The new space economy

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Amazon Web Services
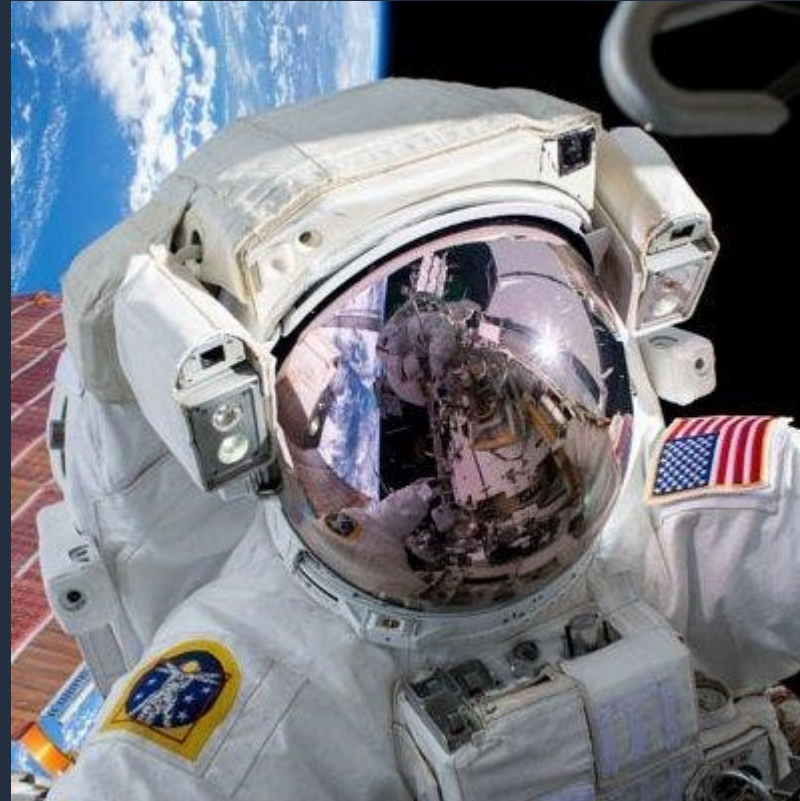
The world is entering an exciting and daring new space age

The space industry is rapidly growing and transforming

A new era of human spaceflight is dawning

Satellites launched into orbit will triple over the next decade

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Commercial Space - smaller, cheaper, faster

- 1/15th launch carry cost (~$2,270/kg)[1]
  - Falcon-9
- 7,688 satellites are now in orbit[2]
- 4,472 **active** satellites are now in orbit[3]
- 20,000+ smallsats will launch in next decade (2x the total of past 60 years)[2]
- VC investment in Q121 was 95% greater than 12 months prior to COVID-19[4]
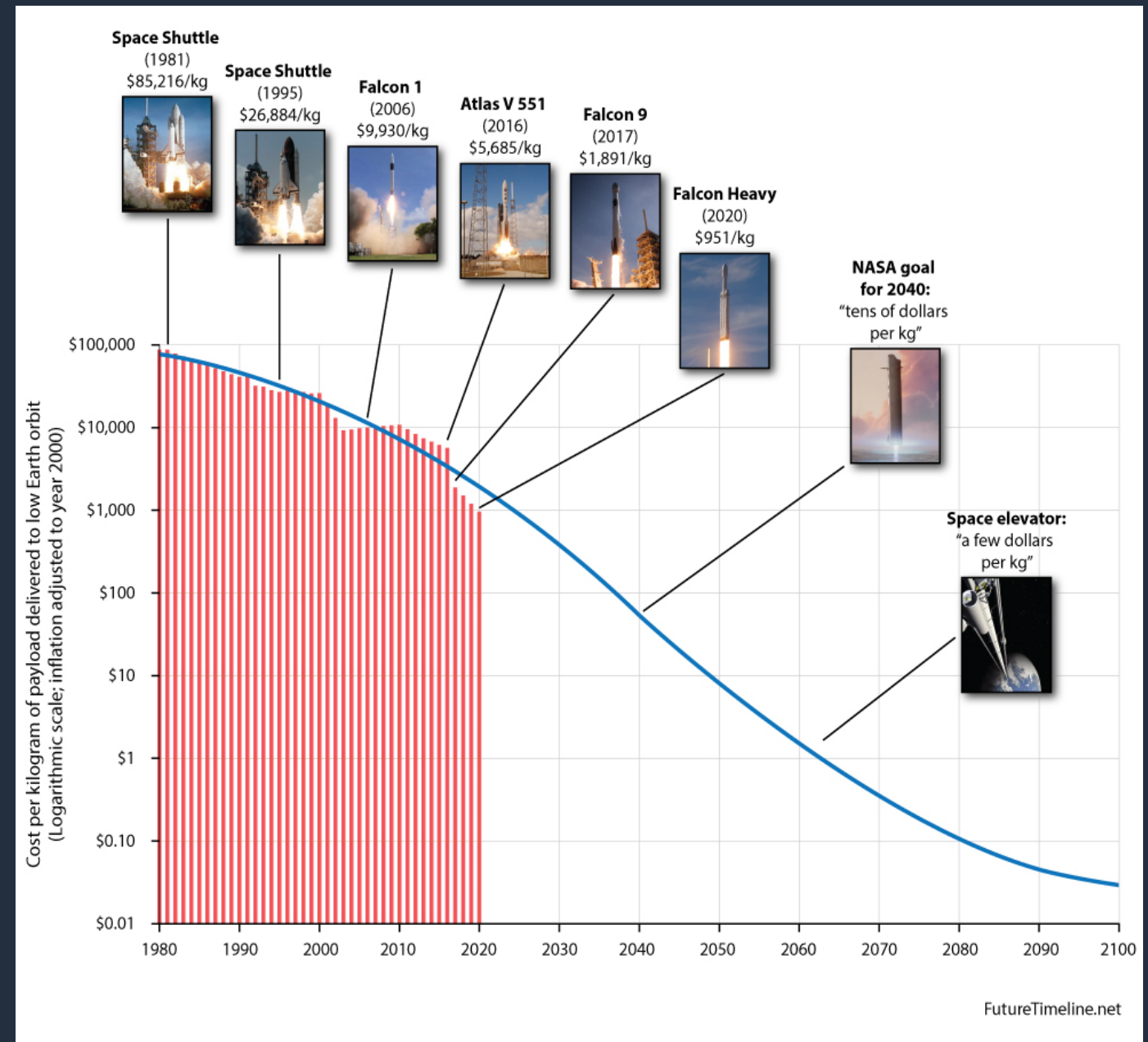- 10 new national space agencies created since 2018[5]

[1]Futuretimeline.net
[2]UN Outer Space Objects Index
[3]Union of Concerned Scientists Satellite Database
[4]Seraphim SpaceTech Venture Capital Index
[5]Wikipedia

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Who can benefit?

- Governments – Targeted assistance (e.g., rapid fire detection, disaster response)
- Space agencies – New science and new private/public partnerships
- Legacy space companies – New opportunities and technologies
- New space companies – New business models in space health/space mining
- Startups – Hardware/software/orchestration/analytics/AI/ML/collaboration
- Universities – Building/tracking/software/hardware/training/collaborating
- Businesses – Using data from space gives broader perspective (e.g., farming)
- Citizen scientists - Using/analyzing/sharing/augmenting big data and algorithms
- Citizens – Climate crisis, natural disaster warnings, food/water supply
- Industry IT – Manage and monetize "huge data"

And data scientists, scientists, AI experts, developers, technologists, roboticists . . .

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Enabling the next-gen space builders with AWS Cloud

Satellite-enabled agriculture
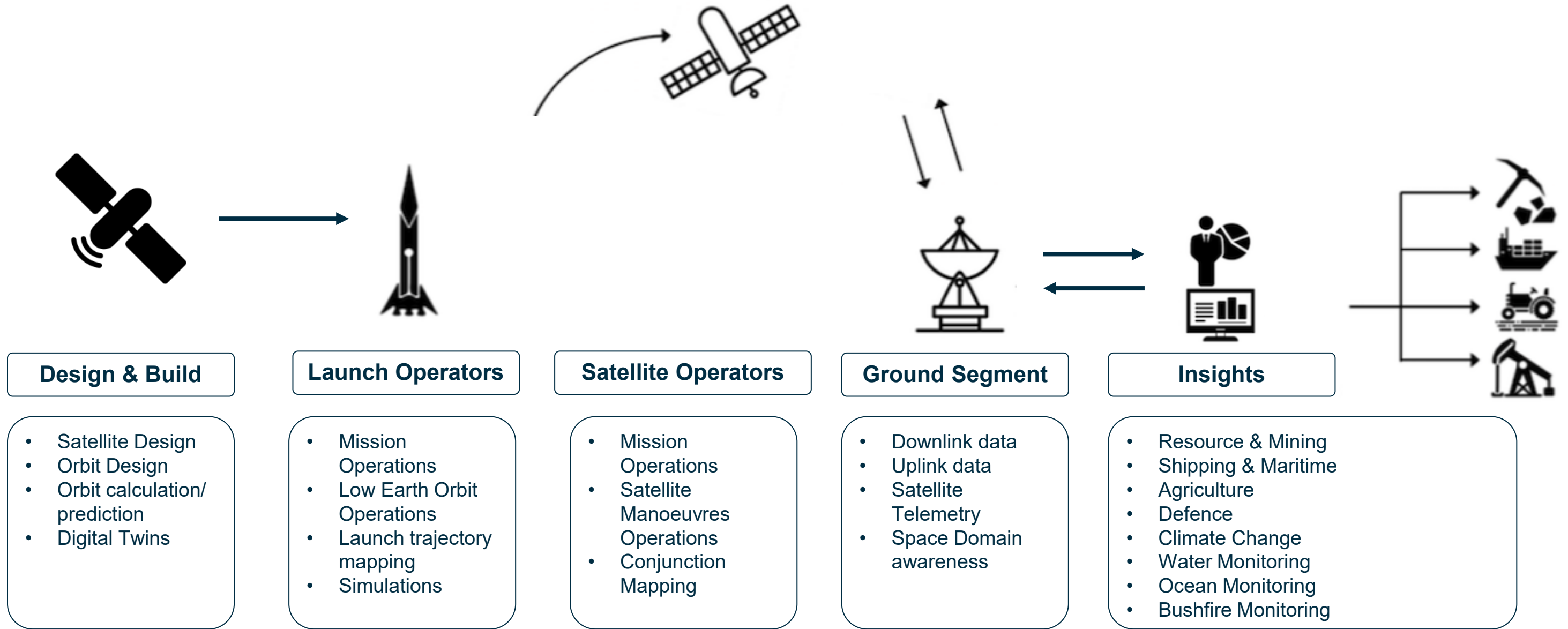
Defense and national security

Earth observation

Smart cities and digital twins

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AWS | To the stars through the cloud

Design & Build

- Satellite Design
- Orbit Design
- Orbit calculation/ prediction
- Digital Twins

Launch Operators

- Mission Operations
- Low Earth Orbit Operations
- Launch trajectory mapping
- Simulations

Satellite Operators

- Mission Operations
- Satellite Manoeuvres Operations
- Conjunction Mapping

Ground Segment

- Downlink data
- Uplink data
- Satellite Telemetry
- Space Domain awareness

Insights

- Resource & Mining
- Shipping & Maritime
- Agriculture
- Defence
- Climate Change
- Water Monitoring
- Ocean Monitoring
- Bushfire Monitoring

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Using space to protect our Earth

Fireball International uses AWS to accurately alert their customers **within three minutes of smoke detection,** by storing and processing over 2.5 million satellite and sensor images in 24 hours
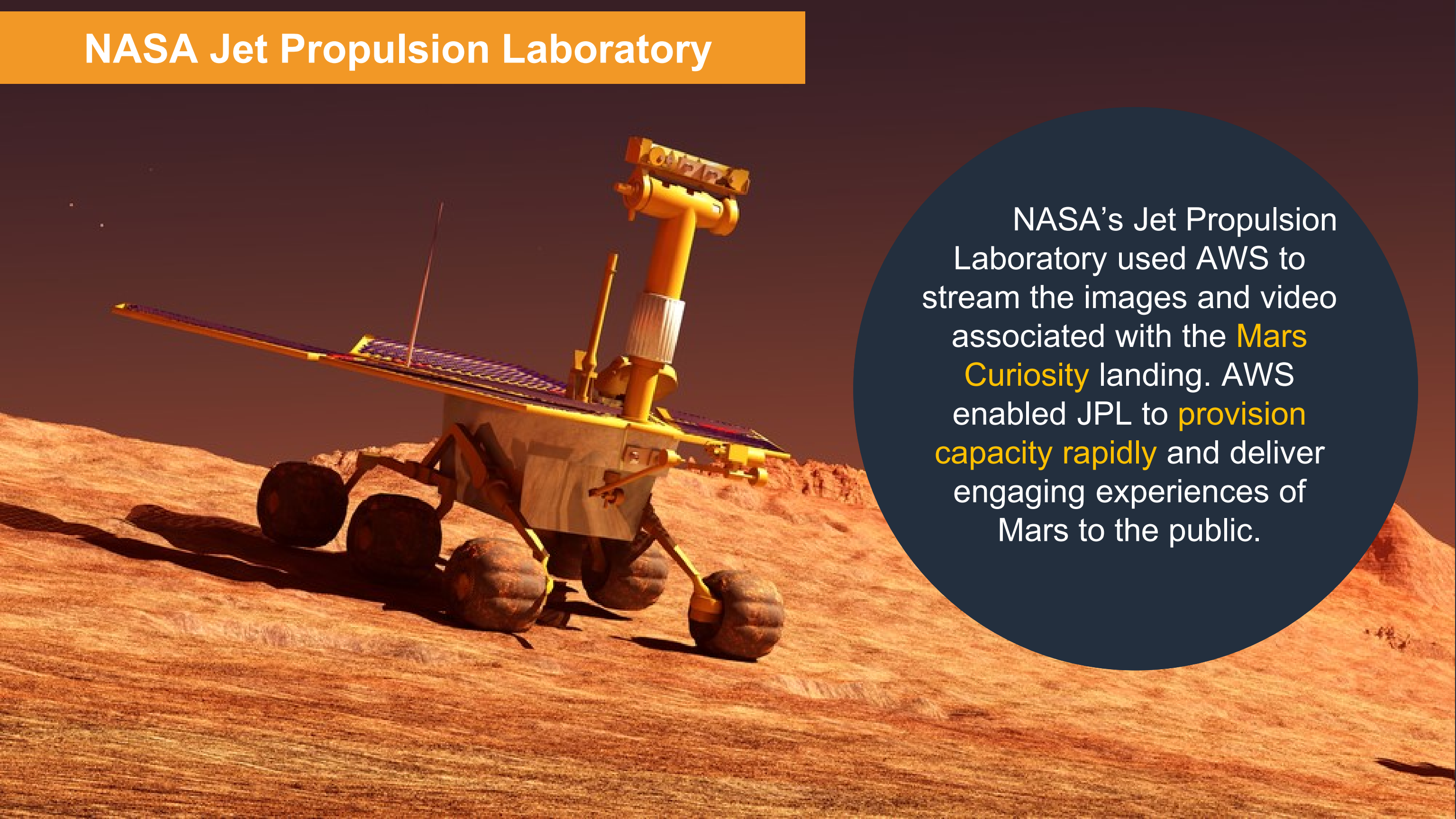
Using space to bring you closer to Earth

Capella Space uses AWS to provide customers with access to satellite data within minutes of capture, at a lower cost and far faster than traditional satellite data services, which can take up to 24 hours.

NASA Jet Propulsion Laboratory

NASA's Jet Propulsion Laboratory used AWS to stream the images and video associated with the Mars Curiosity landing. AWS enabled JPL to provision capacity rapidly and deliver engaging experiences of Mars to the public.

THAICOM

Leading Asian satellite operator Thaicom in partnership with Amazon Web Services (AWS) is building a cloud-based satellite TV broadcast platform.

Enabling insights for better decision-making

Digital Earth Africa uses AWS to make continental-scale high-resolution satellite data available within minutes of capture, 800% faster than before, thereby enables prompt government environmental policy changes.

Cloud services for space industry solution builds

Edge Computing
AWS Snowball Edge is a data migration and edge computing device that can used for data collection, machine learning and processing, and storage in environments with intermittent connectivity (such as manufacturing, industrial, and transportation) or in extremely remote locations (such as military or maritime operations)

AWS High Performance Computing
Designed for large, complex and deep learning workloads in the cloud with a complete suite of HPC products and services

Data Lakes
AWS Lake Formation is a service that makes it easy to set up a secure data lake in days. It is a centralized, curated, and secured repository that stores all your data, both in its original form and prepared for analysis

AWS SageMaker
Amazon SageMaker is a fully-managed platform that enables developers and data scientists to quickly and easily build, train, and deploy machine learning models at any scale

AWS IoT Greengrass
AWS IoT Greengrass seamlessly extends AWS to edge devices so they can act locally on the data they generate, while still using the cloud for management, analytics, and durable storage

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AWS Ground Station

AWS Ground Station is a fully managed service that lets you control satellite communications, process data, and scale your operations without having to worry about building or managing your own ground station infrastructure. These facilities provide communications between the ground and the satellites in space.

Benefits
- Low-latency global fiber network
- Direct access to AWS services
- Fully managed service (no infrastructure commitments)
- Pay as you go pricing
- No licensing requirements
- Scale satellite communications on-demand when your business needs it

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Where do you fit in?

- **Startup firms** — New solution/ capability technology, and disruptive business model

- **Venture capital funds** — Investors
Funding emerging technology and space startups

- **Incubators/ accelerators** — network aggregator for sourcing new technology, commercialization efforts, linking investors to entrepreneurs

- **Government programs and labs** — Dedicated initiatives to directly fund, support, and access commercially available space tech

- **Consulting and system integrators** — Client relationships, domain expertise, scale labor, contracts, and unique problem-solving

- **Universities** — Advanced research, intellectual property, and expertise for new technology development

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Want to be a part of the future?

- Imagine playing a role in space technology
- Solving the world's biggest challenges
- Getting involved in the space economy

You can……!

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CloudUp

SHE BUILDS aws

- Community
- Confidence
- Flexibility
- Support
- Mentoring

1,885
CPE & SAA
CERTIFICATIONS

17,000
COMMUNITY
PLATFORM
MEMBERS
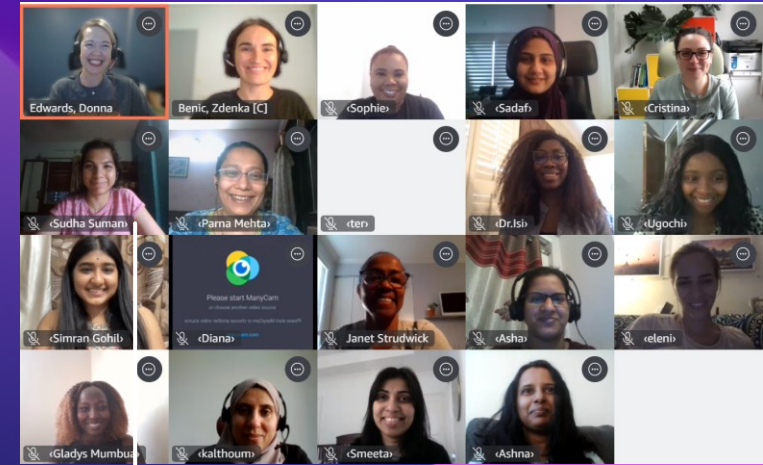
154 COUNTRIES

80,000
PARTICIPANTS
GLOBALLY

150
AWS GLOBAL
MENTORS

Free AWS Cloud Training Program for Women

Cloud Practitioner
- No pre-requisites
- Foundational training
- 8 weeks

Solution Architect Associate
- Technical background
- Hands-on component
- 12-18 weeks

SheBuilds Program Offerings

**AWS She Builds CloudUp
Cloud Practitioner**

She Builds CloudUp August 2022

She Builds CloudUp November 2022

**AWS She Builds CloudUp
Solution Architect Associate**

She Builds CloudUp July 2022

She Builds CloudUp October 2022

She Builds CloudUp December 2022

**AWS CloudUp Hāpori Wāhine NZ
Cloud Practitioner**

Hāpori Wāhine NZ CloudUp June 2022

Hāpori Wāhine NZ CloudUp September 2022

Hāpori Wāhine NZ CloudUp November 2022