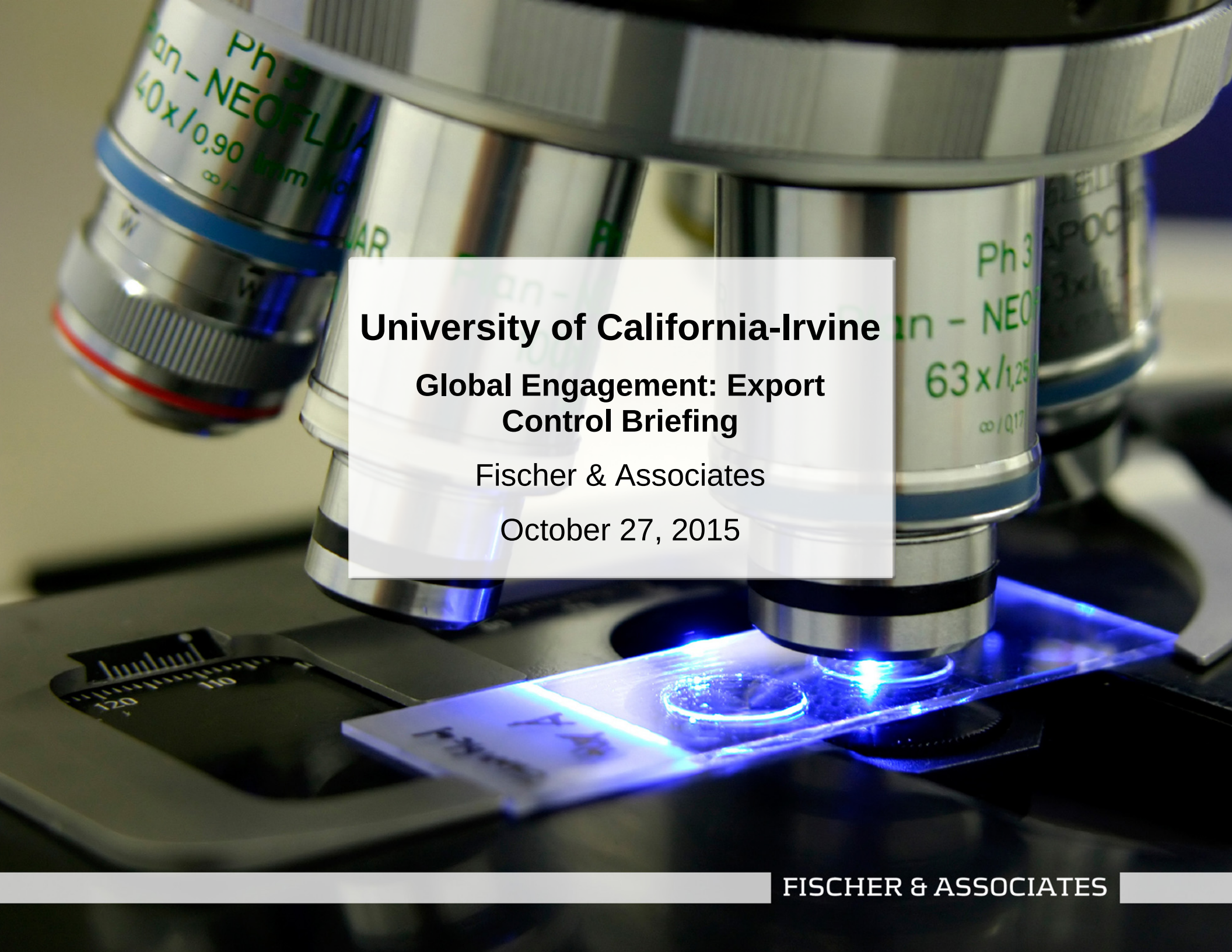

University of California-Irvine

Global Engagement: Export Control Briefing

Fischer & Associates

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> Agenda

1. Why Is Export Control Awareness Critical to UCI Operations and Researchers?
2. What Are Export Controls? How Do They Work? How Are They Enforced?
3. How Do Controls Impact PIs, Researchers and Operational Personnel?
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1. Why Is Export Control Awareness Critical to UCI Operations and Researchers?

Senior Research & Administrative Leadership → University Compliance-Export Control/Focal Points → Operational Functions & Export-sensitive Research Areas

Operational	Research	Business
• IT • Human Resources • Environmental Health & Safety • Office of Technology Transfer • Campus Counsel • Purchasing & Risk Services (Material & Risk Management) • Accounting & Fiscal Services • International Center • Facilities Management • Office of Research • Research Administration • Global Engagement Office • Medical Center	• Research (Sponsored or faculty-initiated) o FRE - FRE-covered projects - Controlled instruments - Proprietary Data • International Collaborations • Conferences	• Work for Others/Service Contracts • User Agreements • Outside Activity • Spinoffs

Key Export Compliance Responsibilities: Short-List

- IT: Technology Control Plans (TCP) security protocols; Travel with Laptops; Outer Firewall
- Accounting & Fiscal Services: Screening Foreign Payees (Vendors, subcontractors, re-imbursements)
- Sponsored Projects: Direct Awards-determination of fundamental research vs. restricted parameters plus possible follow-on export control implications (e.g. NDAs, travel, international transfer of instruments); Fee-for-service agreements
- Purchasing & Risk Services: Identification of export controlled items (primarily ITAR); vendor/subcontract screening;
- Technology Transfer: software licensing/invention disclosure – classification and screening
- Environmental Health & Safety: subject to export control classification procedure on international disposition of assets
- Facilities Management: Shipping subject to export license/authorization; all AES coordination; red-flag points; in-bound Customs clearance
- Human Resources: H1B and J filters per TCP controls
- Regulatory Compliance/Campus Counsel: Export Control Oversight

Export Control enforcement activity by Federal agencies among research institutions is now at a significantly higher level than it was several years ago.

- Penalties (civil and criminal) and sanctions can be enforced at both the institutional and individual (PI) levels.
  - All Research Divisions are potentially vulnerable.
  - Presence of foreign national researchers on site as well as international collaborations compound risk.
  - Decentralized organizational structure underscores control requirements.
  - H1 Visa Certifications are required regarding access to export controlled data in research laboratories.

- However: compliance can be accomplished without impeding fundamental research efforts or fabrication/service contracts with industry partners.
  - Requires faculty's and administration's awareness of requirements and transparent procedures to address issues across all affected departments and staff functions.

- UCI has been enhancing its export compliance program
  - Export Control Officer
  - Consistent outreach to export sensitive research faculty and campus administrators
  - Annual training program

2. What Are Export Controls? How Do They Work? How Are They Enforced?

What Types of Items Can be Controlled?

- Commodities, materials, software, technical data, (further discussion below on specific types of items)-bottom line: broadest possible range of items are potentially controlled.
    - "Items" can even include "technology," in the form of concepts, discussions, and otherwise shared ideas.

How is the Term "Export" Defined for Purposes of These Regulations?

- Outbound transfer of controlled items from the U.S. or knowingly facilitating the export in a domestic transfer or re-export.
    - Physical shipments of such items abroad by any means, including cargo transport, courier, electronic data transmission, spoken communication, hand carried articles.

- Access to Items in the U.S. through "deemed export" or release of information/disclosure:
    - Use of and/or visual or computer access to controlled items, technology or data, occurring in the U.S by foreign nationals, defined as persons who are neither U.S. citizens, permanent residents ("green card" holders) or political asylum recipients: i.e. temporary immigrants – for example H, J, F, O, B visa beneficiaries.
    - Export is "deemed" to occur through the access, taking into account that the foreign national will return home at the termination of visa period.
    - Intention to obtain permanent residence or being in process to obtain does not change foreign national status for purposes of export control regulations.
    - Definition of "access" is nuanced depending on the regulatory jurisdiction, as described more fully below.

How Are Export Controls Regulated?

ITAR- State Department controls (22 CFR 120-130): Defense Directorate for Trade Controls (DDTC)

Defense Article

- Hardware, software and technical data specifically designed, developed, configured, adapted or modified for a military application, and
  - Does not have predominant civilian applications, and
  - Does not have a performance equivalent (defined by form, fit or function) to those of an article or service used for civil applications; or
  - Is specifically designed, developed, configured, adapted or modified for a military application, and has significant military or intelligence applicability such that control under this subchapter is necessary.

Defense Service

- Providing technical assistance (including training) to foreign persons (whether in the U.S. or abroad) in the design, development, engineering, manufacture, production, assembly, testing, repair, maintenance, modification, operation, demilitarization, destruction, processing or use of defense articles;
- Providing to foreign persons any technical data controlled under this subchapter (see below) whether in the U.S. or abroad;
- Military training of foreign units and forces, regular and irregular, including formal or informal instruction of foreign persons in the U.S. or abroad or by correspondence courses, technical, educational, or information publications and media of all kinds, training aid, orientation, training exercise, and military advice.

Technical Data

- Information required for the design, development, production, manufacture, assembly, operation, repair, testing, maintenance or modification of defense articles; Invention covered by a secrecy order; and software directly related to a defense article.

How Are Export Controls Regulated? (Continued)

ITAR- State Department controls (22 CFR 120-130): Defense Directorate for Trade Controls (DDTC)

- Based on U.S. Munitions List (USML – 22 CFR 121) pertaining to definitions of defense article, service, or technical data defined above (including certain items "specially designed or modified for military application"). Categories include:

I. Firearms
II. Guns and Armament
III. Ammunition/Ordnance
IV. Launch Vehicles, etc.
V. Explosives, Energetic Materials, Propellants, Incendiary Agents and their constituents
VI. Vessels of War and Special Naval Equipment
VII. Tanks and Military Vehicles
VIII. Aircraft and Associated Equipment
IX. Military Training Equipment
X. Protective Personnel Equipment
XI. Military Electronics
XII. Fire Control, Range Finder, Optical and Guidance Control
XIII. Auxiliary Military Equipment
XIV. Toxicological Agents/Equipment, Radiological Equipment
XV. Spacecraft Systems and Associated Equipment
XVI. Nuclear Weapons, Design and Testing Related equipment
XVII. Classified Articles, Technical Data and Defense Services Not Otherwise Enumerated
XVIII. Directed Energy Weapons
XIX. Submersible Vessels, Oceanographic and Associated Equipment

How Are Export Controls Regulated? (Continued)

Sample from US Munitions List (ITAR): Category XI—Military Electronics

Category XI—Military Electronics-excerpt

(a) Electronic equipment and systems not included in Category XII of the U.S. Munitions List, as follows:

*(3) Radar systems and equipment, as follows:

(i) Airborne radar that maintains positional state of an object or objects of interest, other than weather phenomena, in a received radar signal through time;

(ii) Synthetic Aperture Radar (SAR) incorporating image resolution less than (better than) 0.3 m, or incorporating Coherent Change Detection (CCD) with geo-registration accuracy less than (better than) 0.3 m, not including concealed object detection equipment operating in the frequency range from 30 GHz to 3,000 GHz and having a spatial resolution of 0.5 milliradians up to and including 1 milliradians at a standoff distance of 100 m;

(iii) Inverse Synthetic Aperture Radar (ISAR);

(iv) Radar that geodetically-locates (*i.e.,* geodetic latitude, geodetic longitude, and geodetic height) with a target location error 50 (TLE50) less than or equal to 10 m at ranges greater than 1 km;

(v) Any Ocean Surveillance Radar with an average-power-aperture product of greater than 50 Wm2;

(vi) Any ocean surveillance radar that transmits a waveform with an instantaneous bandwidth greater than 100 MHz and has an antenna rotation rate greater than 60 revolutions per minute (RPM);

(vii) Air surveillance radar with free space detection of 1 square meter RCS target at 85 nmi or greater range, scaled to RCS values as RCS to the ¼ power;

(viii) Air surveillance radar with free space detection of 1 square meter RCS target at an altitude of 65,000 feet and an elevation angle greater than 20 degrees (*i.e.,* counter-battery);

(ix) Air surveillance radar with multiple elevation beams, phase or amplitude monopulse estimation, or 3D height-finding;

(x) Air surveillance radar with a beam solid angle less than or equal to 16 degrees2 that performs free space tracking of 1 square meter RCS target at a range greater or equal to 25 nmi with revisit rate greater or equal to ⅓ Hz;

How Are Export Controls Regulated? (Continued)
Sample from US Munitions List (ITAR): Category XI—Military Electronics

Category XI—Military Electronics-excerpt (continued)

(xi) Instrumentation radar for anechoic test facility or outdoor range that maintains positional state of an object of interest in a received radar signal through time or provides measurement of RCS of a static target less than or equal to minus 10dBsm, or RCS of a dynamic target;

(xii) Radar incorporating pulsed operation with electronics steering of transmit beam in elevation and azimuth;

NOTE TO PARAGRAPH (a)(3)(xii): This paragraph does not control radars not otherwise controlled in this subchapter, operating with a peak transmit power less than or equal to 250 watts, and employing a design determined to be subject to the EAR via a commodity jurisdiction determination (*see* §120.4 of this subchapter).

(xiii) Radar with mode(s) for ballistic tracking or ballistic extrapolation to source of launch or impact point of articles controlled in USML Categories III, IV, or XV;

(xiv) Active protection radar and missile warning radar with mode(s) implemented for detection of incoming munitions;

(xv) Over the horizon high frequency sky-wave (ionosphere) radar;

(xvi) Radar that detects a moving object through a physical obstruction at distance greater than 0.2 m from the obstruction;

(xvii) Radar having moving target indicator (MTI) or pulse-Doppler processing where any single Doppler filter provides a normalized clutter attenuation of greater than 60dB;

Note to paragraph (a)(3)(xvii): Normalized clutter attenuation is defined as the reduction in the power level of received distributed clutter when normalized to the thermal noise level.

(xviii) Radar having electronic protection or electronic counter-countermeasures (ECCM) other than manual gain control, automatic gain control, radio frequency selection, constant false alarm rate, and pulse repetition interval jitter;

(xix) Radar employing electronic attack (EA) mode(s) using the radar transmitter and antenna;

(xx) Radar employing electronic support (ES) mode(s) (*i.e.,* the ability to use a radar system for ES purposes in one or more of the following: as a high-gain receiver, as a wide-bandwidth receiver, as a multi-beam receiver, or as part of a multi-point system);

(xxi) Radar employing non-cooperative target recognition (NCTR) (i.e., the ability to recognize a specific platform type without cooperative action of the target platform);

How Are Export Controls Regulated? (Continued)

Sample from US Munitions List (ITAR): Category XI—Military Electronics

Category XI—Military Electronics-excerpt (continued)

NOTE TO PARAGRAPH (a)(3)(xxi): The definition of "type" in this paragraph is that provided in 14 CFR §1.1.

(xxii) Radar employing automatic target recognition (ATR) (*i.e.,* recognition of target using structural features (e.g., tank versus car) of the target with system resolution better than (less than) 0.3 m);

(xxiii) Radar that sends interceptor guidance commands or provides illumination keyed to an interceptor seeker;

(xxiv) Radar employing waveform generation for LPI other than frequency modulated continuous wave (FMCW) with linear ramp modulation;

(xxv) Radar that sends and receives communications;

(xxvi) Radar that tracks or discriminates ballistic missile warhead from debris or countermeasures;

(xxvii) Bi-static/multi-static radar that exploits greater than 125 kHz bandwidth and is lower than 2 GHz center frequency to passively detect or track using radio frequency (RF) transmissions (e.g., commercial radio, television stations);

(xxviii) Radar target generators, projectors, or simulators, specially designed for radars controlled by this category; or

(xxix) Radar and laser radar systems specially designed for defense articles in paragraph (a)(1) of USML Category IV or paragraphs (a)(5), (a)(6), or (a)(13) of USML Category VIII (MT if specially designed for rockets, space launch vehicles, missiles, drones, or unmanned aerial vehicles capable of delivering a payload of at least 500 kg to a range of at least 300 km);

NOTE 1 TO PARAGRAPH (a)(3)(xxix): Laser radar systems embody specialized transmission, scanning, receiving, and signal processing techniques for utilization of lasers for echo ranging, direction finding, and discrimination of targets by location, radial speed, and body reflection characteristics.

NOTE 2 TO PARAGRAPH (a)(3)(xxix): For definition of "range" as it pertains to rocket systems, *see* note 1 to paragraph (a) of USML Category IV. "Payload" is the total mass that can be carried or delivered by the specified rocket, SLV, or missile that is not used to maintain flight.

NOTE TO PARAGRAPH (a)(3): This paragraph does not control: (a) Systems or equipment that require aircraft transponders in order to meet control parameters; (b) precision approach radar (PAR) equipment conforming to ICAO standards and employing electronically steerable linear (1- dimensional) arrays or mechanically positioned passive antennas; and (c) radio altimeter equipment conforming to FAA TSO C87.

How Are Export Controls Regulated? (Continued)

Sample from US Munitions List (ITAR): Category XI—Military Electronics

Category XI—Military Electronics-excerpt (continued)

(d) Technical data (*see* §120.10 of this subchapter) and defense services (*see* §120.9 of this subchapter) directly related to the defense articles described in paragraphs (a) through (c) of this category and classified technical data directly related to items controlled in CCL ECCNs 3A611, 3B611, 3C611, and 3D611 and defense services using the classified technical data. (*See* §125.4 of this subchapter for exemptions.) (MT for technical data and defense services related to articles designated as such.)

(x) Commodities, software, and technology subject to the EAR (*see* §120.42 of this subchapter) used in or with defense articles controlled in this category.

How Are Export Controls Regulated? (Continued)

EAR-Commerce Department "Dual use" controls (15 CFR 700-799):

- Commodity/hardware, software, technical data designed and used for civilian applications but which inherently could have a non-civilian use - - generally defense or nuclear proliferation capabilities.
- Technical data/technology: blueprints, plans, diagrams, models, formulae, tables, engineering designs, and specifications, manuals and instructions written or recorded on other media or devices such as disk, tape read-only memories.
- Exports of certain commodities (whether hardware, software, technology or technical data) identified on the Commerce Control List (CCL) with an Export Control Commodity Number (ECCN) require prior written authorization — an "export license" — or must meet an allowable exception.
    - Licenses take at least 30 plus days to obtain and are often issued with mandatory end use/user conditions.
- Licensing depends on three factors:
    - Type of item;
    - Reason(s) for control e.g., anti-nuclear proliferation (NP), missile technology (MT), national security (NS), chemical biological control (CB), or several other types of control could be placed on it; and
    - Whether country exported to is controlled for an item with that level of control, based on CCL Country Chart.

How Are Export Controls Regulated? (Continued)

EAR-Commerce Department "Dual use" controls (15 CFR 700-799):

- Commerce Control List (CCL) 15 CFR 774 Categories 0-9:
  - 0) Nuclear Materials, Facilities, Equipment
  - 1) Materials, Chemicals, Microorganisms, Toxins
  - 2) Materials Processing (includes laboratory instruments used in materials processing)
  - 3) Electronics (includes integrated circuit technology and development)
  - 4) Computers
  - 5) Telecommunications and Information Security (includes materials for telecommunications and encryption technology)
  - 6) Lasers and Sensors (includes many detection devices and related technology)
  - 7) Navigation and Avionics
  - 8) Marine
  - 9) Propulsion Systems, Space Vehicles and Related Equipment

- Within each category 0-9 above, items are arranged according to the same five groups, A-E below:

  - A. Equipment, Assemblies and Components
  - B. Test, Inspection and Production Equipment
  - C. Materials
  - D. Software
  - E. Technology

Note: Just because an item is purchased in the US and is commercially available, does not render it uncontrolled for purposes of these regulations, were it exported.

How Are Export Controls Regulated? (Continued)

EAR-Commerce Department "Dual use" controls (15 CFR 700-799):

- Example of ECCN

9A012 Non-military "Unmanned Aerial Vehicles," ("UAVs"), unmanned "airships", related equipment and "components", as follows (see List of Items Controlled).

Reason for Control: NS, MT, AT
LIST BASED LICENSE EXCEPTIONS (SEE PART 740 FOR A DESCRIPTION OF ALL LICENSE EXCEPTIONS)
LVS: N/A *GBS:* N/A *CIV:* N/A
LIST OF ITEMS CONTROLLED
Related Controls: See the U.S. Munitions List Category VIII (22 CFR Part 121). Also see section 744.3 of the EAR.
Related Definitions: N/A
Items:

a. "UAVs" or unmanned "airships", designed to have controlled flight out of the direct 'natural vision' of the 'operator' and having any of the following:
a.1. Having all of the following:
a.1.a. A maximum 'endurance' greater than or equal to 30 minutes but less than 1 hour; and
a.1.b. Designed to take-off and have stable controlled flight in wind gusts equal to or exceeding 46.3 km/h (25 knots); *or*
a.2. A maximum 'endurance' of 1 hour or greater;

Technical Notes:

1. For the purposes of 9A012.a, 'operator' is a person who initiates or commands the "UAV" or unmanned "airship" flight.
2. For the purposes of 9A012.a, 'endurance' is to be calculated for ISA conditions (ISO 2533:1975) at sea level in zero wind.
3. For the purposes of 9A012.a, 'natural vision' means unaided human sight, with or without corrective lenses.

b. Related equipment and "components", as follows:
b.1 [Reserved]
b.2. [Reserved]
b.3. Equipment or "components" "specially designed" to convert a manned "aircraft" or a manned "airship" to a "UAV" or unmanned "airship", controlled by 9A012.a;
b.4. Air breathing reciprocating or rotary internal combustion type engines, "specially designed" or modified to propel "UAVs" or unmanned "airships", at altitudes above 15,240 meters (50,000 feet).
***Note**: 9A012 does not control model aircraft or model "airships".*

How Are Export Controls Regulated? (Continued)

EAR-Commerce Department "Dual use" controls (15 CFR 700-799)

- Example of ECCN

  6A002 Optical sensors and equipment, and "components" therefor, as follows (see List of Items Controlled).
  Reason for Control (entire entry): NS, MT, CC, RS, AT, UN
  Reason for Control (6A002.b only): NS, AT
  6A002.b
  b. "Monospectral imaging sensors" and "multispectral imaging sensors", designed for remote sensing applications and having any of the following:
  b.1. An Instantaneous-Field-Of-View (IFOV) of less than 200 µrad (microradians); *or*
  b.2. Specified for operation in the wavelength range exceeding 400 nm but not exceeding 30,000 nm and having all the following:
  b.2.a. Providing output imaging data in digital format; *and*
  b.2.b. Having any of the following characteristics:
  b.2.b.1. "Space-qualified"; *or*
  b.2.b.2. Designed for airborne operation, using other than silicon detectors, and having an IFOV of less than 2.5 mrad (milliradians);
  NOTE: 6A002 .b.1 does not control "monospectral imaging sensors" with a peak response in the wavelength range exceeding 300 nm but not exceeding 900 nm and only incorporating any of the following non-"space-qualified" detectors or non-"space-qualified" "focal plane arrays":

- Check Country Chart to determine whether your intended destination is controlled for export of your particular item.

Commerce Country Chart

Reason for Control

Countries	Chemical & Biological Weapons			Nuclear Nonproliferation		National Security		Missile Tech	Regional Stability		Firearms Convention	Crime Control			Anti-Terrorism	
	CB 1	CB 2	CB 3	NP 1	NP 2	NS 1	NS 2	MT 1	RS 1	RS 2	FC 1	CC 1	CC 2	CC 3	AT 1	AT 2
Dominican Republic	X	X		X		X	X	X	X	X	X	X		X		
Ecuador	X	X		X		X	X	X	X	X	X	X		X		
Egypt	X	X	X	X		X	X	X	X	X		X		X		
El Salvador	X	X		X		X	X	X	X	X	X	X		X		
Equatorial Guinea	X	X		X		X	X	X	X	X		X		X		
Eritrea[1]	X	X		X		X	X	X	X	X		X		X		
Estonia[3]	X					X		X	X							
Ethiopia	X	X		X		X	X	X	X	X		X		X		
Fiji	X	X		X		X	X	X	X	X		X	X	X		
Finland[3,4]	X					X		X	X			X		X		
France[3]	X					X		X	X							
Gabon	X	X		X		X	X	X	X	X		X		X		
Gambia, The	X	X		X		X	X	X	X	X		X		X		

How Are Export Controls Regulated? (Continued)

Export Control Reform

Export Control Reform has resulted in (and will continue to evolve) additional CCL categories governing highly sensitive items previously under ITAR jurisdiction.

- Implements a more definitive order of classification starting with ITAR and then if not listed in ITAR, down through the ECCN;
- ITAR Categories revised (or to be revised) currently include: IV-XI, XIII, XV-XVII, and XIX-XXI. (Eventually all Categories will be revised)
    - Now lists specific items which fall under ITAR control and revises catch-all provisions to align them to these specific items (versus general characterizations)
- New CCL ECCNs (600 series originating in ITAR VIII) added to Category 9: for example, 9A610 (aircraft); 9A619 (engines); Category 3: 3Y611m etc.
    - See also 500 series originating in ITAR XV: for example, 9Y515, etc.
    - Includes new classification order for “specially designed” parts and component and releases certain items to EAR99 status.
- Provides a licensing transition plan from ITAR to EAR governance.
- Adds EAR license exception STA subject to certain conditions (primarily of use to aviation and defense industries).
- Adds new definitions of “de minimis” content for re-exportation of items falling under new 500 and 600 series ECCNs.
- Applies a stricter standard of “use” technology for purposes of deemed export transfers: this could have an impact on open laboratory research environments.

How Are Export Controls Regulated? (Continued)

Key difference as to outbound exports (ITAR vs. EAR)

- Under ITAR: outbound export licenses and defense service authorizations require an Empowered Official (EO).
- With respect to EAR dual use controlled items, licensing is on an item by item, country by country basis depending on the applicable control to that item X that country.
- With respect to ITAR defense articles, all countries presumed licensable and, there are numerous countries which are per se prohibited, the so-called 126.1 countries: DDTC will not issue a license under any circumstance.
    - Examples: China, Viet Nam, Zimbabwe, Belarus, and the terrorist sponsoring countries (Iran, Syria, Sudan).

EAR/ITAR End User Controls/Prohibitions: Denied Party/Restricted Entity Lists

Separate from above-referenced controls, government prohibits *exports to* or *export collaboration with* certain designated individuals and entities identified as export violators both in and outside the U.S.

- Compliance requirement to screen certain parties (for example foreign institutions, industrial sponsors) against government-published lists prior to export (Denied Partied List, Restricted Entities List, Debarred Parties List, Specially Designated Nationals List).
- Impact on UCI's collaborations: international collaborations (off-shore) institutions to whom UCI is providing research equipment or sharing data and research results should be screened against denied/restricted parties lists.

How Are Export Controls Enforced?

- Federal agencies have investigative authority (DOE; State – DDTC; Commerce – OEE; Border Protection) and often incorporate the FBI.
- Civil and criminal enforcement authority over EAR and ITAR violations, resulting in loss of export privileges, severe monetary fines (millions of dollars), prosecution (criminal) — against the institution and/or individual PI or administrator to whom violation is found attributable.
    - Agencies exercise broad enforcement discretion.
    - Civil enforcement action: 5 year look-back rule.
    - Nationwide, numerous institutions have been investigated and/or are participating in voluntary audits of their export control programs.
        - Audits are both expensive and time-consuming, and often require ongoing status reporting to federal agencies.
- Numerous institutions have been fined with civil penalties for licensing and access violations:
    - Most common reason for compliance failure is lack of consistent awareness among faculty/research and operational personnel about licensing requirements for both outbound transfers and controlled access.
- Criminal Prosecutions
    - US – Chinese business partnership incorporating university PIs to pursue unauthorized export of semiconductor technology to China.
    - Thomas Butler, Chief of Infection Disease Division, Texas Tech Dept. of Internal Medicine: Select Agent violations/export to Tanzania.
    - J. Reece Roth, Professor Emeritus, University of Tennessee, Knoxville/technology transfer to foreign graduate students (China and Iran) contrary to explicit contractual provisions.
        - UT itself not indicted based on mitigating record.

3. How Do Controls Impact PIs, Researchers, and Operational Personnel?

Key Point

- All outbound exports must be classified for license determination.
- As to laboratory access: the situation depends on whether UCI is conducting fundamental research and, if so, whether this research either:
  - Uses any research tools classified under ITAR or proprietary tools, or
  - Data restricted under an NDA and export controlled under either the EAR or ITAR.

Fundamental Research Exclusion (FRE) – EAR/Public Domain – ITAR

- Basic and applied research in science and engineering conducted at a U.S. research institution, the results of which ordinarily are published and shared broadly within the scientific community.
  - "Applied" here is defined as activity short of proprietary commercialization.

Public Domain Definition (ITAR)

- Generally accessible to the public through:
  - Publication in periodicals, books, print, electronic, or other media available for general distribution (including websites that provide free uncontrolled access) or to a community of persons interested in the subject matter, such as those in a scientific or engineering discipline, either free or at a price that does not exceed the cost of reproduction and distribution;
  - Readily available at libraries open to the public or at university libraries;
  - Patents and published patent applications available at any patent office;
  - Release at an open conference, meeting, seminar, trade show, or other open gathering held in the U.S. (under ITAR) or anywhere (under EAR). Note, a conference or gathering is "open" if all technically qualified members of the public are eligible to attend and attendees are permitted to take notes or otherwise make a personal record of the proceedings and presentations.
  - ITAR: general descriptions/marketing material relating to function/purpose of defense article.

Benefit to Using These Exemptions

- Even if results of the research might otherwise be export controlled under the EAR and ITAR and, therefore, subject to deemed export restrictions as to who could participate in the research, the FRE/Public Domain exclusions allow access by foreign nationals to research results.
    - Positions the research on the same footing as self-invention or unrestricted, UCI-funded research.

Caveat

- Absolutely no restrictions can be accepted from a corporate or government sponsor (prime of flow-down) that:
    - Directly or indirectly prohibits dissemination or publication of research results, or
    - Mandates foreign national restrictions as to who can access research (if there will be foreign national participation).

Certain Temporary Restrictions Do Not Compromise the FRE

- Limited pre-publication review by research sponsors is acceptable within a reasonable timeframe but only to:
- Prevent inadvertent divulgence of proprietary information or government classified information (as having been mutually defined) and provided by the sponsor, or
- Ensure that pre-defined proprietary content will not compromise the sponsor's patent rights.

UCI's Position on Accepting Restricted Funding

- UCI normally conducts fundamental research without publication or citizenship restrictions, but certain exceptions may, upon approval, apply.

What About Research Instruments Necessary to Conduct the Research?

- If the research instrument or operational data being used falls under the EAR dual use regulations, then the FRE allows unrestricted access by foreign nationals to such items for research purposes: no deemed export results, requiring prior license authority.
- However, if the research instrument or operational data falls under ITAR jurisdiction, the FRE or public domain exclusion does not apply to the ITAR research tool or operational data: access remains restricted to foreign nationals until such time as the university obtains license or authorization to allow access or disclose the data
    - Options: use or defense service license
    - Technology Control Plan (TCP) to restrict access
- Key thing to remember: The ITAR access restriction applies, notwithstanding the fact the no publication or citizenship restrictions were accepted as part of the Agreement, i.e. the research results are still eligible for publication.

Educational Information Exclusion - EAR and ITAR

- "Educational information" released by instruction in catalogue courses or professional conferences where all technically qualified members of the public are eligible to attend and attendees are permitted to take notes of proceedings.
- However, same ITAR principle applies to research tools and operational data where incorporated into course of study.

Conference Exclusion

- Research results may be presented at professional conferences abroad, addressing data published or to be published.
    - Does not cover a "defense service" - - disclosure of ITAR data otherwise restricted or knowingly training a foreign military entity or representative on EAR applications for a defense purpose.

Bona Fide Employee Exemption

- Under ITAR: where foreign national is a full time university employee, is not a foreign national of the 126.1 prohibited countries, and resides in the US (for example, an H1 visa holder), the employee may have access to ITAR restricted data (not otherwise restricted by funding Agreement) for background purposes.
    - However, employee is subject to same non-transfer, technology control restrictions that a US person would be.
- Use of this Exemption requires review by University Compliance-Export Control personnel.

4. How Does UCI Remain Compliant and Operate within a "Business as Normal" Context?

Remain Knowledgeable of Export Requirements

- Make sure that all personnel affected by these regulations are sufficiently trained to identify export issues that arise during the course of normal research activities.

Avoid Unintended Restrictive Clauses in Sponsored Agreements (including post Agreement scope modifications)

- These may occur in contracts, grants or cooperative agreements:
  - Federal sponsor (primary or flow through via industry or other research institution);
  - Industrial sponsor (as initiated by industrial sponsor or flow through from federal sponsor);
  - Research institution (flow through from industry or federal agency).

Seek Help in Obtaining Licenses for Outbound Transfers and ITAR Access Prior to Export Activity

- Work with UCI's Export Control function to scope license requirements.
  - Shipment of Equipment Abroad – Since the FRE *only* applies to technology and technical data, a license may be necessary to export equipment depending on ITAR or EAR requirements.
  - *Carrying* or transmitting export controlled technical data or development software - for example, loading cryptography development software or proprietary export controlled information on a laptop or sending it abroad to a destination for which the data is controlled.
    - Distinguishable from exporting FRE data results (must be uncontrolled results only) which does not require a license.
  - See Section 5 about specific OFAC licensing requirements.
  - Access by foreign nationals to ITAR research tools or instruments used in outside of fundamental research scope.
  - Expanding allowable access (beyond US PI) under an NDA which covers export controlled data or instruments.

- **UCI's staff support plays an important role in identifying potentially controlled activities: IT, Environmental Health & Safety, DOR, Office of Technology Transfer, University Counsel, Procurement, Accounts Payable, International Students & Scholars, HR, Facilities Management**

Managing Non-Disclosure Agreements (NDAs):
An NDA containing a confidentiality clause and/or an export control clause (should the data being provided be controlled) does not per se compromise FRE or public domain status, provided that:

- Purpose of the NDA is to safeguard proprietary background information and does not restrict research results.
- Where the purpose of the NDA is to safeguard data that is both proprietary *and* export controlled, PI and sponsor need to discuss amount of information and the extent to which the project can be performed with either no transfer of data to the PI, or transfer to only one or two PI's, but not the balance of the research team — i.e., consistent with the data being used strictly for background purposes.
- Note: As a practical matter it is better not to accept export controlled data where it can be avoided. Accepting ITAR data, even for background purposes, will require the PI or researcher to assume the responsibility of safeguarding the technology from inappropriate IT and physical access.

What Can I Take with Me When I Travel?
Use License Exception TMP (Tools of Trade).

- Applies to usual and reasonable kinds/quantities of tools (commodities/software) for use by exporter.
- Must remain under effective control exporter or exporter's employee (physical possession, locked in safe, guarded).
    - Would generally not apply to laboratory equipment that cannot be protected.
- Must accompany exporter when traveling or be shipped within one month before departure or any time after departure, and be returned no later than one year post export.
- Does not apply to:
    - OFAC terrorist supporting embargoed countries (See OFAC rules below).
    - ITAR instruments.

Fabrication and Service Contracts

- Fabrication and Service activity for an industry partner or federal sponsor outside fundamental research does not qualify for the FRE.
- Hence access to certain laboratory instruments, tech data and results may be restricted from foreign nationals who might otherwise participate in fundamental research activities.
    - Particular attention should be paid to whether laboratory instruments and fabrication results are export controlled under EAR and/or ITAR.

Special Considerations Applicable to Software and Encryption

Make self-created software "publicly available" so as to be excluded from the EAR.

- Must have arisen during or resulted from fundamental research as defined by the EAR.
- Source code and machine readable code must be publicly available.
- Software and related technical data are published when available for general distribution/community subscription either for free or at a registration price that does not exceed the cost of reproduction and distribution.
- Contract terms for release of the developed software.
    - There should be no conditions placed on the research.
    - Should be the intent of the research team to publish its findings in scientific literature or elsewhere.
    - If the contract requires that a private corporation review the findings of the research team with the intent of controlling what results are to be released in open literature, then the research is considered proprietary. The research is not considered fundamental.

Special Encryption Rules

- Encryption software is consistently called out in the EAR to alert that stricter rules apply; government takes a conservative approach to cryptographic controls, including removing some items from the Fundamental Research Exclusion ("FRE").
    - Where the FRE does not apply, a "deemed export" situation arises with regard to T4 foreign nationals.
- Encryption software is controlled for its functional capacity – not for the informational content it supports.
- Category 5, Part 2 captures cryptography and where it has a higher level of control, supersedes other CCL categories that may have otherwise applied to underlying software.
- Items not covered by the FRE/Public Domain exclusions.
    - Software and related technology controlled under ECCN 5D002 for "EI" (Encryption Items) reasons.
    - Mass market encryption software with symmetric key length exceeding 64-bits, controlled under ECCN 5D002.

5. OFAC Regulations: Purpose, Scope, and Enforcement

What Are the OFAC Regulations? What Are They Intended to Accomplish?

- Office of Foreign Assets Control (OFAC) falls under the Department of the Treasury.
- Regulations are found in Title 31 CFR, Parts 500-599.
    - Broadly regulate and restrict transactions with embargoed countries plus certain nongovernmental organizations to implement strategic foreign policy.
    - Restrict transfer and exchange of items and services.
    - Restrict commercial, industrial, and financial relationships benefitting countries
    - Restrict personal travel (Cuba) subject to certain exceptions.
    - Prohibit transactions with certain end users – OFAC's Specially Designated Nationals List (present in the U.S. or abroad).

- Approximately twenty-five embargoed countries plus certain non-governmental organizations: most comprehensive controls apply to the following:
    - Cuba, Iran, Syria, N. Korea and Sudan
    - Regulations are country-specific
    - OFAC regulations operate independently of other export control regulations (dual-use/EAR, military defense/ITAR)
        - An activity that might not be controlled under EAR or ITAR may be controlled under OFAC
    - OFAC Sanctions Programs: Terrorism
        - Regulations include Executive Order and several sanctions (31 CFR 594-597)
        - Sanctions apply to certain listed entities

How Are OFAC Regulations Enforced?

- All regulated activity requires prior authorization in the form of an OFAC license issued by the Department of Treasury.
- While OFAC publishes some country-specific guidance on regulatory interpretation, such guidance is not comprehensive; in general, questions in doubt are handled through requests for Advisory Opinions or License Applications.
    - Data provided in advisory opinions is treated as proprietary and confidential upon request.
- Treasury deploys its own investigative enforcement team, and operates jointly with the FBI and the Commerce Department's Office of Export Enforcement (OEE).
- Sanctions include civil and criminal monetary penalties which can be assessed against the individual violator and/or the institution. Cases can be referred to the Department of Justice for criminal investigation.
    - Monetary penalties can range up to the greater of $250,000 or twice the value of the transaction, per violation.
- The most common violations in the academic and research community involve the following:
    - Cuba-based research and independent travel.
    - Outbound and collaborative Iranian transactions (see below for further detail).
    - Access to restricted research tools in the U.S. by OFAC-restricted foreign nationals.
    - Failure to screen OFAC-restricted end-users.

How Specific Research Activities Trigger OFAC Requirements

- Travel to an OFAC-restricted country.
    - Only Cuba currently requires licenses for personal and certain professional travel; for all other countries, no license is required for personal travel.
    - Note: Recent changes to Cuba regulations will expand opportunities for travel related to and participation in research and educational programs
- Providing a restricted "service." This concept is common to the regulations across the five most heavily sanctioned nations, as excerpted below from the Iran sanctions:
  "§560.204 Except as otherwise authorized pursuant to this part, including §560.511, and notwithstanding any contract entered into or any license or permit granted prior to May 7, 1995, the exportation, re-exportation, sale, or supply, directly or indirectly, from the United States, or by a United States person, wherever located, of any goods, technology, or services to Iran or the Government of Iran is prohibited, including the exportation, re-exportation, sale, or supply of any goods, technology, or services to a person in a third country undertaken with knowledge or reason to know that:
  (a) Such goods, technology, or services are intended specifically for supply, transshipment, or re-exportation, directly or indirectly, to Iran or the Government of Iran; or
  (b) Such goods, technology, or services are intended specifically for use in the production of, for commingling with, or for incorporation into goods, technology, or services to be directly or indirectly supplied, transshipped, or reexported exclusively or predominantly to Iran or the Government of Iran."
- Common scenarios involving restricted services include the following:
    - Exporting research data which is <u>not</u> publicly available.
        - "Export" is defined as a transfer: electronic, conversational or hard copy media
        - "Publicly available" means published on a website or through scholarly publication, etc.
        - Iranian download of a Website publication containing research results is allowable; however, providing technical assistance upon request from an Iranian individual or institution in Iran triggers license requirement.
    - Importing samples or materials for analysis/provision of data results.
        - Even where the samples or materials are strictly for research purposes and results are intended for publication, importation without a license is prohibited.
        - Note: Importing <u>any</u> item from Iran requires license authorization; other countries have item-specific requirements.
    - Data exchange with OFAC foreign national researchers and scholars <u>based in</u> OFAC countries.
        - Note export prohibition above: issuing data or research results that is unrelated to publication may constitute a restricted export.
        - Serving on collaborative research committees or boards: No issue, unless "service" is being provided: common sense standard – discussions should be limited to what has been published or general discussions pertaining to collaboration.
- Be aware of new Ukraine-related Russia sanctions affecting energy sector and expanding SDN List/Sectoral Sanctions

6. Common Export Control Scenarios

Scenario 1
UCI is processing (or has accepted) a sponsored research award. The project sponsor will provide technical data under an NDA. The sponsor alerts UCI that the data is export controlled under the EAR. What are the implications?

- First it is necessary to determine how the data is controlled under the dual use regulations? This will inform the scope of potential foreign national access.
- Second, who will require access to data? Only the lead PI or entire team? If the research team requires the data, this has extra export control implications
- Third how will the PI manage the disposition of data during use and at close of project? Consider Technology Control Plan (TCP)

Scenario 2
UCI is performing fundamental research that requires the acquisition of an ITAR-governed laboratory instrument. What are the implications?

- Given the stringent ITAR access restrictions that could interfere with otherwise "open laboratory" environment, the PI may be able to utilize a dual-use instrument instead: this alternative should be explored.
- If no alternative is available, Export Control must ensure that the PI and laboratory can handle the ITAR instrument from an access control standpoint and TCP implementation
- Establish TCP groundwork and documentation *prior* to accepting instrument into laboratory. Technical operational data/manuals pertaining to instrument must also be IT-safeguarded.

Scenario 3
UCI is signing a software license agreement: The license agreement indicates that the software is "export controlled: diversion contrary to U.S. law prohibited." However, there is no indication under which export control regulation the software is specifically controlled. What are the implications?

- This language may only be intended to signal basic export control prohibitions against export to sanctioned countries or watch-listed entities or individuals; hence, the software may not be actually controlled to a higher level. Alternatively, the software may be dual-use controlled, but the license provision omits ECCN classification.
- Consult licensor to determine actual classification/control level (if any); if controlled, determine whether the planned utilization can be reconciled to export control requirements - - i.e. international transfer and/or foreign national access.

Scenario 4
UCI is hosting a delegation of scientists from a Chinese institute to tour UCI facilities, with the ultimate intention of potentially arranging an exchange program with the Chinese institute: What are the implications?

- While there may be no immediate "deemed export" implications per se (as no controlled technology will be shared with the delegation), UCI should determine through Visual Compliance screening whether the Chinese institute has been identified on any U.S. Government watch-list: if so, then UCI may wish to reconsider the long term viability of such a relationship that would, presumably involve a much greater level of exposure to UCI's facilities and data exchange. This analysis would be required for any foreign institution (not just China).

Scenario 5
Safety & Site Services has been requested to transfer a laser device over which it exercises safety protocols to a foreign institution with which a UCI PI is collaborating: What are the implications?

- As with any commodity transfer, the item must *first* be classified to determine whether it is controlled for the intended destination: if so, a further determination must be made as to whether an export license is required or the transfer meets a license exemption. If a license is required, the PI will need to be alerted that this could take from 30 to 60 days to obtain the proper export authorization.

Scenario 6
A UCI PI has been approached by a large corporation to perform fabrication and testing work for a fee; there is no research component per se, only the service aspect. What are the implications?

- The fabrication/testing contract is likely proprietary work – without a research publication component. Hence, it will not qualify under UCI's fundamental research exemption and all export control access implications relating to the proposed work must be considered, including whether a Technology Control Plan (TCP) is required.
- Note however, that not all publication restrictions signal export control: the restrictions may speak only to IP protection.

Scenario 7
Atypically, UCI (after thorough evaluation) has decided to accept a restricted research award that requires U.S. person participation only. Several years into the project, the sponsor has allowed some scientific publication, but remains firm that all such publication requests must first be reviewed and approved by the sponsor. Also down the road, the lead PI determines that he/she would like to recruit a foreign national staff member under an H1B visa to work in the same laboratory or in close proximity to the restricted program research. What are the implications?

- The PI will have been asked to complete an I-129 Questionnaire pursuant to the visa processing of the H1B: this questionnaire inquires whether the foreign national candidate will be exposed to any export controlled technology. Presumably, there is a TCP on file that governs access restrictions to the restricted work. As some time has passed since the TCP was created, and laboratory conditions may have changed, the Export Control Officer in concert with the PI should determine whether the TCP is still accurate; and even if so, can the H1B candidate fulfil his/her intended role given the proximity of restricted work.
- The TCP may require updating to accommodate the H1B foreign national in proximity.

Scenario 8
A UCI PI seeks to commercialize executable software that will be released only through UCI's license procedures. What are the export implications?

- First, It is necessary to screen through Visual Compliance all potential licensees against government watch-lists or persons/entities from OFAC-sanctioned countries.
- Second, as by definition, the software is not in the public domain, its export control classification must be determined to evaluate whether a license is required to transfer internationally.

What if the PI has created executable software which he/she intends to release along with a manual and subsequent versions to subscribing researchers and institutions for free with editing and distribution conditions/limitations attached. Through the PI's registration site, he/she would know who the subscribing institution/person is, where they are located, etc. What are the export implications?

- Screening is still required, as technically speaking, the software has not been published for download by anyone who wishes to do so.

Scenario 9
A UCI PI has been invited to give a presentation at several international conferences: the first in Paris and then one in Havana. The PI plans to present the results of a fundamental research project that he/she has been working on this year. The data will be on the PI's laptop that he/she will be traveling with. It so happens that several years ago, this same PI had participated in a proprietary service contract with an industry partner pursuant to which he/she received proprietary export controlled data to perform the work at this time. What are the implications?

- First it is necessary to determine whether any of the controlled data from the previous project remains on the laptop? If so, it should be removed, or travel with an alternative "clean" laptop arranged.
- Second, while the presentation in Paris does not trigger any other controls, the presentation in Havana is potentially more complicated depending on the content. Notwithstanding liberalization of Cuba sanctions, certain content restrictions remain, e.g. biotechnology and production processes related thereto. In addition, other Cuba-related sanctions with respect to financial exchanges and services remain in place. Hence, the scope of the trip should be reviewed for export control review.

Scenario 10
A UCI Shipping Department staff member has been asked to ship a prototype/sample to a foreign research institution with whom the PI has a research collaboration. The PI indicates to the Shipping person that the sample has "no value" and "doesn't even work" so "no special paper work is required." What are the implications?

- Even though the item is only a sample with no value per se, it still requires classification review, as there are many commodities (particularly raw materials) which meet control/licensing parameters, even if they are only samples or prototypes from the PIs perspective. Only after this evaluation has been conducted and a determination that no controls are applicable should the item be shipped.

Scenario 11
A PI has been approached by a foreign institution to collaborate in a fundamental research project involving the research of advanced Doppler Radar applications, software models for atmospheric prediction, and interface technology with ground to satellite installations. The award is significant from an opportunity and monetary standpoint. While there are no publication restrictions incorporated into the scope of work, one requirement for UCI is that our lead PI team meet quarterly with research leadership from the foreign institution to report results prior to publication, including certain unspecified government representatives associated with the foreign university. What are the implications?

- The proposed collaboration must be evaluated to determine whether it could constitutes a "defense service" regulated under the ITAR. ITAR regulates the provision of technical assistance or training to foreign military enterprises with respect to both ITAR-governed technology, as well as non-controlled technology which could be used for a defense purpose. In this case, the radar technology being developed is not in itself ITAR; however, it may be dual use controlled or EAR99 uncontrolled.
- Nonetheless, the requirement that pre-publication meetings with foreign officials may signal a potential defense service given the correlation between radar/atmospheric conditions and defense capability. Hence, the proposal should be referred to export control for review prior to acceptance. In some cases, clarification from the U.S, State Department is warranted to determine whether the proposed activity qualifies as a regulated "defense service."

Scenario 12
UCI has determined that it makes sense to lease certain office and laboratory space to external parties; while it is anticipated that these tenants might be entities affiliated with UCI PIs who are engaged in spin-off or consulting enterprises, there may also be non-affiliated parties. What are the implications?

- Unless UCI legally separates itself by the terms of the lease from any export control implications to the work being conducted in the leased laboratory, the lease may provide sufficient nexus for a government enforcement action against the tenant to also hold UCI responsible for a potential violation. This may particularly be the case where UCI is loaning or providing equipment that is export controlled to the tenant enterprise.
- One solution is to include a legal caveat in the lease that holds the tenant strictly liable for their own export control compliance. If the intention is to loan or provide equipment or materials to the tenant, this must be evaluated for export control implications, the same as any other non-FRE proprietary scenario would require.

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