

FEDERAL STATE BUDGETARY EDUCATIONAL INSTITUTION OF HIGHER EDUCATION
NOVOSIBIRSK STATE TECHNICAL UNIVERSITY

SPACEX

DMITRIY MOSIENKO

PS-62

THE AIRCRAFT FACULTY

03.03.2018

SPACE EXPLORATION TECHNOLOGIES CORP.



HEADQUARTERED IN HAWTHORNE, CALIFORNIA

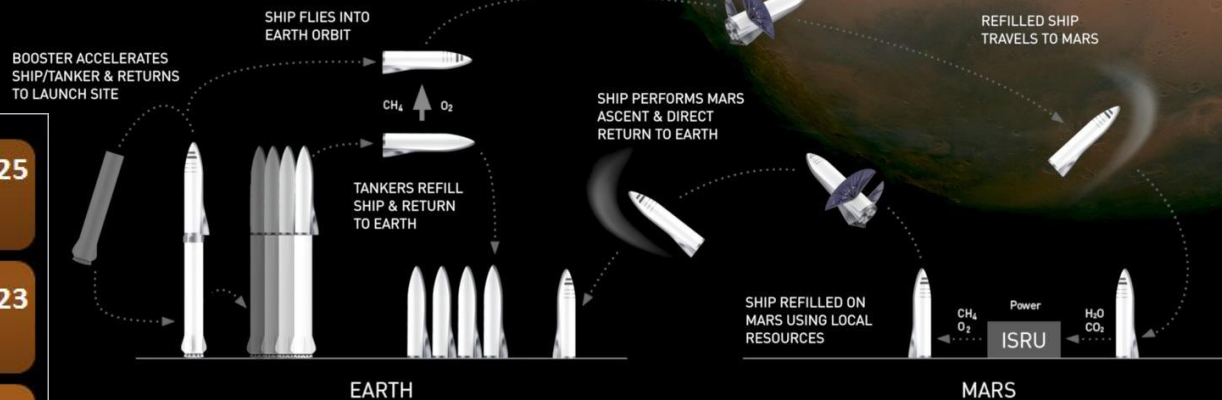


SPACEX IN 2002



THE GOAL OF SPACEX

MARS TRANSPORTATION ARCHITECTURE



Mars One roadmap

- 2025**
New crew lands and takes up residence in Mars One base
- 2023**
4 astronauts land on Mars!
- 2022**
Launch of the first Martian crew
- 2021**
Installation of the first Mars base (6 modules and 2 rovers)
- 2018**
Launch and landing of exploration rover on Mars
- 2016**
Launch and landing on Mars of supply mission with 2,5t of food
- 2013**
Selection of 40 astronauts
Simulation of Mars base on Earth

Images: Mars One, Nasa, Shutterstock/1971yes, SergeyDV

@call2collaborate

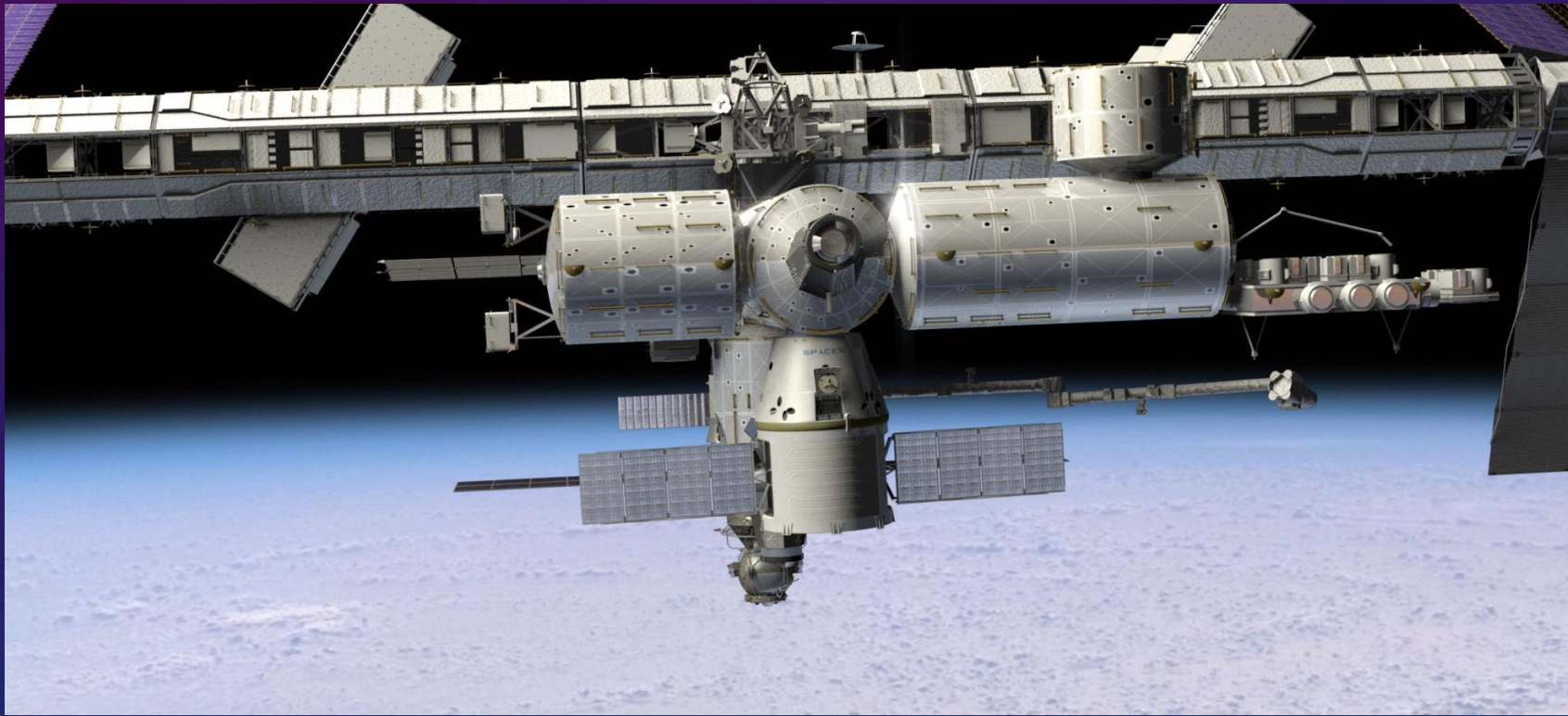
SEPTEMBER 2008

FALCON 1 BECOMES THE FIRST PRIVATELY DEVELOPED LIQUID FUEL
ROCKET TO REACH EARTH ORBIT.



DECEMBER 2008

NASA AWARDS SPACEX \$ 1.6B COMMERCIAL RESUPPLY SERVICES
(CRS) CONTRACT.



JULY 2009

FALCON 1 FLIGHT 5 BECAME THE FIRST PRIVATELY DEVELOPED LIQUID FUEL ROCKET TO DELIVER A COMMERCIAL SATELLITE TO EARTH ORBIT



JUNE 2010 FALCON 9 FIRST FLIGHT.

Falcon 9 v1.1



Falcon 9



Falcon 9 (Block 1)

Falcon 9 (v1.1)

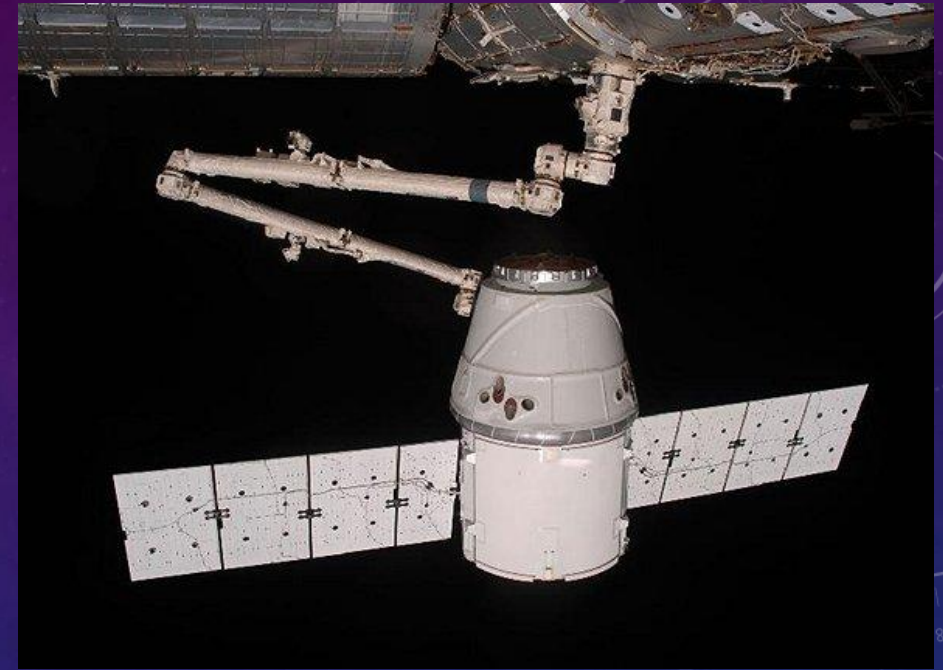


DECEMBER 2010

SPACECRAFT DRAGON RETURNS FROM EARTH ORBIT.

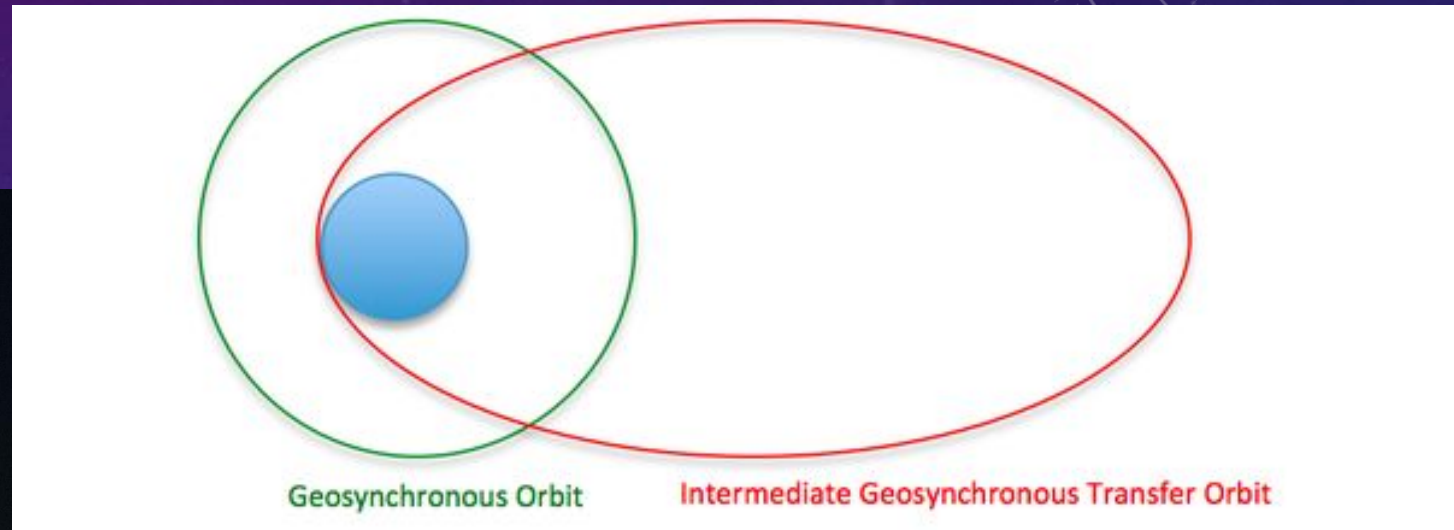


MAY 2012
DRAGON VISITED THE SPACE STATION.



DECEMBER 2013

FIRST FLIGHT OF FALCON 9 TO GEOSYNCHRONOUS TRANSFER ORBIT.



APRIL 2014

FALCON 9 FIRST STAGE SUCCESSFULLY LANDS IN ATLANTIC OCEAN.



DECEMBER 2015

THE FALCON 9 ROCKET DELIVERED 11 COMMUNICATIONS SATELLITES TO ORBIT,
AND THE FIRST STAGE RETURNED AND LANDED AT LANDING ZONE 1.



APRIL 2016

DRONESHIP LANDING

THE FALCON 9 ROCKET LAUNCHED THE DRAGON SPACECRAFT TO THE INTERNATIONAL SPACE STATION, AND THE FIRST STAGE RETURNED AND LANDED ON THE DRONESHIP.

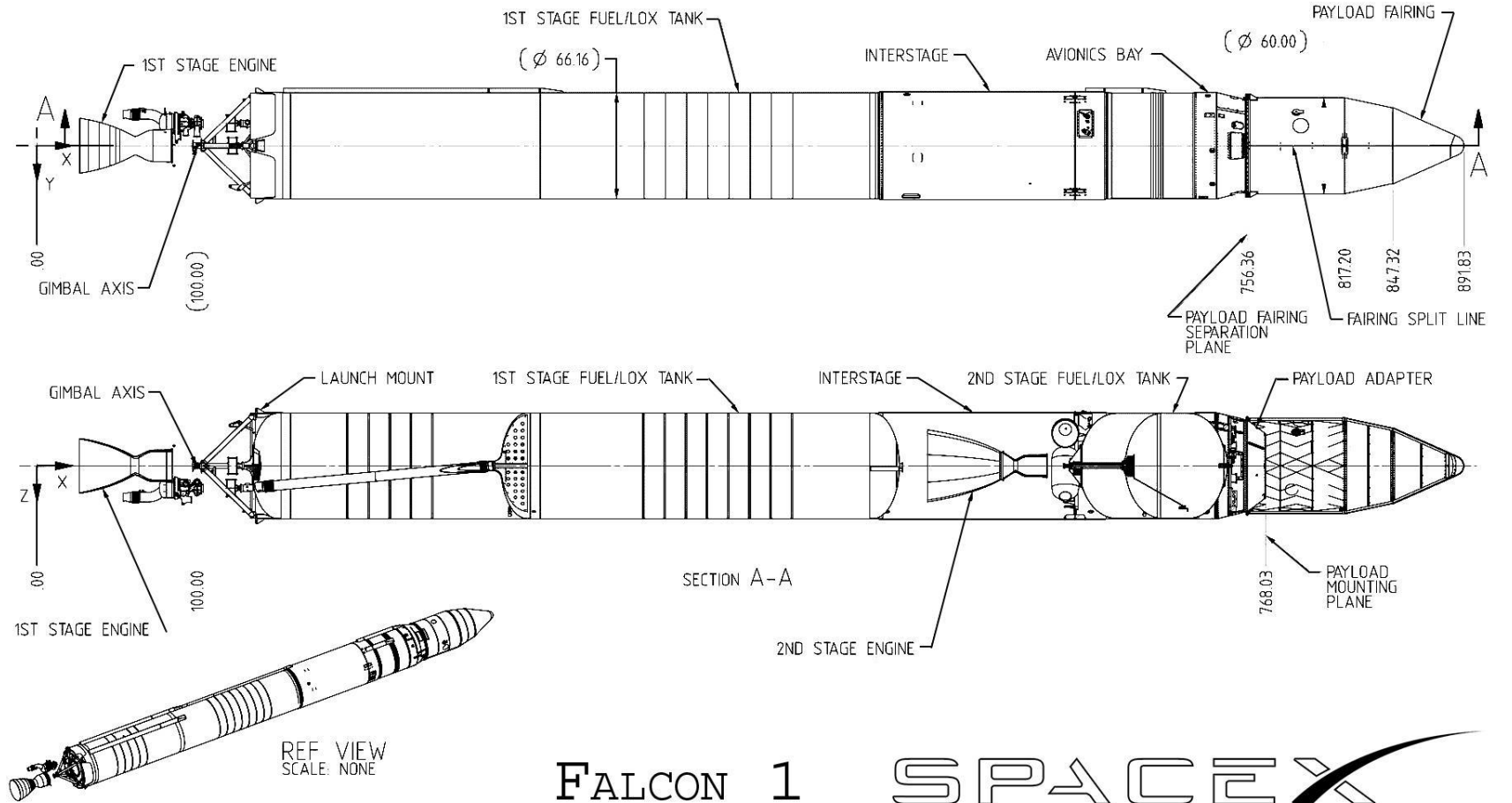


MARCH 2017
FIRST REFLIGHT

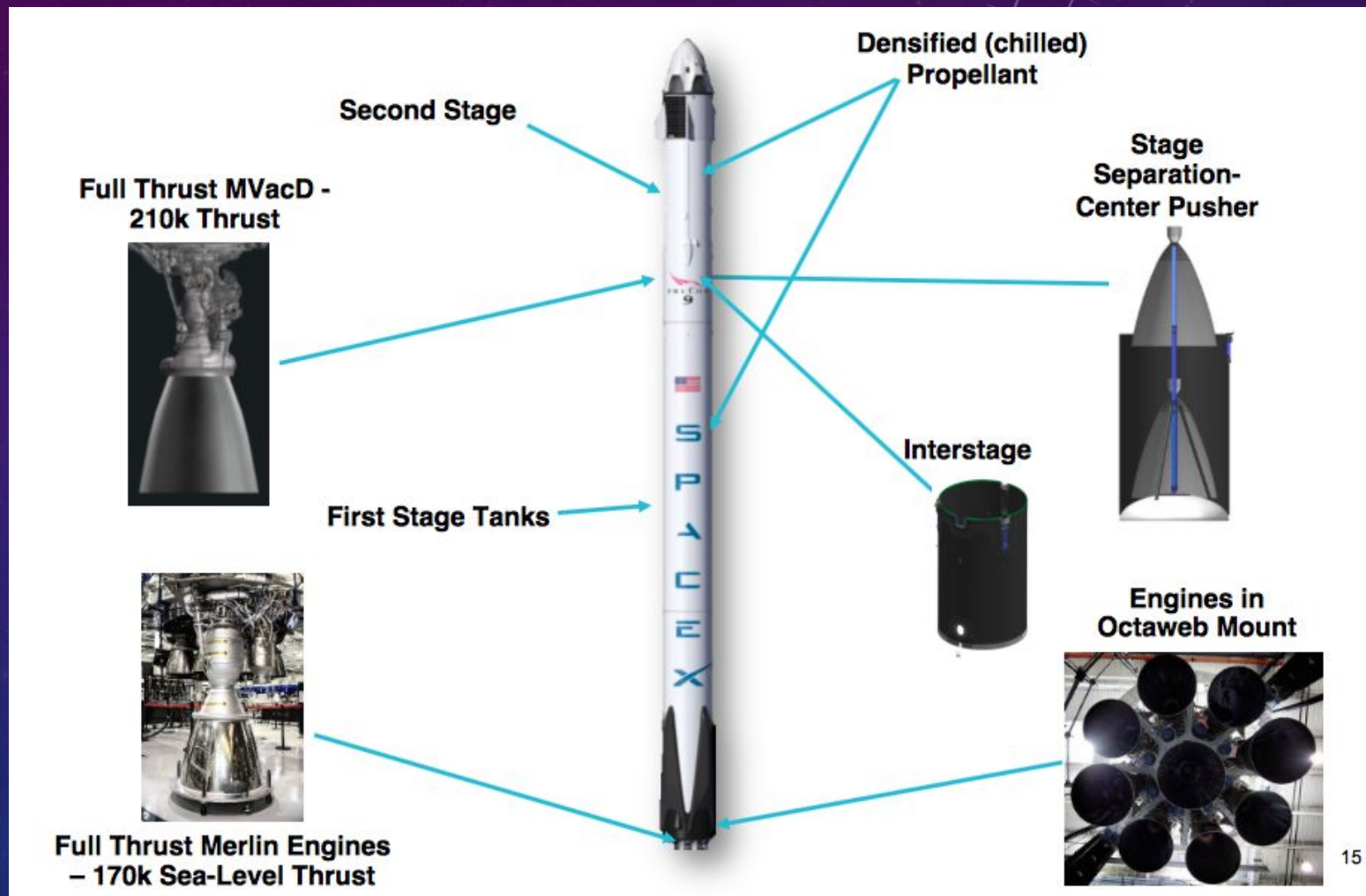
SPACEX ACHIEVED THE WORLD'S FIRST REFLIGHT OF AN ORBITAL CLASS ROCKET. FOLLOWING DELIVERY OF THE PAYLOAD, THE FALCON 9 FIRST STAGE RETURNED TO EARTH FOR THE SECOND TIME.



FALCON 1



FALCON 9



FALCON HEAVY



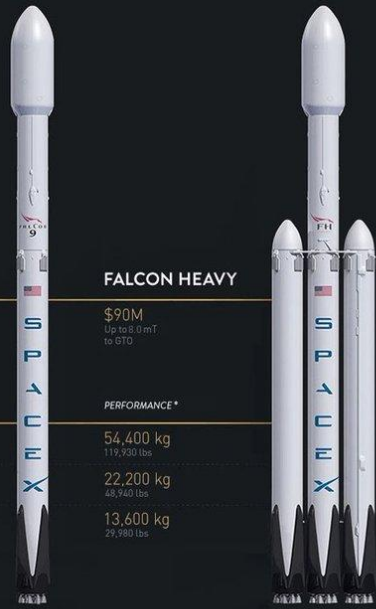
CAPABILITIES & SERVICES

SpaceX offers open and fixed pricing for its Falcon 9 and Falcon Heavy launch services. Modest discounts are available for contractually committed, multi-launch purchases. SpaceX can also offer crew transportation services to commercial customers seeking to transport astronauts to alternate LEO destinations.

PRICE	FALCON 9	FALCON HEAVY
STANDARD PAYMENT PLAN (2018 LAUNCH)	\$62M Up to 5.5 mT to GTO	\$90M Up to 8.0 mT to GTO
DESTINATION	PERFORMANCE*	PERFORMANCE*
LOW EARTH ORBIT (LEO)	22,800 kg 50,265 lbs	54,400 kg 119,930 lbs
GEOSYNCHRONOUS TRANSFER ORBIT (GTO)	8,300 kg 18,300 lbs	22,200 kg 48,940 lbs
PAYLOAD TO MARS	4,020 kg 8,840 lbs	13,600 kg 29,980 lbs

*Performance represents max capability on fully expendable vehicle

Inclination: LEO = 28.5°, GTO = 27°



LAUNCH VEHICLE	FALCON HEAVY	SPACE SHUTTLE	PROTON M	DELTA IV HEAVY	TITAN IV-B	ARIANE 5 ES	ATLAS V 551	JAPAN H2B	CHINA LM3B
PAYLOAD TO LOW EARTH ORBIT (LEO)	63,800 kg 140,660 lb	24,000 kg 53,790 lb	23,000 kg 50,710 lb	22,560 kg 49,740 lb	21,680 kg 47,800 lb	20,000 kg 44,090 lb	18,510 kg 40,810 lb	16,500 kg 36,380 lb	11,200 kg 24,690 lb



Falcon 1



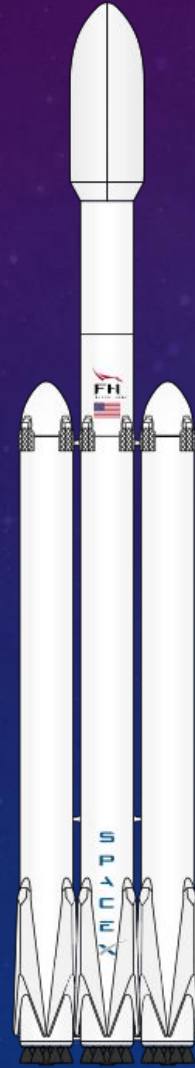
Falcon 9 v1.0



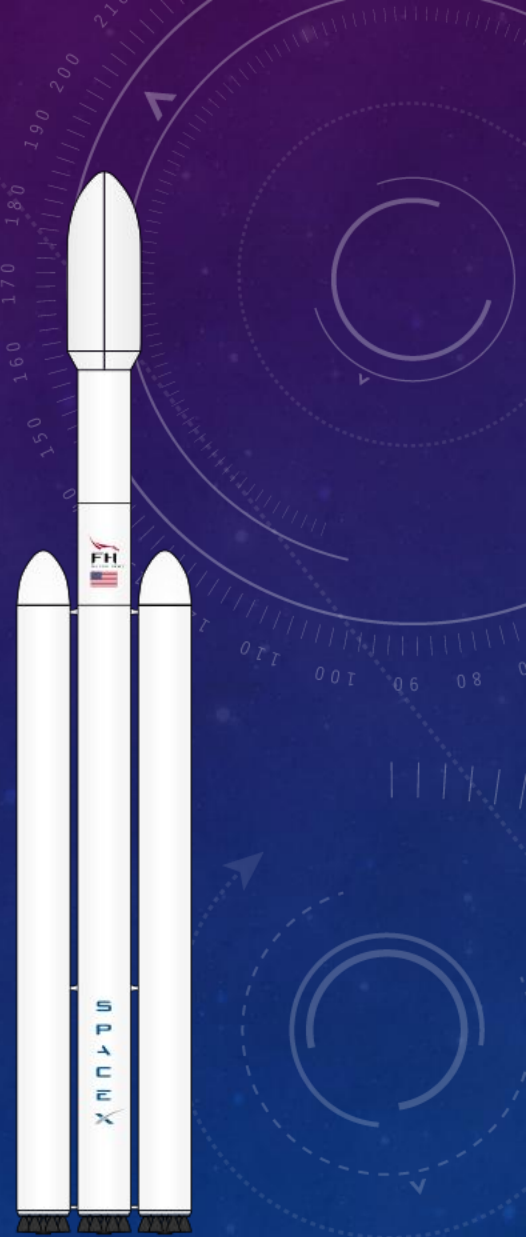
Falcon 9 v1.1

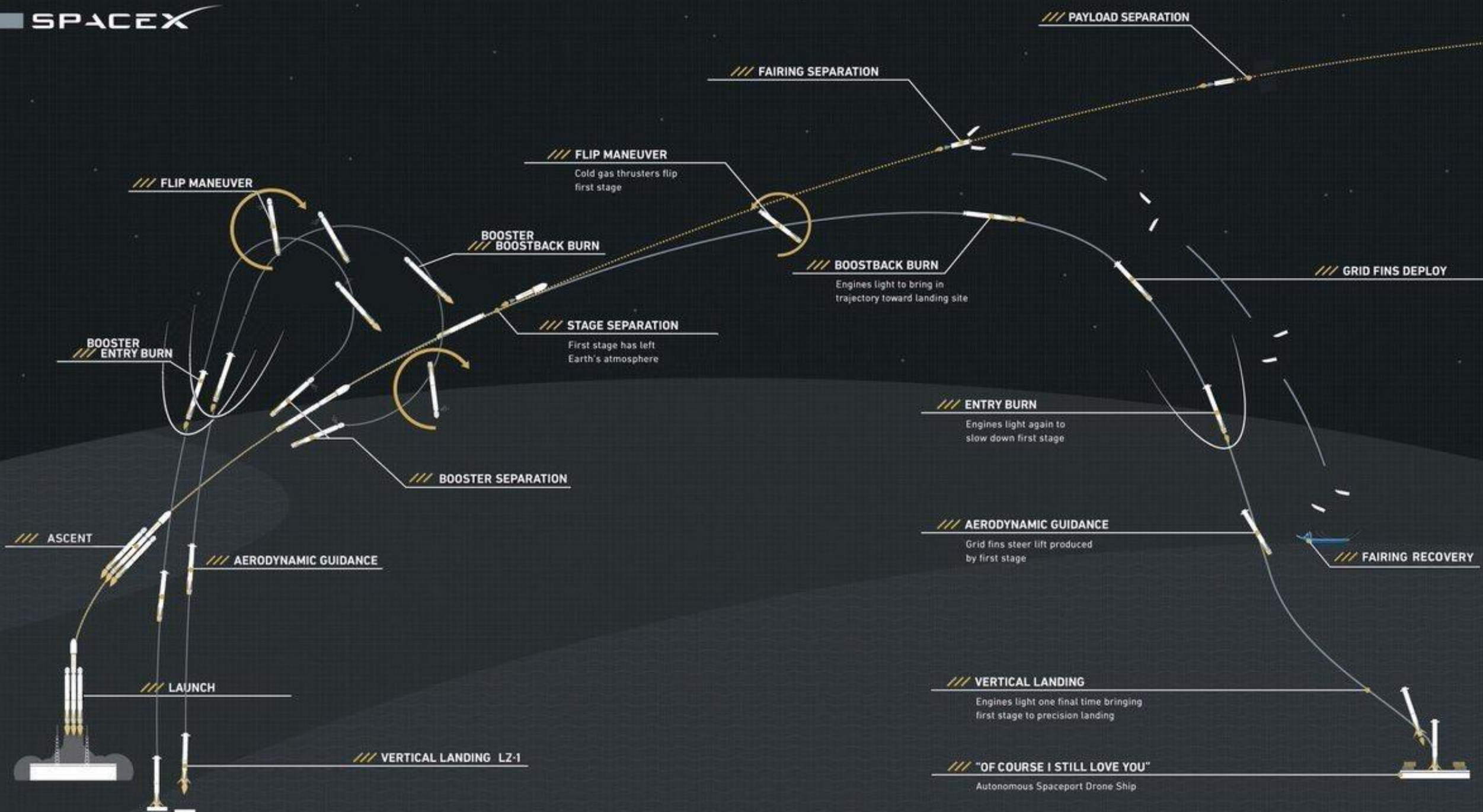


Falcon 9 v1.2 (FT)



Falcon Heavy

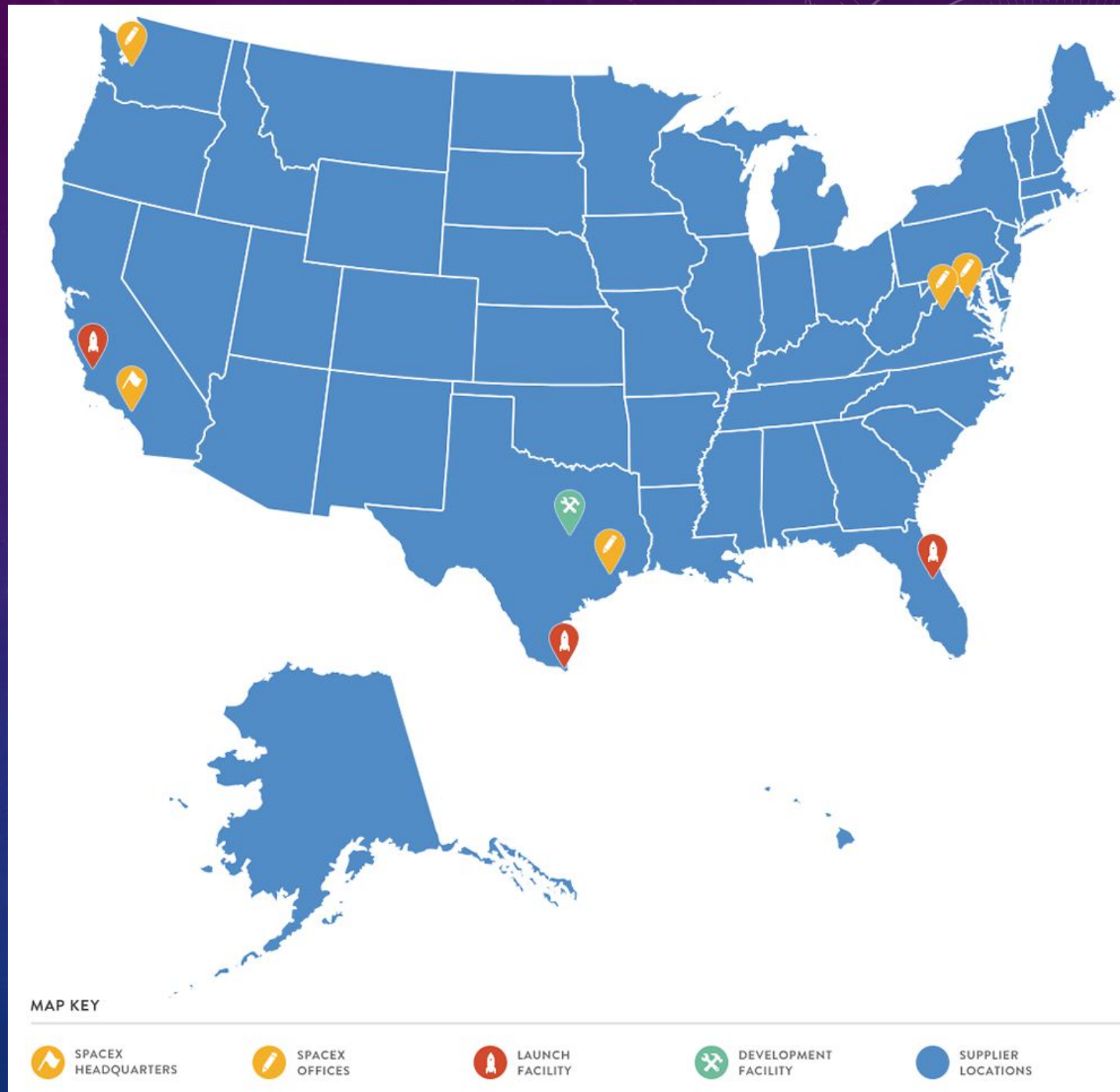




DRAGON



GEOGRAPHY OF THE COMPANY



MAP KEY

 SPACEX HEADQUARTERS

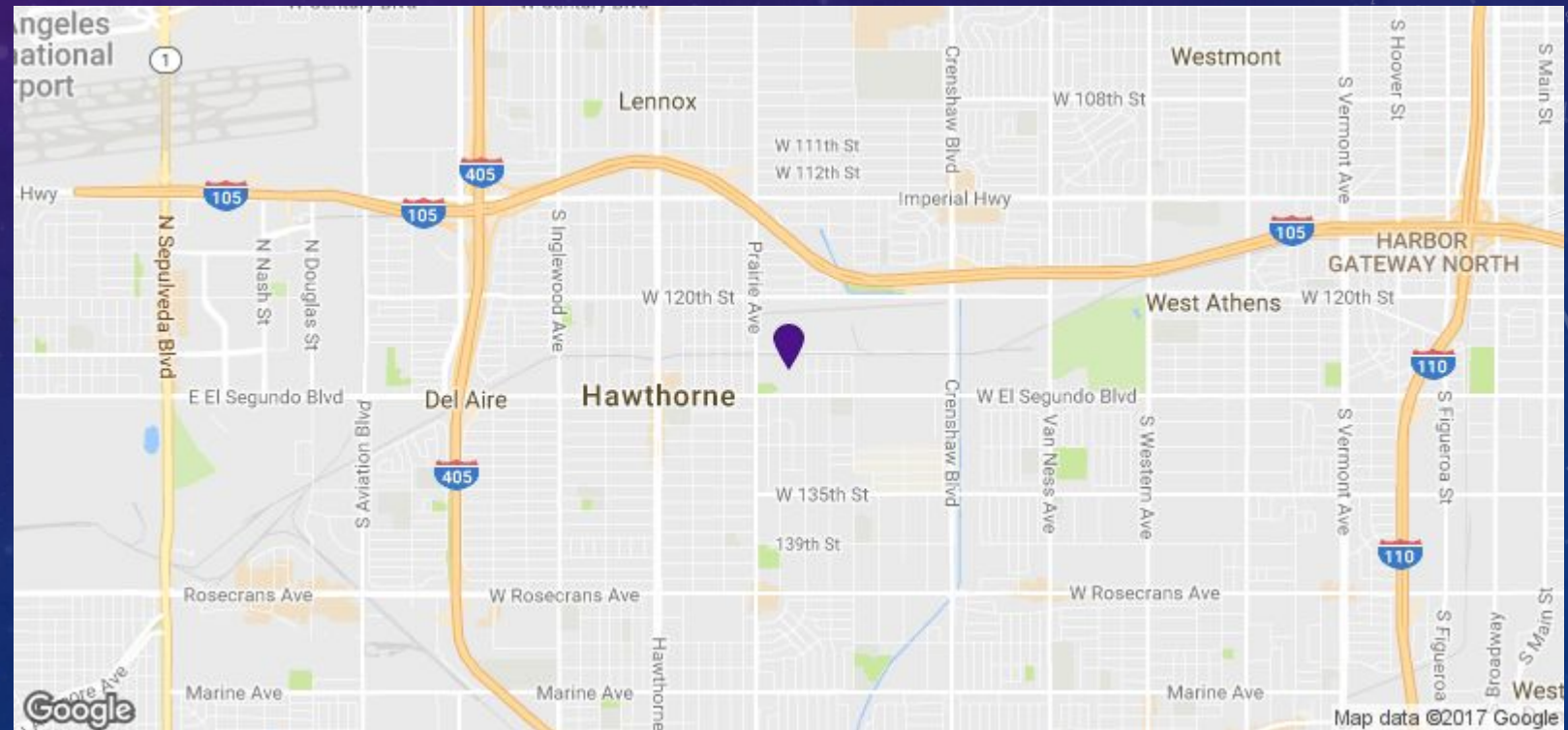
 SPACEX OFFICES

 LAUNCH FACILITY

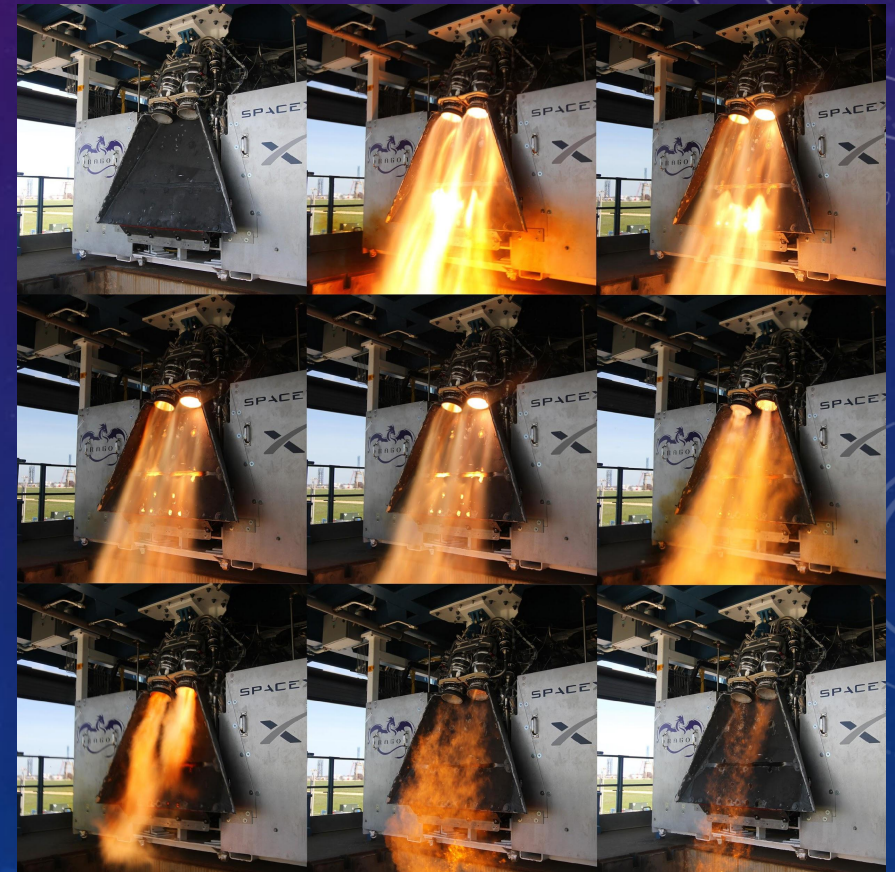
 DEVELOPMENT FACILITY

 SUPPLIER LOCATIONS

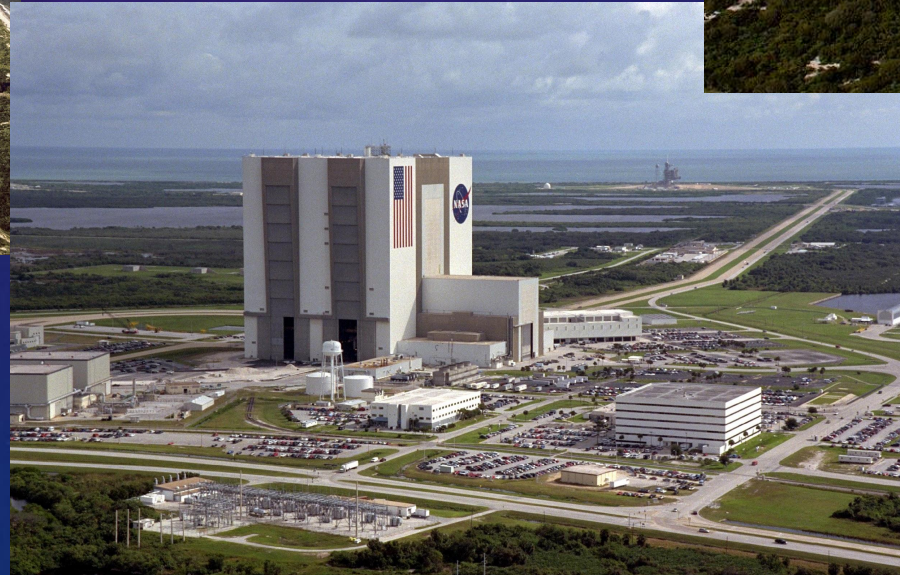
THE COMPANY HAS HEADQUARTER IN HAWTHORNE, CALIFORNIA



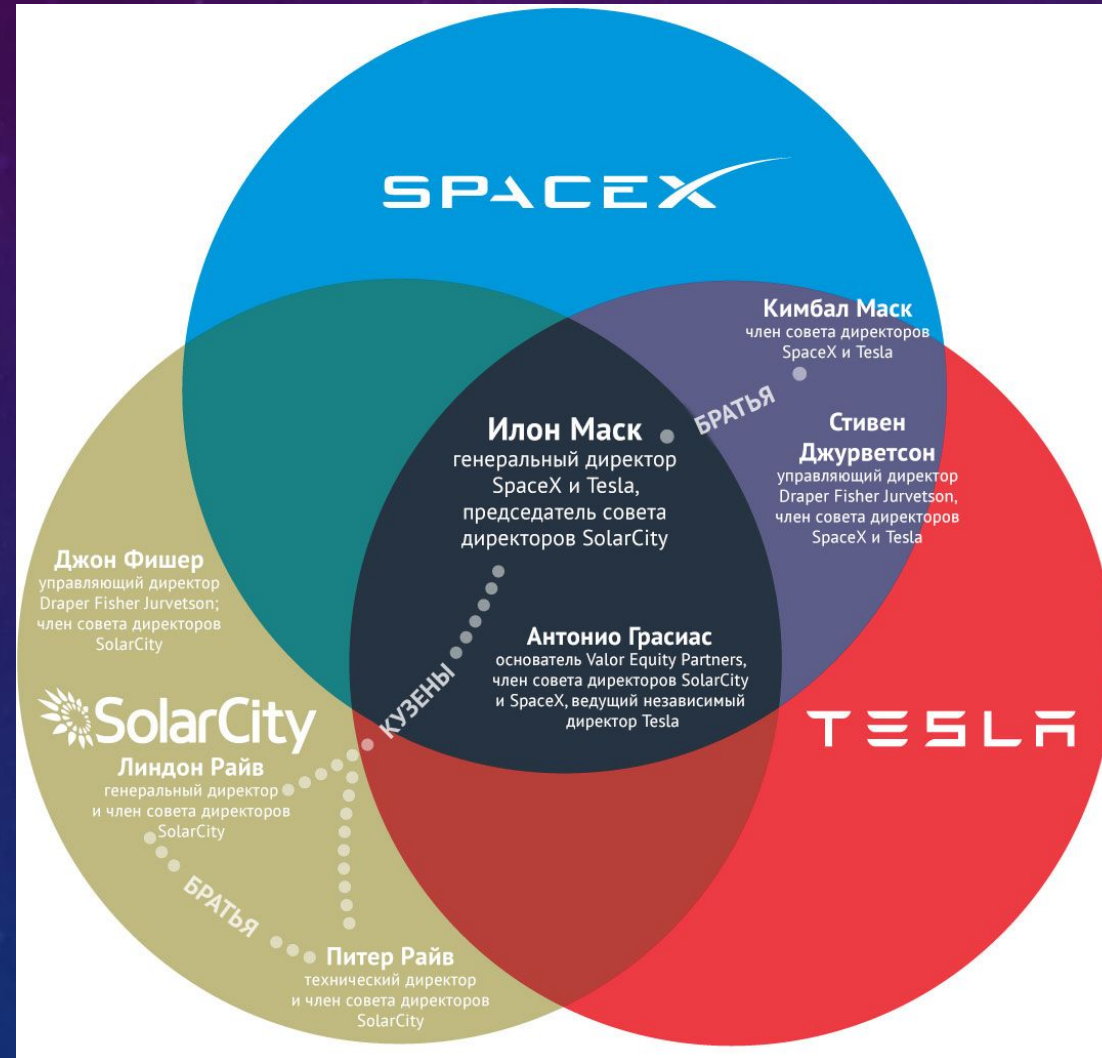
A ROCKET-DEVELOPMENT FACILITY IS IN MCGREGOR, TEXAS



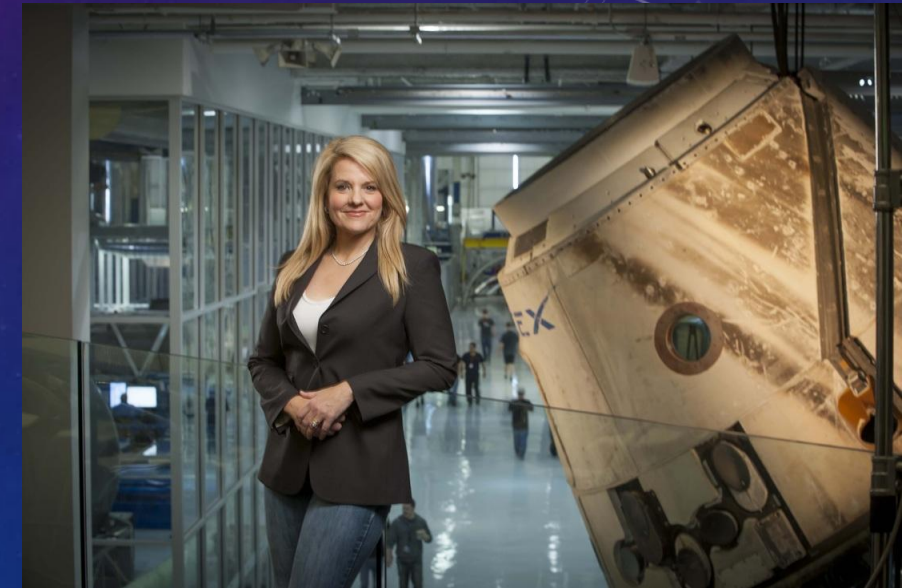
LAUNCH FACILITIES AT CAPE CANAVERAL AIR FORCE STATION, FLORIDA,
KENNEDY SPACE CENTER, FLORIDA, AND VANDENBERG AIR FORCE BASE,
CALIFORNIA.



SPACEX IS A PRIVATE COMPANY. THE COMPANY'S SHARES ARE NOT SOLD ON THE STOCK. MAIN SOURCES OF MONEY IS PRIVATE CAPITAL AND GOVERNMENT CONTRACTS.



CHIEF EXECUTIVE OFFICER AND CHIEF TECHNICAL OFFICER OF THIS COMPANY IS ELON MUSK. HE OWNS 70 PERCENT OF THE COMPANY. GWYNNE SHOTWELL IS CHIEF OPERATING OFFICER.



MANUFACTURING AND PRODUCTION - ENGINEERING



THANK YOU FOR ATTENTION

