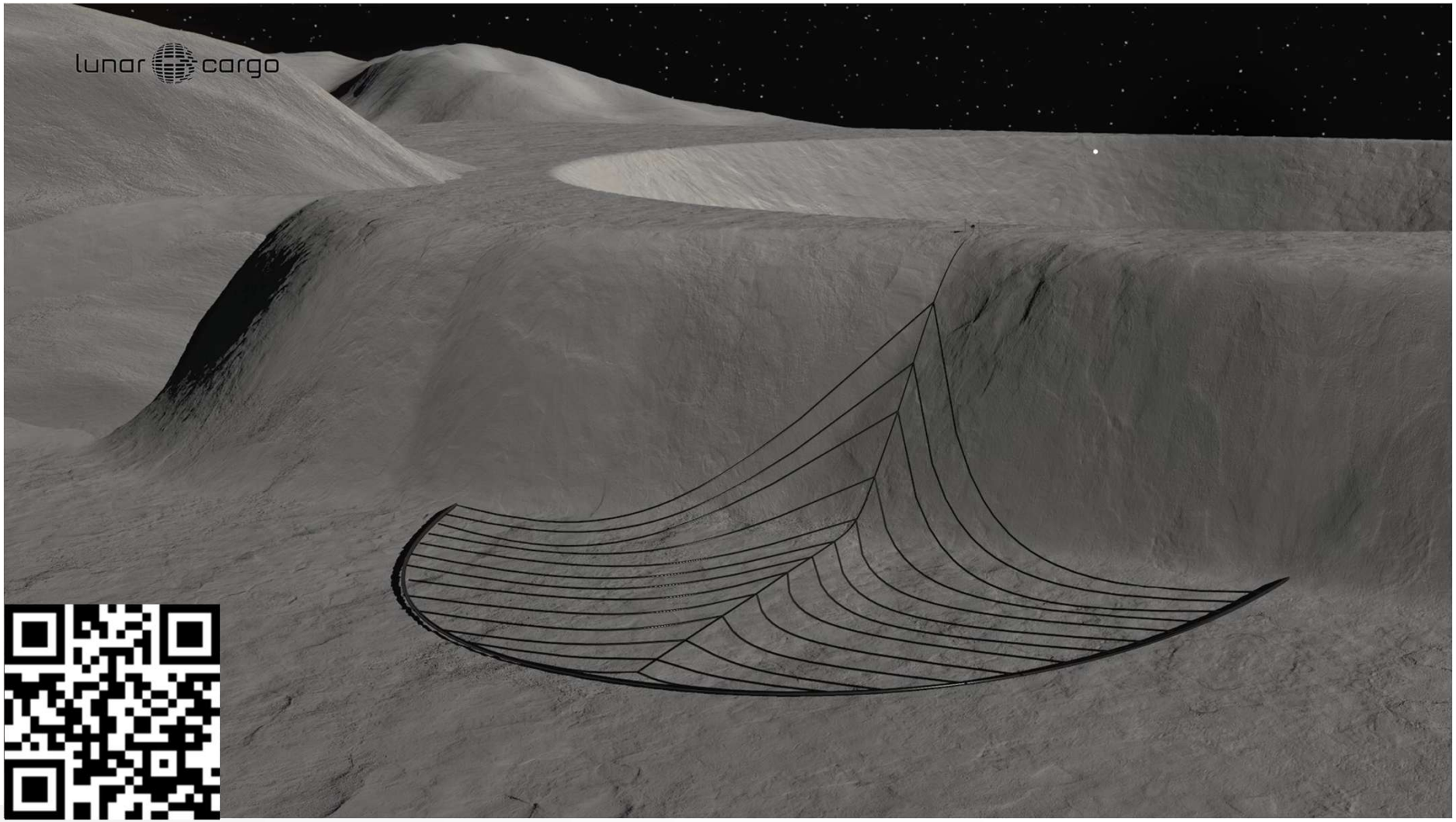
Affordable Lunar Landing system
M.A.C.E.D.O.N.A.S

The Lunar Resources that drive the demand

HELIUM-3 (at 20 M/Kg) = Aneutronic Fusion to replace FOSSIL FUELS of 5 Trillion annually. HOTELS, LUNAR DATA CENTERS (67% CAGR), PV POWER, PLATINUM GROUP METALS, Material For DATA CENTERS in GEO, FUELS, WATER.

M.A.C.E.D.O.N.A.S.

Momentum Absorption Catcher for Express Deliveries On Non-Atmospheric Somata

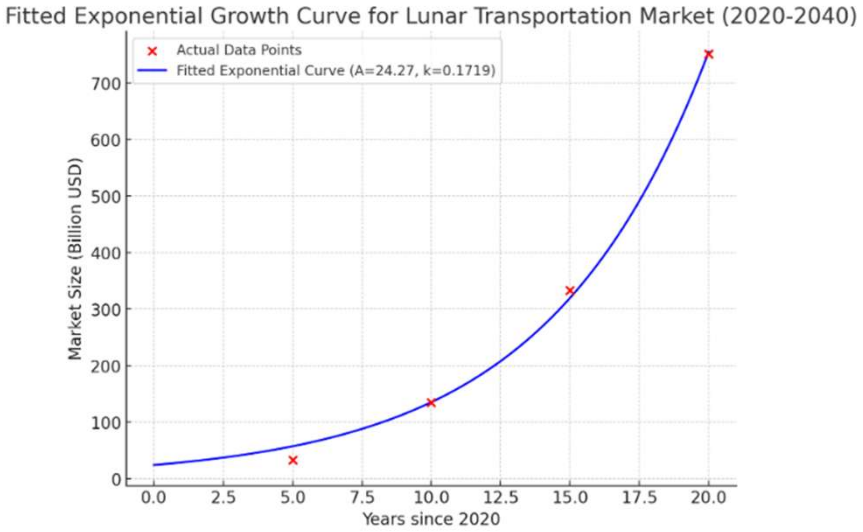


Lunar Transportation

= 1.5 Trillion

we save 1 Trillion and eliminate the risk from ejecta

(volume until the expiry of our **European patent** 2041, estimate by PwC)



The fitted exponential growth curve for the lunar transportation market from 2020 to 2040 has the following parameters:

- **Initial Market Size (A)**: Approximately **24.27 billion USD**
- **Growth Rate (k)**: Approximately **17.19%** per year

The innovation

- Landing cargo on the Lunar surface, **WITHOUT USING ANY FUEL**, but by exploiting mechanical principles (mass inertia & elastic deformation of material).
- We also offer ballistic transportation. (receiving end, point-to-point,).
- Wires (of the “necklace”) can be used as stock for 3d printing once get worn out.

The system elements

- Consists of two elements
  - The “catcher” (made of an antiballistic textile) [the catcher needs to be placed in high grounds]
  - The “Necklace” (made of a memory alloy that turns its shape into spring)
- Needs a mothership (spacecraft) that can deliver one parcel at each orbit (111 minutes)
- Deployment by rovers, repositioning by a winch type of mechanism.

Problems we solve

- Increase of efficiency by 323 %.
- Increase frequency of deliveries
  - 1 parcel every 111 min per location
  - Flexibility (Parcel re-sorting)
- No EJECTA !!!
- MOBILITY service (ballistic point-to-point)
- emergency supply of packets (ballistic)
- Easily repositioned (versus launch pads)

Competitive landscape

Competitors	How our solution is better
None *	Patented concept, increasing efficiency by 323 %
None	ZERO Ejecta of MACEDONAS operation
None	MACEDONAS capacity as small as 200 gr (soda can)
None	Exponential growth potential, 10x every 3 years

About Charis Kosmas (CEO)

Freelance – Entrepreneur since 1991
Project controller for MSG 2 billion
4 satellites, Ground segment, Launch, LEOP, Commissioning

(Meteosat Second Generation)
Longest serving satellite of all times.

Our Partners:

Ångström Aerospace Corporation

ThalesAlenia Space

OHB SYSTEM
An OHB Technology AG Company

RTG

CS

oerlikon space

CASE
Consulting & Aerospace Engineering

Oberon SPACE

TRACTION 2023 - 2024

- **Dragons Den Agreement (TV) (https://youtu.be/CkwD9IEaOW0).**
- **DARPA LunA-10 participation.**
- **MoU&NDA with Australian partner.**
- **MoU&NDA with Indian partner.**
- **MoU&NDA 2 US Launchers.**
- **MoU with Re-CAE (CH).**
- **MoU&NDA with Canadian company.**
- **Nomination for IAASS award Vladimir Syromyatnicov on “Safety by design”.**
- **US Patent confirmed.**
- **Winner of the Moon Village Association: “MOON MARKET AWARD 2024” (2-12-2024)**

MOON MARKET AWARD 2024

TRACTION 2025

(12) **United States Patent**
Kosmas

(10) **Patent No.: US 12,286,246 B2**
(45) **Date of Patent: Apr. 29, 2025**

(54) **TWO PHASE LANDING SYSTEM FOR THE MOON AND ITS IMPLEMENTATION ELEMENTS**

(71) Applicant: **Charalampos Kosmas**, Ilioupolis (GR)

(72) Inventor: **Charalampos Kosmas**, Ilioupolis (GR)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(52) **U.S. Cl.**
CPC ***B64G 1/625*** (2023.08); ***B64G 1/1071*** (2023.08); ***B64G 1/648*** (2013.01)

(58) **Field of Classification Search**
CPC . B64G 1/62; B64G 1/64; B64G 1/625; B64G 1/648; B64G 1/1071
USPC 244/158.1, 158.2, 173.3
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

https://aiaa.org/2025/06/13/greek-entrepreneur-hopes-to-build-giant-net-to-catch-incoming-cargo-on-the-moon/

https://youtu.be/Zs3XhrMGrGs/

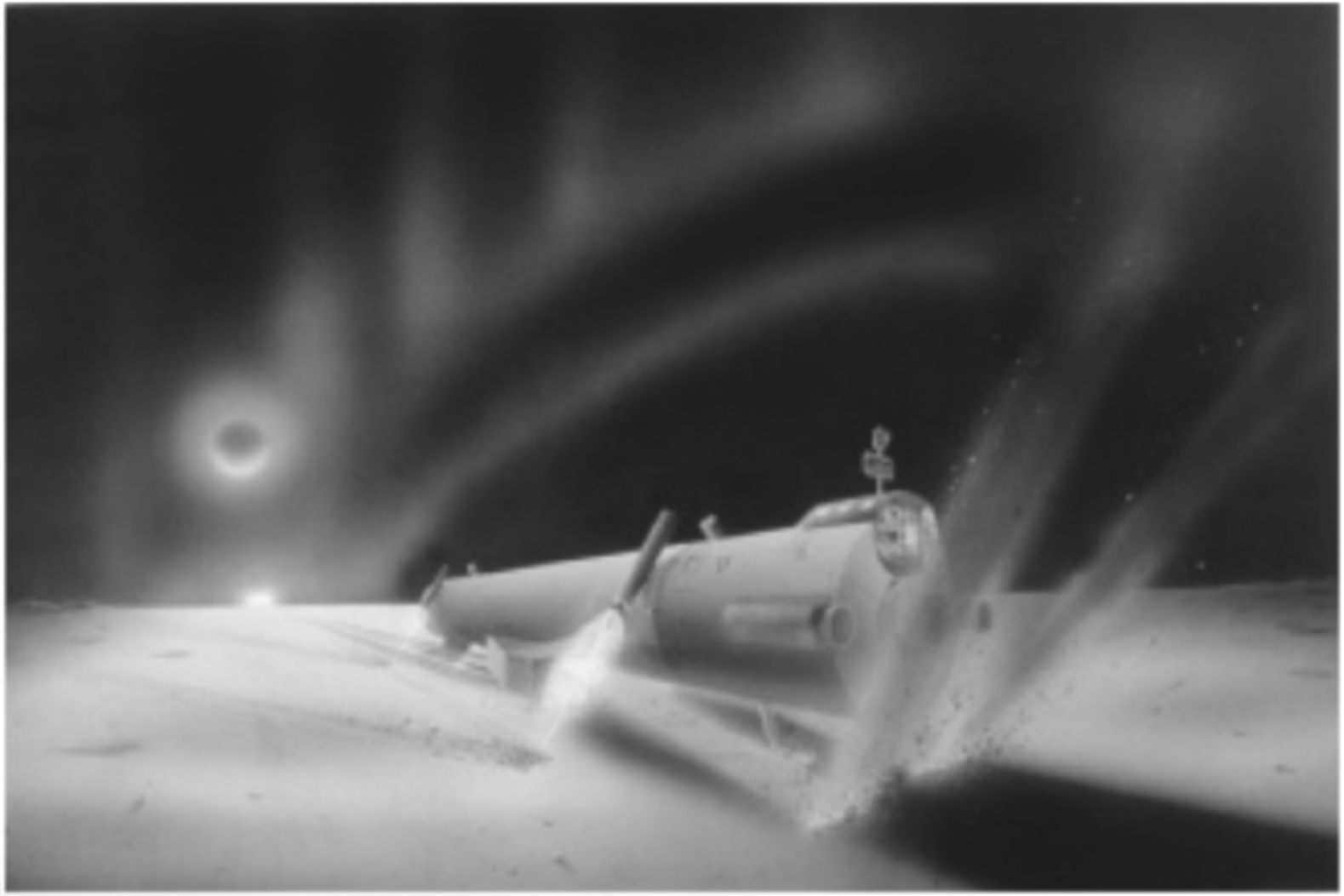
This video on YouTube is independent "third party" compilation.

Team

- Charis Kosmas : Founder & CEO, HR
- Ray Stott : (HR Outsourcing)
- Ray Sperber : (System engineering Advisor)
- Sean Burns : (Space Operations Advisor)
- Dr. Massimo Bandecchi : (Technical Advisor)
- Tommaso Sgobba : (President IAASS Safety Adv.)
- Prof Petros Dellaportas : (Statistics for Geomatics)
- Stefano Bagli: (Lunar Geomatics)
- Spyros Aleiferis (3He demand expert for fusion)
- Weicheng HUANG (multi-body dynamics)
- Vasilis TSIAFAKIS (Lunar Navigation Advisor)
- Anastasis PETROPOULOS (Flight Dynamics Expert)
- 4 applicants for internship.

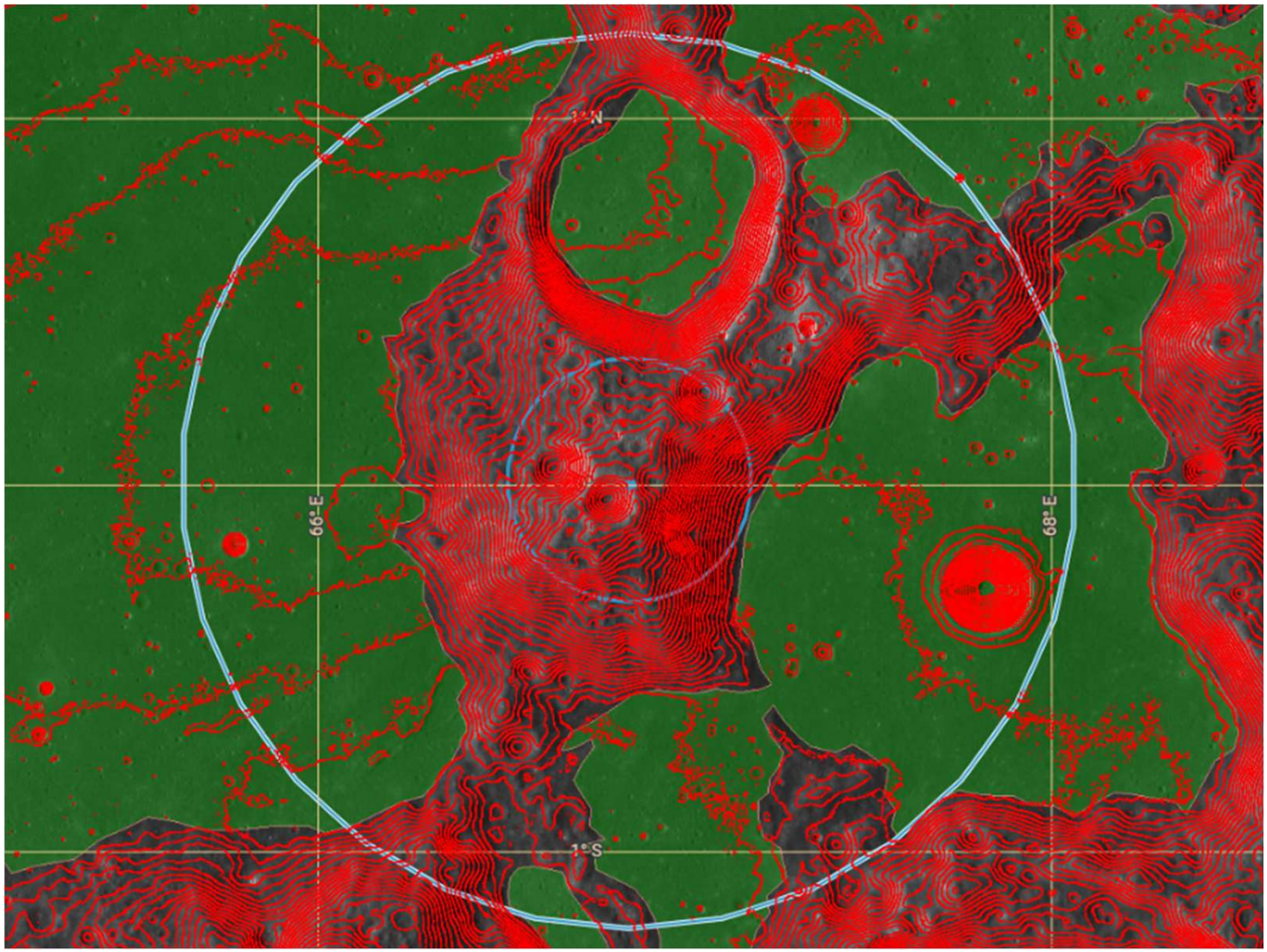
1950–1982 Lunar Slide Lander (LSL)

(foundational idea of friction based lander) By Ehricke Kraftt, co-author to Wernher Von Brown.



Site 1: 0◦N, 66.852◦E

elevation 850 m. Radius 4g (37 km)



- **Zero Propellant**
- **Zero Ejecta**
- **Frequency 1/111 min**
- **Organic exponential growth**
- **Spring steel A228**
- **100 gr SF3 7.1 kg**
- **1 kg SF3 71 kg**
- **100 kg SF3 7,100 kg**
- **Gummetal x0.71**
- **Patents EU/US**
- **3x efficiency**
- **Smaller launchers**
- **Relocatable**