

Export Controls in Academic Research

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Director of Export Controls

Learning Objectives

- What is an export?
- What are export controls?
- How do export controls impact research?
- What are some compliance strategies?

What is an export?

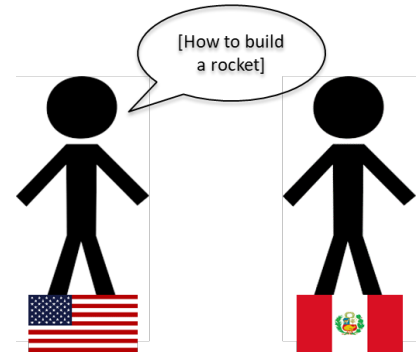
What is an Export?



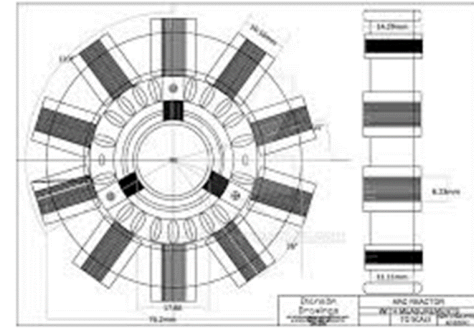
- **Physical Export:**
 - International transfer of commodities, goods, or software regardless of method (i.e. shipments or hand carried goods).
- **Technology Export:**
 - Release of technology, technical data, or know-how to a foreign person or destination – via any method including conversations, email, fax, internet posting, shared servers
- **Deemed Export:**
 - Release of technology to a foreign person *present* in the U.S. The release is “deemed” to be an export to the recipient’s home country. (home country interpreted differently in regulations)

Release?

- Visual or other inspection by a foreign person of items that reveals “technology” or source code to a foreign person; or
- Oral or written exchanges with a foreign person of “technology” or source code in the United States or abroad.
- Any act causing a release.
 - Ex. sharing keys or passwords



Technology?



- Information needed to develop, use*, manufacture, or improve an item.

*Extent of “use” definition depends on item.

US or Foreign Person?

- US Person = U.S. citizens, Permanent Resident Green Card Holders, or recipients of Political Asylum status



- Foreign Person / Foreign National = any non-US person.

What is NOT an Export?

- Sharing information that exists wholly within the public domain (i.e. any interested party may access it, without restriction)
 - “Fundamental Research” where the results are ordinarily published and shared broadly within the research community
- Providing physical goods or services to a foreign person within the US for their domestic use
 - As long as controlled “technology” is not released



Fundamental Research

- Research in science, engineering, or mathematics, the results of which ordinarily are published and shared broadly within the research community, and for which the researchers have not accepted restrictions for proprietary or national security reasons.

What are export controls?

What Are Export Controls?

- Multiple sets of regulations.
- Controls on
 - Specific lists of technology
 - Sanctions and embargoes
 - Financial and trade activities



Why Control Exports?

- Prevent the diversion of potentially sensitive or militarily adaptable items to other countries.
- Restrict the export of goods and technologies that could directly and indirectly contribute to the military potential of other countries [DUAL USE technology].
- Regulate economic activities in accordance with US foreign policy.



Who Controls Exports?



Office of Foreign
Asset Controls
(OFAC)



Bureau of Industry
And Security
(BIS)



Directorate of
Defense Trade
Controls
(DDTC)



National Nuclear Security
Administration
(NNSA)

Nuclear Regulatory
Commission
(NRC)



What is controlled?

- Items and Technology:
 - Each regulating agency maintains a list of controlled technologies.
 - Lists include military, dual-use, and nuclear technology.
 - Lists are updated periodically



What is controlled?

- Activities of “US Persons” outside of the US.
 - Embargoes
 - Sanctions
 - Various Services (defense, nuclear power, finance)



How Are Exports Controlled?

- Controlled Technology lists
- Prohibited end uses & activities
- Sanctions and Embargoes
- Restricted parties

Regulations

ITAR

- International Traffic in Arms Regulations
- Controls items & technology specially designed/developed for military/space

EAR

- Export Administration Regulations
- Controls Commercial/“Dual Use” items & technology

OFAC

- Office of Foreign Asset Controls
- Sanctions & embargos on foreign nations/individuals

DOE

- Department of Energy
- Controls export of nuclear power generating equipment & materials

What is Controlled?

- Controlled Technology lists [what]
- Prohibited end uses & activities [why]
- Sanctions and Embargoes [where]
- Restricted parties [who]

ITAR



- Controls export of US origin “defense articles” listed on the US Munitions List (USML)

- I. Firearms, Close Assault Weapons and Combat Shotguns
- II. Guns and Armament
- III. Ammunition/Ordnance
- IV. Launch Vehicles, Guided Missiles, Ballistic Missiles, Rockets, Torpedoes, Bombs, and Mines
- V. Explosives and Energetic Materials, Propellants, Incendiary Agents, and Their Constituents
- VI. Surface Vessels of War and Special Naval Equipment
- VII. Ground Vehicles
- VIII. Aircraft and Related Articles
- IX. Military Training Equipment and Training
- X. Personal Protective Equipment
- XI. Military Electronics
- XII. Fire Control, Range Finder, Optical and Guidance and Control Equipment
- XIII. Materials and Miscellaneous Articles
- XIV. Toxicological Agents, Including Chemical Agents, Biological Agents, and Associated Equipment
- XV. Spacecraft and Related Articles
- XVI. Nuclear Weapons Related Articles
- XVII. Classified Articles, Technical Data, and Defense Services Not Otherwise Enumerated
- XVIII. Directed Energy Weapons
- XIX. Gas Turbine Engines and Associated Equipment
- XX. Submersible Vessels and Related Articles
- XXI. Articles, Technical Data, and Defense Services Not Otherwise Enumerated

EAR



- Controls US origin commercial and dual-use goods listed on the Commerce Control List (CCL):

- | | | | |
|----|---|----|-------------------------------|
| 0: | Nuclear Materials Facilities & Equipment | 4: | Computers |
| 1: | Materials, Chemicals, Microorganisms and Toxins | 5: | Part 1 - Telecommunications |
| 2: | Materials Processing | 5: | Part 2 - Information Security |
| 3: | Electronics: Systems, Equipment & Components | 6: | Sensors & Lasers |
| | | 7: | Navigation & Avionics |
| | | 8: | Marine |
| | | 9: | Aerospace and Propulsion |

DOE



- Controls exports of nuclear power generating equipment and materials:
 - nuclear reactors
 - uranium enrichment facilities
 - spent fuel reprocessing plants
 - uranium and plutonium conversion plants
 - heavy water or deuterium production plants
 - nuclear fuel fabrication plants
 - lithium isotope separation facilities
 - deuterium (heavy water)
 - equipment, component parts, and assemblies that are especially designed or prepared for exclusive use in any of the aforementioned facilities
 - special nuclear material
 - source material (e.g., natural and depleted uranium, thorium)
 - byproduct material
 - nuclear grade graphite for nuclear end use

OFAC



- Individual sanctions program for each target.

Balkans

Belarus

Burundi

Central African Republic

Cuba*

Iran*

Iraq

Lebanon

Libya

Nicaragua

North Korea*

Somalia

Sudan/Darfur

South Sudan

Syria*

Ukraine/Russia

Venezuela

Yemen

Zimbabwe

Counter Narcotics Trafficking

Counter Terrorism

Cyber-related

Sergei Magnitsky related

Non-Proliferation

Rough Diamond Trade

Transnational Criminal

Organizations

*comprehensive

End-User Controls



- Restricted Parties Lists – includes universities, hospitals, research institutes
- State, Commerce, and Treasury each have their own lists
- Exports to listed entities or individuals are prohibited

Prohibited End Uses and Services

- Rocket Systems
- Military Training
- Chemical/Bio Weapons
- Nuclear Energy or Weapons
- Terrorism
- Trafficking – weapons, drugs, humans, animals



Other export compliance issues

Anti-boycott

- EAR and IRS rules
- Under US law it is illegal to comply with boycotts that are:
 - Unsanctioned by the US, and
 - Fostered by one foreign country against another
 - Primarily applies to national boycotts of Israel

Foreign Corrupt Practices Act

When working
with foreign
government
officials,



“Government officials” may include:

- Foreign government employees and politicians
- Public international organizations (e.g. the World Bank)
- Employees of foreign state owned or affiliated entities, including:
 - Doctors in state owned or operated hospitals
 - Professors in public universities
 - Purchasing agents at state owned manufacturers
 - Family members of the above individuals

it is illegal to
provide “anything
of value”



“Anything of value” may include:

- Cash or services
- Lavish gifts
- Payment of travel expenses
- Loans
- Charitable contributions
- Financial aid or scholarships
- Excessive entertainment expenses
- Title of honor

in order to obtain
an unfair
advantage



“Unfair advantage” may include:

- Influencing an official act or decision
- Obtaining or retaining business or funding
- Portraying “competitors” poorly
- Ensuring the lack of prosecution for illegal activity
- Securing special tax or customs treatment

Why bother?

- Institutional & Individual liability
- Penalties
 - Fines
 - Imprisonment
 - Debarment
 - Loss of export privileges

Export Activities

- Research
- Physical Exports
- Travel
- Hosting Foreign Person Visitors

Export Activities

- Physical exports
- Travel
- Hosting Foreign Person Visitors

What?

Where?

Who?

Why?

Research

- Public Domain information is not subject to export controls.
- Information released in catalogue courses and teaching labs is not subject to export controls. [Education exclusion]
- Information that arises from “fundamental research” is considered to be in the Public Domain.

Fundamental Research Exclusion

- Research in science, engineering, or mathematics, the results of which ordinarily are published and shared broadly within the research community, and for which the researchers have not accepted restrictions for proprietary or national security reasons.

Fundamental Research Exclusion

- FRE applies to information only
- Physical items developed through fundamental research are subject to export controls
- Physical items exported to be used in fundamental research are subject to export controls

Fundamental Research Exclusion

- Research contracts and grants may contain clauses that prevent use of the FRE
 - Publication restrictions
 - Access restrictions
 - Proprietary inputs

Problematic Clauses

Prior approval to use NON-U.S. citizens to perform on this contract, at either the prime or sub-contract level must be obtained from the Contracting Officer and the Director, Intelligence and Security Directorate. However, if approval is granted, such approval does not grant an exception to U.S. export law(s) and the contractor is responsible for obtaining necessary export licenses.

(d) Equipment and technical data generated or delivered under this contract are controlled by the International Traffic in Arms Regulation (ITAR), 22 CFR Sections 121

The contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless the Contracting Officer has given prior written approval.

There shall be no dissemination or publication of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of the Contracting Officer.

DFARS 252.204-7000

Research Projects

Input

Information with no publication or dissemination restrictions:
Published Research
Public Domain Info
Educational Information

Confidential or Proprietary Information
DD2345
Controlled Unclassified Information (CUI)
"US Persons only"

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Output

Freely Publishable Results

Non-publishable results (not allowed by sponsor)
May require review and approval

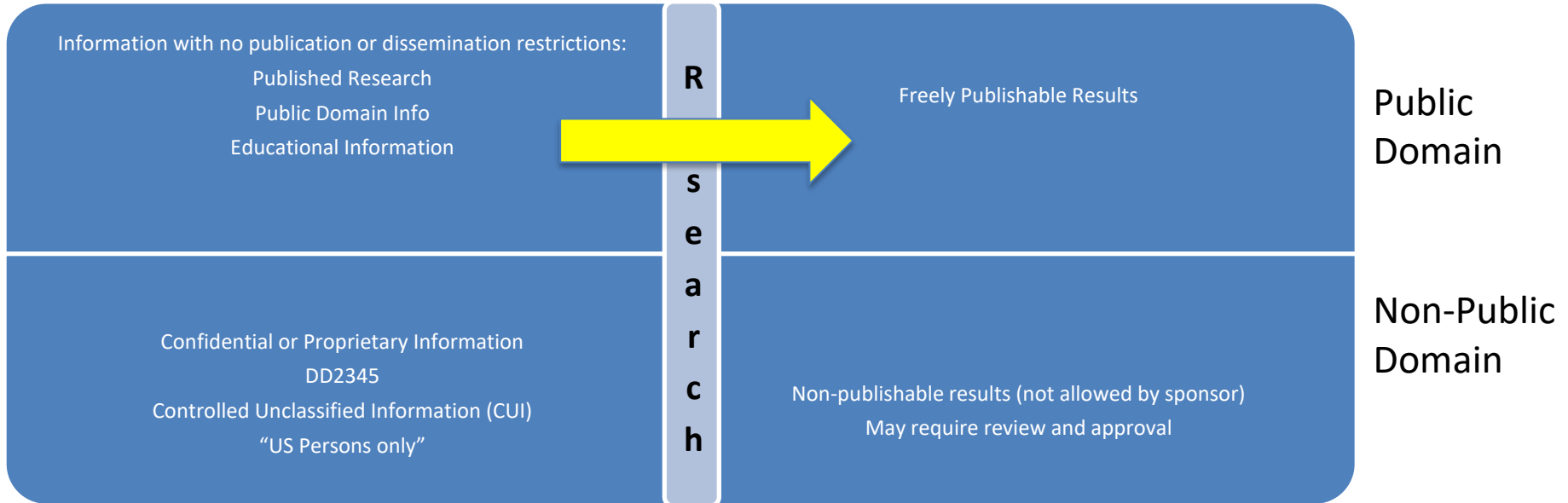
Public
Domain

Non-Public
Domain

Research Projects: Not Controlled

Input

Output



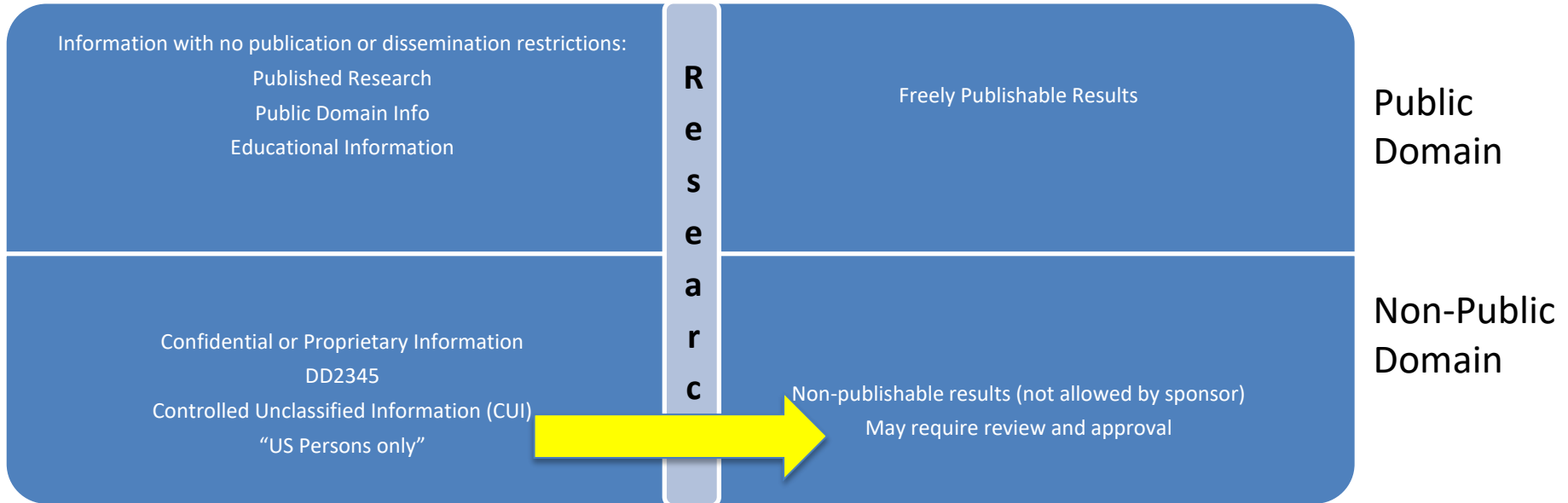
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Research Projects: Controlled

Input

Output



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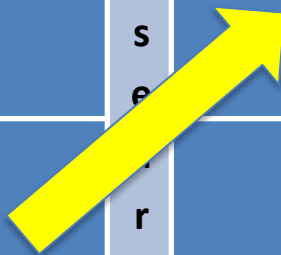
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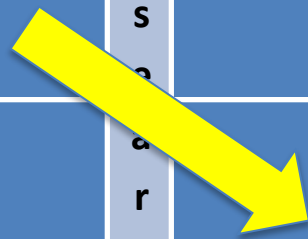
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The Subject Matters

- Export Controls vary by:
 - Item
 - Technology
 - Destination

Compliance Strategies

- In an export controlled situation?
 - Re-design the activity
 - Technology Control Plans
 - Export Licenses

Technology Control Plan

- Transmission / Receipt
- Physical security
- IT security
- Authorized personnel
- Storage
- Closeout and disposal

Export Licenses

- USG written permission to conduct an otherwise prohibited export.
- Submit TCP to USG for approval along with other license requirements.
- Periodic audits and evaluations.



Export Licenses

- Application process can be long
- No guarantee of approval
- Licenses may come with conditions
- Licenses authorize only the specific transaction(s) listed

Regulatory vs. Contractual

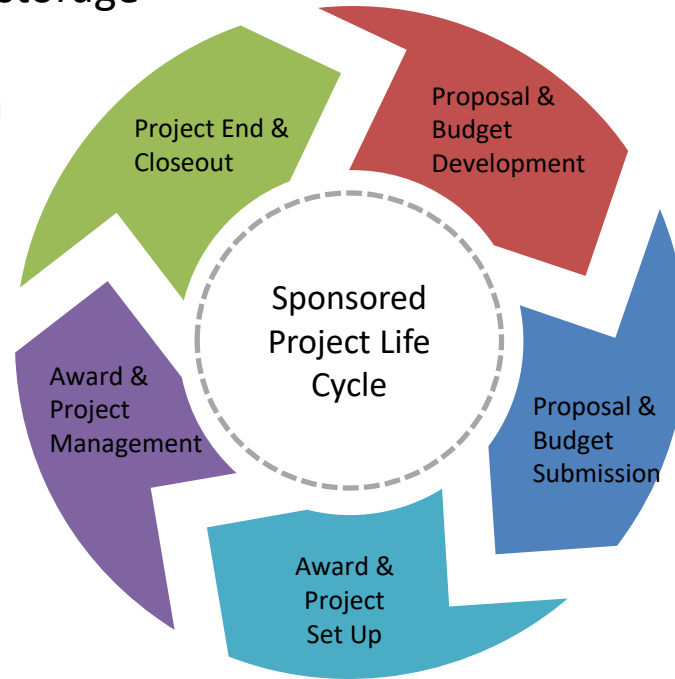
- Sponsored research agreements may carry heavier controls based on contractual clauses.
 - Technology may not be export controlled, but is proprietary to sponsor.

When am I going to have to deal with this?

Long term storage

Disposition

Problematic clauses in RFP/BAA?



Can we claim FRE?

Negotiate out publication or access restrictions

License applications or TCP

License or TCP training

Shipping and Travel

Periodic audits

Questions?

Case Study

What's the worst that could happen?

Research Case Study

- Violation in 2008 / Sentencing in 2012
- Faculty member charged with 14 ITAR violations stemming from a research sub award, flowed down from USAF
- Sentenced to 48 months in prison

Research Case Study



- Plasma actuator developed in University lab by professor and a grad student.
- Grad student licensed this technology and formed a start-up.
- Start-up obtained an R&D contract from USAF to adapt tech for a military drone system.
- Subcontract to University to collaborate on development (< \$10k)

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ITAR



CATEGORY VIII—AIRCRAFT AND RELATED ARTICLES

(a) Aircraft, whether manned, unmanned, remotely piloted, or optionally piloted, as follows (MT if the aircraft, excluding manned aircraft, has a range equal to or greater than 300 km):

* (1) Bombers;

* (2) Fighters, fighter bombers, and fixed-wing attack aircraft;

* (3) Turbofan- or turbojet-powered trainers used to train pilots for fighter, attack, or bomber aircraft;

* (4) Attack helicopters;

* (5) Unmanned aerial vehicles (UAVs) specially designed to incorporate a defense article;

* (6) [Reserved]

* (7) Aircraft specially designed to incorporate a defense article for the purpose of performing an intelligence, surveillance, and reconnaissance function;

* (8) Aircraft specially designed to incorporate a defense article for the purpose of performing an electronic warfare function; airborne warning and control aircraft; or aircraft specially designed to incorporate a defense article for the purpose of performing a command, control, and communications function;

(9) Aircraft specially designed to incorporate a defense article for the purpose of performing an air refueling function;



Research Case Study

- Prime and sub-award contained export control clauses.
- Work required UAV technical data inputs from AF.
- Professor involved 2 foreign national grad students on this project.
- Professor traveled to China with project data on his laptop.
- Students emailed project data to colleagues in China.

What Went Wrong?

- Contract terms were ignored. Why?
 - Plasma actuator technology was widely published and in the public domain

Research Projects: Controlled

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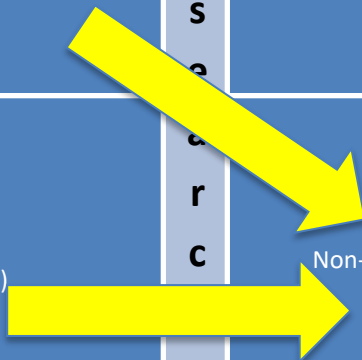
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Domain



What Went Wrong?

- Contract terms were ignored. Why?
 - Plasma actuator technology was widely published and in the public domain
 - Foreign national students were best technical resources in the lab
 - Professor disagreed with export control determination

What Went Wrong?

- USAF contract was part of development of a larger weapons system.
- Contract language did not permit the Fundamental Research Exclusion

Could This Have Been Avoided?

- YES!
- Pre-award review and negotiation
- Scope University work as fundamental research
- If this fails – apply for licenses to include students

Thank You!