

## Improving Access to Space through Satellite Standards

For developers of mid-sized satellites, the biggest hurdle is not building the satellite but launching these devices into space. Launch is expensive, so compact satellites often need to hitch a ride on a larger payload sponsored by any combination of government, civil, and commercial entities, requiring an extensive time commitment for placement and integration with a primary payload. Ridesharing on a payload adapter that can accommodate multiple satellites has helped to make better use of cargo space on launch vehicles. However, integration issues remain as each individual small payload has its own size and engineering requirements. Developing a standard Launch Unit, or Launch-U, for mid-sized smallsats—will enable payloads to be configured more quickly and efficiently.

## The CubeSat Precedent

The CubeSat definition standardized the launch interface and is defining intermediate smallsat classes. Launch-U could have a similar revolutionary impact by providing the ability to swap satellites within predefined launch configurations, creating more launch opportunities with shorter integration times. CubeSats are a standard 1U size, which makes launching them rather simple. A launch vehicle can fit a certain number of CubeSats, and one CubeSat can be switched for another if there is a change in plans.

## The Working Group

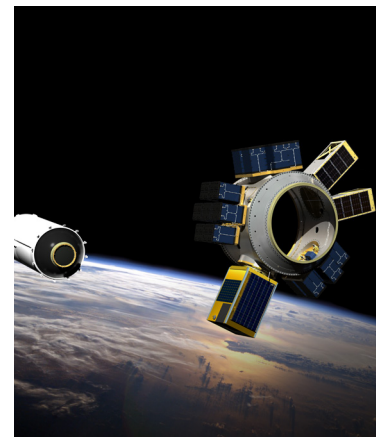
Developing an industry standard is never straightforward, as each stakeholder has needs and preferences based on their own proprietary technology. As the unbiased, federally funded research and development center for national security space, Aerospace has the unique perspective to guide this discussion. The working group includes representatives from leaders in ridesharing technology, payload integration, and commercial space launch including Virgin Orbit, VOX Space, United Launch Alliance, Tyvak, Cal Poly, Moog CSA Engineering, and Spaceflight Industries.

## The Aerospace Corporation

Aerospace is a nonprofit corporation that operates a federally funded research and development center (FFRDC) for the United States Air Force. This FFRDC spans the entire space domain for government as well as civil space and other federal agencies. With a world-class workforce of roughly 3,000 engineers and scientists, Aerospace is able to respond with agility to the unique challenges posed by national security space requirements, delivering well-defined, innovative solutions that assure mission success.

## Advantages of the Launch-U Standard

- › More launch opportunities
- › More efficient use of launch vehicle space
- › Modular flexibility in payloads
- › Shorter integration times
- › Lower costs



An artist's concept of Spaceflight Industries' Sherpa tug EELV Secondary Payload Adapter. Photo courtesy Spaceflight Industries.