

# Funding Regulations Swiss Quantum Initiative

Regulations of the Swiss Academy of Sciences on the granting of contributions within the framework of the Swiss Quantum Initiative.

From December 15, 2023

*This is a draft English version for information purposes. Please also refer to the official version in German as needed (SQI Beitragsreglement).*

*The Executive Board of the Swiss Academy of Sciences,  
based on*

- Federal Act on the Promotion of Research and Innovation RIPA of December 14, 2012, Article 11, paragraph 7
- Performance Agreement 2021-2024 between the Swiss Confederation and the Swiss Academies of Arts and Sciences of May 12, 2021, Article 5, paragraph 2
- Additional Protocol to the service agreement 2021-2024
  - between the Swiss Confederation and the Swiss Academies of Arts and Sciences
  - and between the Swiss Confederation and the Swiss National Science Foundation for the promotion of scientific researchconcerning the tasks of the Swiss Academy of Sciences and the Swiss National Science Foundation in the launch and implementation of the National Quantum Initiative (NQI) of September 12, 2023
- Rules of Procedure of the Swiss Quantum Commission (SQC of the Swiss Academy of Sciences of June 22, 2023)
- Strategic considerations for a new research call, SQC, June 22, 2023

*issues the following regulations:*

## **Chapter 1 Purpose and object of funding**

### **Article 1 Principles**

<sup>1</sup> The Swiss Quantum Initiative (SQI) serves to maintain and strengthen Switzerland's leading position in the field of quantum technology across the entire value chain from basic research to application, to remain internationally competitive and connected and to create a good starting position for international cooperation.

<sup>2</sup> The Swiss Academy of Sciences (SCNAT) may collaborate with other research funding institutions, in particular the Swiss National Science Foundation (SNSF) and the Swiss Innovation Agency

(Innosuisse), to launch and implement funding measures within the framework of the SQI or, with their consent, transfer the launch and implementation of funding measures entirely to them.

<sup>3</sup> These regulations govern the framework conditions and the procedure, including criteria for the awarding of grants for the types of funding and funding instruments within SCNAT's area of responsibility.

<sup>4</sup> The SCNAT grants all legally entitled persons equal access to SQI benefits.

<sup>5</sup> There is no legal entitlement to a contribution from the SQI.

## **Article 2 Subject areas within the Swiss Quantum Initiative**

<sup>1</sup> Scientifically and technically, the SQI is geared towards the so-called second quantum revolution, i.e. the control of quantum systems at the level of individual quanta and their artificial entanglement.

<sup>2</sup> The SQI focuses on the following research and application-oriented subject areas:

- a. Quantum communication (including but not limited to quantum key distribution, quantum repeaters and communication between quantum computers);
- b. Quantum computation (including quantum processors and architecture, new qubits, error correction, algorithms);
- c. Quantum simulation (including but not limited to quantum simulators, including atomic and solid state systems and synthetic quantum materials with entanglement, algorithms);
- d. Quantum sensing and quantum metrology (including sensor platforms and concepts, algorithms, entanglement-based sensor technology, quantum metrology standards, clocks).

<sup>3</sup> The following cross-sectional areas are also relevant in the context of SQI: Materials for quantum applications, control engineering, quantum theory, computer science.

## **Chapter 2 Types of funding**

### **Article 3 Types of support**

A distinction is made between the following types of funding:

- a. Promotion of scientific research;
- b. Promotion of innovation;
- c. Promotion of infrastructures and platforms;
- d. Promotion of education and a skilled workforce;
- e. Promotion of events and conferences.

### **Article 4 Promotion of scientific research**

<sup>1</sup> In promoting scientific research, the focus is on the method-driven search for new findings in the field of quantum.

<sup>2</sup> The implementation is done by funding research projects in collaboration between the Swiss Quantum Commission (SQC) of SCNAT and the SNSF.

<sup>3</sup> Professional independence between the work of the SQC and the SNSF must be guaranteed at all times. In particular, the elected members of the SQC may neither directly nor indirectly participate in or influence the evaluation procedures at the SNSF.

#### **Article 5      Promotion of innovation**

<sup>1</sup> The aim of innovation funding is to effectively transfer scientific findings into science-based innovations and new applications for the economy and society.

<sup>2</sup> The implementation is done in collaboration between the Swiss Quantum Commission (SQC) of SCNAT and Innosuisse.

<sup>3</sup> The professional independence between the work of the SQC and Innosuisse must be guaranteed at all times. In particular, the elected members of the SQC may not directly or indirectly participate in or influence Innosuisse's evaluation procedures.

#### **Article 6      Promotion of infrastructures and platforms**

<sup>1</sup> Infrastructures are facilities, resources and services that are set up specifically for technology transfer and innovation purposes, are made available in the medium or long term and require specific skills to be set up, operated and used. They are not used exclusively by individuals or individual groups, but are open to at least one specialist community (science and industry).

<sup>2</sup> Platforms are application-oriented architectures based on one or more specific quantum technology such as superconducting circuits, trapped ions, ultracold atoms or electron spins. Platforms usually contain several technical layers, including physical hardware, controls, information processing/software and user interfaces. With increasing technological maturity, platforms may be developed and operated for all topics in the field of quantum physics.

<sup>3</sup> Infrastructures and platforms can be based at a single location in Switzerland or organized in a network with several national and international locations, in combination with a defined management structure.

<sup>4</sup> Both infrastructures and platforms must contribute to innovation in the field of quantum physics.

<sup>5</sup> Funded initiatives may also involve cooperation with private players, namely from industry, provided they do not violate overriding law.

#### **Article 7      Promotion of education and a skilled workforce**

<sup>1</sup> The promotion of education and skilled workers aims to provide impetus for the (further) development of attractive curricula and measures that are suitable for counteracting the shortage of skilled workers.

<sup>2</sup> Funded initiatives can include both conceptual and practical activities. In view of the increasing importance of engineering skills and the emerging applications in this area, the SQI places particular emphasis on the universities of applied sciences. Other public educational institutions such as universities (Federal Institutes of Technology and cantonal universities) and grammar schools are also eligible for funding.

<sup>3</sup> Funded initiatives may also include cooperation between the education sector and private players, namely from industry, provided that they do not violate overriding law.

#### **Article 8      Promotion of events and conferences**

<sup>1</sup> The promotion of events and conferences aims to strengthen the quantum research, innovation and application communities.

<sup>2</sup> Sponsored events and conferences can also be part of larger international events.

## **Chapter 3 Funding instruments for the individual types of funding**

### **Article 9 Funding instruments**

A distinction is made between the following funding instruments:

- a. Competitive tendering;
- b. Cooperation agreements;
- c. Vouchers.

### **Article 10 Competitive tendering**

<sup>1</sup> With competitive tenders, a funding type is implemented via a public tender as the basis for the allocation of funds in the competitive process.

<sup>2</sup> Competitive tenders can be very open or specifically restricted, especially for subject areas with a narrowly defined technical scope.

<sup>3</sup> Competitive tenders are applicable to all types of funding:

- a. In the case of competitive calls for proposals for the funding of scientific research in accordance with Art. 4, SCNAT defines strategic priorities and overarching framework conditions, but not specific requirements for the design of project calls or the subsequent evaluation procedures. The SNSF launches specific calls for projects based on the work of the SCNAT and implements them within the legal framework of its funding activities.
- b. In the case of competitive calls for innovation funding in accordance with Art. 5, SCNAT may use individual instruments of Innosuisse for the SQI with its consent and in accordance with Innosuisse's specifications.
- c. Competitive calls for proposals for the promotion of infrastructures and platforms pursuant to Art. 6, for the promotion of education and workforce pursuant to Art. 7 and for the promotion of events and conferences pursuant to Art. 8 are implemented by SCNAT within its legal framework.

### **Article 11 Cooperation agreements**

<sup>1</sup> Cooperation agreements make it possible to initiate targeted catalyst activities and projects within a funding type with the aim of driving innovation and making targeted progress towards quantum applications. To this end, SCNAT formulates the content requirements, which are made public. Interested applicants can submit a proposal on this basis, which will be evaluated by SCNAT.

<sup>2</sup> Cooperation agreements are implemented by SCNAT within its legal framework and are applicable to the following types of funding:

- a. Promotion of infrastructures and platforms in accordance with Art. 6.
- b. Promotion of education and specialists in accordance with Art. 7.

<sup>3</sup> Cooperation agreements for catalyst activities and projects must be of national importance, focusing on a specific need or specific opportunity potential in one or more subject areas or on specific functions (e.g. doctoral positions in industry). They are based on a strategic concept, a defined management structure and a formulated information exchange and communication policy.

## **Article 12 Vouchers**

<sup>1</sup> The award and use of vouchers is aimed at the broad and effective use of existing infrastructures and platforms in Switzerland and their gradual expansion. To this end, SCNAT can launch a voucher program for a defined subject area.

<sup>2</sup> Features of a voucher program are

- a. Defined total financial amount divided into vouchers of a defined amount;
- b. Defined types of infrastructures and platforms where vouchers can be redeemed;
- c. Vouchers can be used to finance the use of the defined infrastructures or platforms;
- d. Decentralized approach in which voucher holders and infrastructure providers find each other autonomously and regulate the specific form of use bilaterally.

<sup>3</sup> Vouchers are applicable to the following types of funding:

- a. Promotion of innovation pursuant to Art. 5
- b. Promotion of infrastructures and platforms in accordance with Art. 6.

<sup>4</sup> In the case of vouchers for the promotion of innovation in accordance with Art. 5, SCNAT may adopt individual instruments for the SQI with the consent of Innosuisse.

## **Chapter 4 Requirements, rights and obligations of applicants**

### **Article 13 Delimitation**

The requirements for applicants formulated in Chapter 4 apply to those types of funding and funding instruments that are implemented directly by SCNAT. For funding types and instruments implemented by the SNSF or Innosuisse, the provisions of the respective institution apply.

### **Article 14 Prerequisites for applicants**

<sup>1</sup> Natural persons who carry out scientific research or innovation activities in the field of quantum physics in Switzerland or with a close connection to Switzerland are eligible to apply.

<sup>2</sup> A scientific research or innovation activity in Switzerland or with a close connection to Switzerland exists if the applicant is employed for the duration of the project applied for at a university research institution or at a non-commercial research institution outside the university sector based in Switzerland and with majority Swiss basic funding under Swiss law, or if such employment is guaranteed in writing. The location of the activities may be partly abroad, but the main part of a supported activity must be carried out in Switzerland.

<sup>3</sup> Applicants from different institutions can join together to form a consortium and submit an application under the leadership of a lead applicant. Consortia can include researchers based abroad as associated applicants; however, they cannot receive funding.

<sup>4</sup> For the infrastructure and platforms funding type, persons with overall responsibility for an infrastructure or platform may submit applications even if they themselves do not carry out any research and innovation activities in accordance with paragraph 1.

<sup>5</sup> The SCNAT may require the inclusion of implementation partners in individual calls for funding instruments. The specific requirements for these are defined in the respective calls for proposals. However, implementation partners from the private sector cannot be recipients of subsidies from the SQI due to overriding legislation.

## **Chapter 5 Application procedure**

### **Article 15 Delimitation**

The provisions of the application procedure formulated in Chapter 5 apply to those types of funding and funding instruments that are implemented directly by SCNAT. For funding types and instruments implemented by the SNSF or Innosuisse, the provisions of the respective institution apply.

### **Article 16 Formal examination**

<sup>1</sup> The selection of applications is preceded by a formal review by the SQI Office at SCNAT. Applications that do not meet the formal requirements will not be admitted to the next stage of the selection procedure and will be rejected (non-admission) unless the deficiency can be rectified quickly and easily.

<sup>2</sup> The following formal requirements must be met:

- a. Compliance with the submission deadline;
- b. Completeness of the application, written in English;
- c. Eligibility of the main applicant, the co-applicant(s) and the associated applicant(s);
- d. Recognition of the need to provide own contributions in the event that the proposal is approved for funding;
- e. Compliance with the Funding Regulations and any other formal criteria specified in the call for proposals.

### **Article 17 Evaluation criteria for the promotion of infrastructures and platforms**

The evaluation of applications that are accepted is based on the following criteria:

Evaluation is based on the following criteria:

- a. Relevance for Swiss industries
- b. Enabling breakthroughs in the underlying scientific approaches (incl. algorithms)
- c. Contribution to national security or protection of national critical infrastructure (including but not limited to e.g. power generation and distribution, telecommunications, national defense)
- d. Accessibility: the activities and projects are in principle open to the entire Swiss community (science and industry)
- e. Novelty: no repetition of existing initiatives
- f. Leverage effect: Building on existing strengths and expertise in Switzerland
- g. Feasibility of implementation

### **Article 18 Evaluation criteria for the promotion of education and workforce**

The evaluation of applications that are accepted is based on the following criteria:

- a. Reference to quantum science and technology;
- b. Promotion of skills with sustainable relevance for research and innovation;
- c. Complementarity with established education and training programs;
- d. Quality of the educational programs and the methods used;

- e. Qualification of the teachers and specialists involved;
- f. Costs-benefit ratio.

### **Article 19 Evaluation criteria for the promotion of events and conferences**

The evaluation of applications that are accepted is based on the following criteria:

- a. Direct relation to the field of quantum science and technology;
- b. Contribution to strengthening Swiss quantum science and technology and their national and international positioning;
- c. Involvement of multiple players in Switzerland and / or internationally; not limited to a single research center;
- d. Not a purely commercial event or conference.

### **Article 20 Decisions**

<sup>1</sup> Funding decisions are made for each type of funding via the following sequential steps:

- a. Professional assessment by an evaluation panel made up of experienced experts from Switzerland and/or abroad. The assessment is based on the criteria listed in Chapter 5 and any specific criteria in accordance with the call for proposals. The evaluation panel is appointed by the SCNAT Executive Board at the request of the SQC.
- b. Decision on the individual applications and allocation of funds by the SQC, taking into account the assessment of these applications by the evaluation panel. The applications to be funded and rejected are included in the so-called funding/rejection proposal, which is submitted to the SCNAT Executive Board for ratification. In order to reach a decision, the SQC may invite applicants who have been shortlisted on the basis of the technical assessment to a presentation and discussion of their application.
- c. The SCNAT Executive Board decides on the ratification of the SQC's funding/rejection proposal.

<sup>2</sup> When promoting events and conferences, the SQC may decide on a simplified procedure, which is described in the call for proposals.

<sup>3</sup> The SCNAT issues decision letters on the applications in the form of a ruling to the applicants. This also applies to decisions not to accept applications and decisions on changes to rights and obligations following the award of grants.

<sup>4</sup> In the case of cooperation agreements for the implementation of catalyst activities and projects in accordance with Art. 11, those decisions containing the acceptance of an offer are issued subject to the proviso that agreement is reached between the bidder and the SQC during the subsequent negotiation of the detailed cooperation agreement.

<sup>5</sup> Decision letters and cooperation agreements contain at least the following information:

- a. Total amount awarded and duration of financing
- b. Terms of payment
- c. Reporting obligations

### **Article 21 Right of appeal**

Decisions of the SCNAT can be appealed to the Federal Administrative Court.

## **Chapter 6 Handling conflicts of interest**

### **Article 22 General provisions for handling conflicts of interest**

<sup>1</sup> As the supervisory body of the SQC, the SCNAT Executive Board has the following tasks in handling conflicts of interest:

- a. Decision on how to deal with conflicts of interest that cannot be resolved directly in the SQC;
- b. Consideration of potential conflicts of interest in the ratification of SQC decisions.

<sup>2</sup> Controversial scientific and technological issues, e.g. on different views and interpretations in the field of quantum, are clarified within the SQC. To this end, it can exchange views with representatives of the Swiss and international research community.

### **Article 23 Balancing public and private interests**

The SCNAT bodies, committees and individuals entrusted with the implementation of the SQI are in part dependent on being able to interact directly with selected commercial organizations from industry that have specific know-how and skills in order to realize socio-economic benefits for Switzerland. Against this background:

- a. A neutral position is taken vis-à-vis the various players in the industry.
- b. The bodies, committees and individuals responsible for implementing the SQI are aware of the potential conflicts of interest. In such situations, they therefore maintain a careful, differentiated discourse and consciously and justifiably weigh up public and private interests in order to avoid ethically questionable decisions.
- c. When ratifying SQC decisions, the SCNAT Executive Board pays particular attention to potential conflicts between individual public (societal) and private (commercial) interests.

### **Article 24 Switzerland's national interests and international cooperation**

Access to and global dissemination of basic scientific knowledge is desirable and of great importance in the field of quantum science and technology. Nevertheless, export regulations and Swiss national interests can restrict the transfer of knowledge from certain applied research and innovation activities. The boundary between basic research and applied research is not always clear. Against this background:

- a. SQI may cooperate with subsidiaries of foreign companies or companies that are wholly or partly owned by foreign organizations or persons.
- b. The bodies, committees and individuals responsible for implementing the SQI are aware of the potential conflicts of interest. In such situations, they therefore maintain a careful, differentiated discourse and consciously and justifiably weigh up national interests and international cooperation in order to avoid ethically questionable decisions.
- c. They therefore consciously and justifiably weigh up national interests and international cooperation. They maintain a careful dialog and interaction with each other and with the various external stakeholders in order to avoid ethically questionable decisions.

### **Article 25 Individual conflicts of interest**

An individual conflict of interest may arise if a person involved in a decision-making process could have a personal, professional or financial interest or, as a representative of an institution, an interest in the outcome of this decision, in particular because the decision taken could have an



advantageous or disadvantageous effect on this person. Against this background, the following applies:

- a. Individual conflicts of interest do not necessarily mean misconduct or inappropriate activities. However, if they are not recognized and handled appropriately, they can jeopardize the integrity of the SQI as well as the values and integrity of the institutions involved.
- b. In view of the thematic breadth of the SQI and the limited size of the Swiss research and innovation community, issues relating to potential conflicts of interest must be made transparent and addressed in an appropriate manner.
- c. The elected members of the SQC are not *per se* excluded from participating in the promotion of scientific research in accordance with Art. 3 letter a.
- d. The SCNAT Executive Board decides on the participation of elected members of the SQC in funding instruments implemented by the SCNAT on a case-by-case basis.
- e. Commercial organizations that are majority-owned by a member of the SQC are excluded from participation in SQI funding programs.
- f. All persons entrusted with the implementation of the SQI, in particular the members of the SQC, are aware of potential conflicts of interest. In such situations, they therefore maintain a careful and transparent discourse in order to avoid ethically questionable decisions.
- g. In the event of specific individual conflicts of interest within an application procedure, the persons concerned shall withdraw.

## **Chapter 7 Rights and obligations of contribution recipients, contribution administration**

### **Article 26 Legal consequences of the grant**

<sup>1</sup> With the full or partial approval of an application (grant), the applicants become grantees of SCNAT.

<sup>2</sup> Contribution recipients are obliged to

- a. Use the contribution granted in accordance with the conditions contained in the ruling;
- b. Comply with the provisions of these regulations and all other regulations applicable to the contribution;
- c. Submit a written summary and key words of the planned project that are understandable for laypersons after receipt of the ruling, at the latest with the application for release of funds.

<sup>3</sup> The corresponding applicant becomes the corresponding grantee who legally represents all grantees vis-à-vis the SCNAT.

### **Article 27 Amendment of applications and contribution conditions**

Contributions are made for the work, tasks and milestones described in the application, taking into account any funding conditions specified by the SCNAT and can only be modified upon written request and with the approval of the SCNAT.

### **Article 28 Withdrawal of the application or termination of the project**

<sup>1</sup> Applicants who withdraw their application must inform the SCNAT in writing.

<sup>2</sup> Grant recipients who wish to terminate their ongoing project must inform the SCNAT in writing, stating their reasons. Unused funds must be reimbursed.

## **Article 29      Modification and revocation of the grant**

<sup>1</sup> If the conditions for receiving a grant are no longer met after the grant has been approved or if the circumstances on which the grant was based change significantly (e.g. failure to reach milestones), SCNAT may amend the grant conditions or revoke the grant by decision of the SQC and with the approval of the SCNAT Executive Board.

- a. If the contribution has not yet been transferred, the SCNAT may amend the grant or withhold the contribution;
- b. if the contribution has already been transferred, the SCNAT may demand partial or full repayment of the contribution.

<sup>2</sup> Before the SCNAT takes such measures, the SQC hears the persons concerned and informs them of the change or revocation in the form of a ruling.

## **Chapter 8      Information and reporting obligations**

### **Article 30      Activity report**

<sup>1</sup> For projects with a duration of more than twelve months, grantees must submit an annual activity report no later than two months after the end of each calendar year and after the end of the project. For projects with a duration of up to twelve months, a final activity report must be submitted at the end of the approved project duration.

<sup>2</sup> The project activity report must contain the following information:

- a. Summary;
- b. Main activities to date and results achieved;
- c. Overview of significant deviations from the original proposal.

<sup>3</sup> In the case of complex projects, the SQC may appoint a monitoring committee consisting of representatives of the SQC and/or external experts to periodically review the project:

- a. review progress on targets and milestones;
- b. Identify synergies between different SQI projects and other related activities in Switzerland;
- c. Suggest adjustments to objectives, milestones or other parts of the project plan to ensure efficient use of resources and avoid redundancies.

The monitoring committee formulates its recommendations for the SQC.

### **Article 31      Administration of contributions and financial report**

<sup>1</sup> The grantees must have the contributions paid out administered by an office recognized by SCNAT. If no connection to an institution with such an office is possible, the SCNAT may exceptionally stipulate that the contributions are not administered by an office recognized by the SCNAT.

<sup>2</sup> Recipients must submit a financial report containing the following information no later than two months after the end of the reporting year:

- a. How the funds are used;

b. Scope of the partners' own contributions "in cash" and "in kind".

<sup>3</sup> The financial reports are to be prepared by the contribution administration office of the home institution of the corresponding contribution recipient, checked and signed by the latter and submitted on time.

## **Chapter 9 Final provisions**

### **Article 32 Implementing provisions**

<sup>1</sup> The SQC determines the implementing provisions within its area of responsibility, namely the calls for proposals and other provisions for the individual types of funding and funding instruments as well as the other provisions provided for in these regulations. These implementing provisions are submitted to the SCNAT Executive Board for ratification.

### **Article 33 Approval and entry into force**

These regulations were approved by the SCNAT Executive Board on 15.12.2023. They come into force immediately upon approval.

Prof. Dr. Philippe Moreillon

Dr. Jürg Pfister

President

Secretary General