GSA Professional Services Schedule Space Launch Integrated Services (SLIS)
Implementation Guide
(As of 3/16/2016)

The purpose of this guide is to define the scope of services that can be provided under the Professional Services Schedule's Engineering Services in support of Space Launch Integrated Services.

Space Launch Integrated Services are a commercial service that a contractor provides for the integration of a payload (satellite) into a space launch vehicle (rocket). Space Launch Integrated Services currently available on the Professional Services Schedule only include engineering related services. Activities associated with the actual launch of the space vehicle ***are not*** included as part of the integration services package. Potential customers of these types of services include, but are not limited to:

- USAF
- NOAA (USDA, ACOE, DOT/FAA, USCG, USAID, DoD, DOI, NASA) environmental satellites
- NASA
- OSD/DoD

Services:

Typically, Space Launch Integration Services are offered as a firmed fixed price package based on the volume/weight and mass of the satellite(s). These packages are offered as a service that includes all labor, materials, equipment and facilities related to the integration of the satellite to the Launch Vehicle. The integration services are normally provided by a contractor other than the Launch Vehicle provider (also known as Launch Services Provider). The satellite integration contractor works with the Launch Vehicle provider and coordinates all aspects, on behalf of the customer, necessary to integrate, launch, and deploy the satellite from the Launch Vehicle.

Services include, but are not limited to, the following:

- Labor including Project Managers, Engineers, Technicians, etc.
    - Schedule Design Reviews and Technical Interchange Meetings (TIMs).
    - Creating Integrated Master Schedules
- Provide necessary launch support equipment, such as, the integration plate and a separation system to attach the spacecraft to the Launch Vehicle.
- Provide support during launch, orbital maneuvering, and separation from the spacecraft once it reaches orbit. Provide secure integration facilities as required.
- Modeling, simulations and analysis of single or multi-space craft missions; collision avoidance analysis; perform plume impingement analysis to ensure deployment sequence and thruster actions are performed in a manner to eliminate interaction of the plumes with the Satellite or Space Vehicle.

- Coupled Load Analysis (CLA) to predict the loads interaction between the spacecraft and Launch Vehicle (LV) to characterize how these structures interact dynamically.
- Mission Design Analysis
- Reception and Inspection of Government Furnished Spacecraft
    - Receive, process, integrate, test and resolve any anomalies associated with integrating and launching
    - Attaching bracketry, installing electrical, electronic and ordnance components, routing and securing electrical cables and ordnance lines, and adding instrumentation and thermal protection systems. Following installation, any added systems are subjected to subsystem and/or system level testing that verifies interfaces and desired performance.
- Conduct spacecraft manifesting – contractor works with the satellite customer and the launch vehicle provider, ensure that the customer's spacecraft is compatible with the Launch Vehicle's mission
- Define interfaces and environments –
    - Mechanical, electrical and all environments the spacecraft/satellite will experience from launch through deployment and ensure they are compatible with the Launch Vehicles mission
- Conduct testing / safety audit. Includes:
    - Verification prior to integration, of customers NASA's General Environmental Verification Specification testing for mechanical, thermal, EMC results
    - Conduct Acceptance Testing, Functional Testing and Post Acceptance Testing
- Integrate the payload for flight Customer Agency –
    - Total mission integration services to provide a complete solution. Activities include but are not limited to: defining and documenting interface requirements, conducting verification and validation tasks for these requirements, and generating statutory documentation and obtaining necessary clearances for range safety and other organizations, like the Federal Communications Commission (FCC) for frequency allocations
    - Includes attaching the spacecraft to the launch support equipment, verify physical and functional interfaces and integrate the payload stack with the LSP's vehicle
    - Creating Interface Control Documents (ICD)
    - Generating statutory certification requests, obtaining models for mass properties analyses, and conducting separation and re-contact assessments
    - Hardware fit checks, as well as actual launch site integration and on-console operations during launch and early on-orbit testing
    - Design and develop interface hardware, such as adapters and dispensers
    - Conduct static and dynamic load modeling, modal frequency response analyses, and detailed mass properties verifications

The only Engineering Services SINs to be used for the above services are:

- 871-2, Concept Development and Requirements Analysis
- 871-3, System Design, Engineering and Integration
- 871-4, Test and Evaluation
- 871-5, Integrated Logistics Support