

# MICROLAUNCHERS: Launch solutions for the increasing small satellite market and new ways to access to space



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## New space age

We are living a **revolution** in the Access to Space which is providing **great opportunities** commercially unimaginable only a few decades ago.



## Evolution of technology: The miniaturization

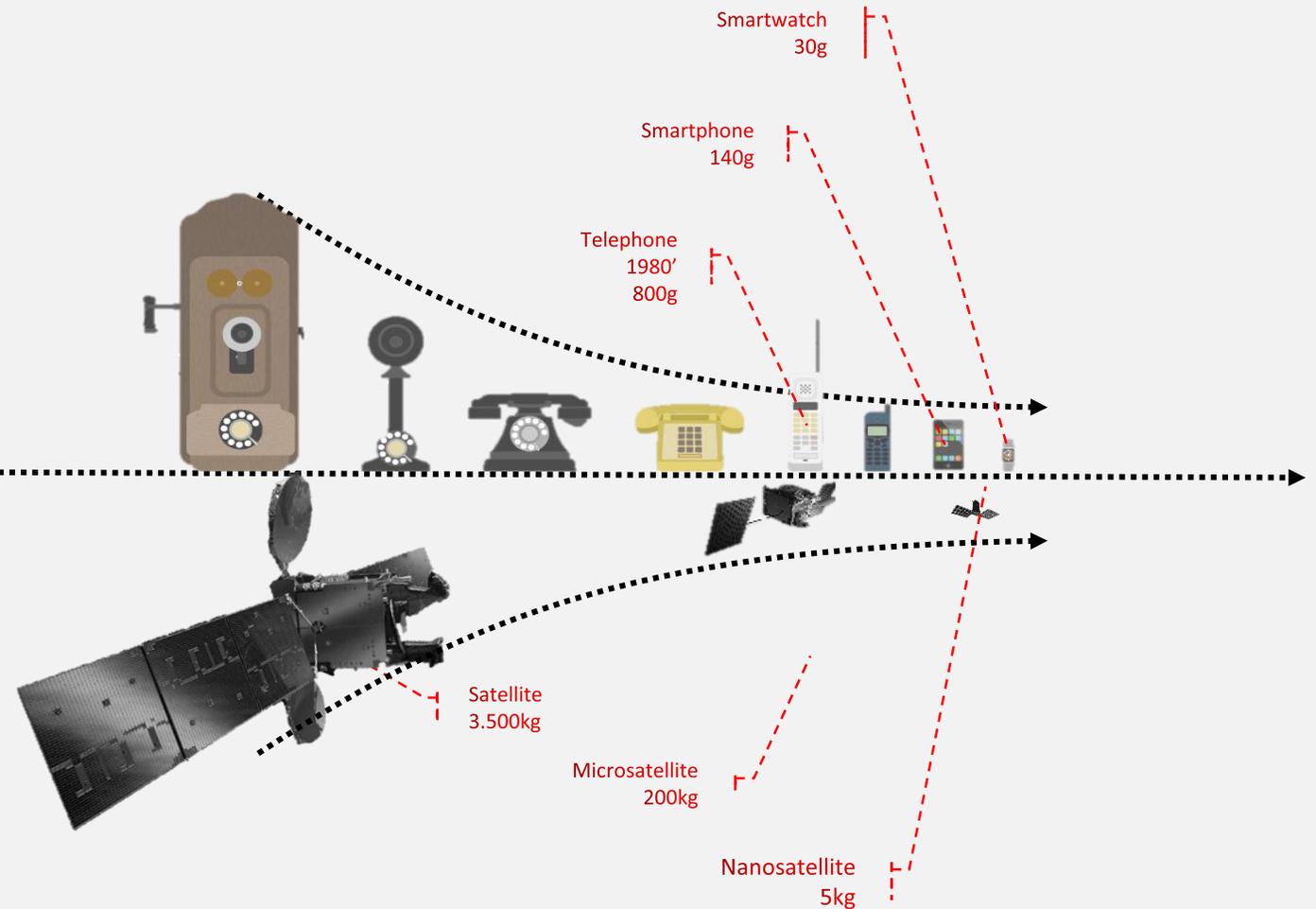
In the last decade, electronical and computational technology has divided in size and multiplied in power.

This process is called:

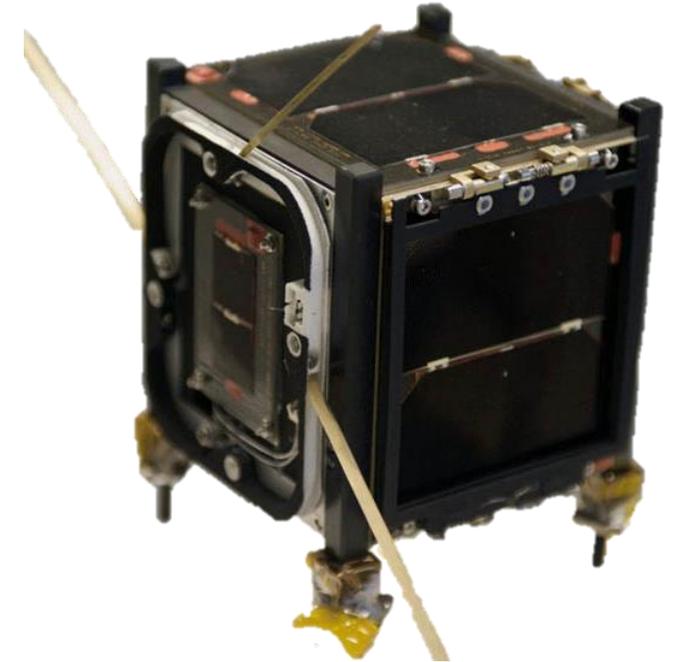
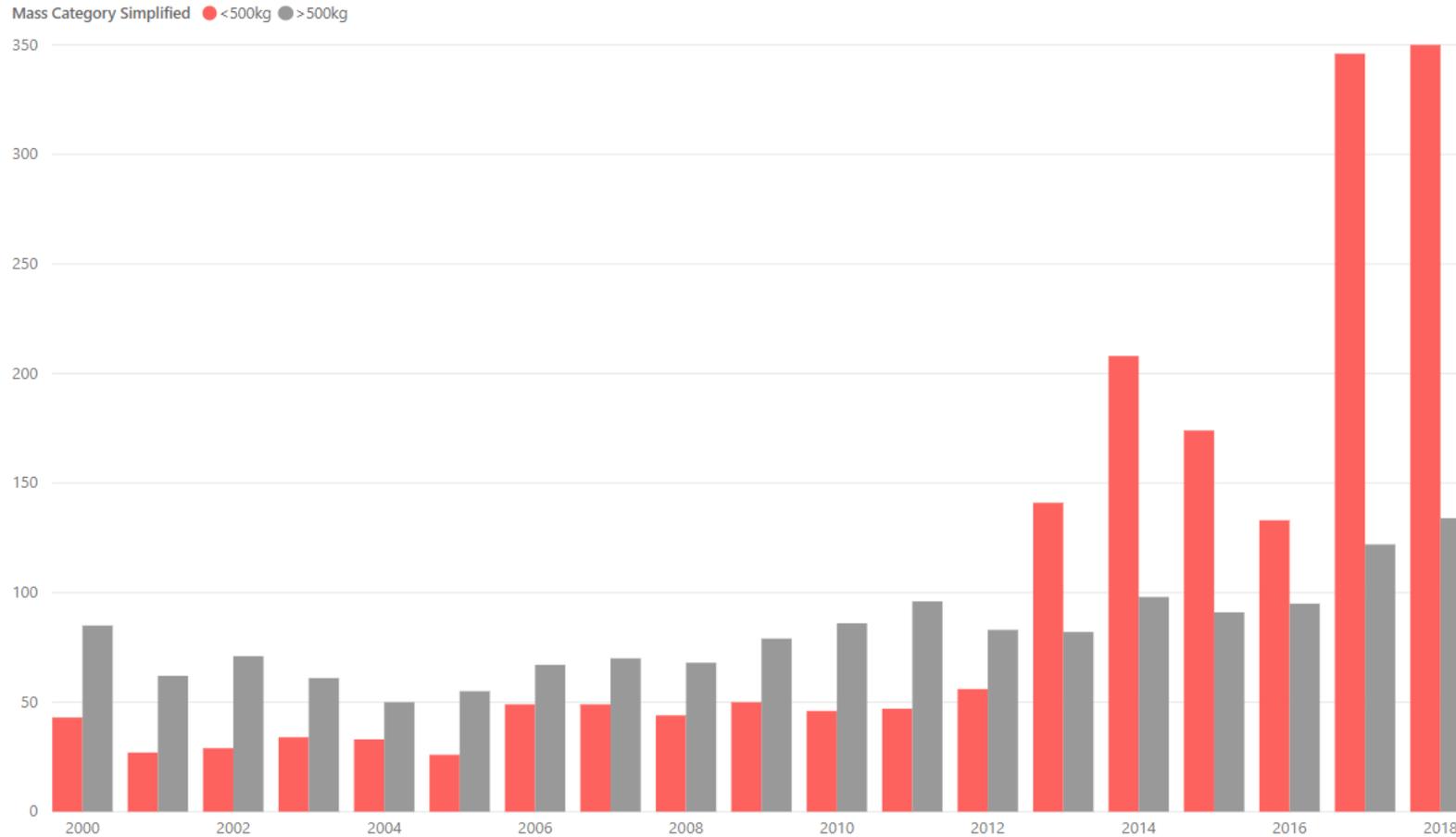
“the miniaturization”

The Space satellites have not been an exception. Today there exist satellites that fit in the palm of the hand.

These small satellites have started to replace the traditional ones.



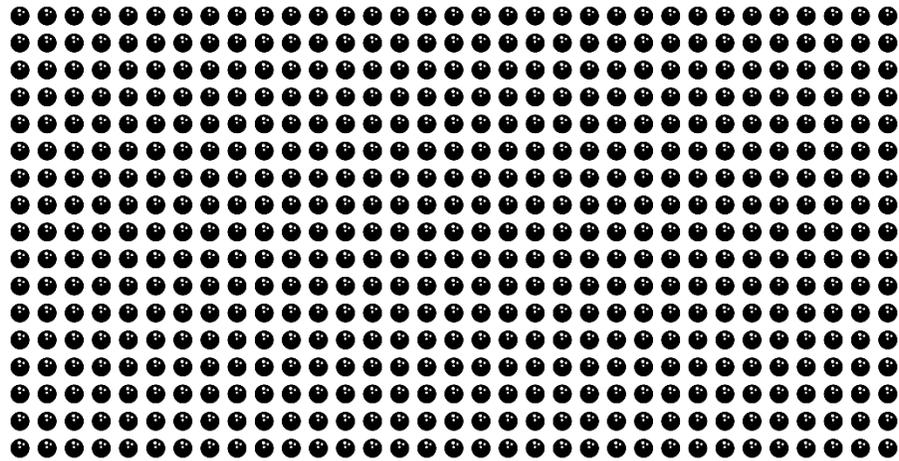
## The launch of small satellites to Space overtakes the launch of traditional satellites



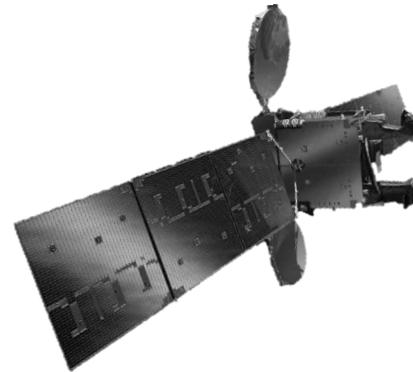
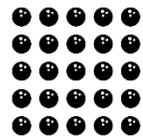
In 2010 only 20% of the satellites launched into space were small in size. In the last years that percentage has been reversed, with more than 65% of the launches corresponding to this type of satellites.

The evolution will continue over the next few years, where more than 5,000 small satellites, currently in development, should be launched into space.

Access to Space services have not been adapted to the technology revolution. Despite the miniaturization, launchers still remain too big. A small satellites operator receives a Space service that is not adapted to their needs.



 X 1 = 5,4 kg



big



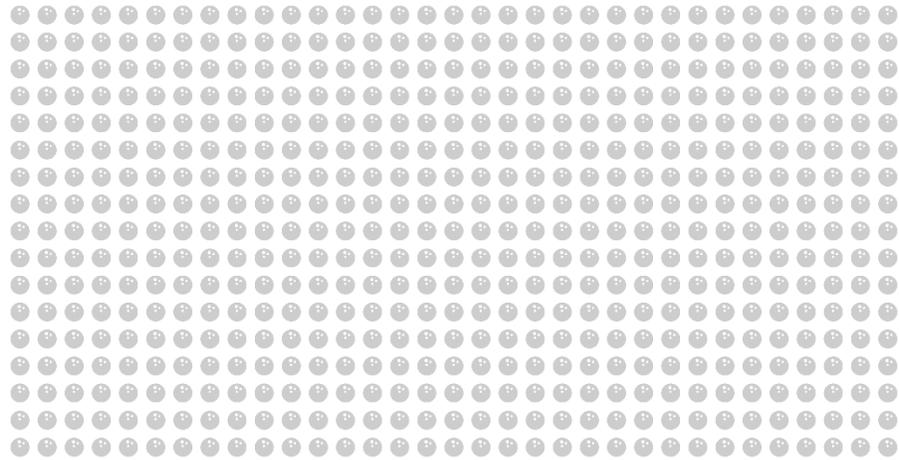
big



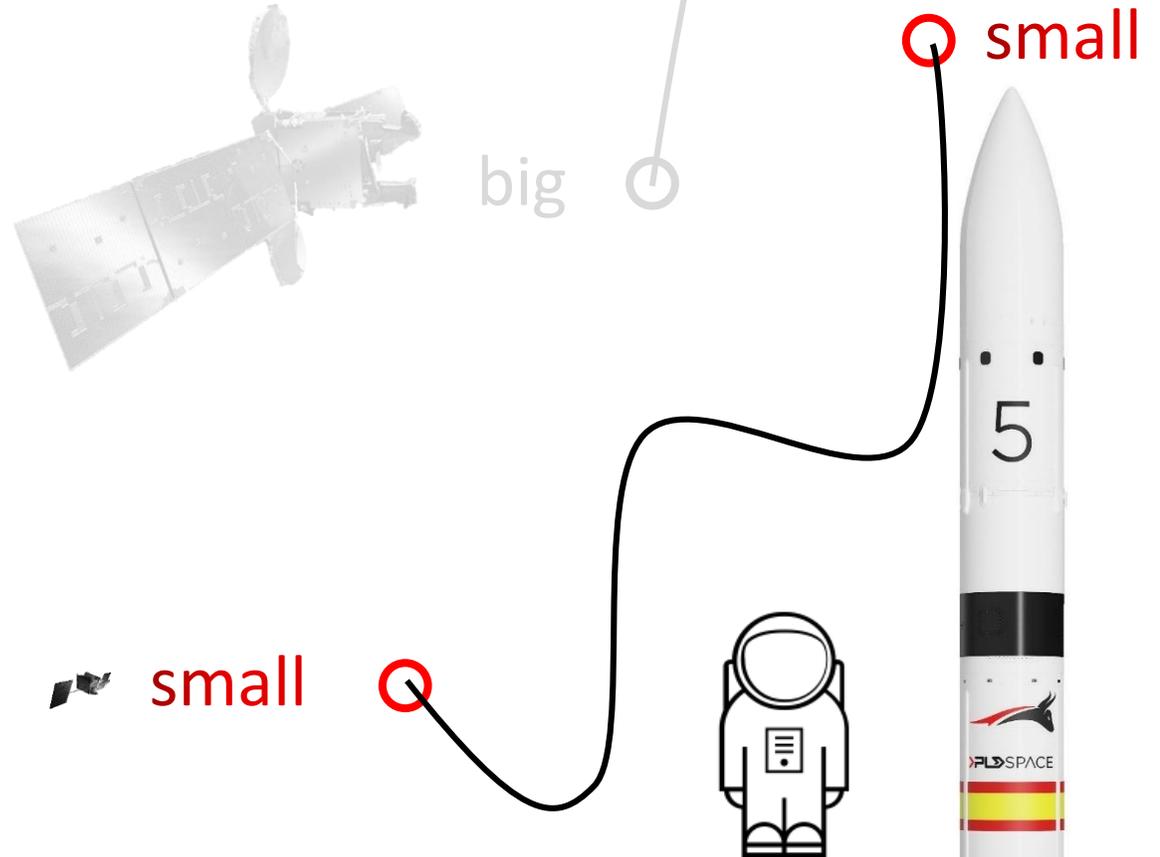
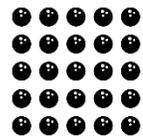
small



The solution is building an adapted launcher to provide launch services to small satellites.  
A small launcher is the most efficient, flexible and cost-effective way to launch small satellites to Space.

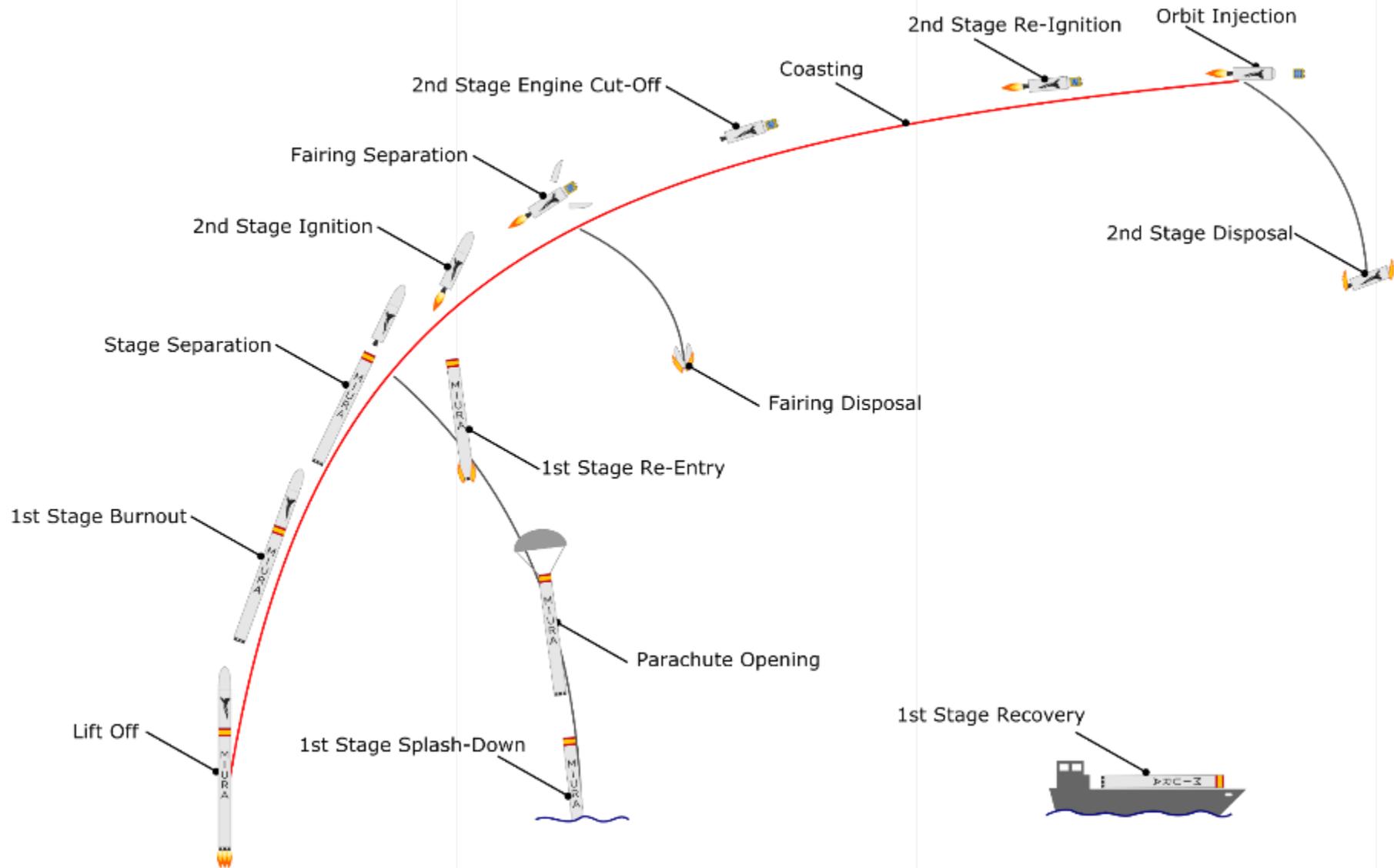


 X 1 = 5,4 kg



The first European company  
developing a small reusable launcher  
dedicated to democratize access to Space for  
small satellites.





## Key features of MIURA 5:

*Accessibility:* Depending on the flight configuration, *smallsats* can be carried to orbit in dedicated, rideshare or piggyback launch services.

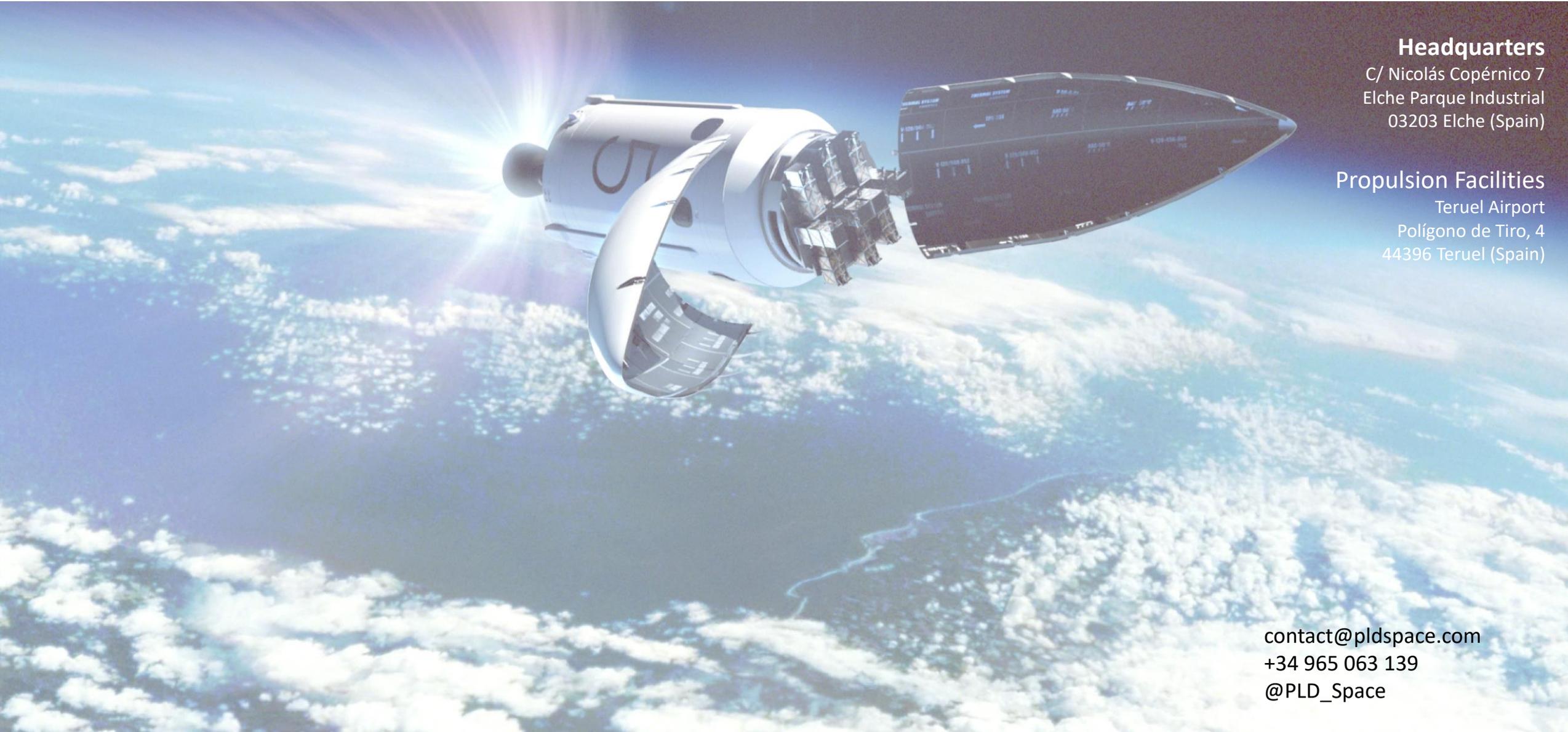
*Customization:* Assurance that the payload correctly reaches the orbit demanded by the *smallsats* operator. Optimal for refurbishment of *smallsats* constellations.

*Flexibility:* More reference orbits diversifying the launch sites & more launch windows increasing the launch frequency.

*Responsiveness:* By not depending on main payloads, the waiting time from the launch service agreement until the launch date is lower.

*Affordability:* The recovery and reusability of the micro-launcher and the use of technology maturation and COTS offer competitive launch services.

*Time to market:* Micro-launchers can be ready to flight at the beginning of the '20s.



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