Seminario

"C'è spazio per un lanciatore made in Italy?"

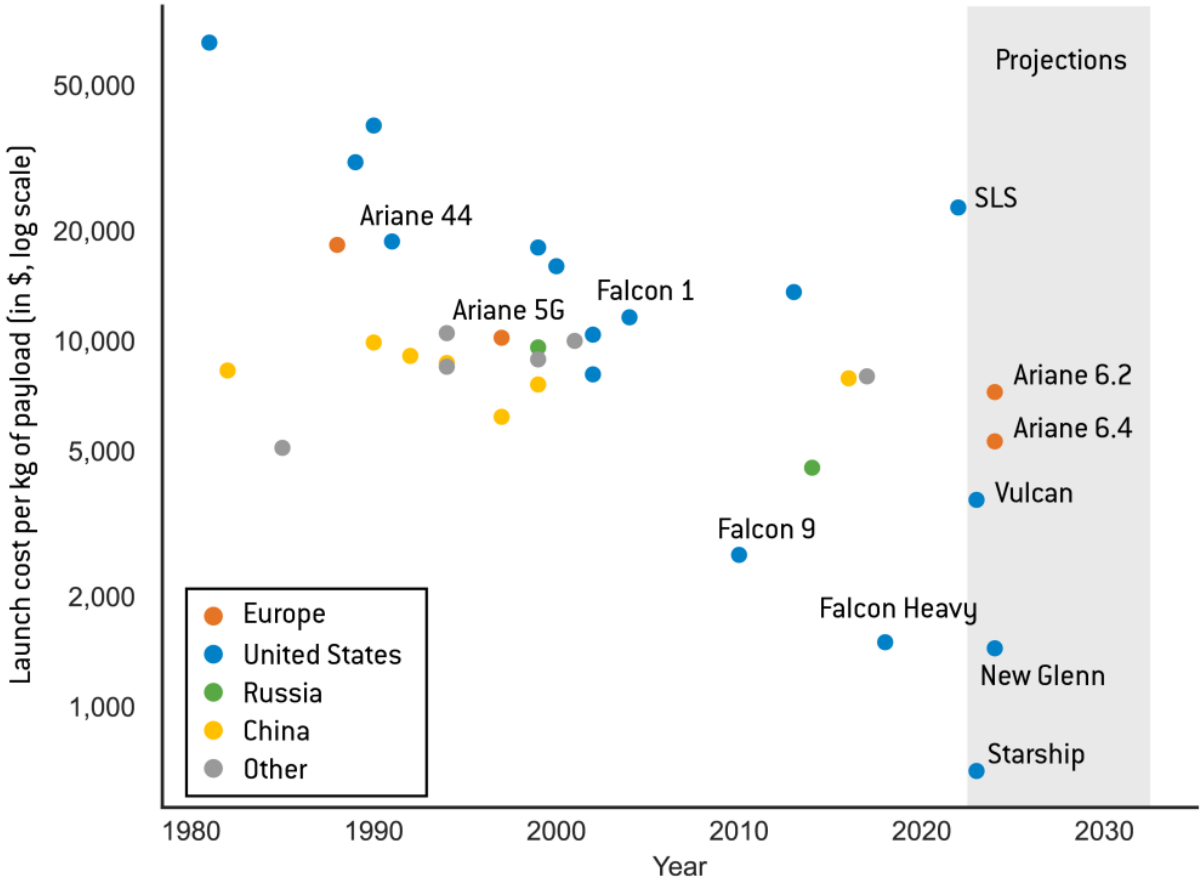
Accesso indipendente allo spazio: l'esperimento del progetto SIMONA

Dr. Ing. Stefano Carletta

09/03/2026
Scuola di Ingegneria Aerospaziale, Roma

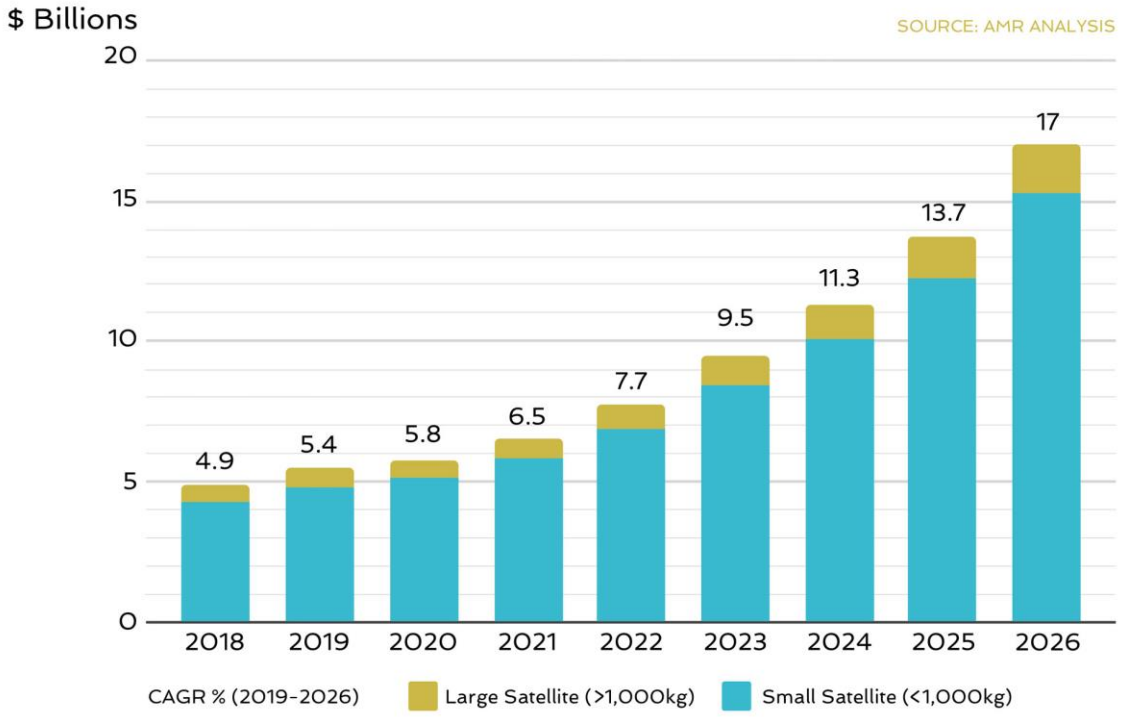
Rideshare vs Dedicated

Frost & Sullivan (2019) - Small Satellite Launch Services Market, Half-yearly Update, H1 2019, Forecast to 2033

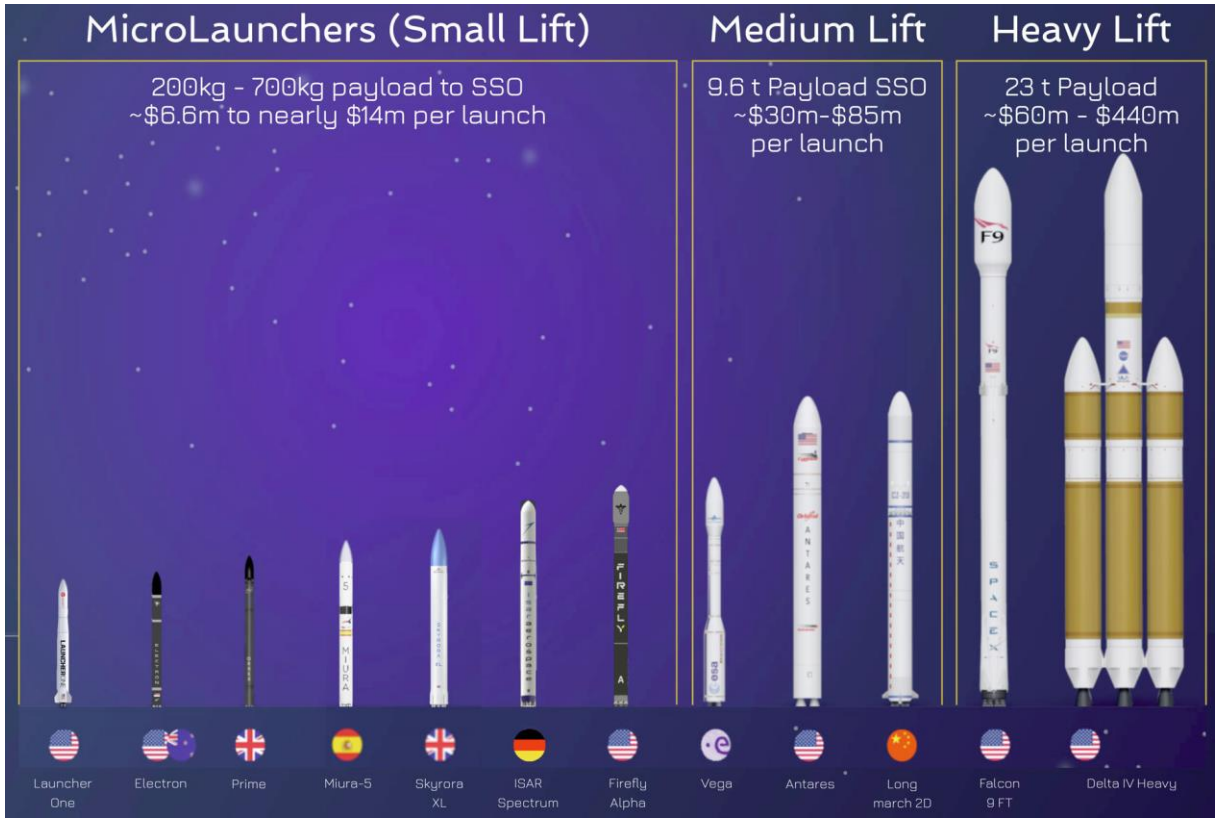


Bruegel (2023) - Can Europe make its space launch industry competitive?

Rideshare vs Dedicated

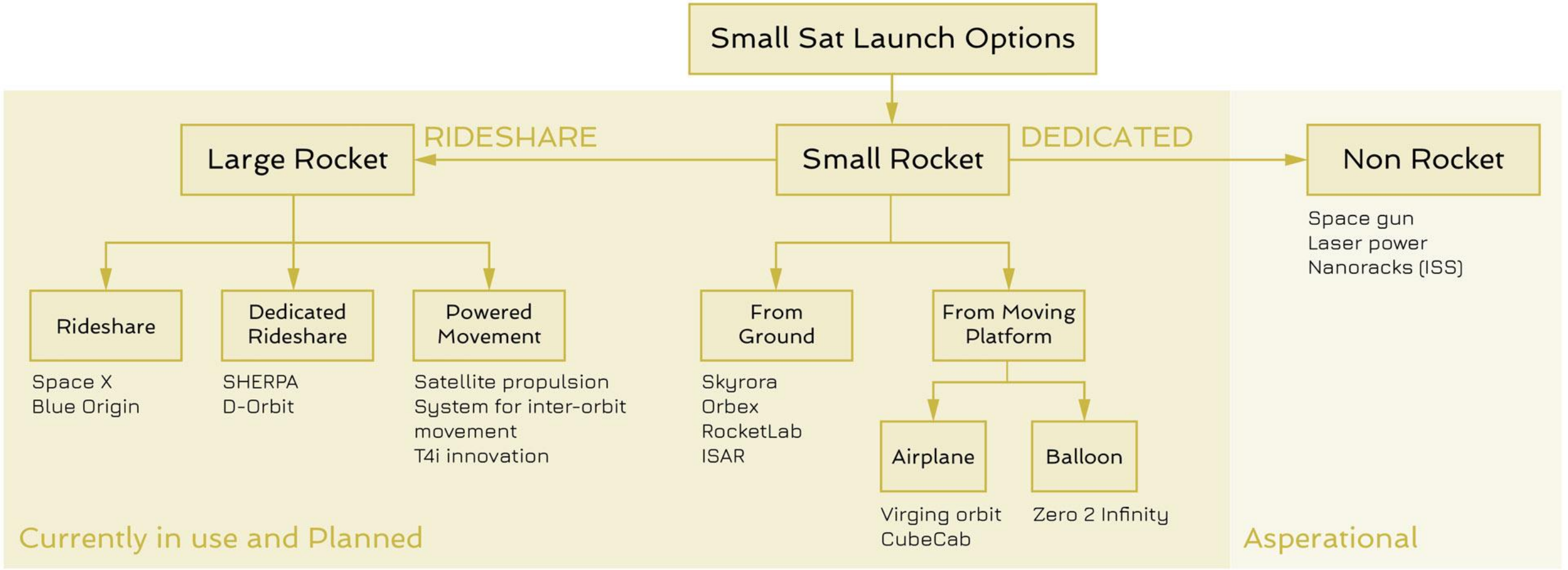


Allied Market Research (2018) - Global Space Launch services market



PSION (2021) – Microlaunchers benefits and opportunities of small-sat launchers

Rideshare vs Dedicated



PSION (2021) – Microlaunchers benefits and opportunities of small-sat launchers

SIMONA, il Sistema Italiano Messa in Orbita da NAve

progetto S.I.M.O.na.

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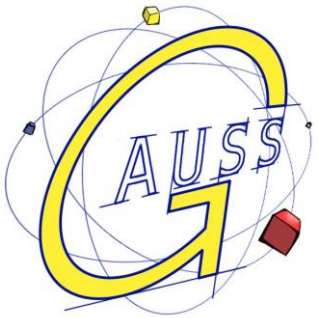
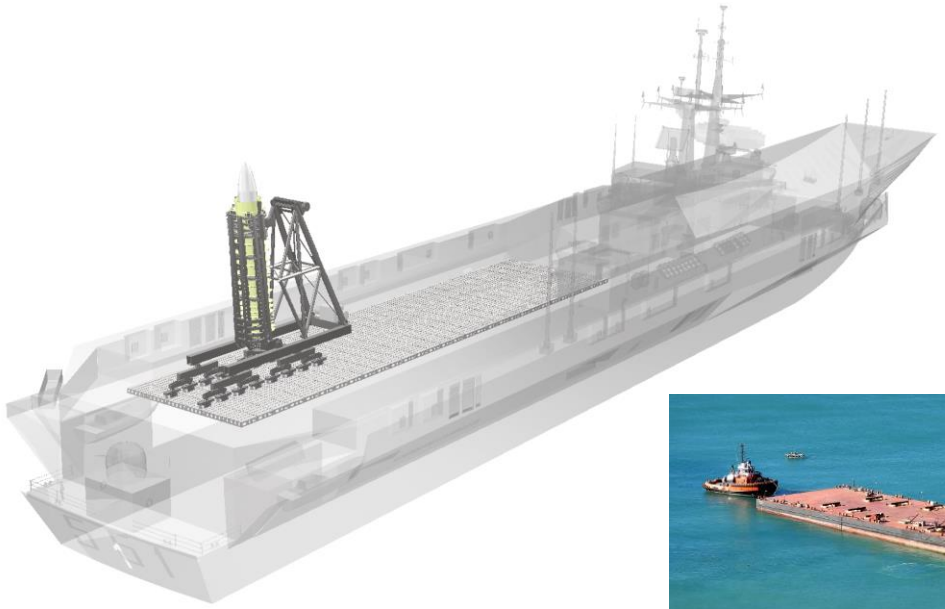


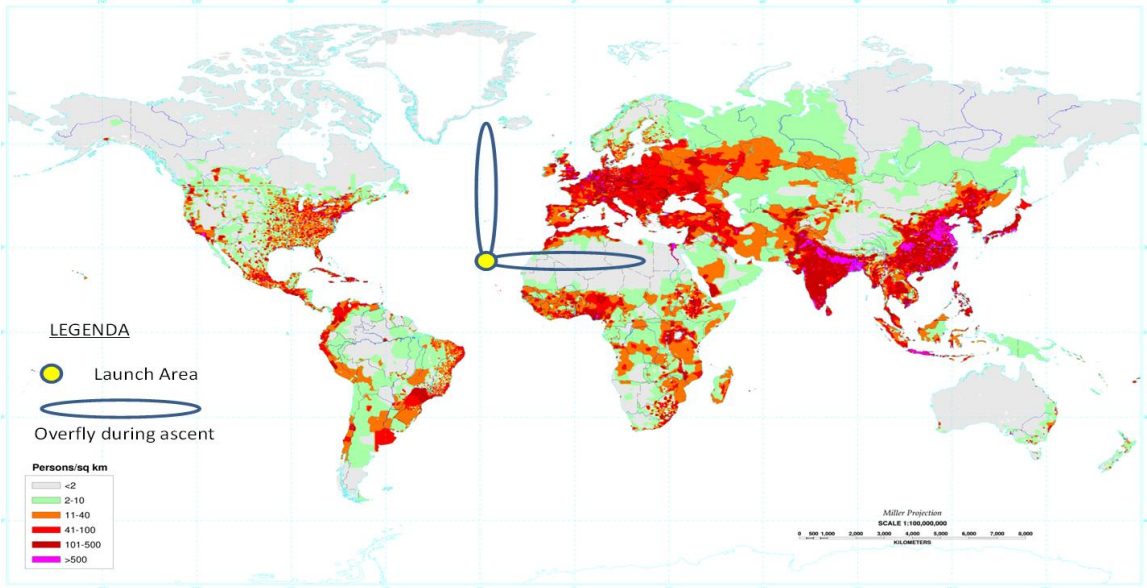
Group of Astrodynamics for the Use of Space Systems

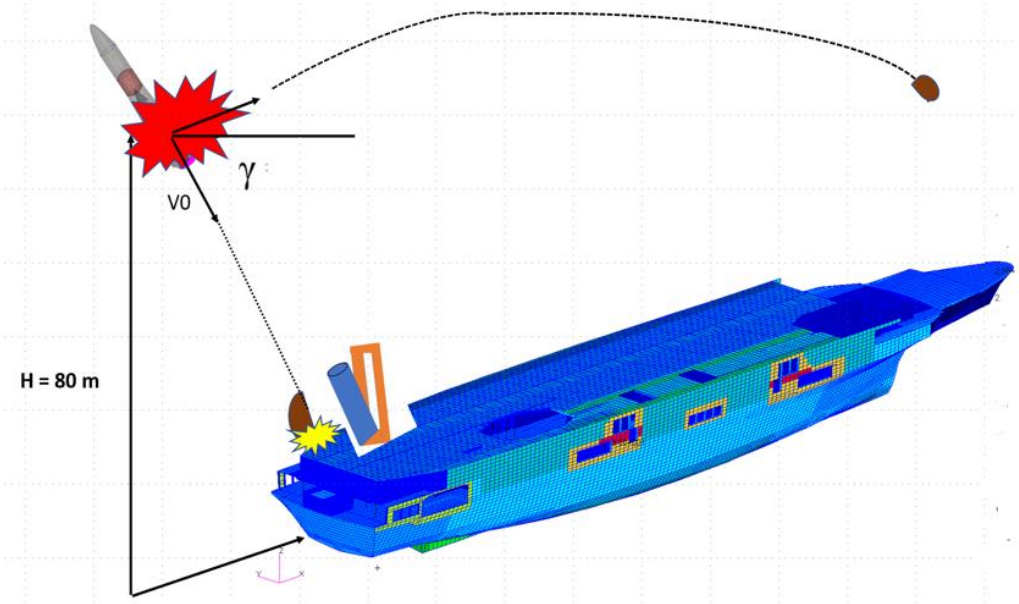
MaBa consulting

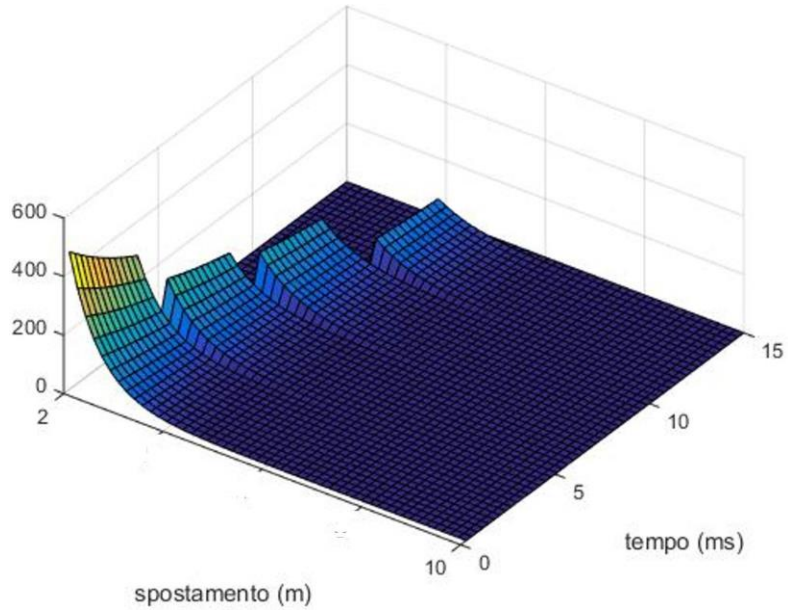
FINCANTIERI

SIMONA: Sistema Italiano Messa in Orbita da NAve

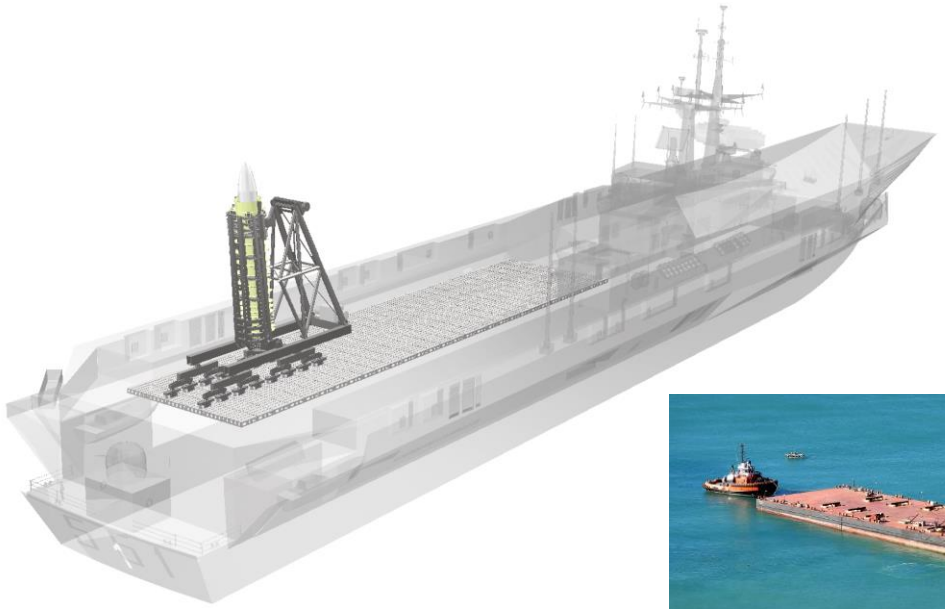




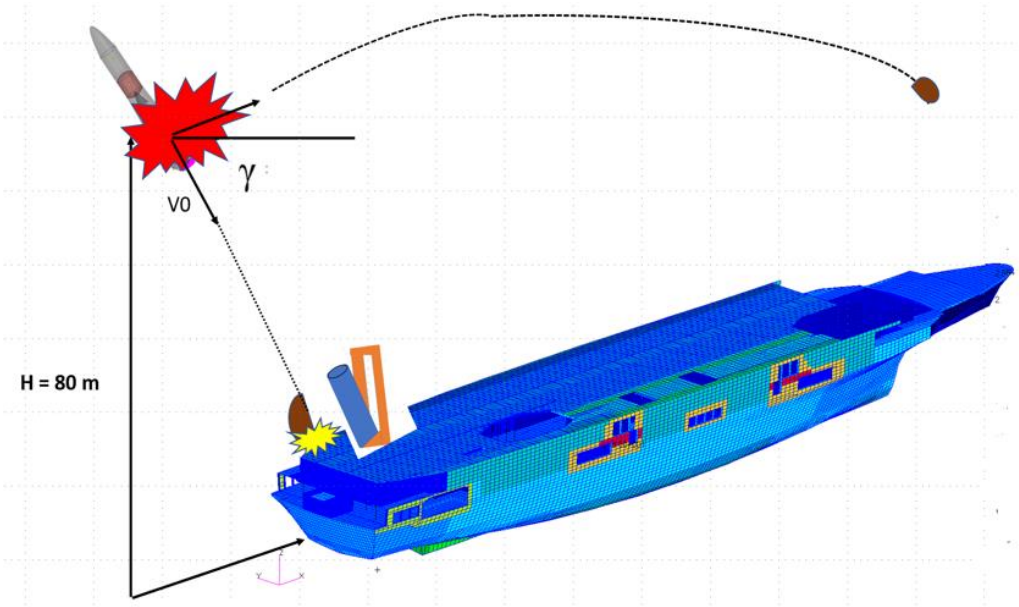


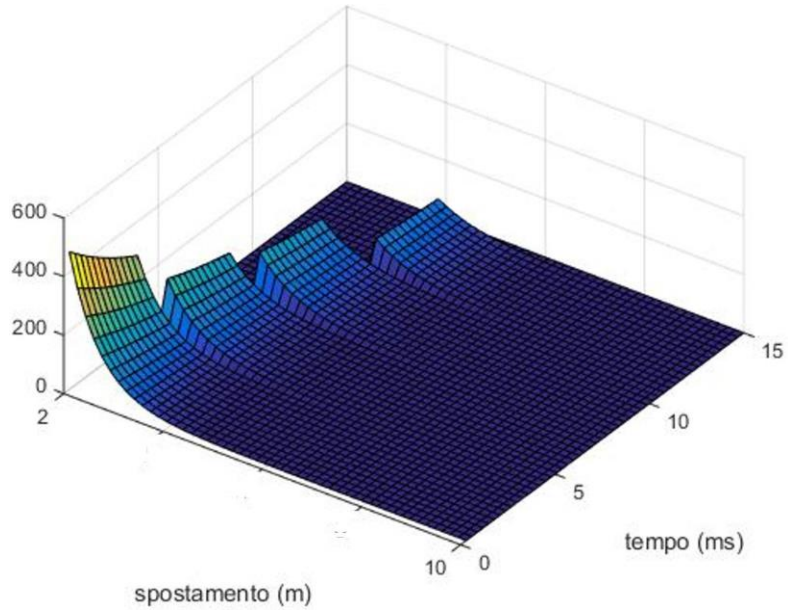


SIMONA: Sistema Italiano Messa in Orbita da NAve



Obiettivo e requisiti SIMONA: Estrarre un microlanciatore (60 ton) fino alla quota di sicurezza di 80 m (da ponte nave) garantendo una distanza orizzontale di almeno 30 m ed un'accelerazione limite di 8g





Sistemi di lancio da piattaforma marina (e non)

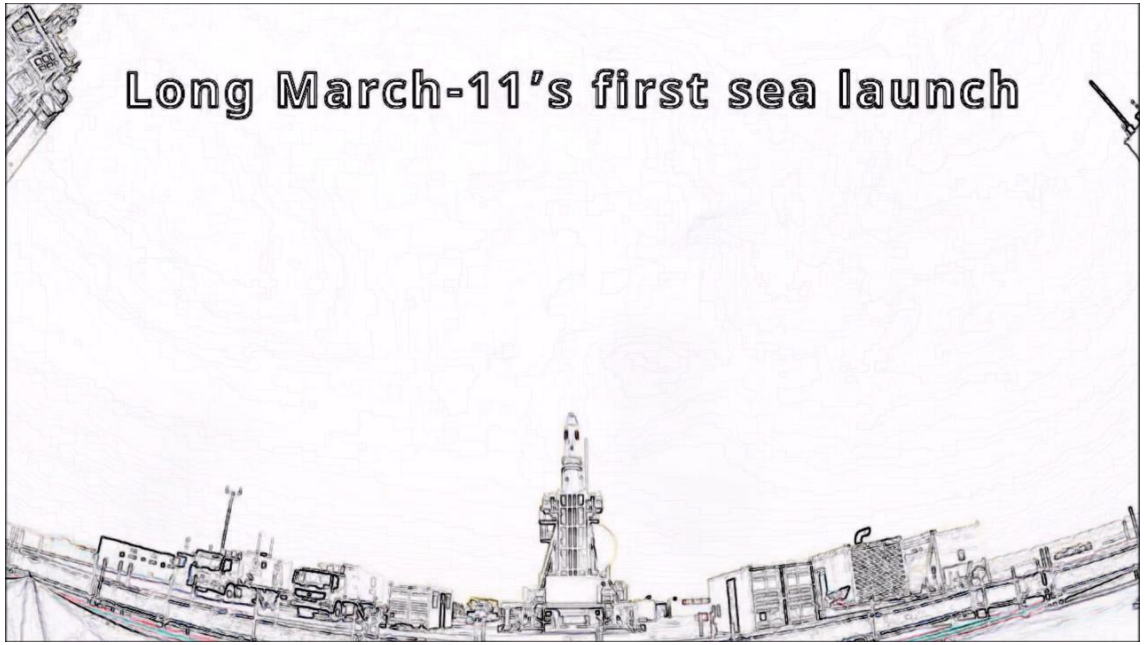
Piattaforma San Marco (1967-1988)

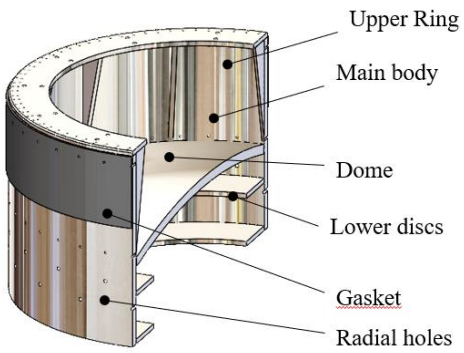
Sea Launch Company (1999-2014)

Long March 10/11 (2019 –)

Dnepr (1999 – 2015)

Studio dello stato dell’arte

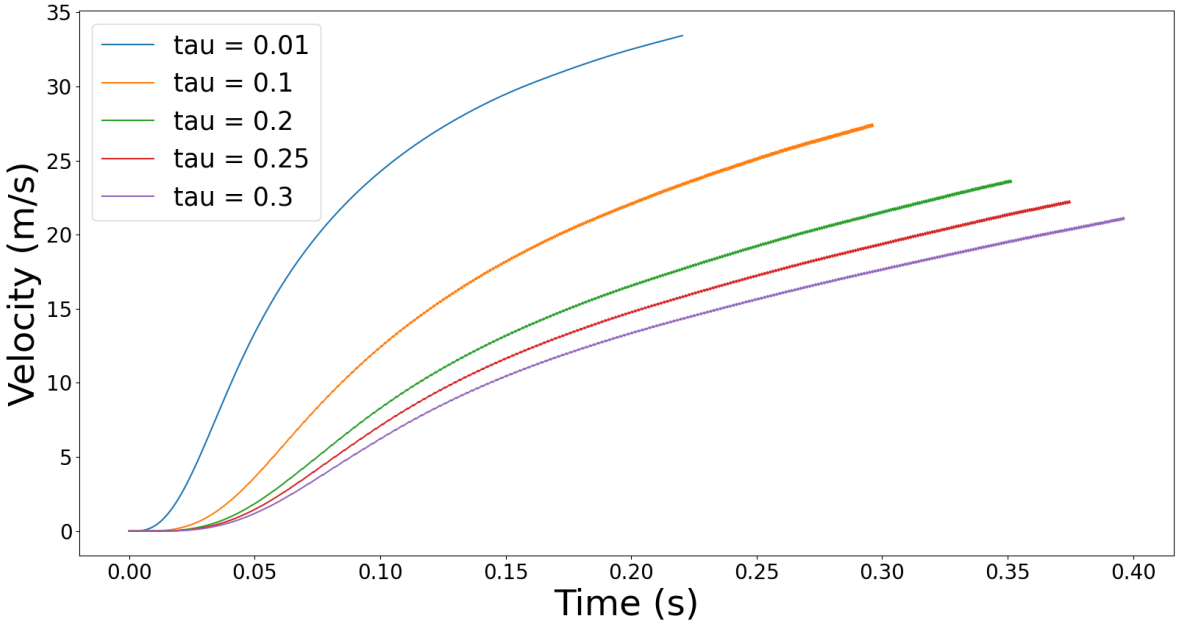




Il dimostratore Aquila

Dimostratore 5m (L) x 48cm (Φ) ; p_{max} = 15 bar ;
V_0=3m^3

I primi lanci



	Steady State	1 Inlet	2 Inlet	3 Inlet
h max [m]	64	18	44	60
s max [m]	100	16	46	>88
a max [g]	22,6	15	25,7	29,1
a mean [g]	15,1	4,6	9,6	13,2
p max [bar]	3,8	1,4	1,9	2,8
p mean [bar]	2,9	0,5	0,9	1,3

p0 [bar]	12
m [kg]	220
alpha [°]	70

Calibrazione del dimostratore Aquila

TEST NUMBER	Time	Pressure tank	Pressure ports	Missile	Sabot	Cage
2024_28_05_1	h.12.30	12 bar	2	200 kg	20 kg	Yes
Elevation angle			70 deg			
Pressure reductor			3.5 bar			
IMPACT POINT			42.5 m			
Pressure file			✓			
Acceleration file			✓			

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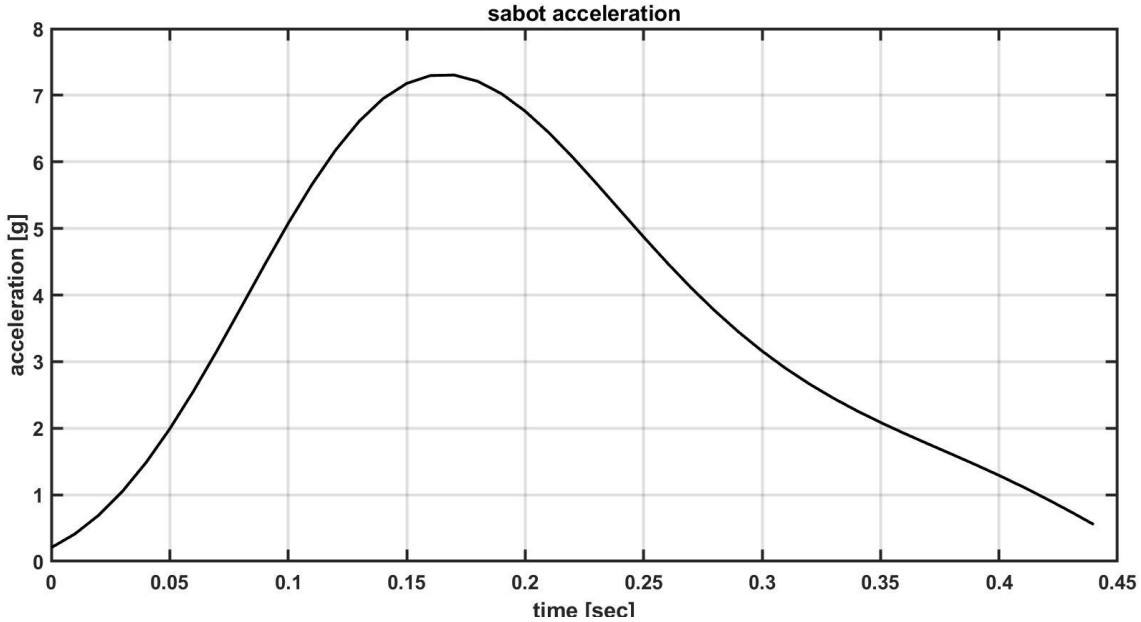
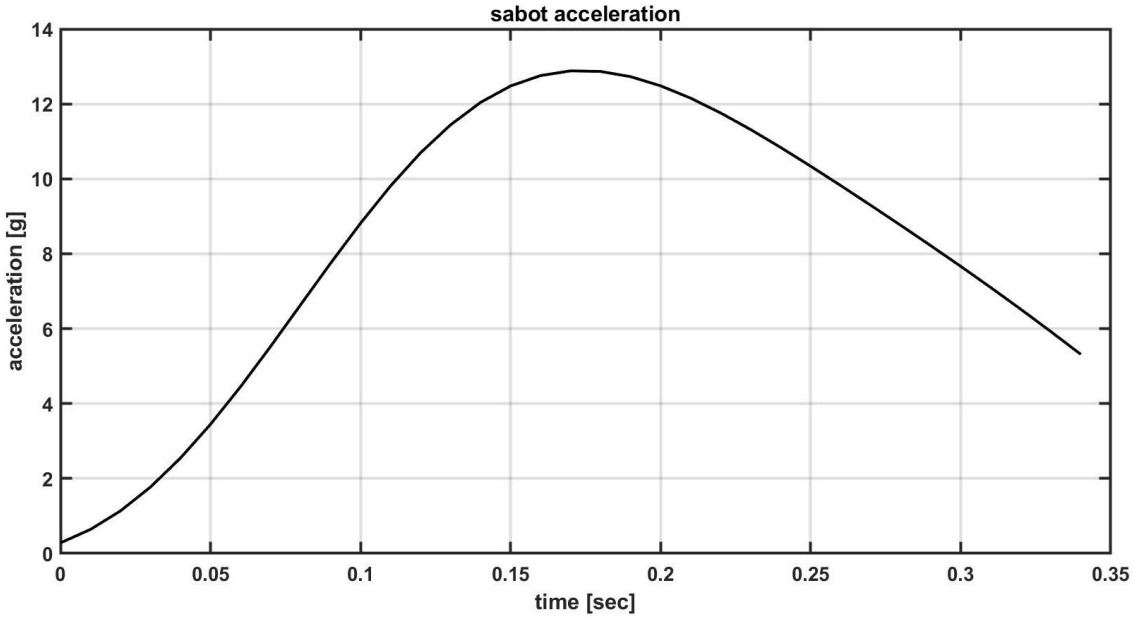
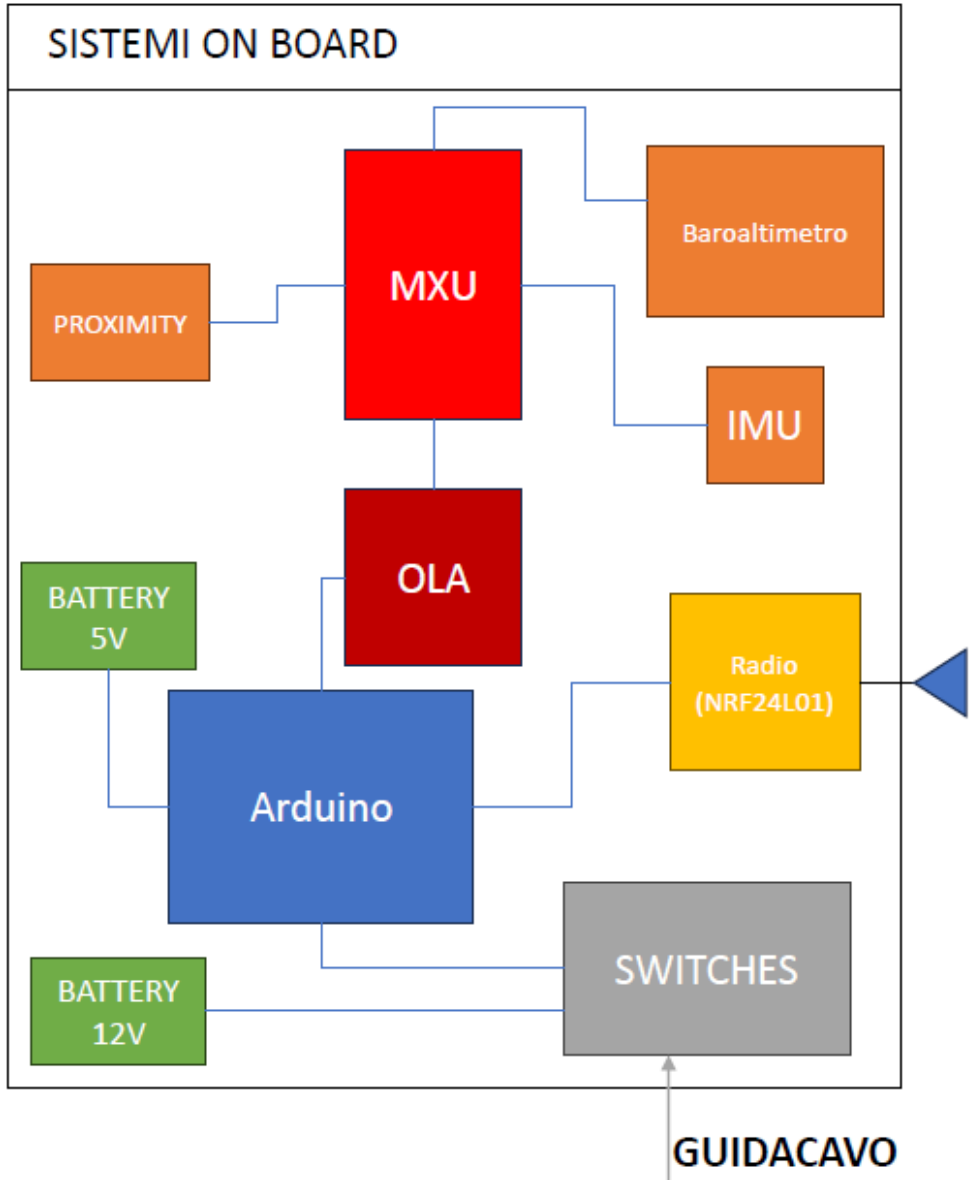
Controllo su quota e accelerazione

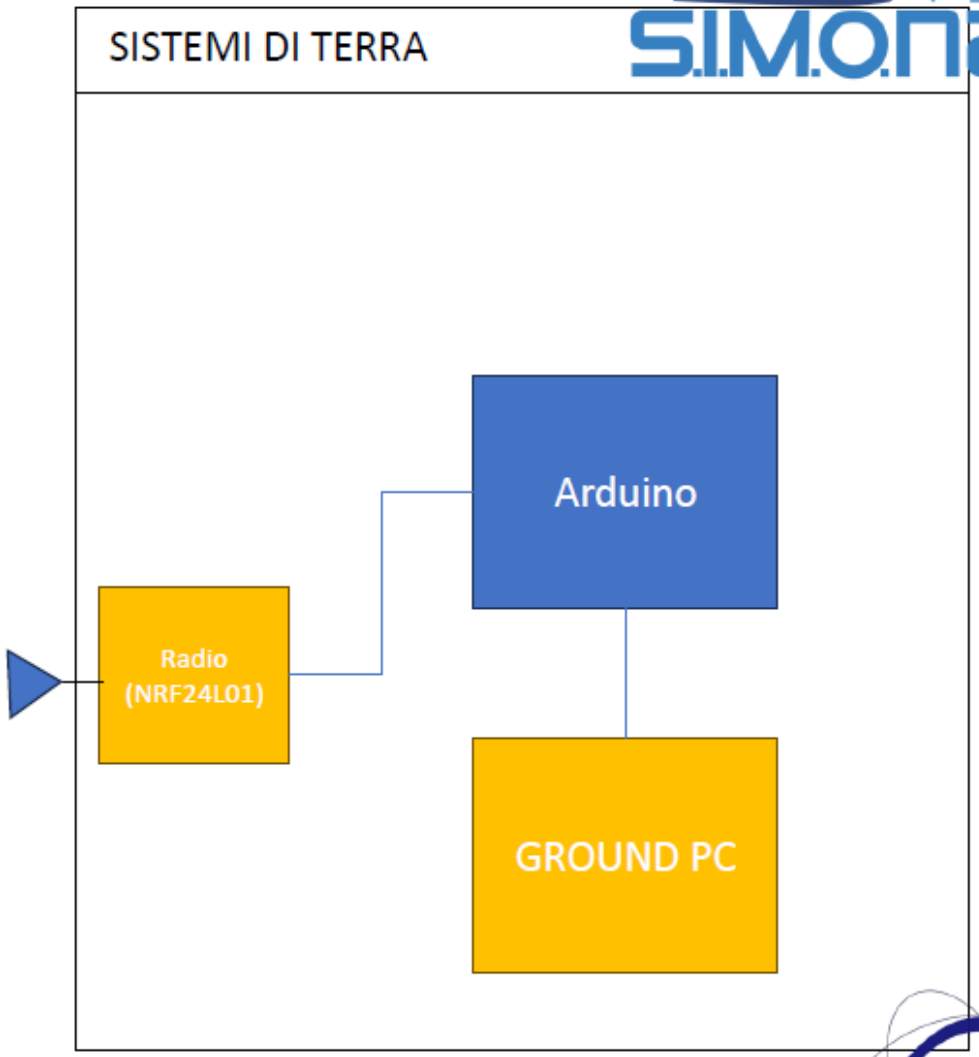




	Steady State	3 Inlet	Steady State	3 Inlet	Steady State	3 Inlet
m [kg]	220	220	420	420	820	820
h max [m]	64	60	43	32	28	24
s max [m]	100	N/A	69	51	47	30
t volo [s]	7,3	> 6	6	5,5	4,9	4,5
a max [g]	23	29	16	21	11	11
a mean [g]	15	13	10	8,4	7	6
p max [bar]	3,8	2,8	4,8	3,5	6,3	5
p mean [bar]	2,9	1,3	3,6	1,7	4,5	2,5

Il sistema Safe and Arm





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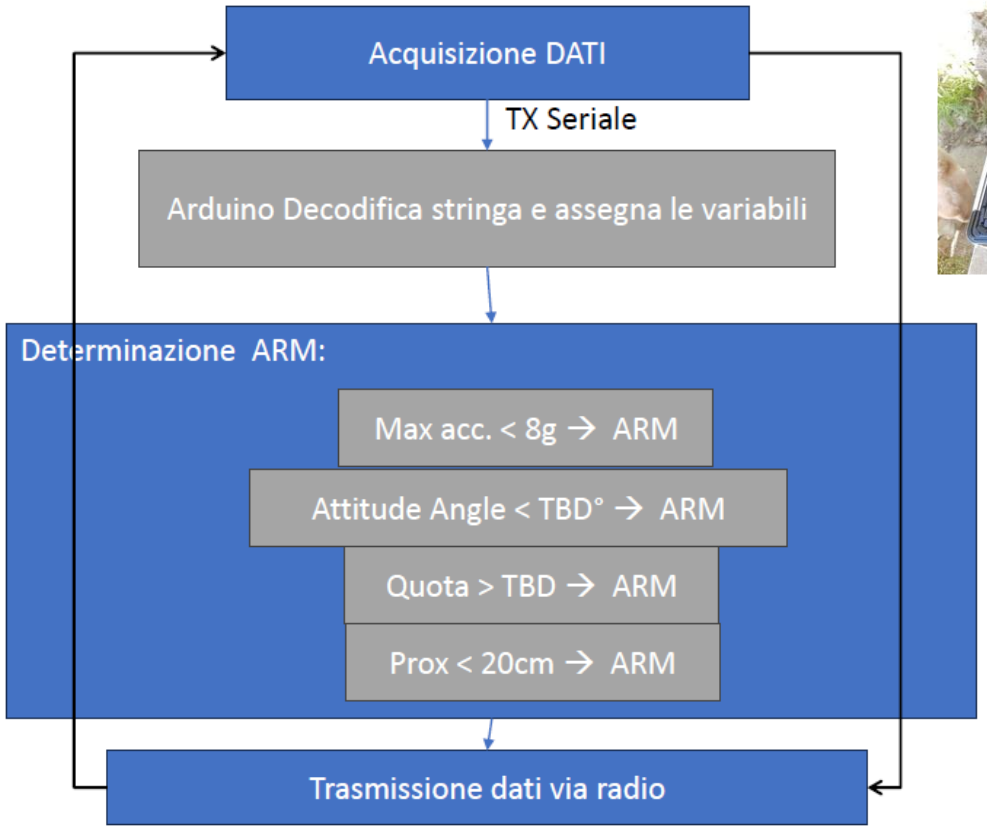
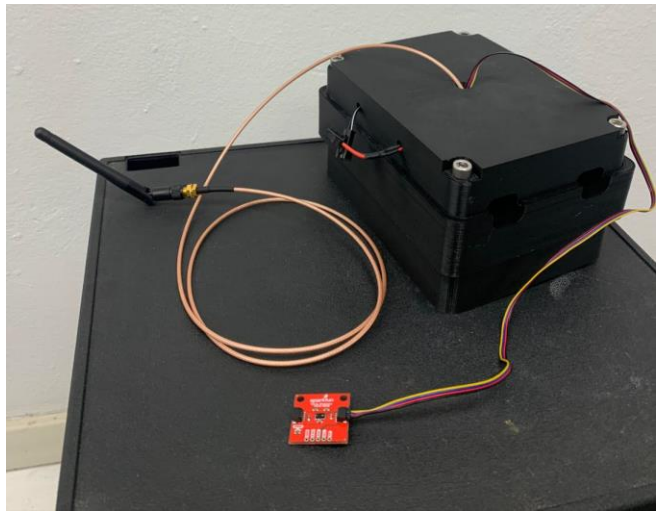
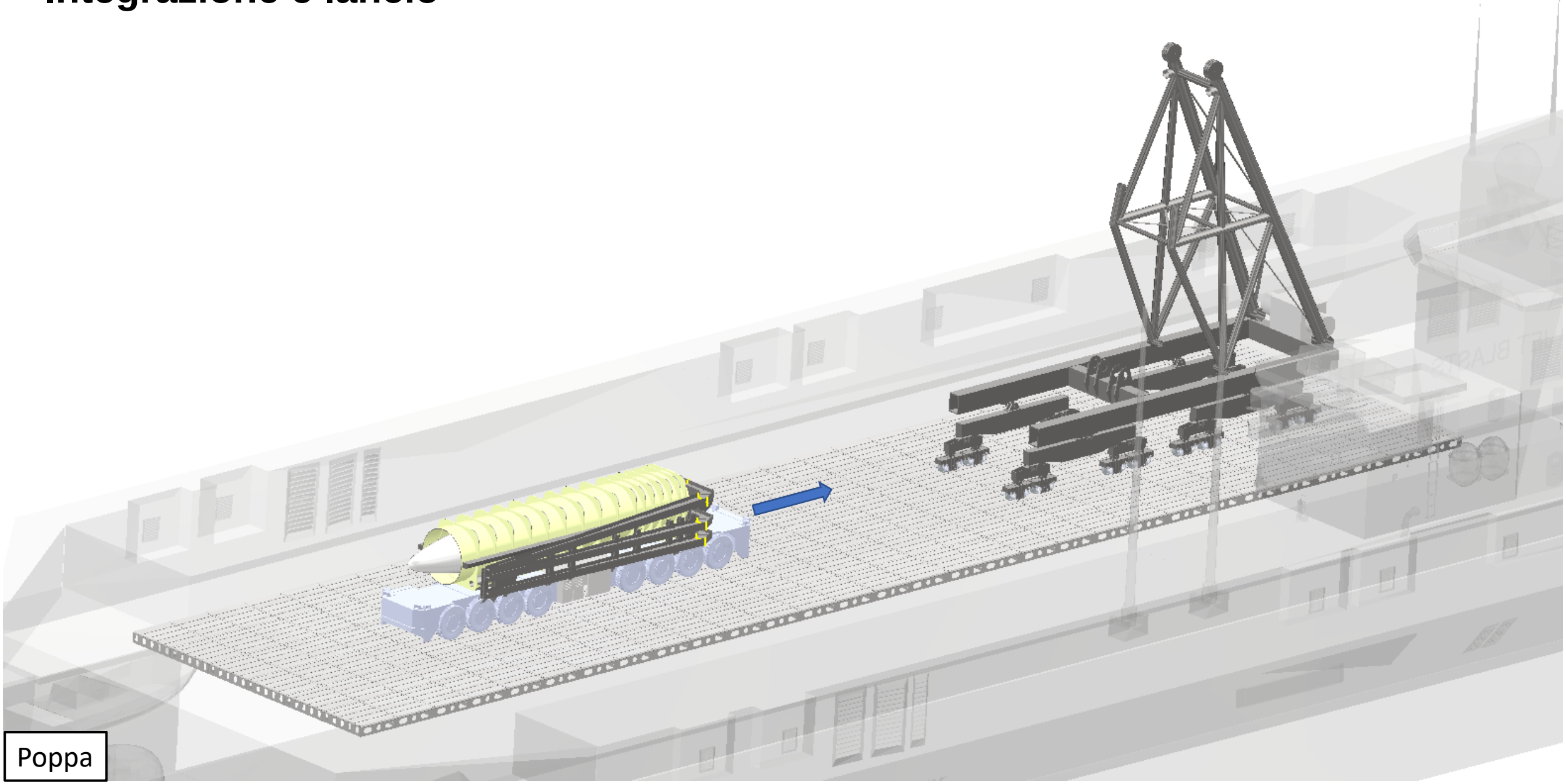
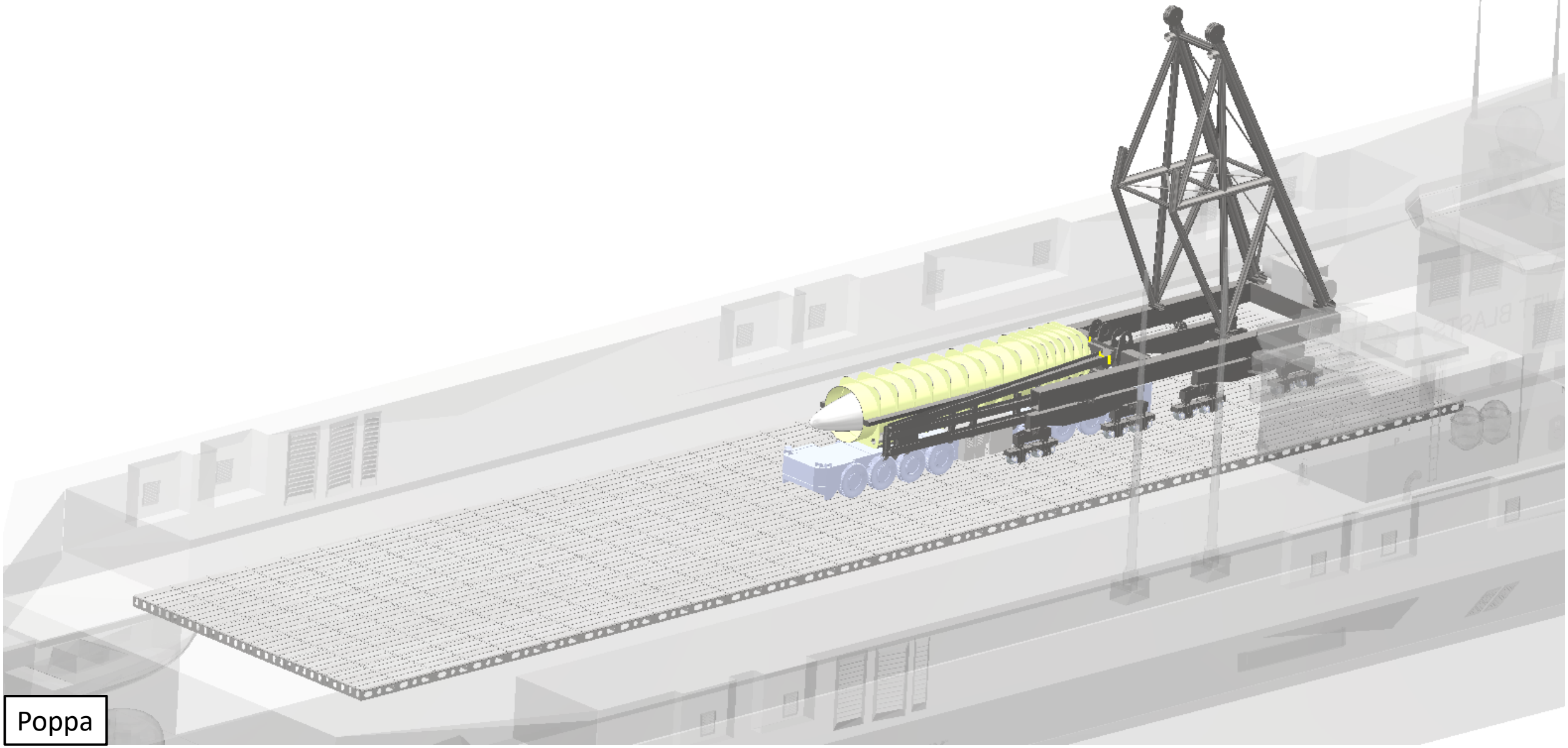




Integrazione e lancio

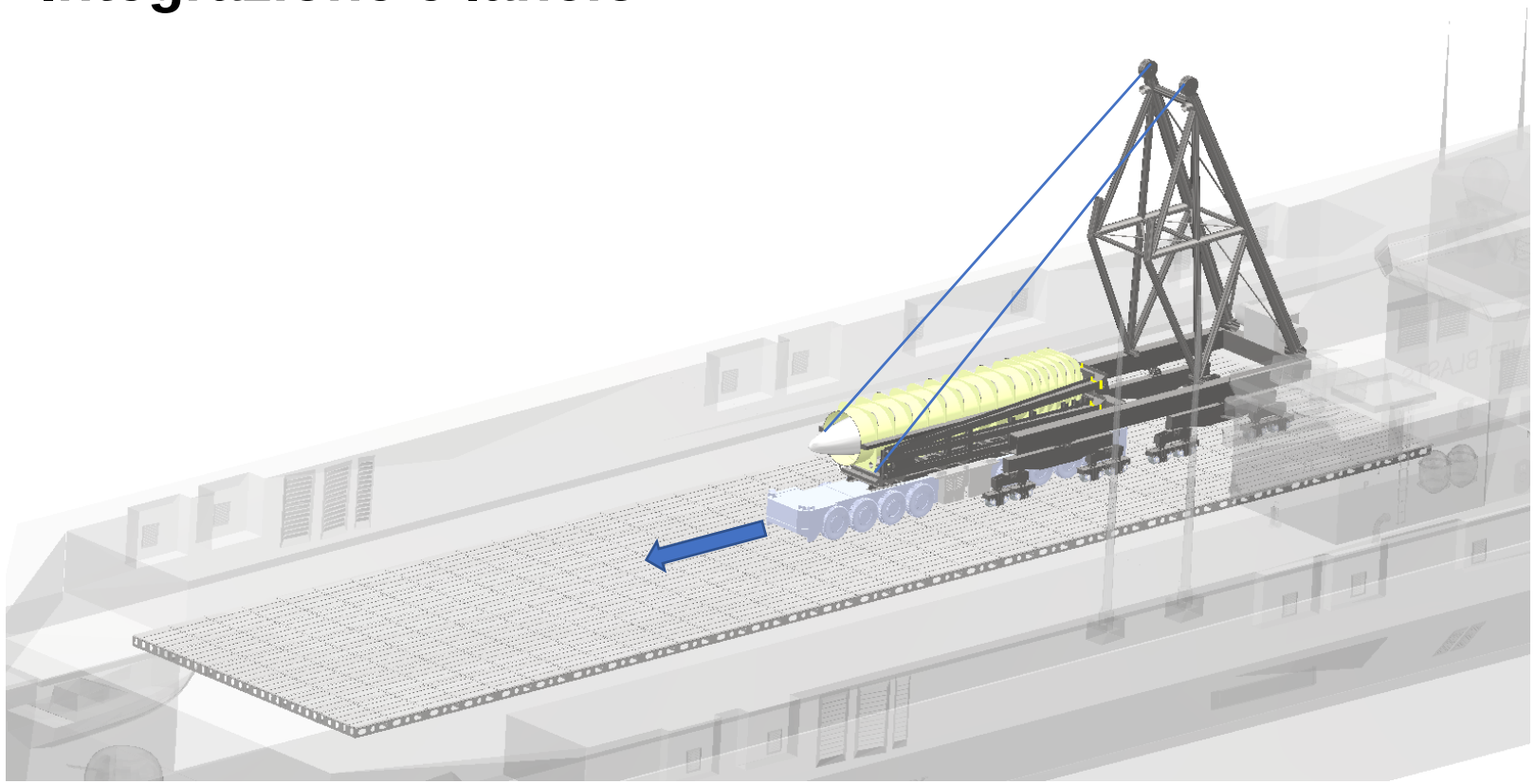


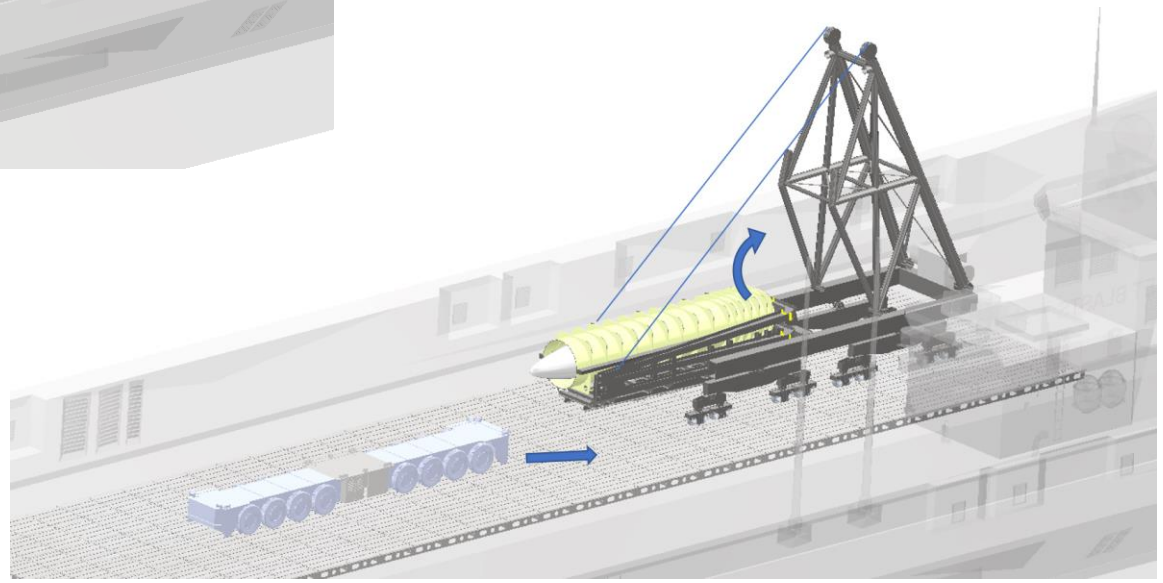
Integrazione e lancio



Integrazione e lancio

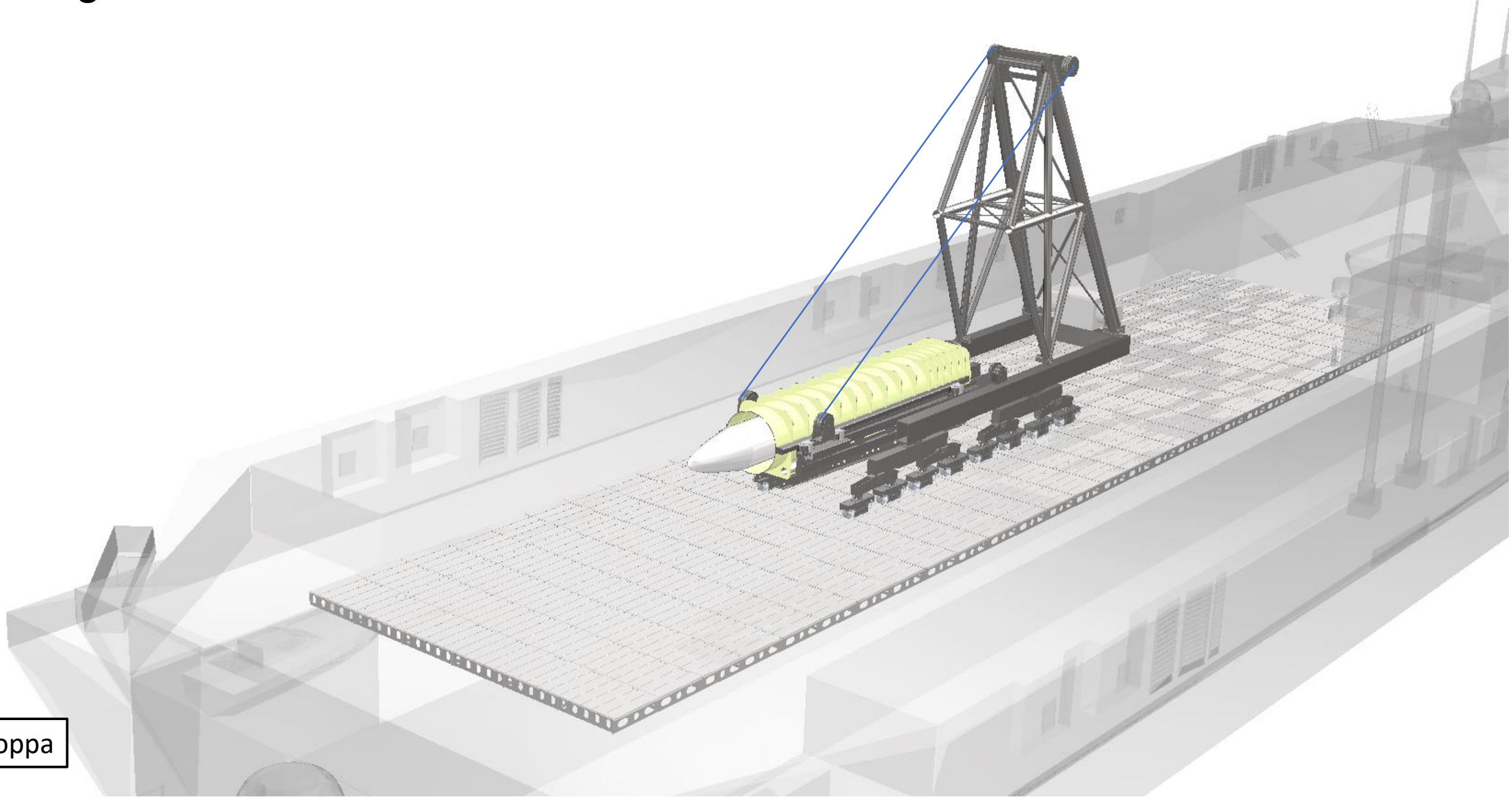
Prua



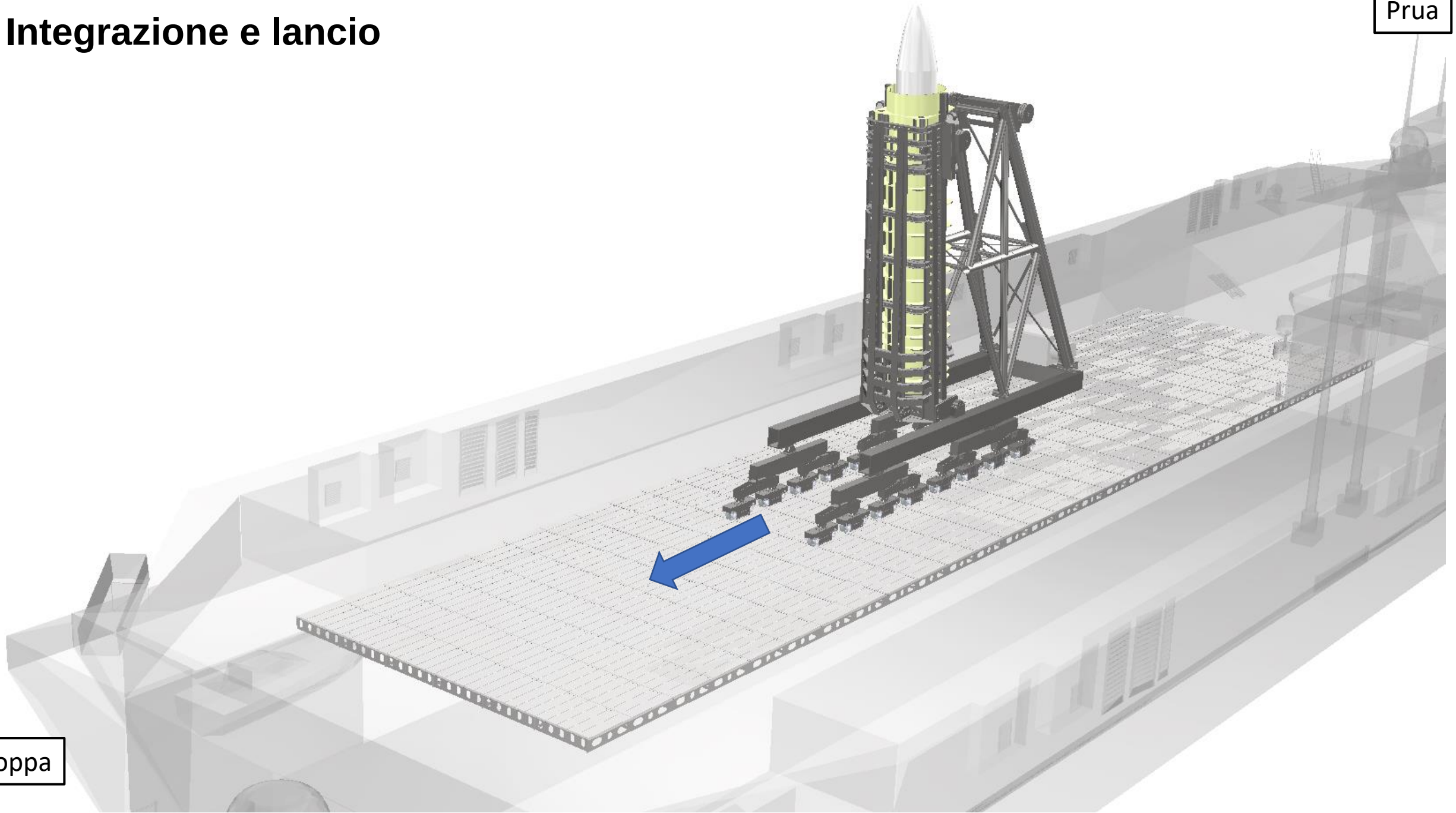


Poppa

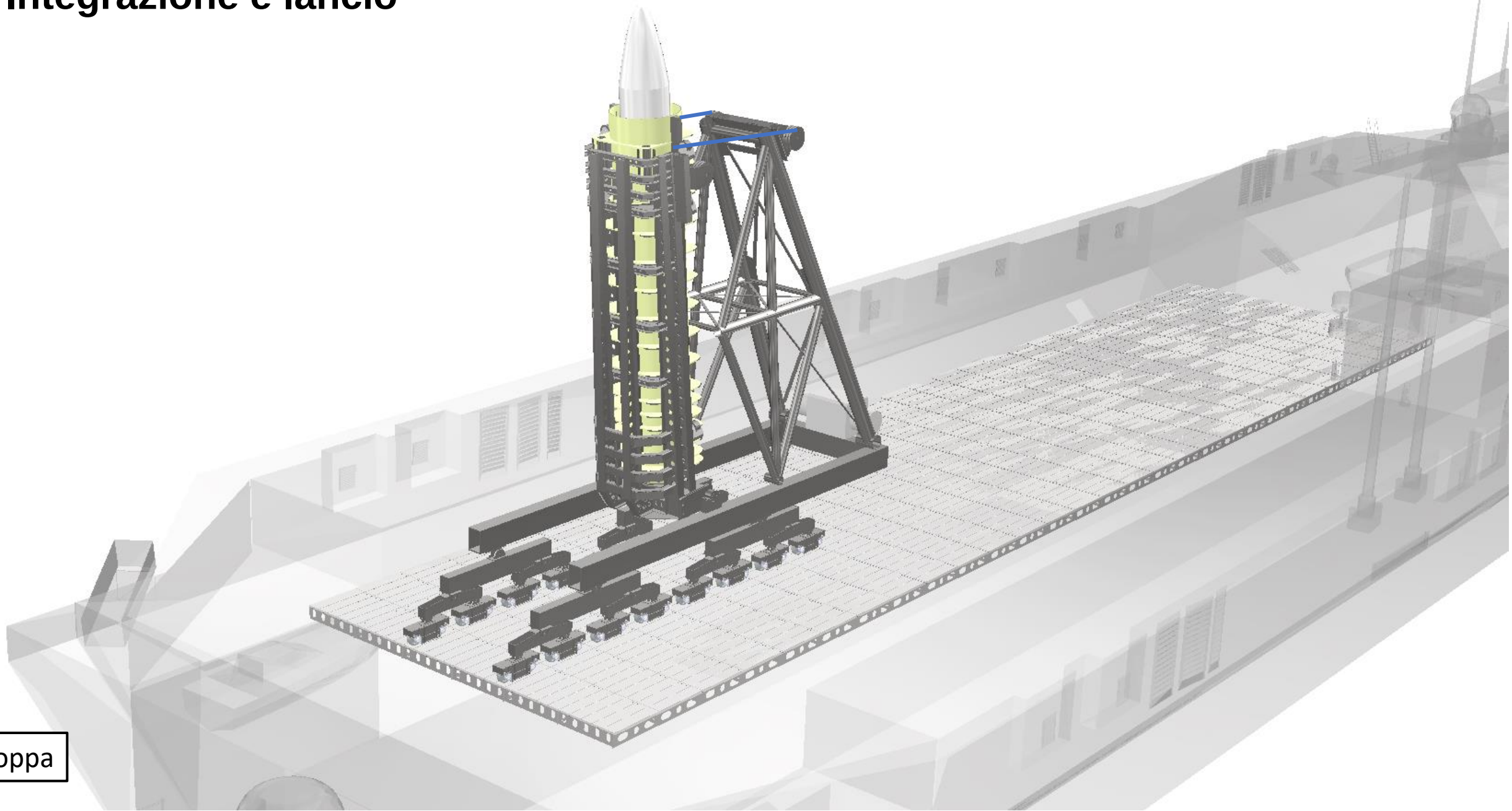
Integrazione e lancio



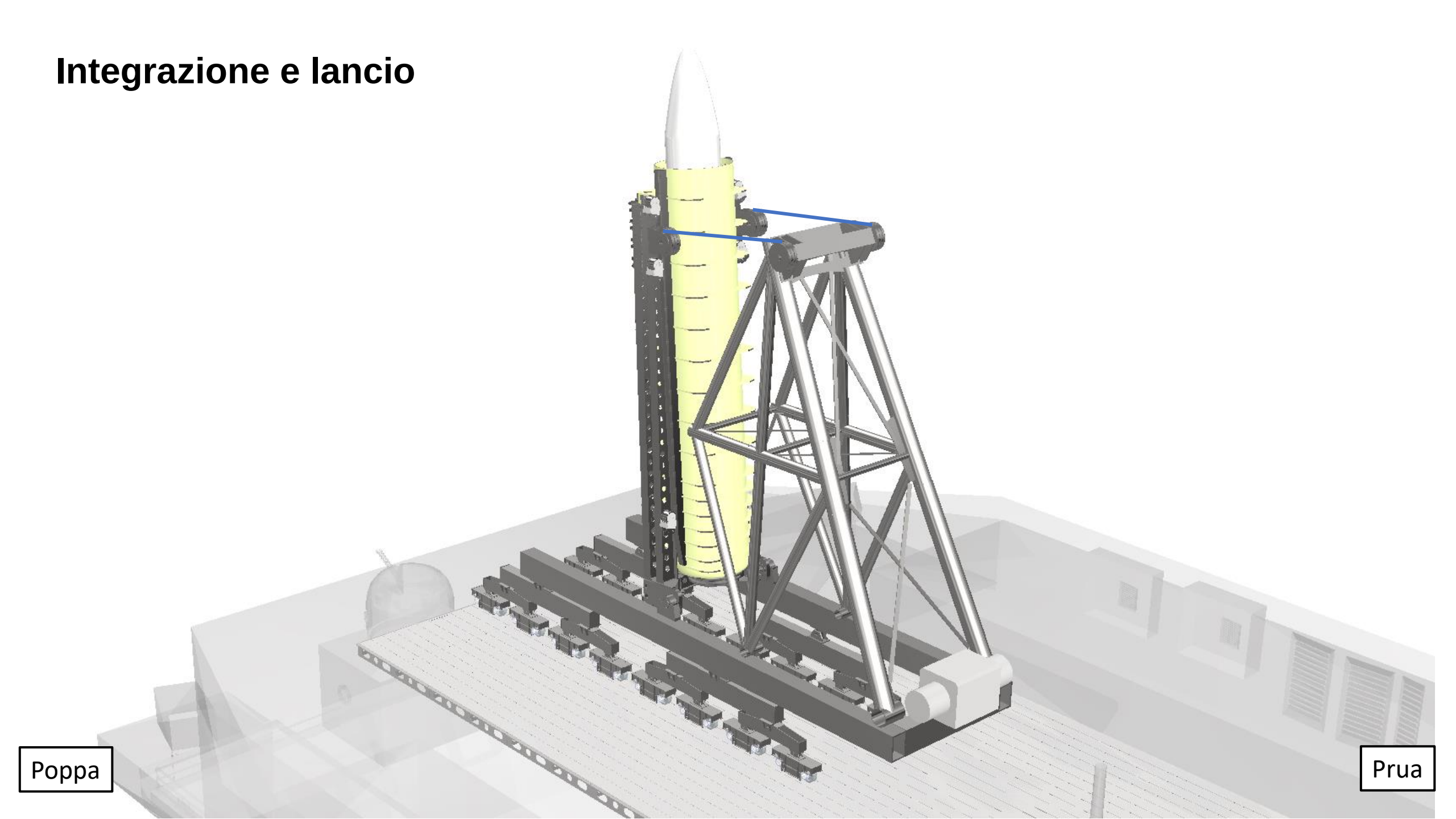
Integrazione e lancio



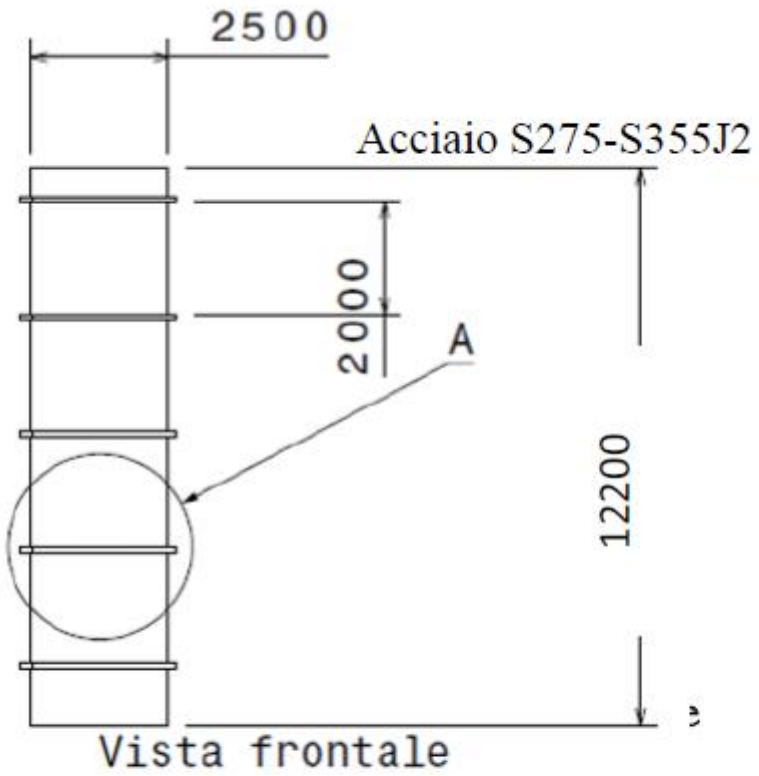
Integrazione e lancio



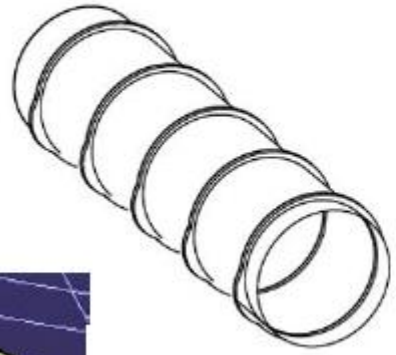
Integrazione e lancio

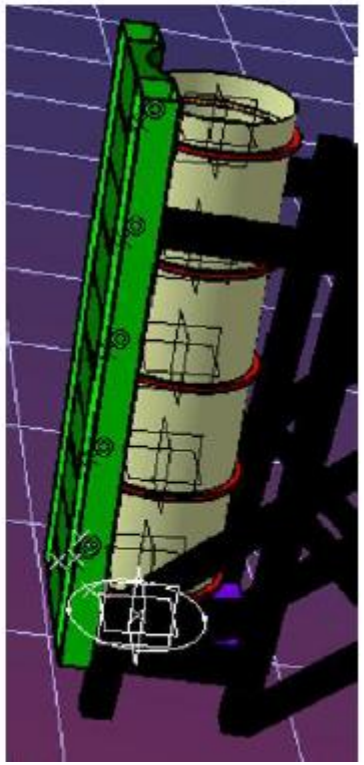


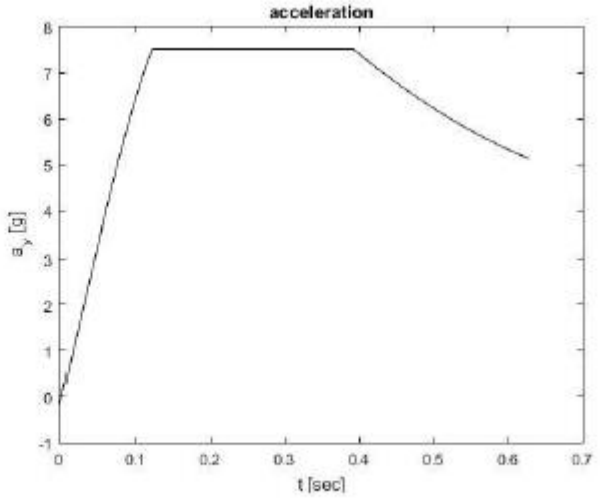
Il sistema Safe and Arm

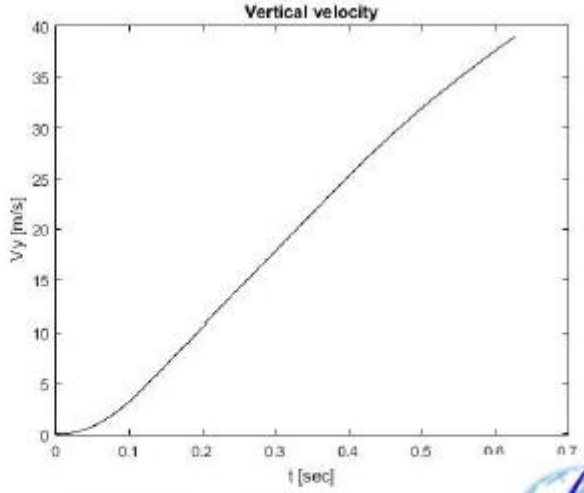


L = 12.2 m
ℓ = 1.6 m
D = 2.5 m
Massa Tubo = 20000 kg
Massa Culla = 30000 kg









Quota massima: 80 m

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