



# New Space: Impacts on Cost Engineering?

- Many new industrial players;
- New small, low-cost launcher projects;
- Not always following traditional standards, schedules and financial reporting practices;
- Large series production, far larger than in conventional constellations (Starlink...);
- For same budget envelope more, smaller, projects – but not necessarily more government/prime (cost) engineers.

# Conclusions 'the Cost of New Space'

## Satellites

General lesson learnt on the cost engineering trends and domain for New Space satellites:

- First spotted 'outliers' have been analyzed and re-considered as fully justified references, based on the nature of the specific mission, technical specificities and the cost estimate mission phase.
- **Manpower resources not following the 'standard way of thinking', also affecting some categories (eg: PA) and tendency to co-engineering teams and tasks**
- HW/SW cost 'embedded' in system cost categories, (eg: engineering)
- **New Space missions have light procurement approach with equipment developed in house by the Prime, lowering significantly the cost. As expected.**

## Small Launchers

- Small launch is dominated by the US and China currently, with the former having most vehicles in development and the latter with most vehicles in operation.
- **Generally, small launchers follow the same cost/dry mass trends as larger ones.**
- Some launch vehicles exhibit unexpected cost characteristics such as low cost/kg dry mass.
- Uncharacteristic figures are not due to
  - Decreases in structural components complexity
  - Other dry mass fractions in small launch vehicles than larger ones
- **Most probable cost gains are from avionics, with COTS becoming interesting at higher volumes.**

HydroGNSS

# Questions

- What are the specificities of New Space in our context of space project costs?
  - Low-cost projects?
  - Cost modelling of constellations & series production?
  - Risk versus Cost aspects?
- How to improve cost engineering for these types of “New Space” projects?
  - Can we learn from other industries (automotive, consumer electronics, etc.)?
- Any ideas of helpful (new) cost estimate methods?
  - Do we need “new” models, or current models are still valid (inputting lower FTEs, higher TRLs, larger series – learning curve effects)? HydroGNSS
- Any ideas of possible innovations needed on cost modelling/predictive tools?