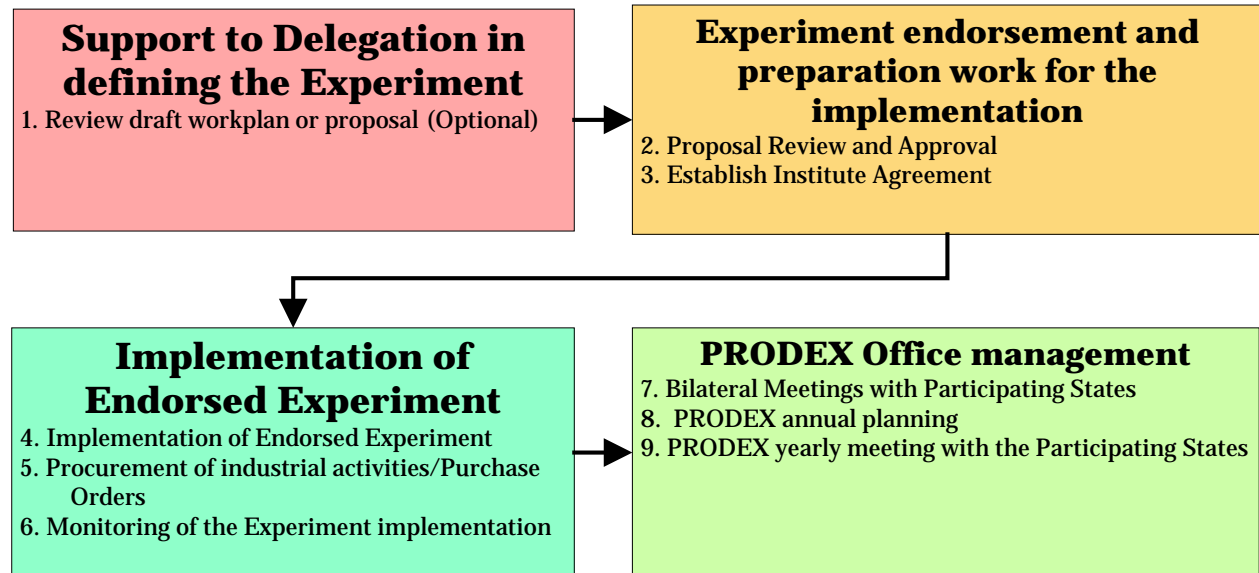


SCI Procedure for PRODEX Management

ESA-SCI-QMS-PR-0009 Iss. 1 Rev. 0

<p>Directorate IMS Management</p> <p>Process Owner: Director of Science Process Manager: Future Missions Department, within the Science Directorate Process Implementation: PRODEX Office manager, within the Future Missions Department Customer: PRODEX Participating States.</p> <p>Products:</p> <ol style="list-style-type: none"> Experiment products in the context of ESA or National space missions: <ul style="list-style-type: none"> - research reports or publications - preparation activities: instrument studies and breadboards; - software; - flight hardware with associated ground equipment and documentation PRODEX management reports to the Participating States (Yellow books)
<p>Purpose</p> <p>The purpose of the PRODEX Programme is to implement scientific Experiments, which are proposed by Institutes as contributions of the Participating State(s) to ESA or national space projects.</p>



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*This procedure enters into force on the date of its
publication in the QMS Intranet site*

1 PURPOSE OF THE PROCESS

The purpose of the PRODEX Programme is to implement scientific Experiments, which are proposed by Institutes as contributions of the Participating State(s) to ESA or national space projects.

2 SCOPE OF APPLICATION

This procedure is applicable to all PRODEX activities.

PRODEX Experiments can address a wide range of activities - including hardware (instruments or elements of instruments) or software projects, as well as preparation activities (such as instrument studies or breadboards) or science data processing, and may involve industry. The hardware development generally follows ESA standards and is implemented in several phases (A through D, exceptionally E).

The Experiments can be grouped into two main classes:

1- Data Processing and Research Experiments:

For those activities, PRODEX role is essentially to provide a financial and administrative monitoring of the Institutes in charge of the implementation. The PRODEX Office reviews and evaluates the proposal submitted by the Institute for all financial and administrative matters (excluding scientific aspects). Once the Institute proposal is accepted, the Experiment is implemented through a dedicated contract and monitored by the PRODEX Office up to its completion.

2- Scientific Space Instrumentation projects:

For those activities, the objective is to develop a scientific Instrument, or a piece of such instrument, to be delivered to an ESA or national Project as a contribution of the Participating State to the related mission. The developments may involve the Participating State industry in addition to the Institute at the origin of the Experiment.

The Experiment implementation through PRODEX includes all financial, administrative and contractual related matters, as well as a technical follow-up of the instrument hardware development on a best effort basis by making use of the Agency resources. The financial boundaries are defined by the Participating State, while the mission space segment responsible (e.g. the spacecraft Prime Contractor) defines the schedule needs and the technical interfaces. A single instrument project through PRODEX may result in several ESA contracts placed with institute(s) and industry, with the Agency procurement procedures being applied for the industrial contracts. Contracts with institutes are called PRODEX Experiment Arrangements (PEAs) and are implemented under a higher-level ESA-Institute Agreement.

3 APPLICABLE DOCUMENTS

3.1 PRODEX Specific documents

SCI Procedure for PRODEX Management	Identifier	Document Title
AD1	ESA/C/LXXV/Dec.1	Declaration On The Scientific Experiment Development Programme (PRODEX)
AD2	ESA/C/PRODEX(2002)2	Scientific Experiment Development Programme (PRODEX) Implementing Rules
AD3	IMT-C/MD/db/1095	Note about PRODEX Implementation "Contracts" (PEAs)
AD4	SCI-FE/ML/17.029	PRODEX Institute Agreement template
AD5	SCI-FE/ML/17.028	PRODEX PEA template Issue 2. Rev.1 dated august 30th 2017

3.2 Other Agency applicable documents

The below listed applicable documents from AD6 to AD11 are applicable within the framework and scope of this procedure independently from the specific task to be carried out:

No	Identifier	Document Title
AD6	ESA/ADMIN/IPOL (2008)6	ESA Security Directives
AD7	ESA/IMS/N/DPR-20-004	Management of Agency Records
AD8	ESA-QMS-PR-0007	Procurement via Purchase Orders
AD9	ESA/IMS/S/PR-80-002	Preparation and Maintenance of Governance Texts and Legal Instruments
AD10	ESA-QMS-PR-0006	Procurement
AD11	ESA/IMS/M/PR-10-027	Agency Project Review

Note 1: the above-listed documents are applicable in their latest version

Note 2: the above-listed QMS Procedures are published in the [ESA QMS Intranet site](#)

4 TERMINOLOGY, DEFINITIONS AND CONVENTIONS

For the purposes of this document:

- The definitions, abbreviations and acronyms given in ESA-QMS-LI-0002, [ESA QMS Glossary of Terms](#) are applied.
- The following terms and definitions apply in addition. The terms defined here after will always be spelled with a first Capital letter, underlined if the Defined word starts a sentence, to disambiguate it from normal word. The term spelled without capitals shall be understood as meaning the generic common name.

Delegation	The relevant authority of a Participating State responsible for endorsing the PRODEX Experiment and being the PRODEX Point of contact in the said Participating State.
Element	The subject of an instrument hardware development achieved through PRODEX: can be the full instrument, a subsystem or a unit. The produced Element is delivered to the entity in charge of its higher-level integration in the mission space segment (this entity can be another institute or an industry)
Experiment	Project intended to be implemented by the PRODEX office,
Letter of Endorsement	Letter signed by the Delegation for endorsing an Experiment and instructing PRODEX Office to implement it. The Letter of Endorsement and its attached documents define the Boundary Conditions set by the Delegation for the execution of the Experiment. The Experiment is generally described in a proposal attached to the Letter of Endorsement and produced by the PI.
Principal Investigator (PI)	The scientific academic responsible for the execution of the Experiment. The PI belongs to the Participating State Institute and is formally assigned in his role by the Delegation in the Letter of Endorsement
PRODEX	Term coined from the French “PROgramme de Development d’EXpériences scientifiques”, that translates “Scientific Experiments development Programme)”
PRODEX Head of Office	ESA responsible for the PRODEX Office management. In the whole Procedure, the PRODEX Head of Office Deputy can replace the PRODEX the Head of Office for implementing his assigned task, where agreed by the PRODEX Head of Office.

5 SCI PRODEX MANAGEMENT

5.1 Product

No	Product	Customer
1	Research reports and publications	PRODEX Participating States.
2	Experiment Phases A-B1: element definition reports and supporting documentation, breadboards	
3	Experiment Phases B2-C-D: element flight hardware, with associated models, documentation and ground support equipment	
4	PRODEX management reports (Yellow books)	

5.1.1 Product Requirements

The PRODEX Office activities shall comply with:

- The PRODEX declaration and Implementing Rules
- All applicable ESA rules and regulations
- The boundary conditions defined in the Letter of Endorsement sent by the Delegation of the Participating State to the PRODEX Office, in application of the PRODEX Declaration [AD1] and Implementing Rules [AD2].
- Each Experiment is funded and monitored by the PRODEX Programme, by using the Participating State financial contribution to PRODEX.

5.2 Process Description

5.2.1 Task Table

Task	Inputs & (Providers)	Responsible	Task Description	Requirements/ Criteria	Participants (P) Performer (S) Support	Outputs & (Recipients)
Support to Delegation in defining the Experiment						
1	Draft work plan or draft project proposal (Delegation, the draft proposal being produced by Institutes/Industry)	Head of PRODEX Office	<p>Review draft workplan or proposal (Optional)</p> <p>At delegation request:</p> <ul style="list-style-type: none"> Identify missing elements Discuss with the Delegation the expected implementation approach Propose updates as relevant 	The draft workplan/proposal is reviewed for identifying missing or unclear elements, and for providing advice for the Experiment implementation by taking into account the mission context, and the Delegation needs.	(P) Head of Future Missions Department (P) Head of PRODEX Office (P) Office Technical Officers (S) Experiment proposers, (S) Technical experts at ESA, (S) Participating State Delegation	Comments to work plans or proposals, recommendations to Delegation (Delegation)
Experiment endorsement and preparation work for the implementation						
2	Letter of Endorsement and Project proposal (Delegation)	Head of PRODEX Office	<p>Proposal Review and Approval</p> <p>Review the Proposal and obtain necessary approvals for enabling its implementation, as applicable.</p> <p>As required obtain the formal approval of ESA Committees or Programme Boards (e.g. SPC, PB-EO, PB-HME, IPC). In such cases, the task includes the preparation and submission of the papers to the relevant bodies for approval.</p>	<p>The proposal implementation must comply with PRODEX declaration and Implementing Rules (AD1, AD2, including the SPC approval for non-ESA missions), and with the Agency rules (e.g. IPC approvals for authorizing the placement of industrial contracts, Export Control matters)</p> <p>If needed, the proposal shall be iterated with the Delegation for enabling its endorsement and subsequent implementation.</p>	(P) Head of Future Missions Department (P) Head of PRODEX Office (P) PRODEX Technical Officers (P) ESA Programme Committees and Boards (as applicable) (S) ESA legal services (S) ESA Procurement Department (S) Technical Experts	<p>Proposal ready for implementation, with all required authorizations available:</p> <ul style="list-style-type: none"> Consolidated Proposal, with corresponding Letter of Endorsement Approval from ESA Committees and Boards (e.g. SPC and/or IPC, as applicable) <p>(Task 3, PRODEX Office)</p>

Task	Inputs & (Providers)	Responsible	Task Description	Requirements/ Criteria	Participants (P) Performer (S) Support	Outputs & (Recipients)
3	Proposal ready for implementation, with all required authorizations available (Task 2)	Head of PRODEX Office	<p>Establish Institute Agreement</p> <p>Establish the Institute Agreement (template in AD4) for enabling the PRODEX Experiment Arrangements at project level.</p>	<p>This Task is to be done only if the Institute Agreement does not exist (as a result from previous activities) or is no longer valid and needs to be renewed.</p> <p>The Institute Agreement is signed by the Director General and the Institute responsible (Director/ Dean / Rector of the University, as applicable)</p> <p>In accordance with [AD9]</p>	<p>(P) Director General (P) Director of Science (P) Head of Future Missions Department (P) Head of the PRODEX Office (S) Legal Department</p>	<p>Institute Agreement signed by ESA and the relevant Institute (Task 4)</p> <p>(PRODEX Office and Institute)</p>
Implementation of Endorsed Experiment						
4	<p>1. Proposal ready for implementation, with all required authorizations available</p> <p>2. Institute Agreement (Tasks 2 and 3)</p>	PRODEX Technical Officer	<p>Establish PRODEX Experiment Arrangement (P.E.A.) with the proposing Institute</p> <p>1- The Institute prepares a draft PEA document on the basis of the Approved Experiment proposal and of the PRODEX PEA template [AD5]</p> <p>2- The draft PEA is reviewed by the PRODEX Office and amended as needed with regard to the boundary conditions applicable to the Experiment</p> <p>3- The PEA is signed by the PRODEX Head of Office and the Institute responsible</p>	<ul style="list-style-type: none"> The PEA acts as a contract between ESA and the Institute for the implementation of the Experiment Specific boundary conditions can be defined in the Letter of Endorsement, in addition to those resulting from the PRODEX Declaration and Implementing Rules [AD1, AD2], the Institute Agreement [AD4] and ESA rules and regulations. 	<p>(P) Head of the PRODEX Office (P) PRODEX Technical officer (P) PRODEX Project controller (P) Proposal owner (Institute) (P) Head of the Future Missions Department (S) Technical Experts</p>	<p>PRODEX Experiment Arrangement co-signed by ESA Head of PRODEX Office and the Institute (Tasks 5 & 6)</p> <p>(PRODEX Office and Institute)</p>

Task	Inputs & (Providers)	Responsible	Task Description	Requirements/ Criteria	Participants (P) Performer (S) Support	Outputs & (Recipients)
5	1. ESA Programme board (e.g. SPC, PB-EO, PB-HME...) and IPC approval (as applicable, Task 2) 2. PEA (Task 4)	PRODEX Technical Officer	<p>Procurement of industrial activities / Purchase Orders</p> <p>If required for the Experiment procure industrial activities as per the endorsed Experiment proposal, in accordance with ESA Procurement rules. For the case of Purchase Orders (PO's) produce the "Procurement package" and place the Order.</p> <p>For the case of industrial contract(s):</p> <ol style="list-style-type: none"> 1. Prepare data package required for issuing the ITT (in case of competition restricted to the PRODEX country funding the activity as per PRODEX Declaration) or for issuing the RFP (case of Direct Negotiation) 2. Issue ITT or RFP 3. Evaluate, select (case of ITT) and negotiate the industrial offer(s) 4. Place the industrial Contract(s) 	<ul style="list-style-type: none"> • The Institute PI shall participate in the evaluation of the industrial proposals (expert in ESA TEB). • The Contracts or Purchase Orders must comply with the Experiment boundary conditions as defined in the Letter of Endorsement and the PEA. • In accordance with [AD3, AD8 and AD10] as applicable 	(P) Head of the PRODEX Office (P) PRODEX Technical Officer (P) Contracts Officer (P) Project Controller (P) Head of the Future Missions Department (S) Institute PI (S) Technical Experts	Industrial team in place for the Experiment implementation, with signed Contract(s) or Purchase Order(s) (Task 6, Industrial Contractor(s))

Task	Inputs & (Providers)	Responsible	Task Description	Requirements/ Criteria	Participants (P) Performer (S) Support	Outputs & (Recipients)
6	1. PEA (Task 4) 2. Industrial contracts or Purchase Orders (Task 5)	PRODEX Technical Officer or PRODEX Project Controller (for Data Processing and Research Experiments, for which the follow-up is limited to financial and administrative aspects)	<p>Monitoring of the Experiment implementation</p> <p><u>PEA follow-up:</u> 1- General administration and control: - Verify adequacy of the declared programme of work and deliverables with the PEA, and proceed with the invoices/payments as per PEA (at least on annual basis) - request from the PEA contractor Experiment reports as per PEA (at least on annual basis). 2- As applicable (e.g. in case of Hardware developed by the Institute): technical follow-up and support, by making use of the Agency resources.</p> <p><u>Industrial contract follow-up (as relevant)</u> 1- Technical follow-up, by making use of the Agency resources 2- Implement meetings and reviews as per contract 3- Interface with the Mission-level Project as needed for the purpose of the Experiment 4- Implement Contract Change Notices (CCN) as needed and following approval from the PRODEX Head of Office.</p> <p>Successful provision of all deliverables and Final Review/Report is a Control Point for the Experiment implementation.</p>	<p><u>Notes on Institute activities:</u> - PRODEX does not assess the quality of the research or scientific work. - Experiment reports may be sent to the Delegation on request - The technical support provided by ESA is on a best effort basis</p> <p><u>Notes on Industrial activities:</u></p> <ul style="list-style-type: none"> The follow-up of the industrial implementation is led by the PRODEX Technical Officer and involves the Institute PI. The technical support provided by ESA is on a best effort basis in accordance with [AD2] CCNs requiring financial resources unforeseen in the Letter of Endorsement require the Delegation approval, and are raised in accordance with [AD10] Reviews in accordance with [AD11] 	(P) PRODEX Technical Officer (P) Institute PI as per PEA (P) PRODEX Project Controller (P) Contracts Officer (P) Head of the PRODEX Office (P) Delegation (if needed) (P) Head of the Future Missions Department (if needed) (S) Co-investigators (S) Technical Experts	Experiment Deliverables as per PEA and/or Industrial contracts (PRODEX Office)

Task	Inputs & (Providers)	Responsible	Task Description	Requirements/ Criteria	Participants (P) Performer (S) Support	Outputs & (Recipients)
PRODEX Office management						
7	PRODEX records (PRODEX Project Controller)	Head of Future Missions Department and Head of the PRODEX Office	Bilateral Meetings with Participating States Organize bilateral meetings with each Participating State, at least on a yearly basis, for: <ol style="list-style-type: none"> Addressing the PRODEX Programmatic and Operational aspects Reporting on the financial status and expenditures for the Participating State (compiled in a "Yellow Book") Reviewing Experiment status and forecast for the Participating State <p><i>The provision and acceptance of the Yellow Book is a control point.</i></p>	The Bilateral meetings are used to: <ol style="list-style-type: none"> Address with the Delegation the overall strategy of the country for its PRODEX activities. This includes: <ul style="list-style-type: none"> Delegation expectations Industrial landscape Evolutions and constraints Specific country related matters Address the programmatic, technical and financial status of the PRODEX projects of the Participating State. 	(P) Head of Future Missions Department (P) Head of PRODEX Office (P) PRODEX Project controller (P) Technical Officers (S) Contract Officer	<ol style="list-style-type: none"> "Yellow Book" (Delegation) Minutes of Meetings agreed by both parties (PRODEX Office and Delegation)
8	Inputs on PRODEX planned activities (Delegations)	Head of PRODEX office	PRODEX annual planning <ol style="list-style-type: none"> Request from all Participating States Delegations their forecast for new activities, for a 2 year sliding window Establish accordingly preliminary implementation plan for the year to come and assess the adequacy of PRODEX workforce. Take corrective actions where needed. 	The planning is intended to: <ul style="list-style-type: none"> Adequately size the PRODEX workforce with regard to the need, Check the funding availability for each Delegation and anticipate financial difficulties, Manage PRODEX workforce by anticipating the allocation of tasks and the workload 	(P) All PRODEX Participating States (P) Head of Future Missions Department (P) Head of PRODEX Office	Planned activities per Participating States (PRODEX Office)

Task	Inputs & (Providers)	Responsible	Task Description	Requirements/ Criteria	Participants (P) Performer (S) Support	Outputs & (Recipients)
9	Yearly meeting agenda and presentations (Head of Future Missions Department)	Head of Future Missions Department	<p>PRODEX yearly meeting with the Participating States</p> <ol style="list-style-type: none"> 1. Prepare and provide reports on the global status of the Programme to the Participating States: financial status, workforce, evolution, and specific difficulties 2. When needed, address Programme strategic matters, and discuss and agree on implementation aspects with the Participating States 	The yearly meeting can also be used for promoting inter-delegation communication on PRODEX matters	<p>(P) Head of Future Missions Department (P) Head of PRODEX Office (P) PRODEX Participating States representatives</p> <p>(S) PRODEX Technical Officers (S) PRODEX Project Controller</p>	<ol style="list-style-type: none"> 1. ESA report 2. Delegation presentations (as available) 3. Minutes of Meeting (PRODEX Office and Delegations)

5.3 Performance Measurement

The following performance measurements may be applied to the processes detailed in this procedure:

- Time elapsed from the consolidated Letter of Endorsement to the PEA signature
- Time elapsed from PEA signature to issuing all Purchase Orders and ITT's or RFP's.
- Time from ITT/RFP to kick-off of all industrial activities (when applicable). Note: This performance is only partly depending on the PRODEX Office performance, since it also depends on the quality of the Institute/Industry proposals.

5.4 Records

This Records Table identifies the records generated by this process. Additional/supplementary records (e.g. Process inputs) may be identified in the applicable Records Schedule.

All records shall be treated in accordance with the requirements of [AD6], Section 3 Information Protection, [AD7], and the applicable Records Schedule which contains retention and disposition requirements.

Recipients of inputs from Customers or Suppliers (external or internal) shall forward these inputs to the responsible line management who shall ensure that the inputs:

- Are made accessible to those responsible for executing the process and remain accessible for as long as operationally required.
- Are, as a minimum included in the applicable Directorate, Department or Programme Records Schedule.

The record identification methodology/scheme is defined in the applicable Records Schedule.

Record Title/Identifier	Holder
Letters of Endorsement	Head of PRODEX Office
Institute Agreements	Head of PRODEX Office
PRODEX Experiment Arrangements	Head of PRODEX Office
Yellow books	Head of PRODEX Office
Experiment deliveries	Head of PRODEX Office

6 ANNEXES

The list of annexes is as follows:

Annex 1 – Change and Approval Information

ANNEX 1 CHANGE AND RECORD LOG

Issue Change Record

Iss. No.	Rev. No.	Corr. No.	Date	Reason for Change

Change Record Log

Date	Page(s) Affected	Paragraph	Summary of Change	DCR Number

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Approvals

Approval information on the current ISSUE of the document

Issue	1.0	Name	Signature	Date
Process Manager		F. Safa		
Directorate Quality Manager		B. Bastijns		
Process Owner		A. Gimenez-Canete, D/SCI		