Who took the picture?!

250g baseball-sized robot LEV-2 (nicknamed SORA-Q) from JAXA, Takara Tomy, SONY, Doshisha Univ.
Fully autonomous operation after release from SLIM
<table>
<thead>
<tr>
<th>Year</th>
<th>Mars MMX</th>
<th>Mars Landing Step 1</th>
<th>ML Step 2</th>
<th>ML Step 3</th>
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<tbody>
<tr>
<td>2030</td>
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<td>2040</td>
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- **Mars MMX**: LEAD program for 100-200kg rover
- **Moon SLIM**: Unmanned rover for tech for OK-sized exploration
- **Moon LUPEX**: Pressurized Manned Rover for 50kg rover
- **Moon LUPEX**: Large Cargo Lander for 100-200kg rover

*<Direct contribution to ARTEMIS, focus on polar region>*
MMX
Martian Moons Exploration
JAXA
EDL in the Martian tenuous atmosphere: heat shield, super-sonic parachute and thruster

Inflatable soft aeroshell

Hard shell is not needed as long as the mass to be delivered is not too high.

Limited launcher capability, limited budget, interest in more frequent opportunities... Yes, we are interested in light-weight access to the Mars surface.
Step 1

Common OTV for Step 2 and 3, and for multiple deep space missions beyond
Moon
Moon ➔ Mars
A mother spacecraft system that assembles multiple small assets to perform **Mars exploration**.

*We have been thinking about this concept (selection of Comet Interceptor by ESA was one of the trigger), then came*

**LEV-2/SORA-Q** alive and kicking on the lunar surface.

Multiple small landers and cubesats will be the customers to transportation-to-Mars service enabled by the Orbit Transfer Vehicle.