NASA Technology and Partnerships
An Overview

Gary L. Martin
Director of Partnerships
NASA Ames Research Center


EARTH *RIGHT* NOW
Your planet is changing. We're on it.


OFF THE EARTH, FOR THE EARTH.
INTERNATIONAL Space Station


NASA'S JOURNEY TO
MARS

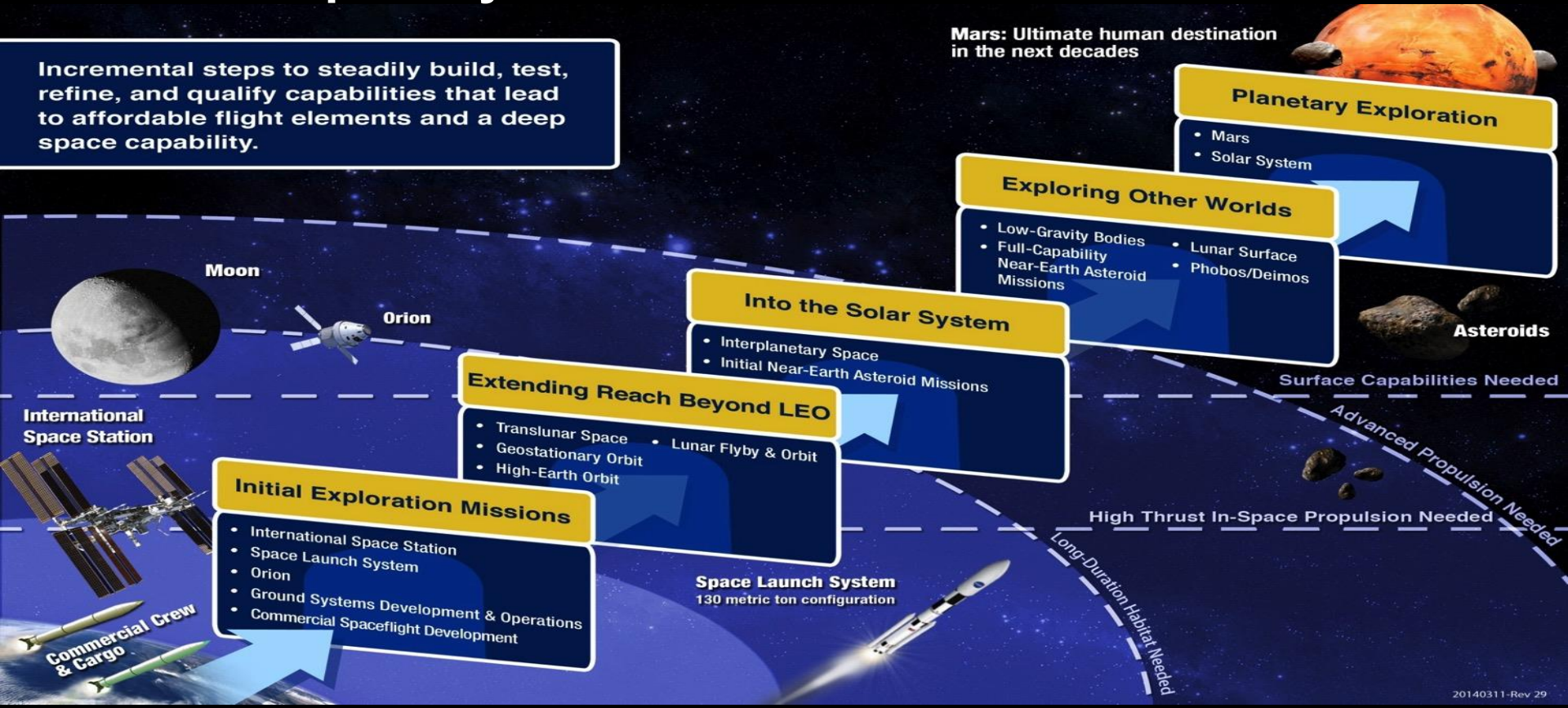

TECHNOLOGY DRIVES EXPLORATION


NASA
AERONAUTICS
WITH YOU WHEN YOU FLY

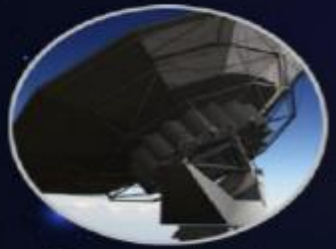

NASA
we're OUT there

NASA Centers and Installations

Technology Roadmap Based On NASA's Capability Driven Framework



Challenges for Deep Space Exploration



Communication

Environment Control & Life Supporting Systems

Logistics

Power Generation & Storage

Navigation

Entry, Descent & Landing

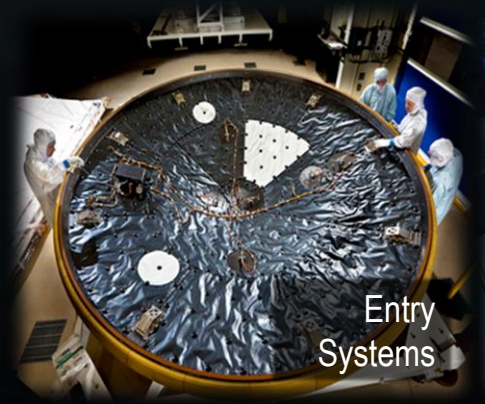
Manufacturing In Space & For Space

Radiation Mitigation

Propulsion

Core Competencies at Ames Today

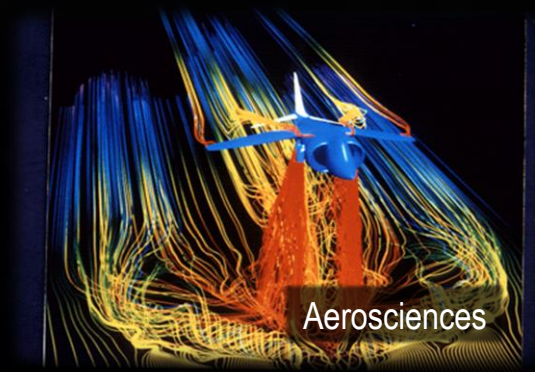

Air Traffic Management

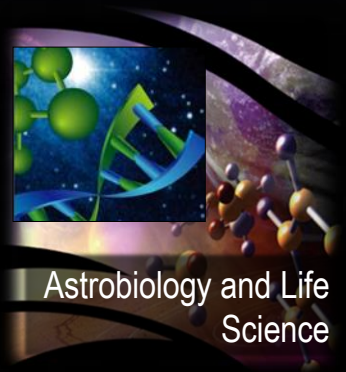

Entry Systems

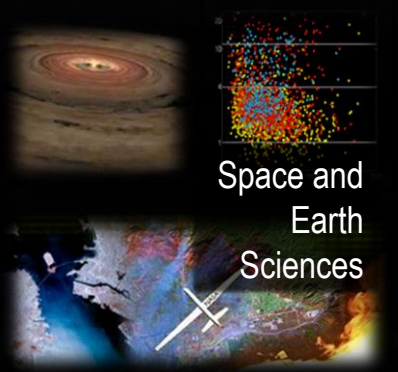

Advanced Computing & IT Systems


Intelligent/ Adaptive Systems

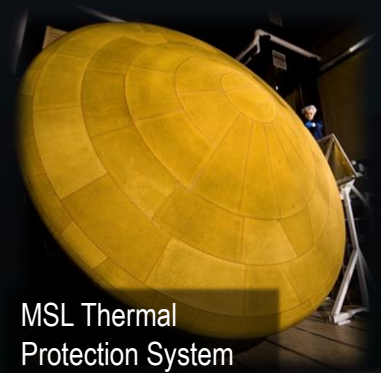

Cost-Effective Space Missions


Aerosciences


Astrobiology and Life Science

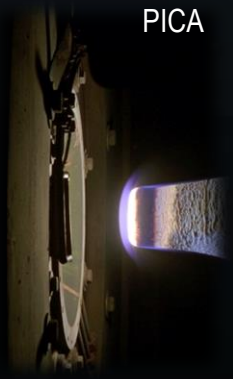

Space and Earth Sciences

Entry Systems

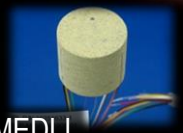


MSL Thermal Protection System

PICA

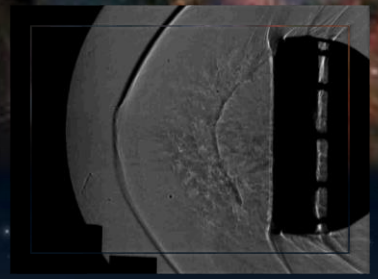


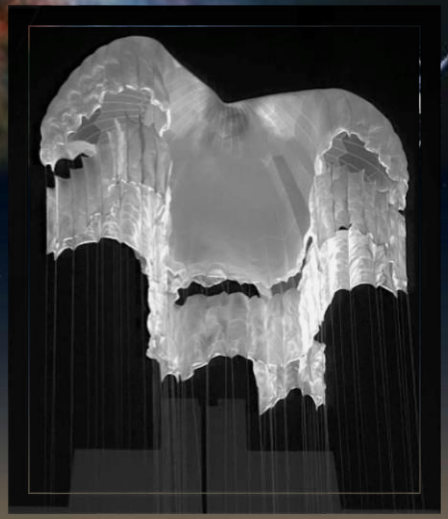
ADEPT

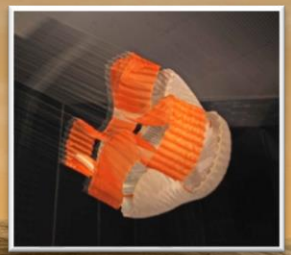


MEDLI

Interaction Heating Facility

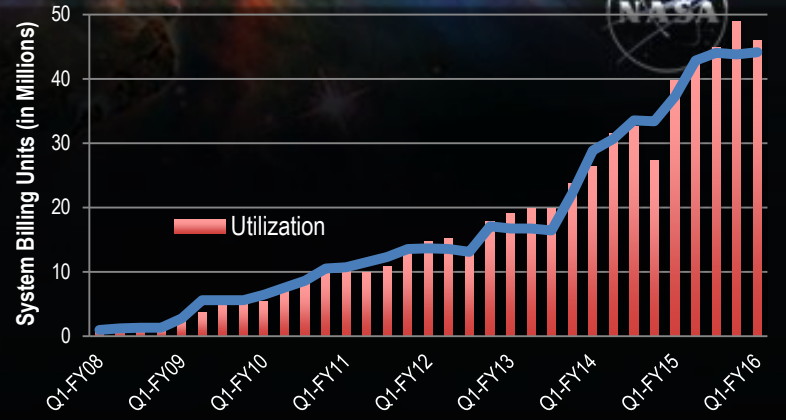


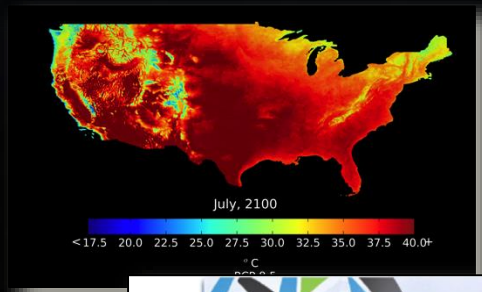




Advanced IT and Computing Systems

Supercomputing Systems





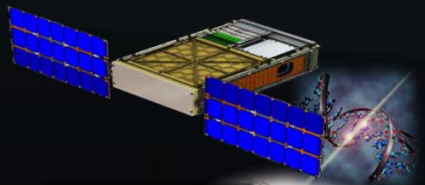
NEX

Big Data Analytics

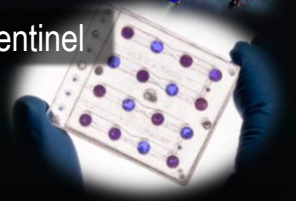
Large Scale Visualization

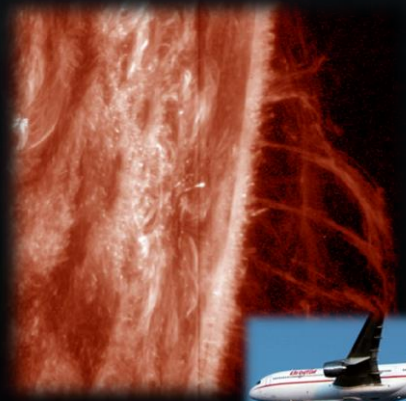
Quantum Computing

Cost-Effective Space Missions @ Ames

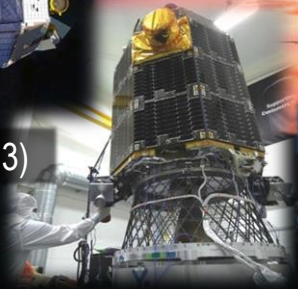


Biosentinel

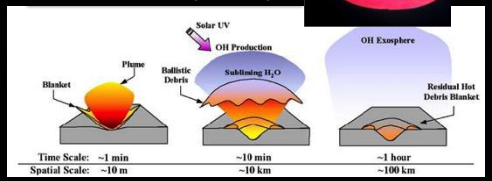




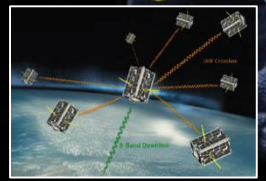
LADEE (2013)



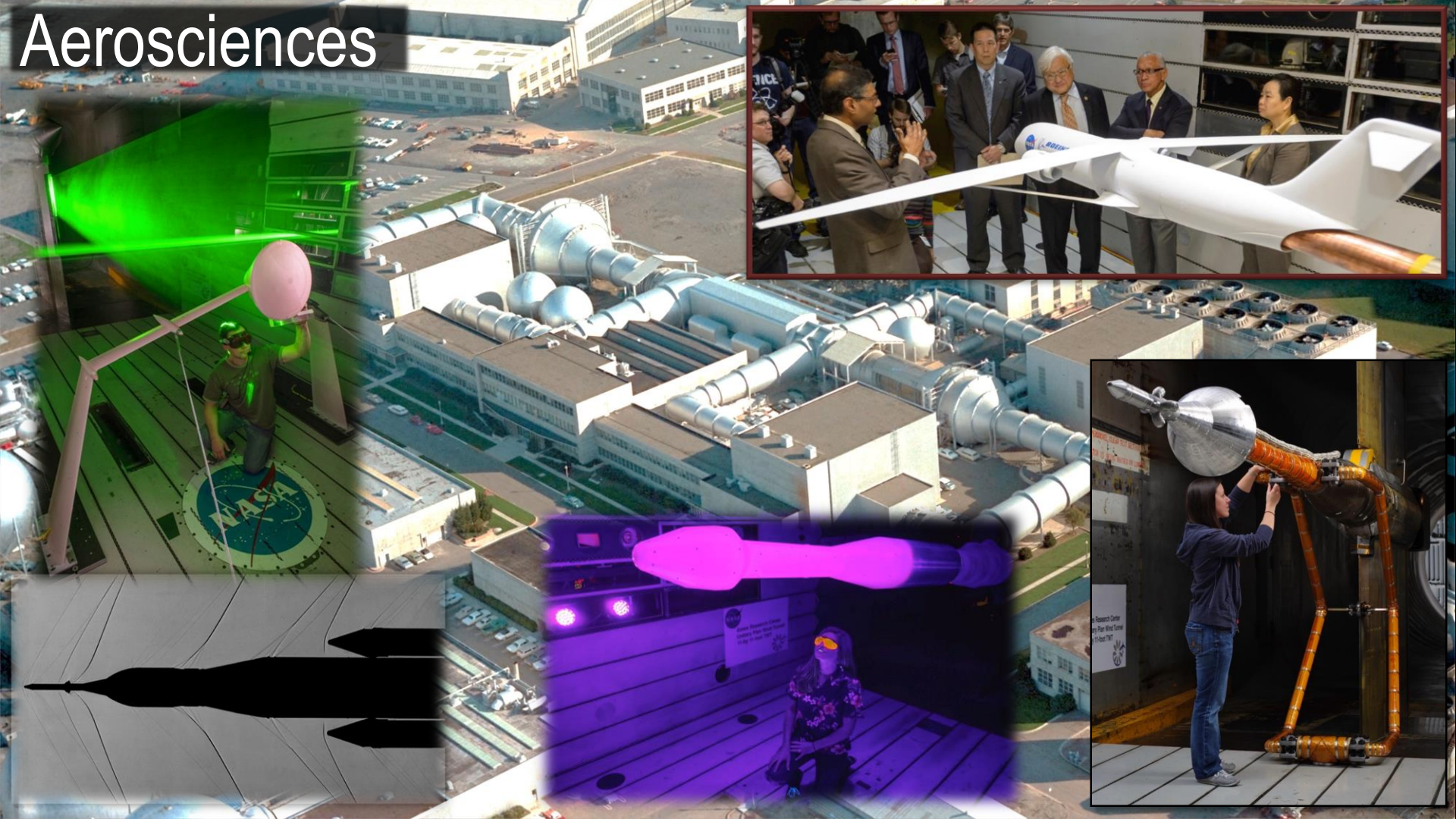
LCROSS (2009)



PhoneSat, EDSN, Nodes

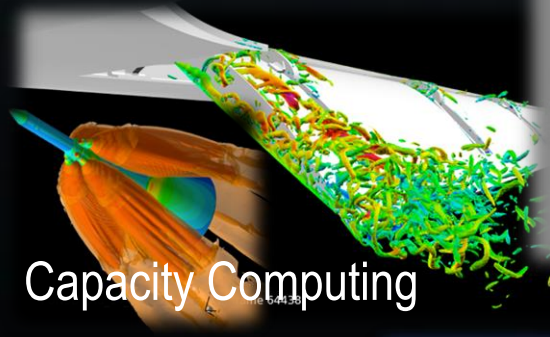


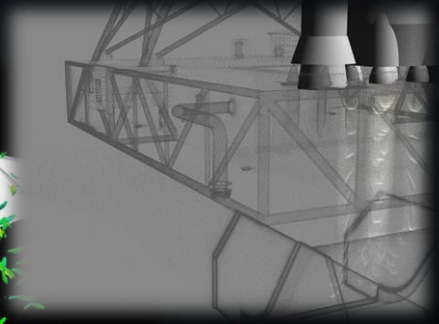
Aerosciences

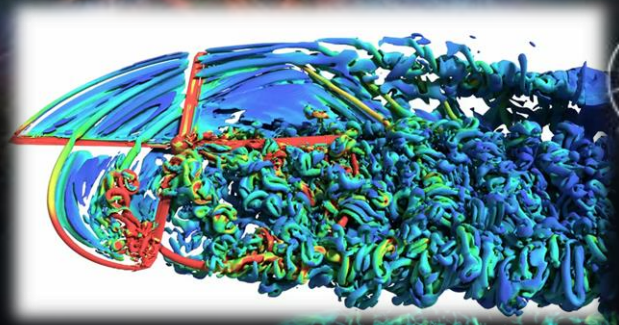


Modeling and Simulation

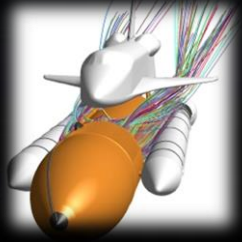
Advanced IT and Computing Systems

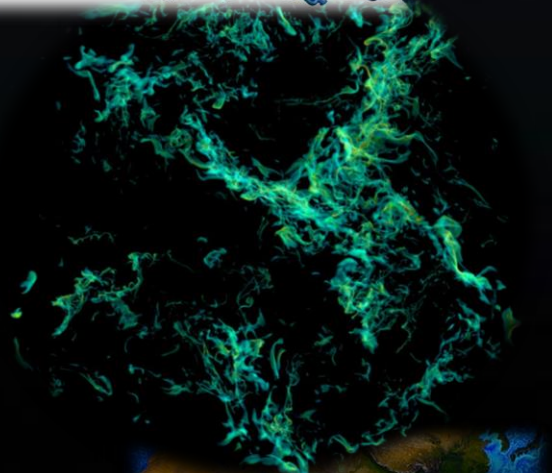


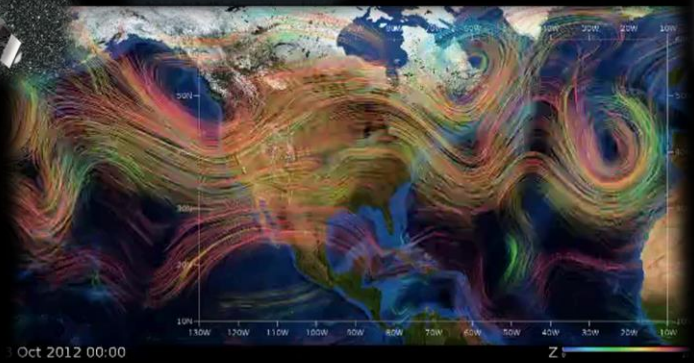


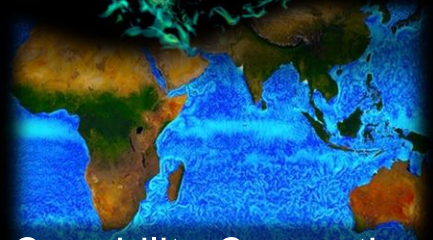


Capacity Computing









Time Critical Computing

Capability Computing

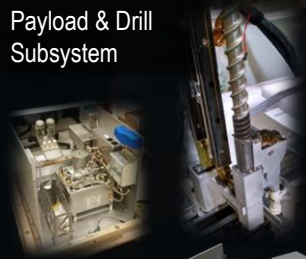
Intelligent Adaptive Systems

Activity Mission Planning For **Mars**

Planning And Scheduling For **Human Robotic Teams** / Future

Astronauts Self-scheduling And Planning

Payload & Drill Subsystem

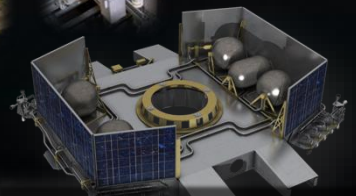


Planetary Lake Lander

Adaptive science for dynamic phenomena in deep-space missions. Field testing in Chile.

Activity Mission Planning For **Crew On ISS**

Distributed Ops Testing



Self Driving Car

Adapt space robotics technlology to “fleet management” use.

Partnering Lander Concept

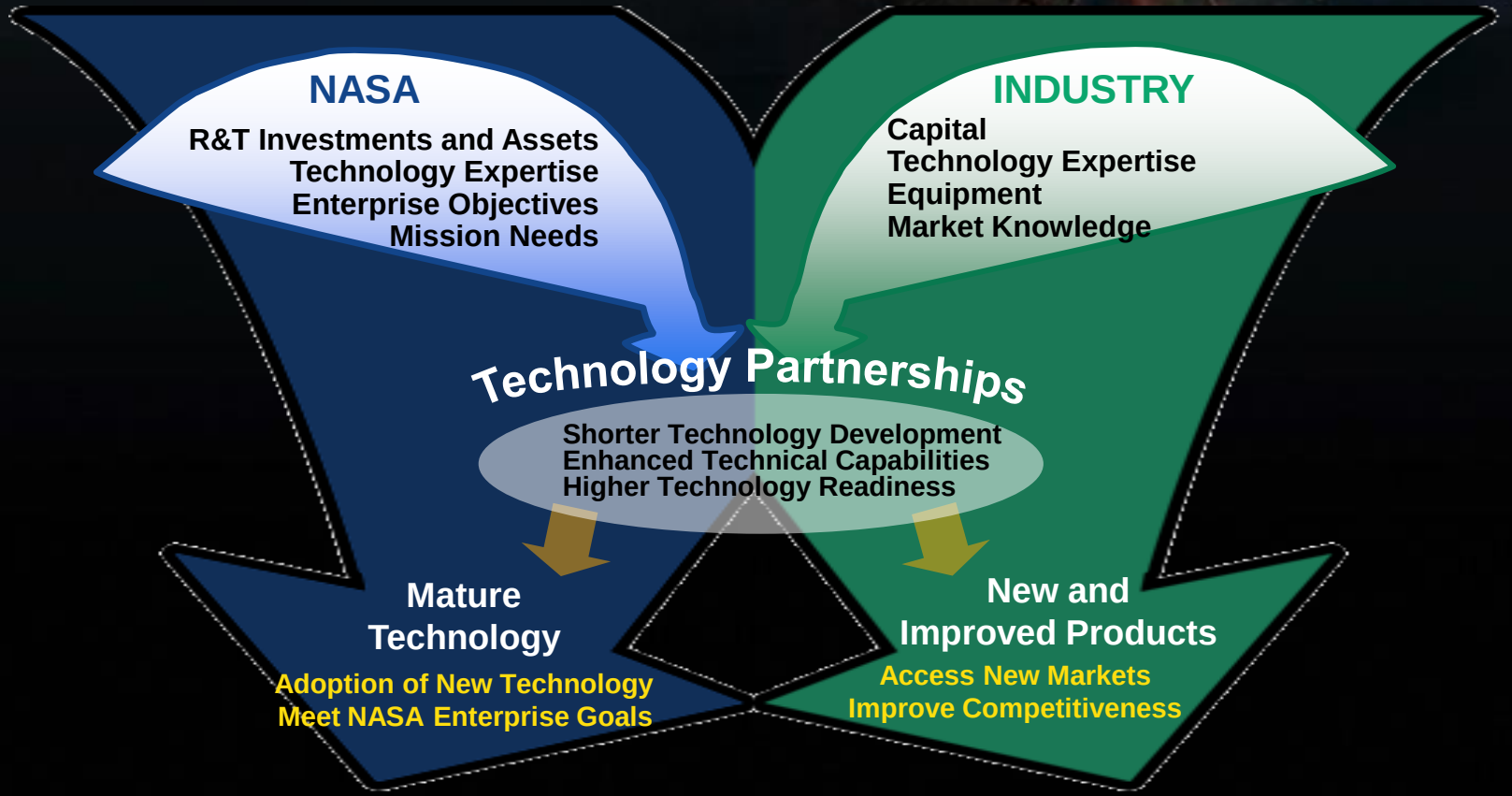
OVEN Reactor Heater

Synchronized **P**osition **H**old, **E**ngage **R**eorient, **E**xperimental **S**atellites

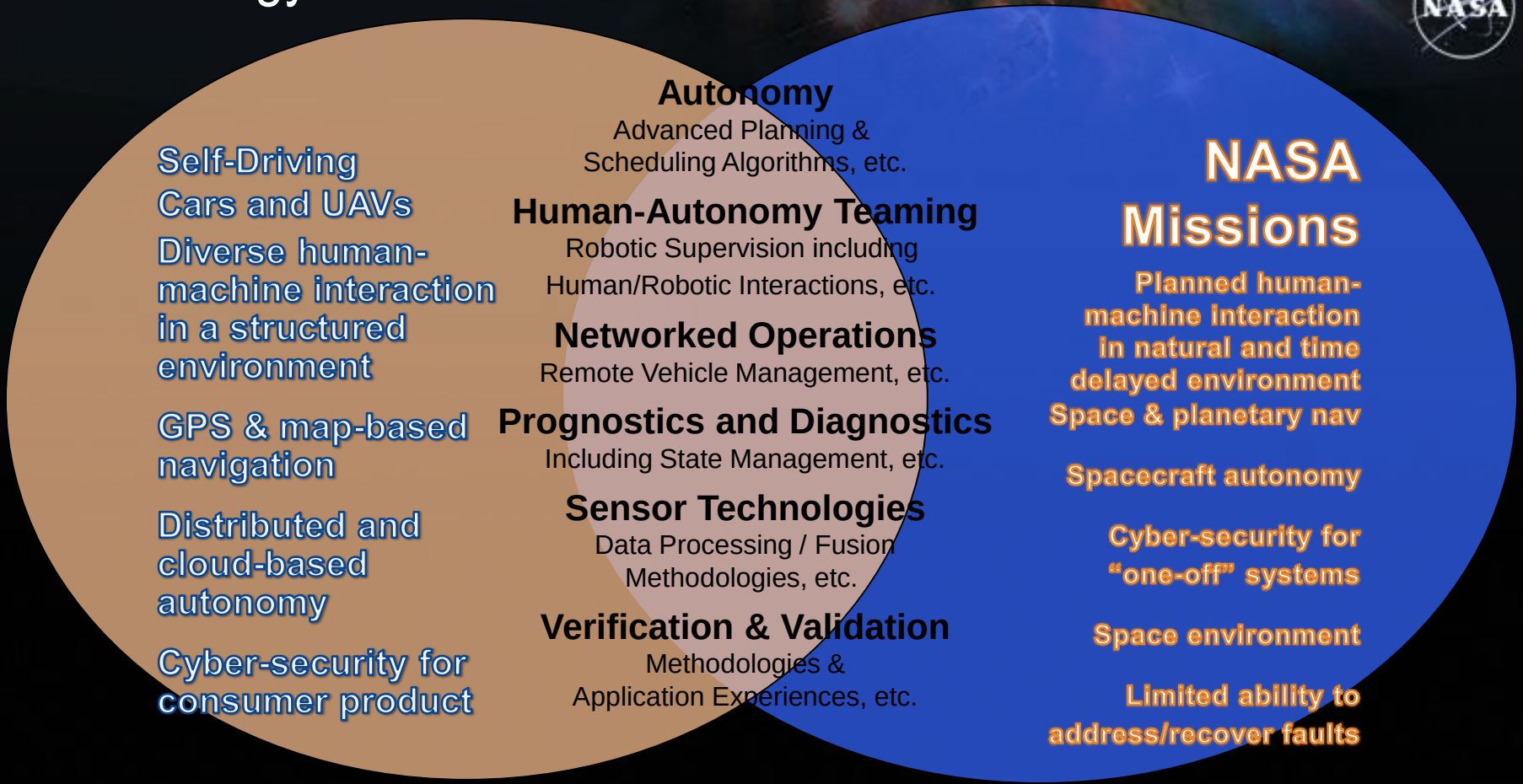
Astrobee Free-Flyer

Autonomous nav, docking and recharge, and mobile sensor IVA work on the ISS

Building Partnerships, Technology Transfer/Infusion



Technology Areas of Common Interest



Partnerships at Ames

- Partnering with external organizations to access capabilities under collaborative agreements
- Entering into reimbursable agreements for partner access to NASA capabilities
- Expanding overall landscape of space activity (maximizing public and private sector growth)
- Spurring innovation
- NASA International Partnerships (NASA I2)

International

Commercial

Virtual Institutes

NAI: the Community

Interagency

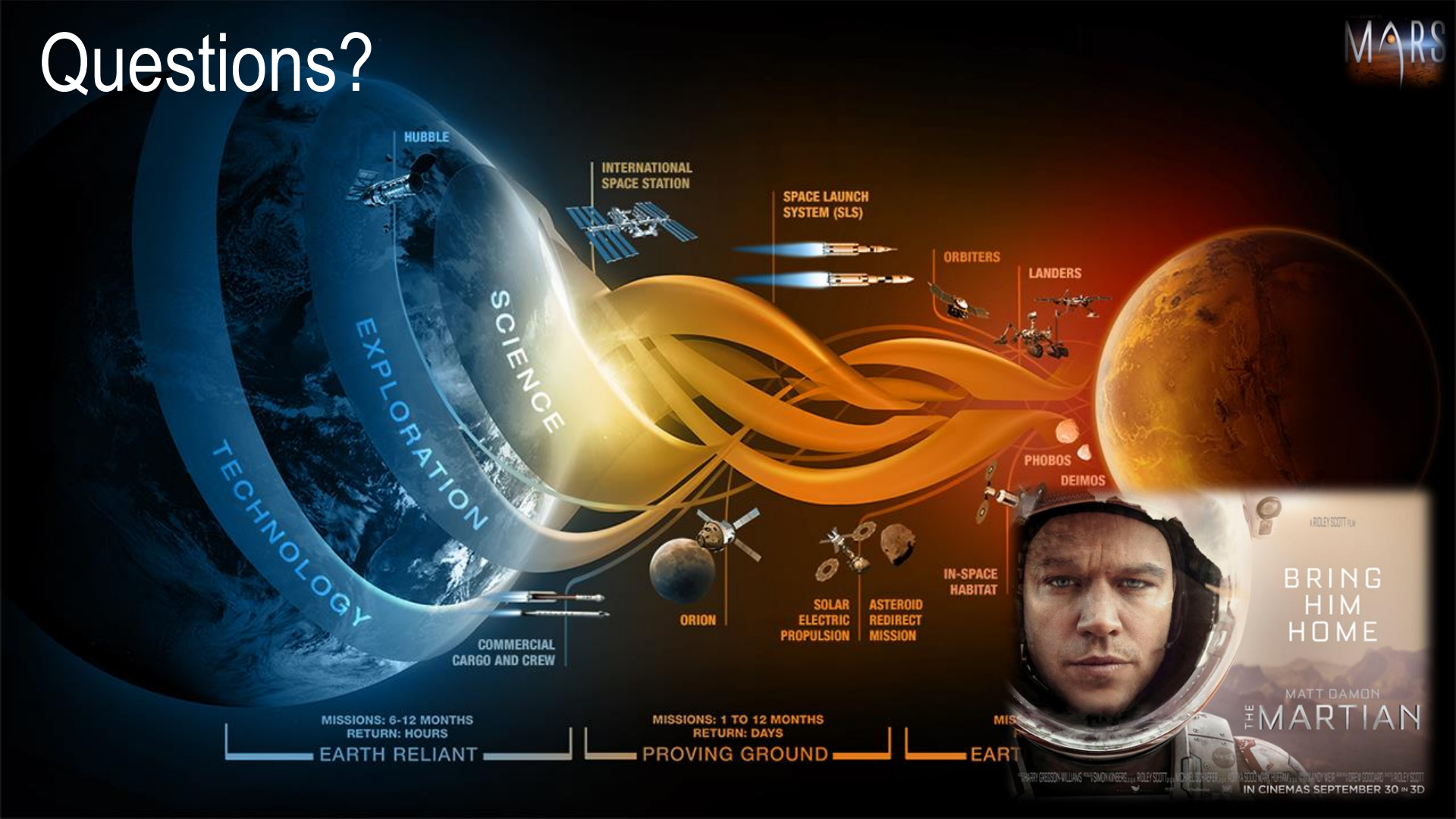
Military

NASA Research Park

Academia

NASA Centers

Questions?


MARS
HUBBLE
INTERNATIONAL SPACE STATION
SPACE LAUNCH SYSTEM (SLS)
ORBITERS
LANDERS
SCIENCE
EXPLORATION
TECHNOLOGY
PHOBOS
DEIMOS
IN-SPACE HABITAT
ORION
SOLAR ELECTRIC PROPULSION
ASTEROID REDIRECT MISSION
COMMERCIAL CARGO AND CREW
MISSIONS: 6-12 MONTHS
RETURN: HOURS
EARTH RELIANT
MISSIONS: 1 TO 12 MONTHS
RETURN: DAYS
PROVING GROUND
A RIDLEY SCOTT FILM
BRING HIM HOME
MATT DAMON
THE MARTIAN
IN CINEMAS SEPTEMBER 30 IN 3D

NASA Technology and The Oil and Gas Industry

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Intelligent Adaptive Systems

Possible areas of collaboration:

- Drill systems
- Intelligent robotic systems
- Human and robotic teams
- Automated scheduling

Planetary Lake Lander
Adaptive science for dynamic phenomena in deep-space missions. Field testing in Chile.

Planning And Scheduling For **Human Robotic Teams** / Future

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Self Driving Car
Adapt space robotics technlology to “fleet management” use.

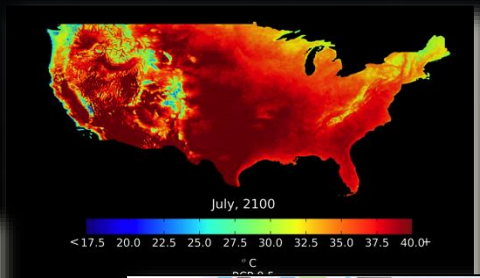
Advanced IT and Computing Systems

Possible areas of collaboration:

- Modeling flume
- CFD
- Scheduling optimization
- Data analysis

Large Scale Visualization

Supercomputing Systems



NEX

Big Data Analytics

Quantum Computing

Cost-Effective Space Missions @ Ames

Possible areas of collaboration:

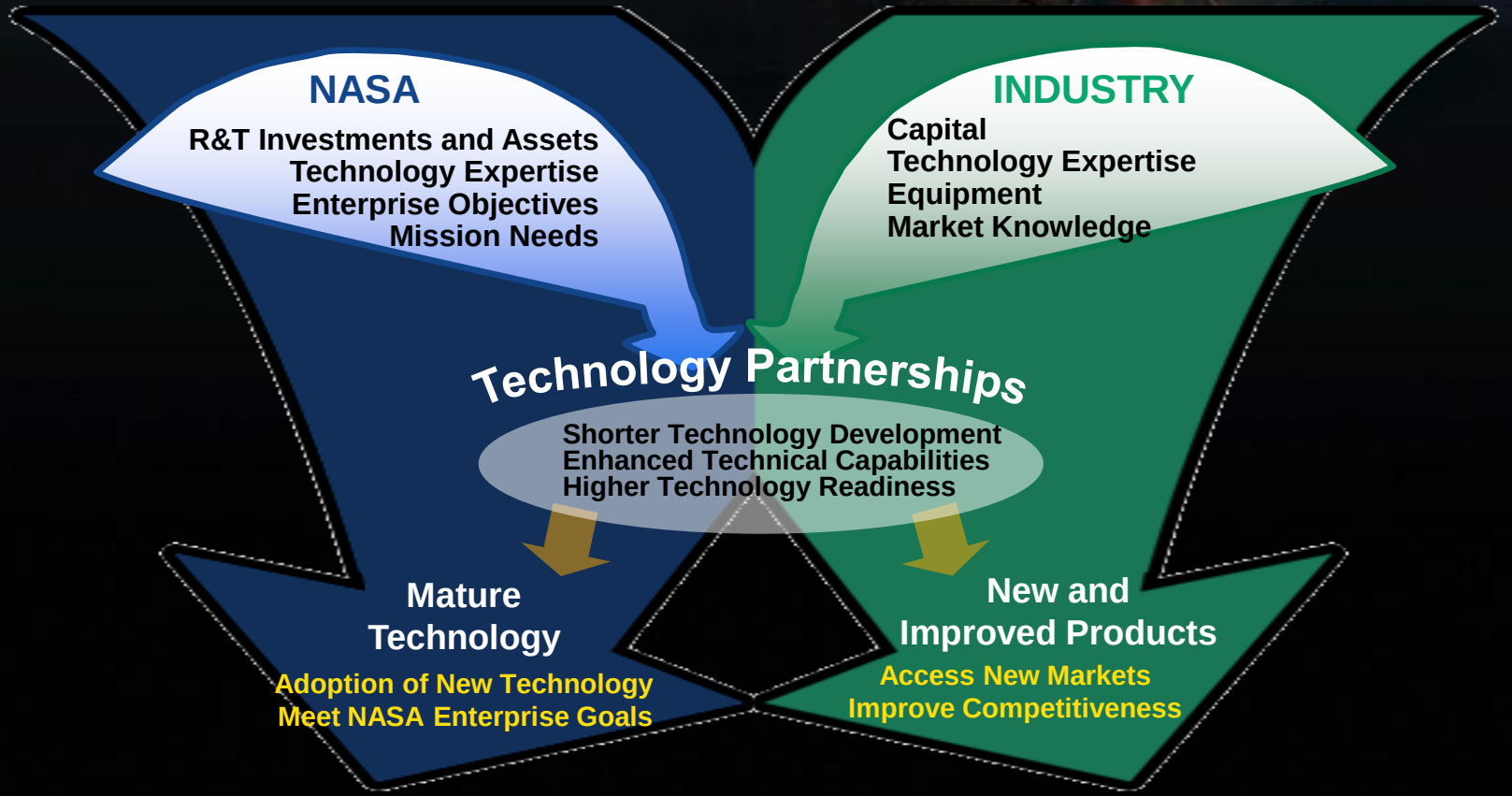
- Remote sensing
- Safety culture
- Project management

Aerosciences

Possible areas of collaboration:

- Remote sensing
- Drones for inspections
  - Fire Detection
  - Leak detection
  - Construction monitoring

Building Partnerships, Technology Transfer/Infusion



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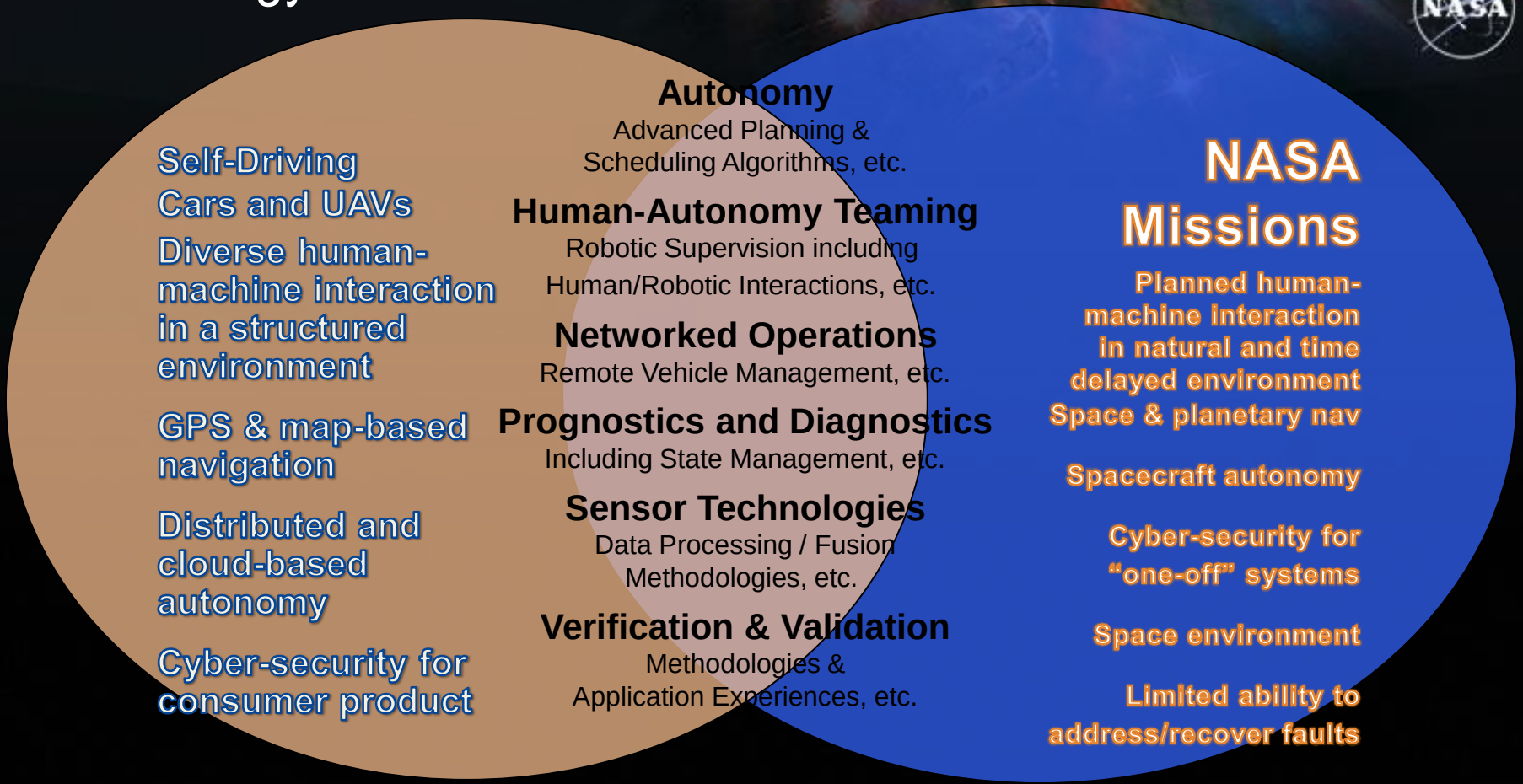

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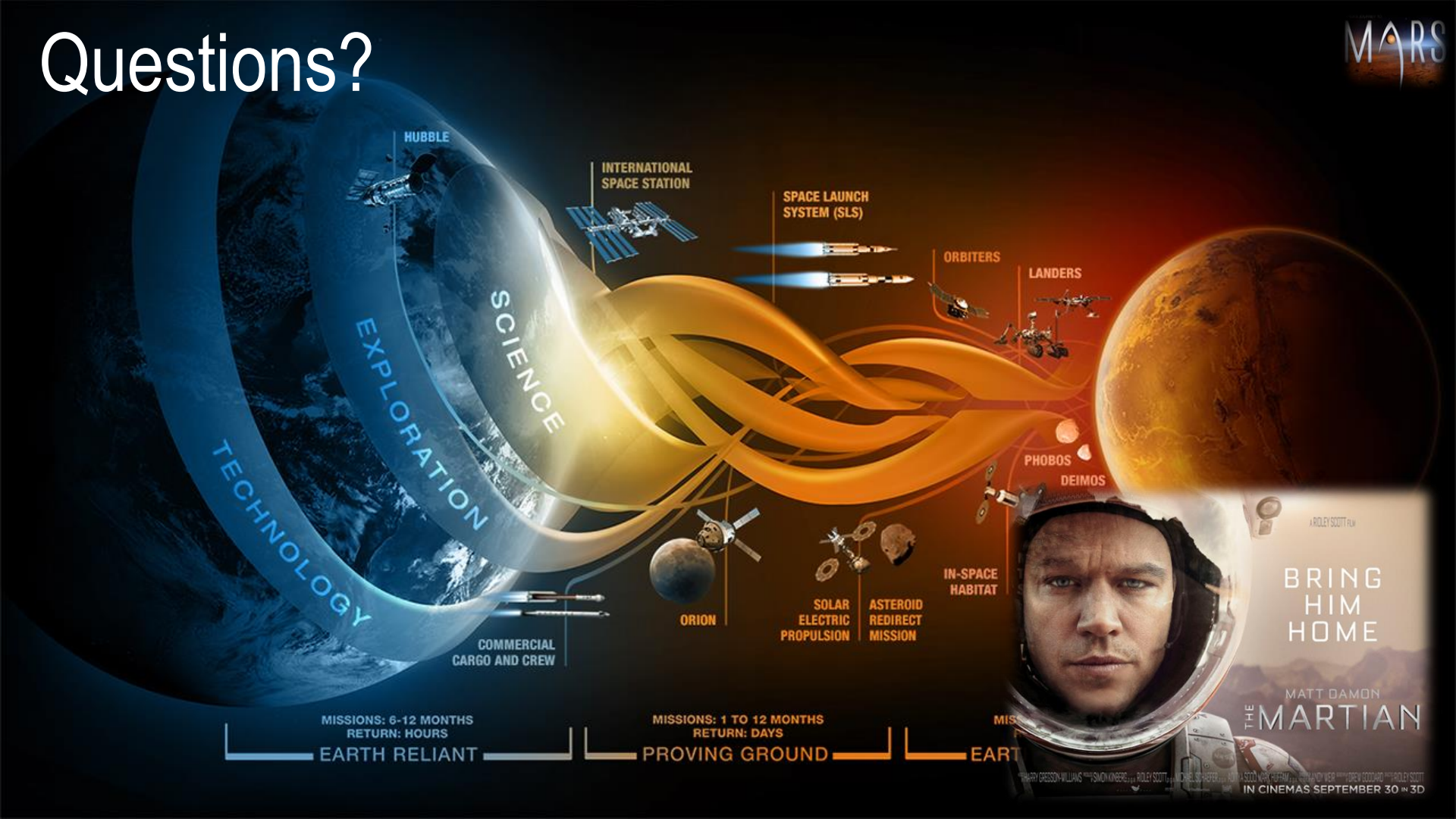
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