



NASA Intentions for the commercial development of LEO

"Buona notte" Kelly at 180 days on board ISS

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Commercial – Definition (Google)

adjective

1. concerned with or engaged in commerce. "a commercial agreement"

synonyms: trade, trading, business, private enterprise, mercantile, merchant, sales, merchandising
"the vessels were originally built for commercial purposes"

2. making or intended to make a profit. "commercial products"

synonyms: profit-oriented, money-oriented, commercialized, materialistic, mercenary
"public opinion was inward-looking and brashly commercial"

noun

1. a television or radio advertisement. *"they looked like a family from a breakfast cereal commercial"*

Synonyms: advertisement, promotion, display

2. a travelling sales representative. *British*



NASA Vision for LEO

Sustained economic activity in LEO

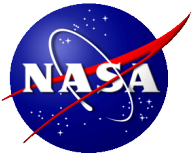
enabled by human spaceflight,

driven by private and public investments

creating value and benefitting Earth

through private industry supply

and private and public demand



In other words...

With the concept of LEO being an economic development zone...

From a NASA or government perspective, the government would purchase services or capabilities to meet its demand for research or other human space flight objectives.

It is expected that the majority of demand will be private sector driven within a policy and regulatory framework that enables this development.

It is NASA's intention that the majority of our focus will be beyond low Earth orbit, even for research.



Goals and Near Term Activities

Vision: Sustained economic activity in LEO enabled by human spaceflight, driven by private and public investments creating value and benefitting Earth through commercial supply and public and private demand

Goals

**LEO commercialization
enabled by leveraging ISS**

SUPPLY/DEMAND

User-friendly ISS
process improvements,
responsive to private
sector needs

Demonstrate &
communicate value of
utilizing LEO for
research

Utilize more commercial
acquisition strategies

**The policy and regulatory
environment promotes
commercialization of LEO**

POLICY/REGULATORY

Establish interagency
working group to
address policy and
regulatory issues

Address barriers such
as IP retention,
liability, regulatory
environment

**A robust, self-sustaining
commercial supply
meeting private and
public demands**

SUPPLY

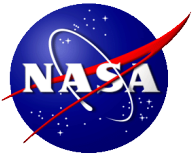
Utilize NextSTEPS BAA
activities for long
duration Deep Space
Habitation capabilities
and follow-on to enable
commercial LEO activities

Transition from NASA-
driven to private-driven
services and capabilities
once available

**Broad sectors of the
economy using LEO for
commercial purposes**

DEMAND

Work with CASIS and
OGA's to expand and
sustain the demand for
LEO research



Post-ISS Models – ends of the spectrum



Government LEO Platform

Government driven capabilities and services

Risk is carried solely by the government

Ability to leverage non-government demand limited to policy

Partnership relationships based on no-exchange of funds governed by policy

Sustainability risk relatively low given government investment and demand



Private LEO Platform

Market driven capabilities and services

Risk is spread across customer demand (government and private) and private supply

Ability to leverage government and private investment, and demand market

Contractual relationships based on negotiated arraignment for exchange of funds or services

Sustainability risk is high without government support



It's not just about the hardware

- **Transition from a government driven enterprise to a private driven enterprise is more than about flight hardware**
- **The entire industry that supports the development, testing and operations also needs to be transitioned from government to private industry**
 - Operations
 - Planning
 - Training
 - Communications
 - Test and operations facilities
 - Etc...

