

# **COUNCIL ON GOVERNMENTAL RELATIONS**

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## **Points for Consideration on Commerce Inspector General Report**

The Department of Commerce has issued an Advance Notice of Proposed Rulemaking (ANPR) that was published in the Federal Register on March 28, 2005 (RIN 0694-AD29). The ANPR asks for comments on the recent recommendations of the Commerce Inspector General (IG) in Report No. IPE-16176 (March 2004) with regard to “deemed exports” at U.S. universities.

COGR is encouraging a wide response from member universities. We suggest that member universities consider the following points in developing their comments to the Commerce Bureau of Industry and Security (BIS).

### **1. Current U.S. Policy Provides Sufficient Safeguards to Address the IG Concerns**

COGR and its member research universities hold the security of the nation in the highest regard and want to continue to do their part to support national security. Current U.S. government policy as expressed in National Security Decision Directive (NSDD) 189 provides that classification is the only appropriate mechanism for government control of fundamental research information. This policy has for many years protected concerns about the small portion of U.S. academic research that is likely to pose a real security risk for the nation. We have seen no evidence that this approach is not effective.

With regard to the access of foreign nationals to U.S. university research and education, the visa process is intended to screen foreign nationals and to assess their threat to national security before approving their entry into the country for purposes of pursuing a particular course of study. Visa applications are reviewed by federal agencies, including the Departments of State, Homeland Security, and other concerned agencies. As part of this process, typically extensive background checks are conducted on foreign nationals coming to U.S. universities to study or do research in fields that may give rise to concerns about access to technology (“visa mantis”). If, after screening a foreign student or researcher, our government approves the individual’s entry into our country under a visa that permits study and research at a U.S. university, that individual should be permitted to join the academic research community of the university and fully participate without additional barriers. If there are issues in the visa security assessment process, they should be addressed in a manner that also achieves efficiency in processing visas. We should not instead use the deemed export licensing regime to attempt to solve the problem; doing so, as discussed below, will change in fundamentally destructive ways the open, international, collaborative and spontaneous academic research environment that is the foundation of its success.

The IG report provides no evidence that the existing control regime is not effective, nor as to why a separate burdensome control regime is necessary.

## **2. Recent Data Indicate that the International Competitiveness of U.S. Universities Is Declining**

A number of recent reports have documented the increasing international competition for scientist and engineers, and the importance of science, technology, engineering and mathematics (“STEM”) as drivers of the national and global economies. The June 2004 report of the President’s Council of Advisors on Science and Technology (PCAST) on *Sustaining the Nation’s Innovation Ecosystem: Maintaining the Strength of Our Science Engineering Capabilities* (available on the web at <http://www.ostp.gov/pcast/FINALPCASTSECAPABILITIESPACKAGE.pdf>) cautions that the U.S. is falling behind other nations in STEM fields. This report and others (e.g. National Science Board Science and Engineering Indicators 2002, available at <http://www.nsf.gov/sbe/srs/seind02/start.htm>) find that the nation’s prosperity depends on the strength of STEM education, commerce and industry. Yet, the PCAST report cites two worrisome trends: U.S. students pursue STEM careers at significantly lower rates than their international counterparts, and “clear signs that security concerns may lead to unworkable and counterproductive policies and controls...” that will lead foreign students to pursue their education at non-U.S. universities.

The PCAST report notes that “Clearly stated, foreign students and scholars are critical to our national vitality,” and that “The openness of our campuses to students, scholars, and faculty from all over the world is one of our greatest strengths, and is at the heart of the phenomenal success of the American research university...” PCAST also notes that “[w]hile U.S. students’ interest in STEM careers is declining, foreign countries are significantly increasing the number of STEM graduates...of their universities, enabling them for the first time to attract technology-based jobs in very large numbers” and putting the U.S. at serious risk of falling behind other nations in these fields, and ultimately of losing its leadership in innovation and the global economy. The PCAST report concludes that due to the trends discussed above, “our entire national innovation ecosystem is at risk. It would be difficult to overstate the importance of this issue.” When our economic ecosystem is at risk so is our national security.

Recent data from the Council of Graduate Schools (CGS) International Graduate Admissions Survey reinforce the concerns expressed by PCAST. The data show that U.S. international graduate applications for fall 2005 are down by 5 percent as compared to applications for fall 2004, which in turn declined 28 percent from the previous year. With regard to field of study, declines are shown in all fields of science and engineering. Engineering applications declined 36% from 2003 to 2004 and another 7% from 2004 to 2005. For physical sciences the declines were 22% and 3% respectively; for life sciences 24% and 1%; and for social sciences 20% and 4%.

The participation of foreign nationals is essential to the university research enterprise, as documented in the PCAST report. It is worth noting that of \_\_\_ U.S. Nobel Prize winners in scientific fields since \_\_\_\_, \_\_\_ were foreign-born. Yet implementation of the IG recommendations would impose special licensing requirements on many such individuals that would not exist for other U.S. university researchers. (Note: COGR currently is in the process of obtaining this data.)

COGR believes the IG recommendations must be viewed in the context of their potential for further chilling university research, for enhancing the perception that U.S. universities are less welcoming and less desirable for foreign students and researchers, and for furthering these adverse trends in our nation's leadership role in the world and in our national security. It is critically important to balance the relative benefits and burdens when measures, such as deemed export controls, that are aimed at one type of security, potentially may undermine other important national interests, such as the innovation, education, economic and national security interests that derive from the U.S. academic research endeavor. The IG report fails to identify with specificity the security risk that the current university interpretation of deemed exports in the fundamental research context allegedly poses, and fails to demonstrate any understanding of either the essential attributes of the successful U.S. university research environment or the strategic importance to the nation of the international dimension of U.S. academic research and higher education.

### **3. The IG Report Misconstrues the Scope of the Fundamental Research Exclusion and Does Not Consider the Need for An International, Open, Collaborative, Spontaneous Research Environment for U.S. Universities**

The ANPR discusses the allegation in the IG report that confusion exists on the part of universities over the definition and implementation of controls associated with the use of equipment controlled for use technology under the Export Administration Regulations (EAR) by foreign nationals conducting fundamental research on U.S. campuses. The IG believes that technology relating to the use of controlled equipment—regardless of how use is defined—is subject to the deemed export provisions of the regulations (EAR 734.2(b)), even if the research being conducted with that equipment is fundamental. While BIS indicated its agreement with that interpretation in its response to the IG's report, BIS had not previously stated this interpretation. The IG report itself notes that in BIS' interpretation, "the same definition of use does not seem to apply to 'deemed exports.'" We believe that the IG position is debatable and that BIS should reconsider its inclination to concur with the IG, if the essential nature of university research is to be preserved.

Fundamental research relies for its success on an open, international, collaborative and spontaneous research environment where members of research teams and their colleagues from the university community freely visit each other's laboratories, participate at the spur of the moment in work with equipment, and convey ideas and information, without constraint. Research is conducted at all hours of the day and night. Fundamental research cannot be done without using equipment and conveying information on how to use equipment. In fact, fundamental research and the use of, and the conveyance of information on how to use, equipment are inseparable. In the spontaneous, collaborative and open academic research process, the path to discovery and new knowledge cannot be predicted in advance. For the fundamental research exclusion (FRE) from export control requirements to be meaningful, it must include the ability of researchers to freely use otherwise controlled equipment, to alter existing equipment when a new idea or theory arises and to create new equipment. This environment is at the foundation of the success of the U.S. academic research endeavor. Implementation of the IG recommendations potentially could stall or suspend the research process because of the need to err in favor of seeking licenses for the foreign national members of university research teams.

Universities have assumed that the only reasonable interpretation of the FRE is that the exclusion must include the right for foreign students and researchers to use, alter and create, and to receive information on how to use, alter and create controlled equipment while conducting fundamental research on U.S. university campuses. If the exclusion does not include this ability, and conveyance of use technology is to be licensed and access to it controlled, it will be necessary to change the whole context of university fundamental research and to limit a university's ability to maintain an open, international and collaborative research environment on campus. Acceptance of the IG position would mean that many, if not all, foreign nationals may need to be licensed by the government, as a practical matter, before participating in university research because the possibility of encountering use technology-controlled equipment and of conveying information on how to use such equipment cannot be predicted, controlled, or separated from the use itself in this highly spontaneous and collaborative environment.

The IG report does not demonstrate any understanding of these essential attributes of the U.S. university research environment which has been critical for innovation. It fails to substantiate the alleged risk from transmittal of technologies in university research, especially given that most items of controlled equipment at universities are actually readily available without restrictions in the U.S. and abroad. If implemented, the IG recommendations could have a highly disruptive effect on the successful and productive U.S. academic research enterprise.

Not all equipment is controlled for use technology. However, U.S. universities have—and must have—open and free-flowing research environments on campus. Regardless of the number of deemed export licenses ultimately required, universities would have to track the nationality of the members of their campus communities, isolate foreign nationals from other members of the campus community, and either license most foreign nationals on their campuses to ensure that they may go anywhere and participate in any way that U.S. citizens may on campus—or restrict foreign nationals' activities generally until determinations of what is and is not controlled can be made to avoid running afoul of potential deemed export requirements.

Neither option is attractive. Universities would have to condition and limit at worst, and significantly delay at best, participation of foreigners in research, and visitation of research laboratories, where equipment controlled for use technology may be encountered. Universities will have to err on the side of applying for licenses whenever equipment that is controlled for use technology may be used or altered in the research, will have to exclude foreigners from our campuses, or will have to change the openness of our research environment, undermining one of its biggest strengths. Also, it is important to appreciate that use of equipment and conveyance of use technology are, in practice at universities, indistinguishable. Even if this means “only” a delay in a foreign researcher's or student's participation and visitation rights, and not a complete bar, the effect may be the same. Because research will proceed on schedule while a foreigner is unable to participate or visit, the foreigner may lose the opportunity to participate and visit. The best international talent will likely seek to study and conduct research in other countries where they will not be similarly isolated and constrained.

Universities will be constrained in their basic mission to expand and disseminate knowledge broadly over the long term. This will ultimately undermine this nation's innovation and education leadership, economy, and security. The only practical option available to a university if the IG recommendations are implemented may be to provide Commerce with a list of the thousands of pieces of research equipment in use on campus and to request a deemed export license for all use controlled equipment for all foreign nationals on campus who may engage in

any research. This may be the only way to maintain the open and international research environment while assuring deemed export licensing requirements are met.

#### **4. Implementation of the IG Proposals Can Be Expected to Result in Increased Deemed Export Licensing**

The ANPR asks for specific information regarding the impact of the IG recommendations, particularly data on the number of foreign nationals in the U.S. who will face licensing requirements if the IG's recommendations are adopted. It is impossible to precisely quantify the number of deemed export licenses that would be required under the IG's interpretation without undertaking the, we believe, excessive steps discussed in 5. below. We anticipate that a significant number of deemed export licenses would actually be required based on the types of equipment that are controlled for use technology, the numbers of graduate students studying in the U.S. who are citizens of countries for which equipment is controlled for use technology, and the open, collaborative and spontaneous research environment that will counsel in favor of licensing many foreign graduate students to preserve their ability to fully participate.

COGR asked a number of its member universities for data on the total number of items of research equipment listed in their inventory systems. Institutions typically maintain this information for equipment whose costs exceed the federal capitalization threshold (\$5,000). (Note to membership: COGR currently is collecting this data. Responses to date have ranged from 6000 to over 70,000 pieces of capitalized equipment, with the average skewed toward the higher end, but our data are preliminary). It is unclear how many pieces of this equipment currently are controlled for use technology. However, all of this equipment would need to be assessed to determine whether deemed export controls might apply. In addition, universities have many items of equipment below \$5,000. Some institutions maintain inventories of this equipment as well; others do not. However, these items also would need to be assessed. It is conceivable that for many universities the number of such items may exceed by a considerable extent the number of items included in the capitalized inventory.

Any equipment data needs to be considered in the context of the number of foreign students and researchers at our universities who potentially might be subject to deemed export licensing requirements. With regard to the potential licensing implications, data from the Institute of International Education indicates that for the last academic year (2003/04), the total number of foreign students in STEM fields at U.S. institutions of higher education was over 260,000. (Note: COGR currently is looking into sources of recent data that breaks down foreign students by nationality. The most recent NSF data is for 1999/2000, when e.g. the number of Chinese students in STEM fields at U.S. institutions of higher education was 54, 466). Many types of equipment that are controlled for use technology require licenses for deemed exports to these countries

This kind of data does not provide specific information on the number of foreign nationals at U.S. universities who would face licensing requirements if the IG recommendations were adopted, as requested in the ANPR. However, many foreign graduate students are in fields where they will need to use equipment controlled for use technology and may need to be licensed. We are unable to identify aggregate sources of data on foreign postdoctoral and other researchers at U.S. universities, but the same would hold true for many of these individuals. The data above suggests the order of magnitude of the potential impact of the IG recommendations.

## **5. Implementation of the IG Proposals Will Result in Significant Increased Administrative Burdens for Universities**

The ANPR also asks for the impact of compliance if new licensing requirements were adopted in terms of costs, resources and procedures. Clearly the impact of any order of magnitude increase in deemed license applications from universities will fall both on BIS and universities. As with the data above, precise estimates are impossible. To complete an application, one must have a good understanding of the technology, the application of the technology by the specific individual, and a complete understanding of the person's background. We have been advised that license applications for industry may take 10 or more person hours by the time one gathers the information (which usually requires multiple requests), drafts it, verifies it and then writes it up. There would of course be economies of scale in completing multiple applications but the time involved for university personnel would be extraordinary in any event.

In addition to the burdens associated with completing and submitting actual license applications, the administrative burdens and costs for universities of making the determination of whether a piece of equipment that will be used in research is controlled for use technology are substantial and in our view excessive. We asked several universities to estimate the burden of assessing the need for deemed export licenses for foreign nationals working in one or two laboratories on their campuses. The schools determined that it took from \_\_\_\_ to \_\_\_\_\_ person hours to complete the assessment in a single laboratory, and involved consultations with expert outside counsel, principal investigators, and the manufacturers of the equipment. At an average cost of \$\_\_\_\_\_ per person hour, the costs would be between \_\_\_\_\_ and \_\_\_\_\_. We also asked several universities to estimate the number of individual laboratories on campus. Estimates ranged from \_\_\_\_ to \_\_\_\_\_. (Note: COGR currently is collecting this data).

To consider undertaking this analysis for all laboratories and pieces of equipment in use in research universities across the nation would, in and of itself, be an enormous and very costly undertaking in light of the numbers of pieces of equipment and the numbers of laboratories at research universities. The types and models of equipment in use in research are ever changing, making this effort an ongoing and not one-time requirement if the IG's interpretation is implemented.

The federal government must determine whether taking this action is so important to national security that it is worth an investment of major proportions to fund this undertaking. Research universities could not afford the cost without federal support or a significant reallocation of existing scarce research dollars from the actual research to this administrative undertaking. Federal spending for basic and applied research at universities already will be reduced under the Administration's budget plan for FY2006. It would be devastating for university research to endure further effective cuts from a reallocation of existing research dollars. We believe the nation's leadership must consider the relative value or detriment of compelling so many resources to be devoted to this undertaking when there has been no evidence presented of any inadequacy in the current approach of relying on the visa process combined with classification when warranted. And as stated above, if universities take the approach described above and ask Commerce to broadly license foreigners involved in research, the burden will also fall on the Department of Commerce.

## **6. The IG Report Fails to Articulate What Risk Is Not Being Properly Managed**

In view of the potential chilling effect on university research and the national interests served by such research, and the substantially increased administrative burdens and costs associated with making a determination of what is controlled, we believe the IG should have articulated to a much greater extent the precise nature and degree of risk associated with conveyance of technology on the use of controlled equipment in fundamental research as the basis for any policy recommendations. We also think the IG should provide specific evidence of how and why the classification process has failed to effectively protect the nation from any security risk posed by university research.

In fact, in reviewing the list of equipment controlled for use technology that was provided by Commerce during our discussions over the past year, it appears that much of such equipment and the use technology accompanying it are freely available around the world through various outlets. [\[Consider adding discussion/examples of pieces of equipment that are controlled for use technology, are commonly used in research, are easy to obtain around the world, and are not particularly dangerous\]](#). Clearly, foreign individuals need not come to U.S. university campuses to obtain much of the controlled use technology to which deemed export controls may apply.

Given the failure of the IG to articulate the risk, we believe Commerce needs to carefully assess the unclear benefits of adopting the IG recommendations and weigh them against the many demonstrable burdens associated with greatly increased licensing analyses and requirements and the potential negative impact on the open dynamic U.S. university research environment.

## **7. Definition of “Use” Technology**

We have discussed above our disagreement with the IG’s interpretation that technology relating to the use of controlled equipment—regardless of how use is defined—is subject to the deemed export requirements even if the research being conducted with that equipment is fundamental, and suggested that Commerce should reconsider its stated agreement with that recommendation. The IG suggested that BIS revise the definition of “use” in Sec. 772.1 of the EAR to replace the word “and” with the word “or.” We believe such a change would have ill-advised and unintended results. If “or” were substituted for “and”, merely conveying information, even visually, on how to flip a switch to turn on a piece of equipment that is controlled for use technology, could require a deemed export license. Information far short of that required to recreate and install, operate, and maintain the equipment abroad would trigger a licensing requirement. When much controlled equipment and its use technology are readily available around the world as discussed above, it is unclear to us that the national security would benefit very much from this change in the regulation.

The APNR indicated that BIS also is interested in receiving alternative suggestions regarding the IG concerns. We believe that deemed exports conceptually are quite different from physical exports, in that they apply to disclosures that transfer scientific and technical information in the U.S. The IG report notes that the current regulations focus on exports of physical items, and implicitly acknowledges the distinction. Since the deemed export concept applies to information, and transfer of S&T information is a core mission of universities, we believe that BIS should consider a different approach to defining deemed exports as applied to transfer of technology used in university fundamental research.

One approach that we have informally discussed with BIS representatives is to redefine controlled “use” technology to encompass only proprietary technology that is not generally

available for free or for acquisition on a non-exclusive basis by willing purchasers in the U.S. Many types of equipment that are controlled for use technology under the EAR, along with their use manuals, can be acquired on a non-exclusive basis by anyone who is willing to pay. In some cases, a license agreement must be entered into in order to ensure that the users of the technology pay to use it. Such equipment's use technology may not satisfy existing definitions of "publicly available" information because license conditions apply or the means of acquiring the use technology are not those currently specified in the EAR. However, there is no intention to restrict acquisition of the technology and the use technology is, to any common understanding of the concept, publicly available.

In contrast, some use technology is only available on an exclusive basis or to limited persons who are selected by the owner and who sign non-disclosure agreements that are intended not only to ensure that those who acquire the technology pay for it, but also are intended to limit who acquires the technology. If a foreign national requires access to this truly non-public, restricted use technology in order to perform his/her research, then a determination could be made as to whether deemed export licensing requirements may apply.

If, however, the controlled use technology is generally available on a non-exclusive basis for free to anyone in the U.S. or, even with a license requirement, to anyone who in the U.S. who is willing to pay, then this use technology should be considered publicly available, and no deemed export requirements should apply. In such cases, we believe that there are insufficient security benefits to justify controlling access by foreign nationals to such information at universities in view of the onerous burdens that would result, especially when such information is readily available in the U.S.

This interpretation would be more consistent with the core EAR concept that publicly available technology is outside of the scope of the export regulations. It also is consistent with BIS' December 6, 2004 advisory opinion that when equipment is open to all members of the public for public sale within the U.S., any technology that might be transferred is deemed to be publicly available under Part 734 of the EAR, and thus not subject to the regulations. However, COGR is still carefully assessing whether this interpretation is helpful.

Universities have established procedures for control of proprietary information received from industry sponsors. Typically information transferred in such cases is managed by confidential non-disclosure agreements. We believe that in considering an appropriate definition BIS should focus on situations where proprietary information e.g. source code or schematics is transferred on an exclusive basis or under a non-disclosure agreement that restricts to limited persons those who may have access. In such cases, a foreign national performing research involving access to such information would have access to information that clearly is not publicly available. Requiring such situations to be assessed for potential export licensing requirements would be consistent with their present management outside of the normal open campus research environment.

We also believe that in redefining controlled "use" technology, BIS should also confirm that technology arising during or resulting from the research process itself is within the scope of the fundamental research exclusion so long as the results are ordinarily published and are not restricted for dissemination. Thus if a foreign national in the course of research modifies an item of controlled equipment for his/her specific research purposes, or fabricates a new apparatus that otherwise would be subject to export controls, no licensable event has occurred so long as the

foreign national has no access beforehand to controlled proprietary technology and the research results are ordinarily published. While we believe this is consistent with both the EAR and BIS' current interpretation, it would be helpful to clarify this in writing, perhaps through adding a "Q & A" to this effect in the Supplement to EAR Part 734.

#### **8. Use of Foreign National's Country of Birth as Criterion for Deemed Export Licensing Requirement**

We believe that the IG's recommendation that deemed export license requirements be based on a foreign national's country of origin rather than on the individual's most recent country citizenship or permanent residency is not based on sound logic, would generate additional burdens for universities since they do not presently track this information, and may raise legal issues with regard to constitutionally proscribed national origin discrimination. As with the IG's recommendation on "use" technology, this recommendation is overbroad and presumes risk without clearly demonstrating it.

Whenever the federal government makes a distinction based on national origin, strict judicial scrutiny applies because "national origin [is] so seldom relevant to achievement of any legitimate state interest that laws grounded in such considerations are deemed to reflect prejudice and antipathy." Such laws must be aimed at achieving a compelling government interest and must be narrowly tailored, not overbroad, to achieve that interest (*City of Cleburne v. Cleburne Living Center*, 473 U.S. 432, 440 (1985)). National security is a compelling government interest. However, there is a real question as to whether a blanket rule is overbroad when it is premised on the assumption that all individuals who were born in a particular foreign country but who are no longer citizens of that country are particularly likely to export sensitive use technology to that country against the interests of the U.S. and must be subject to licensing requirements to which others are not subject, to protect the national security. Presumably, there is a reason why an individual chooses no longer to be a citizen of his or her country of birth; and such individuals may be as likely less inclined, than more inclined, to travel to his or her country of birth. In today's world of easy intercontinental travel and internet communications, is a person who foregoes citizenship of a country more likely than anyone else to travel to that country or to communicate with current citizens of that country against the interests of the U.S.? Is it constitutionally permissible to assume that all individuals who are born in a particular country and who have foregone their citizenship of that country pose the same security risk, or any particular security risk?

The IG recommendation apparently is based on an assumption that a foreign national may retain ties to the country of origin such as to give rise to security concerns. This assumption ignores the visa process which presumably screens foreign nationals for such concerns before a decision is made to admit them to the U.S. for a program of study or research at a university. It is not clear why a separate burdensome control regime is necessary to address these concerns.

Further, in today's globalized world, it would appear that the same logic could apply to any individual with extensive foreign ties, regardless of citizenship status. The IG report specifically mentions the example of a Canadian citizen of Iranian origin. However, such an individual may have any number of circumstances, such as one or both parents working in a consul or embassy at the time the person was born, or temporarily working for an organization that provides international services or whose family moved to the current country of citizenship when the individual was a small child. It is not clear why the country of origin would pose a particular

concern in these and other similar scenarios. The IG appears to make the erroneous assumption that individuals have a lifelong allegiance to their countries of birth that will always take precedence over any allegiance they may have to their adopted countries.

Whether or not a distinction based on national origin would pass constitutional muster in the deemed export context, such a distinction seems to us to be illogical and overbroad.

**9. Q/A A(4) Under Publication of Technology**

We agree with BIS's proposed clarification of the answer, **with the caveat** that BIS needs to further clarify to state that no deemed export license is required for disclosure of controlled technology if all specific national security controls in the government contract have been complied with. At that point the transaction is no longer subject to EAR licensing requirements. Also, our understanding is that when approval is received for a specific disclosure, at that point the information to be disclosed is considered publicly available and exempt from the requirements.

**10. Q/A D(1) Under Research, Correspondence and Informal Scientific Exchanges**

The answer should be clarified along the lines suggested above if the work requires access to proprietary use technology for controlled equipment, assuming BIS clarifies the definition as suggested. Otherwise the answer is correct as currently stated in the Supplement.