



LUNET platform concept: bootstrapping lunar mission services

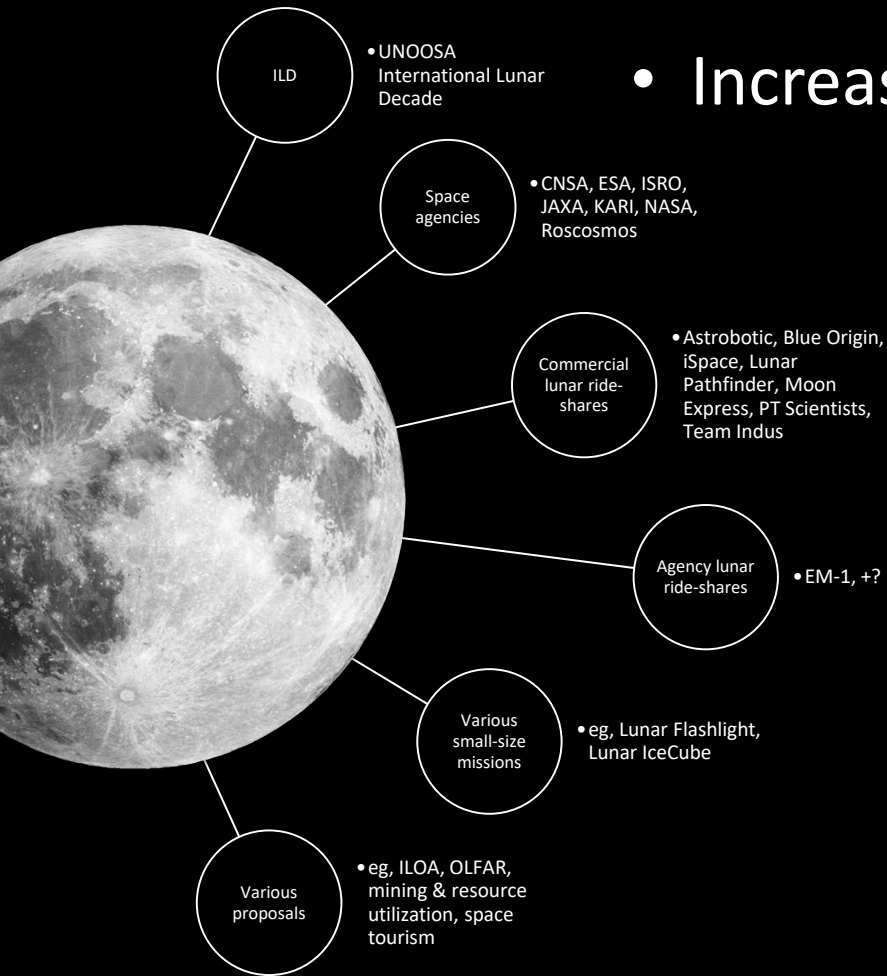
ISSC 2019

29-30 April 2019, San Luis Obispo



Laura Mullin, LUNET Mission Services Ltd, ISSC 2019

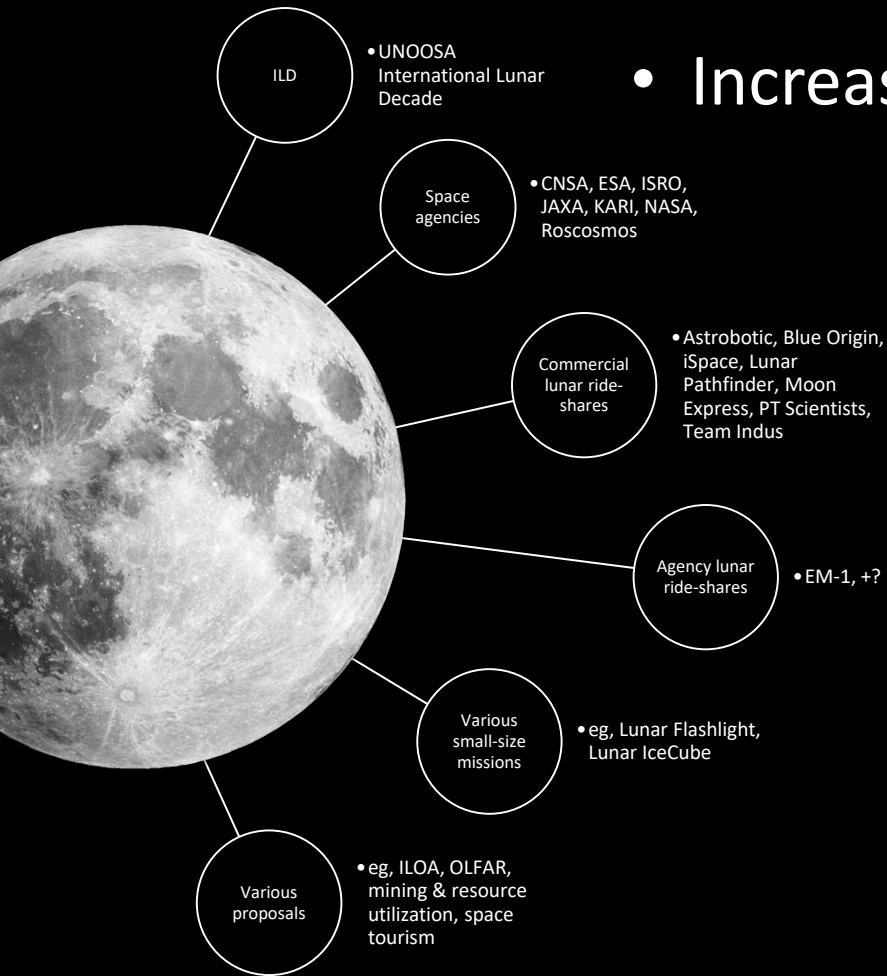
Proposal context



- Increasing interest in lunar exploration



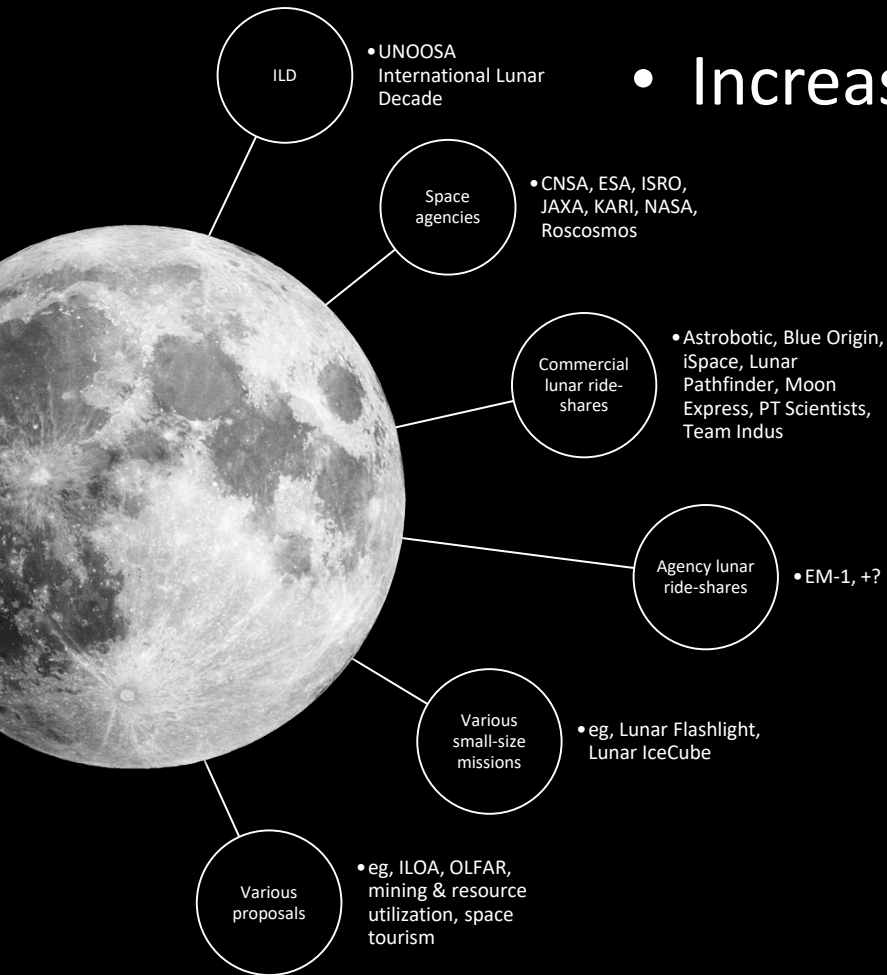
Proposal context



- Increasing interest in lunar exploration
- Role for infrastructure



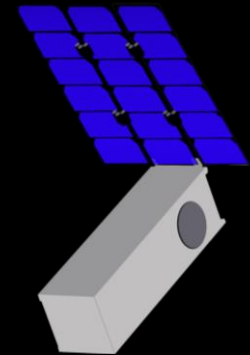
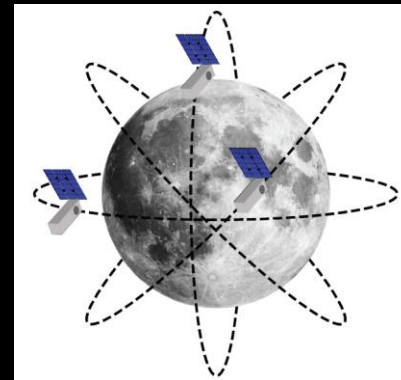
Proposal context



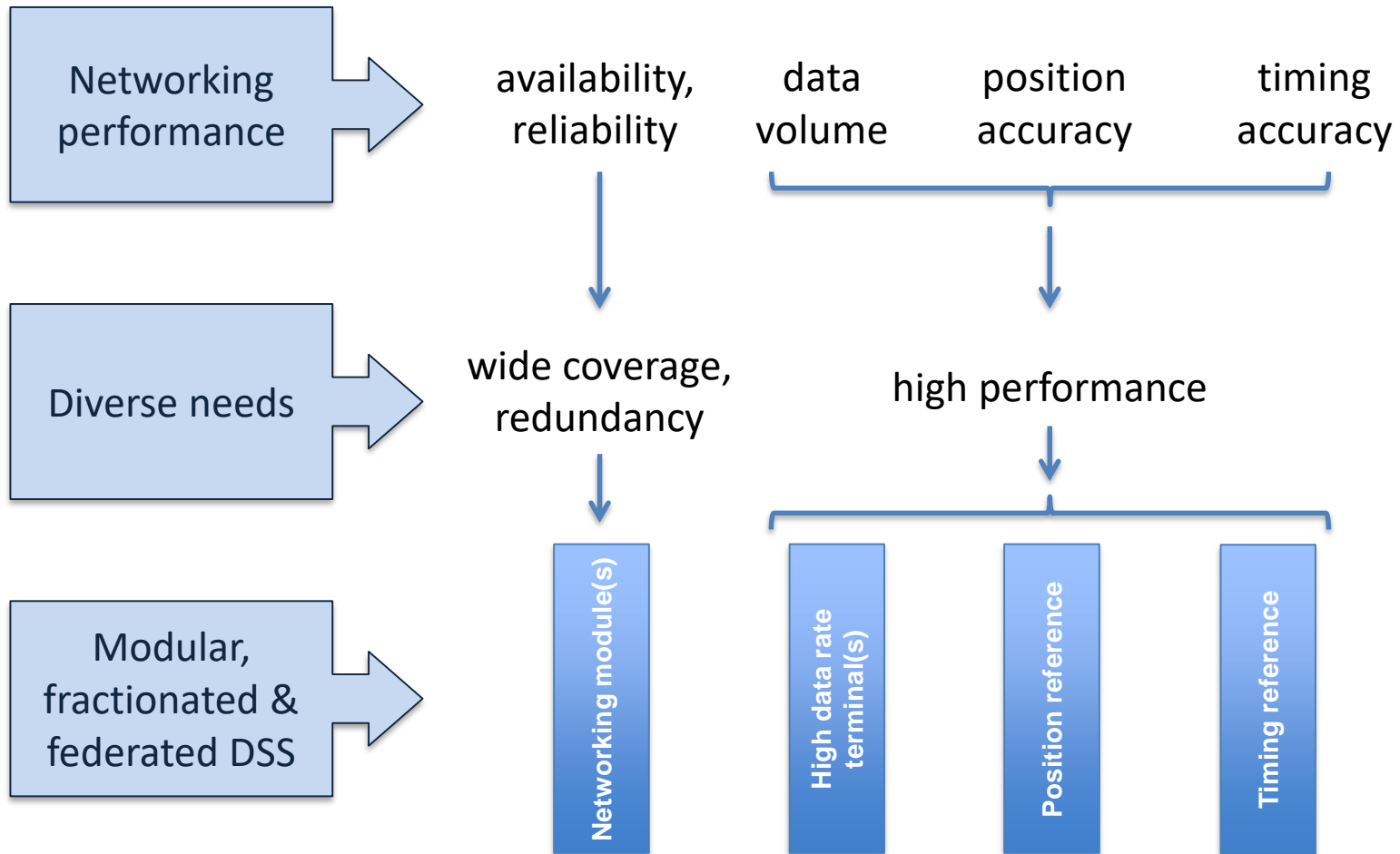
- Increasing interest in lunar exploration

- Role for infrastructure

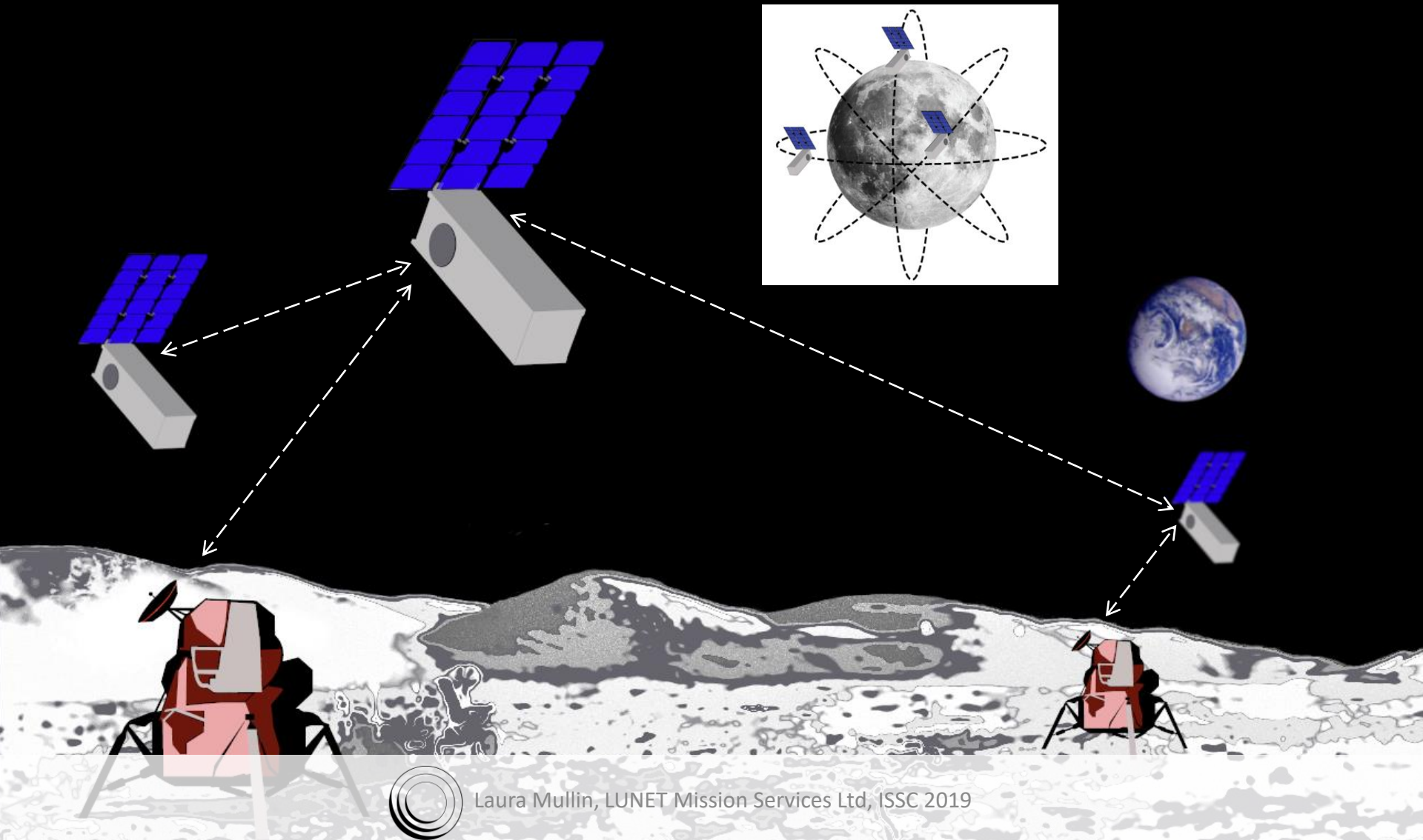
- Developing CubeSat capabilities; DSS



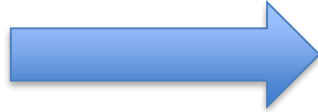
LUNET platform DSS



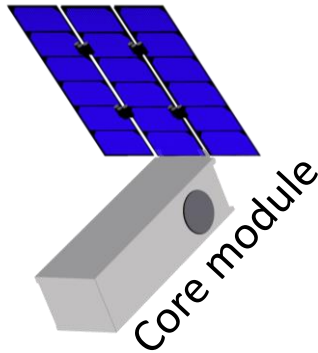
LUNET platform concept



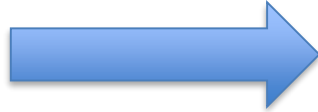
1st generation LUNET platform MVP



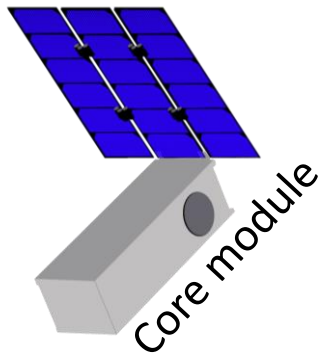
Anchor customer base:
technology demonstration,
operations validation,
auxiliary data services,
adjunct missions



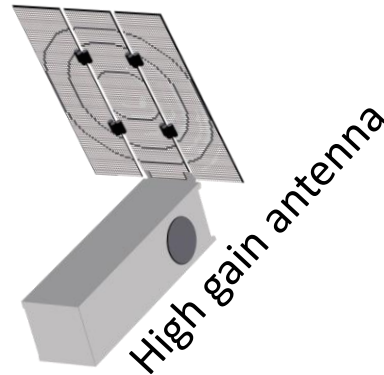
1st generation LUNET platform MVP



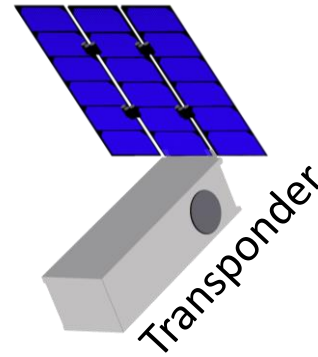
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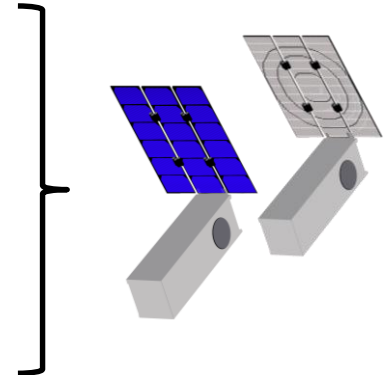
Core module



High gain antenna



Transponder

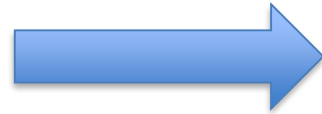


1st generation modules

Mission 1



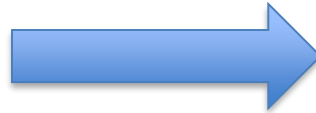
1st generation LUNET platform MVP



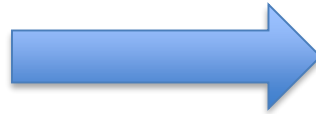
Anchor customer base:
technology demonstration,
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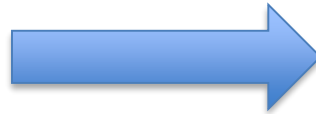
under utilized
capacity



Auxiliary service offerings



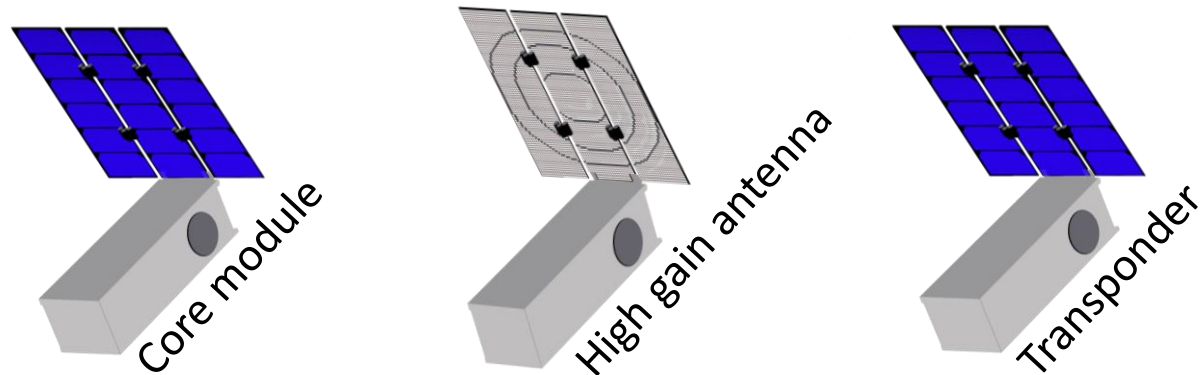
Adjunct mission opportunities



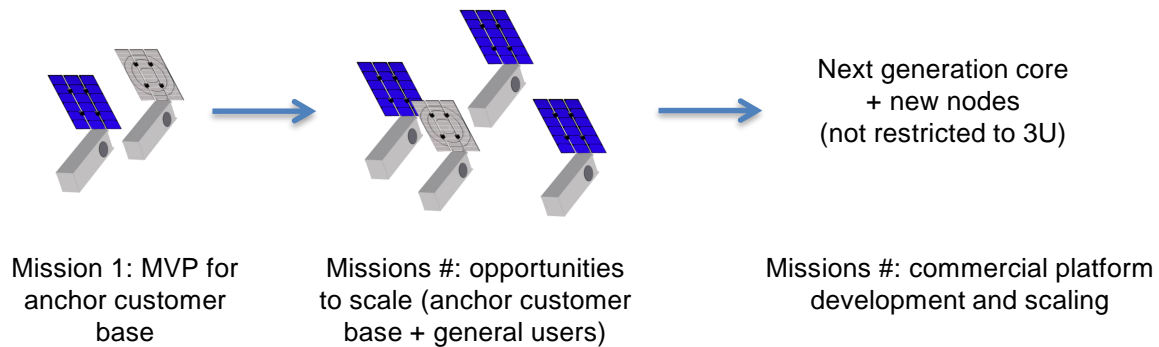
Hosted payload/ technology
demonstrations



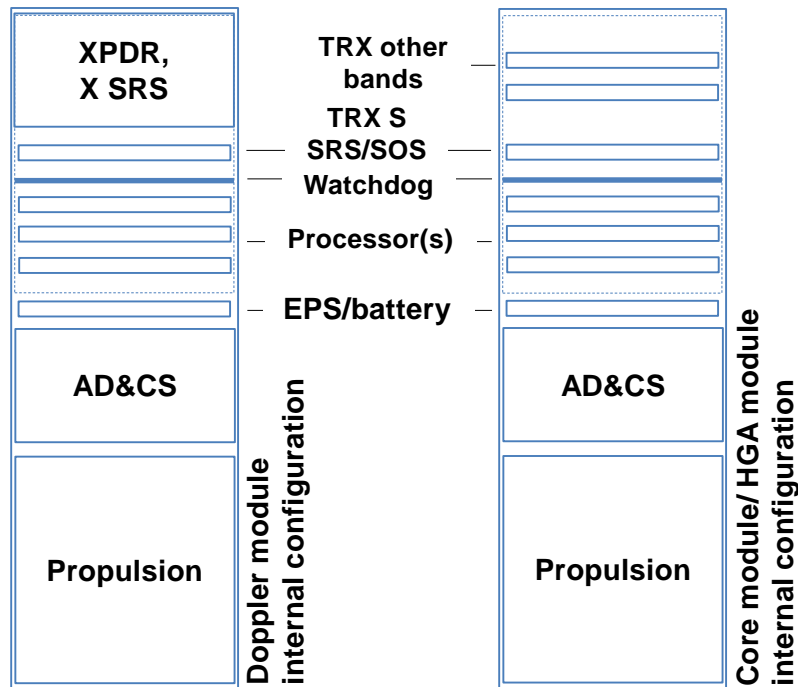
LUNET Platform roadmap



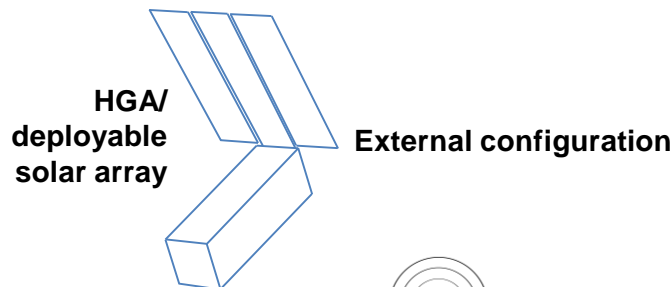
1st generation modules



1st generation functionality



- S band SRS, S band SOS ISLs
- Other frequencies: UHF, X, Ka
- On-board computer processing and data storage
- Tracking by ground station (2/3-way Doppler, Δ -DOR), autonomous OD (optical) and SST
- Attitude control
- Minimal OTM, station keeping. Active disposal end-of-life
- Power generation and management



Questions?



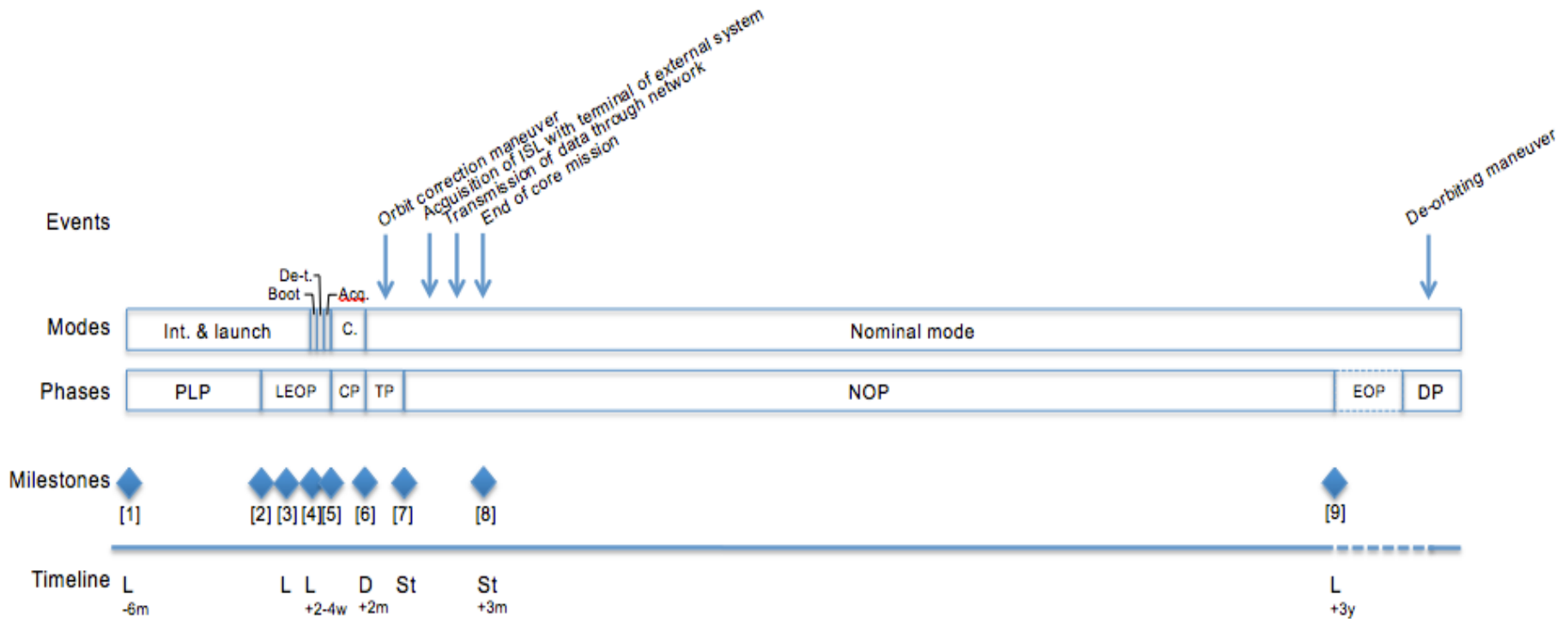
For further information
on potential collaboration or partnerships
visit our booth in the conference exhibition



Back-up slides



LUNET module DRM



Timeline: L = launch, D = deployment in lunar orbit, St = start of core mission.

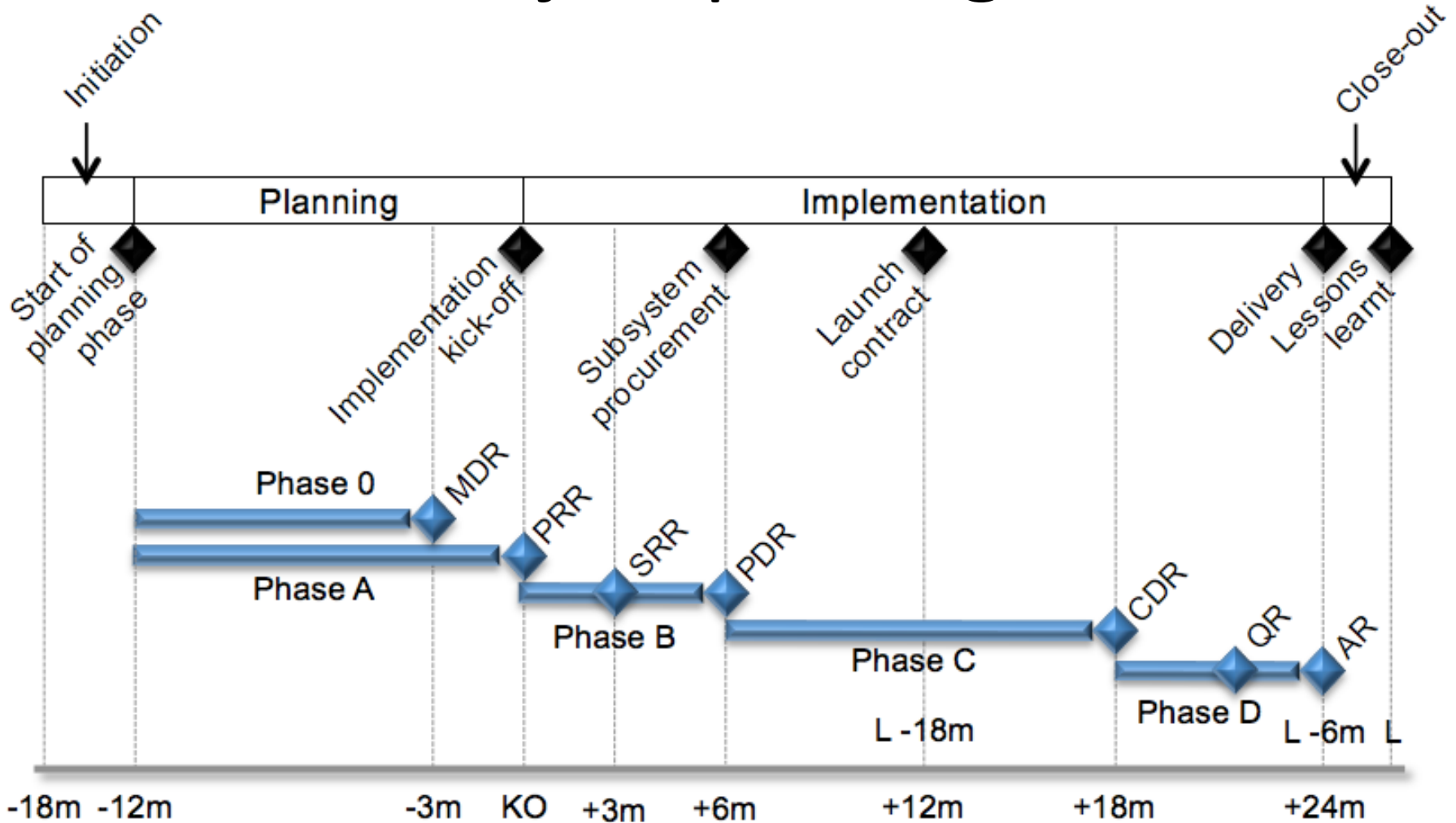
Milestones: [1] delivery of FM to ride-share provider, [2] LSP pre-launch readiness review, [3] launch of module, [4] deployment of module into lunar orbit, [5] acquisition of ground link, [6] completion of commissioning phase, [7] achievement of operational orbit, [8] end of core mission, [9] module end-of-life.

Phases: pre-launch, launch and early operations, commissioning, transfer, nominal operations, extended operations, disposal.

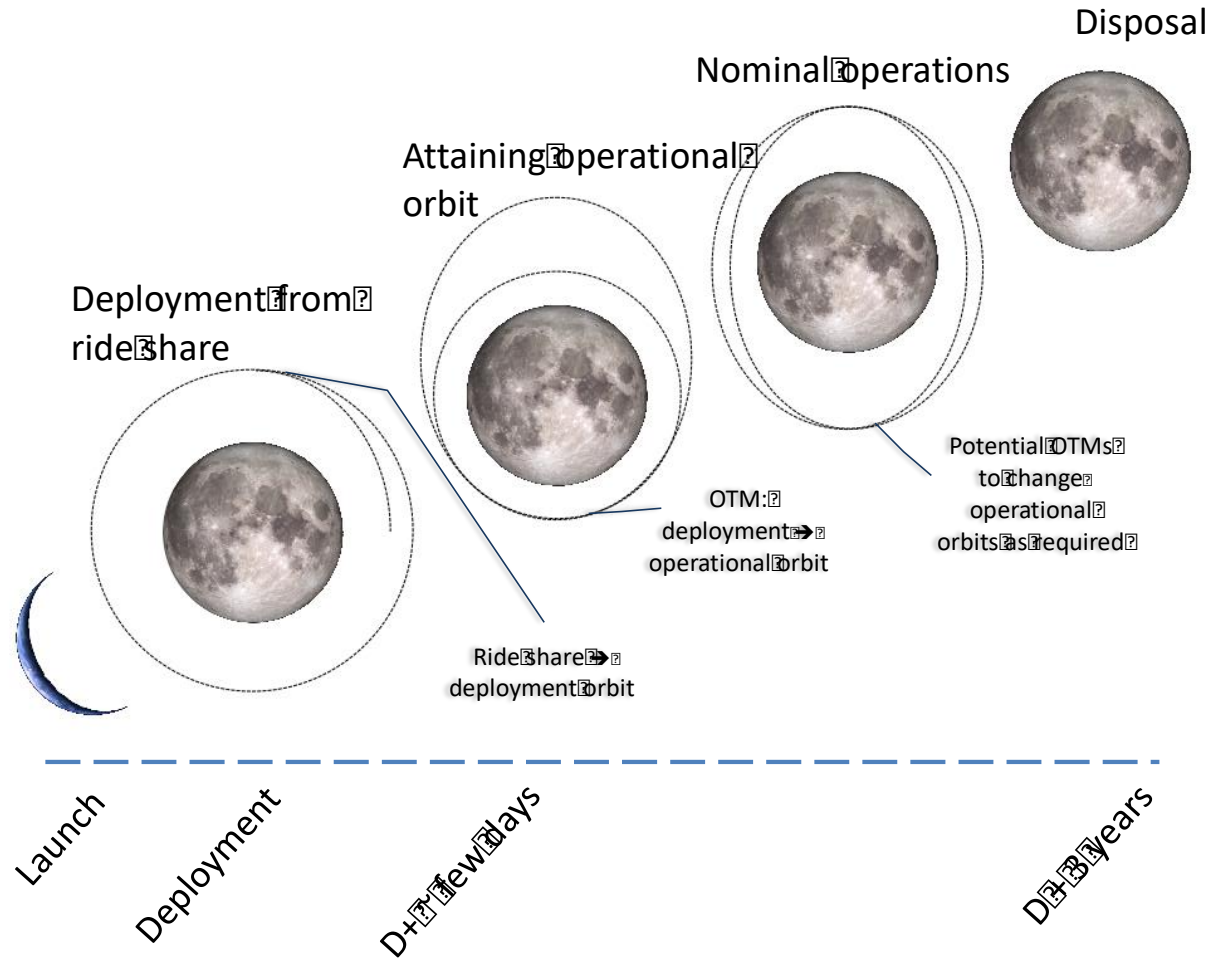
Modes: Integration and launch, boot, de-tumble, acquisition, commissioning, propulsion control, nominal operations, on-orbit storage, safe.



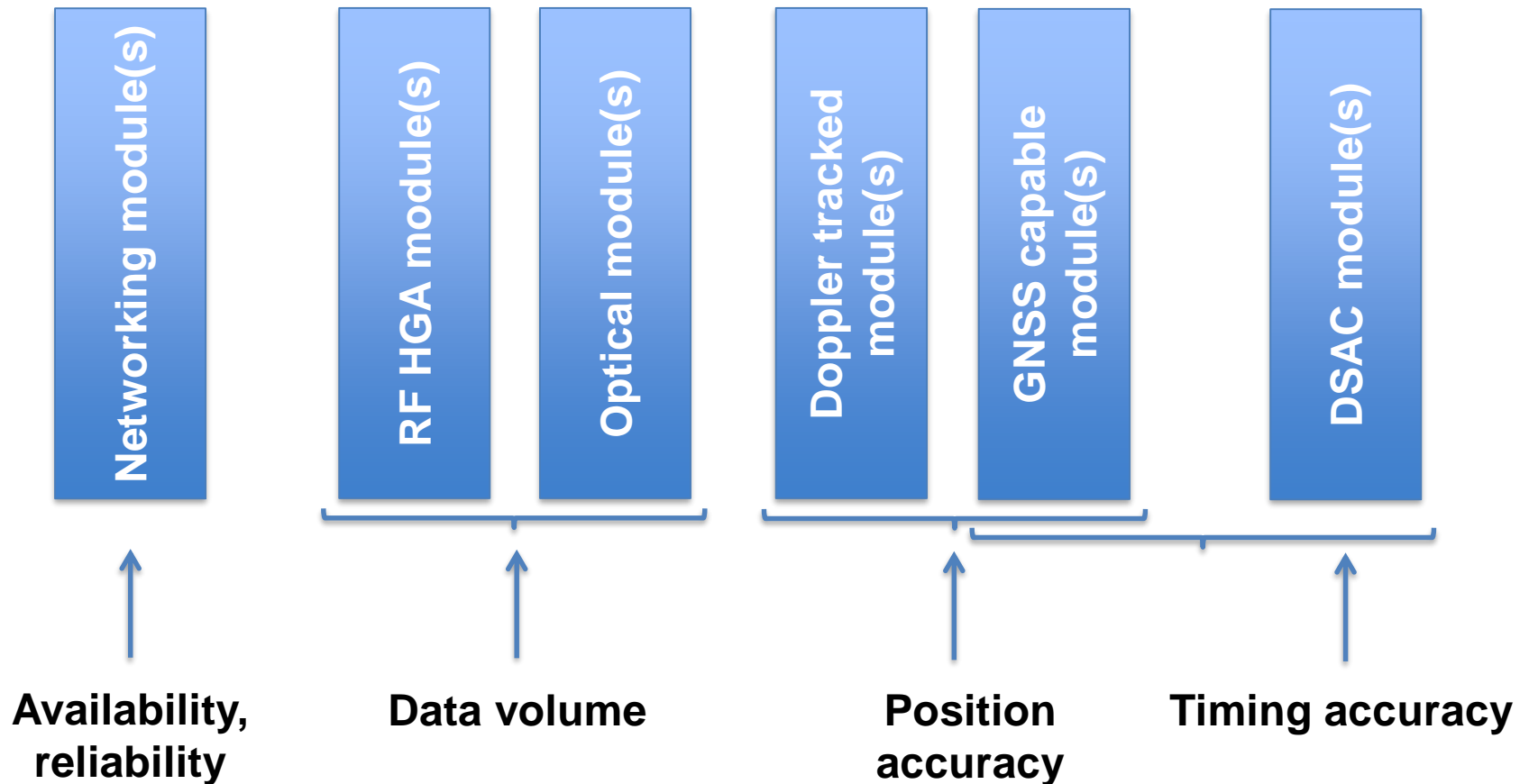
Project phasing



LUNET platform module ConOps



LUNET platform DSS functional decomposition



LUNET platform roadmap

