ARTES 20
Management Requirements

“Demonstration Projects"

Appendix 3 to Contract
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ATTACHMENT I: Guidelines for Requirements Development

ANNEX A: LAYOUT FOR CONTRACT CLOSURE DOCUMENTATION
1 OBJECTIVES

ARTES 20 Demonstration Projects (called hereinafter “projects”) cover the design, development and pilot utilisation of user-driven services that employ two or more space assets, and which are conceived to become sustainable in the medium to long term. In this context sustainability means the ability of the service to be procured and utilised by the users/customers after completion of the contract, without further funding from ESA.

Each project shall include a pilot-demonstration stage instrumental to help the users/stakeholders assess the value of the implemented services, and the Contractor to prepare for the provision of operational services. The pilot-demonstration stage shall consist in the validation of the service by one or more groups of users, through utilisation of the pre-operational service for a period of time in a context which is representative of its/their operational environment. The pilot-demonstration stage is not a collection of testing sessions in the field or a technology demonstration. Such validation shall qualitatively and quantitatively prove the overall suitability of the services to respond to the needs (technical, operational and economical) of the users and of the other relevant stakeholders.

The Contractor is invited to take note that a number of terms used in this document are defined in the “Terminology used in ARTES Projects” document accessible under: http://artes-apps.esa.int/documents.

2 SCOPE OF WORK

Under an ARTES 20 Demonstration Project the Contractor shall design, develop, integrate, deploy, run and validate a pre-operational service, which makes use of as a minimum two space assets and which will lead to operational, self-sustaining services following the project completion.

The Contractor shall be responsible for the fulfilment of all the activities required for the setting up, execution and assessment of the demo activity. This shall be achieved in accordance with the requirements of the standard documents detailed in section 4 below. The activities under an ARTES 20 Demonstration Project shall include, but will not be limited to, the following:

A. Analyse the users scenarios and associated needs, describe the current solutions that support the users in performing their tasks and assess their limitations, assess the market demand, identify and involve customers and other key stakeholders, and formalise the user requirements;
B. Define the system requirements, design the overall system architecture justifying the selected choice through suitable trade-off analysis;
C. Identify and acquire (procure and/or develop) the elements needed to implement the system and provide the associated pre-operational service:
i. the hardware and software elements of the proposed system architecture;
ii. the access to the required space assets;
iii. the content (e.g. EO products, datasets);

D. Develop and integrate the system, perform the required verification against the defined system requirements;

E. Prepare for the pilot-demonstration stage:
   i. Fulfil the required regulatory and formal steps, including the procurement of all the necessary ancillary services (e.g. transportation, installation, de-installation if required, insurance, access and use of the different services);
   ii. Train and coordinate users and other partners as necessary;

F. Conduct the pilot-demonstration activities:
   i. Conduct the pilot-demonstration involving the relevant service provider;
   ii. Engage the resources (manpower and facilities) of the users involved in the pilot-demonstration stage;
   iii. Carry out the validation activities in close cooperation with the users;
   iv. Collect, analyse and present the evaluation feedback of the pilot-demonstration services and assess the value of the pre-operational services for the users, customers and other stakeholders;

G. Develop a business plan, including service value chain, partnership and exploitation model, assessment of market opportunity and size, competitive assessment, market penetration assumptions, pricing and costing model, financial statements, and rollout plan for operational services.

In the process of performing the different activities highlighted above, several iterations could be needed in order to achieve the objectives of each milestone and deliver the required documents. In this respect, the Contractor is responsible to organise the work in order to maximise its efficiency.

Due to the user-driven orientation of the Integrated Application Promotion projects, a partnership shall be established by the Contractor with the user and customers groups, in association, whenever relevant for the successful achievement of the project’s objectives, with other relevant stakeholders. Such partnerships shall be actively maintained and possibly reinforced by the Contractor during the whole project.

3 CONTRACTUAL MILESTONES AND REVIEW MEETINGS

The Contractor shall follow one of the two possible implementation approaches as specified in Article 1.1 of the contract: a Single Phase approach or a Two Phases approach.

The contractual milestones and review meetings relative to the two approaches are presented in the following paragraphs.
3.1 Single Phase approach

The following meetings are an example of the sequence of events to be taken into account in establishing the logical organisation of the work in the Single Phase approach.

Each of the meetings shall be attended by representatives of the project team (including, where applicable, user/partners representatives) and by the ESA Technical Officer, and they will correspond to contractual milestones (with the exception of the Negotiation Meeting). The documentation supporting each Milestone Review Meeting shall be delivered to ESA five (5) working days before the meeting takes place.

Beside the Review Meetings indicated below, additional Technical Internal Reviews can be envisaged if required by the specific implementation approach proposed by the Contractor (e.g. in case an Agile Software Development approach is proposed).

3.1.1 Negotiation Meeting (NM)

The purpose of the Negotiation Meeting (NM) is to clarify any potential outstanding issues identified by ESA in the Contractor’s proposal and clarifications, to agree on the project planning and to negotiate the contract.

3.1.2 1st Milestone: Baseline Design Review (BDR)

Between the Kick-Off (KO) and the Baseline Design Review (BDR) the Contractor shall finalise the User Requirements in cooperation with the group of users, refine the System Requirements and finalise the description of the pilot-demonstration activities.

The purpose of the BDR is for the Contractor to present and for ESA to approve the Requirements Document (RD) and the pilot-demonstration activities described in the Pilot-Demonstration Utilisation Plan (PilUP) document (see Section 4 for the definition of these documents). The presentation shall be provided to ESA and to the relevant group of users, during which the Contractor shall explain the content of the above documents and the associated rationale, and collect user feedback.

At the BDR, an updated Business Plan shall be presented revising the preliminary assumptions provided with the Full Proposal and reporting any impact on the business planning from the activities performed so far.

As part of the BDR package, the Contractor shall deliver to ESA the Project Web Page in accordance with Section 4.10 below. The project Web Page is intended for publication and shall not contain any proprietary information.
The successful completion of the BDR will mark the beginning of the design of the development activities.

### 3.1.3 2nd Milestone: Critical Design Review (CDR)

At the end of the design and prior to the beginning of the procurement and implementation of the demo system, the Critical Design Review (CDR) will be held to present the System and Service Architecture and demonstrate the adequacy of the design and the readiness to proceed with the following part of the implementation activities, including compliance with the previously defined System Requirements.

The main aim of the CDR will be to discuss and review the trade-off processes performed to select the design choices for all hardware and software elements to be developed in the project, and to review the associated design documentation.

At the CDR, the Test Plan and Test Procedures within the System Verification Document (see Par.4.5) shall be presented by the Contractor.

### 3.1.4 3rd Milestone: Factory Acceptance Test (FAT)

At the end of the development and integration step and prior to starting the deployment of the pilot-demonstration system, the Contractor shall set up a Factory Acceptance Test (FAT) session devoted to demonstrating that the pilot-demonstration system is compliant with the set of requirements agreed at the BDR. Such a verification session will normally be performed at the Contractor’s premises through the execution of the tests identified in the System Verification Document; the verification shall be performed on an end-to-end system, which shall be representative of the one that will be used in the pilot-demonstration.

Prior to the FAT, the Contractor shall deliver to ESA a complete System Verification Document reporting the full set of test results achieved by the Contractor during internal verification activities. During the FAT, a subset of the tests to be agreed by ESA will be repeated and the results will be attached to the minutes of the meeting.

### 3.1.5 4th Milestone: On-Site Acceptance Test (SAT)

Following the deployment of the pilot-demonstration system and prior to the beginning of the pilot-demonstration stage, the On-Site Acceptance Test (SAT) meeting shall be held. The purpose of this meeting is twofold:

i. with the involvement of the group of users, verify the adequacy of the implementation of the deployed service platform through the execution of a subset of the tests described in the System Verification Document;
ii. finalise and approve the procedures and tools to support the assessment of the pilot-demonstration outcomes, including the set of Key Performance Indicators (KPIs) that will measure the level of success of the pilot-demonstration activities and consequently facilitate the customers’ decision to procure the operational services offered at the end of the ESA contract.

At the SAT, the updated System Verification Document including the performed tests and the updated Pilot-Demonstration Utilisation Plan including the finalized KPIs and the corresponding objectives shall be presented by the Contractor.

3.1.6 5th Milestone: Final Review (FR)

At the Final Review (FR) the Contractor shall present the overview of the activities carried out during the project and summarise the outcome of the pilot-demonstration stage, including conclusions and recommendations gathered from the contractual team and/or user groups.

The purpose of the FR is for the Contractor to present and for ESA to approve the updated set of deliverables including the results of the project activities.

3.1.7 Progress Meetings

ESA reserves the right to request additional Progress Meetings. Progress Meetings may be held by teleconference or at the Contractor’s premises.

3.1.8 Applications Workshop

On a regular basis, Applications Workshops are organised at ESA to bring together the applications projects of the ARTES programme (e.g. ARTES 3-4 Satcom Applications, ARTES 20 Integrated Applications Promotion) with the purpose of raising reciprocal awareness, promoting possible synergies and delivering presentations on specific themes of potential interest to the participants. The Contractor shall attend and actively contribute with a presentation and/or demonstration session at the relevant Applications Workshop, with an appropriate representation of the project team and in full coordination with ESA. Extension of the invitation to the project partners is left to the initiative of the Contractor. The presentation shall be submitted following the guidelines communicated at that time by the organisation committee. The presentation made by the Contractor will be published on the ESA web site after the event, and therefore it shall not contain any proprietary information.

Participation in one Applications Workshop up to 12 months after the completion of the project shall be considered as part of the mandatory set of official review meetings. The
Contractor is invited to participate, on his best effort basis, in the Applications Workshop also after the above mentioned mandatory attendance.

### 3.2 Two Phases approach

In case the project is organised in a Two Phases approach, the following milestone meetings shall be organised:

#### 3.2.1 Phase 1

In Phase 1 the Contractor shall consolidate the aspects indicated by ESA following evaluation of the outline proposal. The organization of the work shall be proposed by the Contractor to achieve this objective with the maximum efficiency.

##### 3.2.1.1 Negotiation Meeting (NM)

The purpose of the Negotiation Meeting (NM) is to clarify any potential outstanding issues identified by ESA in the Contractor’s proposal and clarifications, to agree on the project planning and to negotiate the contract.

##### 3.2.1.2 1st Milestone: Phase 1 Completion Review Meeting

At the Phase 1 Completion Review Meeting, the Contractor shall deliver the Business Plan, the Requirements Document, the System and Service Architecture, the Pilot-Demonstration Utilisation Plan, and the Phase 1 Report. The content of those document is further specified in sections 4.1, 4.2, 4.3, 4.6 and 4.7 below.

The Contractor shall also submit an update, where necessary, of the Management and Administrative Proposal, the Implementation Proposal, the Financial Proposal and the Contractual Proposal including a price conversion proposal as specified in Article 3.1.1 of the contract.

#### 3.2.2 Phase 2

The Review Meetings of sections 3.1.1, 3.1.3, 3.1.4, 3.1.5 and 3.1.6 represent an example of the sequence of events to be taken into account in establishing the logical organisation of the work.

The Contractor shall organise progress meetings and attendance to the Applications Workshop in line with sections 3.1.7 and 3.1.8.
4 DOCUMENTS AND ITEMS TO BE DELIVERED

During the execution of the project the Contractor shall produce the following deliverable documents/items as described below. The documents shall be updated at the contractual milestone review meetings as detailed in Section 3 and the table in Section 4.11.

The Contractor shall make sure that repetition is minimized within the deliverable documents listed below in par.4.1 to 4.6, using instead cross references when needed. In contrast, the Final Report (par.4.7) must be written as a stand-alone document without references to the documents listed in par.4.1 to 4.6. In preparing the documents, the Contractor is requested to be concise.

4.1 Business Plan (BP)

The Business Plan (BP) is dedicated to analysing the purpose and strategic context of the project and demonstrating that the Contractor’s initiative can lead to a sustainable exploitation.

The Business Plan should include the following elements:

A. Short description of the services that the system will offer;
B. Overview of the potential users, customers and other stakeholders, and the associated problem statement and gap-analysis which justify the need for the proposed application/service;
C. Market analysis identifying the potential commercial opportunities for each service in the target area;
D. Overview of the service value chain, including the service provider, the customer and the user;
E. Assessment of the competitive positioning through a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis;
F. Identification of the capital costs and operational costs incurred by the Contractor in setting-up and operating the operational service;
G. Formulation of a preliminary pricing strategy for the identified services and for the associated elements of the system;
H. Financial plan covering the operational service phase, presenting indicators such as anticipated cash flow, costs, Internal Rate of Return and Net Present Value, with associated sensitivity and/or what-if analysis where applicable (e.g. for different scenarios of market share, pricing and costs). The financial planning shall ultimately

\[\text{The operational service phase is related to the commercial exploitation of the services developed in the frame of the project. The duration of the operational phase typically spans up to 5 years from the conclusion of the contract with ESA.}\]
demonstrate that the proposed system can be rendered self-sustaining through the ESA contribution;

I. Outline of an exploitation strategy, clearly identifying objectives and role of each of the parties forming the contractual team not only in the development phase but also in the subsequent operational phase;

J. Identification of the business agreements within the project consortium, and with external partners or investors where these already exist or are planned or anticipated to be required, for the exploitation of the results of the project, including the planned exit strategy for any partners not intending to participate in the long-term exploitation of the resulting operational service;

K. Definition of the management team envisaged to lead the eventual operational implementation and exploitation, including the proposed management structure and the roles, responsibilities and/or required capabilities of the key individual(s) or position(s) within the management team;

L. Outline an operational services rollout plan, describing the activities that will be performed in preparation of the operational exploitation of the initiative

The BP shall provide justification for the assumptions made, including those used to define costing, pricing and other elements used in the financial statement.

Furthermore, the BP shall contain an additional section dedicated to a Project Risks Analysis and Mitigation strategy, in which the key technical, operational and business risks shall be identified and assessed (in terms of probability of occurrence and severity of impact), and the associated mitigation strategies shall be presented. The risk assessment shall also cover the operational phase following completion of the project.

The BP shall contain a paragraph explaining how the IPR (Intellectual Property Rights) will be managed and owned within the project consortium in view of the possible commercial exploitation of the results of the project.

The BP shall also report the possible commercial contracts acquired by the project team prior to completion of the project in relation to the developed services.

In the Single Phase approach, the BP shall be presented and discussed at the BDR, using and explaining the initial input assumptions. In the Two Phases approach, the BP shall be provided at the Phase 1 Completion Review Meeting. Whenever relevant, the BP shall be presented in the other project milestones in case important changes have occurred in the assumptions (e.g. major events in the market or in relation of the users or other stakeholders, or in the consortium); and again in final form at the FR, to reflect the outcomes that have resulted from the experience gained during the project.
4.2 Requirements Document (RD)

The Requirements Document (RD) is dedicated to providing the complete set of requirements applicable to the project together with the relevant justification.

Unless otherwise agreed in the minutes of the negotiation meeting, the requirement engineering approach described in Attachment I shall be followed.

To allow formal traceability of the different requirements, the Contractor shall associate to each requirement a unique identifier using a suitable methodology. Such methodology shall use a suitable set of acronyms (e.g. UR for User Requirements, SR for System Requirements) to facilitate traceability.

The RD shall be composed of the following sections:

1. **User Needs** presenting the qualitative improvements as desired and expressed by the user and expected to be answered by the proposed system, together with a concise presentation of the high level interaction between systems and the different actors involved (e.g. use case).

2. **User Requirements** describing in a structured form the set of statements originated by the users describing the functions, performance and capabilities that the system will bring to them during its utilisation. A mapping between User Requirements and User Needs shall be part of this section.

3. **System Requirements** identifying, allocating and specifying the System Requirements taking into account the compliance with relevant international standards. For the development of software items, Software Requirements shall be defined. A mapping between System Requirements and User Requirements shall be part of this section. In this part of the RD and whenever relevant, the adoption of mock up images depicting Graphical User Interface (GUI) screens is encouraged.

In the Single Phase approach, the RD shall be presented at the BDR.
In the Two Phases approach, the RD shall be provided at the Phase 1 Completion Review Meeting.

4.3 System and Service Architecture (SSA)

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2 The development of the GUI should be done taking into account the most recent style guidelines for the relevant platform (e.g. Android, iOS). It is anticipated that the availability of a professional graphic designer it is suggested.
The System and Service Architecture (SSA) is dedicated to defining and specifying the overall system starting from the high level architecture down to its building blocks.

The SSA shall describe the services, targeted user groups, extent of development and/or integration of hardware, software and content elements and choice of the most appropriate space systems (minimum of two) to be used in the project.

The SSA shall include the following sections:

1. **Overall System and Service Architecture**: this section shall include a presentation of the overall system architecture broken down into its key subsystems (typically one or more diagrams), with associated description of these subsystems, their roles, data/information flow among them, main interfaces (internal and external) and protocols, as relevant. This section shall also clearly point out the strategic role of the multiple space assets in the proposed system compared to potential alternatives. Within the SSA, the Contractor shall clearly indicate the source of procurement for the different elements (e.g. purchase of commercial products - COTS), loan from partners or sponsors, developments performed within the contract) and the associated economic value, and whether they are long lead items.

2. **Design and Development Plan**: Proposals addressing development of hardware and/or software shall include as part of the SSA a design and development plan to illustrate in a concise and conceptual manner the logical execution of the proposed activities from contract award to final review. It shall define and include decision points upon which the course of the development will depend, together with the relevant quality standard and procedures, where applicable.

3. **Design Justification File**: The SSA shall include the Design Justification File (DJF) documenting and detailing the trade-off processes performed to justify the design choices, and the associated design documents. This will apply to either elements to be developed or elements that need to be selected from already available solutions.

In the Single Phase approach, the SSA shall first be presented and discussed at the BDR. In the Two Phases approach case, the SSA addressing points 1 and 2 above only (Overall System and Service Architecture and Design and Development Plan) shall be provided at the Phase 1 Completion Review Meeting.

The SSA shall then be updated and presented at the CDR. In case of further changes affecting the system architecture introduced after the CDR, the final version of the SSA shall be presented to the FR.
4.4 Software Reuse File (SRF)

The Software Reuse File (SRF) is dedicated to analysing existing software intended to be reused. The SRF shall be composed of the following two sections:

1. SECTION 1, dedicated to present the analysis carried out to decide about the reuse (or not) of existing software taking into account the technical, operational and commercial requirements of the project. Furthermore the analysis shall cover the way the reused software will be embedded and/or integrated with the software to be developed in the project. The reused software shall be described in accordance with the information listed below (SRF List).

2. SECTION 2, to characterise the deliverable software in terms of constituent elements and the associated licensing schemes. The deliverable software (i.e. including developed and existing reused software) shall be described in accordance with the information listed below (SRF List).

SECTION 1 of the SRF shall be presented at CDR for discussion, and an updated version shall be provided at SAT.

SECTION 2 of the SRF shall be delivered at the FR.

| a. software item name and main features; |
| b. developer name; |
| c. considered version and list of components; |
| d. licensing conditions; |
| e. industrial property and exportability constraints, if any; |
| f. implementation language; |
| g. development and execution environment (e.g. platform, operating system); |
| h. applicable dispositions for warranty, maintenance, installation and training; |
| i. commercial software necessary for software execution, if any; |
| j. size of the software (e.g. number of source code lines, and size of the executable code) |

SRF List

4.5 System Verification Document (SVD)

The System Verification Document (SVD) will be dedicated to the preparation, planning, execution and reporting of all activities necessary to demonstrate the readiness of the system before entering into the pilot-demonstration stage. The SVD shall demonstrate the
compliance of the different elements of the system with the system requirements identified in the RD.

The SVD shall include the following sections:

1. **Test Plan**: this chapter shall define the approach, the methodology, the test sequence and the test conditions to validate the different elements of the system. Each test shall be assigned a unique identifier. The Test Plan shall include a Test Matrix that will create traceability between each test and the requirements identified in the RD together with the milestone review (i.e. Factory Acceptance Tests and/or On-Site Acceptance Test—see Section 3) at which the test will be executed. A paragraph that describes the test facilities shall also be included.

2. **Test Procedures**: this chapter shall describe the measurement equipment, test set-up and test methods that will be used for executing the tests defined in the test plan. The Test Procedure shall contain for each test a test form where test identifier, test sequence and associated results, pass/fail status, remarks, date and signatures will be recorded during the test execution. An example of test form is available in the Software Engineering Guidelines for the Telecom Applications Projects, available under: [http://artes.esa.int/documents](http://artes.esa.int/documents).

3. **Test Reports**: this chapter shall include a collection of the test forms filled in during the tests and an overall assessment of the status of compliance of the system.

The version of the SVD to be presented at the CDR shall provide a comprehensive description of the Test Plan and Test Procedures.

The Test Reports resulting from the internal verification activities shall be presented to ESA prior the FAT meeting. The SVD shall be presented and discussed at FAT and at the SAT.

### 4.6 Pilot-Demonstration Utilisation Plan (PilUP)

This document is dedicated to defining the activities, including the service provisioning, to be carried out during the pilot-demonstration stage of the system and to provide the related evaluation framework.

The PilUP shall be composed of the following sections:

1. **Users** identifying the actors in terms of the organisations or group of users that will be involved in the pilot-demonstration activities and describing their roles.

2. **Terms and Conditions for the Pilot-Demonstration Operations** stipulating the formal agreements between the Contractor and the group of users involved in the
pilot-demonstration operations. The conditions for utilising the system (e.g. access to the helpdesk, commitment by the group of users to fulfil the utilisation plan and to contribute to the evaluation, security policy) and the associated administrative provisions (e.g. insurances, responsibilities, liabilities) shall be indicated.

3. **Utilisation Baseline** describing the pre-operational services during the demonstration project, including a quantitative committed baseline of utilisation of the system (e.g. number and duration of the pilot-demonstration sessions) and the associated planning, including the specification of the locations where the system will be installed. Whenever applicable, this section of the document shall describe the content elements, e.g. videos, datasets, EO data, that have to be developed or procured in the course of the project as a prerequisite to start the demo operations. The content readiness and availability shall be demonstrated at the SAT. At the same milestone, the Contractor shall provide a set of incremental utilisation objectives that he plans to achieve at different stages of the demo operations. Starting from the beginning of the deployment, the Contractor shall complement the Pilot-Demonstration Utilisation Plan with a **Pilot-Demonstration Operations Summary Report (POSR)** summarising the activity of utilisation of the system, to be delivered to ESA on a weekly basis. The template for the POSR can be downloaded from: https://artes.esa.int/documents.

4. **Objectives of the Pre-Operational Services and Key Performance Indicators (KPIs)** defining the objectives of the pilot-demonstration stage (e.g. improvements in productivity, accessibility, quality, subscriber numbers, revenues, reduction in costs, schedule/delivery times, business efficiency and/or overheads reduction), identifying the Key Performance Indicators (KPIs) to assess whether such objectives have been met, mapping each objective to one or more KPIs. The KPIs shall be based on a combination of quantitative (e.g. data exchanged, number of sessions) and qualitative data (e.g. gathered via forms and/or questionnaires from the user groups directly involved in the pilot-demonstration stage).

5. **Assessment of the Pre-Operational Services** first describing tools and procedures to evaluate the added value brought to the target group of users by the pre-operational services developed in the project. Second, it shall include an assessment of the pilot-demonstration stage outcome, which shall be based:
   a. on the set of defined KPIs;
   b. on the ability of the system to comply, throughout the full duration of the pilot-demonstration stage, with the set of the user requirements (functional, performance and operational) set out in the RD. Particular attention shall be paid to identifying elements of deviations or non-compliance with respect to the agreed baseline, to assessing their criticality and to establishing relevant recovery actions.
In the Single Stage approach, the first issue of the PilUP shall be presented and discussed at BDR. In the Two Phases approach case, the PilUp addressing points 1, 3 and 5 above only (Users, Utilisation Baseline and Objectives of the Pre-Operational Services and Key Performance Indicators (KPIs)) shall be provided at the Phase 1 Completion Review Meeting.

The PilUP shall be then reviewed at SAT. The version including the assessment of the pre-operational services shall be presented at the FR.

4.7 Phase 1 Report (P1REP) (Two Phases approach) and Final Report (FREP)

For the Two Phases approach, the Contractor shall deliver, not later than ten working days before the Phase1 Completion Review) a Draft Phase 1 Report.

For both approaches the Contractor shall deliver, not later than ten working days prior to the Final Review, the Draft Final Report.

ESA will provide comments within one week after the FR.

The Phase 1 Report (P1REP) (Two Phases approach) and Final Report (FREP), which are intended for general publication, are to be written in a very concise form, and shall describe the major accomplishments of this contract. The P1REP and FREP shall be self-standing, not requiring to be read in conjunction with reports previously issued.

The front cover of the report shall carry the following text within a delineated box of at least 10 cm x 4 cm, preferably located in the top or bottom left-hand corner of the cover:

```
“EUROPEAN SPACE AGENCY CONTRACT REPORT
The work described in this report was done under ESA contract. Responsibility for the contents resides in the author or organisation that prepared it.”
```

The P1REP and FREP shall not contain any proprietary information or proprietary/copyright statement other than the following

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“The copyright in this document is vested in [Company]. This document may only be reproduced in whole or in part, or stored in a retrieval system, or transmitted in any form, or by any means electronic, mechanical, photocopying or otherwise, either with the prior permission of [Company] or in accordance with the terms of ESA Contract no [Contract no].”
```
4.8 Summary and Achievements (S&A)

The Summary and Achievements (S&A) document shall provide in two pages a concise overview of the project and its main achievements. This document will be used internally by ESA, and whenever needed for reporting to the National Delegations of the ESA Member States.

A template of the S&A document can be found under: https://artes.esa.int/documents.

The S&A document shall be delivered by the Contractor not later than ten working days before the FR. The S&A document will be regularly updated by ESA after the completion of the project reflecting possible inputs that will be provided by the Contractor’s team (e.g. new items published on ESA and not ESA portals, key commercial outcomes).

4.9 Final Data Package (FDP)

Together with the finalised version of the Final Report, the Contractor shall deliver to ESA 3 copies of the Final Data Package (FDP), consisting of a CD or DVD containing the most recent version of all main deliverables (SSA, SRF, SVD, PilUP, POSR, BP, ISC, SW, content developed as part of the contract, DM documenting the demo operations). The FDP shall contain an index document with links to the different document files.

As part of the FDP, the Contractor shall provide a collection of Digital Media (DM) documenting the pilot-demonstration operations stage, consisting of digital pictures and/or digital videos taken during the execution of the pilot-demonstration activities and documenting the installation and utilisation of the system by the group of users.

The DM shall consist of the following elements:

1. **Photography** The Contractor shall deliver at least ten (10) high resolution photos displaying the technology involved and its end users, specifying how the credits should be listed. ESA shall be granted all rights to use these images, for online, print and any other occasions as needed, free of charge. Accepted formats: JPEG.

2. **Videos, animations** In order to promote the results of the project in a visual and illustrative way, a video of minimum 60 seconds shall be delivered. This video can include interviews with users, the project team, the ESA Technical Officers, as well as text and graphical animations. All videos are meant to be published on the IAP website, together with the related Project Web Page (PWP) and must follow these format requirements:
   - CONTAINER: MP4
   - FILE EXTENSION: .mp4
   - VIDEO CODEC: H.264
Audio Codec: AAC  
Resolution: 1280x720 max  
Bitrate: 6 Mbps max  

Furthermore, an End Sequence shall be provided in order to show the contribution of ESA’s ARTES Applications programme and to maintain a corporate design. On request, ESA shall also get access to the digital files of the raw, unedited footage material in the highest quality available.  
ESA shall be granted all rights to use the produced video and the footage for its own purposes, free of charge.

3. Print and on-line productions  
Should the Contractor decide to produce any information related to the project in print or in on-line form (folders, flyers, brochures, posters, etc.), coordination with the ESA Technical Officer is required by providing the draft content one (1) month before intended publication, so as to ensure a correct representation of ESA and, where possible, ensure consistency with the ESA Corporate Visual Identity. All material prepared by the Contractor, intended for publication including the internet, shall acknowledge that it is an ESA project carried out under the ARTES programme by the European Space Agency. The Contractor shall display in an appropriate and visible way the ESA’s logo, downloadable at www.esa.int/esalogo. The obligation shall cease 3 years after contract completion.

The CD or DVD shall be labelled with: the title “Final Data Package”, the project name, the company name, the contract number, and the completion date. They shall include the documents in PDF format as well as an index document with links to the different document files.

4.10 Project Web Page (PWP)  
The Contractor shall produce, as part of the BDR package, a Project Web Page using the template available at http://artes-apps.esa.int/documents. The Project Web Page is intended for publication and shall not contain any proprietary information.

Each month, starting from the publication of the Project Web page and ending with the conclusion of the contractual activities, the Contractor shall provide an updated version of the “Current Status” paragraph of the Project Web Page as part of the Monthly Progress Report.

The Current Status paragraph of the Project Web Page can be the opportunity for the project to inform the general public about the status of the progress in the last period. The Contractor shall ensure that the public image of the project is properly portrayed and maintained through the above Web Page. A final version of the Project Web Page shall be provided together with the Final Report. This final version shall include a paragraph summarising the most significant achievements of the project.
4.11 Project Detailed Bar Chart

The Contractor shall submit his planning in the form of a Project Detailed Bar Chart. This bar chart or a summary of it shall be presented on one page landscape format with the text in a legible font size.

4.12 Submission of Documentation

The deliverable documentation given in the table mentioned in chapter 4.13 is required as a minimum and shall be provided during the contract as indicated. The documents shall be delivered at least five working days prior to the review.


In the Two Phases approach case, an update of the Management and Administrative Proposal, the Implementation Proposal, the Financial Proposal and the Contractual Proposal including a price conversion proposal as specified in Article 3.1.1 of the contract following the requirements set forth in the Special Tender Conditions shall also be provided whenever deviations have emerged with respect to the Full Proposal. The Contractor shall also provide a Contract Change Notice (CCN) request to implement the proposed changes for Phase 2, if any, and the price conversion, when relevant.
<table>
<thead>
<tr>
<th>Name</th>
<th>Deliverable</th>
<th>Reference to Section</th>
<th>Initial Submission</th>
<th>Updating</th>
<th>Final Submission</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBC</td>
<td>Project detailed Bar Chart</td>
<td>4.11</td>
<td>with the proposal</td>
<td>as part of the MPR and at reviews</td>
<td></td>
</tr>
<tr>
<td>MPR</td>
<td>Monthly Progress Report</td>
<td>5.4</td>
<td>TO + 1 month</td>
<td>every month</td>
<td></td>
</tr>
<tr>
<td>MOM</td>
<td>Minutes of Meetings</td>
<td>5.3</td>
<td>NM</td>
<td>every meeting</td>
<td>FR</td>
</tr>
<tr>
<td>RD</td>
<td>Requirements Document</td>
<td>4.2</td>
<td>with the proposal</td>
<td>Ph1CR (Two Phases app.), BDR (single Phase app.)</td>
<td></td>
</tr>
<tr>
<td>SSA</td>
<td>System and Service Architecture</td>
<td>4.3</td>
<td>with the proposal</td>
<td>Ph1CR (Two Phases app.), BDR (Single Phase app.), CDR</td>
<td></td>
</tr>
<tr>
<td>SRF</td>
<td>Software Reuse File</td>
<td>4.4</td>
<td>CDR (Section 1)</td>
<td>SAT</td>
<td>FR (Section 2)</td>
</tr>
<tr>
<td>PilUP</td>
<td>Pilot-Demonstration Utilisation Plan</td>
<td>4.6</td>
<td>with the proposal</td>
<td>Ph1CR (Two Phases app.), BDR (Single Phase app.), SAT</td>
<td>FR</td>
</tr>
<tr>
<td>DM</td>
<td>Digital Media (as part of the FDP)</td>
<td>4.8</td>
<td></td>
<td>FR</td>
<td></td>
</tr>
<tr>
<td>SVD</td>
<td>System Verification Document</td>
<td>4.5</td>
<td>CDR</td>
<td>Ph1CR (Two Phases app.), BDR (Single Phase app.), CDR</td>
<td>SAT</td>
</tr>
<tr>
<td>BP</td>
<td>Business Plan</td>
<td>4.1</td>
<td>with the proposal</td>
<td>Ph1CR (Two Phases app.), BDR (Single Phase app.), other milestones as relevant</td>
<td>FR</td>
</tr>
<tr>
<td>POSR</td>
<td>Pilot-Demonstration Operations Summary Report</td>
<td>4.5</td>
<td>From SAT</td>
<td>on weekly basis, unless otherwise agreed with ESA</td>
<td>FR</td>
</tr>
<tr>
<td>PWP</td>
<td>Project Web Page</td>
<td>4.9</td>
<td>CDR (Two Phases app.), BDR (Single Phase app.)</td>
<td>current Status to be updated as part of the Monthly Progress Report</td>
<td>FR</td>
</tr>
<tr>
<td>COD</td>
<td>Contract Outcome Data</td>
<td>6</td>
<td>FR + 12 months</td>
<td>every twelve months</td>
<td>FR + 36 months</td>
</tr>
<tr>
<td>P1REP</td>
<td>Phase 1 Report</td>
<td>Ph1CR (Two Phases app.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FREP</td>
<td>Final Report</td>
<td>4.7</td>
<td></td>
<td>FR</td>
<td></td>
</tr>
<tr>
<td>FDP</td>
<td>Final Data Package</td>
<td>4.9</td>
<td></td>
<td>FR</td>
<td></td>
</tr>
<tr>
<td>S&amp;A</td>
<td>Summary and Achievements</td>
<td>4.8</td>
<td></td>
<td>FR</td>
<td></td>
</tr>
<tr>
<td>CCN</td>
<td>Price conversion proposal invoking or including the updated proposal</td>
<td>4.12</td>
<td>Ph1CR (Two Phases app.), if relevant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.14 Document Confidentiality

All deliverable documents produced in the frame of the project and marked as “Proprietary Information” will be treated in confidence (see Clause 52.2 of the ESA General Clauses and Conditions). Project Web Page and the Final Report shall not contain any “Proprietary Information”, since they are intended for public dissemination.

5 MANAGEMENT

5.1 Project Manager

The nominated Project Manager shall be responsible for the management and execution of all work to be performed and for the coordination and control of the work within the project team. He/she will be the official point of contact with the Agency during the execution of the work.

During the contract execution, the Project Manager shall notify the Agency of any critical risk that may arise, analysing the cause, assessing the potential impacts on the project in terms of time, objectives and scope and formulating in the shortest possible time a mitigation strategy. Risks shall be recorded in the dedicated section of the Business Plan (see Section 4.1).

5.2 Reporting – Minutes of Meetings (MOM)

Formal written Minutes of Meetings attended by ESA shall be agreed and made available by the Contractor at the end of the meeting. The minutes shall clearly identify all agreements made and actions accepted together with, where relevant, an update of the Action Item List.

To establish a uniform and consistent procedure to identify the Action Items among the different ARTES projects, the Contractor shall keep track of the Action Items adopting the following action identification scheme:
**Action X.Y**
where \( X \) is the identifier of the meeting (0: Negotiation Meeting, 1: First Review Meeting, 2: Second Review Meeting, etc.), and \( Y \) is the Action number starting from 1 at each new meeting.

In case the Distributed Project Collaboration Tool (see section 5.7) is adopted, Actions items shall be recorded there as “Issues”, and the associated status shall be kept up-to-date by the Project Manager using the “Update Issue” feature.

In case of urgent or critical problems, new Actions can be originated by the Agency and/or by the Contractor even outside the normal scheduled meetings.

5.3 **Reporting – Monthly Progress Reports (MPR)**

The Contractor shall provide, within the first five working days of each month, a concise status report following the template available on http://artes-apps.esa.int/documents, including information on whether any results or Intellectual Property Rights (IPR) has been or is expected to be exploited.

This report shall in particular highlight any potential problems in the development and commercialisation programme and the corrective action planned or taken by the Contractor. Within the progress report, the updated Current Status paragraph to be inserted in the Project Web Page shall be provided. To the extent possible, the progress report and annexed documentation should be delivered in MS Word format by using the Distributed Project Collaboration Tool or as an attachment to email.

5.4 **Electronic Documentation**

All documentation shall be delivered in electronic form, using preferably MS Word or Adobe Acrobat format with all pictures and tables embedded in the document. The documentation shall include in its options the possibility to be printed.

5.5 **Distributed Project Collaboration Tool**

During the execution of the project the web based project planning and collaboration tool accessible under https://artes.esa.int/daptiv-ppm-help, shall be used. This collaborative environment is made available free of charge by ESA for the duration of the project, and it is intended to replace the usual electronic communication tools (e.g. E-mail with attached document and/or FTP) within the project team and in the communication with ESA, as well as for recording and tracking Action Items.
Unless otherwise agreed with ESA and formalised in the minutes of the Negotiation Meeting, the Contractor shall provide at the Negotiation Meeting the name of the person to be appointed as administrator of the account. The Agency will activate within one week from the Kick-Off Meeting an account dedicated to the project team. During the first part of the project, the environment shall be used on a trial basis by the project team to support information exchange in preparation of the first review meeting. At the first review meeting the Contractor shall inform the Agency whether, on the basis of the results of the trial period, the project team has decided to retain or not the environment for the remaining part of the contract. In case the environment is not retained, the specific account will be deleted by the Agency.

5.6 Media Relations and Events

Should the Contractor plan to initiate contacts with media in the context of the Project, coordination with the ESA Technical Officer is required by providing the draft content one (1) month before intended publication. Wherever possible, liaison with the Contractor will be established so as to agree on the texts, Frequently Asked Questions, and material to be provided to media.

Should the Contractor plan to participate in trade fairs, exhibitions, or other events where the Project is displayed, coordination with the ESA Technical Officer is required by providing the draft content two (2) months before the event takes place, so as to ensure a correct representation of ESA and, where possible, ensure consistency with the ESA Corporate Visual Identity.

This obligation shall cease after 3 years of contract completion.

6 REPORTING AFTER COMPLETION OF THE CONTRACT

In line with the objectives of the ARTES 20 programme, ESA’s support in this initiative is aimed at preparing the future operational and/or commercial exploitation of the elements developed in the project.

To monitor the effectiveness of this element of the ARTES programme and to continuously improve its efficiency, it is important for ESA to keep some visibility of the outcome of the operational and/or commercial exploitation of the project’s results, which will be typically become evident only after the conclusion of the contract with ESA.

Consequently, the Contractor shall provide the information concerning the main developments of the project (including exploitation of IPR) and the related impact on the company using the “CONTRACT OUTCOME DATA”.

An email will be sent to the Contractor with a specific link to an online form that will be used to gather the data. Access to the form is further protected using the username and password
for the telecom website http://artes.esa.int/. Therefore, Contractors must apply for an account.

The questionnaire is available under the link: http://artes.esa.int/documents.
ATTACHMENT I: Guidelines for Requirements Development

This document is intended to serve as Guideline in order to develop Requirements during ARTES Applications Projects.

Elements

The following diagram shows the logical flow linking User Requirements with System Requirements.

Logical separation of the requirements depending on the involvement of the different agents:

- **User Requirements – the “WHAT”**
  
  Proposed definition: *Statement originated by the users describing the functions and capabilities that the system shall bring to them during its utilization*

  - Related to a process that the user must be able to accomplish using the system / service
  - Derived from the analysis of user expectations, problems, needs, constraints and scenarios.
  - Originated by: users, based on an in-depth interaction with the designer. This dialogue helps to translate the user needs into verifiable user requirements.

- **System Requirements – the “HOW”**
Proposed definition: *Statement typically originated by the designer about what the system shall do and/or shall be to fulfil the User Requirements (e.g. associated to constraints, environment, operational and performance features)*

- Derived from the user requirements, need to be verifiable and traceable to the user requirement.
- Originated by: designer/system engineer.

**Ground rules applicable to both UR and SR**

- They need to be agreed and meaningful for both users and designer (i.e. need of constant dialogue)
- They should be limited to a single thought, concise, simple and stated in a positive way
- In particular for SR, they shall be needed (i.e. responding to at least one UR)
- They need to be verifiable and attainable
- Presented in formal documents
- Each requirement shall be accompanied by:
  - **Rationale:** helps to understand and interpret the requirement, and to transform knowledge in project asset. Needs to be documented and linked to the requirement, likely in a design document (e.g. Design Justification File).
  - **Verification method:** needs to be considered and documented while writing the requirements (e.g. some of the possible verification methods being Review of Design (RoD), Test (T), Simulation(S) etc.).
    Hint: words such as *adequate, easy, high speed, maximise, minimise, quickly, robust, sufficient, use-friendly* are likely to indicate unverifiable requirements and should not be used.
  - **Allocation:** identify to which part of the system/subsystem applies a given requirement. This helps to identify possible internal interfaces, find redundant or inconsistent requirement and ensure completeness.
  - **Traceability:** needed to identify a requirement source, helps correct omissions, redundant or unnecessary requirements. Requirements can be traceable by assigning unique identifiers to each requirement. Traceability matrices can be used to quickly check the UR and SR dependences.

**Ground rules for Project Management towards Requirements process**

- Inclusion of a Requirements Review in the projects, as part of the BDR. Characterized by the following:
  - Includes the Users and Designers
  - Gives the opportunity to the designer to explain the System Requirements and the associated rationale
  - Collect User feedback on System Requirements
The following diagram shows the different stages characterising a typical ARTES Applications Demo Project. It highlights the different intermediate milestones with respect to the project stages, and the transition from User Requirements to System Requirements.

**Tools for Requirements development and project evaluation**

In order to properly define, write and implement the User and System Requirements, several tools can be used for organizational purposes. One possible method to perform this task is the Quality Function Deployment (QFD), which helps the system designer(s) in order to ease and guide a correct requirements process.
ANNEX A: LAYOUT FOR CONTRACT CLOSURE DOCUMENTATION
for
ESA Contract No. ...... [INSERT NUMBER]
“[INSERT ACTIVITY TITLE]”,
hereinafter referred as the “Contract”

Section 1 – Parties, Contract Duration and Financial Information

<table>
<thead>
<tr>
<th>Contractor</th>
<th>[CONTRACTOR NAME]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Contractor(s) (state if not applicable)</td>
<td>[NAME AND COUNTRY]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract Duration</th>
<th>From:</th>
<th>To:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1 from:</td>
<td>to:</td>
<td></td>
</tr>
<tr>
<td>Phase n from:</td>
<td>to:</td>
<td></td>
</tr>
</tbody>
</table>

| Total Contract Price (including all CCNs, Work Orders, Call of Orders) and Total Contract Value (in case of co-funding: state if not applicable) | EUR | EUR |

<table>
<thead>
<tr>
<th>Broken down as follows:</th>
<th>Original Contract Price and original Contract Value (in case of co-funding: state if not applicable)</th>
<th>XXX EUR (XXX EUR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCN x to n</td>
<td>EUR in total</td>
<td></td>
</tr>
<tr>
<td>Work Order x to n</td>
<td>EUR in total</td>
<td></td>
</tr>
<tr>
<td>Call-Off Order x to n</td>
<td>EUR in total</td>
<td></td>
</tr>
</tbody>
</table>
Section 2 – Recapitulation of Deliverable Items

2.1 Items deliverable under the Contract

*If any of the columns do not apply to the item in questions, please indicate “n/a”.

Table 2.1.1 – Items deliverable according to the Statement of Work

<table>
<thead>
<tr>
<th>Type</th>
<th>Ref. No.</th>
<th>Name / Title</th>
<th>Description</th>
<th>Replacement Value (EUR)/ Other</th>
<th>Location 3)</th>
<th>Property of Rights granted / Specific IPR Conditions 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardware</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software</td>
<td></td>
<td></td>
<td>(Delivery in Object code / Source code?)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3 In case the item is not delivered to ESA, please indicate the location of the deliverable and the reason for non-delivery (e.g. loan agreement, waiver, future delivery, etc.)

4 e.g. IPR constraints, deliverable containing proprietary background information (see also 2.1.4 below)
Table 2.1.2 – Other Deliverable Items: Inventory of Items produced or purchased under the Contract *(if applicable)*

**[OPTION 1: No Fixed Assets]**
No Fixed Asset has been acquired under the Contract by the Contractor and/or its Sub-Contractor(s).

**[OPTION 2: Fixed Assets]**
Any fixed assets, acquired under the Contract by the Contractor and/or its Sub-Contractors are listed in the List of Fixed Assets attached below. The Contractor certifies that all its obligations with regards to Fixed Assets have been fulfilled. The Agency will inform the Contractor of its decision with respect to the disposal of Fixed Assets items.

<table>
<thead>
<tr>
<th>Item Name</th>
<th>Part/ Serial Reference Number</th>
<th>Location</th>
<th>Value</th>
<th>Deliver to ESA</th>
<th>Sell or Dispose of</th>
<th>Leave in (Sub-) Contractor’s Custody</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.1.3 – Customer Furnished Items and Items made available by the Agency

Any Customer Furnished Items and/or Items made available by the Agency to the Contractor and/or its Sub-Contractor(s) under the Contract, are listed in the following List of Customer Furnished Items and Items made available by the Agency. The following tables certify which of the items have been returned to the Agency and which of the items remain in the custody of the Contractor, and/or a Sub-Contractor(s) and/or a Third Party for further ESA work or for other purposes.

**Customer Furnished Items**

<table>
<thead>
<tr>
<th>Item Name</th>
<th>ESA Inventory Number</th>
<th>Location</th>
<th>Insurance Value</th>
<th>Confirmation of Receipt</th>
<th>Deliver</th>
<th>Leave at (Sub-) Contractor’s Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* To be completed by ESA
Items made available by the Agency

<table>
<thead>
<tr>
<th>Item Name</th>
<th>ESA Inventory Number</th>
<th>Location</th>
<th>Replacement Value</th>
<th>Deliver</th>
<th>Leave at (Sub-) Contractor’s Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.1.4 – Background Information used and delivered under the Contract (see Clause 57 of the General Clauses and Conditions)

The following background information has been incorporated in the deliverable(s):

<table>
<thead>
<tr>
<th>Proprietary Information (title, description)</th>
<th>Owner (Contractor, Sub-Contractor(s), Third Party/ies)</th>
<th>Affected deliverable (which documents, hardware, software, etc.)</th>
<th>Description impact on ESA’s rights to the deliverable</th>
<th>Other/comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 3 – Output from / Achievements under the Contract

3.1 **Service Readiness Level (SRL)**

*Indicate the SRL of the application / service developed under the Contract using the classification given below:*

<table>
<thead>
<tr>
<th>Initial SRL</th>
<th>Planned SRL as activity outcome</th>
<th>Actual SRL at end of activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 1 | Basic principles observed and reported |

5 If not explicitly stated otherwise, the contractual stipulations shall prevail in case of conflict with the description provided in this table
2 Application/service concept formulated, market opportunities not yet addressed
3 Concept analysis performed and target market identified
4 Application/service verification in laboratory environment, market segment(s) and customers/users identified
5 Application/service verified using operational elements, customers/users not involved
6 Demonstration of prototype in relevant environment, price policy identified
7 Trials with customers/users to validate utilisation and business models
8 Application/service completed and validated, commercial offer ready
9 Application/service operationally deployed and used by paying customers

NOTE: The SRL shall be assessed by ESA.

3.2 Achievements and Technology Domain

Not Applicable

3.3 Application of the Output/ Achievements

Not Applicable

3.4 Further Steps/Expected Duration

Please tick off as appropriate:

☐ No further development envisaged.
☐ Further development needed:

Please describe further development activities needed, if any, to reach TRL 5/6 including an estimate of the expected duration and cost.

3.5 Potential Non-Space Applications

Not Applicable

Section 4 – Statement of Invention

[OPTION 1: NO INVENTION]
In accordance with the provisions of the above Contract, ............[Company] hereby certifies both on its own behalf and that of its consortium/Subcontractor(s), that no Intellectual Property Right(s) has(ve) been registered in the course of or resulting from work undertaken for the purpose of this Contract; and that no inventions have been made in the course of or resulting from work undertaken for the purpose of this Contract that generated knowledge that could be registered as Intellectual Property Rights.
[OPTION 2: INVENTION]
In accordance with the provisions of the above Contract, ............[Company] hereby certifies both on its own behalf and that of its consortium/Subcontractor(s) that the following Intellectual Property Right(s) has(ve) been registered in the course of or resulting from work undertaken for the purpose of this Contract.

.....................

[OPTION]: In accordance with the provisions of the above Contract, ............[Company] hereby certifies both on its own behalf and that of its consortium/Subcontractor(s) that the following inventions have been made in the course of or resulting from work undertaken for the purpose of this Contract but have not been registered as Intellectual Property Rights:

.....................

[OPTION]: In accordance with the provisions of the above Contract, ............[Company] hereby certifies both on its own behalf and that of its consortium/Subcontractor(s) that the following inventions have been made in the course of or resulting from work undertaken for the purpose of this Contract and are foreseen for and/or in the process of registration:

The Agency’s rights on such registered and/or unregistered Intellectual Property Rights shall be in accordance with the ESA GCC Part II provisions as amended by the above Contract.