

Welcome on behalf of ESA

SCEC

SPACE COST ENGINEERING CONFERENCE

3-4 October 2024

Toulouse
France



Studio Graphique CNES, 2023-1515

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Cost Engineering is a System Engineering discipline



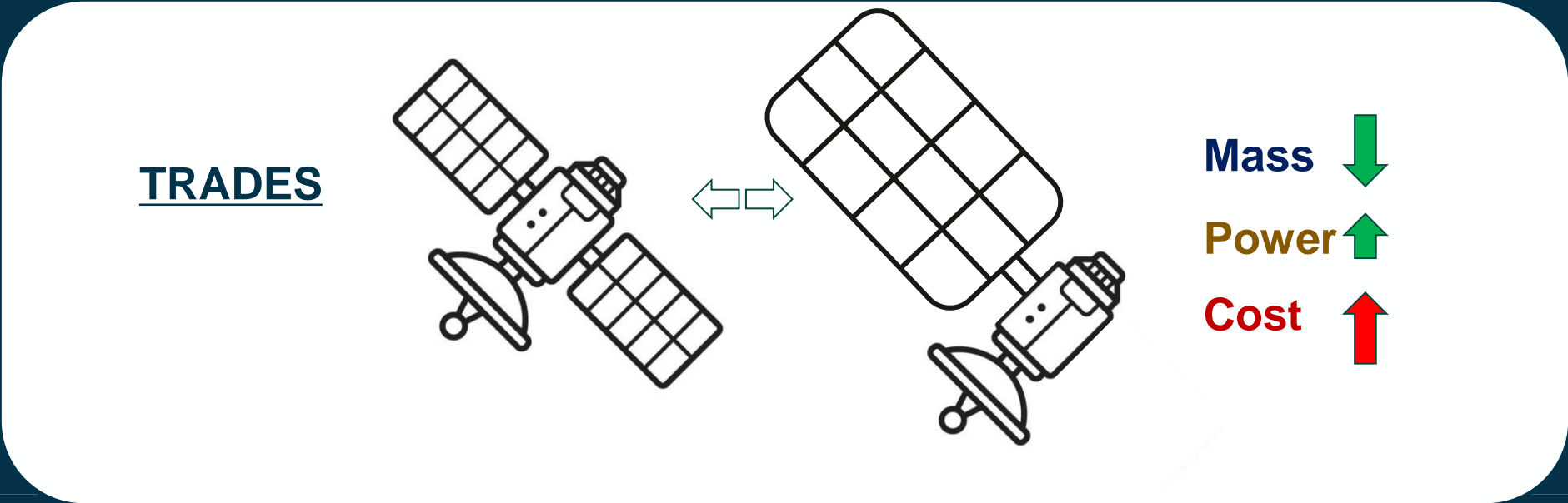
Cost is a Design Driver



Mass Budget			
Subsystem	Mass [kg]	Margin	Mass total [kg]
Power	43.00	2.75	45.75
Payload	31.00	2.96	33.96
Communications	28.20	5.22	33.42
Onboard Data Handling / Avionics	15.00	0.75	15.75
AOCS	92.86	2.45	95.31
Thermal Control	24.00	1.40	35.20
Additional Shielding	42.67	0.00	42.67
Chemical Propulsion System (dry mass)	37.60	3.63	41.23
Harness (5%)	15.72	0.00	15.72
Structure (20% of dry mass)	66.01	0.00	66.01
TOTAL (dry, without system margin)	396.05	22.18	418.23
System Margin (20%)	79.21		
TOTAL (dry, with margin)			497.44
Propellant			306.2
TOTAL (wet mass)			803.64

Power Budget			
Subsystem	Power Consumption [W]	Margin	Power Consumption total [W]
Power	48.0	0.0	48.0
Payload	18.5	1.8	20.3
Communications	165.0	16.3	181.3
Onboard Data Handling / Avionics	17.0	0.85	17.85
AOCS	198.6	99.3	297.9
Thermal Control	260	13	273
Chemical Propulsion System	5.0	1.0	6.0
TOTAL (without margin)	712.1	132.2	796.3
System Margin (20%)	142.4		
TOTAL (with margin)			986.67

Cost Estimate				
	Phase B2	Phase C/D	Phase E1	Total
	23,700	158,200	6,400	188,300
AOCS Equipment		15,000		15,000
RCS Equipment		11,000		11,000
Power Equipment		25,200		25,200
Harness		300		300
TT&C Equipment		0		0
Data Handling Equipment		13,000		13,000
Structure Equipment		8,000		8,000
Mechanisms Equipment		2,800		2,800
Thermal Control Equipment		3,500		3,500
Onboard AOCS Software		1,200		1,200
Onboard DHS Software		1,700		1,700
Ground Support Equipment		14,800		14,800
Assembly, Integration and Tests	600	12,500	3,800	16,900
Management & Control	6,200	13,100	600	19,900
Product Assurance	2,400	5,100	200	7,700
Engineering	14,500	31,000	1,800	47,300



New Space Challenges




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OPEN NOW

CALL FOR PROPOSALS

LEO CARGO RETURN SERVICE

AXIOM
SPACE

BUILDING THE WORLD'S FIRST
COMMERCIAL SPACE STATION



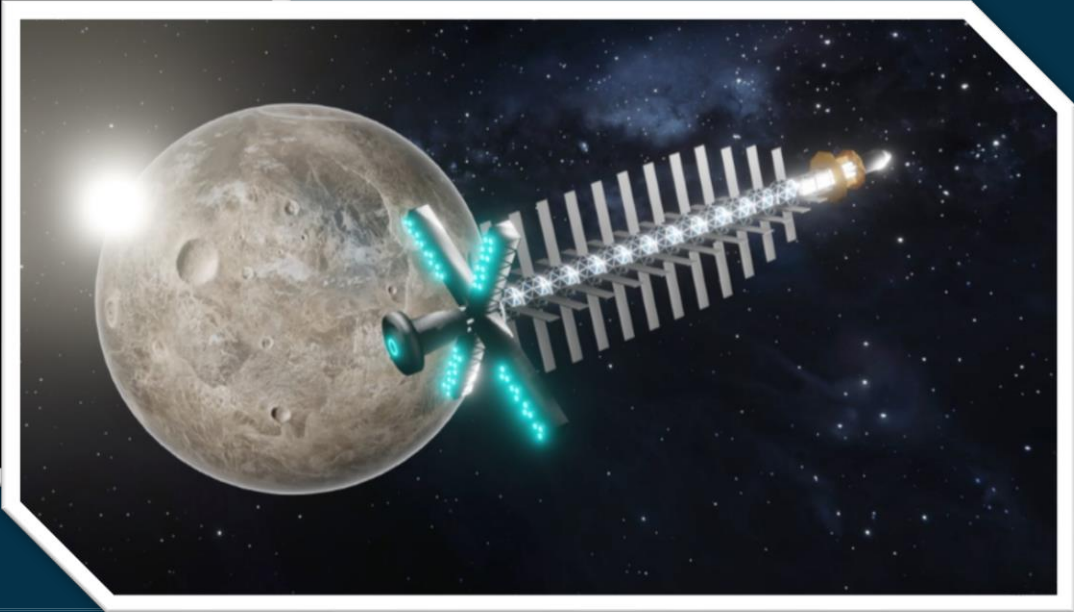
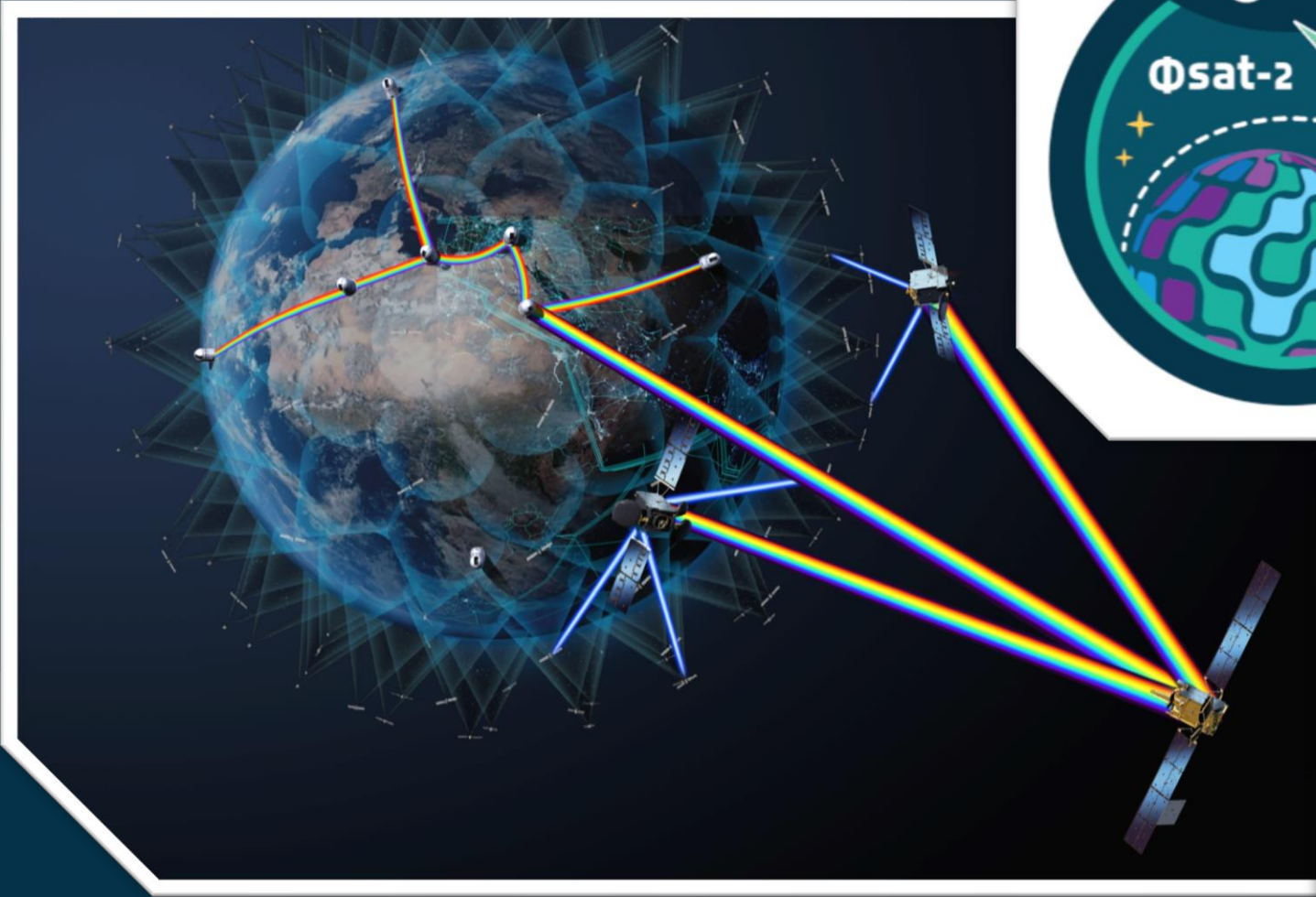
AxH1 | 2024 AxH2 | 2025 AxL | 2026 AxPT | 2027



Evolution of Methods and Tools



Impact of New Technology



Enjoy a fruitfull conference !



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