



arianespace
arianegroup

LAUNCH SERVICES FOR A BETTER WORLD

SPACE FORUM 2018 - Luxembourg

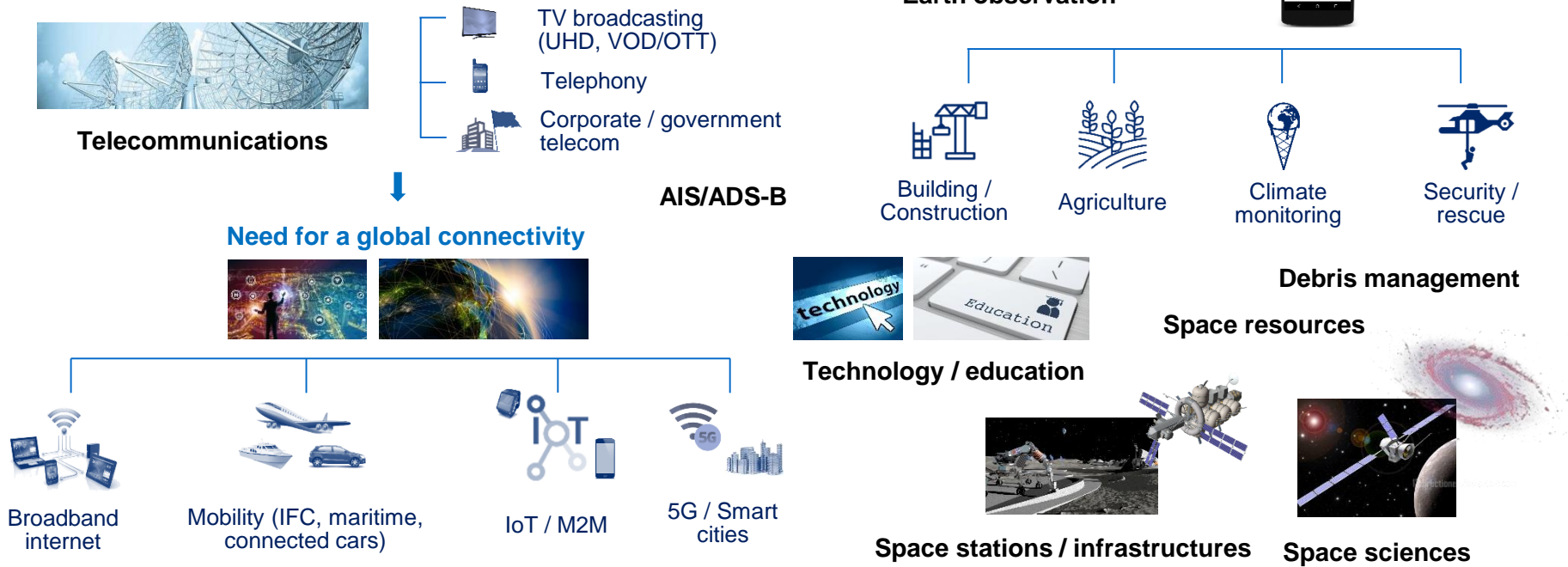
16 May 2018

Jacques BRETON



THE MARKET EVOLUTION (1)

Change in the space applications' landscape



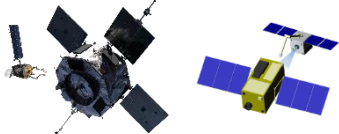
→ Large diversity of **applications** to be addressed from GEO and N GEO

THE MARKET EVOLUTION (2)

Satellite technology breakthroughs to meet market needs

New frequency bands

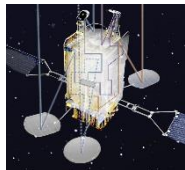
In-orbit servicing
In-orbit manufacturing



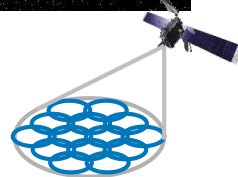
Electric propulsion



Flexible and digital
payloads

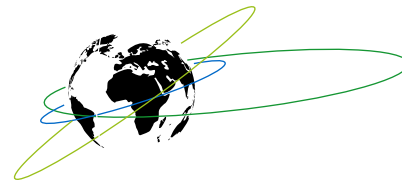


HTS and VHTS



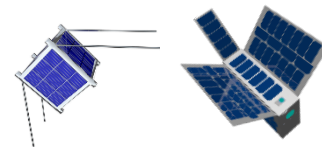
Very-small GEO
platforms

Specific orbits
(LEO, MEO, GTO, SSO, direct-
GEO, HEO...)



A market for smaller payloads has emerged
driven by miniaturization and standardization

CubeSats



→ Large diversity of destinations/orbits, masses, volumes...

OUR CURRENT OFFER

Any mass, any orbit, any time...

VEGA

LIGHT

Main applications:
Earth observation,
scientific missions



LEO **2.5 t**

SSO **1.3 t**

11

successful
missions since
2012

SOYUZ

MEDIUM

Main applications:
navigation, scientific
missions, Earth
observation,
telecommunications



LEO **4.8 t**

MEO **1.6 t**

SSO **4.4 t**

44

successful missions



ARIANE 5

HEAVY

Main applications:
telecommunications,
navigation, scientific
Missions, Earth observation

GTO **>10 t**

LEO **20 t**

SSO **>10 t**

93

Launches
(including a series of 82
successes in a row)

TOMORROW'S LAUNCHERS AND SOLUTIONS

...modular and competitive for any business

VEGA-C MEDIUM/LIGHT

Single or multiple launches for Earth observation, scientific missions, shared flights for small satellites



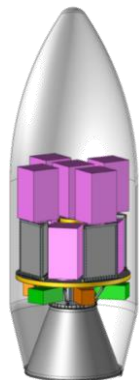
1st launch **2019**

SSO **2.3 t**

Full operational capability **2022**

SSMS

For Vega/Vega-C
Up to 9 small +
72 nano



ARIANE 6 HEAVY/MEDIUM+

Single, double or multiple launch in GTO, constellations to MEO or LEO, shared flights for small satellites

1st launch **2020**

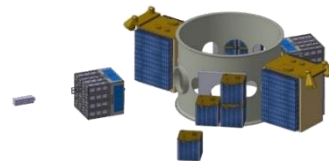
GTO **>5 t** (A62)

GTO **>10.5 t** (A64)

Full operational capability **2023**

MLS

For Ariane 6
Up to 6 small +
container with
nano



LAUNCH SERVICES TO MEET MARKET NEEDS

The whole satellite industry evolving rapidly and drastically

Evolving end-user demand with a strong demand for new satellite-based applications (evolution of consumption habits, need for always-on connectivity for enterprises and consumers, new niche markets and untapped verticals where satellite has an inherent advantage)



Evolving technologies (electric propulsion, HTS/VHTS, digital payloads, In-Orbit Servicing, SmallSats standards...)

A lot of destinations and satellite masses with systems in GEO and N GEO (including large constellations)



Need to have adapted solutions on the launch services' side:

- **Competitive**
- **Available (on time)**
- **Reliable**
- **Versatile/flexible**

