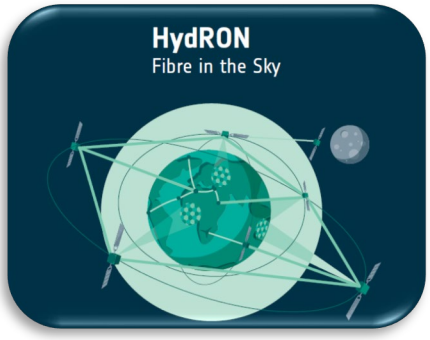
HIGH THROUGHPUT OPTICAL NETWORK DEMONSTRATION SYSTEM (HYDRON-DS)



HYDRON-DS ELEMENT #3
CALL GUIDELINES

Prepared by	HydRON Project Team
Document Type	Announcement of Opportunity
Reference	ESA-CSC-T-PR-0018
Issue/Revision	1.0
Date of Issue	30/06/2025
Status	1.0

Table of Contents

1. INTRODUCTION

1.1. Document Scope

As part of the HydRON-DS Project (High thRoughput Optical Network Demonstration System), this document provides the guidelines of the "Call for HydRON-DS Element #3" issued by the European Space Agency (hereafter referred to as the Agency).

1.2. Applicable Documents

AD 1	ARTES 4.0 Standard Call for Proposal, CfP/4-40017/24/NL/GM, https://esastar-publication.sso.esa.int/ESATenderActions/details/87531

1.3. Reference Documents

RD 1	ESA Specification for Terabit/sec Optical Links (ESTOL), Doc. Ref. ESA-CSC-T-SP-0001, Issue 2 Rev 2, https://connectivity.esa.int/sites/default/files/2024-09/ESTOL_air_interface_v2.2.pdf
RD 2	HydRON Demo System – Core Segment / Element #3 Network Access Specification (HDS NAS), Doc. Ref. ESA-CSC-T-SP-0004, Issue 1 Rev 0 *(under preparation by the Agency, to be issued in October 2025)*

1.4. Abbreviations

AC	Adjudication Committee
CfP	Call for Proposals
CMIN	Council at Ministerial level
ESTOL	ESA Specification for Terabit/sec Optical Links
GEO	Geostationary Orbit
HydRON	High thRoughput Optical Network
HydRON-DS	HydRON Demonstration System
IPC	Industrial Policy Committee
ITT	Invitation to Tender

JCB	Joint Board on Communication Satellite Programmes
LCT	Laser Communications Terminal
LEO	Low Earth Orbit
MEO	Medium Earth Orbit
NAS	Network Access Specification
OCT	Optical Communications Terminal
OGS	Optical Ground Station
SLA	Service Level Agreement

2. BACKGROUND

HydRON (High thRoughput Optical Network) is a project within the ScyLight programme, first presented at the Ministerial Council in November 2019 (CM19). The HydRON Project is implemented as part of the ARTES Strategic Programme Line “Optical and Quantum Communication – ScyLight”.

HydRON aims to demonstrate the world’s first optical multi-orbit transport network at terabit/sec capacity in space, extending terrestrial fibre-based networks seamlessly into space – in other words HydRON will demonstrate the “Fibre in the Sky” and extend the "Internet beyond Cloud(s)".

The initiative is to enable the development and validation of required technologies by European and Canadian industries. The project will support the next generation of institutional and commercial space telecom missions, requiring advanced communication capabilities which are currently unavailable.

2.1. HydRON Vision

HydRON is the vision for a high throughput optical space network that will address and master the challenges of bringing connectivity to multiple users across different orbits and applications to showcase the capabilities of optical communication technology in end-to-end system implementations (Figure 1). The targeted capacity performance of HydRON is orders of magnitude greater compared to today’s SatCom systems (terabit/sec in contrast to gigabit/sec), which has the potential to trigger a true revolution of applications, services and connectivity provided by SatCom. The seamless inter-operability of the optical space network with terrestrial systems is one of the key aspects of HydRON to provide a perceived integrated infrastructure.

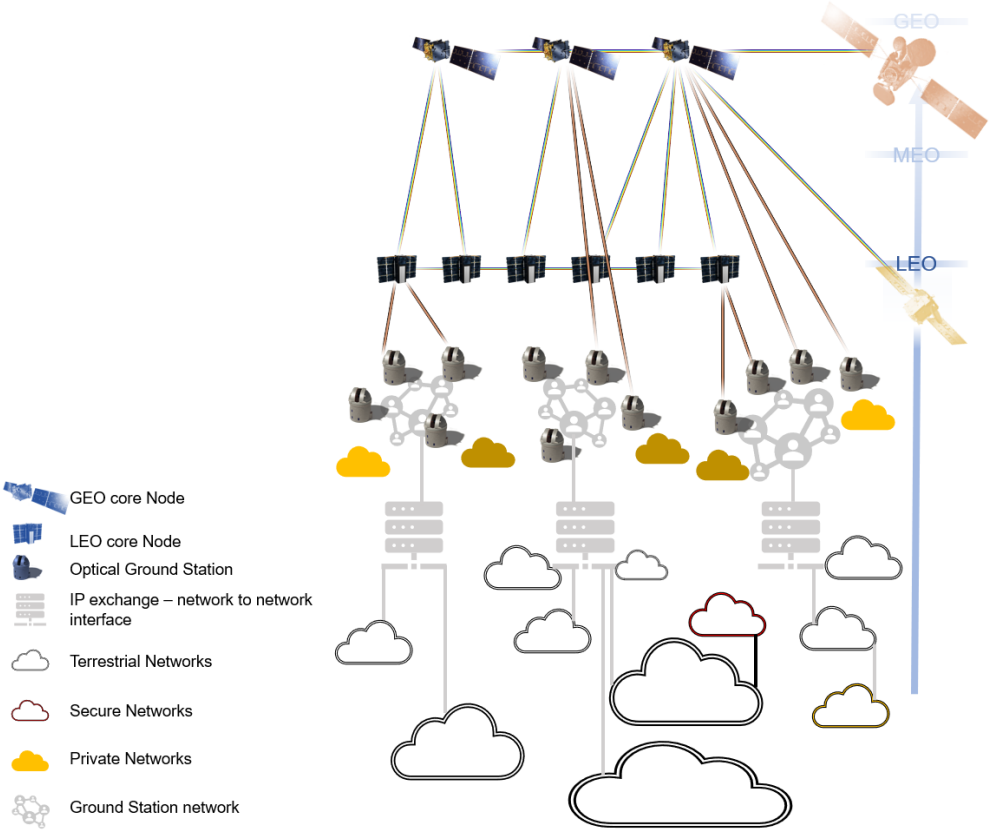


Figure 1 Vision of a high throughput optical space network bringing high data rate terrestrial connectivity to multiple space users across different orbits (e.g., LEO, MEO, GEO) and to ground users located in remote areas with no available broadband access.

2.2. HydRON Demo System

The implementation of the full HydRON concept (i.e., Vision) is considered beyond the scope of the (ESA) HydRON Project, considering estimated financial envelope and effort. Instead, the objective of the (ESA) HydRON Project is to define, develop and validate a representative HydRON Demonstration System (HydRON-DS) reducing the complexity of a full system to key elements (Figure 2).

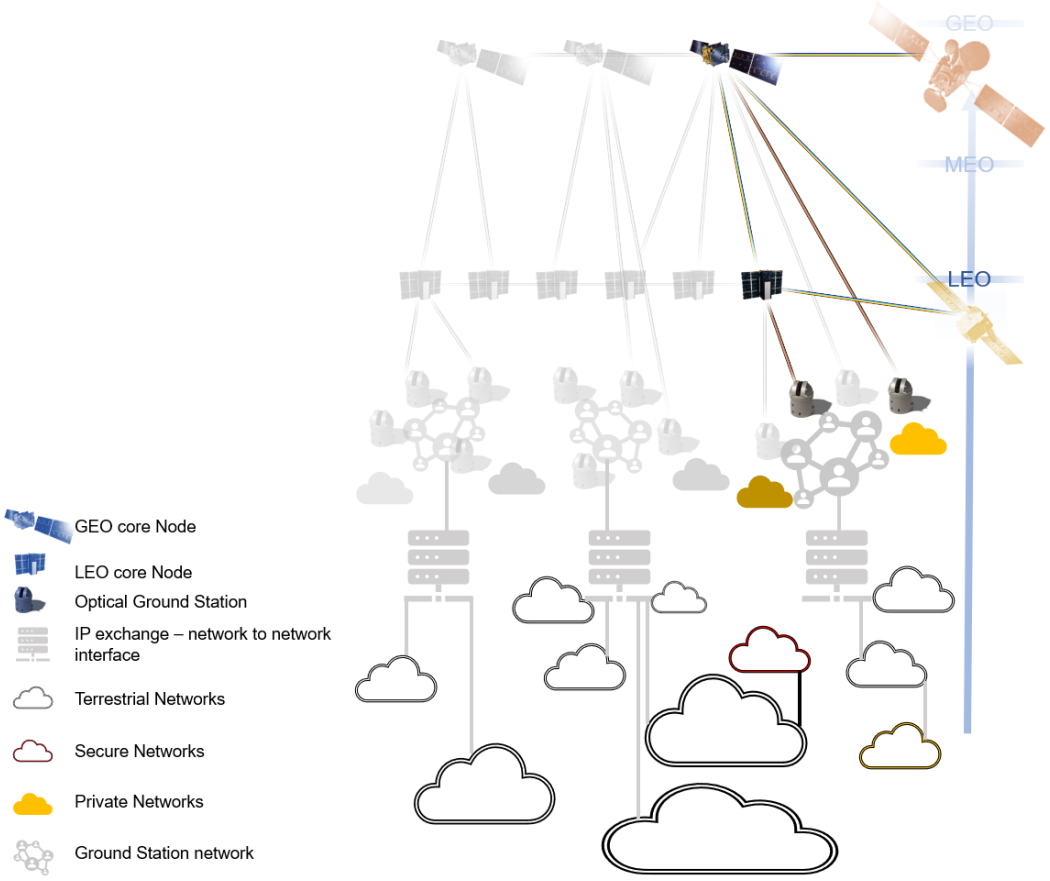


Figure 2 Demo System mission of a downscaled high throughput optical space network (i.e., HydRON-DS), demonstrating key optical / digital technologies and validating operational concepts required for the HydRON vision.

2.3. HydRON Project

The HydRON Project targets the implementation (i.e., development, deployment, in-orbit testing and demonstration) of the HydRON Demonstration System (i.e., HydRON-DS). The HydRON-DS (Figure 2) will be composed of the minimum number of elements (in space and on ground) necessary to demonstrate high-capacity data transport and flexible network capabilities to assets / users located both in space and on ground.

The HydRON-DS is composed of the following three system elements (HDS-E#1/2/3), which are depicted in Figure 3:

- HDS-E#1: a high-throughput optical LEO-Ring Layer, contracted to a consortium led by Kepler Communications (Canada) in October 2024.

- HDS-E#2: a high-throughput optical LEO Multi-Orbit Extension Layer, contracted to a consortium led by TAS-I (Italy) in December 2024.
- HDS-E#3: a User Segment and Evolution, with contributions from commercial / institutional partners interested in using the HydRON-DS to experiment with / evaluate their new developments or exploit new commercial services.

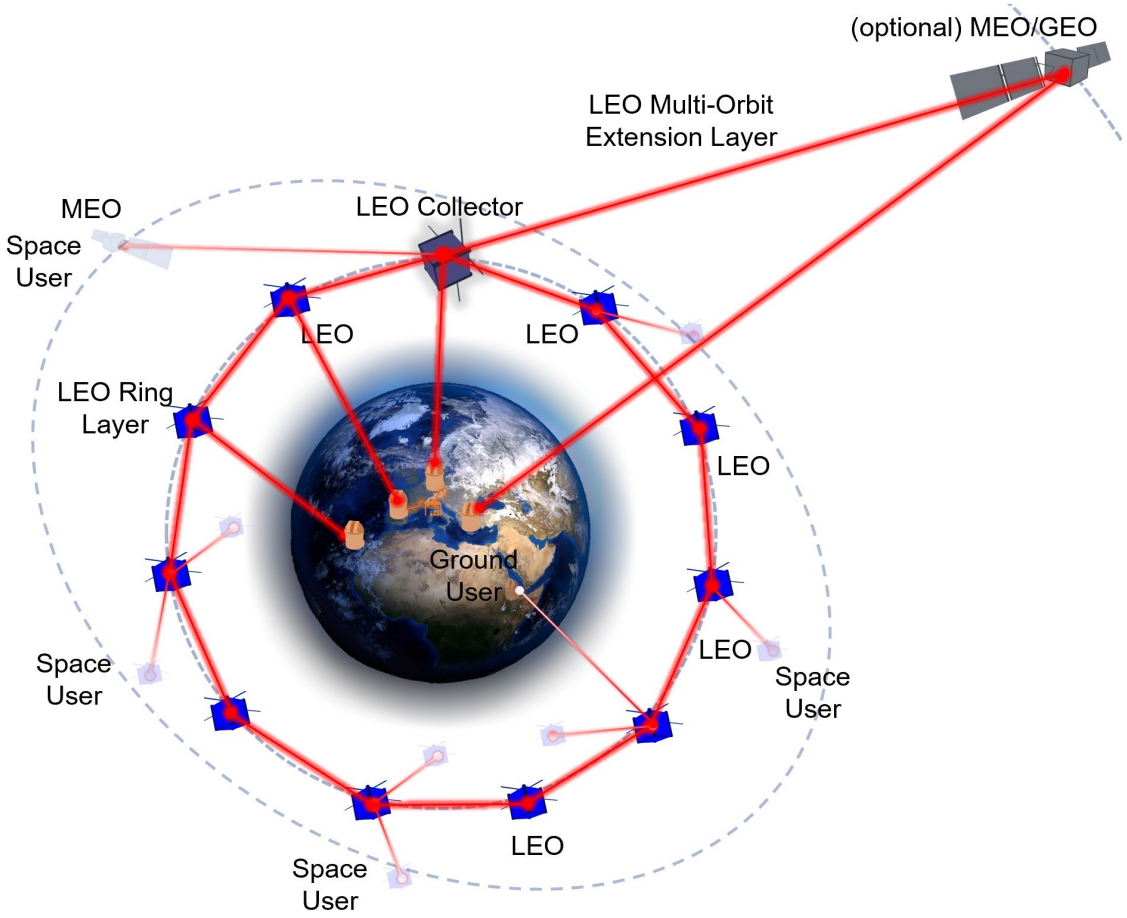


Figure 3 Overview of the HydRON-DS elements: (i) LEO Ring Layer, (ii) LEO Multi-Orbit Extension Layer and (iii) User and Evolution Segment.

Given the received commercial interests, in general, the Agency largely encourages cooperation with Satellite Operators / Service Providers offering flight opportunities and / or utilization of the HydRON-DS for commercial exploitation (or other sorts of co-investment).

2.4. HydRON Element #1 and Element #2

HDS-E#1 – LEO Ring Layer

The current baseline of the LEO Ring Layer, led by Kepler Communications (Canada), includes:

1. LEO Ring with ten (10) LEO nodes.
2. Each LEO payload equipped with:
   a. Four (4) Laser Communication Terminals (LCT), capable of data rates up to 100 Gigabit/sec for LEO-LEO ring connectivity, and up to 10 Gigabit/sec for user access connectivity (e.g., LEO-based user, ground-based user).
   b. Packet routers at 100 Gigabit/sec capacity.
   c. RF payload.
3. Optical Ground Segment:
   a. One (1) transportable OGS capable of data rates up to 100 Gigabit/sec.
   b. One (1) fixed OGS capable of data rates up to 100 Gigabit/sec.
   c. Fibre terrestrial network and equipment capable of data rates up to 100 Gigabit/sec.
   d. HydRON Control Centre (orchestrator of the LEO Ring Layer of the HydRON-DS).
4. RF Ground Segment:
   a. RF stations according to the targeted RF functionality.
   b. Kepler Network Control Centre (overall orchestrator of Kepler's mission).

The various (space segment, ground segment) items of the HDS-E#1 – LEO Ring Layer are highlighted in Figure 4.

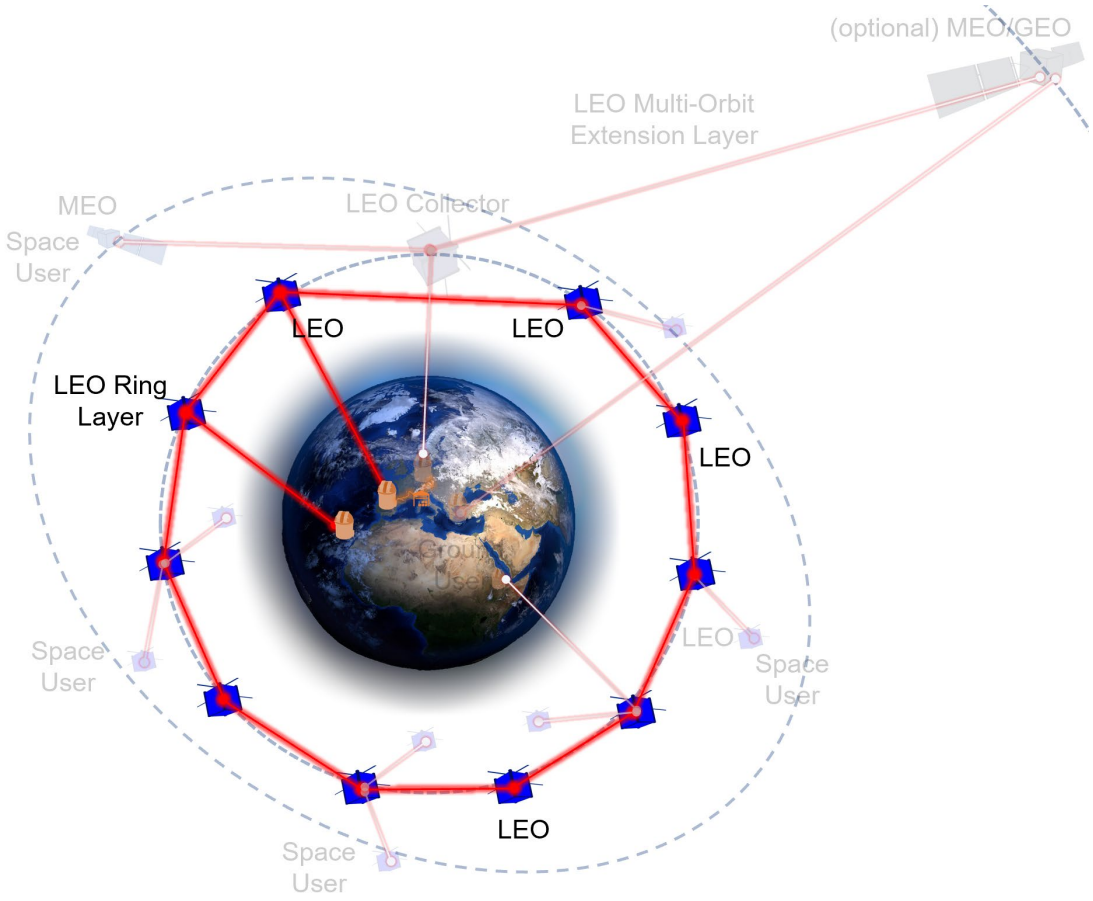


Figure 4: Overview of the HydRON-DS Element #1, i.e., HDS-E#1 - LEO Ring Layer.

HDS-E#2 – LEO Multi-Orbit Extension Layer

The industrial team for the implementation of the LEO Multi-Orbit Extension Layer is led by TAS-I (Italy). The current baseline of the LEO Multi-Orbit Extension Layer includes:

1. One (1) dedicated LEO Collector node compatible with the HydRON LEO Ring Layer (HDS-E#1).
2. One (1) LEO Collector payload embarked on the LEO Collector node equipped with:
   a. Four (4) Optical Communication Terminals (OCT) capable of data rates up to 100 Gigabit/sec for LEO-LEO ring connectivity, for optimised LEO-ground connectivity and for multi-orbit connectivity (e.g., LEO-GEO).
   b. One (1) Turbulence Mitigation Processor up to 100 Gigabit/sec.
   c. One (1) Circuit Switch at 100 Gigabit/sec per port and one (1) Packet Router at 10 Gigabit/sec per port.
3. Optical Ground Segment:

a. One (1) transportable OGS capable of data rates up to 100 Gigabit/sec, equipped with adaptive optics and a Turbulence Mitigation Processor up to 100 Gigabit/sec.
b. One (1) fixed OGS capable of data rates up to 100 Gigabit/sec, equipped with adaptive optics and a turbulence mitigation processor up to 100 Gigabit/sec.
c. Fibre terrestrial network and networking equipment capable of data rates up to 100 Gigabit/sec.
d. The HydRON Control Centre (orchestrator of the LEO Multi-Orbit Extension Layer of the HydRON-DS), including the HydRON Network Control Centre.

The demonstration of the multi-orbit extension functionality is intended by implementing an (optional) GEO counterpart, as follows:

4. One (1) GEO Multi-Orbit Extension payload, embarked as a hosted payload on a (third-party) GEO platform, inter-operable with the LEO Collector node, and equipped with:
   a. Two (2) Optical Communication Terminals (OCT) capable of data rates up to 100 Gigabit/sec for optimised GEO-ground connectivity and for multi-orbit connectivity (e.g., LEO-GEO).
   b. One (1) Turbulence Mitigation Processor up to 100 Gigabit/sec.
   c. One (1) Circuit Switch at 100 Gigabit/sec per port and one (1) Packet Router at 10 Gigabit/sec per port.
   d. One (1) Digital Interface at 100 Gigabit/sec with the (third-party) main mission payload.

The various (space segment, ground segment) items of the HDS-E#2 - LEO Multi-Orbit Extension Layer, including the (optional) GEO ones, are highlighted in Figure 5.

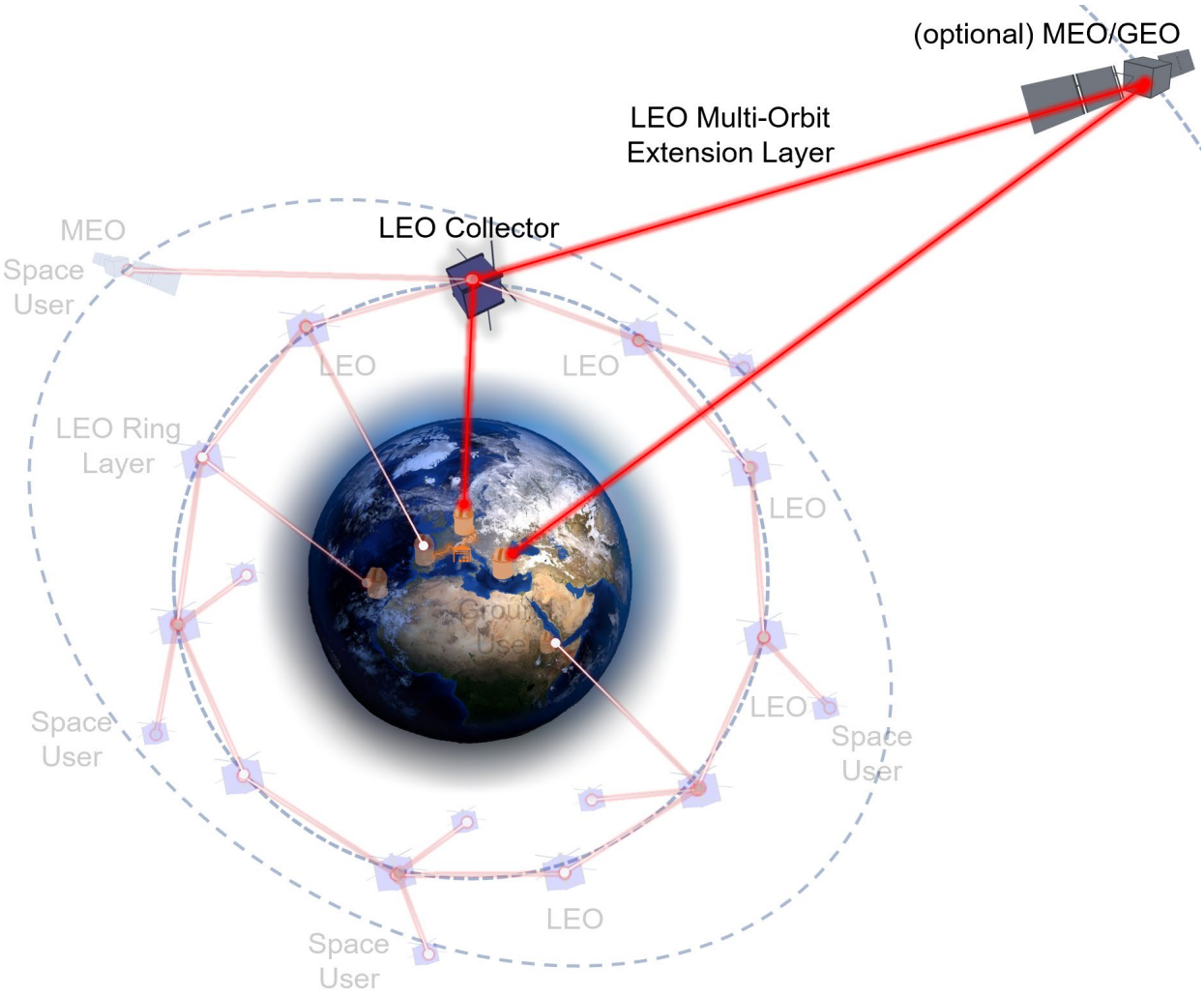


Figure 5: Overview of the HydRON-DS Element #2, i.e., HDS-E#2 - LEO Multi-Orbit Extension Layer, including the (optional) GEO node.

2.5. HydRON Element #3 – User Segment and Evolution

A central part of the SPL ScyLight Strategy is to build up and demonstrate new industrial capabilities in the field of optical and quantum communications. HydRON-DS with its Elements #1 and #2, will provide ESA's Member States and their industry access to a unique, world first in-orbit "test and validation laboratory".

The proposed HydRON-DS will offer newcomers the chance to test specific use equipment (e.g. their own optical terminal development) or new service concepts / use cases interconnected / validated with the HydRON-DS network and demonstrating inter-operability, as outlined in Figure 6.

Activities under Element #3 will be stand-alone and not schedule-critical to Element #1 or #2. Those activities could address:

- Newly developed optical equipment (e.g. new laser terminal concepts) launched via low-cost missions (e.g. CubeSats, microsatellites) accessing the HydRON-DS network via an air interface.
- Preparing flight opportunities for hosted payloads on board Element #1 or #2 space assets directly wired to the HydRON-DS network.
- New Service Demos connected to HydRON-DS (e.g. validation of services to airborne)
- Multi-Orbit: new orbits can be explored and extend the system to GEO/MEO/VLEO/HAPs
- International cooperation connected to HydRON-DS.

It is noted that a representative User Segment is also an important element for the In-Orbit Demonstration Phase (Phase E) of the HydRON-DS, either to validate the performance and capabilities of the system on a pre-operational basis (i.e. demonstration users) or to stimulate the provision of service on a commercial basis outside the HydRON project (i.e. service users).

Furthermore, new developments or service concepts performed under Element #3 may result in system Evolutions of HydRON and even the creation of new HydRON Elements after consultation with the Participating States. One potential example could be the integration of Airborne/HAPS terminals or integration of complete systems by industrial stakeholders.

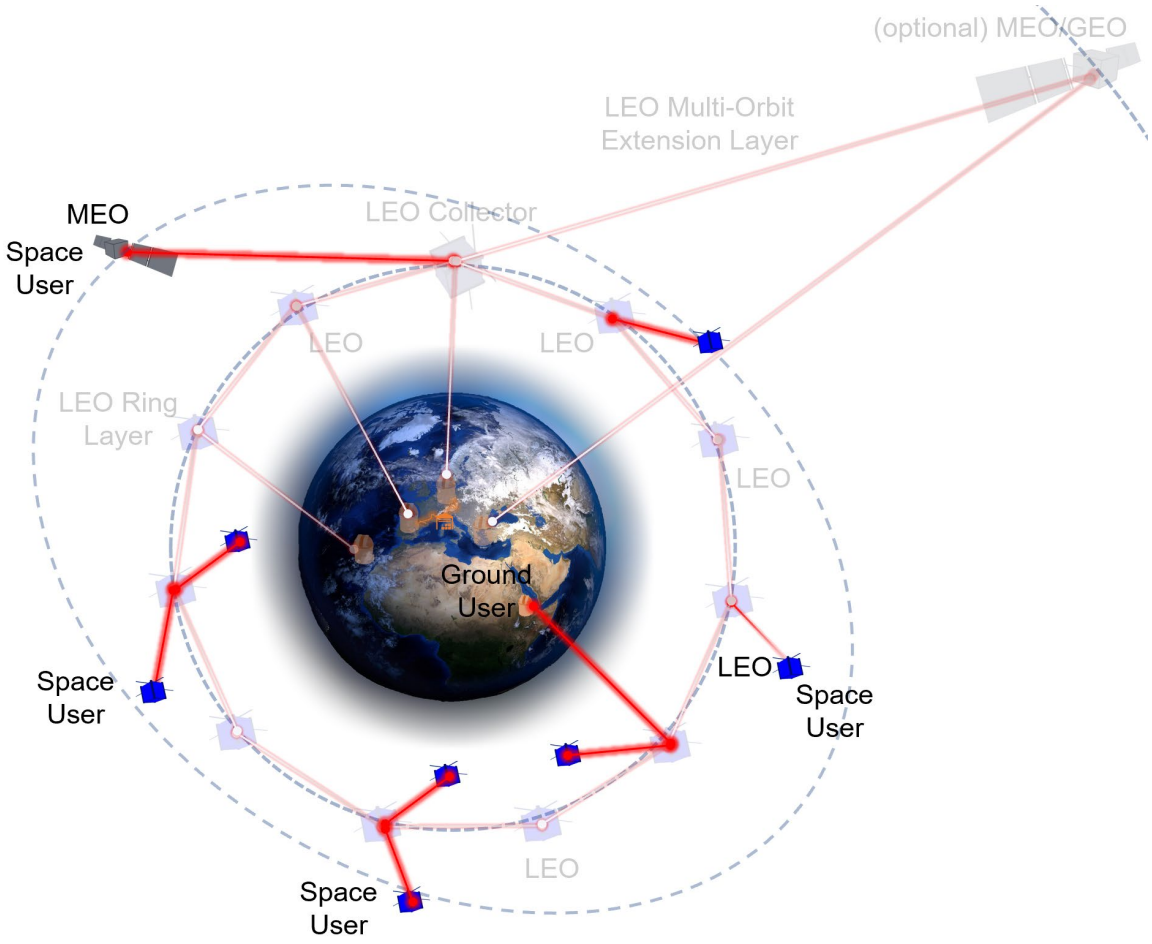


Figure 6: Overview of the HydRON-DS Element #3, i.e. HDS-E#3 – User and Evolution Segment / Service Demonstration.

3. COOPERATION OPPORTUNITY DESCRIPTION

In line with the objectives of the SPL Optical and Quantum Communications and in view of the wide use of optical communications for multiple network/system implementations, the ecosystem in Europe and Canada can benefit from the HydRON-DS with its Element#1 and #2 deployment – as a test lab in space.

The Call for HydRON-DS Element #3 looks for industry-initiated ideas to reconcile the goals of ESA's HydRON-DS Technology Demonstration mission with visionary concepts of e.g., Satellite Operators / Service providers / Primes / User equipment suppliers in response to upcoming business opportunities in the SatCom market.

It is envisaged that the User and Evolution Segment could be used to test institutional (e.g., ESA, national agencies) or commercial use cases requiring high-capacity data transport and flexible network services between locations in space or on ground. Examples of new developments or service concepts under Element #3 could include:

- New suppliers and new developments of
  - Space/Airborne/HAPS Terminals
  - Ground and Maritime Terminals
- Validation and inter-operability tests for those developments at an early stage supporting potential product iterations
- Stimulation of new system and service concepts
- Inter-operability tests with external implementations and in support to the evolution of the ESTOL specification.

The present call aims at collecting Outline Proposals from Industry (followed by Agency's invitation to submit Full Proposals) describing their plan to implement activities in the scope of the HydRON-DS Element #3.

The Call for HydRON-DS is addressed, for example, to Service Providers, Satellite Operators, Primes and User equipment sub-contractors and suppliers. The Call is open for all European and Canadian industry from the Participating States of the ScyLight programme / HydRON project to submit their own ideas to boost their business opportunities by leading the definition, development and In-Orbit Demonstration of the HydRON-DS Element #3.

For that purpose, the industrial proposals shall contain the necessary information including co-funding levels, which will be the basis for exchanges with the Participating States of the ScyLight programme / HydRON project to consolidate, and finally approve, the required level of funding while fulfilling the geographical return constraints. The Outline Proposal shall provide technical, management, implementation / cooperation, financial and as well business case information.

Detailed information of the potential cooperation between Industry (e.g., Service Providers, Operators, Primes, User equipment suppliers) and the Agency shall be described in the proposal response, including flight opportunities and / or utilization plans of the HydRON-DS Element #3 for commercial exploitation (or other sorts of co-investment).

4. GUIDELINE OF THE PROCESS

The steps of the present Call for HydRON-DS Element #3 are summarized as follow:

- Step-1: Solicitation of Outline Proposals
- Step-2: Clarification discussions with Industry and Delegations (bi-laterals / tri-laterals with Industry and Delegations)
- Step-3: Invitation to submit Full Proposals
- Step-4: (individual) Proposal evaluation and (individual) Board recommendation
- Step-5: (individual) Contract negotiation

In more detail:

- Step-1 will make use of the existing Open Call for Proposals | ESA CSC for ScyLight. There is no particular deadline for the submission of the Outline Proposals. However, ***it is expected to receive the 1st round of Outline Proposals by 1st September 2025 in order to facilitate potential financial support in CMIN25***. In preparing the Outline Proposals, the schedule of the HydRON-DS Element #1 and Element #2 are to be considered. Besides, RD 1 will be considered for the preparation of the Outline Proposal. The Outline Proposals will be evaluated according to the evaluation criteria in Annex C.
- In Step-2, the Agency will establish clarification discussions with Industrial partners who have responded to Step-1, as well as with Delegations to explain the plans of their Industry and ensure the best coverage of the final Full Proposal. These exchanges will take place in the format of bi-laterals / tri-laterals with Industry and Delegations.
- In Step-3 and after a successful Step-2, the Agency will invite the submission of the Full Proposals through the existing Open Call for Proposals | ESA CSC for ScyLight. The release[1] will be given by the Agency, on an individual bases, in coordination with Delegations. Both RD 1 and RD 2 will be considered for the preparation of the Full Proposals. The deadline for the submission of the Full

[1] Full proposal submission must be preceded first by Step-1 (“Solicitation of Outline proposals”) and Step-2 (“Clarification discussions with Industry and Delegations”). Go-ahead must be given by ESA for submission of the Full Proposal (Step-3).

Proposals will be according to the rules of the Open Call for Proposals | ESA CSC. The Full Proposals will be evaluated according to the evaluation criteria in Annex C.

- In Step-4, each Full Proposal is individually evaluated in line with the Agency's procurement process for co-funded activities, and the Board will provide recommendations, on an individual basis, for implementation of the Proposal(s) by the HydRON Project as part of HydRON Element #3. The "Call for Proposals" process allows Industry to propose multiple activities for implementation. The Outline Proposals will be evaluated according to the evaluation criteria in Annex C.
- Step-5 is intended to be accomplished after the approval of the Contract Proposal by the Industrial Policy Committee (IPC), where required. Financial approval of the updated HydRON-DS Project Proposal by the Joint Board on Communication Satellite Programmes (JCB) might be necessary in case the required financial support exceeds current available funding in the HydRON Project. For each of the Full Proposals successfully evaluated, individual contracts will be implemented under the HydRON budget line, covering the entire development, deployment and validation, with a contractual phased approach, if deemed necessary.

The Industrial proposals of Element #3 shall consider allocation of workpackages to the Primes of Element #1 and/or Element #2, respectively Kepler Communications and TAS-I, to support compatibility verification activities and operations of the assets of Element #1 and/or Element #2, as required during the in-orbit validation of the assets of Element #3 and, if applicable, related service demonstration. RD 1 will be considered for the preparation of the Outline Proposal. RD 1 and RD 2 (under preparation by the Agency, to be issued in October 2025) will be considered for the preparation of the Full Proposals.

As part of the HydRON project, it is planned to conduct 2 years In-Orbit Demonstration phase (Phase E2 of the HydRON-DS Element #1 and Element #2 in Figure 7). The utilization time and necessary capacity for the execution of these test campaigns during the In-Orbit Demonstration phase is provided by Kepler Communications and TAS-I.

In addition, usage outside of the tests campaigns but during the In-Orbit Demonstration phase (e.g., for the validation of Element #3 assets and/or related service demonstrations) might be considered on a best effort basis for the purposes of the HydRON Project objectives (i.e., non-commercial). Usage beyond the In-Orbit Demonstration phase (after the 2 years) for additional ESA-related demonstrations will be offered at a to-be-negotiated rate (e.g., according to an SLA with the Primes of Element #1 and/or Element #2).

The overall process of the Call for Proposals for the HydRON-DS Element #3 is detailed in Table 1 (steps, content, tools, templates, timeline).

Step #	Title	Content	Tool / Templates	Date
Step-1	Solicitation of Outline Proposals	Preparation and submission of the Outline Proposals, including preliminary financial information (total cost, private funding level, geographical distribution)	Existing Open Call for Proposals | ESA CSC for ScyLight in esa-star Annex B – Response Template and Content Annex C – Evaluation Criteria	Release 30/6/2025 Submission deadline (open call). However, ***1st round of Outline Proposals by 1st September 2025 to facilitate potential financial support in CMIN25***
Step-2	Clarification discussions with	Bi-laterals with Industry and Delegations to preliminary		

	Industry and Delegations	confirm the availability of the required financial support		
Step-3	Invitation to submit Full Proposals	Preparation and submission of the Full Proposals, including final committing financial information (total cost, private funding level, geographical distribution) and Authorisation of Funding notification from the relevant National Delegations	Existing Open Call for Proposals | ESA CSC for ScyLight in esa-star Annex B – Response Template and Content Annex C – Evaluation Criteria	
Step-4	Proposal evaluation and Board recommendation	List of recommended proposal(s) for implementation by the HydRON Project as part of HydRON Element #3	Existing Open Call for Proposals | ESA CSC for ScyLight in esa-star Annex B – Response Template and Content Annex C – Evaluation Criteria	1st round of recommended proposal(s) expected starting in November / December 2025
Step-5	Contract negotiation	Contract(s) negotiation for the HydRON-DS Element #3		***1st round of contract negotiation(s) expected after CMIN25***

				starting in 1st quarter 2026

Table 1. Summary of the steps of the Call for Proposals for the HydRON-DS Element #3.

5. PROGRAMMATIC CONSIDERATIONS

5.1. Geographical Return

The current list of Participating States to the HydRON Project is as follows: **Canada, Germany, Hungary, Ireland, Italy, Netherlands, Poland, Romania, Switzerland and United Kingdom.**

The indicative total funding for industrial commitments that has been preliminary allocated to the list of the (to be) selected activities of HydRON Element #3 is 20.0 MEuro (at current e.c.). The final total funding for industrial commitments will be updated according to the received industrial requests and the support from the relevant Participating States to the HydRON Project.

For the geographical return assessment, the Tenderer should first identify industrial entities belonging to the list of Participating States already subscribed (or intending to subscribe) to the HydRON Project.

The HydRON Project is implemented within the “Optical and Quantum Communication – ScyLight ARTES Strategic Programme Line”. Industrial entities from the list of Participating States to the ScyLight Programme could also be considered, but it will require discussions with the relevant Delegation(s) to agree on the mechanism for the needed financial support (e.g., transfer of funding from the ScyLight Programme to the HydRON Project).

The current list of Participating States to the ScyLight Programme is[2]: ***Austria, Belgium,*** **Canada,** ***Czech Republic, Estonia, Finland*****,** ***France*****, Germany,** ***Greece,*** **Hungary, Ireland, Italy,** ***Lithuania, Luxemburg,*** **Netherlands, Poland,** ***Portugal,*** **Romania,** ***Spain, Sweden,*** **Switzerland and United Kingdom.**

5.2. Schedule

The schedule details of the present Call for HydRON-DS Element #3 are given in Table 1. The Agency reserves the right to modify, extend or shorten such timeline.

In preparing the Element #3 (Outline / Full) Proposals, the schedule of the HydRON-DS Element #1 and Element #2 are to be considered. The targeted timeframe for the deployment of the HydRON-DS is launch and In-Orbit Comissioning (Phase E1) in 4Q 2027, followed by the In-Orbit Demonstration (Phase E2) in 2028-2029, as shown in Figure 7. The HydRON Project schedule may be adjusted based on the latest status of the individual schedules of Element #1 and Element #2.

Note: any commercial exploitation of the HydRON-DS infrastructure is beyond the scope of contractual framework of the HydRON-DS with the Agency.

[2] The Participating States that are presently not part of the HydRON Project are *highlighted in italic.*

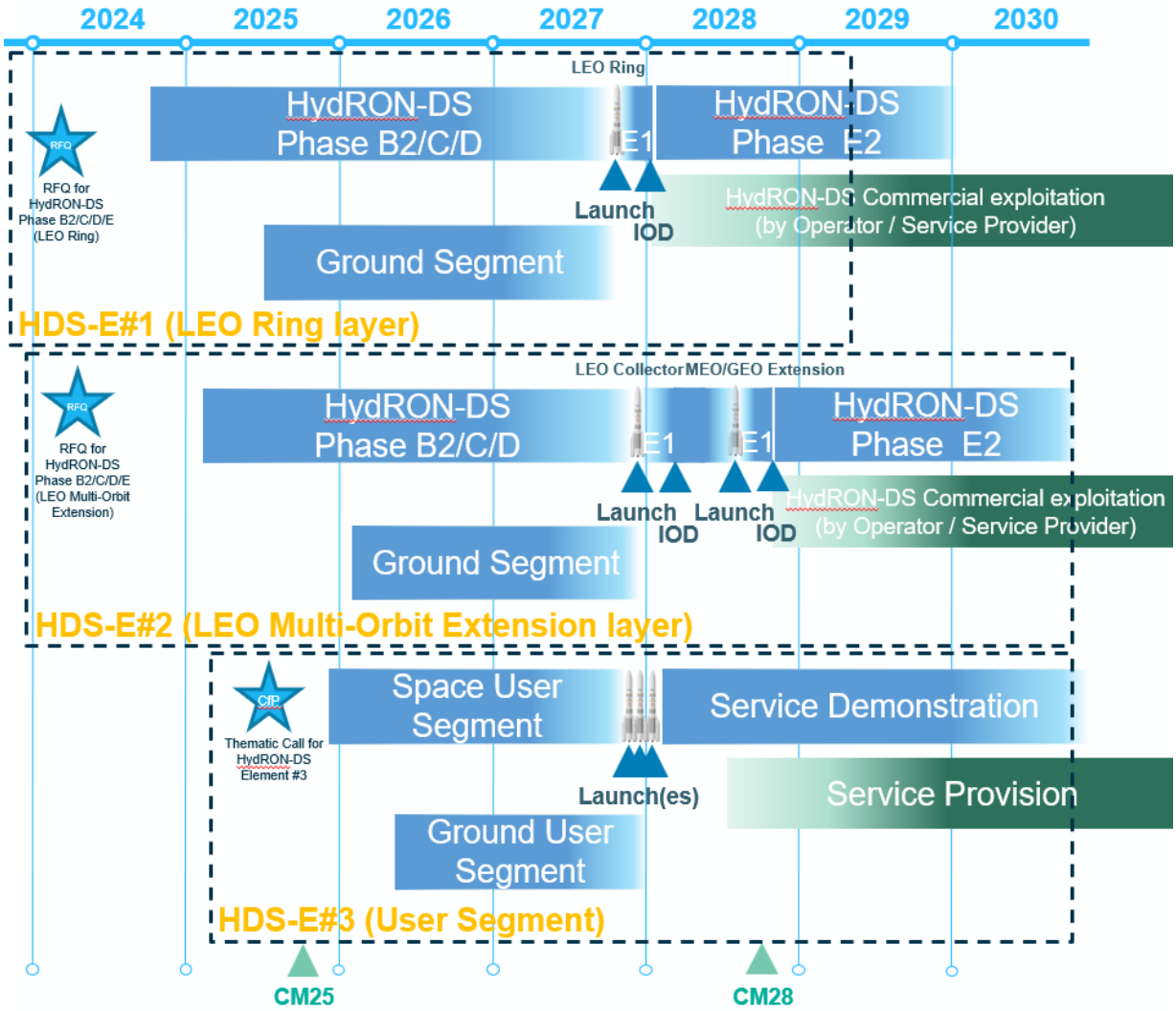


Figure 7. Targeted HydRON Project Schedule.

5.3. Co-funding levels

The maximum co-funding levels are detailed in TABLE B of AD 1, and copied in Figure 8 here below for the sake of clarity and completeness. For detail explanations, please refer to section 6 of AD 1 though.

Development Phase	***Funding level up to***		***Funding level for Universities or Research Institutes with no commercial Interest in the Product up to***
	Non-SME	***SME***	
Definition Phase	75%[1]	80%	100%
Technology Phase	75%	80%	100%
Product Phase	75%[1]	80%	100%
Demonstration Phase	75%[1]	80%	50%

Figure 8. Maximum funding levels for ARTES strategic programme line Optical and Quantum Communication – ScyLight (extracted from TABLE B in section 6 of AD 1).

Please note that National Delegations may support different funding levels up to the maximum specified in TABLE B of AD 1.

The effective level of funding within the ESA-funded percentage will be defined by the relevant National Delegation(s) and indicated in the Authorisation of Funding notification. The remainder has to be financed by the Tenderer through private sector co-financing, excluding co-financing from third-party public funds[3].

[3] Third-party public funds would reduce the ESA co-funding part such that the overall public co-funding does not exceed the maximum co-funding levels defined in TABLE B of AD 1.

6. ANNEX A – HYDRON-DS MISSION OBJECTIVES

The HydRON Mission Statement is:

“Fibre in the Sky” technology integrated in terrestrial networks at Terabit capacity demonstrated by European and Canadian Industries”

HydRON-DS ambition is to demonstrate the seamless integration of SatCom systems and the connectivity of space assets into terrestrial networks by providing low-latency and / or high-capacity data transport capabilities (eventually services).

The HydRON-DS has two main mission objectives:

- ✓ Mission Objective #1: technology verification in an end-to-end system demonstration.
- ✓ Mission Objective #2: validation of operational concepts in support of Service Demonstration.

and one mission goal:

- ✓ Mission Goal: provision of Service Demonstration in support of future Service (i.e., commercial exploitation after successful completion of the In-Orbit Demonstration phase E2)

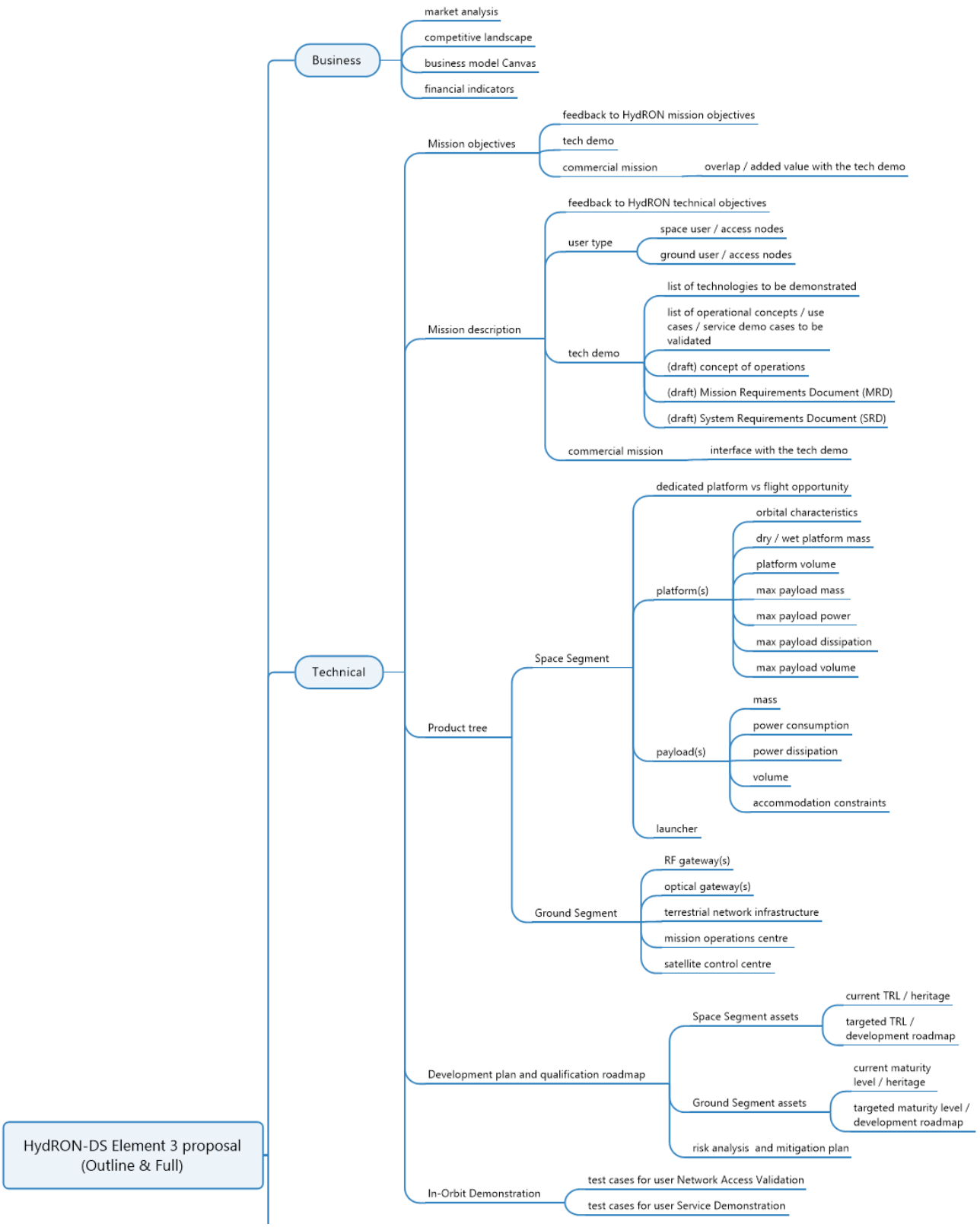
7. ANNEX B – RESPONSE TEMPLATE AND CONTENT

The Outline Proposal will be prepared using the template available on the ARTES website - Optical & Quantum Communications | ESA CSC.

The length of the Outline Proposal shall be kept to the necessary minimum number of pages (max 50), enough to efficiently provide the required information. Please be direct and avoid superfluous content.

Following a successful Outline Proposal, the Agency will invite the Tenderer to submit a Full Proposal. The templates for the preparation of the Full Proposal in Step-3 are also available on the ARTES website - Optical & Quantum Communications | ESA CSC

The Tenderer, in preparing the business / technical / management / implementation / financial content of the Outline Proposal (and the Full Proposal), shall provide the preliminary / first iteration (and the detailed / full iteration) of the subjects listed in the tree shown in Figure 9. The given list of subjects may be tailored by the Tenderer to best match the needs of its proposal content.


HydRON-DS Element 3 proposal (Outline & Full)
Business
market analysis
competitive landscape
business model Canvas
financial indicators
Technical
Mission objectives
feedback to HydRON mission objectives
tech demo
commercial mission
overlap / added value with the tech demo
Mission description
feedback to HydRON technical objectives
user type
space user / access nodes
ground user / access nodes
tech demo
list of technologies to be demonstrated
list of operational concepts / use cases / service demo cases to be validated
(draft) concept of operations
(draft) Mission Requirements Document (MRD)
(draft) System Requirements Document (SRD)
commercial mission
interface with the tech demo
Product tree
Space Segment
dedicated platform vs flight opportunity
platform(s)
orbital characteristics
dry / wet platform mass
platform volume
max payload mass
max payload power
max payload dissipation
max payload volume
payload(s)
mass
power consumption
power dissipation
volume
accommodation constraints
launcher
Ground Segment
RF gateway(s)
optical gateway(s)
terrestrial network infrastructure
mission operations centre
satellite control centre
Development plan and qualification roadmap
Space Segment assets
current TRL / heritage
targeted TRL / development roadmap
Ground Segment assets
current maturity level / heritage
targeted maturity level / development roadmap
risk analysis and mitigation plan
In-Orbit Demonstration
test cases for user Network Access Validation
test cases for user Service Demonstration

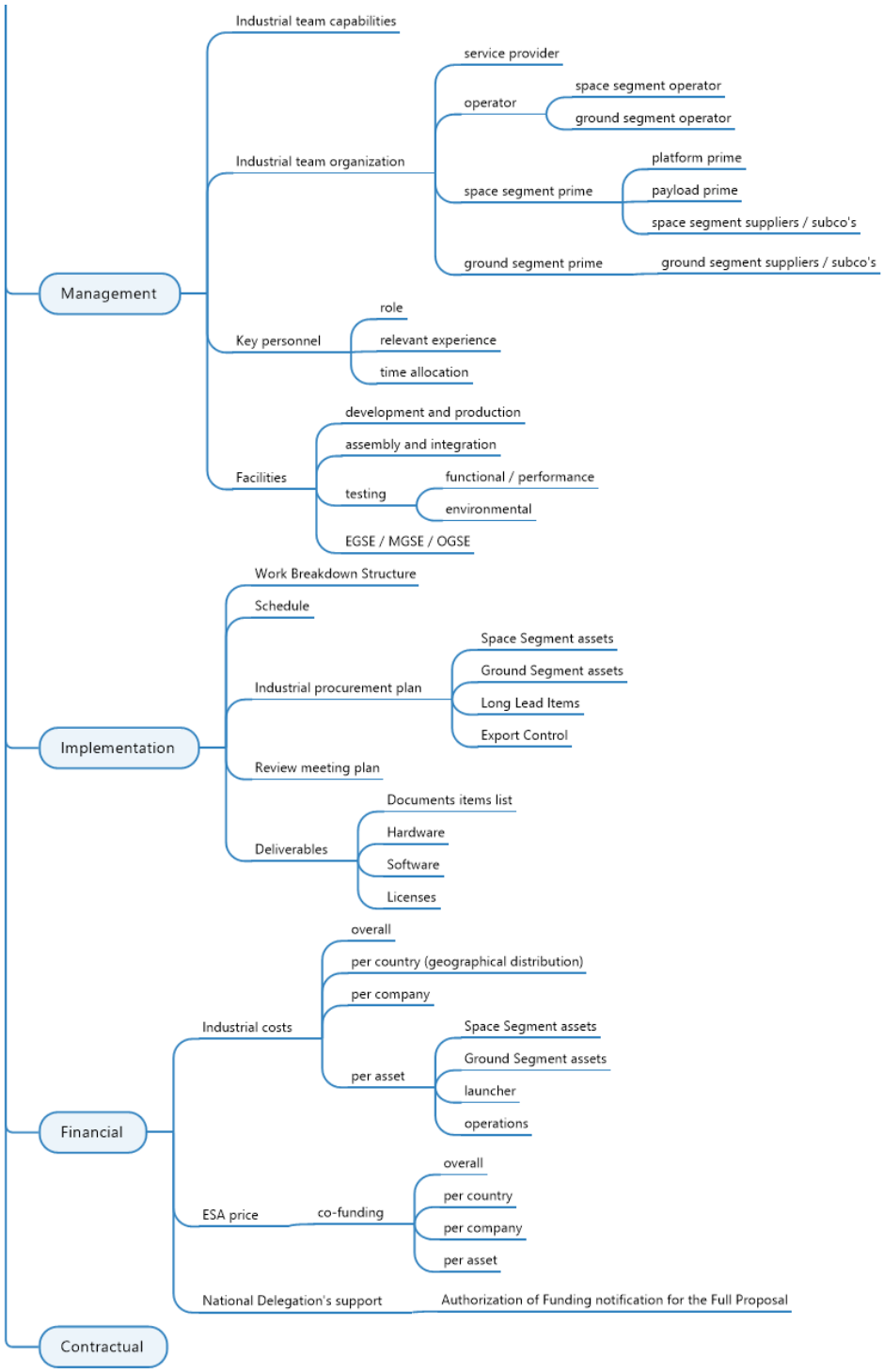


Figure 9. List of subjects to be addressed in the Outline Proposal (first preliminary iteration) and in the Full Proposal (detailed iteration).

8. ANNEX C – EVALUATION CRITERIA

The Outline Proposal submitted in Step-1 will be evaluated using the following criteria:

1. User / Service Provider participation, technology innovations / new service & network concepts, key selling points and initial business plan. Relevance to the HydRON-DS objectives and scope, including the added value of proposed HydRON-DS Element #3 assets to the overall HydRON-DS and future commercial mission.
2. Quality and completeness of technical proposal, suitability of the proposed technical solution vs. HydRON-DS mission / technical objectives, evaluation of the technical risks and credibility of the risk mitigation actions.
3. Industrial consortium experience and competence, completeness of the team in all areas required.
4. Planning and costing, value for money, assessment of financial risk versus company resources, geographical distribution and co-funding capability.

The evaluation criteria for the Full Proposal submitted in Step-3 will be according to the rules of AD 1.