NASA Stakeholders in SLS Orion

LOCKHEED

MARTIN

CONTROL **System Product Teams (SPT's) CONSOLE OPERATOR** Each team, one for each discipline, has unique protocols and hazards they're trying to mitigate. Every anomaly begins when detected by a Discipline Engineer. The Integration Engineers are then responsible for understanding how it fits into the bigger picture. They come from a variety of backgrounds and are "jacks of all trades (and masters of **MANUFACTURERS** none)." It is vital that they communicate with the other teams that may be affected so they can work together to find a solution, rather than trading one problem for another. INTEGRATION **BOEING ENGINEERS DESIGNERS**

COMMANDER

Outside Entities

Critical information is distributed and secured in a variety of locations, such as proprietary computer systems, that make it difficult to access. Billion dollar contracts and competing companies require security, which often creates hurdles for Integration Engineers. For example, entering credentials into multiple data portals is challenging, especially when time is limited near the end of a countdown. Before everything was digitized, physical documents in the room were always accessible, oddly making that a preferred storage method.

Crew in Space

ASTRONAUTS

This select crew of highly trained individuals are led by one mission commander who communicates with one designated person, usually a former astronaut, at Ground Control

Who prepares the vehicle before launch? What are their roles? Are they important to us?

PYROTECHNIC

ENGINEERS

LIQUID

HYDROGEN

CONSOLE

OPERATOR

Many more

teams exist.

What are they?

PYRO-

TECHNIC

CONSOLE

OPERATOR

~6 people

ENVIRONMENTAL

CONTROL SYSTEM

ENGINEERS

LAUNCH

DIRECTOR

SENIOR

PROGRAM

MANAGEMENT

MISSION

MANAGER

TRANSLATOR'

AGENCY-LEVEL

MANAGEMENT

ENVIRON.

Is there a difference between Mission Control and Ground Control?

LIQUID HYDROGEN

ENGINEERS

Management

The Integration Engineers consult senior program management (or possibly even agency level management) with a waiver or recommendation if they can't determine what caused the anomaly. Management decides if it's still safe to continue with launch countdown despite risks or to stand down.