Export Control Compliance and American Academia

BRIAN STARKS AND CHRISTOPHER TUCKER[1]

Abstract

Export control compliance typically centers on the efforts by industry to comply with export control regulations worldwide. However, academic institutions are increasingly finding themselves under government scrutiny for possible export control liability. This paper describes the challenges faced by American academic institutions in complying with United States export controls and highlights case studies of major export control violations by US academic institutions as well as their efforts to adopt, shape, and modify industry compliance models to an academic culture. This analysis emphasizes how the changing landscape of research funding can increase export control compliance implications for American universities. The paper concludes with a discussion of new institutions that are developing to assist academia in meeting export control challenges.

Keywords:

Academia, export control compliance, universities, export control, security culture

1 Brian Starks is a Research Assistant at the Center for International Trade and Security (CITS) and a Ph.D. student at the University of Georgia's School for Public and International Affairs (SPIA). Prior to becoming a CITS Research Assistant, he worked as an export compliance specialist at an aerospace company, focusing on government authorization applications. Brian's current research focuses on strategic trade control legislation, implementation, and enforcement. Christopher Tucker is a Research Associate at the Center for International Trade and Security (CITS). Christopher is a trainer and project coordinator for the twice annual Security and Strategic Trade Management Academy (SSTMA). Christopher regularly provides training on strategic trade control issues related to licensing and government-industry cooperation. Christopher's current research focuses on strategic trade control implementation and UNSCR 1540 compliance.

Introduction - Security Culture comes to American Academia

Modern export control regulations have affected strategic industries since the early days of the Cold War. For much of this time, governments largely concerned themselves with regulating international trade in arms and dual-use goods. As globalization and technological advancements grew at an ever-increasing pace, export controls became a concern for all companies. Whether a company manufactures missiles, nickel powder, or telecommunications software, they must remain cognizant of export control regulatory requirements. While industry's export compliance obligations are well-known, another key source of strategic items has historically received noticeably less regulatory attention: higher education at various universities and colleges. Note that while many countries' strategic trade regulations affect domestic education institutions, this article will focus solely on the American export control system and its impact on universities located in the United States. Existing publications well describe European universities' export compliance challenges, but lack specific case studies detailing violations.[2]

Universities and arms manufacturers alike must comply with the same complex export regulations. Unfortunately, much of contemporary export compliance materials focus on corporations' challenges exclusively. Literature for university export compliance is relatively sparse when compared to private sector resources.[3,4] Some universities have run afoul of these regulations, resulting in high profile violations. Specifically, since existing regulations and available resources focus on private sector compliance, higher education and research institutions can struggle to properly apply nuances pertaining to deemed exports, intangible technology transfers, and denied party screening.[5,6] These violations come with both financial and reputational penalties, harming institutions' long-term interests.

Despite the shared regulatory burdens between industry and academia, significant differences result in disparate implementation strategies. Each institution's unique traits require a bespoke export control program, tailored to maintain regulatory compliance while balancing the myriad of other university responsibilities. The institution's research interests and degree of centralization drive how the university structures its export compliance department. Additionally, certain research areas, such as encryption or biological pathogens, may entail further restrictions on participants' nationalities and whether the findings can be published for wide distribution in an academic journal.

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2 "Workshop: Dual-use Export Controls," Policy Department, Directorate-General for External Policies, European Parliament, October 2015, <http://www.europarl.europa.eu/RegData/etudes/STUD/2015/535000/EXPO_STU(2015)535000_EN.pdf>.

3 For a thorough discussion of university export compliance, refer to Brady, Peloso & Rowold, "Export compliance and secure research," in A. Dade, L. Olafson, S. M. DiBella, eds, *Implementing a Comprehensive Research Compliance Program: A Handbook for Research Officers* (New York: Springer, 2015), pp. 249-303.

4 Various law journals have addressed university export compliance, although some sources are partially outdated after 2013's Export Control Reform efforts. Refer to Rege, R. "Universities Should Implement Internal Control Programs to Monitor Compliance with Export Control Laws," *Journal Of Law & Education* 35 (April 2006), p. 199.

5 "Deemed Exports," as defined under 15 CFR §734.13(a)(2) of the Export Administration Regulations (EAR), refer to the transfer of technology (or source code) to a foreign person located in the United States.

6 "Intangible Technology Transfers" include but are not limited to email, electronic documents, presentations, visual disclosure, and even technical discussions over the phone or in-person.

Recent trends in higher education portend an increasingly significant role for university export compliance programs. The most prominent shifts include: changes in research funding, student demographics, and larger institutions' increasingly globalized portfolio. Much like how export control regulations began as something afflicting cottage industries and, as value chains became segmented, spread to larger multinational corporations, academic institutions are now experiencing new pressures that necessitate the adoption of wide sweeping export compliance policies.

Lastly, renewed interest in university export compliance requires a common forum. For years, government outreach efforts focused on private sector audiences rather than academia, partially due to the difficulty in finding an appropriate forum or organization to help coordinate on behalf of university compliance professionals. Specific professional organizations and conferences have emerged in recent years to promote the sharing of best practices, provide benchmarking, and promote a professional community among university compliance officers. Government agencies have taken notice, finding it more efficient to engage directly with university compliance officers via these niche professional avenues.

Clashing Cultures - Export Restrictions vs. Journal Publications

Government regulatory requirements and academic research culture are, at times, diametrically opposed. The regulations apply to nearly every facet of a scholar's career, from publishing research, attending conferences, incorporating foreign research partners, and designing seemingly routine international research collaborations. Professors operate in a "publish or perish" environment, encouraging them to pursue new, innovative research and publish findings for widespread dissemination. The bigger the breakthrough and publication's audience, the better for the scholar's career. However, from initial brainstorming to future publications, regulatory requirements create potential pitfalls. Three case studies exemplify different nuances that can go unnoticed yet lead to significant violations for unwary universities.

Professor Roth, University of Tennessee - Deemed Export & Travel Restrictions

In September 2008, Dr. John Roth, a former University of Tennessee professor, was the first professor charged with violating United States export regulations. The United States Air Force (USAF) contracted Dr. Roth to develop specialized plasma technology for use on unmanned aerial vehicles (UAVs).[7] This project, highly technical and specifically for military purposes, fell under strict export restrictions which would have required explicit State Department approval prior to any foreign national participation. Despite prior knowledge of these regulations, Dr. Roth enlisted Chinese and Iranian graduate students to work on the USAF contract, resulting in deemed export violations. Furthermore, Dr. Roth brought a laptop containing sensitive military technology to China while attending a conference. Former colleagues told investigators that Dr. Roth disregarded export controls' utility and found them overly restrictive, which contributed to his decision to flout the regulations.

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7 "Retired University Professor Sentenced to Four Years in Prison for Arms Export Violations Involving Citizen of China," Office of Public Affairs, United States Department of Justice, July 2009, <https://www.justice.gov/opa/pr/retired-university-professor-sentenced-four-years-prison-arms-export-violations-involving>.

Upon returning to America, government authorities stopped him at the Detroit airport to make copies of the documents Dr. Roth brought to China. After confirming that the documents contained restricted information, the Federal Bureau of Investigation (FBI) received a warrant to seize Dr. Roth's laptop and thumb drive. Despite no evidence suggesting that Dr. Roth transferred the technology to any party while abroad, merely traveling to China with the USAF technology is a direct violation of United States export regulations. In 2009, Dr. Roth was found guilty of conspiracy, wire fraud, and 15 counts of exporting "defense articles and services" to foreign nationals. Dr. Roth was the first professor to receive incarceration time for export violations; this would soon prove to be a wake-up call for many universities across America to critically evaluate their own export compliance policies.

Lapse in Military Technology Control Leads to Illegal Access

At the Georgia Institute of Technology (Georgia Tech), a widely recognized and prestigious engineering school, there was an inadvertent yet serious mishandling of military technology.[8] A professor who conducted a class involving infrared technology used in weapons-aiming systems for aircraft, ships, and tanks was retiring. His course, given the involvement of restricted military data, was open to US citizens only. The professor asked university staff to copy his course materials to a DVD so that it could be given to a colleague who could teach that course after he retired. After experiencing technical difficulties transferring the information to a DVD, the Georgia Tech media staff made the course available via an internet link. Unbeknownst to the media staff, the link was open to the public.

Despite the robust export compliance program in place at the time, the release of controlled technology occurred. Although a temporary lapse in compliance policy and an honest mistake, for over two weeks internet users in 36 different countries (including China, Russia, Iran, and Pakistan) downloaded the restricted data. Georgia Tech voluntarily self-disclosed the event to the United States Department of State, which responded with a strongly worded reprimand.

Ultimately no penalties were assessed due to Georgia Tech's voluntary disclosure, full cooperation with State Department authorities, and immediate improvements made to their university compliance program. To date, this program serves as an ideal model for universities conducting highly advanced and restricted research. A recent Georgia Tech publication thoroughly discusses the current export compliance program, covering its structure, implementation, and unique challenges resulting from its position as a global leader in technical research.[9]

The case serves as a cautionary tale that all university staff must remain cognizant of export controls, especially when pertaining to intangible technology controls. In the unfortunate event in which universities violate these regulations, they should emulate Georgia Tech's response, voluntarily disclosing and fully cooperating with government regulators.

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8 Daniel Golden, "Military Secrets Leak From US Universities With Rules Flouted," Bloomberg News, April 30, 2012, <https://www.bloomberg.com/news/articles/2012-04-30/military-secrets-leak-from-u-s-universities-with-rules-flouted>.

9 John Krige, "Regulating the Academic "Marketplace of Ideas": Commercialization, Export Controls, and Counterintelligence," *Engaging Science, Technology, and Society* 1, (2015), pp. 1-24.

International Collaboration Leads to Screening Failure

The University of Massachusetts at Lowell (UML) suffered the unfortunate consequences of insufficient party screening prior to international collaboration. In 2009, employees from UML and Pakistan's Space and Upper Atmosphere Research Commission (SUPARCO) co-authored a technical paper analyzing electron density in Karachi and Islamabad.[10] Presumably during the research, UML exported atmospheric testing equipment to SUPARCO.

The equipment is not typically controlled by export regulations, but UML failed to realize that the United States government had placed SUPARCO on the Department of Commerce's Entity List, which establishes additional export requirements for entities suspected to engage in proliferation activities.[11] The United States government must approve an export application prior to nearly all shipments to an entity listed under the Department of Commerce's list. Ultimately, the United States government assessed UML a $100,000 USD civil penalty which would be waived after two years without additional export violations.[12]

Differences between Academia and Industry

Traditionally, strategic traders try to act proactively in conducting export compliance, meaning large corporations implement measures to screen customers, screen geographic areas of concern, conduct training, and enact standard operating procedures to prevent bureaucratic mistakes that lead to violations. The hierarchical structure of most corporations allows for a high degree of centralization for export compliance functions. Prior to new transactions, the export compliance department will often need to sign off to ensure that all the relevant regulatory obligations have been observed.

In academia, however, the response to export compliance has been largely reactive. In the wake of a violation or the wake of a violation by nearby or partner institutions, a university will often begin assessing compliance capacity, identifying existing risks, and developing preventative measures. This assessment guides the university as it establishes an export compliance office, with customized procedures and functions to best accommodate the institution's characteristics. In stark contrast to corporate compliance functions, the university counterpart faces a much more open, decentralized mode of operation. Academic institutions' culture and organization tend to contain fewer bureaucratic checks and standard operating procedures.

If the university compliance office does not have proper training curricula and outreach for faculty, researchers may be inadvertently violating export regulations. As the Roth case demonstrated, foreign national students working on-site can still pose considerable risk. By honest mistake, the Georgia Tech media staff placed controlled information in a publicly

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10 G. Murtaza, S. Iqbal, M. Ameen, & A. Iqbal, "Comparing IRI and a Regional Model with Ionosonde Measurements in Pakistan," *Advances In Space Research* 42:4 (August 18, 2008), pp. 682-690, <http://adsabs.harvard.edu/abs/2009AdSpR..43.1821A>.

11 The Entity List can be found at: <https://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern/entity-list>.

12 Bureau of Industry and Security & UML Settlement Agreement, May 2013, <https://www.oesrc.researchcompliance.vt.edu/sites/oesrc.researchcompliance.vt.edu/files/umasslowell_e2306.pdf>.

available location. UML may have determined the research equipment was not under export control under normal circumstances, but failed to realize the end-user was on the Entity List. While export compliance departments can never eliminate all risk, properly tailored training and outreach allow university employees and students to understand their obligations and how to proceed accordingly.

To demonstrate the importance of routine training, awareness, and compliance process requirements, an American university compliance officer spoke of the sanctions hurdles when attending academic conferences in Iran. The Iranian Transactions and Sanctions Regulations require a license from the Treasury Department for a wide variety of activities, including participation in academic conferences in Iran.[13] With less than ideal notice, faculty submitted their international travel request, which was reviewed by the compliance officer. The faculty were not in departments with traditional export control risk and, when initially planning the trip, had not reviewed the institution's export compliance or international travel webpages nor discussed the travel with any of the units associated with approving international travel. Additionally, unbeknownst to the faculty, the Treasury Department rarely approves license applications quickly. The faculty had mistakenly assumed that there were no problems with engaging in academic activities, such as conferences, in Iran, until they became aware of the complexities behind sanctions regulations and Department of Treasury licensing. The university compliance officer was able to apply for and receive a Specific License for the institution's faculty members to proceed with their planned activities on schedule.

Reported university export violations are few and far between, preventing an accurate and in-depth appraisal of academia's overall compliance.[14,15] However, those known cases are egregious enough to warrant attention from the rest of the academic community, prospective outside funders, and government regulators. An export compliance officer, much less a staffed office, has always been a necessity at any large research institution, but it's also becoming increasingly relevant for smaller schools with technical programs or overseas affiliations. Academic institutions are now engaging in more international collaborations that go beyond the traditional study abroad programs; universities continue to build satellite campuses overseas, laboratories, and partnerships with foreign corporations. As the University of Massachusetts at Lowell discovered, proper screening mechanisms and due diligence can identify potentially risky international collaborations.

Prior to these infamous violations, export compliance duties were vested in a legal office or another regulatory compliance office. A professor seeking to undertake an international collaboration may have needed to consult with the university legal office before transmitting

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13 "Iranian Transactions Regulations (31 C.F.R. PART 560) Statement Of Licensing Policy On Support Of Democracy And Human Rights In Iran And Academic And Cultural Exchange Programs," United States Office of Foreign Asset Control, July 6, 2006, <https://www.treasury.gov/resource-center/sanctions/Programs/Documents/license_pol.pdf>.

14 Supporting the claim of under-reported university compliance mistakes, the Commerce Department's Bureau of Industry and Security releases periodic collections of export violations. The September 2016 Edition contains over 90 case studies, with only two examples originating from American universities. The remaining case studies concern either individual actors or private corporation.

15 "Don't Let This Happen to You!," United States Bureau of Industry and Security, September 2016, <https://www.bis.doc.gov/index.php/forms-documents/enforcement/1005-don-t-let-this-happen-to-you-1/file>.

data or information that could be considered intellectual property to the university. The onus would be on the legal office to screen the transfer or collaboration for any export control issues as part of evaluating the profit motive behind the transfer or collaboration. For example, if a scientist wanted to transfer data to an overseas partner, they may have needed to ask the university for permission under the guise of preserving intellectual property, but the university legal offices may have discovered the international partner is on a sanctions list or has possible ties to denied parties.

As corporations have experienced, the United States government and increasingly foreign governments are putting the onus of responsibility for export compliance on the exporter.[16,17] US government officials often refer to industry as the "first line of defense" in secure trade, often dismissing ignorance of the law as a mitigating factor. Regulators feel that advanced technology comes with stewardship responsibilities which companies underemphasize at their own peril. That "first line of defense" onus extends beyond the corporate world and into the academic community as well, promoting a proactive export compliance culture for universities.

Academic institutions, much like the private sector, are concerned with more than the direct financial penalties of a violation. The reputational damage and the message conveyed to possible outside funders, much like vendors/customers in the corporate world, acts as the true deterrent for academia. This rings particularly true for institutions who commonly receive highly technical contracts from various military organizations. Georgia Tech immediately self-disclosed their violation, as well as implementing measures to prevent another such mistake from occurring again. Georgia Tech's robust export compliance demonstrates to the USAF that it will remain a trustworthy steward of advanced military contracts.

To FRE or not to FRE

The Fundamental Research Exclusion (FRE) permits universities a degree of freedom from export control's burdens.[18] The FRE allows US academic institutions' foreign faculty and students to participate in research involving would-be restricted information, while on campus, without receiving a deemed export license from the United States government. There are several important requirements that fall under the FRE, making the exclusion either a powerful tool if implemented properly or a risky assumption if poorly understood. Per the Bureau of Industry and Security (BIS), the results must be "published and shared broadly within the research community, and for which the researchers have not accepted restrictions for proprietary or

16 As a private sector example of improper intangible technology controls, Intevac, a California company specializing in thin film deposition and sensor technologies, failed to properly safeguard technology controlled for National Security, Nuclear Proliferation, and Missile Technology reasons. Intevac disclosed restricted information to a Russian employee, resulting in an illegal deemed export. Furthermore, Intevac lacked proper information technology policies to prevent its Chinese subsidiary from accessing the controlled technology. While there was no malicious intent behind Intevac's actions, the United States government assessed Intevac $115,00 USD in civil penalties.

17 United States Bureau of Industry and Security & Intevac Settlement Agreement, February 2014, <https://efoia.bis.doc.gov/index.php/documents/export-violations/export-violations-2014/922-e2365/file>.

18 FRE is defined in 15 CFR §734.8(a) and 22 CFR §120.11(a)(8), under the EAR and International Traffic in Arms Regulations (ITAR), respectively.

national security reasons."[19] Furthermore, the exclusion does not authorize the transfer of export controlled commodities abroad, even to foreign research partners. Given the FRE's complexities, many institutions' export compliance offices have dedicated resources to provide faculty and staff with detailed explanations for how the FRE is used in their organization.[20]

Some institutions' export compliance officers speak of a *de facto* policy to pursue FRE-eligible research almost exclusively. While FRE eligibility does not remove all export control risk, such as restricted parties screening requirements, it can alleviate many faculty concerns regarding publication or international conference presentations. Furthermore, FRE-only research reduces the overall compliance burden for the export control departments, allowing them to successfully operate with fewer devoted resources when compared to their counterparts with more restricted research programs. Often these "FRE Only" policies originate from the specific institutions' research profile, favoring basic research compared to advanced, applied research. Given the specific nature of applied research, restrictions on publication are more likely when private sector or military partners fund the projects. As the academic disciplines and funding environment continues to change over time, institutions may find themselves at a crossroads- remain *de facto* FRE-only, with less funding opportunities, or take on new, non-FRE research projects and their accompanying export controls? Universities who decide to pursue more restricted research must take care to review their export compliance programs due to the significant increase in stringent regulatory obligations once FRE no longer applies.

Trends in Academia, Increasing Role for Export Compliance

Truly, academia itself is evolving to meet modern challenges in research and learning. This evolution causes a greater need to be cognizant of export regulations due to frequent technology transfers. As more researchers travel to sanctioned countries and areas of concern, there are challenges with technology control, jurisdictional responsibility, and possible cyber threats. Not just concerning travel, but an increasing amount of actual teaching and transfer of course materials takes place online, many times to students or other participants overseas. Universities are now under increased pressures to produce online courses and online course materials for sale to a larger student marketplace. Tele-learning is becoming as popular as tele-working and frequently, students in technical fields pursue online certificates to keep current with modern technology, which in some cases may be controlled technology.

Contrasting with the increasingly globalized academic system, traditional research funding sources face more significant resource constraints than ever before. For example, between 2003 and 2015, the National Institute of Health (NIH) lost 22% of its ability to provide funding for research across the United States.[21] Federal funds will likely only increase in scarcity in

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19 "Deemed Exports and Fundamental Research for Biological Items," United States Bureau of Industry and Security (BIS) website, <https://www.bis.doc.gov/index.php/policy-guidance/product-guidance/chemical-and-biological-controls/14-policy-guidance/deemed-exports/111-deemed-export-and-fundamental-research-for-biological-items>.

20 For example, the Massachusetts Institute of Technology's Office of Sponsored Programs, University of California, Los Angeles, and University of Iowa all maintain guidance using the FRE.

21 "NIH Research Funding Trends," Federation of American Societies for Experimental Biology, <http://faseb.org/Science-Policy-and-Advocacy/Federal-Funding-Data/NIH-Research-Funding-Trends.aspx>.

the near term, as President Donald Trump announced a proposed budget that would reduce federal funding for a variety of research. Among the federal programs with reduced budgets, the NIH stands to lose $5.8 billion (18%) from its current funding level.[22] Increasingly common budget cuts and sequestration result in fewer NIH-sponsored projects, creating a funding gap that universities may seek to alleviate with more controlled research programs. As it stands currently, the Georgia Tech publication provides a rough estimate that "no more than perhaps 5-10% of sponsored contracts deal with sensitive but unclassified knowledge that is subject to export controls or related restrictions."[23] Given the shrinking pool of federal research resources, it is possible that this estimate will soon need to be updated as more institutions turn to more restricted opportunities.

The NIH often funds projects which will be covered under the Fundamental Research Exclusion, providing those NIH-recipients a high degree of export compliance freedom. Universities' research efforts could face increased export control-related obligations if new, more restrictive partnerships formed with other government organizations (i.e., the USAF) or private corporations. The Department of Defense (DOD) funds a variety of university projects, some which fall under the FRE while other efforts remain highly controlled. As a contrast to the University of Tennessee's restricted USAF research, a university could receive DOD funds to study wildlife impacts on a US military installation. This type of project is unlikely to contain export controlled technology and is likely to be considered fundamental research, which would allow the university researchers to freely publish and disseminate their findings without restrictions on foreign national participation.

Emergence of Professional Forums

After the Roth case's watershed moment, many academic institutions took a renewed interest in their own compliance programs.[24] New export control offices and positions grew more commonplace on professional networking websites, reflecting a growing need for export professionals at universities. The desire for professional forums quickly arose as additional universities established trade compliance offices. At the time, export compliance associations and conferences were almost entirely tailored for private sector audiences, which can be poorly suited to university compliance officers given the vast differences between corporate and academic organizations.

A few years ago, a group of university export compliance officers created the Association of University Export Compliance Officers (AUECO).[25] Per the AUECO website, the association

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22 "America First, A Budget to Make America Great Again," United States Office of Management and Budget, March 12, 2017, <https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/budget/fy2018/2018_blueprint.pdf>.

23 John Krige, "Regulating the Academic "Marketplace of Ideas": Commercialization, Export Controls, and Counterintelligence," *Engaging Science, Technology, and Society* 1, (2015), pp. 14.

24 As evidence of its widespread impact, numerous university export compliance resources specifically mention the Dr. Roth case such as the Ohio State University, Pennsylvania State University, University of Wisconsin-Madison, and the Texas A&M University System.

25 AUECO's website can be found at: <http://aueco.org/>.

seeks to develop a shared community to "associate," "advocate," and "collaborate." Initially, the organization consisted of roughly 20 members. Since its inception, AUECO has grown to over 170 members from over 110 institutions. The association benefits members by publishing guidance papers, creating a members-only forum, advocating for improved government-academia communications, and perhaps most importantly- helping promote an annual university compliance conference since 2013.

These conferences, organized by individual host universities, bring together university compliance officers and government officials. While AUECO does not host the event, it strongly encourages its members to attend. These conferences allow easier networking and sharing of best practices among university compliance professionals, which can be especially beneficial for those who serve as their institution's only export compliance specialist. Government officials use these conferences as a rare opportunity to conduct university-centric training and outreach, which was challenging prior to AUECO. The regulatory agencies (typically Commerce, State, and Treasury) simply lack the resources to coordinate and sustain outreach and training events that would provide them with such a large audience of university export compliance staff. Officials use these conferences to highlight how their regulations specifically affect universities, receive feedback, answer questions, and prove customized training that would be absent at typical industry outreach events.

Presumably recognizing the same dearth of university export events behind AUECO, private companies have developed tools, resources, and curricula tailored to the unique compliance challenges facing American universities today.[26] One such company, for example, began conducting annual University Export Control conferences in 2016, tailoring seminars for universities, laboratories, other scientific institutions, US government organizations, and private corporations working with universities or laboratories.[27]

Balancing Cutting-Edge Research & Ensuring Export Compliance

Given the unique challenges facing university export compliance programs, it is apparent that private sectors policies will not be sufficient. As the above case studies demonstrate, there are a myriad of pitfalls that could lead to costly export violations. Dr. Roth's flagrant disregard for the University of Tennessee's export compliance training illustrates the increased risk of decentralized universities, as compared to the traditionally more centralized industry actors. Despite an existing export compliance program, Georgia Tech media staff's momentary lapse led to the dissemination of military technology to prohibited countries. While Georgia Tech's voluntary disclosure and subsequent actions helped mitigate reputational damage, it remains a valuable reminder that export compliance programs can mitigate but never eliminate risk. UML learned that seemingly innocuous research can result in violations due to the potential restricted nature of international partners.

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26 "University Export Control," Export Compliance Training Institute, <http://www.learnexportcompliance.com/Seminars/University-Export-Controls.aspx>.

27 "Recent & Past Events," Export Compliance Training Institute, <http://www.learnexportcompliance.com/Seminars/Recent-amp;-Past-Events.aspx>.

These case studies exemplify just some of the potential export compliance mistakes that bring increased liability to universities. Advanced technical research, international partnerships, restricted funding projects, large foreign national student populations, data management, and genuine "academic culture" all come with higher risk. There is no "one size fit all" approach with export compliance; each institution must carefully assess its current and future state to promote a proactive compliance culture.

Universities should remember that they are not expected to navigate these complex regulations alone. As the American government has grown increasingly interested in enforcing academia's export violations, it has also devoted more resources to the training and education of universities regarding their obligations. In addition to governmental support, universities can take advantage of recently created organizations to further refine their own export compliance programs. Given the combination of increasingly globalized academic institutions and diminishing federally-funded research opportunities, robust export compliance programs may soon become key strategic offices at universities across America.