of intellectual property is the preeminent question in working with many commercial firms. For many organizations, their main asset is their intellectual property and they zealously guard this property from competitors. The methods of protecting this information vary from company to company. No longer do corporations just routinely patent their important and valuable inventions. As technology obsolescence becomes shorter, many companies choose to protect their information as trade secrets, through copyrights, or with a combination of methods, including patents, copyrights, trademarks, and trade secrets.

The main statutory scheme addressing patentable inventions, the Bayh-Dole Act, was enacted over twenty years ago. Prior to the Bayh-Dole Act, the Government took title to any inventions created under Government funding and made those inventions available to the public. As a result, few American companies attempted to use and commercialize these inventions because there was no guarantee of exclusivity.

Congress wanted to encourage inventors not only to create innovative intellectual property, but also to develop it and get the results out into the commercial marketplace.

The Bayh-Dole Act was written to allow the inventor to retain the title or property right in the invention created under a Government contract, grant, or cooperative agreement, while giving the Government a license to use the invention for government purposes. In this way, the contractor would have exclusive commercial rights in the invention, while the Government received sufficient rights to accomplish its mission and justify its investment.

The downside of this statutory scheme is its uniform approach. The Government is required to take a license in all cases.

The Bayh-Dole Act, however, does not allow the Government to take a lesser license than one for government purposes, regardless of the situation. In addition, the Bayh-Dole Act does not consider a major area of intellectual property protection: trade secrets. As the useful life of technology grows shorter and with the time and expense involved in pursuing a patent, protecting intellectual property as a trade secret can be an attractive option.

The Bayh-Dole Act contemplates protection of inventions only through the patent process. The statute requires the inventor to patent the invention or the Government may choose to pursue the patent, but does not allow the inventor to choose to protect the invention via a trade secret. However, the funding agency may agree not to file a patent application on such an invention, which would allow inventors to exploit the invention as they see fit.

While the statute and regulations covering nonpatentable inventions, also identified as technical data and software, take a slightly different approach, the basic tenets are the same. 10 U.S.C. 2320 addresses the types of licenses the Government takes in procurement contracts. In that scheme, the contractor retains title to the data, but the level of license the Government receives depends on the source of the funding under the contract.

If the Government pays the entire bill, a broad, unlimited license is granted. If the contractor privately funds the creation and wishes to include the data in the contract, the Government receives a limited license.

The regulations implementing this statute do recognize that there may be some cases in which a special license is necessary, but limits the Government's flexibility to accepting nothing less than a limited license to use the information only within the Government.

Although these statutes and regulations represent reasonable approaches that work well in many, even most, cases, they do not allow for full flexibility to negotiate specialized or unique intellectual property approaches. There are cases, particularly in research and development, in which the program goals and interests and roles of the parties might justify the Government's acceptance of lesser or different rights than those normally required by the statutes or regulations.

- Perhaps the Government's goal is to get only certain items of intellectual property from a program, and it is willing to forego rights in other items.
- Perhaps all the Government wants is to buy the product, not the intellectual property.
- Perhaps the Government is willing to wait a period before using its government-purpose or limited license rights to allow the contractor time to accomplish its commercial goals.

These problems were one of the main reasons why DARPA pursed the contractual authority ultimately codified in 10 U.S.C. 2371. This statute provided for the so-called "Other Transaction" authority. Defined in the negative, an Other Transaction or OT is an agreement that is not a government procurement contract, grant, or cooperative agreement, all of which are subject to Bayh-Dole. (The commercial world would, of course, recognize an OT as a contract in the normal legal sense of the term.)

Limited to basic, applied, and advanced research projects, the authority was given to DoD to allow it to reach those contractors that reluctant to do business with DoD because of the unique Government requirements in statute and regulation. OTs for research are intended to focus on technology where there is dual military-commercial interest. The dual-use nature of these technologies is further emphasized by a statutory requirement that the commercial participants share the cost of the research or development to the maximum extent practicable. Typically, the commercial participants provide half the costs of the project.

OTs are exempt from compliance with most of Title 10 of the United States Code and all the Federal Acquisition Regulations and Service and agency specific supplemental regulations. This freedom has allowed DARPA to flexibly negotiate all aspects of each agreement to create a useful and valuable arrangement for both parties. Such flexibility makes even more sense when one considers the large investment the commercial companies make in these projects. After successfully using the OT authority for research projects for several years, the authority was extended to the Military Services.

DARPA then asked for, and was given, statutory authority to enter into prototype projects directly relevant to major weapon systems proposed to be acquired and developed by DoD. This

authority also has been extended to the Services. This new authority was needed because prototype projects are quite different from cost-sharing dual-use research projects done under OTs. We normally don't expect contractors to be willing to cost share on prototypes since there is typically no customer other than DoD for the products. These prototype projects could have been conducted under a procurement contract, but we wanted to attract new companies to DoD and encourage existing DoD contractors to manage more innovatively and effectively.

Not only have new contractors participated as the lead or prime contractor in these projects, but the flexibility inherent in this authority has allowed our traditional Defense contractors to attract and interact in a more flexible way with their team members and subcontractors. With this type of contractual arrangement, the prime contractors are better able to negotiate innovative arrangements with their subcontractors and attract nontraditional or commercial entities to participate in the project without having to flow down many of the Government-specific clauses.

Neither research nor prototype OTs are covered by the Bayh-Dole Act and the intellectual property regulations in the Federal Acquisition Regulations and the Defense Federal Acquisition Regulations Supplement. The Bayh-Dole Act specifically applies to procurement contracts, grants, and cooperative agreements, and the regulations apply only to procurement contracts. As a result, OTs have few statutory or regulatory requirements, and DARPA, the Military Services, and the Defense agencies have the ability to freely negotiate all aspects of these agreements, most notably the intellectual property portion.

This freedom helps DARPA attract and retain relationships with some of the most cutting edge companies in America, including those that will not accept a traditional research contract, such as Hewlett-Packard and 3M. DARPA also is able to craft very successful and beneficial arrangements with small companies that do not have the resources or inclination to adopt the Government-unique contracting system. These small companies often have few corporate assets other than their intellectual property and want to negotiate specific intellectual property protection structures that conform to their internal processes, not those of the Government.

If the current trends continue, and there is no indication they will not, innovation will only become more important to the global marketplace. With this added importance comes a need to innovate quickly and jealously guard new inventions. If the Government is not able to react to this new reality by changing how it operates, it will miss out on many of the best technologies because it will not be able to offer an attractive business deal to the companies at the forefront of innovation.

I want to stress again that DARPA is a research and development organization whose focus is on radical innovation. As such, we don't have prime responsibility for procurement and maintenance of equipment for the armed forces or other government agencies. Continued access to intellectual property rights -- including technical data rights -- becomes more important to the Military Services that buy into systems often costing many billions of dollars and that generally have no commercial analogues or competitors. Those organizations not only help bring a technology to birth and use, but must be able to purchase, use and maintain those systems for years, sometimes decades. They have legitimate concerns that they won't be stuck having to

negotiate additional intellectual property rights, potentially at a premium, once they are in possession of large inventories of equipment that demand maintenance. Thus, they sometimes have a wider range of concerns for continuing access to technology that Bayh-Dole traditionally has addressed. I'm not here to assess the applicability of Bayh-Dole to a wide range of acquisition programs. Assessing what rights one should reserve at various stages of acquisition programs would demand lengthy discussions with Service contract negotiators and others who have much more experience in those matters than I. Rather, I want you to understand that for some purposes, the flexibility that OTs allow is useful to DARPA and its industrial partners.

While the Bayh-Dole Act was a necessary and hugely beneficial change when enacted, it does not always give the Government the flexibility it may need in today's marketplace. No one would want to go back the tenets of the pre-Bayh-Dole era.

Thank you for the opportunity to speak with you today. I look forward to your questions.

Mr. TOM DAVIS OF VIRGINIA. Thank you very much. Let me start the questioning with Mr. Horn, then Mr. Turner, then Mrs. Davis.

Mr. HORN. Mr. Brock, in your review for the GAO in the Bayh-Dole Act on exceptional circumstances, what, if anything, did you see was not really an exceptional circumstance? Can you give me a feel for whether that clause needs to be expanded more or not?

Mr. BROCK. The exceptional circumstances under Bayh-Dole in our review, we found very few actually, and the ones that were pointed out to us seemed to be appropriate. Just by way of a little bit of background, under Bayh-Dole the company—the commercial company keeps the patent rights, and the government has the license rights to it for government use. The government can waive that so that the commercial company does not get the patent. Where that has been useful has been particularly at NIH, is when a pharmaceutical company has a drug that they're testing through NIH, and NIH, in turn, contracts with the university or a private lab to test that drug. If they, in turn, develop a new use for the drug, under Bayh-Dole, they would have rights to the patent for that. Well, that's a disincentive to the pharmaceutical company for wanting to do the—to do any kind of testing at all with NIH.

So by having this declaration, NIH removes the patent rights from the research lab or the testing lab, and those rights would revert back to the pharmaceutical company. So in the examples that we identified, that declaration worked very well. We did not see—I'm not saying there are no bad examples, but in our review, we did not come across any of those. It's not widely used.

Mr. HORN. Mr. Tether, you've got quite a record in the private sector. Looking at this type of exceptional bit, should it be changed in any way, or is it OK now?

Mr. TETHER. The exception to the——

Mr. HORN. Yeah.

Mr. TETHER. Quite frankly, I didn't know there was an exception.

Mr. HORN. Well, you could go back and change the language.

Mr. TETHER. But I would—and maybe it's an education problem of the contracting officials who negotiate with the government. I would really like to almost query them as to how many of them realize that there is an exception, and if they wanted to ask for a waiver, who did they have to go to to get that waiver? Now, if it was a local—in other words, if they themselves could do the waiver, then it's a very useful provision.

But if it turns out, as I believe is the case, that in order to get the waiver, that they basically have to go two or three levels up the chain—and I don't know this—then I think, one, they probably don't know about the exception; and two, they probably wouldn't try to execute it for the time delay and the effort required in going and doing that.

Mr. HORN. One of the things that's occurred over the last 10 years and started in this room, as a matter of fact, there's a delegation from the every 6 months or sometimes every 8 months dealing with the European parliament, and of course, one of the main things I've said in every one of those missions that, you know, you guys have a subsidy now of about $50 billion for Airbus, and we've got simply a military and civilian that are quite separated in many ways, and of course they just go, ha, ha, ha.

You're getting all of this military business than the civilian aspects go. Well, it's just the other. In the case of the C–17, which was the problem here, and they want today do it in with this committee, we beat them on the floor in May 1994 by 300 votes and 100, and we haven't heard anything around here anymore. But they have slowly—looking into a corporate formation for Airbus, and we started with President Clinton getting some transparency as to at least part of the books. Well, it never really worked very well.

So also in the cockpit of the C–17, those came from the civilian side. It wasn't subsidized by the Defense Department or anybody else. They just said, this is the kind of thing we ought to have in the cockpit. Let's take advantage of it. And that was—everybody says Airbus just didn't know what they were talking about, and I said, you know, if you let me know, I'll get a U.S. attorney to indict a few if, you know, what you're saying, it's just baloney.

So meanwhile, we're facing that $50 billion bit, and it's a little tough to make when we get to do it and they really don't. So I'm just curious on this type of thing. And Mr. Wu, usually when there's a trade secret situation, the—in this country on computers, let's say, they'd like to sell abroad, and then you get into a fight with State and you get into a fight with Commerce and Defense as to should that particular object go to China, go to Russia, wherever. How do you deal with that? I'm curious, on trade secrets? And the Pentagon certainly is a major figure in that. And give us a little idea of how that system works.

Mr. WU. Well, let me just talk about what is being proposed in terms of trade secrets. You know, allowing a contractor to treat an invention made with government funds as a trade secret we believe would be a major change in government policy. The Department of Commerce would object to such a change, because the only benefit the public would get is if the company exploited the invention when providing a product or a service, and since nothing would be published, the public's knowledge of that information would also be decreased.

Further, the government's license and march-in rights would be worthless, and on the other hand, if the funding agency agreed not to exercise its secondary rights to patent an invention which the company did not want to patent, then a limited trade secret along with the invention disclosure was not unreleasable in FOIA.

So we believe that the current policy is sufficient, and that allowing for trade secret protection would be a major shift in our current policy.

Mr. HORN. Who makes the final decision? Does it go to the President?

Mr. WU. There would be, I believe, an overarching decision with OMB, or at least in consultation with OMB.

Mr. HORN. Mr. Brock, have you looked at that process in terms of how we help American industry to get products abroad without giving military secrets, maybe some trade secrets, but have you taken a look at that?

Mr. BROCK. Not directly as it relates to intellectual property, Mr. Horn. We have done work on looking at the export licensing process and those factors that are taken into consideration when a deci-

sion is made to grant an export license. Our views on it have been primarily are national defense issues being considered and are we releasing either technical data or product that should not be released. We've also done some reviews looking at the rather burdensome process that exists between Commerce and State and consultation processes they have and the unequal nature of those processes, but it's never really been focused on the intellectual property.

I'd be glad to provide you with a copies of the reports that we've done on the process aspects of that if you would like them, sir.

Mr. HORN. I'd like to see them.

Thank you, Mr. Chairman.

Mr. TOM DAVIS OF VIRGINIA. Thank you, Mr. Horn.

Mr. Turner.

Mr. TURNER. Thank you, Mr. Chairman. Mr. Brock, were you able to determine if—and particularly since September 11th—if there has been any agency of the Federal Government that has had—has been unable to acquire any technology or research that it needs because of the concerns about intellectual property rights?

Mr. BROCK. We, in the course of our review, Mr. Turner, we went to many agencies that have an involvement in homeland defense and in addition to DOD, we went to INS. We went to FBI, DOT and other agencies as well to question them about concerns that they might have over acquiring new technologies. The DOD was components of the ones that expressed the most concern which has been long-standing before September 11th about concerns of getting access to companies that had technologies. Those other agencies did not express specific concerns. Unfortunately, though, most of them were either at that point not in an acquisition phase or were just beginning to do acquisitions and did not have a lot of exposure to it.

So I think our answer is inconclusive at this point. Some of them recognize it as a potential problem, but they really didn't—had not yet had a chance to explore the implications of that problem.

Mr. TURNER. So do I take it that the main conclusion that you drew from your report is that a lot of agencies just don't understand the flexibility that current law provides them?

Mr. BROCK. Well, that was particularly true at DOD. That's where most of the action takes place on this whole area. I mean, they do most of the procurements. They do most of the research. And they have a lot of flexibility, such as with the other transactions authority. Other agencies that are involved in research of a similar nature like NASA or FAA also have their own variations of other transaction authority that gives them some flexibilities, and both of those agencies express less concern over getting access to technology than the DOD.

Mr. TURNER. So do you have any suggestions for us about how we could better educate our Federal agencies regarding what the law does provide for them now? It seems that if we could figure out how to do that, then we not only would have addressed some of the concerns that we have been looking at, but the agencies themselves would seem to me to be able to exercise the rights under existing law and wouldn't have near the concerns that we seem to be hearing from time to time.

Mr. BROCK. I think it's a long grind. This is pretty complex. A lot of people are involved in it, and it's more than just the contracting officer. It goes all the way back to the program offices. When we were talking particularly to the commercial sector, they commented that even within DOD, the very real variations among the services about how they approached intellectual property rights, that some services were noticeably easier to deal with than others. So part of this is almost a culturalization issue within the agency about what they want to do or not do. Most of it has to go, though, with what I referred to as the comfort zone, where agencies are fearful of making a mistake, and because of that fear, they want all the data rights they can get, and in wanting all the data rights they can get, then they began to encroach on the lifeblood intellectual property of the commercial companies.

As I mentioned, the navigating intellectual properties guide book that DOD did is a great step. It's my understanding—and let me invite my colleagues back here who have been doing some more recent research on this—is that training in that, it's just now getting going, that the Defense Acquisition University is developing a course. It's considering offering a variation of what you would call an intellectual property warrant that a more limited number of contract officers who would be more expert in the area. I think those are good steps, but they need to get moving on it.

Mr. WU. Mr. Turner, if I could add also and followup on Jack's points he raised that there are concerns about the culture, and that is a concern that we've had also. The culture tends to be very risk-adverse when it comes to technology transfer, and oftentimes it require a cutting-edge mindset to be able to jump into a project and take that risk, especially if there are a great dividends ahead. But because especially within NIH, when you're dealing with potential health, a medical recovery, drugs, there is great potential, then it might be criticized that if you give the intellectual property rights to a pharmaceutical company, for example, that partners with NIH, then they would get, in essence, the intellectual property rights, a monopoly over that drug.

As a consequence, they would be criticized later on, since part of that research that led to the giving of the intellectual property rights came from federally funded research, and there's always in the back of the minds of a number of the technology transfer managers and the negotiators, the coordinators, that they need to be very politically sensitive. As a result, there is a very risk-adverse culture, despite the great latitude that Congress has given in the most recent technology transfer laws. And so getting that mindset away from being risk-adverse and allowing them to be rewarded for taking the right step, emboldening them is very important, too.

Mr. TURNER. Thank you. Thank you, Mr. Chairman.

Mr. TOM DAVIS OF VIRGINIA. Thank you. Good questions.

Mrs. Davis.

Mrs. JO ANN DAVIS OF VIRGINIA. Thank you, Mr. Chairman. I hear what you're saying about the culture problem and I guess my biggest question is do you believe that within the Defense Department and other agencies, that there's really an understanding of the problem with intellectual property rights, or is there is a problem with intellectual property rights, and do they appreciate that

problem? And is the executive branch doing anything to correct the problems, if there are any?

Mr. WU. Well, from the Interagency Working Group perspective, there doesn't seem to be any direct problems with the intellectual property framework for technology transfer. Relating to Stevenson-Wydler or Bayh-Dole, both seem to be working very well. As a matter of fact, the Association for University of Technology Managers just came out with their Licensing Survey for 2000, which underscored the great successes that Bayh-Dole has had for universities in promoting research and development, which is driven by Federal funds and bringing them out to the commercial marketplace.

Additionally, we see countries around the world, most recently Japan, France, and Taiwan, replicating our Bayh-Dole framework for use in their country. There are a number of success stories also that he recount the success of Bayh-Dole, but as Tony said, you know while Bayh-Dole may not necessarily be a perfect piece of legislation, a lot of it may be just with its implementation. And we need to make sure that the technology managers that are down on the ground working closest with industry and partnering together need to be empowered and emboldened with the right attitude, because it seems as if the legislative tools seem to be there.

Within the Interagency Working Group, we'll continue to dialog with all of the agencies, including DOD, to see what changes we can do to improve Bayh-Dole and Stevenson-Wydler and a number of other technology transfer efforts, but it seems from the Working Group's perspective, that Bayh-Dole is working very well and that the framework that it has established has clearly reaped successes.

Mrs. JO ANN DAVIS OF VIRGINIA. So you don't think we need any reforms at this time to it?

Mr. WU. There are none immediately that are recommended by the Working Group.

Mrs. JO ANN DAVIS OF VIRGINIA. Do you think the private industry is—why are they not participating more then?

Mr. WU. Well, that's the big balance. You know, we're trying to create incentives for private industry, because the reality is that in order for American taxpayers to benefit from our federally funded research, we need to commercialize the product to bring it out and improve the quality of life, as well as to complete the cycle back to the American taxpayer.

And so incentivizing the private sector is absolutely the key and also streamlining the procedures. However, at the same time, you know, we feel that we're stewards of the public trust, and this is public financed research which we need to be mindful of, and we—if you give away intellectual property rights to industry, you want to provide the right incentives, but at the same time, we need to make sure that we have adequate government march-in rights so that we can force utilization of the technology and innovation, if it's not being used properly or at all.

We need to make sure that the government maintains an effective license to that technology or innovation, and so there are certain things that we need to do as public policy that's good public policy that may not be, at least for those lawyers or other business people looking at the contract or the technology licensing agreement, may not be in their minds to be sufficient or helpful to them.

You know, Lee Buchanan who was a former director of DARPA who appeared most recently at one of our innovation roundtable series, he said, "there are still vast numbers of very intelligent, very well-informed board members who think that engaging in research and development with the Federal Government relinquishes all rights to intellectual property of the government and gives them march-in rights at a moment's notice. It's false, but that's the perception. And so that's what we're fighting."

You know, industry wants to take advantage of its business model, and it's well within their right to do that. They're responsive to their shareholders, but at the same time, we believe the framework achieves a balance in trying to maintain good public policy and also providing for enough incentives to private industry.

Mrs. JO ANN DAVIS OF VIRGINIA. So if I'm hearing you correctly, it's educating the private industries and then getting our agencies out of their cultural problem?

Mr. WU. Yes.

Also, I might add that while we have march-in rights as part of every agreement in which march-in rights allow for the government to come in and essentially march in and take the technology if it's not being used properly or at all, it never has been utilized by the Federal Government. So that requirement is good public policy, but it's really a red herring for those businesses who say that they fear working with government because of that provision.

Mrs. JO ANN DAVIS OF VIRGINIA. Thank you, Mr. Chairman.

Mr. TOM DAVIS OF VIRGINIA. Again, let me go on to that. March-in rights have never been exercised?

Mr. WU. No, no.

Mr. TOM DAVIS OF VIRGINIA. Then why do you insist on it? Because it seems to be the major deterrent if you're setting up there as a general counsel. You've developed a new product, you want to use it, and the government could come in and take it over.

Mr. WU. Because there are examples in which there will be, or may be at times—we hope never—but there may be times in which a company may choose, for whatever reason, not to take advantage of a technology in which you've given license to, or they may purposely——

Mr. TOM DAVIS OF VIRGINIA. No. I understand. But that's the crux of the problem. I mean, it seems to me that the crux of the problem is that theoretically you want to have that if you're the government, and I understand that, but that's one of the major deterrents of the private sector. That's why you have 92 percent of the Fortune 500 industrials doing little or no R&D for the government, three-fourths of the country's top 75 IT companies refuse to do research for the government, and a lot of it boils down to that particular issue.

And we're insisting on something we've never used. There's got to be a way to cut this and allow these companies—I mean, you're saying better educate the companies. I was general counsel for an IT company. I wouldn't allow my company to sign off on something like that. We have to find a way here to make it work, because I know that Mr. Brock talked in his testimony about, people said, well, we don't know that we've been able to get the products we

want, but you don't know what products are out there when we have some of the top innovators in the world not participating.

Who knows what we've missed because of that opportunity and the prices we could get because of competition. I mean, that seems to be the hub of the issue. And I understand your position. I think, you know, from an intellectual point of view and textbook point of view, maybe it's correct from a government perspective, but the downside is that seems to be the major—one of the major deterrents to getting a whole line of products and innovations into the Federal sector that can help us fight the war on terrorism. You understand what I'm saying?

And let me ask—again, let me have you give the answer first and then have Tony——

Mr. WU. That perception can be reality when it comes to negotiations for intellectual property rights of the government, but what if a company chose to use the technology licensing much the same way as the submarine patent in which they will just hold on to title, and there's a great potential there. And they refuse to commercialize because potentially it may conflict with one of their own competing products. There needs to be a balance. I'm not sure exactly how to achieve that with the march-in rights issue, but certainly we'd be open to discussing that with you.

Mr. TOM DAVIS OF VIRGINIA. OK. Thank you.

Dr. Tether.

Mr. TETHER. Mr. Chairman, I absolutely agree with you. I don't know how—we seem to want to regulate down to that point 001 percent probability case, and——

Mr. TOM DAVIS OF VIRGINIA. The four decimal point——

Mr. TETHER. Yes. And what we have found, other reasons for OT notwithstanding, but we have found that having the other transaction's capability allows us to enter into a business decision case with a company. If march-in rights are their heartburn, we have the ability to basically negotiate them out, because it may be a case where we don't care about it, as you said. But without having that flexibility to be able to do that, you're stuck with that, and that really is what I was trying to say on Bayh-Dole. It's great, it's uniform, but it has—leaves little flexibility to go in and piecemeal out and create a business deal that is both beneficial to the government and beneficial to the company.

And I also agree that you don't really know who you're missing. What we have at DARPA is that people know that DARPA have this capability. So consequently, we get people coming to us that get us into these conversations over these rights. Now, if you don't—aren't known for having the flexibility to do anything about it, well, I doubt if you'd go even talk to them, and so——

Mr. TOM DAVIS OF VIRGINIA. I hear you. I think your point is well taken.

The other part of it, in Mr. Wu's defense, is the march-in rights to make sure this is done appropriately with waivers or giving that flexibility, you really have to train your people. I mean, then it comes down—as you said, they—a lot of these contracting officers are—they have that risk-averse mindset. But with the appropriate education, it seems we could get the best of both worlds here,

maybe with the kind of things that you do without major changes to the statute.

Mr. Brock, do you have any comment on that?

Mr. BROCK. Yeah. The—Ben is right. The government has never exercised march-in rights, although it has threatened to exercise them before. I mean, it's had the effect of the company moving forward. Some of the companies we talk to flat out said that they realize that the government did not exercise that right, but nevertheless, it represented a—it made them make a business decision not to engage with the government because of that threat, and so they chose not to do it.

They made a business case for that, and maybe other reasons as we, they made a business reason not to participate. And a lot of the contracts that we were looking at or talking about, too, weren't as clearly defined. I mean, if the government is paying you money to do research and you develop a patent, I think it's clear that the—what Bayh-Dole is supposed to do. Many of the things that we're talking about, there's not a bright line that many of the companies are already bringing their own background inventions to the table, and their concern about the government's ability to draw the line to separate what they're bringing to the table versus what's being developed on the contract and how do you separate those things out, and I think that's a big part of the concern that many of the commercial companies we've talked to had in doling with the government. It wasn't just the black and white case as, OK, you pay for the research; we're concerned you're going to march in and make this—and take away our rights. It's more of the case——

Mr. TOM DAVIS OF VIRGINIA. Preexisting research.

Mr. BROCK. Preexisting research that is commingled with new research and how do you begin to separate that out, that was more of the issue that we saw.

Mr. TOM DAVIS OF VIRGINIA. All right.

Mr. TETHER. Same here.

Mr. TOM DAVIS OF VIRGINIA. It's a complicated issue, and frankly, you know, whenever you allow that waiver—that kind of flexibility, you're going to have contracting officers that may make what people consider the wrong decision. It gets blown up in the media, and then we come back and say, all right, we overreact, but in the meantime we're losing—you know, because of a few bucks that go out the window here, we're losing billions of dollars over here and not getting other things through the doors and these are judgment calls that get difficult to make, but every time there is a mistake—I found this in procurement. Every time there's a mistake, it gets blown up. And the billions you could save for the times that it works, you get no credit for.

So we go back to basically structuring government so that we restrict the ability of contractors to do a lot of things. Make it clear that nobody is going to steal any dollars, but you can't do much of anything else. I understand the politics of that, but from a management perspective and coming out of the private sector, it just—it doesn't seem the appropriate tradeoff in all cases. But I think you all highlighted it very well and the sides to it from my perspective, and that you were for that.

Mr. Horn.

Mr. HORN. Just one fast question to Mr. Wu. The Commerce Department, like all other cabinet departments, have a real problem, and that is a lot of very good people that have been there for 10, 20, 30 years, and they're retiring, and what are you doing now to get new blood in the Commerce Department?

Mr. WU. Well, Mr. Horn, as you mentioned, it's not just endemic of the Commerce Department. We see that in our Federal laboratories throughout the country, where you have top managers who are on the cusp of retirement and who will be leaving. That's a major problem with each of the Office of Research Technology, which is the major office within each of the Federal laboratories that is supposed to administer the technology transfer programs.

We've seen a number of the agencies and Federal laboratories often, as a result, just make the responsibilities of the ORTA office a supplement to someone else's job, and therefore you don't get the right people. You don't get the people who need to have the backbone to make some of these tough choices, who need to be educated. And that's a concern that we have. The Working Group is looking at the issue, and we're working with the Federal laboratories, as well as all of the agencies to try to fix that problem within our Federal laboratories.

But right now, you know, there isn't a fixed problem in that there's a general awareness that this is coming in a few years and we need to look into it.

Mr. HORN. Good. I think everybody that—in your position that goes around the country, you ought to stop by either a public administration, a business administration and go into the classroom and tap for those people to help get us where we were in the 1930's and the 1940's with very bright people that came here. And the Depression sort of drove them here. And so, we've lived on that for a long time.

Mr. WU. It's also not just our science and education work force, increasing that, but also making sure that our Federal laboratories have the adequate resources and infrastructure to get the job done that will attract those people to the positions as well.

Mr. HORN. Thank you, Mr. Chairman.

Mr. TOM DAVIS OF VIRGINIA. Mr. Horn, thank you very much.

Any other questions?

Let me thank the panel very much for your testimony.

We'll move to the next panel, unless anybody wants to add anything.

Mr. TETHER. Only one thing. I guess on the ability to waive Bayh-Dole, which I will ask my staff why I didn't know that, but I'm sure they'll tell me they told me that, and I just didn't remember that——

Mr. TOM DAVIS OF VIRGINIA. You don't have to have that on the record if you don't want.

Mr. TETHER. But the real issue is the flexibility. I mean, if the situation is no Bayh-Dole or full Bayh-Dole, that's the wrong flexibility. You really want the flexibility to go there piecemeal what is truly bothering the person you're dealing with, because you may not care about that little particular provision, but the rest of it you may still want.

Mr. TOM DAVIS OF VIRGINIA. I think in most cases you don't care about that particular provision. If you do care about it, it's that important to the government, then you stick to your guns.

Mr. TETHER. Thank you very much.

Mr. TOM DAVIS OF VIRGINIA. Thank you. You've crystallized it.

Now, let's welcome our second panel to the witness table. Mr. Louie, Mr. Carroll, Mr. Fry and Mr. Soloway, as we change the name tags. Why don't you—Louie, Carroll, Fry, Soloway. If you just stand and raise your right hand.

[Witnesses sworn.]

Mr. TOM DAVIS OF VIRGINIA. Again, to afford sufficient time for questions, if you would limit your testimony to no more than 5 minutes for any statement. Your total statements are in the record. That will allow sufficient time for questions and answers. As I said, all written statements will be in the record.

Let me start with Mr. Louie. Thank you very much for being here today.

STATEMENTS OF GILMAN LOUIE, PRESIDENT AND CEO, IN-Q-TEL; RICHARD CARROLL, CHAIRMAN, SMALL BUSINESS TECHNOLOGY COALITION, PRESIDENT, DSR, INC.; STANLEY FRY, DIRECTOR, CONTRACTS & LEGAL AFFAIRS, EASTMAN KODAK CO.; AND STAN SOLOWAY, PRESIDENT, PROFESSIONAL SERVICES COUNCIL

Mr. LOUIE. Thank you, Mr. Chairman.

Mr. Chairman, members of the committee, it's a privilege to appear before you this morning to discuss the question of how government may obtain access to the most innovative research and development in our country.

Mr. Chairman, you have asked questions of whether or not there are barriers, including the treatment of intellectual property rights, to the government in obtaining the research and development innovation it needs. I'm happy to address this question because I believe that the independent company that I lead, In-Q-Tel, the CIA's venture catalyst nonprofit corporation, is a unique and innovative approach for acquiring the best technology for one of our government's most important functions, the collection, analysis, and dissemination of intelligence.

Let me first say I'm not a lawyer, nor a government expert on IP, nor an expert on the FAR. I am your typical entrepreneur who founded a computer software company in the early 1980's on my kitchen table, raised venture capital, built it, merged it into a public company in the 1990's. I developed products primarily for the consumer markets, but also for defense. I finally sold it to one of the largest toy companies in America before joining In-Q-Tel as its CEO and president.

I was asked by the Director of the CIA and by my members who serve on my board of trustees, which includes captains of industry, past innovators in government, to lead this new and unique effort to run a nonprofit 501(c)(3) with the purpose of attracting the resources and talents of the high-technology industry to help solve some of the CIA's most vexing information technology needs.

In-Q-Tel was founded in 1999 after the DCI realized that the nature of the potential threats to the United States had changed, and

in many cases these new threats were technology-equipped, working across national boundaries, and using a very different framework for operations than those used during the cold war.

At the same time the Intelligence Community was facing a growing information technology challenge. The agency was facing information overload, better known as the "volume problem." The stovepiping of information was making it difficult to share and leverage the data. The growing need for real-time decisionmaking and security. The speed of innovation in IT was overtaking the speed of the government's acquisition and integration. Increasingly, the growing information and high-technology industry base that are actually leading the IT revolution were no longer engaged with government.

While the CIA has always had a proud tradition of innovation with such successes as Corona, U–2 and the SR–71, CIA realized that today is a very different time. As you had stated, in 1995 the Federal Government was funding over two-thirds of the Nation's R&D budget. By 2000, the role of government and industry's R&D investments flipped, with the industry now closing in on 70 percent of the Nation's R&D budget.

In 1999, when the DCI formed In-Q-Tel, he stated, "we are working with industry to leverage their expertise and revolutionize the way we acquire technology. Everyone knows what an arms race is. We are in a continuous intelligence race. Harnessing capabilities of the private sector to deal with tough intelligence problems is part of a very proud tradition going back to the early days of our Intelligence Community."

The need is great, but the world has changed. Our mission is discovering new information technologies that address the CIA's most pressing problems. We do this by engaging with industry, by aligning the strategic interests of corporations and industry with the strategic needs of the Central Intelligence Agency. We define the agency needs for industry, using commercial analogs to the agency's challenges. For example, instead of finding point solutions for the CIA information security needs, we ask the industry for the best-in-class and new security technologies that could help solve financial institutions' needs. Instead of using contract vehicles that look like traditional government procurement contracts, the CIA worked hard with us, spent over a year with us so we could engage with industry, using contractual as well as equity vehicles that closely resemble commercially accepted practices, while still operating within the scope of the FAR and protecting the interest of government.

We've also spent a significant amount of time educating our industrial partners on the needs of government in relation to intellectual property while working with our industrial partners to protect their most precious assets.

In-Q-Tel's business process has seven steps. We identify the IT and work flow challenges within the Central Intelligence Agency. We discover and analyze commercial technology market trends. We aggressively reachout to industry and academia. We negotiate and align the needs of industry with that of the Central Intelligence Agency. We then nurture the technologies and incubate the business models. Then we reach back into the CIA, identify customers

within the agency who have significant mission needs, and we transfer those solutions into the agency along with best practices from the commercial word.

We measure success by delivering technologies to the agency. So you ask, has In-Q-Tel been successful? Since becoming operational in late 1999, we have delivered 19 deliverables to the agency, including technologies which are directly relevant to the war on terrorism. We've found 18 technologies, in addition to those 19 deliverables, and we referred them to the CIA.

We have received close to 2,000 business plans. We have contracted with companies that range from small startups with just a few employees to multibillion-dollar corporations. We work with startups, midsize to large size, privately held as well as publicly held companies, professional services companies, universities, national private labs. We have received submissions from almost every U.S. State as well as from 26 different countries. We network with over 200 venture capital funds, universities and labs. Since September 11th alone we've received over 1,000 business plans. Seventy-five percent of these companies have never done work with the government before.

Mr. Chairman, your second question of how has In-Q-Tel obtained technologies including IP issues, let me say once again I'm not a lawyer in IP or the FAR. The challenge for government in the IP markets is that government is only one of many competing sources of funding. Therefore, for government to engage, it must be attractive to industry—because in our case the technologies we seek are critical for national security. In response, the agency enabled In-Q-Tel to speak the language of industry and to be able to work with the best IT companies.

Under the forward-looking leadership of the CIA, the CIA developed a set of tools and provisions within the four corners of the FAR. The agency worked hard, studied the market requirements and the needs of companies. The framework that the agency provided us in our charter allows us to craft agreements that allow companies to pursue commercial markets while providing fair and appropriate deals for the government.

In-Q-Tel has also the advantage, given the nature of venture capital, to be funding in mixed funding environments. That means that we're usually a minority stake investment in these companies, and we leverage other people's financial resources. As such, the agency permits us to negotiate IT provisions that protect both government as well as industrial needs.

The last question you asked is the challenge of the war on terrorism in light of the new homeland security mission. Let me say this: If there is any challenge, it is how to best engage and apply American resources and technologies on the war on terrorism. There is no shortage of high-impact, high-value technologies potentially available to our government today. The government needs to articulate its needs and engage with new vehicles that resemble those found in industry. Government must align and articulate its strategic needs within the strategic direction of industry and become partners, not adversaries, within industry.

If you want industry to provide government with the best technologies, and if government wants and needs early exposure to

these technologies, it must find a way to do so while protecting the intellectual capital and property of industry. Government must also think out of its own box, look creatively toward industry for commercial solutions rather than government-unique solutions. Companies are confused about how best to contribute, how to be heard and how to get involved.

In fact, government needs to start moving much faster. Post-September 11th, industry was ready to serve, but they are getting very frustrated. If government is unable to engage these companies, and if it's unable to develop a streamlined, straightforward way for industry to help, industry will focus resources it once offered to fight the war on terrorism back to the consumer and commercial marketplaces.

So, Mr. Chairman, in conclusion, I can say that In-Q-Tel has been very fortunate. By working with the CIA, we have been able to devise acquisition strategies that have encouraged companies that have never previously dealt with the U.S. Government to step forward and make their technologies available. I believe that other government agencies can use approaches we have taken as well as those by other innovators in government to adopt a similar strategy to acquire these technologies that are needed for government purposes while leaving the industrial base free to pursue the extremely valuable commercial marketplaces.

Mr. TOM DAVIS OF VIRGINIA. Thank you very much.

[The prepared statement of Mr. Louie follows:]

Statement of
Gilman Louie
President and CEO of In-Q-Tel
Before the Subcommittee on Technology and Procurement Policy of the
Committee on Government Reform of the House of Representatives
May 10, 2002

Mr. Chairman and Members of the Committee, it is a privilege to appear before you this morning to discuss the question of how the government may obtain access to the most innovative research and development in our country. I thank you, Mr. Chairman, for focusing on this extremely important question. Perhaps at no time in our history is it more critical than the government be able to take advantage of the genius of American scientific and industrial know-how.

In particular, Mr. Chairman, you have asked the question of whether there are barriers, including the treatment of intellectual property rights, to the government obtaining the research and development innovation it needs. I am happy to address this question because I believe the company that I lead, In-Q-Tel, is a unique and innovative approach to acquire the best American technology for one of our Government's most important functions—the collection, analysis and dissemination of intelligence.

The Challenge

As you know, Mr. Chairman, In-Q-Tel grew out of the recognition by George Tenet, the Director of Central Intelligence, that the CIA—and the rest of the U.S. Intelligence Community (IC)—needed the very best information technology (IT) available so that it could do its mission.

That was four years ago. Today, in the wake of 9/11, the challenge and the imperative are even more clear. As Director Tenet saw in 1998, we are in a world where the nature of the threat is very different than what we knew in the Cold War. Mobile, dispersed and sophisticated, our adversaries are using advanced technology, including information technologies, in an effort to stay one step ahead. At the same time, we suffer from the "volume problem"—the challenge of digesting and understanding the deluge of information flowing into the Intelligence Community today. It is not only a problem of finding the needle in the haystack, but also one of trying to determine what questions to ask, as the most dangerous threats are those we have not yet contemplated or prepared for. Information repositories are stove-piped, protected by air gaps that make data sharing and cross agency/law enforcement collaboration extremely difficult. The

speed of decision making in the U.S. Government is approaching real time, and requires that our leaders be supported by an information and communication infrastructure that is robust and agile.

So much of our intelligence and warfighting capability depends on the U.S. having superior information and upon its ability to get the right information to the right person in time to make decisions. Four years ago Director Tenet and his team saw that information technology was a key strategic advantage that U.S. intelligence must have to continue to protect our national security interests into the new century. They also saw that the locus of R&D and IT innovation had shifted away from government and a new approach was required if the Agency was to maintain its technological edge. The challenge was this: how to make the government an attractive partner that could effectively tap the new emerging sources of innovation in the commercial marketplace.

The Opportunity

Over the last 40 years much of the innovation in this country was driven by government R&D investments, and by the requirements of the Defense and Intelligence Communities. For example, the Internet is essentially the creation of the Defense Advanced Research Project Agency, or DARPA. The CIA is proud of its innovative history in developing surveillance satellites, the U-2, the SR-71, and the extraordinary success in the realm of decryption and other sophisticated collection and analytical tools. In many ways, these technological breakthroughs represent CIA at its very best.

Yet in recent years, the private sector, rather than the government, has become the driving force behind innovation, particularly in the area of information technology. In the past, government was the biggest procurer of IT, today it is industry. While government spending in R&D is still significant, the greatest source of expertise and money now comes from the private sector. In 2000 U.S. venture investment was more than $100B; last year it dropped to $38B, still the third largest year in VC history and an amount greater than most U.S. Government R&D programs.

George Tenet recognized that the speed of IT innovation, fueled by this shift in resources, was rapidly outpacing the government's ability to tap and utilize new sources of technology. The short 18-24 month shelf-life of Commercial-Off-the-Shelf (COTS) IT products, combined with government's often long integration processes, made it difficult for government to keep its edge. It was clear that government must engage earlier in the development cycle, before products are widely commercialized in the market, and have the ability to influence the product so that it would not require extensive changes later in order to be integrated into government systems.

While traditional methods of government R&D and acquisition can and do provide valuable technology, Director Tenet knew that in the area of IT government also needed an alternative means to attract and tap the emerging sources of innovation in the commercial marketplace. He recognized that government cannot develop needed technology alone, either in financial or human terms. It required a new way to tap the best and brightest minds in industry and academia and to leverage the billions of dollars in capital resources being invested in private sector technology every year.

It was this motivation that led the Director to ask a group of distinguished Americans to create a company that would explore an innovative way to access private sector technologies. The result was In-Q-Tel and I am honored to serve as its President and CEO.

Norman Augustine, the former President, CEO and Chairman of Lockheed Martin, put together a Board of Blue Ribbon credentials. Our Board includes not only Norm Augustine but also former Secretary of Defense Bill Perry, former President and CEO of AT&T Alex Mandl, the former Co-chair of Goldman Sachs Steve Friedman, the Executive Vice Provost of Columbia University – and the new President of Arizona State University – Michael Crow, distinguished investor Lee Ault, the head of Xerox Park John Seeley Brown, Jeong Kim of Lucent, former Under Secretary of Defense Paul Kaminski, former Deputy Director of Central Intelligence John McMahon, and Howard Cox, the newly-elected Chairman of the National Venture Capital Association and former official of the Department of Defense.

Mr. Chairman, before turning to the specific questions you have asked me to address, let me briefly describe In-Q-Tel's business model and strategy and give you a sense of what we have accomplished thus far.

Overview of In-Q-Tel

In-Q-Tel was incorporated in January of 1999, as a Delaware not-for-profit corporation. I became the President and CEO in September of 1999. We are provided annual funds in a contract from the Central Intelligence Agency, currently in the range of $35 million per fiscal year. We are also given a "Problem Set" from the CIA that describes priority IT problems that the CIA needs addressed. While unique in our approach, we are just one of a broad range of Agency efforts focused on acquiring technology. The IRS has granted us status as a non-profit corporation, 501(c)3.

Model: Leveraging the Commercial Market

If General Motors or Citibank has an IT problem, the CIA is likely to face the same challenge. In-Q-Tel's strategy is to find the most innovative solutions to those problems that are currently being developed in the private sector and engage with the companies, often before they come to market. In focusing on commercial analogs to the IC's problems: e.g. information security technologies for financial services or insurance firms, or CRM applications for enterprise data mining, In-Q-Tel identifies and gains access to innovative technologies that might not otherwise be applied to government problems.

We work with companies to build commercial products—not one-offs or government single-purpose products—that will meet the needs of the Agency and the IC. We actively participate in product development, with the ultimate goal of fostering solutions that the government can eventually buy right off-the-shelf. When we assess a new technology it is essential that the product have the potential to address a healthy commercial market so that it will continue to evolve and develop over time and not become a legacy system for which the only customer is a relatively small government agency.

Strategic Relationships

In-Q-Tel is also unique in its ability to engage with companies using tools typically identified with the venture capital industry. Similar in some ways to a corporate strategic venture group, such as a Cisco Systems' Ventures or Intel Capital, we use equity, warrants, and product development funding to build strategic relationships with companies that can benefit our clients, the CIA and the IC. By offering a strategic relationship in these terms, we are able to attract emerging companies that are typically only interested in 'smart money'—money that can bring them strategic advantage, either in technology development capabilities, lighthouse customers, or access to other sources of investment or markets. Traditional government procurement does not offer the strategic value that many innovators find most attractive.

This approach is essential to our ability to attract and tap the fast moving, and commercially focused IT companies entering the market. The venture capitalists in the United States are often in the best position to identify those technologies that have the best chance of succeeding in the marketplace. It is important, therefore, that CIA be in the "early deal flow" to identify those technologies that will not only solve their problems but also have a substantial commercial market to sustain them over the long run. The idea is that by being an early participant in the development of the technology, In-Q-Tel will have an opportunity to influence development of

promising technologies so that they will have not only a commercial application but also a governmental application when they are released for commercial sale.

Through relatively small but strategic stakes in promising companies, In-Q-Tel leverages third party money and resources to deliver technology solutions that the Intelligence Community could not afford to develop on its own. For each dollar In-Q-Tel invests, major players, such as Ford, Motorola, Siemans, Nokia, Oracle, Sun, and venture groups including Kleiner Perkins, Merrill Lynch, Shell Ventures, Softbank, Greylock and others have contributed from 2 to 20 times as much to support technology development, commercialization, and the sustained growth of the business. Our current portfolio companies are supported by nearly $300 million dollars in third party commercial investments.

Portfolio Approach

In-Q-Tel's portfolio approach diversifies the risks and benefits of working with technology companies at various stages of development. Some of the most innovative technology comes from emerging companies that are at a turning point of success or failure in the marketplace. To mitigate the risks of working with young companies, In-Q-Tel invests in a range of technology solutions—from those poised to immediately deliver existing commercial products to those that will deliver breakthrough capabilities over the longer term. It also invests in or works with a broad range of companies that offer complementary or similar technologies but have different feature sets to apply to specific Agency problems. Overall this balanced approach allows In-Q-Tel to increase the probability of success by working with a number of technologies that are highly promising, but may not be fully proven.

It is important to note that In-Q-Tel is just one of a broad number of methods that that Agency uses to acquire needed technology, providing an additional source of technology options and choices. In-Q-Tel is obligated to identify and provide the best technologies to the Agency, wherever and whenever they are found. Because that the IT market is constantly innovating, we continually explore the market, and seek out and engage new opportunities and technologies that can address the Agency's needs, often investing in more than one company in a particular space. We provide market assessments and information on new technologies to the Agency in the form of reports and briefings.

The In-Q-Tel Process

What defines In-Q-Tel is the process by which we engage with the private sector and in turn work to bring technology to the CIA and Intelligence Community. The result is both the transfer of technology as well as "process transformation"— supporting the Agency and the IC's efforts to

reinvent not only their information technology capabilities, but the business processes supported by them.

In-Q-Tel engages in seven core activities. We:

1) Identify the challenges within the Agency

- The Agency provides In-Q-Tel an annual Problem Set which presents a corporate picture of the Agency's key technology needs. Working closely with our counterparts at the Agency, the In-Q-Tel Interface Center, we study the Agency user to understand not only their technology needs, but how they do their job, their business processes, and how their goals and objectives may be supported with technology.

2) Discover and analyze market trends

- We take this knowledge of the Agency user's needs, and look to the commercial marketplace for potential solutions. We analyze trends and new developments, and identify the technologies on the horizon that could potentially deliver real value to them.

3) Reach out to the technology community

- In-Q-Tel's responsibility is to reach out widely to find the most innovative technology available. We engage with the full range of established companies, start-ups, defense contractors, small to large firms, professional services companies, academia and national and commercial labs. To date, we've reviewed some 2000 business plans and technologies and have been able to winnow that down to 20 companies in which In-Q-Tel has either entered into a contract to provide initial technology to the Agency or made an investment to develop that technology. We've built a network of more than 150 venture capital groups to gain access to the "deal flow" of promising technology companies emerging in the market. We are launching a university outreach program to explore possibilities for cooperation and to help seed new start-ups with new technologies.

4) Negotiate and create strategic relationships

- In-Q-Tel uses standard commercial approaches that allow us to align the needs of the Agency with the business strategy of the commercial company, university, or lab. These include traditional equity investments and strategic product development funding. These options give us the ability to attract and build relationships with technology innovators that are motivated by the value of a strategic relationship over simple revenue opportunities. They also provide incentives for companies to put their best talent against the problems of our customers in the IC.

5) Nurture the technology and businesses

- We are hands-on partners, working with the companies providing them technical as well as business support. We help them network with venture capitalists to raise capital and find needed resources to build technologies and grow their businesses. At the same

time, our in-house Technical Team works with the technology to ready it for use by our IC customers, and incidentally for the commercial market.

6) Reach into the Agency

- Working closely with the Agency's In-Q-Tel Interface Center, we continually identify potential customers for new technologies. We work also with the Agency CIO's office, by participating in Agency working groups developing new architectures and solutions. We share best practices and market insights. And we reach out to priority mission users to match our solutions with those who may benefit most.

7) Transfer technology solutions and promote adoption

- There is a critical player in our process which I would like to highlight: the In-Q-Tel Interface Center. This group of CIA professionals plays a critical role as our window into the Agency, and as the principal organization responsible for transferring technology solutions into the Agency. The QIC:
  - develops the Problem Set, a corporate assessment coordinated across nearly all Agency components
  - identifies and provides access to important mission users/customers with critical IT needs
  - assists in vetting new technologies
  - helps In-Q-Tel communicate information about best practices in industry which can help the Agency in its own IT planning and development
  - leads in solution transfer, introducing and implementing pilots of new technologies.

Third Party Review

I should add, Mr. Chairman, that our business model and practices have been thoroughly reviewed by the CIA Inspector General's Office, the House Appropriations Committee Surveys and Investigations Team, and the Business Executives for National Security. Indeed, let me quote from a June 2001 report from the review conducted by BENS.

> "In-Q-Tel is an evolving blend of various business, non-profit, and government research and development (R&D) models. It is most analogous to a corporate strategic venture capital entity – like those maintained by major technology firms. It seeks enhanced innovation, earlier discovery of relevant technologies, and more direct information on market developments .... By private sector standards, In-Q-Tel has produced noteworthy results and continues to show promise for the future."

Mr. Chairman, let me now turn to the particular questions you have asked me to address. First:

How The In-Q-Tel Model Has Been Successful In Achieving Its Mission.

In-Q-Tel measures its success by *return on technology,* a blend of factors that will ultimately deliver strategic impact on the Agency's mission. Rather than strictly focus on economic return on investment (ROI), we gauge success by:

- First and foremost, delivering value to the Agency through successful deployment of high impact, innovative technologies.
- Building strong portfolio companies that will continue to deliver, support and innovate technologies for In-Q-Tel's IC clients
- Creating financial returns to fund further investments into new technologies to benefit the Agency and IC.

We currently have 20 technology companies under contract or in which we have made an investment. Since inception, In-Q-Tel has delivered a total of 19 technology pilots into the Agency, including 6 demonstrations, which have or are currently producing valuable results. In-Q-Tel and the QIC also "hand-off" relevant technologies to the Agency. These are technologies discovered by In-Q-Tel that have potential applications in the IC, but are not appropriate for an In-Q-Tel investment or engagement. In FY 02 we passed on more than 17 such technologies to the Agency for evaluation and possible contracting.

In-Q-Tel has reviewed some 2000 business plans and submissions from established companies, start-ups, professional service companies, small and medium sized firms, individuals, and universities who believe that their technology might address concerns identified by the Agency. Approximately 75% of these entities have never previously done business with the U.S. Government.

Director Tenet, the Board and I believe that we will continue to refine our business model and will be able to deliver new and innovative information technology to the U.S. Intelligence Community in an even more efficient and rapid manner in the future. In the seven months since September 11, 2001, we have received almost 1000 business proposals, nearly triple the number we received in each of the previous 2 years. I am delighted at the outpouring by American industry and the academic world. This is great tribute to our country, and a great opportunity for government to leverage the opportunities that these technologies offer for strengthening our national security.

How In-Q-Tel Has Obtained the Technology It Needs, Including How It Has Dealt With Intellectual Property (IP) Issues.

Mr. Chairman, in your letter inviting me to this hearing you asked how In-Q-Tel has obtained the technology, including the intellectual property rights, it needs to further its mission.

In-Q-Tel is only one of a number of funding options available to the IT companies that offer technology solutions of value to our client, the CIA. In technology spaces where the government is the only source of funding for new technology development, government can ask for extensive IP provisions to ensure the interests of government. But in many industries, especially in information technology, there are many other potential sources of funding, and industry may not need government funding. Particularly in the IT industry, the government needs to offer competitive and attractive opportunities, presenting to companies easy-to-understand, reasonable arrangements, in the language of commercial contracts and investments. This is especially true for important technologies which are critical for national defense and security. At the same time, we must engage with companies in a way that allows them to maintain their commercial viability, and not impinge on their ability to raise capital in the future.

The In-Q-Tel model is based on the premise that there are commercial analogs to government's IT problems, and that some of the best innovation is taking place in the commercial market among firms most of which have not done business with government before. In fostering In-Q-Tel, the Agency recognized that in this new IT market the shelf-life of products can be as short as 18-24 months, yet there was often a long lead time to integrate technologies into government use. Given this, it was clear that the Agency could not wait until after technology becomes widely commercialized, because by the time the technology is modified and integrated into government use, it was at risk of being obsolete. Thus, In-Q-Tel needed to have the tools to engage with companies relatively early in the technology/commercialization cycle and be able to influence the technology development toward capabilities important in the commercial marketplace and to the Agency.

In-Q-Tel is a government contractor. In-Q-Tel operates within the laws and regulations affecting government contractors and the terms of its contract with the Agency. Under the forward looking leadership of the CIA's Procurement Executive and contracting officers, we have strived to develop a set of provisions that work with the flexibility in existing law and regulations that allow companies to pursue commercial markets for their products while at the same time seeking favorable deals for the government.

We work within the four corners of the FAR, using negotiated versions of the standard FAR patent and data-rights clauses. In most instances, In-Q-Tel contributes a minority of funding to products that are already under development and being supported by non-government funds, so called "mixed funding" situations. Using the negotiation that the FAR contemplates over rights, the CIA has authorized us to negotiate in those situations another form of data rights called "Agency Use Rights" which secure for the government appropriate benefits in mixed funding situations.

The FAR intellectual property provisions are complicated and not always well understood by companies that are not accustomed to dealing with the government. For example, there is a common misperception that these provisions require government ownership of intellectual property created under a government contract. To the contrary, contractors generally are permitted to retain ownership of, and seek to commercialize, intellectual property created under a government contract.

We often spend significant time in our negotiations educating companies about the FAR intellectual property provisions. By doing so, and using the options and authorities available under existing law, we believe we have been very successful in structuring deals to further our mission.

The Nature And Degree Of Challenges To Obtaining R&D And IT In Light Of The New Homeland Security Mission In The War On Terrorism.

If there is any challenge, Mr. Chairman, it is how best to engage and apply America's technology resources to the War on Terrorism. There is no shortage of high impact, high value technologies potentially available to our government today. In-Q-Tel, like many government entities, has been deluged with companies and individuals who believe that their technology could assist the United States in fighting this war. CEOs of companies are willing to devote resources and fast track technologies. They are also willing to work closely together on projects that can deliver new capabilities the government would not have had access to before. Indeed, knocking down our government's door is "the private-sector army that is the United States' not-so-secret weapon and best hope" for the War on Terrorism, as David Rothkoph noted in the current issue of Foreign Policy Magazine. The challenge is how to engage them and effectively focus them on the problems at hand. To engage America's vast resources, we must first be clear on what is needed and who companies and individuals should talk to. Companies are confused about how best to contribute, how to be heard and how to get involved.

We are in a race against the clock to ensure that the IC and government organizations have the best technology and capabilities. September 11th pointed out where we need new technology most–capabilities that will enable our government to leverage its vast information resources to support decision makers, assist troops on the ground, and aid in future planning. In short, the IC needs the ability to access any data across any organization, with the appropriate security and access controls. While it is not particularly glamorous, a key part of the solution is infrastructure. The government must invest in infrastructure. It must streamline procurement—while ensuring quality—to facilitate insertion and at the same time be able to coordinate the development of infrastructure across key elements at the federal, state and local levels. The Intelligence Community has a key role to play, and In-Q-Tel is honored to be involved.

Other Issues Deemed Important To The Subcommittee's Review Of These Matters.

Mr. Chairman, In-Q-Tel has been very fortunate. By working with the CIA, we have been able to devise acquisition strategies that have encouraged companies that have never previously dealt with the United States Government to step forward and make their technology available. I believe that other government agencies can, using the approaches we have taken, adopt similar strategies to acquire the technology that is needed for governmental purposes while leaving the company free to pursue the extremely valuable commercial markets.

Thank you, Mr. Chairman, very much for the opportunity to appear before you this morning, and I look forward to your questions.

Mr. TOM DAVIS OF VIRGINIA. Mr. Carroll. Thanks for being with us.

Mr. CARROLL. Thank you, Mr. Chairman. I want to thank Chairman Davis and Ranking Member Turner for holding this hearing and giving me the opportunity to testify.

My name is Richard Carroll. I'm the president of a high-technology company called Digital System Resources. I'm also the legislative chairman of the Small Business Technology Coalition representing hundreds of small high-tech firms across the country dedicated to improving Federal policies and research and development for the Federal Government.

I want to just take a moment and recognize that I thought the previous panel when they addressed the culture issues hit the nail right on the head. In fact, what good does it do to have regulations that, in essence, build roads to go where you want to go when the culture is to walk? And that's what we have.

I want to talk about the culture, "we paid for it, we own it." The government's official policy regarding intellectual property rights is to obtain the minimum rights required for an acquisition, which is a sound and reasonable position. If that former intellectual property rights policy were actual practice for the government, I don't believe we'd be even holding this hearing. But the pervasive view, in my experience, is one of we paid for it, we own it. It's the simple premise that the government owns the intellectual property rights to any research and development funded with government dollars, and this seems on the face of it to be a reasonable government policy, which is why it is such a difficult mindset to change. But if you're trying to create an environment that encourages innovation, the application of we paid for it, we own it to the intellectual property of innovators is a huge obstacle and not consistent with the spirit of the Constitution to foster innovation and invention.

My conversations with large and small companies make it clear to me that the government control of intellectual property can seriously smother incentives for innovators to offer their products to the government. For small high-tech companies in particular, the government culture of we paid for it, we own it has a chilling effect on their interest in innovating for the government. Understand that these companies are the most likely to bring forth the innovations needed to transform our defense systems and to meet the needs of the homeland defense with rapid innovative and affordable solutions. These new ideas represent the heart of the company's assets, and their ability to offer strong competitive alternatives to the status quo is clearly predicated on some level of intellectual property protection. If they lose that intellectual property, or the government provides it to their competitors, the very survival of the company is threatened.

Protecting government rights. I believe that the government's intellectual property regulations and procedures must seek to strike a balance between the legitimate needs of the government and the legitimate needs of private sector. It's a fine tightrope that these regulations and clauses must walk between the competing interests of the government that wants to gain rights to intellectual property it is paid to develop and commercial firms that want to retain and protect their creative ideas from disclosure to competitors. I think

that while in general the regulations as written do strike a reasonable balance between protecting the government's interest and affording industry rights to data, the culture created by implementation of these regulations seriously undermines creative transformation through the development of competitive alternatives and as a result does not support the best interests of the government or the Nation.

Government contracting and program management personnel are not trained well on intellectual property rights or the concept that creative transformation, new ideas destroying old paradigms, is important to them. But what they are trained very well on is their abiding responsibility as agents for the government to protect the rights of the government. Unfortunately, this sometimes takes unnatural and counterproductive directions. Despite the government's official policy to obtain only the minimum rights for any acquisition, some government personnel assume it's in the best interest of the government to select every last right that can be obtained in every circumstance from the contractors, and to do less is to fail to protect the government interest.

It is not hard to see how government personnel will be naturally inclined to slant the intellectual property rights balance toward the government. After all, very few government employees are penalized for being overprotective of government interests, and rightly so. In addition, there's a belief among some government personnel that they must be able to disclose technologies to foster competition. This runs counter to the business advantage concept that patents and copyrights are intended to give. This problem is exacerbated for smaller companies as they are less equipped to deal with pressure from government to give up their intellectual property. Yet it is these smaller firms that require the protection of well-crafted and implemented intellectual property policies, for they are the ones most likely to deliver the kinds of creative transformation that will rapidly advance capabilities.

Our Nation's history is filled with examples of small technology companies transforming the way Americans work and play using the power of creative affordable innovation and intellectual property protection. Why does this not seem to happen in the government marketplace or in the Department of Defense? Why don't we find small, innovative DOD contractors transforming our defense through their innovative products protected by intellectual property rights in the same way small, innovative companies have transformed the private sector, companies like Intel, AOL, Microsoft, Dell, many, many others? They're just not in the public sector. Intellectual property protection is the reason they're not.

Let me just mention one myth that exists in the government sector regarding intellectual property protection. That myth is if we don't acquire all the intellectual property associated with our procurement, in time we may be overcharged or held hostage to a sole source supplier. The reality is that the government doesn't acquire adequate intellectual property in most large procurements to level the playing field like that sufficient for competition. And do we really want to level all our alternatives anyway?

Government practice, current government practice, attempts to acquire intellectual property and fails to do so in most large pro-

curements, but does acquire intellectual property when contracting with small, innovative high-technology firms or outside commercial firms. The result of this practice is to significantly dampen the likelihood of innovation and creative transformation.

We have invested in you, now run with it. New ideas are indeed threatening. As we see in the commercial marketplace every day, new ideas are remorseless. They disrupt and reorder old ways of doing things without conscience. A new technology idea or approach destroys the old technology, the old idea and the old approach simply by being better. This kind of rapid change is frightening to many people.

We talk about it, thinking out of the box and no business as usual, but let's be honest; thinking in the box and business as usual are a lot more comfortable and feel a lot safer. So when we seek to create an environment where innovation can thrive within the government, we must recognize that we are trying to create an environment that challenges the status quo and that appears risky to many people. I want to acknowledge that we are trying to do something hard here, to change entrenched thinking and processes to accept the kind of change that protecting intellectual property will bring.

Finally, and perhaps most importantly, the government needs to send a message that it will protect intellectual property rights of innovators, and when innovators feel their ideas will be protected, they will come out of the woodwork to provide their ideas for government application. The government will get the best ideas faster, better and cheaper with this approach.

Thank you for the opportunity to testify. I would be happy to answer any questions.

Mr. TOM DAVIS OF VIRGINIA. Thank you very much.

[The prepared statement of Mr. Carroll follows:]

Digital System Resources®, Inc.

TESTIMONY

Statement of Mr. Richard W. Carroll
Legislative Committee Chairman of The Small Business Technology Coalition
And Chief Executive Officer, Digital System Resources®, Inc.

TO: HOUSE COMMITTEE ON GOVERNMENT REFORM
SUBCOMMITTEE ON TECHNOLOGY AND PROCUREMENT POLICY
U.S. HOUSE OF REPRESENTATIVES

ON: *"Treatment of Intellectual Property Rights Is Crucial To Facilitating Innovation in the Federal Government"*

Washington, DC

May 10, 2002

Mr. Chairman and Members of the Subcommittee:

I first want to thank Chairman Davis, ranking minority member Turner, and members of the Subcommittee for this opportunity to testify about intellectual property issues affecting firms doing business with the federal government.

My name is Richard W. Carroll, and I am Chief Executive Officer (CEO) of a small high technology company called Digital System Resources, Inc. (DSR) located in Fairfax, Virginia. At DSR we build complex information systems such as the data processing system for the Sonar on our nation's submarines and other advanced data processing systems for the Department of Defense (DoD).

I am also the Legislative Chairman of the Small Business Technology Coalition (SBTC). SBTC is an association of hundreds of small high technology firms located across the country and dedicated to improving federal policies and practices for smaller firms engaged in federal scientific, research, technical, and professional services.

First, let me take this opportunity to commend the Subcommittee for continuing to pursue this very complicated issue. I know that the intricacies of Intellectual Property are hardly glamorous, but I can assure the Subcommittee that if we want to get the best ideas from the best minds in the country to address problems like our Homeland Defense, we must give them the protection and the advantage of their intellectual property.

Intellectual Property Rights Protect Intellectual Vitality

The last time I testified before the Subcommittee, I quoted from Article 1, Section 8 of the Constitution and I think it bears repeating:

> *"To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries"*

It is remarkable to reflect that the even in the 1780s the Founders took time to recognize that the prosperity and welfare of this very young country depended on protecting the intellectual property of creative people in our society. This remains just as true today, at a time when we face a national threat from a deadly enemy that uses the cover of our free society to hide and attack innocent men, women, and children. We need to be able to call on the best minds in our society to provide solutions to meet this threat. I am concerned that the issue of protecting intellectual property could stand in the way of getting those ideas in our war against terrorism.

"We Pay For It, We Own It"

The government's official policy regarding intellectual property rights is to obtain the minimum rights required for any acquisition – a sound and reasonable position. If that formal intellectual property rights policy were actual practice for the government, I do not believe it would be an issue before this Subcommittee today.

But, the pervasive view in my experience is one of " we paid for it, we own it." It is the simple premise that the government owns the intellectual property rights to any research and development funded with government dollars. This seems, on the face of it, to be a reasonable government policy, which is why it is such a difficult mindset to change. But if you are trying to create an environment that encourages

innovation, the application of "we paid for it, we own it" to the intellectual property of innovators is a huge obstacle and not consistent with the spirit of the Constitution to foster innovation and invention. My conversations with large and small companies make it clear to me that government control of intellectual property can seriously smother incentives for innovators to offer their products to the government.

I know that the Committee has had representatives from other companies discuss their attitude toward government research and development and in many cases they won't take government contracts for research and development in their core business for fear of compromise of their intellectual property. We cannot calculate the losses our Nation has suffered by this refusal of innovative companies to contribute to our nation's defense and other missions for fear of losing their stake hold in their technologies.

In addition, for small high technology companies in particular, the government culture of "we pay for it, we own it" has a chilling effect on their interest in innovating for the government. Understand, that these companies are the most likely to bring forth the innovations needed to transform our defense systems, and to meet the needs of homeland defense with rapid, innovative, and affordable solutions. These new ideas represent the heart of their company's assets, and their ability to offer strong competitive alternatives to the status quo is clearly predicated on some level of intellectual property protection. If they lose that intellectual property because the government provides it to their competitors, the very survival of the company is threatened.

Protecting Government Rights

I believe that the government's intellectual property regulations and procedures must seek to strike a balance between the legitimate needs of the government and the legitimate needs of the private sector. It is a fine tightrope that these regulations and clauses must walk between the competing interests of the government that wants to gain rights to intellectual property it has paid to develop, and commercial firms that want to retain and protect their creative ideas from disclosure to competitors. I think that while in general, the regulations as written do strike a reasonable balance between protecting the governments interests and affording industry rights to data, the culture created by implementation of these regulations seriously undermines creative transformation through the development of competitive alternatives; and as a result does not support the best interests of the government or the nation.

It is essential to understand that the technical aspects of the intellectual property clauses in federal contracts are some of the longest and most complex clauses in all of federal contracting. The complexity of these clauses, regulations, and the intellectual property rights that they allocate virtually ensures that these are among the least understood aspects of federal contracting. This presents a real challenge, because very few of the government contracts, program managers, and general counsels can be expected to devote the time and effort to becoming truly fluent in these highly complex issues. Government contracting and program management personnel are provided limited training into the importance of intellectual property rights to a business and are generally not trained in the sophisticated concepts of intellectual property as the crucial element for creating an environment that encourages innovation and competition.

What government contracting and program management personnel are vigorously trained in is their abiding responsibility, as agents for the government, to protect the rights of the government. Unfortunately, this sometimes takes unnatural and counter-productive directions. Despite the government's official policy to obtain only the minimum necessary rights for any acquisition, some government personnel assume that it is in the government's interest to collect every last right that can be obtained in every circumstance from the contractors, and that to do less is to fail to protect the government interest. It is not hard to see how government personnel would be naturally inclined to slant the intellectual property rights balance towards the government. After all, very few government employees are penalized for being over-protective of government interests, and rightly so.

In addition, there is a belief among some government personnel that they must be able to disclose technologies developed by contractors to foster competition. This runs counter to the business advantage concept that patents and copyrights are intended to give. This problem is exacerbated for small companies as they are less equipped to deal with pressure from the government to give up their intellectual property. Yet, it is these smaller firms that require the protection of well-crafted and implemented intellectual property policies for they are the most likely ones to deliver the kinds of creative transformation that will rapidly advance capabilities. Our nation's history is filled with examples of small technology companies transforming the way Americans work and play using the power of creative affordable innovation and intellectual property protection. Why does this not seem to happen in the Government marketplace or in our Defense Department? Why don't we find small innovative DoD contractors transforming our defense through their innovative products protected by intellectual property rights in the same way small innovative

companies have transformed our private sector - companies like Intel, AOL, Microsoft, Dell, and many, many others.

Why the Government Needs Intellectual Property: Myths and Realities

If the government practice of demanding intellectual property rights has such a chilling impact on innovation, why is the government so aggressive in securing the intellectual property rights of innovators? It is an important question and on closer examination, I find that what the government gains by practicing "we paid for it, we own it" turns out to be a lot less than what they lose.

Two interesting and recurring "myths vs. realities" fueling the government's drive to obtain intellectual property are:

Myth 1: If we don't acquire all of the intellectual property associated with our procurement, in time we may be overcharged or held hostage to a sole source supplier.

Reality: The government doesn't acquire adequate intellectual property in most large procurements to "level the playing field" sufficiently for a competition, and do we really want to "level" all our alternatives anyway?

Current government practice attempts to acquire intellectual property and fails to do so in most large procurements, but does acquire intellectual property when contracting with small, innovative high technology firms or outside commercial firms. The result of this practice is to significantly dampen the likelihood of innovation and creative transformation.

Myth 2: Businesses with intellectual property rights protection (say for a great product that the government paid the R&D for) may grow so big that they become a monopoly.

Reality: It is a creative world. The power of intellectual property protection, created by the Founders, stimulates competitive alternatives, moves technology forward, and triggers creative transformation leading to increased productivity, enhanced capability, and greater affordability.

Furthermore, if a business could develop an innovation so revolutionary that the commercial or government demand created a large company through market acceptance of its products, wouldn't the government have benefited mightily from this business's growth and innovative solutions.

We Have Invested In You, Now Run With It

New ideas are indeed threatening. As we see in the commercial marketplace every day, new ideas are remorseless. They disrupt and reorder old ways of doing things without conscience. A new technology, idea, or approach destroys the old technology, the old idea, and the old approach simply by being better. New ideas with the benefit of intellectual property protection create competitive alternatives that challenge the status quo.

This kind of rapid change is frightening to many people. We talk a lot about "thinking outside the box" and "no business as usual," but lets be honest, thinking in the box and business as usual are a lot more comfortable and feel a lot safer. So when we seek to create an environment where innovation can thrive within the government, we must recognize that we are trying to create an environment that challenges the status quo and that appears risky to many people. I want to acknowledge that we are trying to do something hard here -- to change entrenched thinking and processes and to accept that change can be good instead of just risky.

That is why, despite a succession of defense secretaries imploring the Department of Defense to take lessons from the private sector that could bring innovation and innovative acquisition strategies to the government, this has been very slow in happening. It will not be easy, but I believe that it is time to change the "we paid for it, we own it" mindset in favor of a more commercially oriented "we have invested in you, now run with it" concept. After all, whom you chose to invest in will continue to be based on competition and merit, and if they don't run with it, then stop investing in them. You are bound to develop some fast runners.

The next step is the realization that not only do small business intellectual property rights not increase program risk, allowing small businesses to grow around their innovations by protecting those rights has huge potential benefits. Using relatively small amounts of program funds to invest with small business innovators, a program manager can build competitive alternatives that ensure the program is not entirely

dependent on one provider of solutions. This concept has the additional benefit of motivating all competitors to push technology, schedule, and cost so that it benefits the government. As in the commercial marketplace, when the government rewards the businesses that perform and penalizes those that do not, the government sends a powerful message that they are really looking for the best ideas at the best prices.

Finally, and perhaps most importantly, the government sends a message that it will protect the intellectual property rights of innovators, and when innovators feel their ideas will be protected, they will come out of the woodwork to provide their ideas for government application. The government will get the best ideas faster, better, and cheaper.

Thank you for the opportunity to testify before your committee today and I would be happy to answer any questions that you might have.

Mr. TOM DAVIS OF VIRGINIA. Mr. Fry. Thanks for being with us.

Mr. FRY. Can you hear me OK? My name is Stan Fry. I'm the director of contracts and legal affairs for the commercial and government systems division of Eastman Kodak Co. I want to kind of make the point Kodak is a high-tech, we're a technology rich, technology dependent company. We're not just about film and prints anymore. We employ over 42,000 people in the United States. We did over $13 billion in business last year, and of that we spent about 5.9 percent, or $779 million, in R&D. We were granted over 700 patents, making us No. 10 of U.S. companies getting U.S. patents, and 20th overall of companies getting U.S. patents.

Patents and our intellectual property are extremely important to our competitive position, and to highlight that I'd note that recently we organized a separate business unit whose sole purpose is to keep track of our patent portfolio and to make intelligent decisions on how to license, use, sell or use that technology for our benefit and make revenue for the company.

I'm also here as chairman of the Integrated Dual-use Commercial Companies, or IDCC. It's an informal coalition of a few large high-tech companies formed in 1991. Our mission is to work to modify the laws, to improve the relationship and make it easier for commercial companies to do business with the Federal Government, and one of the ways to do that is to collaborate more on a commercial practice methodology, and that's really my message here today.

We believe that intellectual property is the most important issue that our companies face in dealing with the government, particularly with DOD, and we think if the government adopted more of a commercial model, that it would be a lot easier to attract technology-rich companies and their products to DOD and to the government. Such a model would provide that ownership and licensing of IP would be fully negotiable, but generally, as in the commercial world, the contractor or seller would continue to own the data, and in most cases the buyer would not be granted extensive patent or data rights, although sometimes restrictive licenses or rights are granted even in the commercial world.

The commercial model uses nondisclosure agreements to provide a basis for enforcing technology or forcing confidentiality and trade secret protection. We believe that a method of using nondisclosure agreements, limiting disclosure to those few people who have a legitimate need to know, would work as well with the government.

Another issue that arises is that many companies keep inventions and discoveries as trade secrets, and as has been mentioned before, you can't really do that under the current Bayh-Dole Act model for dealing with government IP.

So what's the problem? As I've already alluded to, it's primarily we believe statutes like Bayh-Dole, which set a model for the minimum amount of rights, data rights, "march-in" rights that the government has to have—we originally recommended that we do away with Bayh-Dole, but since that time we've learned that there's a large constituency that depends on Bayh-Dole. So we believe that a waiver, a generous or liberally applied waiver, and policies that would encourage use of those waivers would be the best way to encourage technology-rich companies to work for the government.

In addition to the waiver issue on Bayh-Dole, I also wanted to mention another two of our issues with—in this region, are the definition of a subject invention. We believe that if a company applies for or receives a patent independent of government contract work, the government shouldn't have any rights. But under the definition of subject invention, there's a possibility.

The other thing is we believe there could be some changes to the American competitive provisions that are in Bayh-Dole and similar statutes that don't allow companies to use their full global capabilities as they would in a normal commercial issue.

I wanted to just mention that IPs have worked. They've worked well in certain limited circumstances where we are—we have some concern that benefits of using them have been eroding, most recently with the addition of audit rights and then requirements for use of nontraditional defense contractors.

The bright spot, however, I'd like to highlight, I think others have, is the manual, the guide book put out by DOD. It's been of great use to us in dealing with government agencies, and we'll be really happy when more of the government agencies and procurement people are fully trained in it. Thank you.

[The prepared statement of Mr. Fry follows:]

Statement by

Stanley D. Fry
Director, Contracts and Legal Affairs
Commercial & Government Systems
Eastman Kodak Company

Submitted to the

Technology and Procurement Policy Subcommittee
Committee on Government Reform
United States House of Representatives

May 10, 2002

May 10, 2002

Good morning:

My name is Stan Fry, and I am the Director, Contracts and Legal Affairs, for Commercial & Government Systems, Eastman Kodak Company.

Kodak is the leader in helping people take, share, enhance, preserve, print and enjoy pictures -- for memories, for information, for entertainment. The company is a major participant in infoimaging -- a $225 billion industry composed of devices (digital cameras and PDAs), infrastructure (online networks and delivery systems for images) and services & media (software, film and paper enabling people to access, analyze and print images). Kodak harnesses its technology, market reach and a host of industry partnerships to provide innovative products and services for customers who need the information-rich content that images contain. The company, with sales last year of $13.2 billion, is organized into four major businesses: Photography, providing consumers, professionals and cinematographers with digital and traditional products and services; Commercial Imaging, offering image capture, output and storage products and services to businesses and government; Components, delivering flat-panel displays, optics and sensors to original equipment manufacturers; and Health, supplying the healthcare industry with traditional and digital image capture and output products and services.

Kodak employs 42,000 people in the United States, and a total of 75,000 employees worldwide. Commercial and Government Systems (C&GS), a division in the Commercial Imaging group, employs approximately 1200 people devoted primarily to the development of advanced imaging technology products and services for the Federal Government and commercial markets. All of Kodak's negotiated government contract work is performed in or through this division. Part of the C&GS role at Kodak is to act as a conduit for providing Kodak commercial products and technology to our government customers as well as to channel technology developed under government contracts into commercial applications. In this environment, we deal with government contract IP issues practically on a daily basis.

In 2001, Kodak spent over $779 million on R&D, which is about 5.9% of our $13.2 billion sales. Kodak was granted 719 patents in the United States, ranking 10th in total patents granted to U.S. companies and 20th overall. Kodak's patents and other intellectual property are extremely important to every facet of our business. Recently, the company organized a special business unit, with profit and loss responsibility, whose primary purpose is to manage and maximize the value of Kodak's patent portfolio. The income from licensing and the ability to engage in business enhancing cross licensing are major assets of our company.

For the past three years, I have also been the chairman of the Integrated Dual-use Commercial Companies (IDCC). IDCC is a coalition formed in 1991 of several large commercial companies that perform a relatively small amount of government contract work generally in the area of technology based products and R&D. Relatively small is in relation to the total sales of the firms; the absolute dollars are somewhat significant. But even these dollars barely scratch the surface of the member firms' technology investments, most of which are currently unavailable to DoD, although the technologies have substantial potential benefit for military applications.

IDCC members include Dow Chemical Company, Corning Incorporated, W.L. Gore and Associates, Inc., Honeywell, and Eastman Kodak Company. IDCC's mission is to work to modify Federal laws, regulations, and practices primarily regarding R&D contracting and Intellectual Property to enable commercial companies to more effectively collaborate with the Federal government using commercial practices. The critical need for this mission is highlighted by the fact that in the last two years, IDCC has lost two long time members, 3M and Dow Corning, as those firms have reduced or eliminated their government R&D work.

For at least the last five years, IDCC member companies have identified Intellectual Property as the most important issue facing IDCC member companies with respect to doing business with the DoD. We believe that the government should adopt more of a commercial model for addressing Intellectual Property issues in order to attract technology-rich companies to perform R&D and provide new products to DoD.

What would such a model need to look like?

Ownership and licensing of the IP would be fully negotiable, but generally the contractor would own the IP and the government would not be granted extensive patent or data rights. Businesses hold these rights dear and do not want to take the chance that the IP will be shared with a competitor. If you (the government) contract with a business that has the technology to apply to your problem, you have to leave the technology i.e., the IP, there. A commercial business is loath to fracture its technology development by mixing ownership and license rights with the government. If that is done, the risk is that the technology will not further develop because the economic incentive is either gone or diluted.

In the commercial world, ownership of patent rights is with the inventor (company). In some instances, ownership is shared when there are joint (company) inventors. This would seldom occur with the government since most arrangements are limited to funding R&D and not co-development. The buyer has rights to use the IP in the products that are developed and little more unless the parties negotiate licenses or other buyer protections.

Sometimes limited licenses or restrictions are agreed upon to protect the buyer's competitive edge in the marketplace. In a commercial setting it would be rare for a buyer to pay all the costs of development. Generally the seller is selected because it has the technology and know-how to solve the problem. However, a commercial

buyer/developer does not want to pay significant development costs for an application and allow the Seller to resell the results to a competitor, i.e., allow the competitor to benefit from the work without having to pay for development. In one instance, we agreed not to use the same design with any other customer for a period of 5 years. This protected the buyer but did not preclude us from designing and building a similar system for anyone else. Similar restrictions occur in the semiconductor industry. If we have a custom ASIC designed by a chip foundry to our specifications, the design belongs to the foundry and is kept by the foundry, but it is marked Kodak proprietary. The design cannot be used for any other customer. With the government as a buyer, protection from competitors should not be an issue. The government should welcome promotion and further development by the private sector to reduce future costs of the product and improve the product without additional government-provided funding.

The commercial model utilizes non-disclosure agreements to provide a legal basis for enforcing confidentiality and to meet the standards for trade secret protection. The government should embrace the concepts of signing non-disclosure agreements, protecting data from non-disclosure, and limiting disclosure to those few people who have a legitimate need to know. While it might take some effort, I am sure this could be implemented while still protecting the public's right to know how the money is spent.

Another issue that arises with the commercial model is that commercial businesses often keep new ideas, discoveries, and even patentable inventions as trade secrets. Under the IP model of the Bayh-Dole Act and the FAR regulations, a contractor must notify the government of all inventions, and then patent the invention or allow the government to patent the invention. There is no provision in the FAR to allow a contractor to keep an idea as a trade secret.

Why would a business choose trade secret protection? Many inventions are related to algorithms or processes that are not obvious in the marketplace or in the product when the invention is used. The result is that it is often difficult or impossible to know when someone is infringing the patent. If you cannot enforce the patent, then it is of little value. By patenting the invention, you must disclose it, thereby supplying the public with a recipe for duplicating your work. Software is a good example where the trade secrets embodied in the code are protected by license agreements and by delivering only machine-readable object code. The issues related to the development of unique manufacturing processes are similar.

So what is the problem?

The major impediment to achieving the commercial model is the Bayh-Dole Act. While this Act achieved its purpose in the 1980's - it was a great improvement on the previous regime under which the government took ownership of the IP - it is not keeping up with the dramatic changes in the economy. In today's world, most of the R&D is privately funded, and much of the technology is not readily available to the government. Many companies are not interested in government work while others have made conscious decisions that they will not do government work.

IDCC had originally recommended that the Bayh-Dole Act be repealed to allow both the government and the contractor the greatest flexibility to freely negotiate patent rights. However, more recently we have become aware that many colleges and universities, other non-profits, and small businesses rely on the Act to ensure they gain ownership of IP rights developed with government funds. Therefore, we recommend that a waiver or similar authority be granted. The original Bayh-Dole Act allowed for a waiver of the government license rights in certain circumstances, e.g., when the contractor had provided significant private funding of the work. This would be a really useful provision to protect contractor investment in technology, and, if used appropriately, would be a big improvement in getting more commercial company involvement in government R&D.

A good model for crafting such a provision is found in the current FAR Part 15 provisions requiring (certified) cost or pricing data. Contracting officers are expected to come to agreement on fair and reasonable prices without requiring cost or pricing data. Requiring such data is a last resort. Even if cost or pricing data are required, a contracting officer is expected to obtain a waiver if sufficient information is available to determine price reasonableness. In some cases, e.g., in acquiring commercial items, the contracting officer cannot require cost or pricing data. Now substitute the idea that contracting officers should not require patent and data rights except in very limited circumstances and perhaps more commercial companies would be willing to perform government R&D contracts.

Earlier this year, the Director, Defense Procurement, asked a number of Industry groups, including IDCC, to comment on their top issues. The following three issues, which all relate to Bayh-Dole and IP to some extent, are on IDCC's top 10 list. I have discussed the first one in some detail but wanted to just mention the others for completeness.

Allow Waivers for Bayh-Dole. Waive "march-in" rights and government license rights to inventions and provide for negotiated limits on the scope of license rights to allow DOD access to currently unavailable leading edge technologies (R&D) that exist, are being developed, or could best be developed in commercial (non-traditional) laboratories.

Revise the definition of "subject invention" in the Bayh-Dole Act and the regulations (FAR 27.301) so the term "first actually reduced to practice" does not include inventions for which a patent has been applied for or actually received independent of work on a government contract (Some patents can be obtained without an actual reduction to practice, e.g., the invention can be simulated).

American Competitiveness. The Bayh-Dole Act generally requires that products embodying federally funded technology be substantially manufactured in the United States unless not commercially feasible (FAR 27.302(g)). The competitiveness of American companies requires that business relationships follow the talent and the technology without respect to geography. A restriction to domestic partners would have eliminated more that 80% of Dow Chemical Company (an IDCC member company) research projects in the most recent five years. The inability to integrate the assets of

universities and national laboratory systems supported by other governments must inevitably handicap high risk technology developments - and therefore the very competitiveness of U.S. companies which the law is intended to enhance. The interests of the government and of the U.S. public can be better served by intelligent modification of the technology transfer and IP statutes and regulations to require that, "products resulting from joint cooperative agreements (without regard to where they will be sold) will be produced by U.S. controlled businesses in accordance with their best commercial manufacturing management practices." This is what would naturally result in the absence of any legislated requirement.

Before concluding, I wanted to briefly comment on another approach to IP issues. For several years, DARPA and later, the Services, have had the ability to use special contracting vehicles known as Other Transactions (OT's). As the law is currently interpreted, OT's are exempt from Bayh-Dole and the FAR. My company has utilized both the cost sharing OT (Section 2371) and a prototype OT (Section 845). Both allowed us some latitude in crafting IP provisions that met the needs of Kodak and the government. Under a prototype development involving a software system, we drafted an IP provision that allowed Kodak to keep inventions as trade secrets at our option rather than applying for a patent. We agreed to notify the government of the invention in general terms without actually disclosing it. The provision didn't actually come into play during the contract, but it was there if needed.

Unfortunately, we have recently experienced some erosion of the benefits of using these instruments. I am referring to the additional requirements for audits and the restrictive definition of non-traditional defense contractors that eliminates many of the technology rich business units that are needed to satisfy the government's needs for leading edge technologies and products. The potential for negotiating better IP provisions can be quickly outweighed by a requirement for cost sharing or intrusive audit rights. All too often, these and other limitations of OT's limit their widespread use to solve the IP issues for R&D contracting.

There is a bright spot, however, and that is the guide developed by the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics entitled "Intellectual Property: Navigating Through Commercial Waters." Within two weeks of the initial publication, we were able to use it to convince a DoD buying activity that it was appropriate to negotiate lesser rights for development work related to a commercial technology. As more DoD acquisition personnel become familiar with the guide and are trained in its use, I am confident we will make better use of the flexibility already available.

For more information on IDCC and to review additional articles on intellectual property, other barriers for commercial companies in performing government R&D contracts, and related issues, please visit our website at www.idcc.org.

Thank you again for inviting me to participate and present IDCC's position on this most important issue. I would be pleased to answer any questions.

Mr. DAVIS OF VIRGINIA. Thank you very much. Mr. Soloway, thanks for being with us.

Mr. SOLOWAY. Thank you, Mr. Chairman and Mr. Turner. I am pleased to be here today. As you know, the Professional Services Council is the principal national trade association representing the full scope of the government technology services market. Our membership includes both large and small companies and, in fact, includes as many companies with revenues under $5 million as those with revenues in the billions.

For professional technical services companies, intellectual property is most frequently found in the skills and experience of the firm's work force. Regrettably, Federal policies are neither clear nor flexible enough to foster the type of partnership for innovation and innovative solutions needed to assist the government in meeting its needs. Moreover, throughout the government there remains, as has been said by many witnesses today, a genuine lack of understanding of how such relationships can be fostered while continuing to protect the government's equities.

We applaud you and the subcommittee for launching this important policy review and for following up on the July hearing you held on this topic. Much has changed in the world since then, but the challenges remain much the same. For starters, I think it's important that we not underestimate the meaning of the massive shift of R&D development from public to private sources, for it's only been over the last 25 years that the private sector has outspent the government in R&D. Equally, we should not underestimate the degree to which there is commonality between government technology needs and technologies being developed for principally commercial purposes. Third, we should not underestimate the impact and relationship of that shift of resources to the government's human capital challenges alluded to by Mr. Horn.

The fact is that there is a technology gap, it is growing, the government is not often enough a customer at the principal R&D tables, and intellectual property issues continue to be the dominant factor in whether and how to put innovative private sector solutions to work for the government. Traditional thinking and traditional approaches to intellectual property do not allow for timely and successful solutions.

The debate becomes all the more important as the solutions being sought by the government and offered by the private sector are becoming more typically services solutions rather than purely hardware solutions. IP laws and regulations have simply not kept pace with innovations that have taken place in the private sector and the growth of complex technology-based services requirements in the Federal arena.

In my remarks today, I will focus on a couple of overarching issues of concern. PSC's General Counsels Committee is currently reviewing the proposed changes to the Bayh-Dole Act as well as recently proposed changes to the rules governing technology investment agreements. As those reviews are not yet complete, I'm not able to share with you any firm conclusions except to say we will provide the committee with our thoughts in a timely manner.

People have mentioned culture, and that is the critical issue. The principal problem here is the lack of understanding of key underly-

ing principles of intellectual property law and a concurrent unwillingness to exercise existing flexibilities in current regulations such as the difference between ownership of the intellectual property and license rights to use the data for government purposes.

As is the case in many other areas, there's a lack of adequate training for the contracts community, and most prefer to treat intellectual property matters, with all due respect, Mr. Chairman, as legalese and refer the issue to their lawyers. Also, too often an ownership mentality prevails. That mentality perhaps more than anything else drives companies away from the government marketplace because it presents levels of risk that are simply unacceptable. It remains all too rare for the government to clearly define its needs and build them into a well-defined performance statement of work and licensing agreement, even though doing so represents a common best commercial practice and can fully protect the government's equities. There is a critically important point here, and that is understanding the difference between the government's needs and overreaching, believing that your needs equal complete and full control of all intellectual property and technical data.

Second, as technology partnerships are formed to bid on Federal work, the prime contractor is sometimes caught in a squeeze between government contracting officers who are unwilling to accept commercial terms and conditions for intellectual property and commercial subcontractors who insist, rightfully so, on following commercial terms and conditions in their IP agreements. As a result, the prime contractors often face the choice of accepting greater liability than their subcontractors will accept, walking away from the government requirement or not accessing those commercial cutting-edge solutions. Obviously such circumstances can cause the government to lose much-needed access to cutting-edge technologies and technology-based solutions.

Indeed, this issue and the ownership issue are inextricably linked. Unfortunately, few Defense Department or other contracting officers have agreed to accept nonstandard intellectual property terms and conditions largely because they have not been given adequate training to understand them and because, frankly, the strongest opposition to them often comes from the internal oversight community which remains rooted in past practices. I believe that makes the role of the General Accounting Office, which has been an active and constructive participant in this issue for several years, critically important, because they have developed a keen understanding of the challenges that exist and ways to move forward.

Mr. Chairman, I also note with interest the legislation you introduced on May 1st to establish a program at OFPP to speed the government's evaluation and implementation of technologies for homeland security and antiterrorism efforts. While PSC is currently reviewing the bill in detail, we certainly applaud your focus on critical issues including waivers from existing laws and the Federal acquisition regulations for a limited number of pilot projects and contracts. We will carefully study the bill and offer our recommendations to this subcommittee shortly.

I would add one cautionary note regarding DOD's statutes and last year's emergency procurement act that granted special authorities, including the use of other transaction authorities to the civil-

ian agencies. As important as such steps are, they will yield little significant progress until the issues associated with intellectual property and the broader issues associated with government R&D business models are more fully addressed.

On a positive note, Mr. Chairman, I'd like to compliment the Department of Defense on its issuance of the "Navigating Through Commercial Waters" guide book, its guidance on smart and best practices associated with intellectual property. I am pleased to say that DOD began work on that guide during my tenure there and I personally know how difficult it was to develop and publish. PSC has had the opportunity more recently to review and comment on its many drafts, to broadly distribute the guide to our membership, and to support the Department's publicity surrounding it.

Regrettably, however, there are two significant limitations to the guide. First and most significantly, it is a guide to existing authorities and not a regulation or policy on which the defense contracting community can rely. Second, we are just beginning to see the initial training on the guide and it will take precious time under current course and speed to reach a meaningful number of the affected acquisition work force. Unfortunately, given the pace of technology development, current course and speed is simply not fast enough.

The sad fact is that while DOD's regulations were altered a number of years ago, particularly with regard to rights in technical data for the development of products and software, no similar changes have been made to the statutes governing the rights and the technical data applicable to the civilian agencies; and the FAR continues to reflect 25-year-old policies as the basis for negotiating intellectual property clauses in the civilian agencies. As noted earlier, times and requirements have changed significantly, but not solely as a result of September 11th, and it is therefore time to undertake a thorough review of those statutes and rules as well.

Thank you very much, Mr. Chairman. I would be happy to answer any questions.

Mr. DAVIS OF VIRGINIA. Thank you very much.

[The prepared statement of Mr. Soloway follows:]

PROFESSIONAL SERVICES COUNCIL

TESTIMONY

of Stan Z. Soloway
President
Professional Services Council

Before the

House Technology and Procurement Policy Subcommittee

May 10, 2002

2101 Wilson Boulevard, Suite 750, Arlington, VA 22201-3009, 703/875-8059, Fax 703/875-8922,
http://www.pscouncil.org

Mr. Chairman, members of the subcommittee, my name is Stan Soloway, president of the Professional Services Council. I am honored to appear before you today to testify about the important issues of intellectual property (IP) rights in the federal marketplace, and the barriers to the government's ability to obtain the cutting-edge solutions it needs in a rapidly-changing environment.

The Professional Services Council is the principal trade association of government professional and technical services providers. It represents the full range of information technology, research and development, engineering, high-end consulting, and other for-profit firms supporting the federal government's diverse missions in virtually every federal agency. For many years, PSC has been a leading voice for the industry regarding the federal government's acquisition policies for services.

In your May 1, 2002 letter of invitation to us, you summarized in a single sentence the importance of this issue to PSC member companies, remarking, "Because IP rights are the most valued assets of leading-edge technology companies, the Government must ensure that its policies and procedures reflect this partnership for innovation." For professional and technical services companies, intellectual property is most frequently found in the skills and experience of the firm's workforce. Regrettably, federal policies are neither clear nor flexible enough to foster the type of partnership for innovation and innovative solutions needed to assist the government in meeting its needs. Moreover, throughout the government there remains a lack of genuine understanding of how such relationships can be fostered while continuing to protect the government's equities.

We compliment the subcommittee on launching a review of this important public policy issue, and for following up on the July 2001 hearing that it held on this topic. The events that followed September 11 necessitated changes to the missions and focus of many federal agencies. The government reached out to the private sector for solutions, and the private sector responded. The events of September 11 have also driven a need for solutions that are not yet fully

developed, and thus have created a need for the government to rethink critical intellectual property issues associated with research and development. But intellectual property issues continue to be a dominant factor in the discussion of putting these innovative private sector responses to use. Traditional thinking and traditional approaches to intellectual property do not allow for timely and successful solutions.

This debate becomes all the more important as the "solutions" being sought by government and offered by the private sector are becoming more typically "services" solutions rather than "hardware" solutions. IP laws and regulations have not kept pace with innovations that have taken place in the private sector and the growth of services contracting in the federal arena.

Defining Rights in Intellectual Property

The first step in finding solutions is to clearly understand the types of intellectual property rights that exist and the current treatment of those rights under government contracting laws and policies. For government contracts, IP is not a single issue, but an array of laws, rules, and policies that vary by the type of IP being addressed, such as patent rights, copyrights, trademarks, trade secrets, technical data, and cooperative research and development agreements (CRADAs) pursuant to 15 U.S.C. 3710a.

Bayh-Dole Act

The Bayh-Dole Act is key to defining intellectual property rights for patents and other specific inventions developed in the performance of a government contract. The Bayh-Dole Act and related policies permit non-governmental organizations to retain title to inventions in the performance of funding agreements with federal agencies while the government retains a paid license.

Under certain circumstances spelled out in the law, the government also retains "march-in" rights to require a private party to grant a license for the technology. We are aware of proposals made by others to modify the Bayh-Dole Act and the Trademark Clarification Act of 1984. PSC's general counsels committee has been studying these Acts and assessing their implications for the federal services sector. While I had hoped to present the results of that analysis today, I regret that it will require additional study. We will make the results of that review available to the Subcommittee as quickly as possible.

Understanding Ownership vs. Control

Among the largest issues PSC member companies face when dealing with the government is agencies' lack of understanding of key underlying principles of intellectual property law and existing flexibilities in the regulations, such as the difference between "ownership" of the intellectual property and "license rights" to use the data for government purposes. As is the case in many other areas, there is a lack of adequate training for the contracts community, and most prefer to treat intellectual property matters as "legalese" and refer the issue to the lawyers. Also, too often an "ownership" mentality prevails. That mentality, perhaps more than anything else, drives companies away from the government marketplace because it presents levels of risk that are simply unacceptable. It remains all too rare for the government to clearly define its needs and build them into a well-defined performance statement of work and licensing agreement, even though doing so represents a common best commercial practice. The Department of Defense has struggled mightily with this issue, and as sophisticated new requirements emerge across the civilian agencies, the same challenges arise.

Government-Prime Contractor-Subcontractor "Squeeze"

Companies also face another set of challenges when dealing with intellectual property issues in federal contracting. Frequently, as technology partnerships are formed to bid on federal work, the prime contractor may be caught in a

squeeze between a government contracting officer who is unwilling to accept commercial terms and conditions for intellectual property and a commercial subcontractor who insists on the terms and conditions of its commercial IP agreement. As a result, prime contractors face the choice of either accepting greater liability than key subcontractors will accept or walking away from government requirements. When the latter scenario occurs, the government's interests and needs remain unfilled. Indeed, this issue and that of "ownership" are inextricably linked. Unfortunately, few Defense Department contracting officers have agreed to accept "non-standard" intellectual property terms and conditions, largely because they have not been given adequate training to understand them and because the strongest opposition to them often comes from the internal oversight community which remains rooted in past practices. I believe that makes the role of the General Accounting Office, which has been an active and constructive participant in this issue for several years, critically important because they have developed a keen understanding of the challenges that exist.

H.R. 4629

Mr. Chairman, we read with interest the legislation you introduced on May 1, 2002. H.R. 4629 would establish a program at the Office of Federal Procurement Policy to speed the government's evaluation and implementation of technologies for homeland security and anti-terrorism efforts. While PSC has not had the opportunity to review the bill in detail, we applaud your focus on the issue of waivers from existing laws and the Federal Acquisition Regulation for a limited number of pilot projects and contracts. We will carefully study the bill and promptly offer recommendations to the Subcommittee. There are already a number of federal activities that have broad exemptions from the Federal Acquisition Regulation, including the Federal Aviation Administration, the new Transportation Security Administration, the Postal Service and portions of the Veterans Administration. In addition, there are broad provisions in federal procurement law for waivers to many procurement statutes and regulations for commercial items. Finally, statutes such as 10 U.S.C. 2371

permit DoD to use so-called "other transaction authority" (OTA) for portions of the Department of Defense's programs; these OTAs are also exempt from the procurement laws because they are not considered contracts.

I would add one cautionary note regarding DoD's statutes and last year's emergency procurement act that granted special authorities, including the use of OTAs, to the civilian agencies. As important as such steps are, they will yield little significant progress until the issues associated with intellectual property are fully addressed. Let me give you one example. A few months ago I appeared on a panel at a large conference with the general counsel of a leading biotechnology firm. In a private conversation following the program, he made two critical points: first, the expansion of OTAs to the civilian agencies is a step forward, but because that authority effectively expires by the time a new technology is ready for final development and production, the authority offers little incentive to major commercial technology firms. This is fully consistent with the lessons learned at DoD. Second, his company has limited willingness to engage more fully in the government market principally because of its concerns about the lack of protection of its lifeblood—its intellectual property. Like many other companies, his has seen too many cases in the government space in which IP was shared or exposed to competitors, sometimes inadvertently, and his firm is unwilling to take that risk.

Even in public-private, A-76 competitions, which in the past have involved relatively low-end technology requirements, the "leakage" issue has become a major concern. The recently-released report of the Commercial Activities Panel, on which I was privileged to serve, highlighted a number of fatal flaws in the A-76 process, among them the practice of "technical leveling" which is often nothing more than an egregious violation of intellectual property rights. As requirements being considered for public-private competition become more and more technology-focused, this issue is going to become an even greater concern; it is one of the reasons that the Panel recommended replacing A-76 with a FAR-based process because the FAR at least takes initial steps to prohibit such overt violations of IP rights.

Department of Defense Actions: "Navigating Through Commercial Waters"

On a positive note, Mr. Chairman, I would like to compliment the Department of Defense on its issuance of "Navigating Through Commercial Waters," its guidance on smart and best practices associated with intellectual property. DoD began work on this issue, and that guide, during my tenure there, and I personally know how difficult it was to develop and publish. During the latter stages of the guide's development, PSC was able to work with Mr. Aldridge, the Under Secretary of Defense for Acquisition, Technology and Logistics, and his staff to review and comment on drafts, to broadly distribute the Guide to our membership, and to support the Department's publicity surrounding it. I will also note that DoD reached out to a wide range of experts in the legal community, the General Accounting Office, and elsewhere to aid in the guide's framing and development.

Regrettably, however, there are two significant limitations to the Guide. First, and most significantly, it is a guide to existing authorities and not a regulation or policy that the defense contracting community can rely upon. Second, we are just beginning to see the initial training on the Guide and it will take precious time under "current course and speed" to reach a meaningful number of the affected acquisition workforce. Unfortunately, given the pace of technology development, current course and speed is simply not fast enough.

Technology Investment Agreements

On April 30, 2002, the Defense Department published in the Federal Register a lengthy proposed rule on the use of technology investment agreements (TIAs) to support or stimulate defense research projects for business. In adding new provisions to the Defense Department's Grant and Agreement Regulations to build on the unique statutory authority and administrative experience the Department has with OTA, this rule would give DoD agreements officers greater flexibility to negotiate appropriate business arrangements to meet the

Department's needs for defense research and businesses' needs for addressing "commercial" terms and conditions. It signals a recognition of the central nature of the IP issue; the question, as always, is whether the rule fully and adequately addresses the issue. Because the rule is so recent, PSC has not had an opportunity to evaluate it and develop any comments. However, we will share with the Subcommittee any comments we submit in response to the proposed rule.

Technical Data Rights

More than a dozen years ago, Congress revised the basic statutory foundations relating to rights in technical data for the development of products and software to be acquired through contract by the Department of Defense. As a result of these statutory changes, DoD undertook a major rewrite and update to the Defense Federal Acquisition Regulation Supplement (DFARS) governing rights in technical data and computer software. Unfortunately, these regulations are complicated and difficult for even the most seasoned contracting officer and counsel to understand and apply.

The sad fact is that similar changes have never been made to the statutes governing rights in technical data applicable to the civilian agencies, and the Federal Acquisition Regulation continues to reflect twenty-five-year-old policies as the basis for negotiating intellectual property clauses for civilian agencies. In the past, these restrictive rules had little substantive impact on research and development activities because the civilian agencies (with the notable exceptions of NASA and the Department of Energy) did very little research and development. But times have changed. It is now appropriate for the subcommittee to revisit the statutory foundation governing rights in technical data for the civilian agencies that are found in the Federal Property Act.

Mr. Chairman, once again I thank you for the opportunity to appear here this morning. I look forward to answering your questions and to continuing our dialogue on this vital issue.

Mr. DAVIS OF VIRGINIA. This is a question for everybody. Several witnesses have raised the human capital management issues today. What does the panel think about the idea of designating certain personnel in the acquisition community to do IP as a speciality, make sure these people get extra training in this area. We'll start and go down the line.

Mr. LOUIE. I'm totally supportive of that. The In-Q-Tel model works fundamentally because there are two sets of individuals who actually participate in our negotiations. One is In-Q-Tel's executives who are well trained in industry's best practices in negotiating IP. They work closely with one or two designated people at the agency whose job it is in procurement to understand these particular issues. We work together to craft these commercially familiar documents that still operate within the FAR but address industry's needs. Without having that capability, for example if I had a normal contract officer who was not trained in this particular approach, it becomes very difficult to work with these companies, particularly some of these younger, smaller companies whose lifeblood is dependent upon the IP that is created.

Mr. DAVIS OF VIRGINIA. The risk aversion that they have, I guess, would——

Mr. LOUIE. Absolutely. The fundamental problem, particularly in information technologies, is that there are competing sources of funding. In fact, most companies believe a dollar from government is the most expensive dollar you can ever take. My office—my California office—is on Sand Hill Road. You can just go down the street or up the hall, ring another doorbell, and get a dollar for a lower cost in terms of IP rights than taking a dollar from us.

So it's really important to understand that government is not alone in terms of funding these technologies. If we need it, we have to get to it first.

Mr. DAVIS OF VIRGINIA. Thanks.

Mr. CARROLL. I would also be very supportive of that. I would just repeat everything he said, plus I would add to it that the training is not necessarily just needed in understanding the regulations or the flexibility, but it's in understanding the benefits of allowing innovators to innovate and allowing intellectual property to work its will in their own community.

What I find missing completely is that concept, where, you know, you create a competitor by allowing them to buildup intellectual property over time that can compete with incumbents that you've got that haven't been innovative in years. And it will make everybody innovative. The whole world becomes innovative when you have that kind of competition. So that kind of training, I think, will be very productive.

Mr. DAVIS OF VIRGINIA. Anybody else?

Mr. FRY. I would support that concept 100 percent. Essentially in practice, that's a commercial model. In my company, I'm the only attorney in our legal department that really understands government data rights, government contracting. And ultimately if questions arise anywhere else in the company, they come to me for that. I do run a contracting group. My contracting people understand contracts, they understand the data rights to some extent. But ultimately, if there's anything other than standard, they come

to me as well. So I would welcome that, and I think the government should do it as well.

Mr. SOLOWAY. If I may make one brief addition. I associate myself with all of the previous comments. I'll go back to the development and publication of the IP guide at DOD. When we started that process, Stan Fry's organization was involved, and GAO was heavily involved. We had a lot of really smart people in the room, trying to figure out how to go forward, and we had some of the smartest legal minds around trying to figure out how to go forward.

One comment made by an attorney for a large technology company really stuck with me. He said that the regulations are there, but nobody understands them, and he has 125 lawyers on staff, none of whom have ever done a government contract, and he's not going to invest the thousands of man hours necessary to figure out what the rules really are. This is a matter of training not only acquisition people, but also training acquisition people in commercial best practices, and then relating them back to the FAR, rather than training them on the FAR and having them figure a way to wiggle out from under the FAR.

I think it is equally important to include the oversight community in this process. There have been far too many examples of very innovative, well-constructed business deals that fully protected the government's equities that have been stopped because of an oversight community that continues to hold a lot of the frontline folks back.

Mr. DAVIS OF VIRGINIA. OK. Mr. Louie, let me ask you, do you have a sense of the deluge of ideas that are coming into the Homeland Security Office right now? We've been working on legislation to help government kind of screen this wealth of ideas coming into the Homeland Security Office, give them priority, and move them out where they can do some good as quickly as possible.

How does In-Q-Tel deal with this issue, because you're faced with the same kind of thing?

Mr. LOUIE. Literally, we get hundreds of submissions in any particular month that come in "over the transom," from referrals from venture funds to Members of Congress, to just entrepreneurs saying I have a great idea, as well as large corporations.

Mr. DAVIS OF VIRGINIA. Do you ever get a good idea from a Member of Congress?

Mr. LOUIE. Actually, I got two this last week so I can actually say that for a fact.

Mr. DAVIS OF VIRGINIA. We want that on the record.

Mr. LOUIE. There's a whole process that we use that vets the technology. We have technology experts on our staff, we tie into the agency's technology experts and users to look at these technologies to make sure they are best-of-class. We work with large organizations, including professional service organizations, to see what they have in a particular space. We actually have what we call a Q–1 process that examines the market opportunites before we go forward and make any investment.

That's not where the challenge is. Commercial companies, commercial venture capital funds, know how to do that. The real challenge right now in homeland defense is that there is no "there" there. For many of these companies who say I have a technology,

I have a staff, I'm good to go and I am committed, there is nobody on the other end to do the contract. There are only a few other agencies right now, that are willing to pull the trigger to act now on behalf of homeland security. It's a real challenge. I get CEO phone calls from Fortune 100 companies saying, what do I do?

The problem for In-Q-Tel, quite frankly, is we are a little organization in the midst of one of a bigger organization—the Federal Government. So In-Q-Tel, with a $30 million budget and 20 deals a year, can't be the front office for all of homeland security. We refer companies to other agencies. Those other agencies are sympathetic but they say they don't have the budget, they don't have the authority, they can't pull the trigger.

Mr. SOLOWAY. May I add one thing to Mr. Louie's comment? On the homeland security issue, aside from all the issues he raised which are critical, we need to step back and, as I mentioned in my testimony, look at the broader business model associated with research and development; because now we're not just talking about commercial off-the-shelf technology, we're talking about technology that is a commercial analog to unique government needs. We're going to have developmental dollars involved. So now you're in the government statutes and regulations governing how we do R&D. IP is one critical issue in there, but it's not the only issue.

I'll relate one interesting conversation that highlights this. It is a conversation I had with the general counsel of a leading biotechnology firm when we were speaking together at a conference. I said to him, "With this whole focus on homeland security, my guess is that you all are thinking very seriously about expanding into the government market because biotech obviously is one of those areas that the government desperately needs your assistance." I was thinking very parochially that he should join the Professional Services Council. His response to me was, "No, we're actually not thinking about that, because of IP issues and the limitations under R&D rules, such as Other Transactions where I can only take it to a prototype level, and then I stop and have to come back under the original Federal Acquisition Regulation, and therefore can't take a product all the way through to production." He said, "It's really an unattractive market." This was the leading biotechnology company in the country. So there's an overarching business model within which IP is just one of many really critical issues.

Mr. DAVIS OF VIRGINIA. Thank you.

Mr. Fry, let me ask you a question. We've heard members at these hearings before—just basically the argument is that when the taxpayers pay for this research, they should get the benefits from it, not allow—not have to pay for something twice by allowing you to go out and market and having them pay for it again.

How do you answer that, and how should the government allow its R&D partners to use trade secrets protection?

Mr. FRY. Quite frankly, we hear the same argument from other companies that come into us and want something built. And the real answer is, you know, we have the technology; you come to us because we can build what you need, want done, and we can do what you want done. If you take the rights, you take the data, if you dilute our patent position, we won't be there next time.

So I kind of answer it in the same way. You need to leave the technology with us, you have to help us protect it, and we'll be there next time when you need the same technology. We need protection to maintain our competitive position is really the key aspect.

In the case—in the commercial world, the other thing that when you get down to it, these buyers want protection from the competitive standpoint. They don't want to give you a lot of money for a nonrecurring—or for design, development, tests that you would then use to build the same system for half the cost for their competitor.

So we work out some limitation, or we work out some restriction that protects their competitive position, say, for a number of years, for example, or some other type of limited license or something. But in the end, we don't compromise our technology, we don't compromise our patent position.

Mr. DAVIS OF VIRGINIA. Mr. Carroll, let me ask you, in the last panel we heard some questions raised about the idea of extending trade secret protection to companies doing Government R&D. Do you have any thoughts on that?

Mr. CARROLL. Yes. I think that trade secrets, the importance of trade secret protection is really underestimated by the government. The trade secrets are, I think, a very, very large part of most R&D companies' portfolio. And to not permit those trade secrets to be a viable pathway by which they protect their property is really, I think, probably one of the largest obstacles in the way. Once disclosure of trade secrets is made, it's over. And patent does that. And you just can't do that in many cases.

Mr. DAVIS OF VIRGINIA. Mr. Turner.

Mr. TURNER. Just one question, Mr. Chairman.

Mr. Louie, we've had 3 years, I guess, of experience now with In-Q-Tel. Is there a model there that could be replicated for other agencies? I mean, obviously you tried to be the bridge for the CIA into the private sector as a nonprofit. Is there something here that we ought to be expanding upon to try to bring the private sector and the ideas that are there into other agencies of government? Could you grow, or should other entities grow to serve other agencies of government in this way?

Mr. LOUIE. I think the good news is that because of our existence, a lot of other agencies are beginning to look at that model, either by asking us to scale or seeing if it can be replicated.

Let me say this: The In-Q-Tel model is not a solution that solves all of Government's problems, nor is it a replacement for traditional acquisition. It's a place to solve a particular market need of government to solve a certain set of problems—problems that are being addressed by technologies that are fundamentally commercial. In-Q-Tel gains access and early exposure of these technologies back into government.

In this particular case, the reason why In-Q-Tel works—and I tell this to all the different agencies who approach us and are interested in the model—is that as important as the model is, what is more important is leadership. The reason why In-Q-Tel works is that the Director of Central Intelligence has made this his model. It is one of the many vehicles that he is personally interested in.

If an agency adopts this model and doesn't have the leadership working with that model, the model will fail, like many other R&D style models in the past. Where there is commitment, this model can have huge leverage because it fundamentally talks the language of business.

Most of my staff come from the business world. Many of my seinor staff were CEOs. So when they sit down and talk to a high-technology company, they are sympathetic with the companies, but at the same time know that their mission is to get services and goods and technologies for the U.S. Government. That is a great model for government to use. It is another tool in its belt to answer the challenge that we're facing, particularly in homeland security.

Mr. TURNER. Thank you, Mr. Chairman.

Mr. DAVIS OF VIRGINIA. Thank you all very much. Anybody want to add anything before we go? Let me thank all of you for contributing to this hearing.

And I want to thank the witnesses, I want to thank Representative Turner and the other member of the subcommittee for participating. I also want to thank my staff for organizing this. I think it's been very productive. I want to enter into the record the briefing memo distributed to subcommittee members.

We'll hold the record open till 2 weeks from today for those who may want to forward submissions for possible inclusion. I suggest with the delay of regular mail going into and out of the Capitol campus, that you e-mail any additional submissions to the attention of my counsel, George Rogers, here at George.Rogers@mail.house.gov.

These proceedings are closed. Thank you.

[Whereupon, at 11:50 a.m., the subcommittee was adjourned.]

[Additional information submitted for the hearing record follows:]

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JUL 15 2002

The Honorable Tom Davis
Chairman, Subcommittee on Technology &
Procurement Policy
Committee on Government Reform
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Davis:

Thank you for the opportunity on May 10, 2002, to testify before your Subcommittee regarding the challenges we face at the DARPA when negotiating intellectual property rights with our contractors. The freedom to freely negotiate intellectual property rights helps us attract the large segment of the research community that will not accept a government contract.

Enclosed you will find my responses to the Questions for the Record that you sent me. I hope you find them helpful.

In addition, at the hearing, the question arose regarding the usefulness of the "exceptional circumstances" exception in the Bayh-Dole Act. There was some discussion about the Government's ability to use this exception to become more flexible in intellectual property negotiations. We have investigated that exception and have found that it doesn't provide the flexibility we have under our Other Transactions arrangements, and, in fact, provides no useful flexibility at all.

As you know, the Bayh-Dole Act allows the contractor to retain title in a patentable invention conceived or first actually reduced to practice under a government contract. In such a situation, the Government would receive a license to practice the invention for government purposes.

The only options that the Act provides as an exception to this licensing scheme is in exceptional circumstances when the agency determines it needs to restrict or eliminate the contractor's right to retain title. In other words, the roles would reverse, with the Government assuming ownership of the invention and the contractor receiving a license. The "exceptional circumstances" exception only allows the Government to take a more restrictive stance and does not provide for relief.

The Other Transactions Authority permits DoD to examine each specific situation and the intellectual property rights the Government really needs to accomplish the program goals and craft an agreement clause that satisfies both parties. For example, we might want a license to practice the technology or invention for government purposes but would be willing to delay taking that license until the competitive portion of the program has ended. On the other hand, after considering our goals and future plans in a particular technology, we might make the determination that a less comprehensive license is sufficient for our purposes and would serve to entice new entities to contract with the Government. If we had to award a contractual mechanism governed by the Bayh-Dole Act, we would not have this option.

I hope this information is helpful. This is an important issue to DARPA and I appreciate the opportunity to discuss this topic with the Committee.

Sincerely,

Anthony J. Tether
Director

Enclosure

cc:
The Honorable Jim Turner
Ranking Democrat

QUESTIONS FOR THE RECORD
HOUSE COMMITTEE ON GOVERNMENT REFORM
SUBCOMMITTEE ON TECHNOLOGY AND PROCUREMENT POLICY
HEARING ON INTELLECTUAL PROPERTY AND GOVERNMENT R&D
MAY 10, 2002

QUESTION 1

COMMERCIAL MARKET FOR RESEARCH

Rep. Davis: As agencies are relying more and more on commercial companies to do R&D for them, is it fair to say that a commercial marketplace for research is emerging? How does this marketplace function?

Dr. Tether: I am not sure I understand the question. However, commercial companies perform almost DARPA's entire R&D budget. Therefore DARPA relies almost totally on commercial companies to do R&D. These companies range from very small (who mostly do conceptual efforts) to large companies (who build prototype hardware). This marketplace functions by bidding to Broad Area Announcements released by us that basically state a research need we are interesting in pursuing.

However, if you are referring to commercial companies who are on a commercial items purchase list as in Part 12 of the FAR, the commercial items provisions, the DoD Inspector General (IG), the Director of Defense Procurement and others object to this practice. They do not believe research is a commercial item because research is not an item sold competitively in substantial quantities in the commercial marketplace and either listed in a catalog or having an independently determinable market price. (These concerns are discussed in IG report D-2001-051.) This was of interest to us since a Part 12 contract offers simplified terms and conditions and more limited government rights to technical data, which can be appealing to a company concerned about exposing its technology to competitors.

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QUESTION 2

DARPA LIMITED TERM APPOINTMENTS

Rep. Davis: In your testimony, you talk about how DARPA rotates experts on limited term appointments. Do these appointments include people who are coming from full or part-time employment with for-profit entities? Are these appointees considered government employees while they work for DARPA? How are they compensated? How does DARPA address concerns over disclosures of sensitive, proprietary, or trade secret information by these limited term appointees?

Dr. Tether: Our limited term appointments do include people coming from for-profit entities. We hire these people under Section 1101 of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 (5 USC 3104 note), which gives us 40 such billets. While these "Section 1101" appointees are with us, they are Federal employees with all the normal benefits. They can be paid up to the level of senior level positions under 5 USC 5376, including locality pay. This compensation makes our pay competitive with industry's.

All DARPA limited term appointees are considered as Federal employees and as such are subject to the same criminal statutes governing disclosures of sensitive, proprietary or trade secret information as are traditional government employees.

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QUESTION 3

TRADE SECRETS

Rep. Davis: In your testimony, you mention the concern that Bayh-Dole does not address the major area of IP known as trade secrets. How does DARPA address that issue now?

Dr. Tether: The notification and election provisions included in the Bayh-Dole Act, and its implementing regulations, do not allow for a contractor to choose to retain a patentable invention as a trade secret. In addition, the Bayh-Dole Act gives a license right to the whole Federal Government to use the invention or have someone else use it for government purposes. The breadth of this license does not contemplate the limited access generally required to justify maintenance of an invention as a trade secret. These measures can include limiting access to a "need to know" basis, using locked physical and electronic spaces, and using checkpoints and log-in procedures to monitor every person who has access to the information, as well as adequate controls over employees and visitors. If there is a future challenge, the owner of the trade secret must prove that it personally instituted sufficient measures to maintain secrecy. The broad Government license and lack of contractor control over access would make proving such a case virtually impossible. DARPA has found, however, that some corporations choose to protect their intellectual property as a trade secret because of the expense, effort and publication involved in pursuing a patent. As a result, these companies will not agree to the patenting requirements in the Bayh-Dole Act and will generally refuse any contract containing this clause.

One of the guiding principles behind the Other Transactions philosophy is to allow the participants to use their existing systems when working with the Government, in the hopes that they will be encouraged to enter into Government agreements. Because the Other Transactions authority is not required to include the license rights contained within the Bayh-Dole Act and regulations, DARPA can craft intellectual property provisions that recognize trade secrets as a valid protection method. When negotiating, we can allow for maintenance of some intellectual property as a trade secret, provided that the Government has sufficient insight to monitor the progress of the program. How the intellectual property is handled at the end of the program and what license the Government may receive in the future are negotiation issues for the parties. Solutions may range from traditional commercial practices for maintaining secrecy or the parties can craft a unique solution that satisfies everyone's needs. Ultimately, the ability to address these issues allows DoD to offer a solution to companies that might otherwise choose not to contract with us.

QUESTIONS FOR THE RECORD
HOUSE COMMITTEE ON GOVERNMENT REFORM
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MAY 10, 2002

QUESTION 4

OTHER TRANSACTIONS FOR OTHER ORGANIZATIONS

Rep. Davis: Based on DARPA's experience with OTs would you say that they could be valuable for other organizations in government to help them meet R&D needs?

Dr. Tether: Yes, I believe so. In general we've found OTs to be a helpful tool allowing us to manage technologies and relationships in innovative ways. DARPA has been an advocate for OTs within the Department of Defense for exactly that reason. OTs have allowed us to negotiate the Intellitual Property (IP) rights that are needed for each individual acquisition rather than have IP right imposed. OTs should help other government organizations to attract new technology at both the prime and subtier levels since there are no required flowdown clauses.

QUESTIONS FOR THE RECORD
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QUESTION 5

NEW REQUIREMENTS ON OTHER TRANSACTIONS

Rep. Davis: Some have reported that the new requirements placed on OT's (e.g. reporting requirements, cost-sharing requirements, etc.) may decrease their usefulness. Can you comment on DARPA's experience with these new requirements?

Dr. Tether: We are still evaluating the restrictions placed on OTs for prototypes beginning in FY 2001 because it generally doesn't make sense for industry to cost share a military prototype. In addition, the DoD's policy is that cost sharing is not to be required or encouraged. Therefore, the use of OTs is now substantially more limited than before. It is however too early to tell whether or not this will have a significant impact.

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QUESTION 6

CORE FLEXIBILITIES

Rep. Davis: When in your written testimony you say that the Bayh-Dole Act, while a necessary and hugely beneficial change when enacted, does not always give the Government the flexibility it needs in today's marketplace, what core flexibilities do we need to address now?

Dr. Tether: We agree that the Bayh-Dole Act was a huge step forward at the time of its passage and it continues to be useful today. One of its strengths is its uniform applicability, but this is also one of its weaknesses. While consistency is good, it does not allow for unique situations that might arise that would necessitate a different solution. The lack of a waiver provision within Bayh-Dole makes it a rigid tool that cannot change with the circumstances or adjust to accommodate alternative methods of protection, such as trade secrets. By no means are we suggesting that the Government revert to the positions regarding intellectual property that it held prior to the Bayh-Dole Act; however, the shift in technology development leadership from the Government to commercial industry requires us to consider the need for and provide for unique licensing scenarios in the future.