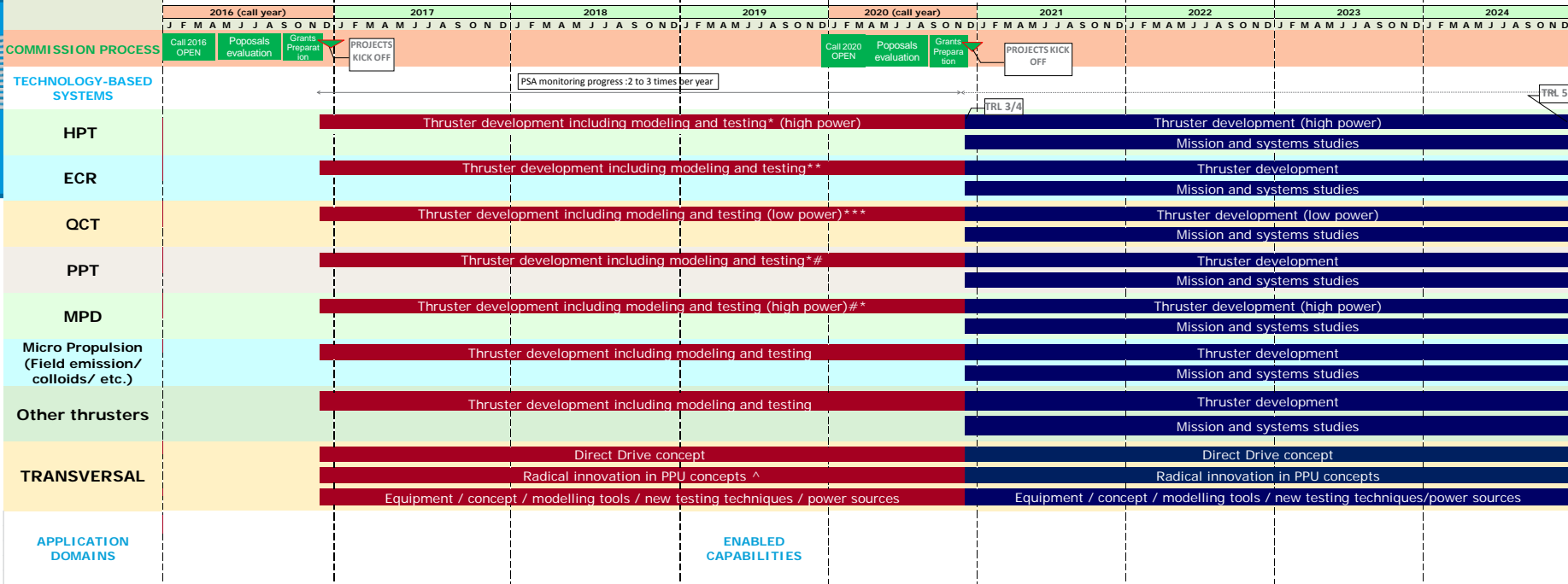




# EPIC Draft ROADMAP Disruptive line

PSA Consortium  
Workshop Stockholm – 12/02/2015



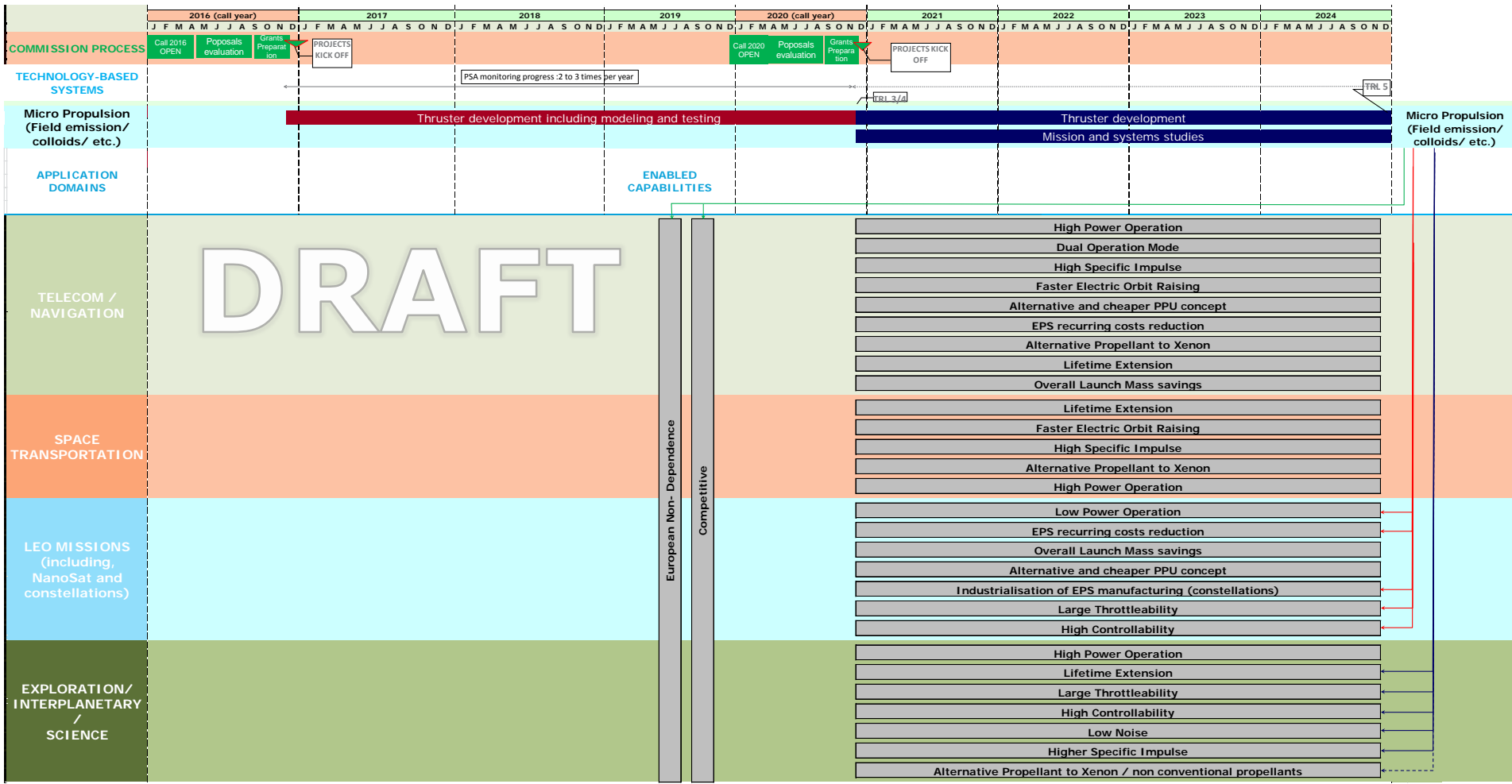
**DRAFT**

TELECOM / NAVIGATION	High Power Operation
	Dual Operation Mode
	High Specific Impulse
	Faster Electric Orbit Raising
	Alternative and cheaper PPU concept
	EPS recurring costs reduction
SPACE TRANSPORTATION	Alternative Propellant to Xenon
	Lifetime Extension
	Overall Launch Mass savings
	Lifetime Extension
	Faster Electric Orbit Raising
	High Specific Impulse
LEO MISSIONS (including constellations)	Alternative Propellant to Xenon
	High Power Operation
	Low Power Operation
	EPS recurring costs reduction
	Overall Launch Mass savings
	Alternative and cheaper PPU concept
EXPLORATION/ INTERPLANETARY / SCIENCE	Industrialisation of EPS manufacturing (constellations)
	Large Throttability
	High Controllability
	High Power Operation
	Lifetime Extension
	Large Throttability
High Controllability	
Low Noise	
Higher Specific Impulse	
Alternative Propellant to Xenon / non conventional propellants	

European Non- Dependence

Competitive

## Example: MicroPropulsion



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 640199. This presentation reflects only the Consortium's view. The EC/REA are not responsible for any use that may be made of the information it contains.

HORIZON 2020

## *Explanatory Notes (1/2)*

- **Electric Propulsion Thrusters (HPT, ECR, QCT, MPD, PPT, Micropropulsion, Other Thrusters)**
- Based on heritage and previous studies, development of EP thruster shall include modelling and testing
  - Understanding of the Physics (magnetic nozzle, onset phenomena, erosion issues, etc.)
  - Improve the actual performances (efficiency, lifetime, noise, etc.)
  - Inclusion of cathodes/neutralisers in development phase if applicable
  - Investigations on Alternative propellants to Xenon and/or non-conventional propellants
- Analysis of potential applications and impacts on the host systems

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## *Explanatory Notes (2/2)*

### ➤ **Transversal**

- PPU (Direct Drive, Radical Innovations)
  - Direct Drive concept
    - Simplification of overall spacecraft power system
    - Costs reductions
  - Radical Innovations
    - R&D studies (including modelling if applicable and testing)
    - Examples: new architectures, advanced combination of materials for new PPUs, hybrid solution to drive different types of EP thrusters, etc.
- Any other disruptive concept for EP
  - Examples: component of EPS, new concept, modelling tools, testing techniques, power sources
  - R&D activities to understand the Physics (including modelling and testing, if applicable)
- All lines should aim at a competitive (low cost) EPS

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