

# Payloadproject.com

## GENERAL

Initial situation



### Content:

About the project	2
Strategic focus on engines	3
Industrialization - wave model	4
Raw material demand - growth	5
Untapped raw material reserves?	6
Starting places and start-ups - examples	7
Space industry - market, development	8
Market, launches and payload spent	9
Chemical rocket - payload capacity	10

## → PRIVATE INITIATIVE FOR THE ENGINEERING RECOVERY OF PATENT RIGHTS AND THEIR MARKETING IN THE AEROSPACE SECTOR

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APPLICATION NUMBER 17/650,537	FILING DATE 02/10/2022	CLASSIFICATION 1736	FILED IN 490	ATTY DOCKET NO.	INT CLAIMS 17	IND CLAIMS 1
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CONFIRMATION NO. 9953  
 FILING RECEIPT  
 Date Mailed: 04/05/2022

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Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s) Mathias Herrmann, Residence Not Provided;  
 Applicant(s) Mathias Herrmann, Residence Not Provided;

Power of Attorney: None  
 Domestic Applications for which benefit is claimed - None.  
 A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the Patent Prosecution Highway program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.  
 Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: No  
 Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

page 1 of 4

Antrag auf Erteilung eines Patents  
 1

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Zeichen des Anmelders/Verstärkers (max. 26 Stellen)  
 0152 02 68 78 96

### STATUS I.Q 2022:

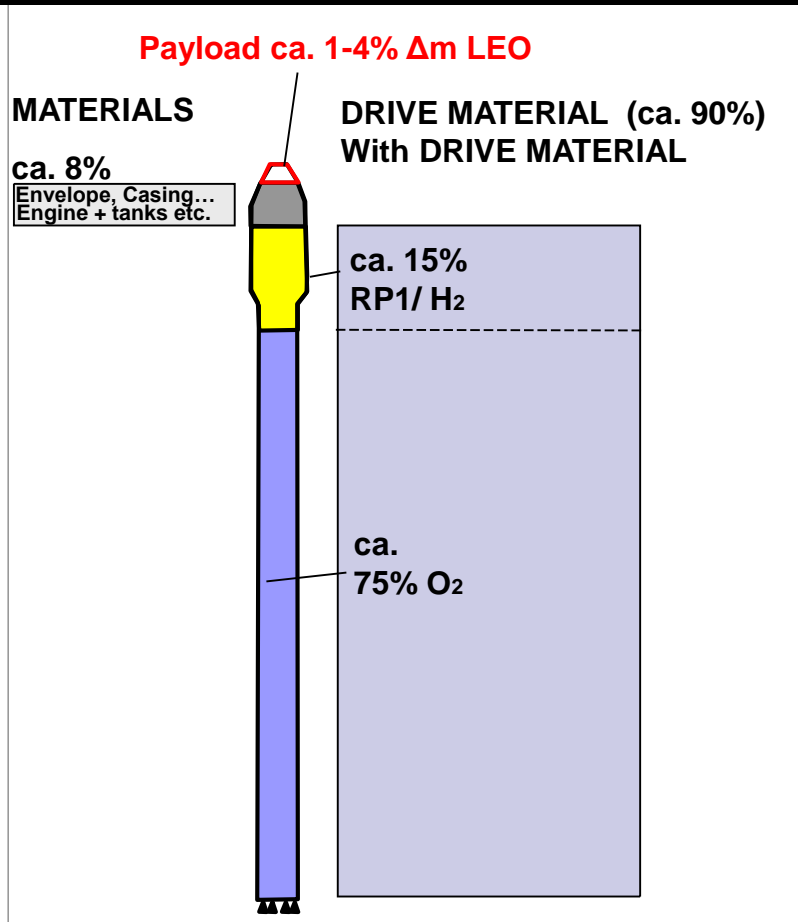
- DYNAMIC DEVELOPMENT IN PRIVATE SPACE TRAVEL

### PAYLOADPROJECT.com:

- GOAL: MORE PAYLOAD SHARE OF CHEMICAL ROCKETS IN LAUNCHES INTO ORBIT
- 12 PATENTS FILED (DIFFERENT COUNTRIES)
- TARGET GROUP: CIVIL SPACE INDUSTRY, MANUFACTURERS, ROCKET LAUNCH PROVIDERS
- OPEN TO INVESTORS, PARTNERS, SPONSORS
- I.Q 2023 INTENSIVE DEVELOPMENT OF FURTHER STEPS  
 ➤ DEVELOPMENT

→ focus on drives to enable cheaper materials

## ACTUAL state of the art chem. Rockets 2022



Significance of the drive:

**simplifying: effects of the drive  
more 10x higher than proport. of materials**

- of the total mass of a rocket approx. 90 % consist of propellant and only approx. 8 % of structure (with propulsion!)

- Steel, for example, is roughly approx. 50x cheaper than CFRP (carbon fiber reinforced plastics)

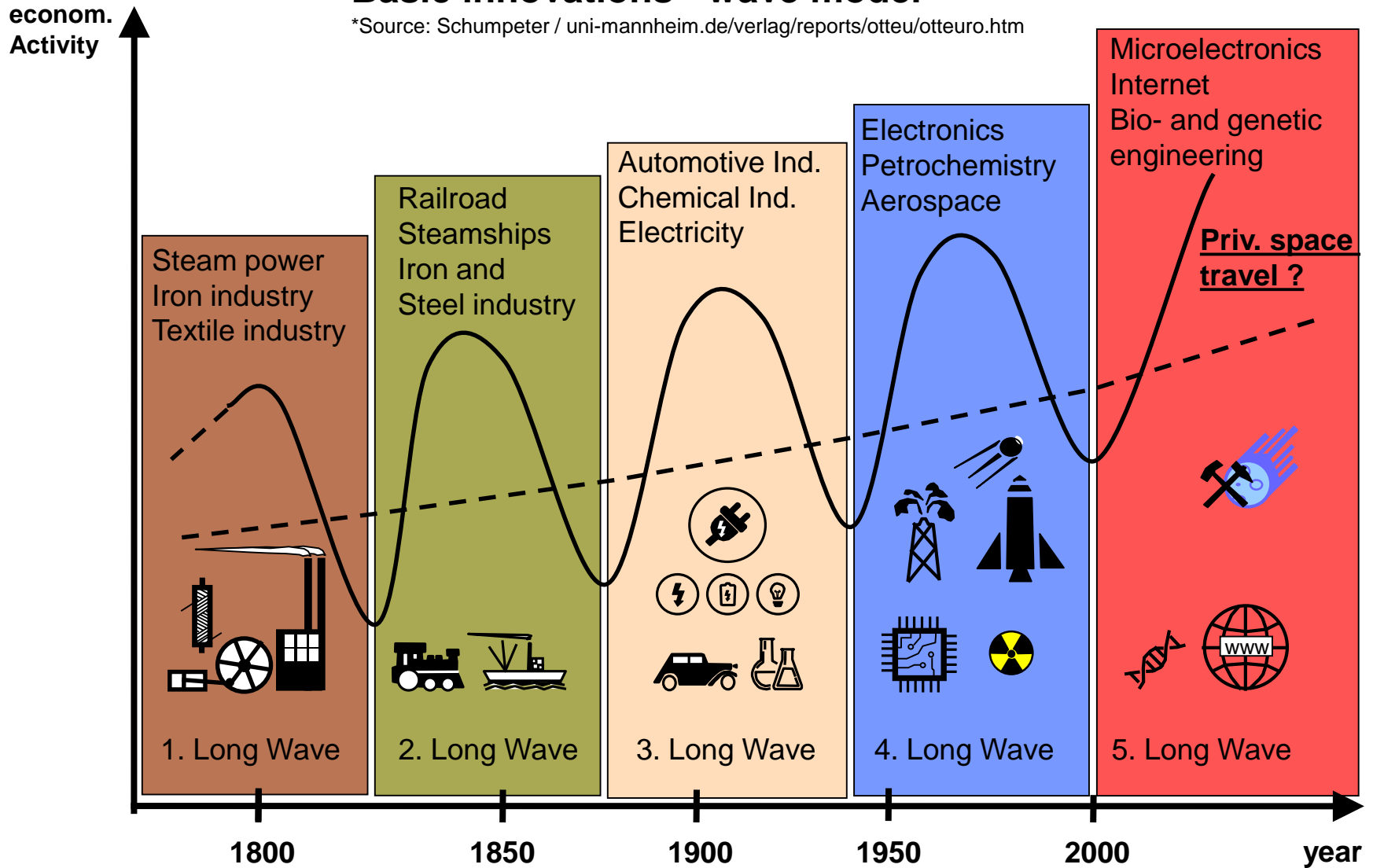
→ Material concept of the "StarShip" (SpaceEx).

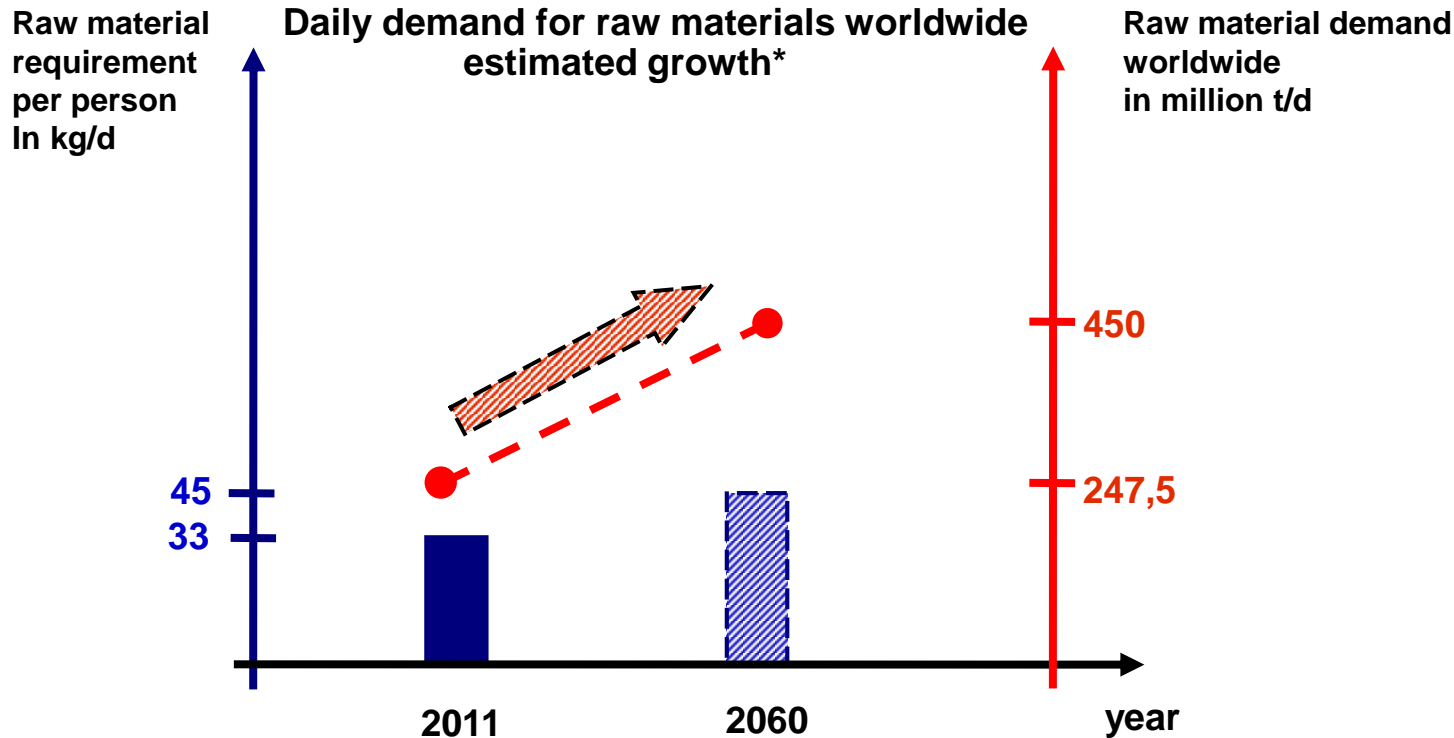
→ higher econ. effects and probability of success

**for large chem. approx. 40-70 % of the  
of the power input can be used as thrust**

## Basic innovations - wave model\*

\*Source: Schumpeter / uni-mannheim.de/verlag/reports/otteu/otteuro.htm





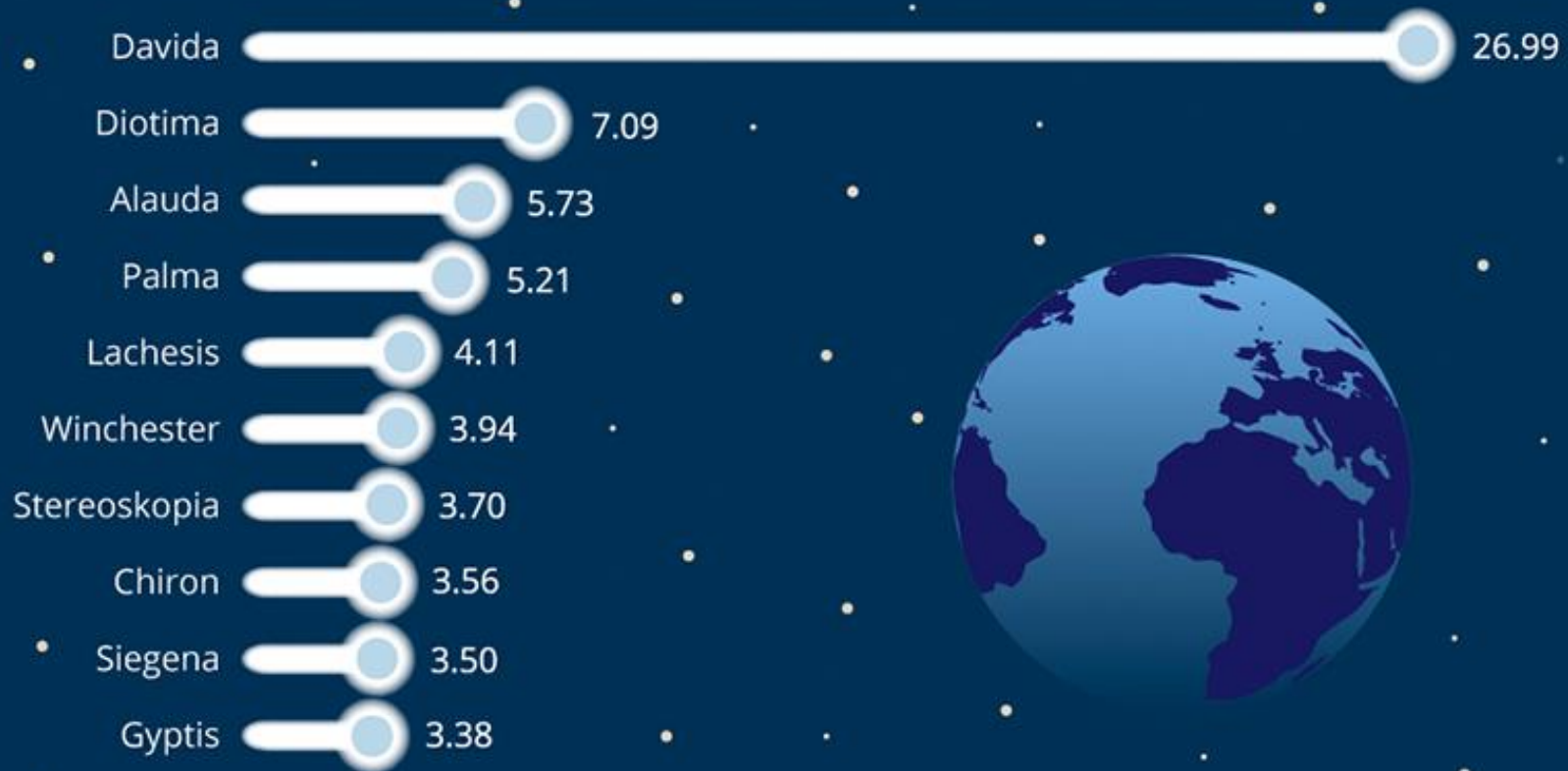
\*Source: OECD study at predicts  
10.000.000.000 People worldwide until 2060

### At the same time, available land for mining is decreasing:

- Approx. 33% increase in population estimated with expected higher standard of living.
- Higher demands on nutrition, intensification of land use
- Additional settlements / roads / infrastructure
- higher prosperity expected also in current developing countries

## The Colossal Untapped Value Of Asteroids

The most valuable asteroids in our solar system (in quintillion U.S. dollars)\*



\* Asteroids in the belt that lies between Mars and Jupiter.  
Value based on mineral and element content.

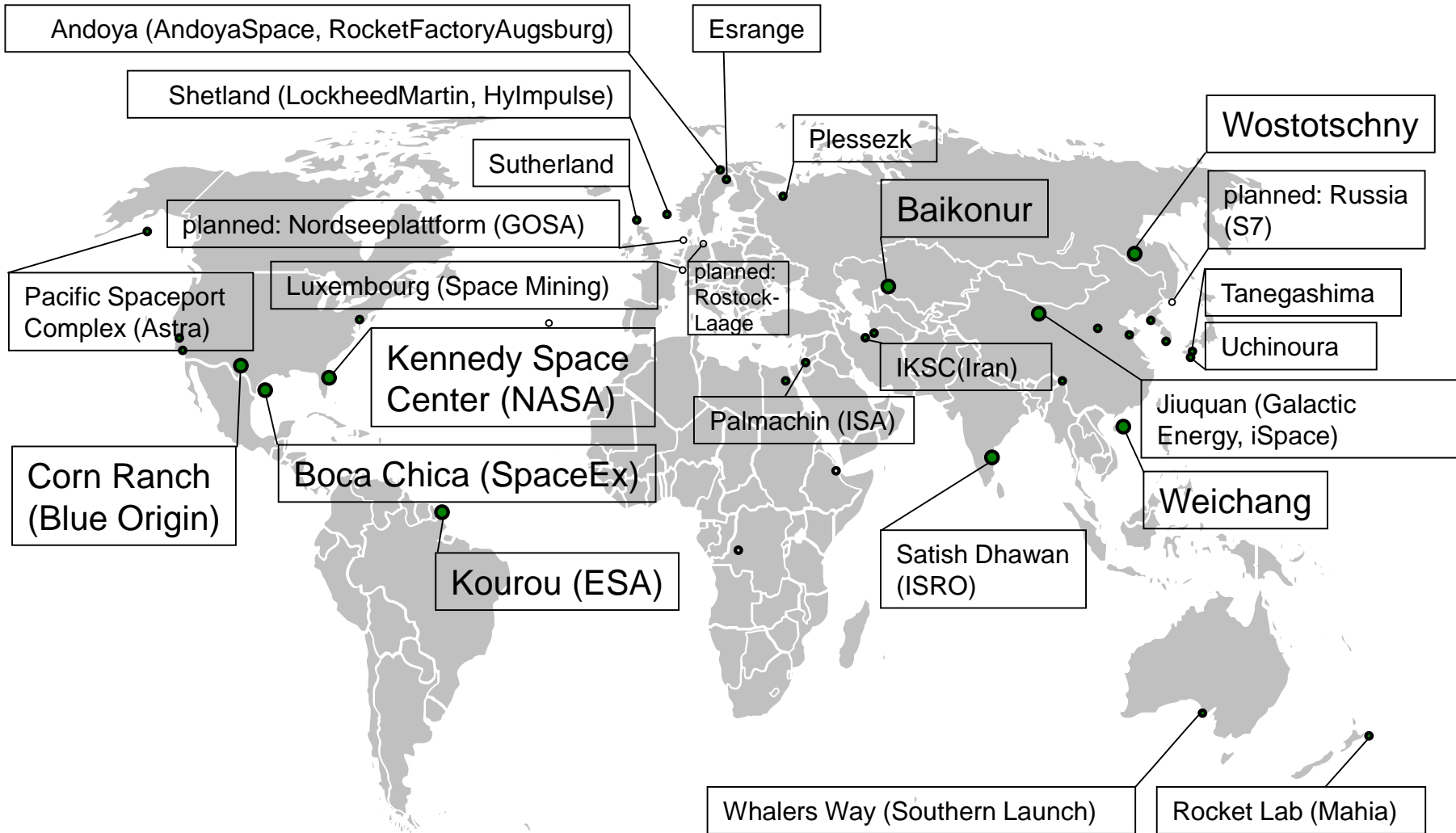
Quintillion = 1,000,000,000,000,000,000

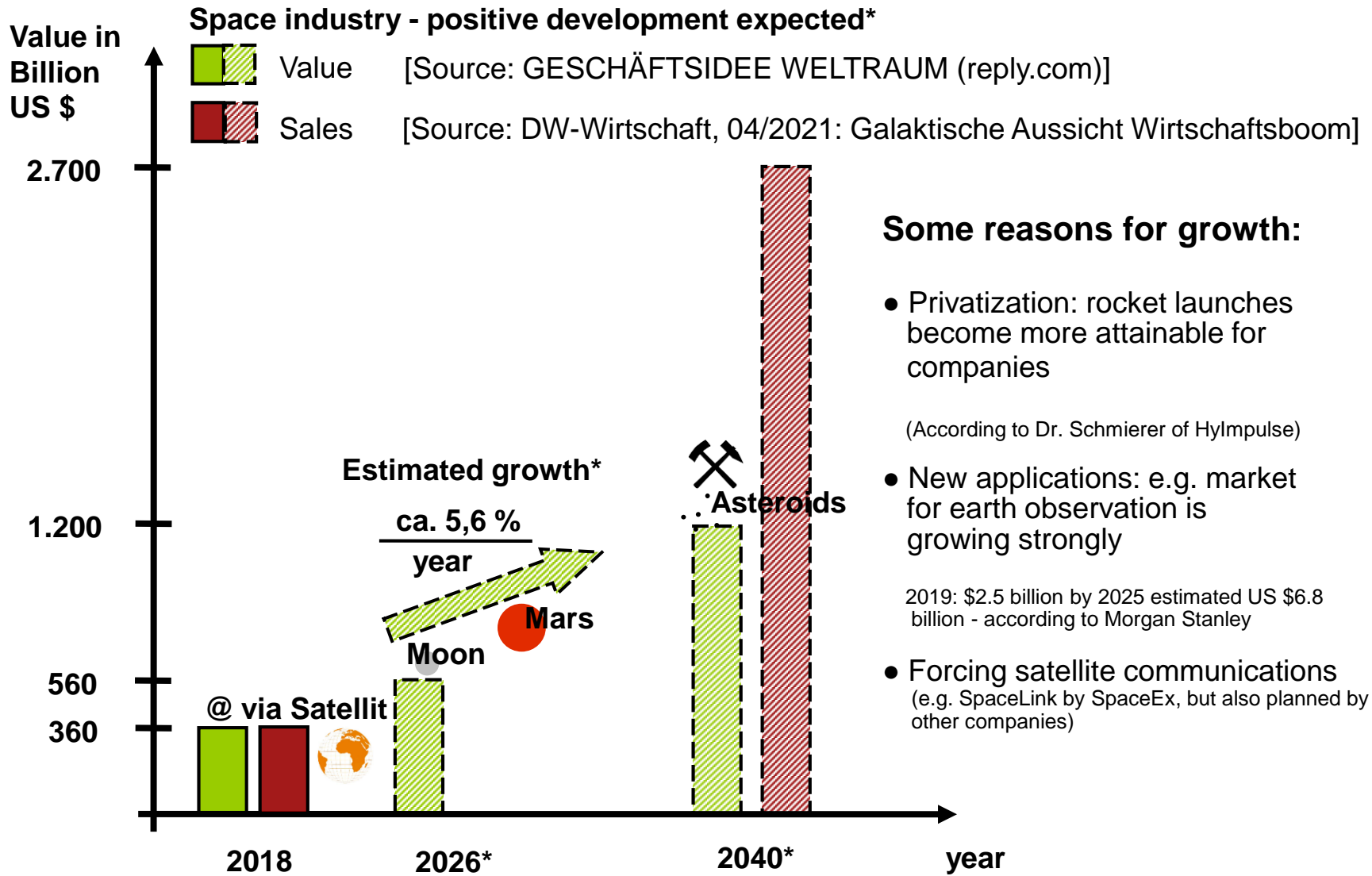


@StatistaCharts

Source: Wired/Valerio Pellegrini

statista



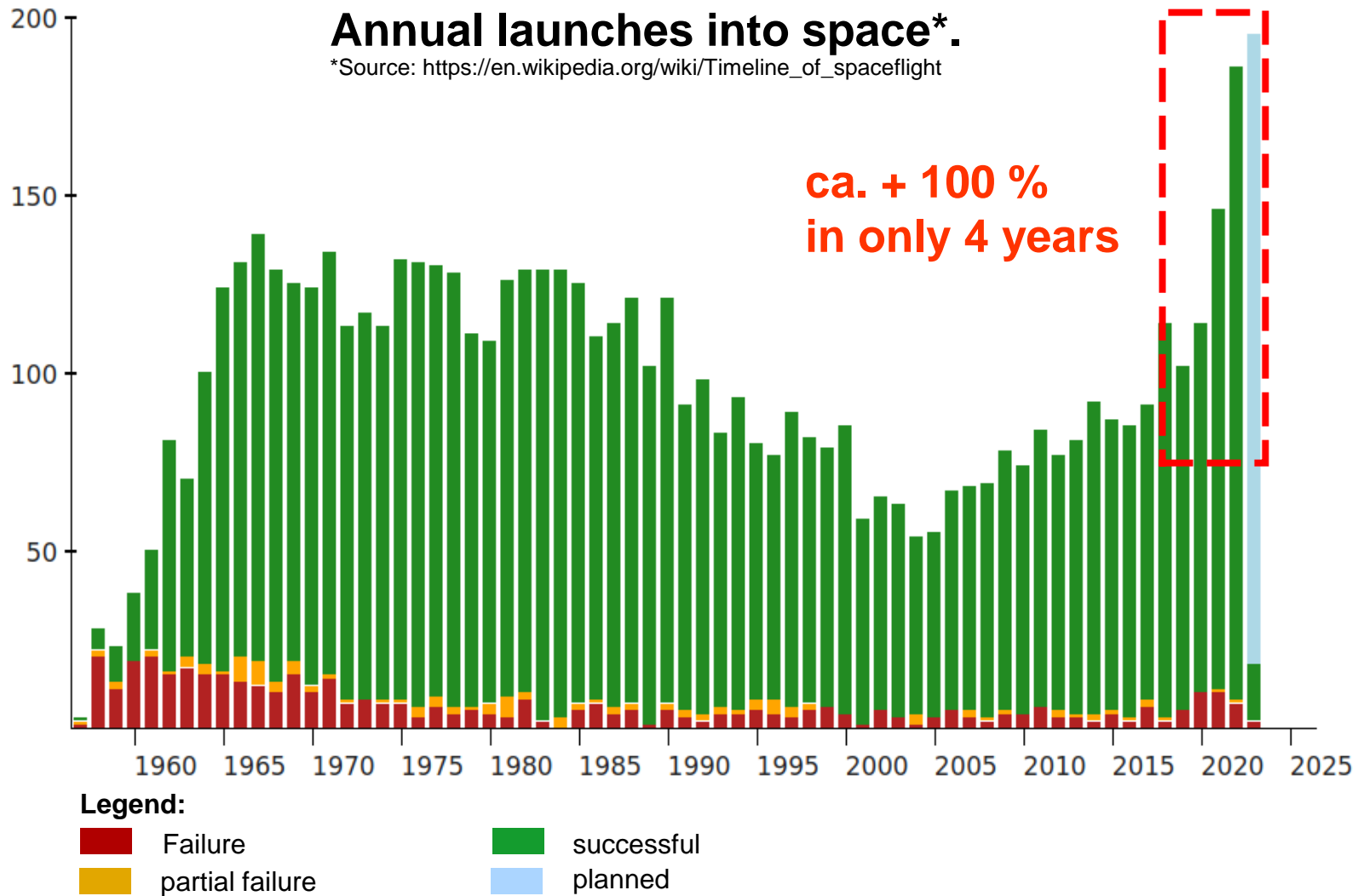


## Some reasons for growth:

- Privatization: rocket launches become more attainable for companies  
(According to Dr. Schmierer of Hylmpulse)
- New applications: e.g. market for earth observation is growing strongly  
2019: \$2.5 billion by 2025 estimated US \$6.8 billion - according to Morgan Stanley
- Forcing satellite communications (e.g. SpaceLink by SpaceX, but also planned by other companies)



## Additional boost in the market from privatization of space travel



**economic:**

→ Radical innovations necessary to keep up the pace of development and remain competitive

**technical:**

→ Payload share still limited!

**approx. 1-4% payload for Low Earth Orbit (LEO) - low earth orbit**

Type	Electron (Rocket Lab)	Falcon 9 (SpaceX)	planned Starship (SpaceX)
Propellant	LOX, RP1	LOX, RP1	LOX, Methan
Take-off mass [t]	13	541	5.000
Payload LEO [t]	0,3	23	>100
Payload LEO [%]	2,3	4,2	ca. 2,0
Cost [US \$ million]	7	62	10
spec. cost [\$/kg]	23.333	2.719	100 (Target: complete reusability)

→ Goal of Payloadproject.com: more payload share for rockets