Navigating the Regulatory Morass
Spaceflight Overview

- Provides routine low cost access to space by simplifying the launch integration process
  - Standardized interfaces
  - Commercial pricing and services
  - Regular flight opportunities on a range of vehicles
  - Navigating the Regulatory Morass

- Works with Innovative Space Logistics (ISL) to provide global network and access to foreign launch opportunities

- Launched five payloads so far this year, anticipates launching another 35 before year end

- Has an additional 13 payloads under contract, across five different Launch Vehicles
  - Antares
  - Soyuz
  - Dnepr
  - Falcon 9
  - ISS
Spaceflight Service Structure

Our Model
Arrange launch opportunities for secondary payloads by contracting directly with Launch Service Providers and Secondary Payload Providers.

Our Services
- Regulatory Compliance Assistance
- Mission Management
  - Engineering Analysis
  - ITAR and Export/Import Support
  - Launch Vehicle Provider interface
- Secondary Payload Certification
- Secondary Payload Integration with Launch Vehicle
- Launch Vehicle interface
Primary US Regulatory Structure for Payloads

- Communications (FCC in US)
- Imaging (NOAA in US)
- UN Object Registration
- Launch License (FAA in US)
- Export Regulations - Department of State (DDTC) or Department of Commerce
Communications

- FCC License Required to communicate with any US Payload
- FCC Registration
  - FRN (FCC Registration Number) Obtained at the website
- Threshold question; satellite(s) revenue generating?
  - If not, if experimental
    - Special Temporary Authority if less than 6 months of Operation
    - Regular Experimental Authority if greater than 6 months
  - If revenue generating/non-experimental, under a different section of the FCC and much more involved
    - And its not cheap!
- New Rules for commercial licenses proposed Monday – significantly changed and may the streamline the commercial process
  - Need to be aware
Communications

- FCC Required Information for Experimental App
  - General Justification for experimental authorization and Description of Operations
  - Technical Information, including
    - Proposed frequency
    - Power emission
    - Proposed launch information, including Lat and Long of launch site
    - 24 hour contact for interference issues
    - Anticipated Orbital Parameters (altitude and inclination)
    - Overview of proposed testing
    - Earth Stations with which Satellite will communicate
  - Orbital Debris Mitigation Statement
    - Indication satellite lifetime will be limited to 25 years following completion of its mission
      - NASA standards and software generally sufficient
Imaging

• NOAA License for Remote Sensing or Earth Imaging
  – Broad Jurisdiction; Every person subject to the jurisdiction or control of the US may not operate Earth Imaging Satellite without a license
  – NOAA Application
    • Initial Contact Form available at the website
      – Detailed Corporate Structure & Financial Information
      – Launch Plans
      – Satellite Design and Capabilities (resolution, etc)
      – Proposed Ground Operations
      – De-orbit Plan (25 year rule)
• NOAA must approve/deny within 120 days
  – But this really means response, not final approval/rejection
• Start Early!
UN Registry of Space Objects

• Administered by Department of State for the US
  – Space & Advanced Technology
  – CharlesworthA@state.gov

• Information provided:
  – Name of launching State;
  – An appropriate designator of the space object or its registration number;
  – Date and territory or location of launch;
  – Basic orbital parameters, including:
    • Nodal period (the time between two successive northbound crossings of the equator - usually in minutes);
    • Inclination (inclination of the orbit - polar orbit is 90 degrees and equatorial orbit is 0 degrees);
    • Apogee (highest altitude above the Earth's surface - in kilometres);
    • Perigee; (lowest altitude above the Earth's surface - in kilometres);
  – General function of the space object.

• For US Payloads:
  – On US vehicles, automatically provided by the LSP
  – On Foreign vehicles, LSP will request information, usually as a condition to launch 3-6 months prior to launch
Launch License

• In the US, applied for and obtained by the LSP, not the Payload Provider
  – Launch License is granted by the FAA (AST)
    • Part of Risk Sharing Scheme of the Commercial Space Act
      – LSP obtains insurance to level of MPL
      – US gov’t covers liability beyond MPL to $1.5B in 1988 dollars
  – FAA reviews the Payload as part of Launch Licensing Process
    • The Payload Provider will be asked to sign the statutory cross waiver as a condition of launch by the LSP
    • Equivalent language is embedded within the Launch Services Agreement as well
• Outside of the US, liability primarily governed by the Launch Services Agreement
• To date, no Payload Launch License is required (apart from imaging and communications licenses)
Export Licensing Laws

- **Export Administration Regulations (“EAR”)**
  - Governs export of commercial and “dual use” commodities, software, and technology on Commerce Control List (“CCL”)
  - Administered by Bureau of Industry and Security, Dept. of Commerce ("BIS")

- **International Traffic in Arms Regulations (“ITAR”)**
  - Governs export of defense articles, services and technical data on United States Munitions List (“USML”)
  - Administered by Directorate of Defense Trade Controls, Dept. of State ("DDTC")

- **Office of Foreign Assets Control Regulations (“OFAC Regs”)**
  - OFAC Regs bar transactions (incl. exports) involving embargoed or specially restricted countries or designated individuals and entities ("SDN List”)
  - Doesn’t matter whether the EAR or ITAR applies to the transaction
  - Administered by the Treasury Department’s Office of Foreign Assets Control
The Line Between ITAR and EAR

- Initial classification is key
- Only ITAR or EAR will apply to a given transaction / product / tech data transfer
- If subject to ITAR, EAR does not apply
- If not subject to ITAR, EAR automatically applies
U.S. Export Control Overview

U.S. Congress

- Arms Export Control Act (AECA)
- Export Administration Act (EAA)

authorizes...

- Department of State (DoS)
- Department of Commerce (DoC)

to administer...

- International Traffic in Arms Regulations (ITAR)
- Export Administration Regulations (EAR)

which covers items on the...

- United States Munitions List (USML)
- Commerce Control List (CCL)

Missile Technology Control Regime (MTCR) / Missile Technology Export Committee (MTEC)
What does ITAR control?

- **Exports** of hardware, technical data and defense services designated under the USML
  - e.g., Satellites, Deployers, Separation Systems and other specifically designed systems, subsystems and components thereof (i.e., propulsion system and wheels)
  - But note US Export Control Reform effort currently underway, which will finally result in return of commercial satellites to the Commerce Control List (i.e., control under the EAR)
    - Military-related satellites will remain under ITAR / USML (i.e., State Department) control, and monitoring of foreign launch activities involving US origin commercial payloads likely will continue
What is an “Export” under the ITAR?

- Sending or taking a **defense article or technical data** out of the U.S. in any manner
  - Rule of Thumb; “all space stuff” covered by ITAR (but note ECR effort)
- Disclosing (by any means) or transferring in the U.S. any defense article to a foreign person, an agency or subdivision of a foreign government (e.g., a diplomatic mission)
- Disclosing or transferring technical data to a foreign person, whether in the U.S. or abroad
- Performing a **defense service** for a foreign person, whether in the U.S. or abroad
- Delivering a product or technical data domestically with knowledge that it will be exported out of the U.S.
Key Definitions: “Technical Data”

• Any information required for the design, development, production, manufacture, assembly, operation, repair, testing, maintenance or modification of defense articles
  – Ex: Interface Requirement Doc for satellites
  – Ex: Any information about how to make, assemble, or code a spacecraft-related item
  – Ex: Details about launch vehicles

• Classified or unclassified information related to defense articles and services

• Tangible articles (e.g., models, mock-ups) that convey technical data related to listed articles

• Software directly related to defense articles

• Information subject to invention secrecy order

• NOT; general scientific principles commonly taught in colleges/universities, information in public domain, basic marketing information
Key Definitions: “Foreign Person”

- Means any individual that is **not** one of the following:
  - A U.S. citizen
  - Permanent resident (green card holder)
  - Protected individual (asylee or refugee)

- Includes any entity, association or group **not** organized to do business in the U.S.

- Includes any foreign government, agency or subdivision

- Includes U.S. citizens employed by foreign companies, and foreign persons employed by U.S. companies

- Think of the following people ➔ foreign launch service providers, foreign satellite providers, foreign partners
Key Definitions: “Defense Article”

• Any item (or technical data) designated on the USML
  – Includes all specifically designed, developed, configured, adapted or modified systems or subsystems, components, parts, accessories for item in question
  – Ex: launch adapters, satellites, etc.

• Satellites are designated in Category XV

• Certain satellites are designated as Significant Military Equipment (SME) and you will need a DSP-83 signed by the Foreign Party in order to export them
Key Definitions: “Defense Service”

- Providing a “Foreign Person,” whether in the U.S. or abroad, with:
  - Assistance (incl. training) in the design, development, repair, maintenance, modification or use of defense articles
  - Technical data controlled under ITAR (includes software)
  - Military training of foreign units and forces

- ITAR applies even if all technical data used to perform the service is in the public domain or otherwise exempt

- Line can be fuzzy (public domain ≠ best way to do something)

- Ex: Services provided in connection with satellite launch
The export of spacecraft for launch overseas is a heavily regulated endeavor

- TAA is required for all foreign launch campaigns of US payloads and in order to share details about spacecraft for fit check purposes
- A Technology Transfer Control Plan (TTCP) necessitates extensive coordination with the host facility
- An approved hardware license (DSP X) is required to ship spacecraft and GSE overseas
- Foreign launch campaigns of US payloads are subject to mandatory monitoring by DTSA
- Must protect spacecraft operations from foreign interception and/or control
License Classifications

- Form DSP–5: For permanent export of unclassified items
- Form DSP–73: For temporary export of unclassified items (exports of technical data are considered permanent)
- Form DSP–61: For temporary import of unclassified items
- Form DSP–85: For export or temporary import of classified technical data.
International Payload: US LSP

Less Regulated than Foreign Launch, but;

• A TAA is still required for US launch campaigns of a foreign payload because a U.S. Party is providing a defense service to a foreign person.
  – Also, need authorization to transfer LSP or Deployer/Separation System information to foreign payload provider

• An approved hardware license is required to return spacecraft and GSE overseas in the event of launch delays, problems, etc.

• Additionally, US LSPs and Integrators are prohibited from engaging in business with “embargoed” or “denied parties”
  – Best practice is to pre-screen new relationships and periodically re-screen existing relationships against the various restricted parties
Arms Embargoes, etc.

- Embargoed countries: Burma, China, Liberia, Libya and Sudan

- Policy to deny: Belarus, Cuba, Eritrea, Iran, North Korea, Syria and Venezuela

- United Nations Security Council embargoes (above and others, such as Iraq and Somalia)

- Geographic Sale Considerations and Foreign National Employee Consideration

- Mandatory reporting of violations involving these countries
Are you a “Broker”?  

- **Broker** means "any person [U.S. or non U.S.] who acts as an agent for others in negotiating or arranging contracts, purchases, sales or transfers of defense articles or defense services in return for a fee, commission, or other consideration“

- **Brokering activities** can include financing, transporting, freight forwarding, or taking of any other action that facilitates the manufacture, export, or import of a defense article or defense service, irrespective of its origin
  - Does not include activities by U.S. persons that are limited exclusively to U.S. domestic sales/transfers (e.g., not for export or re-transfer in the U.S. or to a foreign person).

- Anyone acting as a broker must register with the DDTC under Section §129.2 – (even if you are already registered as a manufacturer/exporter)

- Brokering activities by unregistered brokers is a violation of the ITAR

- Note that certain brokering activities require prior approval from State Dept (i.e. SME>$1M, nuclear weapons, automatic firearms, etc.)
Consequences of Non-Compliance

- **Individual** criminal and civil liability for unauthorized exports and for misrepresentations
  - Fines up to $500,000 per violation of ITAR (higher in certain circumstances)
  - Fines up to $10,000 per violation of AES rules (Census)
- Seizure and forfeiture of attempted illegal exports
- Corporate death sentences
  - Export license suspension and debarment
  - Federal contract suspension and debarment
- Strict Liability -- violations do not require specific intent
- U.S. businesses, individuals, owners, managers and employees may be penalized for violating laws they did not know they were violating or believed they were complying with fully
Summary

- Access to space for secondary payloads is expanding!
- Spaceflight has Launch Service Agreements with Orbital Sciences, Progress, NanoRacks, Kosmotras and SpaceX
- Part of our value add is assistance in navigating regulatory issues
- Be careful out there!
- This presentation is not legal advice; you need to consult an attorney with regard to your circumstance