

The background of the slide is a photograph of Earth from space, showing the blue atmosphere and white clouds. A satellite is in orbit, with a bright star or sun in the upper right corner. The word "TEAMIX" is written in large, white, sans-serif capital letters across the center. Below it, "Jet Propulsion Laboratory" is written in a smaller, white, sans-serif font. A blue orbital path is visible, and a small black cube is positioned near the bright star.

TEAMIX

Jet Propulsion Laboratory

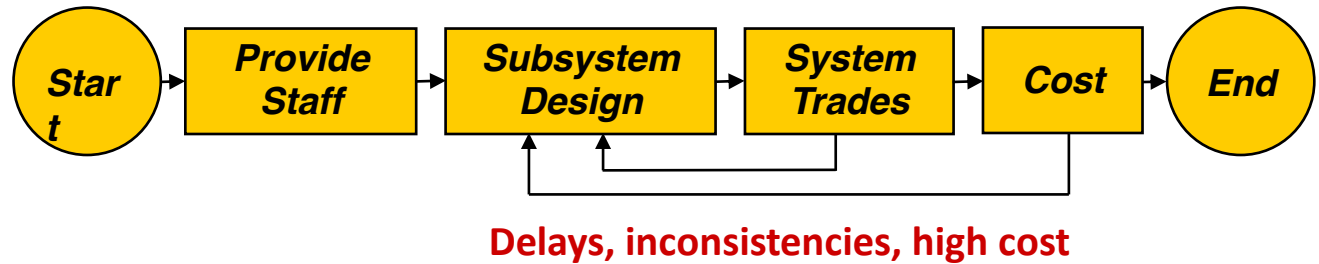
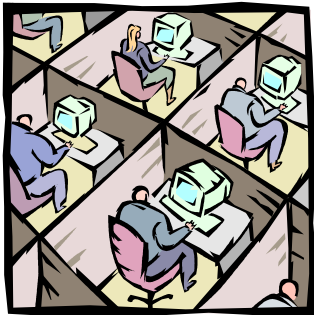
Pez Zarifian
April 29th, 2014

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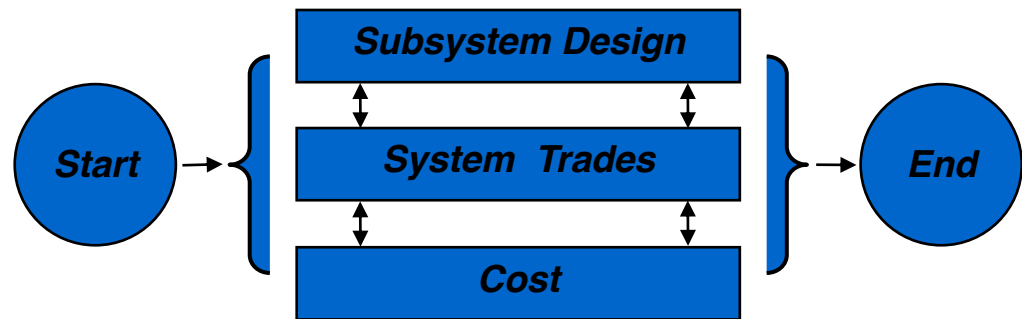
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JPL

- Traditional Engineering– Serial



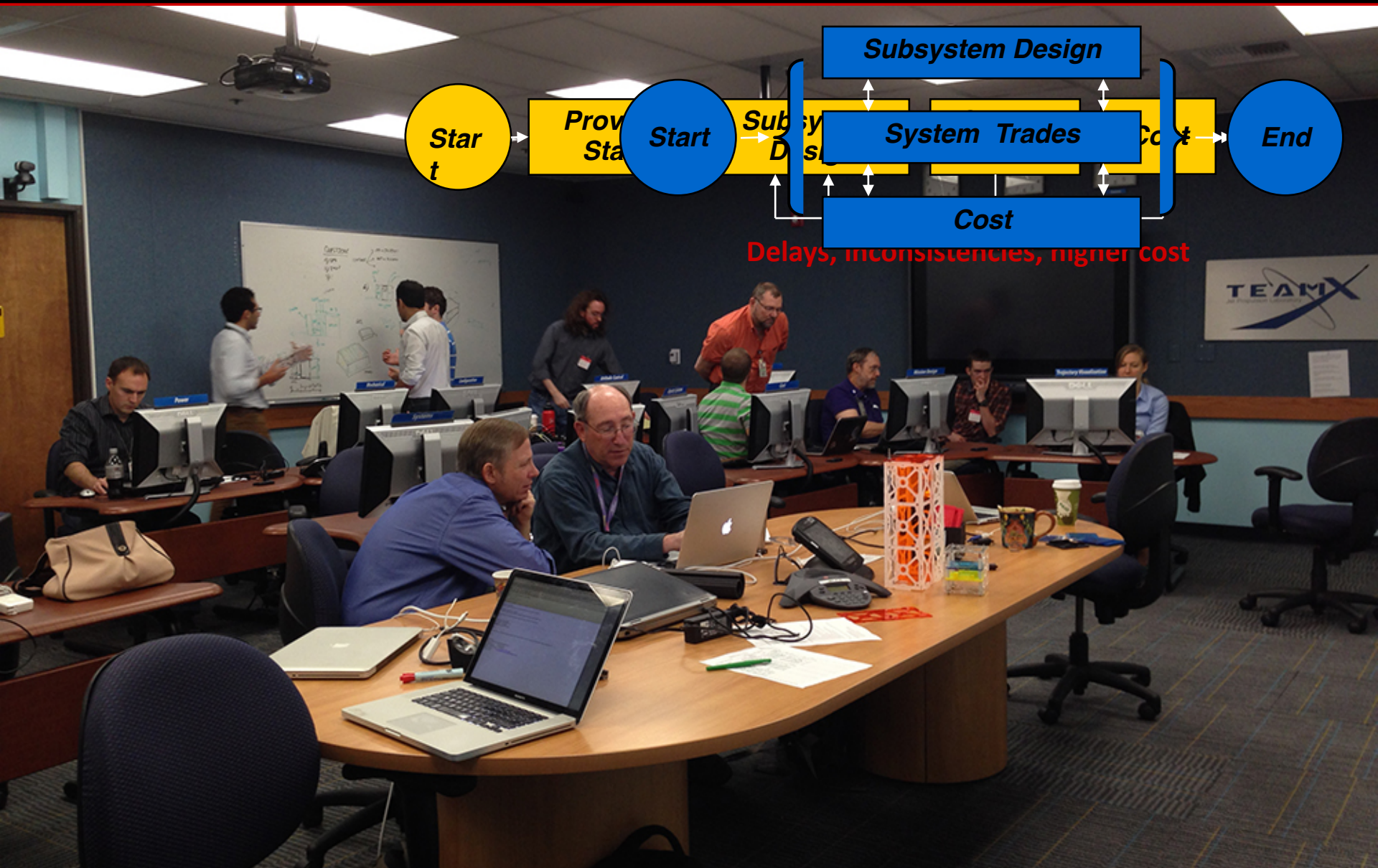
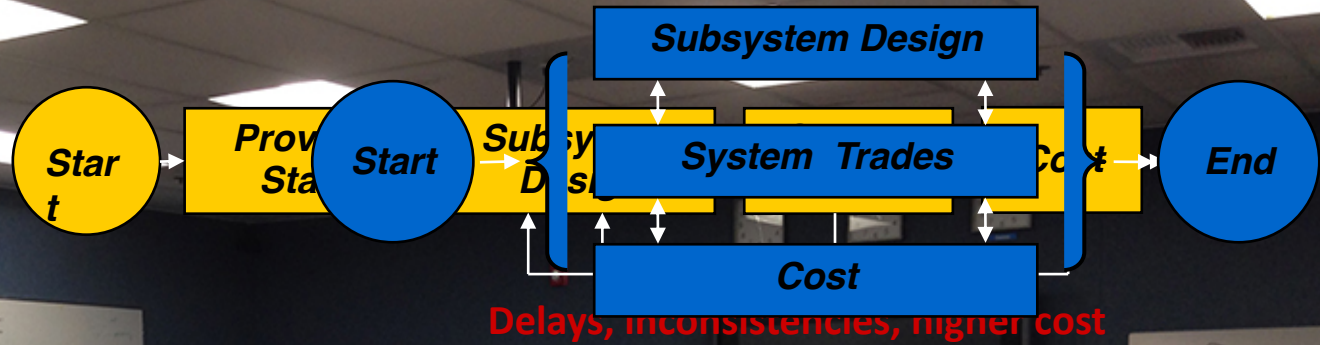
- Concurrent Engineering – Parallel



Agile, collaborative design team for CubeSats, NanoSats and SmallSats, built on Team X infrastructure

- ✦ Customizable studies and products
 - Feasibility
 - Trade Space Exploration
 - Point Design
- ✦ Proposal-Ready Products
- ✦ Fast Turnaround (2-4 weeks)
- ✦ Cost Effective (\$15K average)

Why Team X_c?



Team X_c's Feasibility Assessment aims:

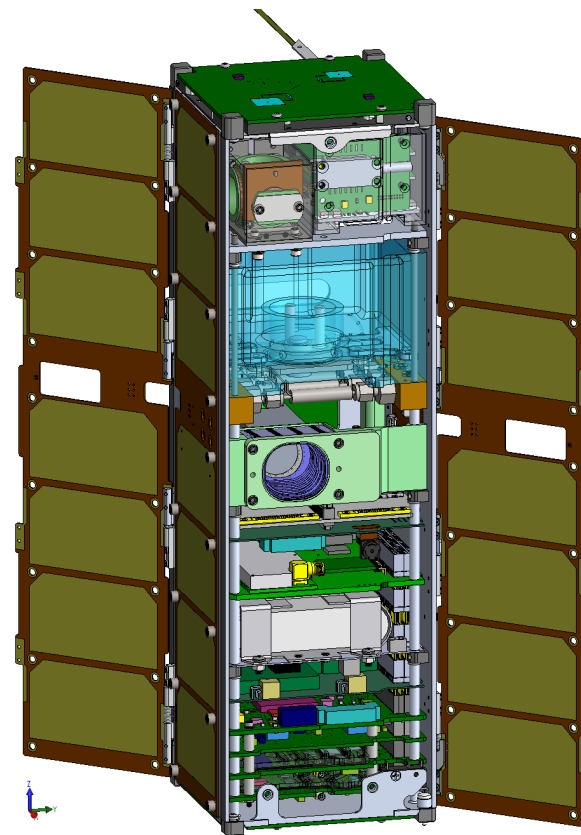
- ✦ Provide an answer to the following questions:
 - Can the mission objective(s) be accomplished with a CubeSat/NanoSat?
 - The reverse can also be asked – what can I do with a CubeSat/NanoSat?
- ✦ Provide the following products:
 - Feasibility of mission objective / payload
 - Recommendations on design to ensure feasibility
 - Insight into constraints, drivers, and trade-offs

Team X_c's Trade-Space Exploration aims to:

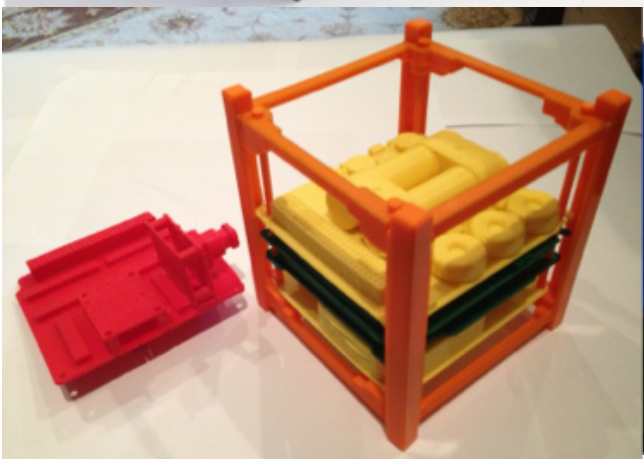
- ✦ Provide understanding of architectural trade space:
 - What architecture options should be considered?
Major drivers and/or sensitivities?
- ✦ Provide the following products:
 - Trade representations such as science value vs. cost or performance, Pareto Curves, etc.
 - Recommendations for most promising concepts for further elaboration

Team X_c's Point Design aims to:

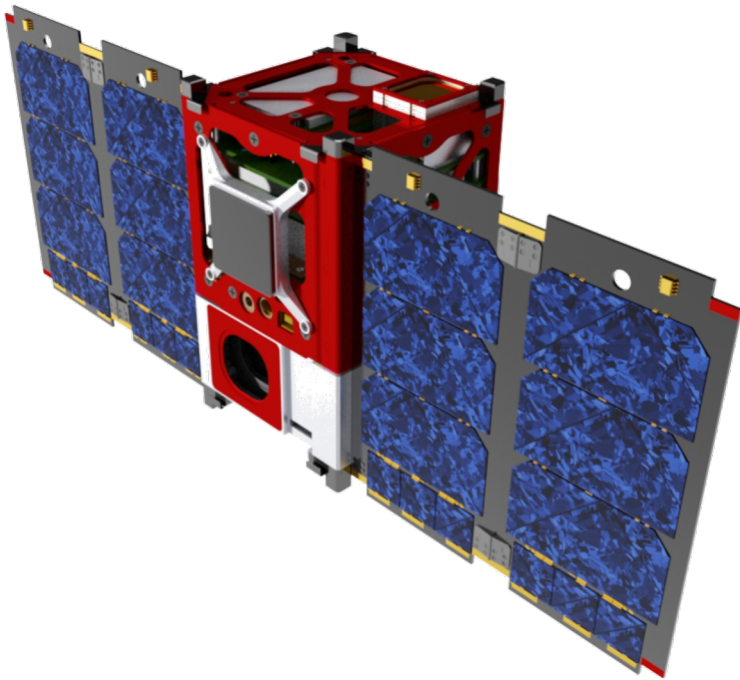
- ✦ Provide customer with top-level point design that meets mission objectives and requirements
- ✦ Provide the following products:
 - Component List, MEL, PEL
 - Orbit / Trajectory Design
 - Con Ops, Power Modes
 - Cost Analysis
 - Science Requirements Traceability
 - Schedule (Project Timeline)
 - Risk Analysis
 - Structure / CAD / Graphics
 - Link budget(s), EEIS, Ground System
 - Software (behavioral, new/old)
 - Visualization / Animation
 - Physical Representations (3D printed models)
 - Similarity / differences to representative missions



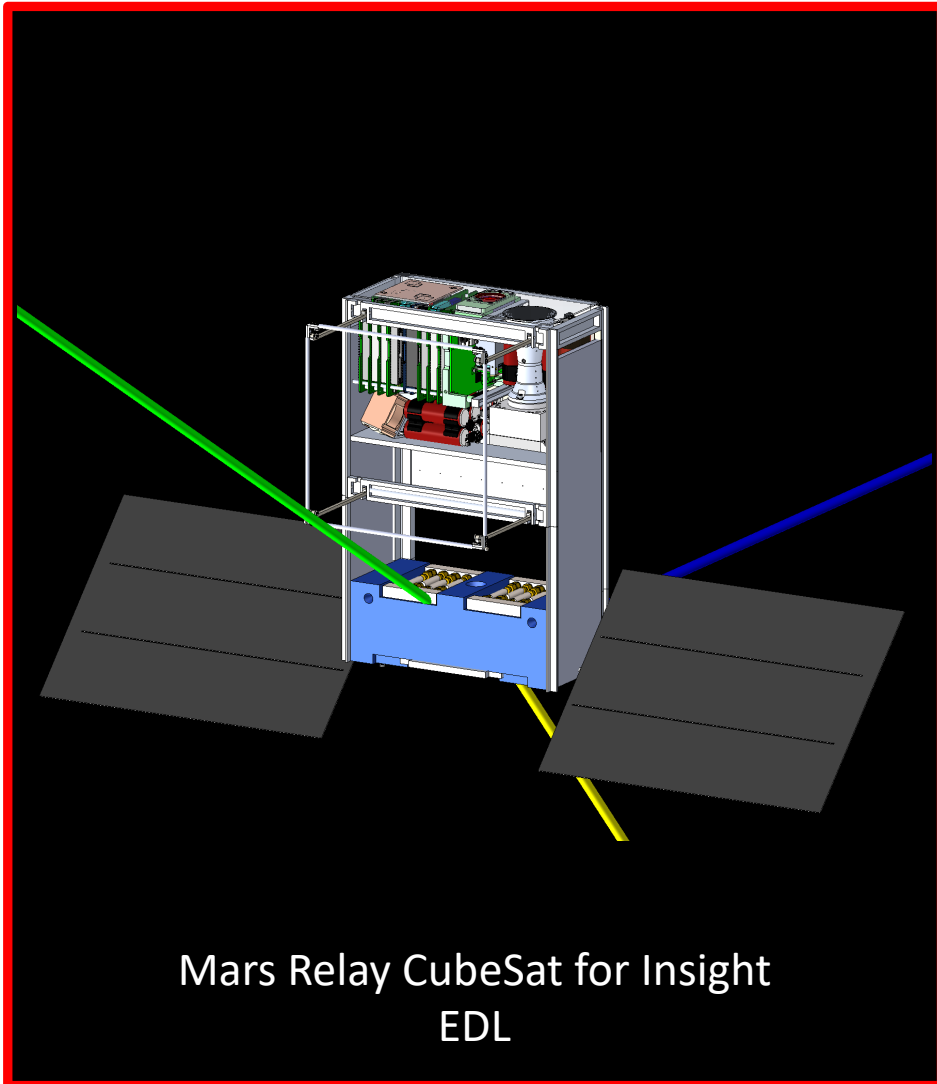
3D Printing and Models



- ✦ Obtain mission requirements, study inputs/output, and desired list of products from customer
- ✦ Hold planning meeting with customer
- ✦ Recruit necessary SMEs and plan study sessions
- ✦ Hold pre-session
- ✦ Conduct study sessions with SEs and SMEs
- ✦ Finalize study products and deliver briefing to customer



Ionospheric CubeSat
Swarm Pathfinder



Mars Relay CubeSat for Insight
EDL



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