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Instructions for PRODEX projects

Version 5.0, replaces all previous versions
(Original: German)

Legal foundation

- Organisation Ordinance for the Federal Department of Economic Affairs, Education and Research (OrgO-EAER)¹
- Declaration and Implementing Rules of the European Space Agency's PRODEX programme

1 Purpose of the PRODEX programme

PRODEX (*PROgramme de Développement d'Experiences Scientifiques*), a programme of the the European Space Agency ESA, facilitates the development of scientific instruments and experiments earmarked by ESA for one of its programmes in various areas of space research (astronomy, exploration of the solar system, fundamental physics, microgravity, earth observation). PRODEX also supports projects for the development of space experiments outside of the ESA framework, for example joint undertakings with another space agency. Projects are carried out in accordance with ESA's PRODEX Implementing Rules.

The projects are proposed by researchers at Swiss higher education research centres and conducted in cooperation with Swiss industry. This cooperation fosters knowledge and technology transfer, which should take place in both directions.

¹ SR 172.216.1 (available in German, French and Italian)

2 Framework conditions

2.1 Participation

Projects for the development of experiments are eligible for PRODEX support if they:

- 1) are proposed by a scientist working at a Swiss research institute²; and
- 2) have been selected by ESA or another space agency through a competitive call.

The conditions set out in sections 2.2 to 2.6 must be fully met.

2.2 Conformity with ESA's selection criteria

Within the framework of PRODEX, the (co-)financing of projects for the development of space experiments is limited to projects carried out within the ESA framework or with ESA's approval. Projects are eligible for support if they are selected according to one of the following procedures under the ESA rules:

- One-step selection procedure in the context of a *call for experiments / announcement of opportunity*.
- Multi-level selection procedure with a gradual reduction in the number of missions/experiments. In such a case, projects can be supported by PRODEX once they have successfully completed the first selection level and as long as there is a prospect of a definitive selection.
- Positive assessment of an *unsolicited proposal* by the competent ESA body.

PRODEX support is also possible for the development of space experiments conducted as part of a science mission or a space project outside ESA, for example by an ESA member state or by other countries that have a cooperation agreement with ESA. This is subject to confirmation by the relevant ESA committee that the intended objectives of the experiment and the associated mission are compatible with the interests of ESA.

2.3 Activities deemed eligible for support via PRODEX

The Swiss ESA Delegation supports development projects starting from phase 0/A as well as scientific operational phases until the end of phase E³. Thus, PRODEX support is not available for scientific analysis of data.

The following activities may be (co-)financed provided they fulfil the conditions under point 2.2:

- i. **Hardware development projects:** experimental material such as test setups, prototypes, flight and flight spare models, project-specific ground support equipment and the software required for its use.

² The term 'Swiss research institute' includes:

- any research institute of a higher education research body under Art. 4 let. c of the Federal Act of 14 December 2012 on the Promotion of Research and Innovation (RIPA);
- other research institutes, whether legally independent or associated with a higher education institution, provided they are publicly supported (i.e. by the Confederation or the cantons).

Private research institutes located in Switzerland may apply, provided they fulfil the conditions of RIPA Art. 5:

- the institute is a non-profit organisation.
- the scientific independence of the persons conducting the research is guaranteed.
- the research serves the education and training of young researchers.
- the results will be made available to the scientific public.

³ Project phases according to the European Cooperation for Space Standardisation (ECSS).

- ii. **Software development projects:** development of software for carrying out an experiment, for the collection of data, raw processing and pre-processing of data to a product that ESA can offer to users.
- iii. **Projects for scientific data generation and processing, and for the development of dedicated software:** equipment for experiments directly related to projects for the generation and processing of scientific data collected from experiments and research campaigns.

The following costs may also be covered by PRODEX:

- Additional temporary staff for specific projects that are employed by the institute. Staff duties and the budget must be defined in the PRODEX application. Type iii projects are allowed a maximum of one FTE year per project.
- Attendance at project-specific meetings at which the institute must be represented. These travel expenses must be accounted for and may not exceed 10% of the institute's annual share of the project.

2.4 Participation of industry

To promote the sharing of knowledge and technology, Swiss PRODEX projects should aim for a contribution of 50% or more from industry. The actual amount of this 50% contribution is determined based on the budgeted costs over the entire development period (Phase 0/A up to and including Phase D). If this is not possible, an explanation must be provided when submitting the project.

Contracts are generally awarded through open competition according to ESA procurement rules. The process is handled by the ESA PRODEX Office, including quotations and contract negotiations.

Procurements above a threshold of EUR 200,000 must in principle be managed by the PRODEX Office. In justified cases, smaller procurements and contracts below EUR 200,000 can be awarded by the institute in accordance with ESA's contractual conditions for subcontracting and the applicable national and cantonal legislation.

The institute is required to involve industry partners early on and in an appropriate manner when planning and estimating costs. A limited amount of funding can also be used in phase 0/A for parallel studies to determine the industry share in later phases.

2.5 Co-financing and third-party funds

The financing of project costs which are explicitly not borne by PRODEX must be covered by other sources for the duration of the relevant project phase. Therefore, the management of the research institute should certify that at least for the duration of the relevant project phase, sufficient co-financing from own or third-party funds is guaranteed, or that the guarantee of such financing is imminent.

2.6 Exchange rate

Financial information in PRODEX applications must be in euros, quoting the exchange rate used. The exchange rate to be used is the rate applied by the Confederation within the framework of the current budget estimate; it is published on the [PRODEX page](#) of the SERI website.

Exchange rate fluctuations and the related financial risk may not be charged to the project.

3 Submitting an application

Formal letters of intent and applications are to be submitted to the Swiss ESA Delegation electronically as PDFs. The relevant application forms and the deadlines to be taken into account are available on the PRODEX page of the SERI website. The form must be duly completed and validated by the applicant and the management of the school or institute.

Costs are to be expressed in euros. Details of the project and the mission or other relevant information can be attached to the application. Please contact the Swiss ESA Delegation with any questions relating to the PRODEX applications.

Applicants are advised to contact the legal service of the applicant institute if they have questions about contracts.

In principle, a distinction is made between three financing phases. An application must be submitted for each one:

Planning applications generally include the following project phases: 0 ('Mission analysis'), A ('Feasibility') and parts of phase B ('Preliminary definition'). Costs are normally 5 to 10% of the total costs. In order to minimise risk, it is essential to involve industry in the design in the early project phases. In the case of complex projects, applicants are required to launch parallel feasibility studies by industry. Any decision not to do so must be approved ahead of time by the Swiss ESA Delegation and justified in the application.

Implementation applications generally include parts of the project phase B, as well as project phases C ('Detailed definition') and D ('Qualification and production'). The costs represent the remaining project costs in the development phase.

Operational applications include phase E ('Utilisation'), which covers work that arises after the start or commissioning of an instrument or experiment and is necessary for the generation of scientific data. The costs associated with the analysis of scientific data cannot be paid. The costs of the operational phase are evaluated independently of the planning and implementation costs.

For smaller projects, applications can be submitted covering the entire duration of the project. A clear distinction needs to be made between the project phases in terms of content and funding. In particular, the use of reserves and provisions for any planning uncertainties must be presented in detail for the various project phases. In this regard, a risk evaluation is required for the entire project cycle.

4 Full-scale evaluation and implementation

PRODEX applications are evaluated according to the criteria listed in the annex. The full-scale evaluation is carried out by the Swiss ESA Delegation. The Delegation bases its evaluation on an evaluation and recommendation of ESA's PRODEX Office. If necessary, the Delegation may consult other experts or specialised bodies to assess the project's scientific relevance and excellence.

After the evaluation is completed, applicants are informed of the results by the Swiss ESA Delegation. There is no assumed entitlement to support. In the event of a positive decision, the Swiss ESA Delegation sends a letter of endorsement to ESA's PRODEX Office. The Delegation oversees the project through regular coordination with the PRODEX Office. Any decision to terminate a project will be taken by the Delegation in consultation with the parties involved in the project and the PRODEX Office.

5 Reporting

A report must be prepared annually for the PRODEX Office and the Swiss ESA Delegation. It must in particular cover any relevant financial and procurement aspects, and show potential risks. The PRODEX Office will provide project leaders with a suitable questionnaire.

Cost overruns should be avoided. Any additional costs must be reported immediately to the PRODEX Office. In principle, additional costs are not covered. Justified additional costs may in exceptional cases be approved by the Swiss ESA Delegation and covered by the PRODEX Office. A new formal PRODEX application must be submitted for this purpose. The Swiss ESA Delegation may request the co-financing of the additional costs by the institute concerned.

Annex: List of criteria for the evaluation of PRODEX applications

The Delegation's evaluation is based on 17 criteria listed below, which are grouped into the following four categories:

- strategic importance: significance, originality and relevance of the project, evaluation of international collaboration;
 - quality and specialist expertise of the Swiss consortium, including industry involvement;
 - quality of the cost estimate and compliance with financial guidelines;
 - risks, including mission status, timetable.
1. Scientific value of the proposed development project in the area of space research.
 2. Importance of the experiment and the extent to which the applicant's role in the consortium advances Swiss space research interests and reinforces Switzerland's position as a location for research and manufacturing.
 3. Relevance of the expected data and its use by the scientific community in Switzerland. Competence and capacity to scientifically assess the data:
 - at the applicant institute;
 - at other institutions in Switzerland.
 4. Applicant's role in the instrument consortium and a description of the division of scientific responsibility between the various partners.
 5. Importance of the project in the context of the Swiss Space Policy.
 6. Appropriateness of responsibilities and management structures (work packages, work breakdown structure, division between the institute and industry).
 7. Sufficiently detailed description of the expected staff costs (FTE years for scientific, technical and other staff), specifications for temporary staff.
 8. The applicant's experience and track record in the corresponding research area and in the development of the proposed experiment/instrument.
 9. The applicant institute's experience in carrying out projects of comparable scope, in particular when involving comparable project management.
 10. Integration of the project into the strategy of the applicant institute.
 11. Knowledge and technology transfer between the institute and industry in Switzerland. The institute and industry must have common and complementary technological skills to make it easier to define the technical specifications for cooperation. This enables the institute to provide competent support for industrial development.
 12. The applicant's intended level of funding for the implementation of the development project:

The data below are guideline values for each mission. They include all costs, from the first studies to the completion of phase D, for all Swiss actors involved in instrument development. Phase E costs are not included here.

a) ESA L-mission:	EUR 15,000,000
b) ESA M-mission:	EUR 10,000,000
c) ESA F-mission:	EUR 5,000,000
d) Other ESA missions:	EUR 3,000,000

- e) Non-ESA missions: 50% of the standard value for a comparable ESA mission

When evaluating costs, the Swiss ESA Delegation takes into account the role of the applicant in the instrument consortium and reserves the right to adjust the guideline values accordingly.

13. Quality of the applicant's estimate of costs. The estimate of industrial costs is to be based on a recent enquiry sent to potential suppliers/service providers in Switzerland. Cost estimates for implementation applications should be based on the results from phase 0/A, including any industrial studies that were carried out.
14. Internal contributions compared with external activities (incl. outsourcing, goods and services to be purchased, mainly abroad).
15. Structured breakdown of project financing in
 - a) contributions requested via PRODEX,
 - b) own resources, and
 - c) third-party contributions and supplementary services (SNSF, higher education institution, other public contributions, etc.)
16. External project risks (risks in relation to the intended mission, stability of the consortium, position of the applicant, stability of the scientific roadmap, international cooperation, etc.).
17. Project-specific risks (costs, achievement of objectives, schedule).

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