Area di Ricerca del CNR
Istituto Nazionale di Astrofisica
Radio Astronomia

Bologna, 18 e 19 Maggio 2018.

SRITAC 2 - 2018 - Officine orbitali, primo livello di espansione civile nello spazio

Obiettivo primario: inserire il nostro Paese nel Rinascimento Spaziale guidato dall'industria New Space

STEFANO ANTONETTI – D-ORBIT

NewSpace

From Wikipedia, the free encyclopedia

This article is about recent developments of the spaceflight industry. For other uses, see New Space (disambiguation).
"Space 2.0" redirects here. For the 1999 album, see Space Age 2.0.

NewSpace—formerly **alt.space**; also **new space**,[1][2] **entrepreneurial space**,[3] **astropreneurship**,[4][5][6][7] and **commercial space**[8][9][10][11][12]—are umbrella terms for a movement and philosophy[13][14] encompassing a globally emerging, private spaceflight industry.[15] Specifically, the terms are used to refer to a global sector of relatively new, distinctly commercially minded, aerospace companies and ventures working to independently (of governments and their prime or major contractors, i.e., Old Space)[3] develop faster,[16] better, and cheaper access to space, space and spaceflight technologies, and overall space missions—again, all largely driven by commercial, as distinct from political or other, motivations (although many view the commercial aspects of NewSpace as simply the best means to broader, more socioeconomically-oriented, NewSpace ends; notably, the settlement of Mars and space colonization[17][18]). These terms also extend naturally to the worldwide community of designers, refiners, promoters, and advocates of building-block concepts, architectures, systems, technologies, missions, programs, protocols, and policies that enable and support NewSpace activities across all relevant dimensions.[2]

- **Private**
- **Commercial Minded**
- **Independently of Govs**
- **Fast, Better, Cheaper**

Global Space Industry: Refining the Definition of *New Space*

Jason Hay*, Paul Guthrie†, Carie Mullins‡, Elaine Gresham§, and Carissa Christensen**
The Tauri Group, Alexandria, VA, 22310

This paper will discuss and refine the definitional distinctions between the new and traditional space sectors. This paper proposes to define *new space* in terms of the attributes that are common among companies within the sector. A definition of new space based on these attributes focuses discussion of new space markets on activities that currently bring new participants and new sources of revenue into the space economy. An accurate and up-to-date definition will improve decision-making and policy throughout the space industry.

I. Introduction

The term *new space* has been used in the space industry since the 1980s, when Orbital and SpaceHab were considered examples of the concept. Recent variations on the theme occurred just after the dot-com boom, when internet technology entrepreneurs like Elon Musk and Jeff Bezos created companies to compete with aerospace giants, and open new space markets. These companies believed that flat hierarchies, compensation schemes developed to enable bottom-up decision making, and evolutionary technology development models based on experiences in software development would transform space business. (Offered counter arguments are space demands a higher level of quality and performance than consumer technology markets; lives and large investments are at risk in space activities; and the capital intensity and lower profit margins of these enterprises frustrate software business models).

- **Competition**
- **Lean Organization**
- **Evolutionary Technology**
- **Capital Intense and Low Margins**

European Space Agency

WHAT IS SPACE 4.0?

Space 4.0

The first era of space, 'Space 1.0', can be considered to be the early study of astronomy (and even astrology). The next era, 'Space 2.0', came about with spacefaring nations engaging in a space race that led to the Apollo moonlandings. The third era, 'Space 3.0', with the conception of the International Space Station, showed that we understood and valued space as the next frontier for cooperation and exploitation.

This Ministerial meeting takes place in the advent of the Space 4.0 era, a time when space is evolving from being the preserve of the governments of a few spacefaring nations to a situation in which there is the increased number of diverse space actors around the world, including the emergence of private companies, participation with academia, industry and citizens, digitalisation and global interaction.

Space 4.0 represents the evolution of the space sector into a new era, characterised by a new playing field. This era is unfolding through interaction between governments, private sector, society and politics. Space 4.0 is analogous to, and is intertwined with, Industry 4.0, which is considered as the unfolding fourth industrial revolution of manufacturing and services.

- **From gov needs to citizens needs**
- **Revolution of manufacturing and services**

2. GLI OBIETTIVI DEL PIANO STRATEGICO *SPACE ECONOMY*

2.1 *Space Industry & Space Economy*

La *Space Industry* rappresenta un caso esemplare di settore industriale cresciuto sulla base di un modello di sviluppo *capacity driven*, in cui a fronte di requisiti capacitivi, derivati da esigenze istituzionali di ricerca scientifica, di esplorazione spaziale e di difesa nazionale, si sono sviluppate le tecnologie e le soluzioni applicative in grado di soddisfare i requisiti dati.

Le capacità basilari, ovvero i pilastri di questo sistema sono:

- l'accesso allo spazio (lanciatori);
- i satelliti;
- il ground segment.

La *Space Economy* è la catena del valore che, partendo dalla ricerca, sviluppo e realizzazione delle infrastrutture spaziali abilitanti, così detto "*Upstream*", ovvero i pilastri della *Space Industry*, arriva fino allo generazione di prodotti e servizi innovativi "abilitati", così detto "*Downstream*" (servizi di telecomunicazioni, di navigazione e posizionamento, di monitoraggio ambientale previsione meteo, etc.).

In termini schematici, il passaggio dalla *Space Industry alla Space Economy*, comporta l'allargamento della base del sistema precedente, con l'aggiunta di due nuovi pilastri ovvero:

- i servizi spaziali;
- le infrastrutture e le tecnologie di supporto non spaziali necessarie alla realizzazione dei servizi.

La costruzione di quest'ultimo pilastro rappresenta un elemento critico per l'effettivo sviluppo della SE, perché l'esperienza tratta dai mercati più maturi, ad esempio quello della navigazione satellitare, insegna che la componente spaziale ha sempre bisogno di integrarsi con altri elementi e componenti tecnologici per garantire al servizio il carattere di "universalità", continuità ed efficacia che lo rendono veramente fruibile

- **Space Industry: esigenze istituzionali**
- **Space Economy: prodotti e servizi innovativi**

MINIATURIZATION

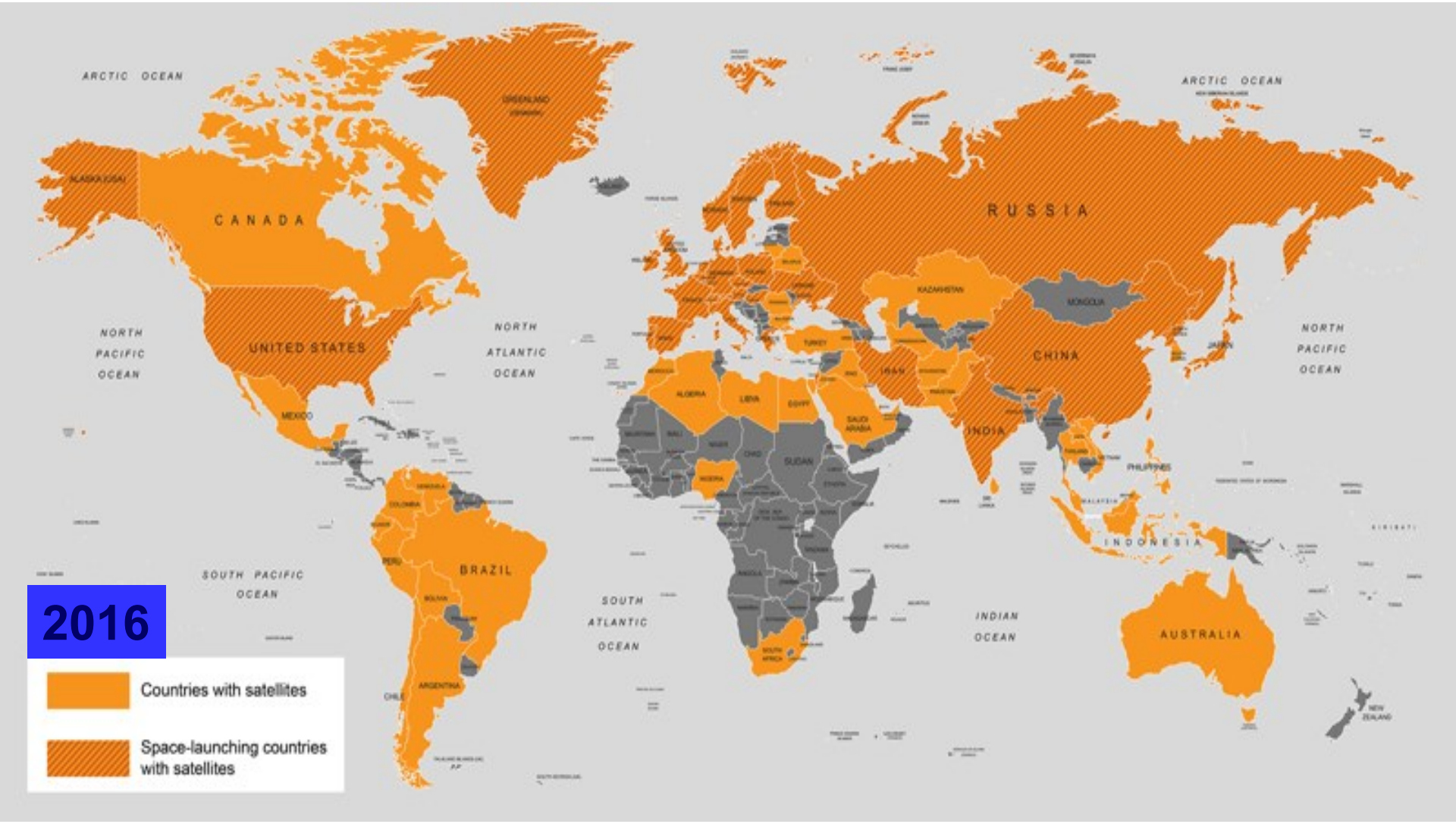
1999: LANDSAT 7
2200 KG

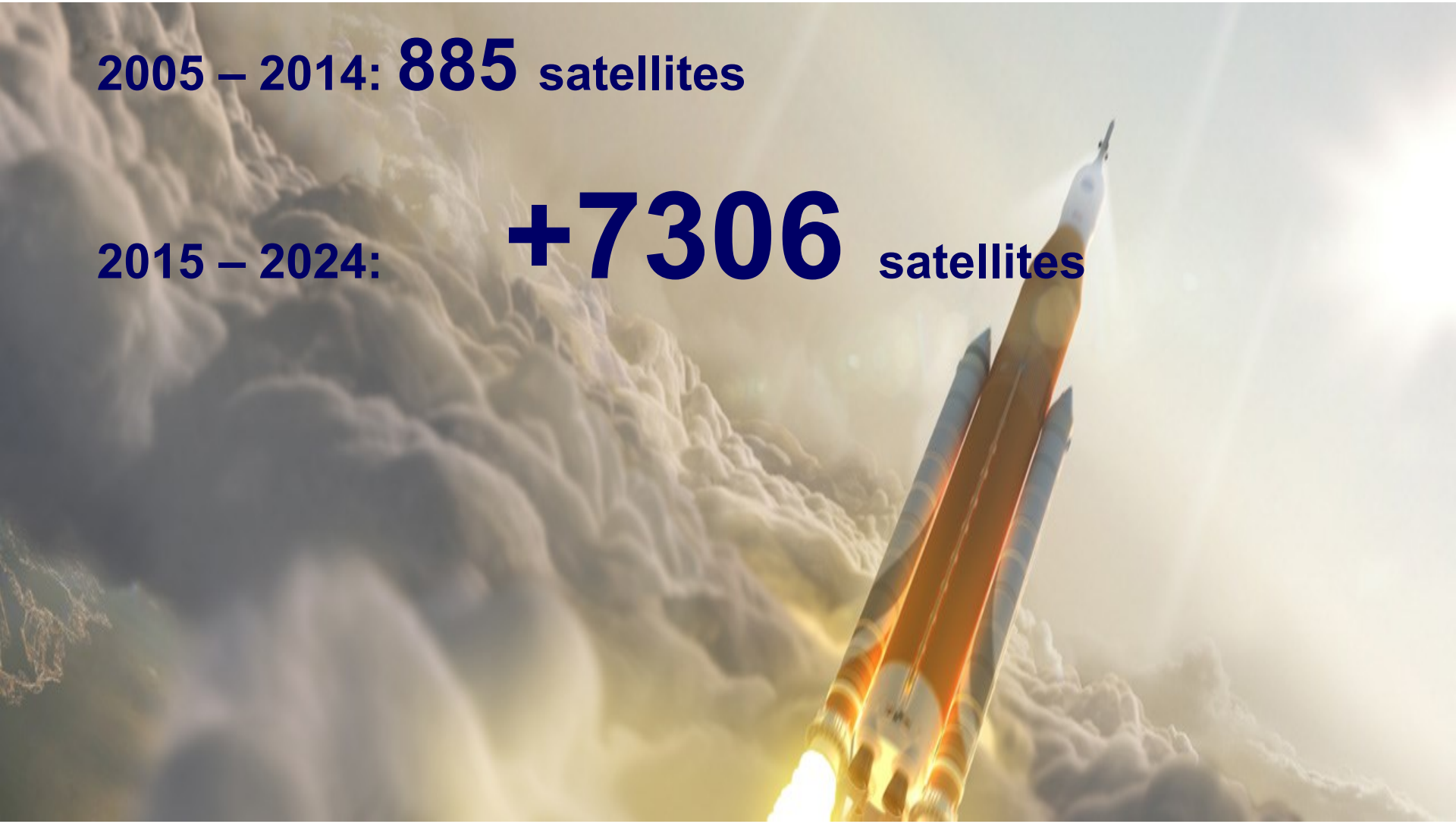
2013: SKYSAT-1 83 KG

2016: DOVE-2
4 KG

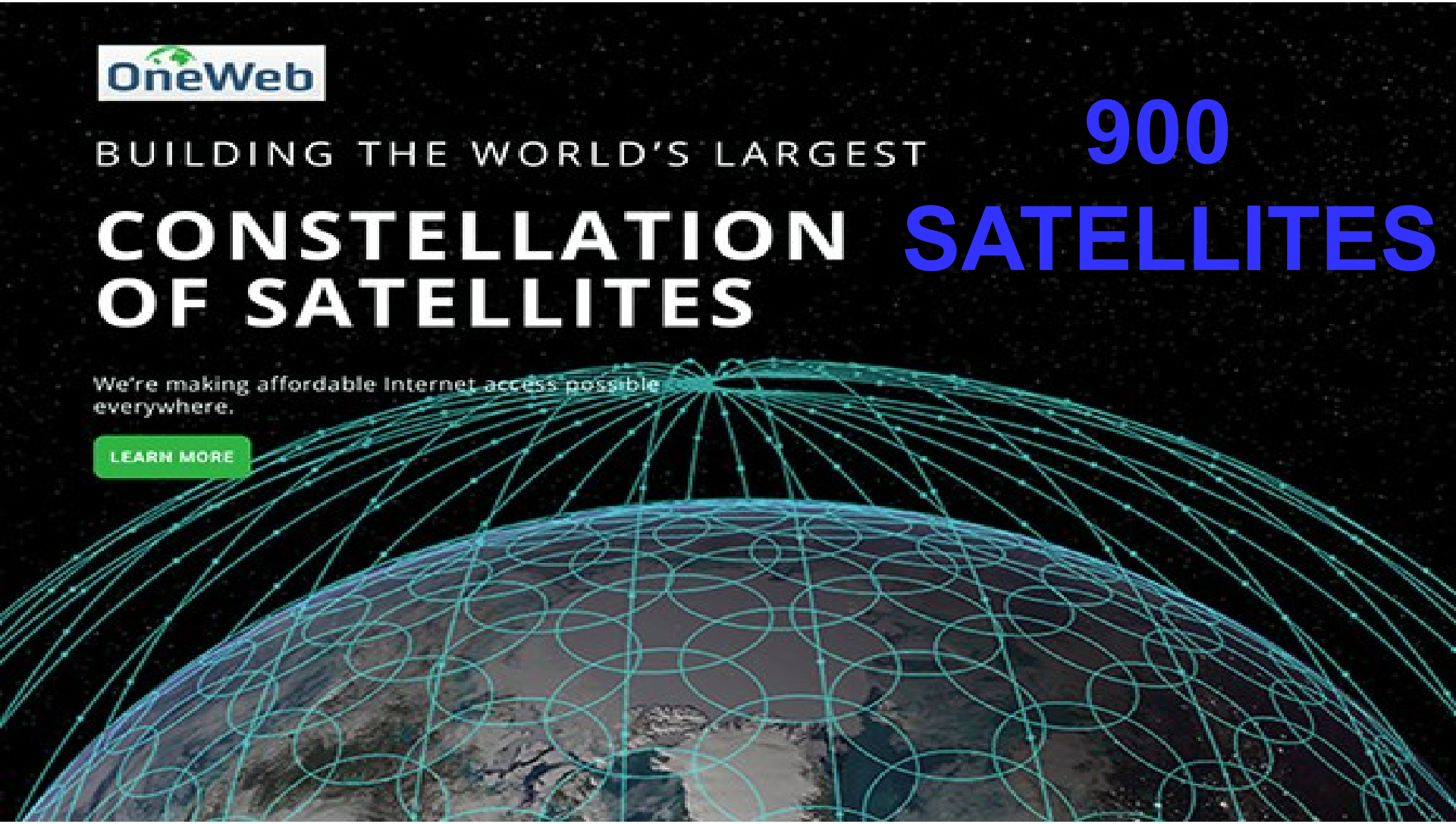
GROWTH OF COMMERCIAL SPACE


ARCTIC OCEAN
GREENLAND
CANADA
FORMER USSR
ARCTIC OCEAN
NORTH PACIFIC OCEAN
UNITED STATES
NORTH ATLANTIC OCEAN
MONGOLIA
CHINA
NORTH PACIFIC OCEAN
IRAN
INDIA
SUDAN
INDONESIA
BRAZIL
SOUTH PACIFIC OCEAN
SOUTH ATLANTIC OCEAN
INDIAN OCEAN
AUSTRALIA
1966
Countries with satellites
Space-launching countries with satellites

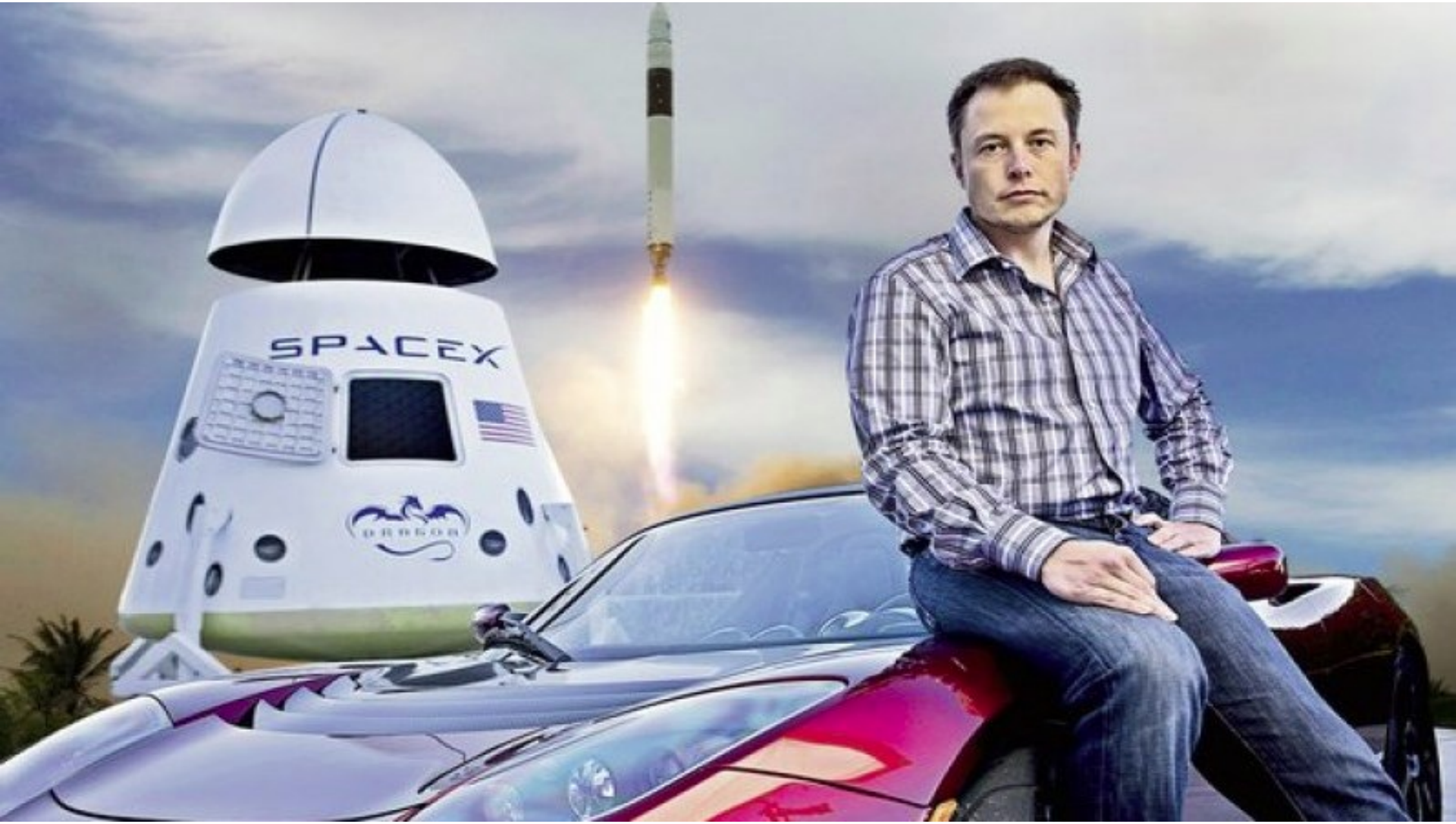

ARCTIC OCEAN
CANADA
UNITED STATES
MEXICO
RUSSIA
KAZAKHSTAN
MONGOLIA
CHINA
INDIA
IRAN
SAUDI ARABIA
ALGERIA
LIBYA
EGYPT
SUDAN
BRAZIL
ARGENTINA
AUSTRALIA
INDONESIA
PHILIPPINES
NORTH PACIFIC OCEAN
NORTH ATLANTIC OCEAN
SOUTH PACIFIC OCEAN
SOUTH ATLANTIC OCEAN
INDIAN OCEAN
2016
Countries with satellites
Space-launching countries with satellites

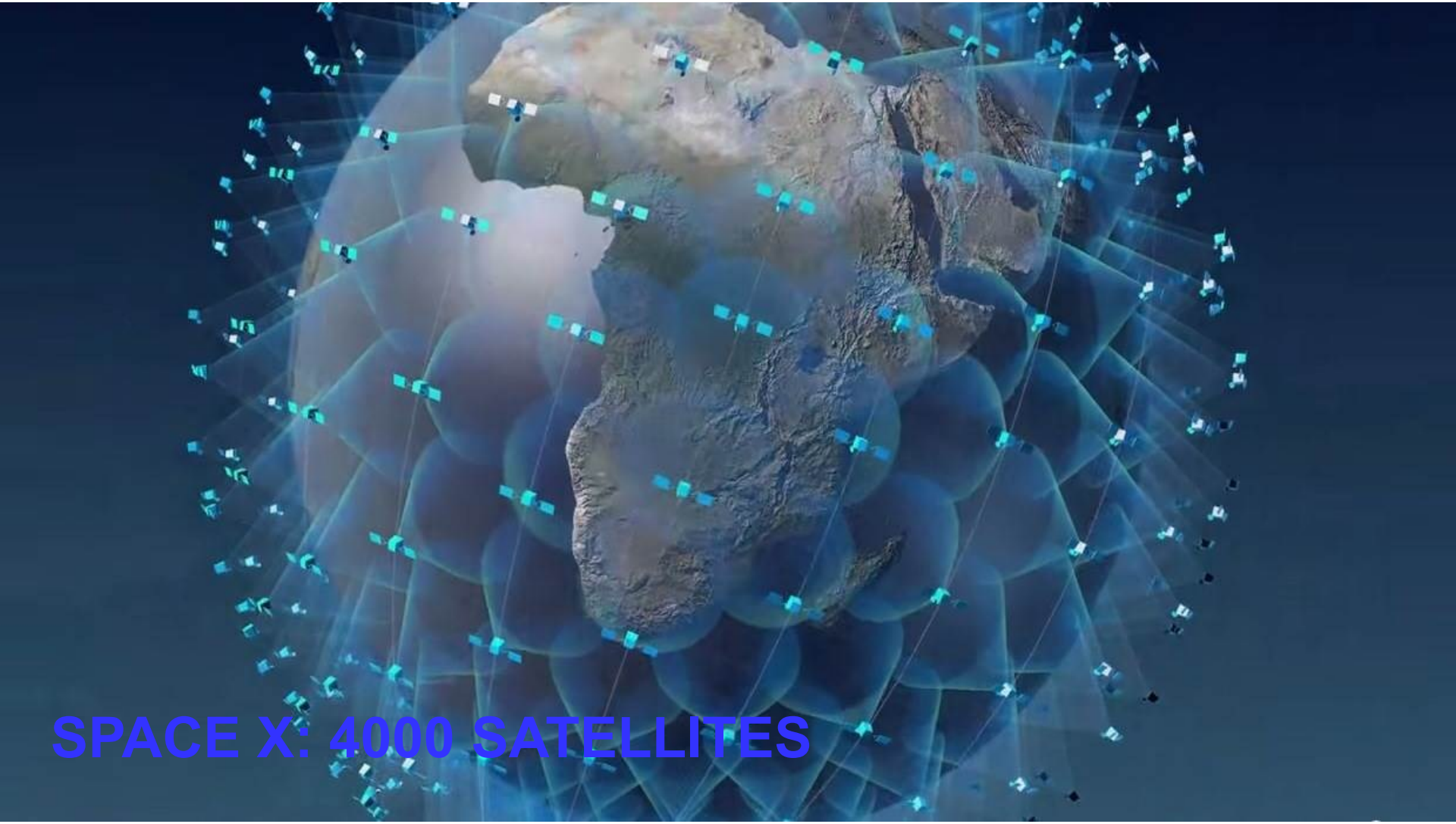

2005 – 2014: 885 satellites
2015 – 2024: +7306 satellites


Virgin
RICHARD
Creating the world's largest ever satellite constellation



900 SATELLITES


SPACEX
DRAGON

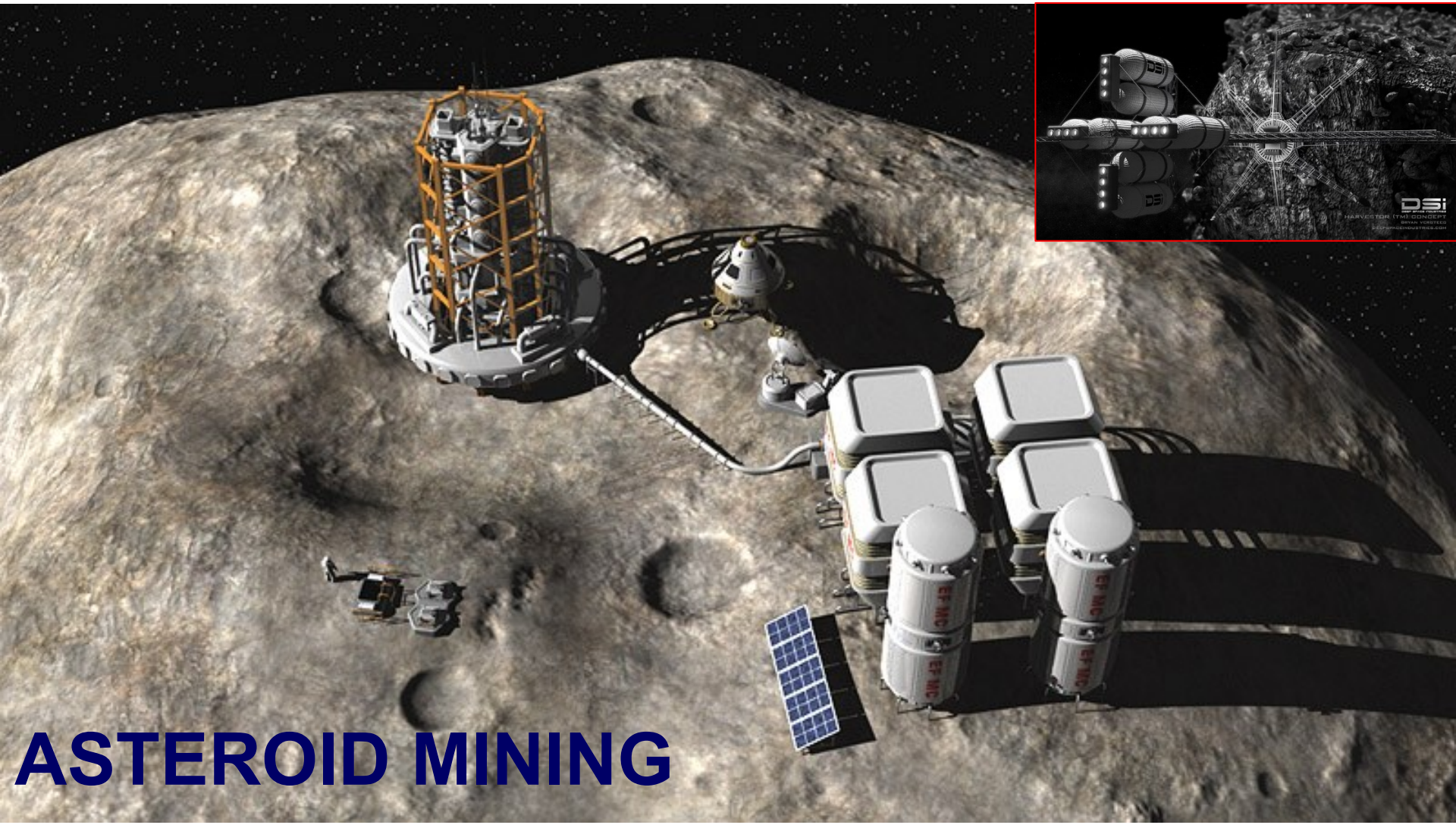

SPACE X: 4000 SATELLITES

ACCESS TO CAPITAL

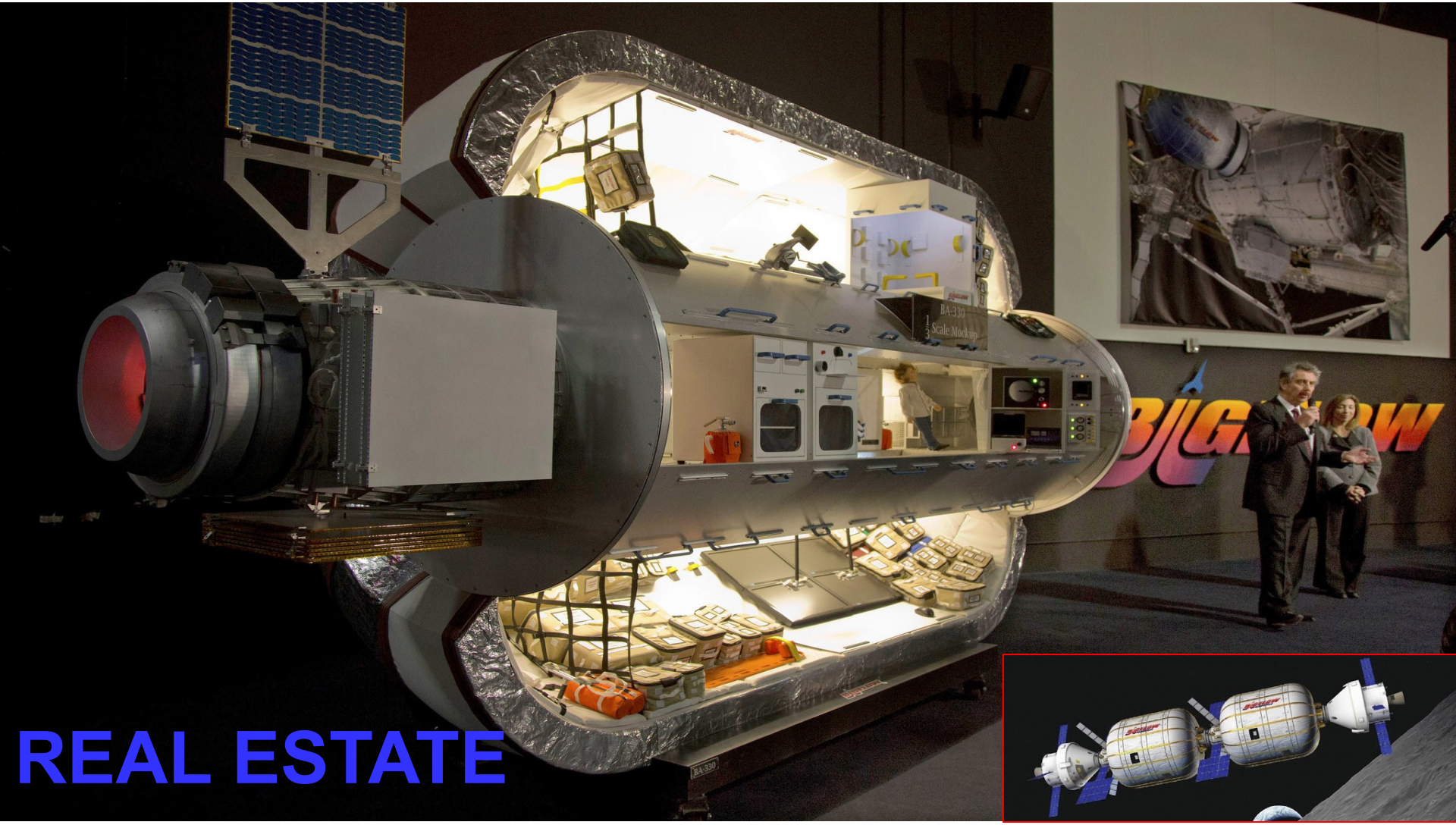

ENTERING
Startup


HawkEye 360
Open Cosmos
BlackSkyGlobal
NSLComm
DigitalGlobe
BRIDGE SAT, INC.
HERA SYSTEMS
Globalstar
HeliosWire
Reaktor Space Lab
XpressSAR
ORBCOMM
OneWeb
ACCESS FOR EVERYONE
PLANETARY RESOURCES
Ursa
Capella Space
exactEarth
PLANETiQ
CRITICAL DATA FOR A SMARTER PLANET
altsen
SATREVOLUTION
TEST IN SPACE
SPIRE GLOBAL
D-ORBIT
PROMETHEAN LABS
SPACEBELT
GERMAN ORBITAL SYSTEMS
Blink Astro
ICEYE
iridium
LEOSAT
DAURIA AEROSPACE
GeoOptics
AERIAL MARITIME
SSG
SKY AND SPACE GLOBAL
ids
AUDACY SpaceConnected
HARRIS
SATELLOGIC
KLEOS
DSS
Skybox Imaging
PICOSATS
OmniEarth
Aireon
ASTROCAST
ODYSSEUS
SPACEX
analytical space
KEPLER
albaorbital
SPACE MIND
magnitude space
Insights of Things
SpaceQuest
GHGSat
ASTRANIS
spire
eightyLEO
planet.
TERRAN ORBITAL
BOEING
AXELSPACE
ASTRO DIGITAL
ImageSat International
nano avionics
KARTEN
skylabs
AISTECH
VEOWARE
COSMIC
GUMUSH
TRIDENT SPACE
DSI
DEEP SPACE INDUSTRIES
FLEET
SPACEPHARMA
4skies
MILLENNIUM SPACE SYSTEMS
SAMSUNG

CREATION OF NEW OPPORTUNITIES



ASTEROID MINING



REAL ESTATE

SPACE TOURISM

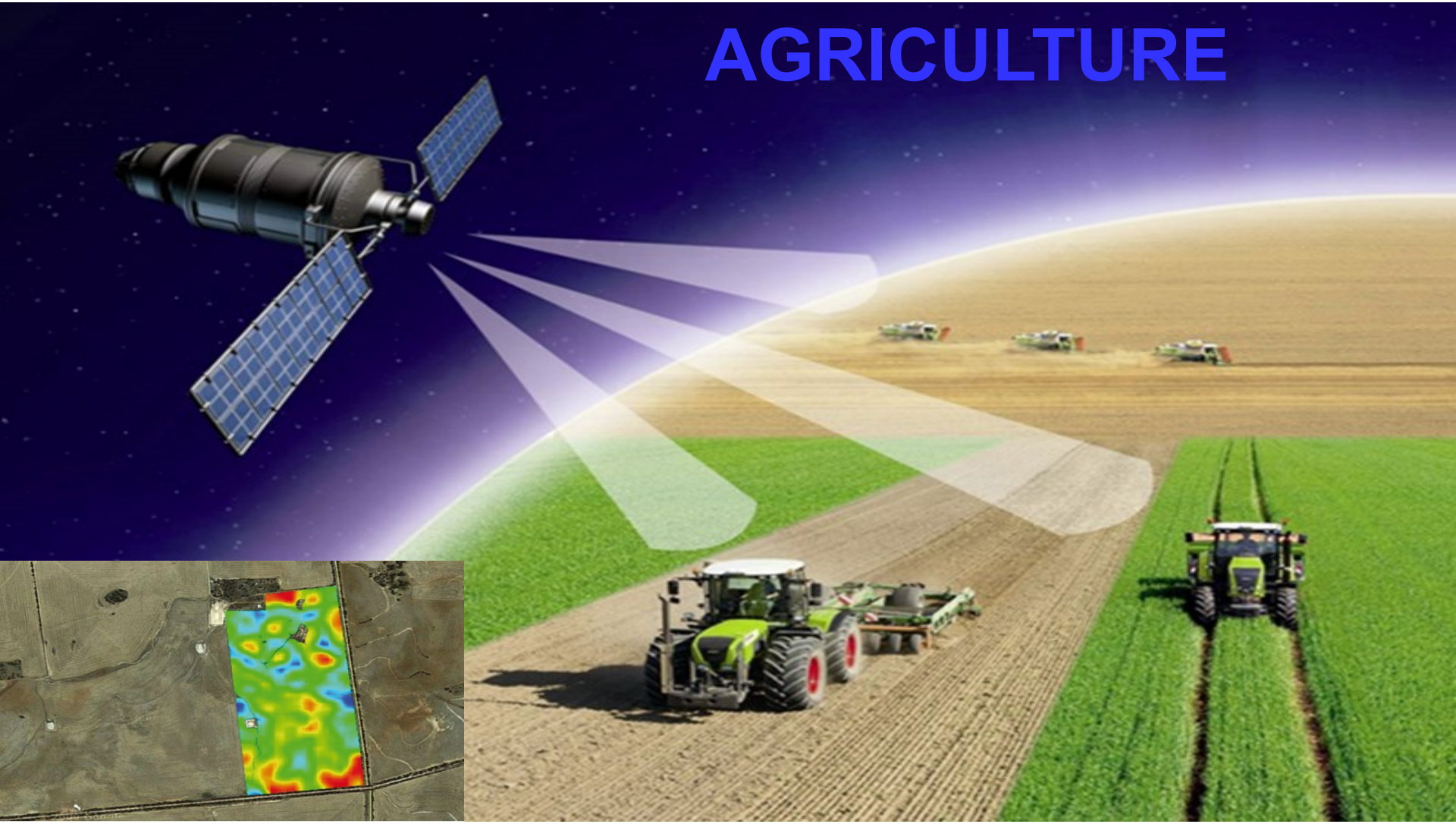
SPACE FUNERAL


WOULD YOU TAKE A
ONE-WAY TRIP TO MARS?
MARS ONE

WHAT ELSE «NEW SPACE» CAN DO FOR US?

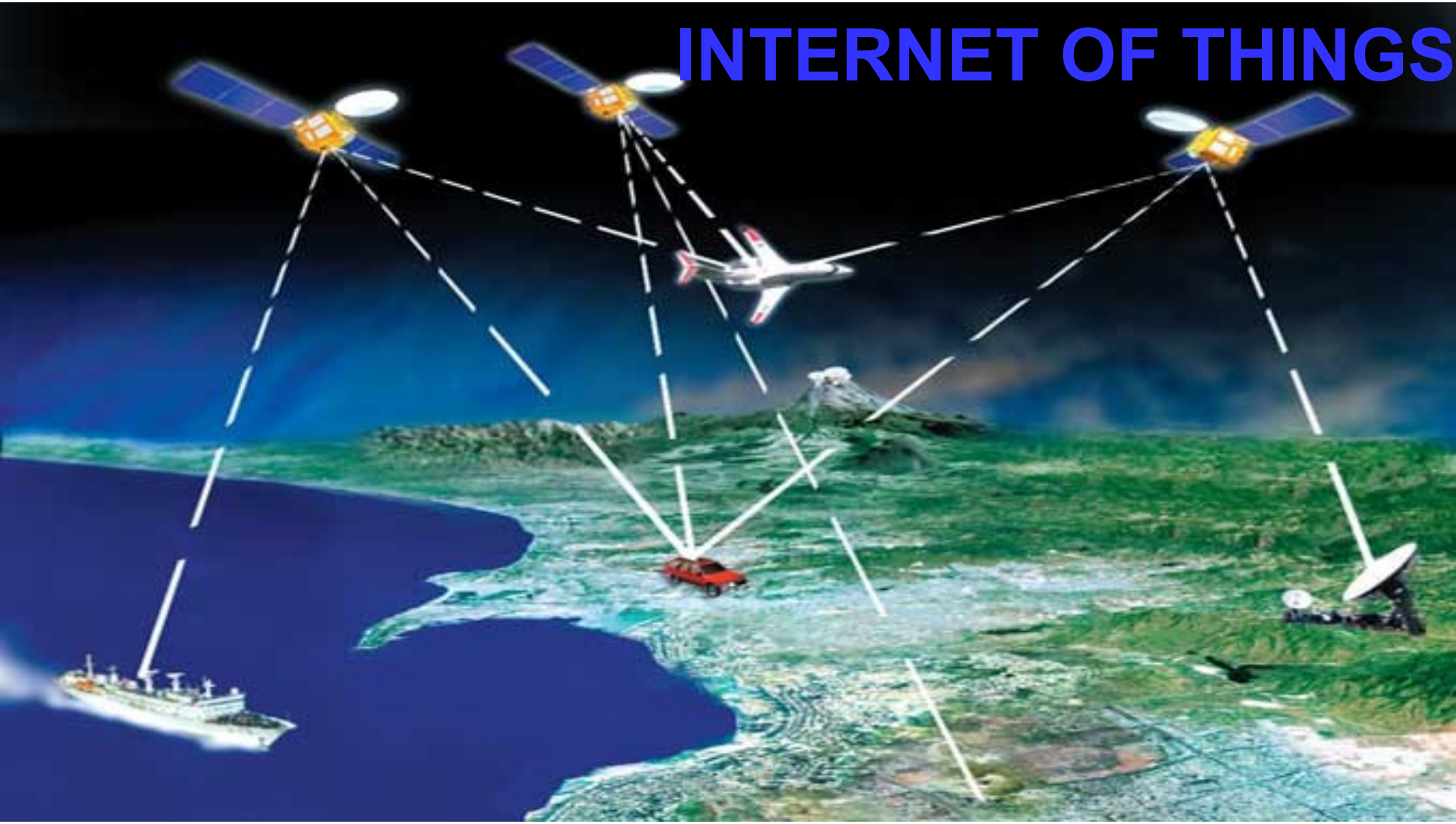
INTERNET EVERYWHERE

AGRICULTURE



COMMUNICATIONS

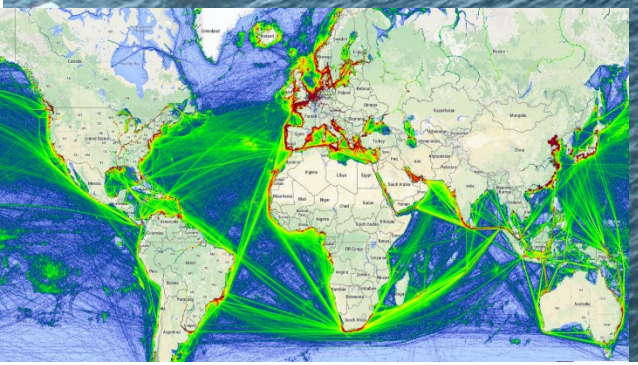
COMMUNICATIONS


INTERNET OF THINGS

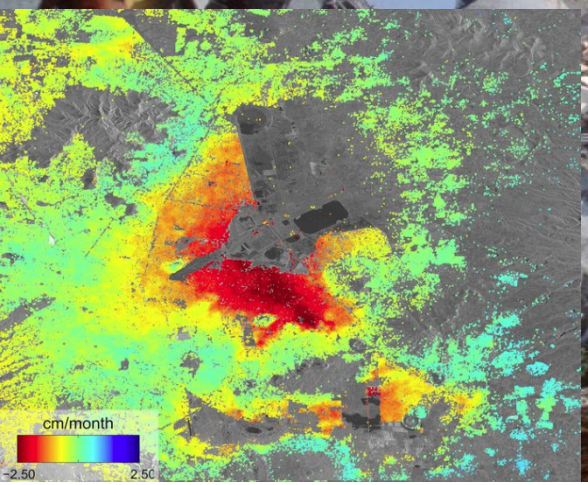

SAFER FLIGHTS

TRAFFIC MANAGEMENT

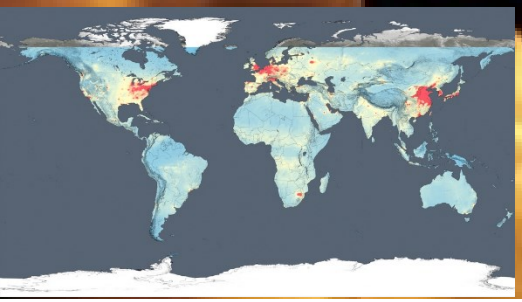
FLEETS MANAGEMENT



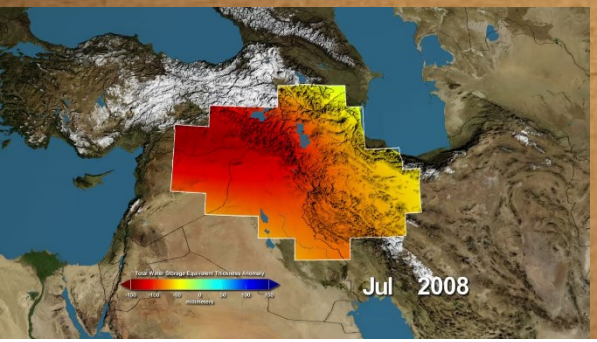
EARTHQUAKE MONITORING AND PREVENTION



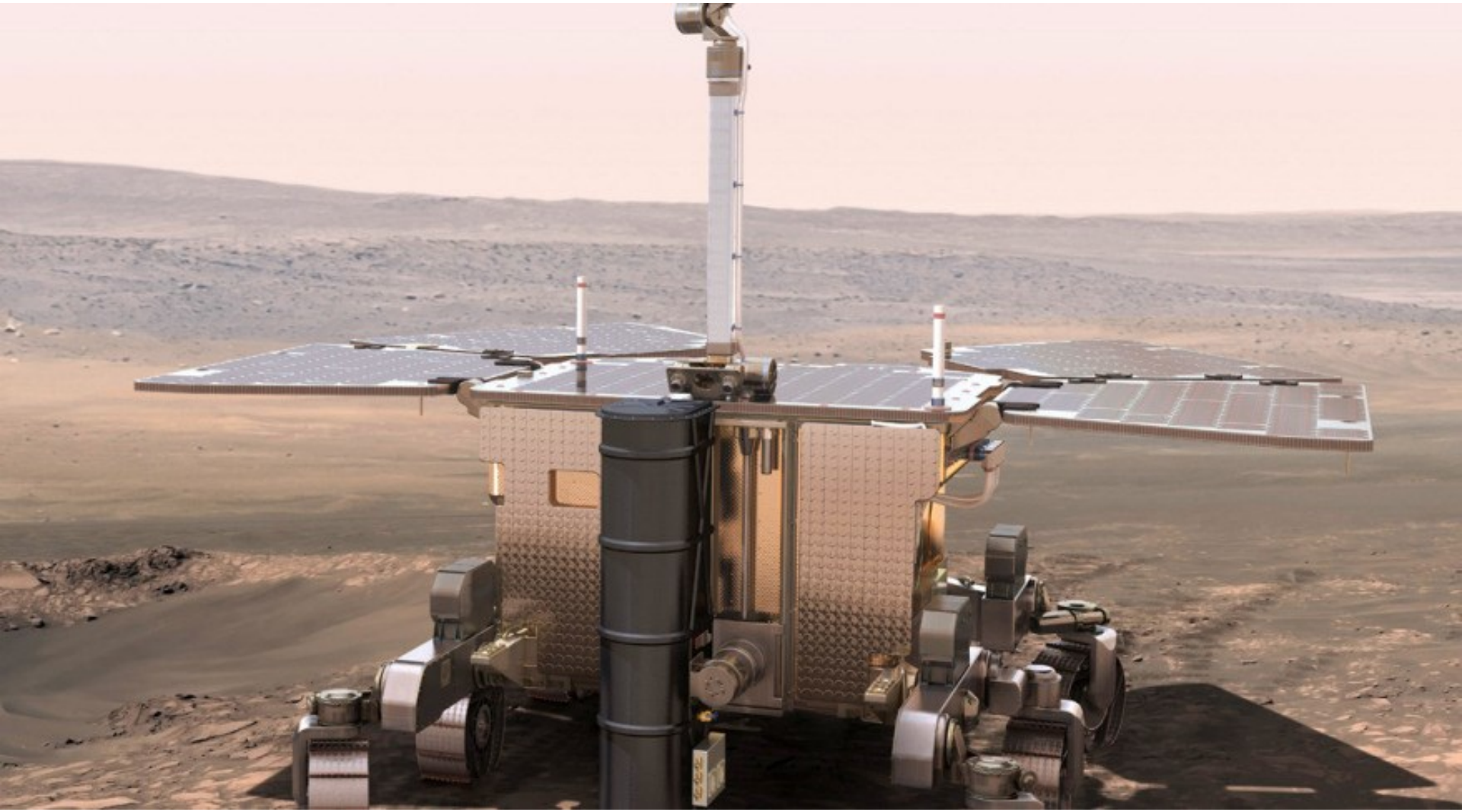
FIGHT POLLUTION



FIND WATER




esa




ThalesAlenia Space
a Thales / Leonardo company
AGT ENGINEERING
AIRBUS DEFENCE & SPACE
Alma Sistemi sas
Consulting for Space
Alpha consult
ANTARES
ARCA DYNAMICS
aresys
aviospace
CGI
D-ORBIT
EIE SPACE TECHNOLOGIES
ETS
SPACE ENGINEERING
GP ADVANCED PROJECTS
IMT
Ingegneria Marketing Tecnologia
INNOVA
intecs
the Brainware company
INTELLIDENTIA
ItalConsul
LEAFSPACE
CIRA
OHB ITALIA
Centro Italiano Ricerche Aerospaziali
LEONI CORPORATE ADVISORS
MaBa consulting
mapSAT
MEC srl
Media Lario
µtec MITEC
OHB ITALIA
PICOSATS
planetek italia
RedCat Devices
SAB Aerospace
SATE
TELESPAZIO
a LEONARDO and THALES company
SATOR Astronomia
SITAEL
SpaceDyS
SPACE ENGINEERING
spaceexe
STELLAR PROJECT
Survey Lab
TSD Space
LEONARDO
TECHNOLOGY FOR PROPULSION AND INNOVATION
A University of Padova SPIN-OFF
TEMIS
AEROSPACE TECHNOLOGIES
Tyvak International

GAZZETTA UFFICIALE

LEGGE 11 gennaio 2018, n. 7

Misure per il coordinamento della politica spaziale e aerospaziale e disposizioni concernenti l'organizzazione e il funzionamento dell'Agenzia spaziale italiana. (18G00025)

(GU n.34 del 10-2-2018)

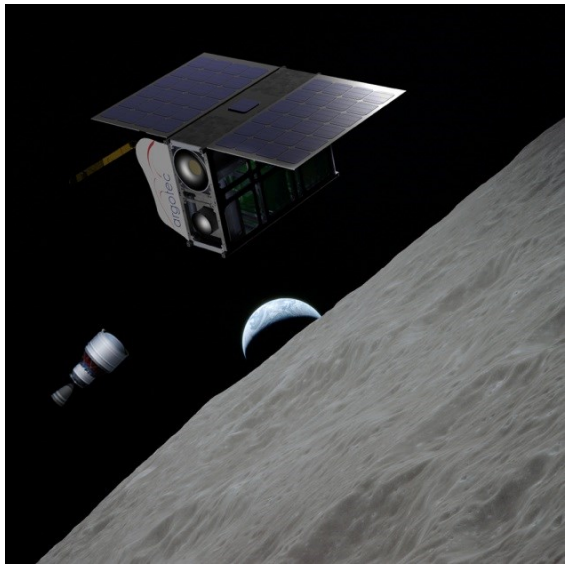
Vigente al: 25-2-2018

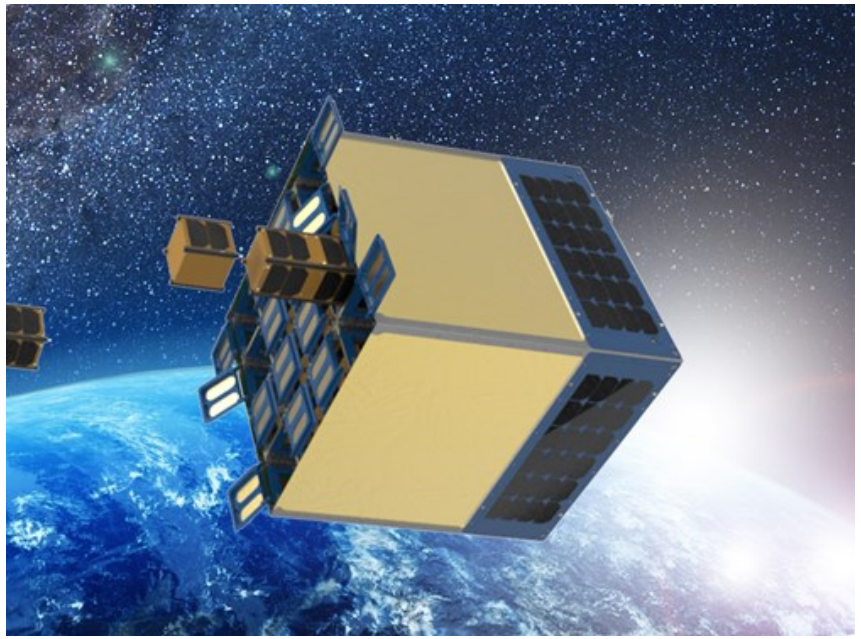
La Camera dei deputati ed il Senato della Repubblica hanno approvato;

IL PRESIDENTE DELLA REPUBBLICA

Promulga


vega
vega-c
vega-e
esa
esa
esa
Vega
Vega C
Vega E





IL RINASCIMENTO SPAZIALE STA PASSANDO PER L'ITALIA

…e per l'Europa

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