



Switzerland's International Strategy on Education, Research and Innovation

Strategy of the Federal Council, July 2018



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State Secretariat for education, research and innovation SERI

International Relations Division

internat.beziehungen@sbfi.admin.ch

T +41 58 463 31 76

Download

www.sbfi.admin.ch/bfi-int_e

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1 Introduction – Scope of application

Switzerland attaches great importance to education, research and innovation. Education is key to independent and meaningful thought and action; research, the source of new knowledge; and innovation, the foundation for market success. Education, research and innovation are therefore the basic requirements for ensuring individual well-being, social cohesion, economic growth and global sustainable development.

International cooperation and competition are integral elements of Switzerland's policy to promote education, research and innovation (ERI). This strategy is an update of the first and original version adopted by the Federal Council in 2010. The basic principles and general division of tasks laid down in the original version remain unchanged. The updated strategy pays more attention to thematic aspects, such as innovation, vocational education and training, and digitalisation, which have gained international importance in recent years. It also specifies which functions Switzerland allocates to cooperative and competitive exchanges with foreign countries as a means of strengthening the quality of the ERI sector.¹ The updated strategy primarily focuses on the tasks assigned to the Federal Department of Economic Affairs, Education and Research (EAER),² particularly within the framework of the periodic objectives of the Federal Council.³

This strategy does not include a comprehensive compilation of all interactions between Switzerland and other countries in which education, research and innovation are individual elements or instruments for

¹ See SER: Switzerland's International Strategy for education, research and innovation, approved by the Federal Council on 30 June 2010. Bern. At the time, two departments were responsible for the ERI sector, which is now under the auspices of the Federal Department of Economic Affairs, Education and Research (EAER).

² SR 172.216.1. Organisation Ordinance of 14 June 1999 for the Federal Department of Economic Affairs, Education and Research (OrgO-EAER), Art. 6. Last updated: 1 February 2015.

³ The Federal Council has formulated a specific target in its legislature plan 2015–2019 for the ERI sector for the guiding principles and objectives to be pursued (Objective 6): "Switzerland should continue to lead in education, research and innovation, and the domestic labour force potential will be better exploited." See Federal Council Dispatch on the Promotion of Education, Research and Innovation for 2017–2020, BBI 2016, 3136. www.admin.ch/opc/de/federal-gazette/2016/5183.pdf.

achieving objectives of Swiss foreign policy or individual sectoral policies. Accordingly, the international exchange of knowledge and experience carried out by other departments as part of their departmental research, for example in the fields of agricultural, energy, defence or healthcare policy is not discussed. The strategy limits itself to referring to the existing interfaces in international cooperation between the ERI sector and other policy areas and to the harmonisation and coordination measures in accordance with Switzerland's foreign policy principles.⁴ The numerous activities carried out transnationally by Switzerland's public and private actors in education, research and innovation, which do not fall under the responsibility of the Confederation, are mentioned, but not described in detail in view of their autonomy.

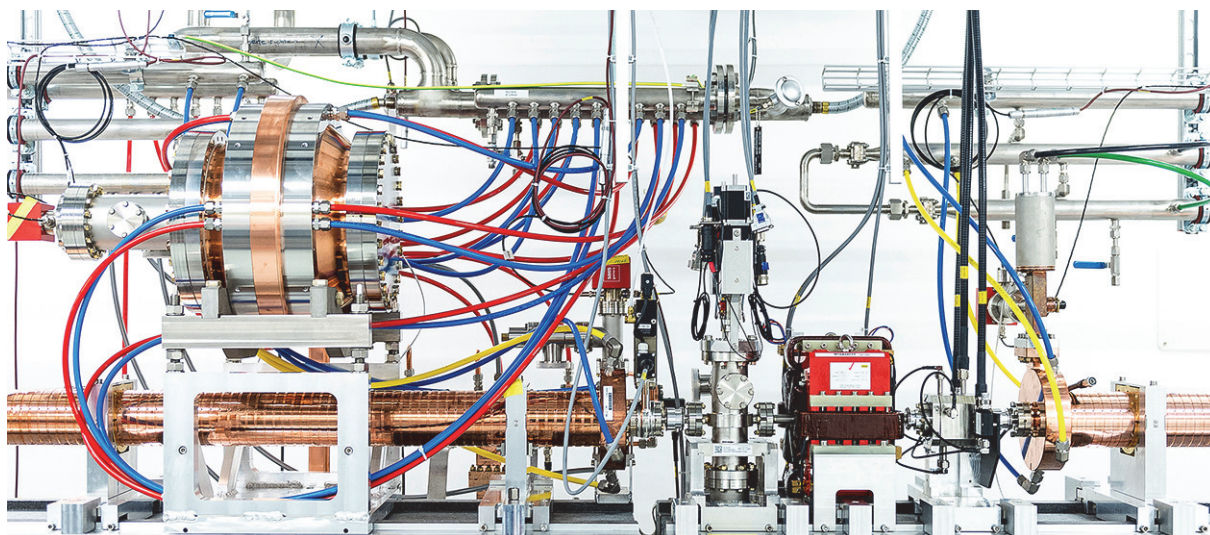
The strategy highlights the increasing importance of ERI activities for Switzerland's foreign policy and the improvement of the visibility of these activities abroad. Examples of this are the campaigns and events organised or co-financed by Presence Switzerland, the organisational unit of the Federal Department of Foreign Affairs (FDFA) responsible for communication abroad, featuring ERI topics to promote Switzerland's image and nation branding; the use of ERI instruments for development cooperation; or Switzerland's participation in international organisations and supranational bodies⁵ and the ERI topics they deal with. Education, research and innovation are also increasingly defining elements of Switzerland's image and positioning in international relations. The strategy draws particular attention to the FDFA-operated network abroad, the affiliated swissnex network⁶ and the locally provided services for cross-border networking of Swiss ERI actors.

This strategy has an open time frame, articulated around the four-year *dispatches on the promotion of education, research and innovation*, in which the Federal Council sets out the general principle for ERI policy, takes stock, sets priorities for content and formulates measurable individual objectives, and requests the necessary funds from Parliament. With *Switzerland's International Strategy for Education, Research and Innovation*, the Federal Council aims to create a common understanding and reference framework for the cross-border promotion of education, research and innovation. The vision developed for this purpose and the guiding principles and objectives derived from it should facilitate anchoring the success of Switzerland's ERI sector at the cross-section of the national and global environment.

⁴ See annex 1.4

⁵ UN, UNESCO, OECD, Council of Europe, CERN, Arctic Council, Alianza del Pacífico, Asia-Europe Meeting (ASEM), Synchrotron-Light for Experimental Science and Applications in the Middle East (SESAME), etc.

⁶ For swissnex see chapter 4.5.



2 Vision, principles and challenges

Switzerland is one of the world's leading countries in terms of per-capita income and economic performance. This success can be particularly attributed to the very high performance and competitiveness of Swiss ERI actors⁷ by international comparison. Only within the framework of a democratically secured ERI policy which focusses on excellence and takes into consideration both the national and international dimensions in a coherent and complementary way, can these strengths be consolidated and further developed.

2.1 Vision

Switzerland continues to occupy a globally leading position in education, research and innovation. Key factors for implementing this vision include committed and internationally active ERI actors and the required framework conditions as well as financial resources.

Swiss ERI actors rise to the international challenges emerging from the tension between competition and cooperation. Through that, they strengthen their ability and willingness to learn, to conduct research, and to innovate and be creative. They promote the exchange of ideas and contribute to the development of solutions to global problems.

2.2 Principles

In terms of Switzerland's ERI policy, the following principles apply to both the national and international context:

- Education, research and innovation cannot be prescribed top-down. Recognising novelties and constructively dealing with them is a task that needs to be carried out bottom-up by ERI actors themselves.
- The guiding principles of ERI policy are the promotion of self-responsibility, excellence and creativity, as well as the ability to compete and innovate. Federal funding, which is largely allocated competitively, is awarded based on the criteria of efficiency and effectiveness.

⁷ The term 'ERI actor' used in this strategy encompasses individuals as well as institutions, associations and groups.

- Actors in the fields of higher education, research and innovation act autonomously. They enjoy the trust of their sponsors and are accountable to them in terms of whether they achieve their objectives and how they use the available funds.
- ERI policy is orientated towards long-term goals and relies on predictable financing. It contributes to the promotion of sustainable development and to the implementation of the 2030 Agenda.
- Transnational mobility, as a means to avoid self-referencing, to create competition, and to increase competitiveness as well as the ability to learn, is a basic prerequisite for strengthening the ERI sector.
- ERI cooperation with other countries is generally conducted in accordance with constitutional and statutory responsibilities. Activities, as carried out by the individual actors, are clearly distinguishable from each other in terms of their function and objectives. At the same time, they complement each other, depending on the context.

2.3 Challenges

The OECD's 2017 country report finds that "Switzerland uses its human resources better than most other OECD countries."⁸ The report also states that Switzerland should not rest on its laurels. The following facts must be pointed out:

2.3.1 Securing top positions – optimising strengths

General education and vocational education and training are equivalent components of the Swiss education system. They both have their own special features and are highly permeable. The above-average proportion of young people who opt for vocational and professional education and training (VPET) programmes is an expression of the attractiveness of a high-quality, hands-on and market-oriented VPET. VPET also makes a significant contribution to professional integration and low youth unemployment. The success of VPET hinges on the high-standard of compulsory public schooling in Switzerland, which provides children and young people with the basic skills they need for their professional future. It should also be emphasised that in Switzerland the training of apprentices in companies does not require financial support from the state, as companies know how to productively employ young people. The Swiss VPET system is convincing not only as a training model, but also as a financial model. It is met with great interest worldwide.

In several respects, Switzerland's higher education sector stands out as being highly competitive on a global scale: More than half of the people enrolled at a Swiss tier-one university study at an institution which, according to the Shanghai Ranking, ranks among the world's 100 top universities.⁹ Within the OECD, Switzerland is also the country with the highest proportion of doctoral degree holders. In addition, both the teaching staff and the doctoral students at Swiss tier-one universities have a very international background. Graduates from all types of higher education institutions are highly sought after on the

⁸ OECD: Economic Survey of Switzerland 2017, p. 44.

⁹ www.shanghairanking.com/ARWU2017.html. See also Figure 2 in annex 2.

labour market. The link between increasing numbers of degree holders and unemployment as observed in other countries does not occur in Switzerland.¹⁰

Switzerland also occupies a globally leading position in research and innovation. Decisive factors for this include strong private sector investment,¹¹ high level competitive research funding, the high standing and long tradition of independent basic and applied research as initiated by science actors themselves, the consistent promotion of excellence, and the establishment and continuous development of globally competitive research infrastructures, data networks and centres. Additionally, the promotion of innovations which are initiated by research institutions, businesses and start-ups is a key factor, as they are committed to the objectives of market development, diversification and sustainable growth. As a result, Switzerland often ranks as the most innovative country in the world.¹²

Promoting education, research and innovation is a long-term process that must be continuously optimised. While the Swiss ERI system has a solid foundation, is closely networked and internationally strongly positioned, continuing to broadly support, strengthen and secure its inherent dynamism for the future is an ongoing task, particularly in view of the fundamental changes being witnessed in the early 21st century.

2.3.2 New forces – new dimensions – new horizons

Change is nothing new. What is new, however, is that changes are currently taking place at such a rapid pace and are having a deep and widespread global impact. People, ideas, goods, services and capital are more mobile than ever before; space and time are continuously being compressed.

Major challenges such as climate change, migration and the management of increasingly scarce resources are global in nature. The international community faces persistent problems such as hunger, extreme poverty, illiteracy and many kinds of gender, social economic and cultural discrimination. In addition, there are unresolved issues involving demographic development,¹³ public and private debt and ensuring sustainable financing of social systems. Additionally, devastating consequences of natural disasters, pandemics, recent intergovernmental and domestic conflicts and terrorism also have a global impact.

The changes resulting from globalisation are exemplified by digitalisation.¹⁴ Education, research and innovation actors face the task of embracing their roles as digital agents, of strengthening their own position, of raising awareness of digitalisation within society and the economy and of enabling them to

¹⁰ www.bfs.admin.ch/bfs/fr/home/statistiques/education-science.gnpdetail.2018-0031.html.

¹¹ In 2015, private sector expenditure in Switzerland amounted to CHF15.7 billion. Another example is the Swiss Entrepreneurs Foundation established in July 2017. Its aim is to raise a private fund of CHF 500 million in venture capital to support Swiss start-ups and thus contribute to the development of a 'start-up culture' in the country by improving the framework conditions for young entrepreneurs. Around fifteen banks, insurance companies and organisations belong to the foundation. See also Figure 1 in chapter 7.

¹² European Innovation Scoreboard, Global Innovation Index, Global Competitiveness Report (World Economic Forum).

¹³ While some countries are confronted with ageing societies and declining populations, others are experiencing high population growth and a rapidly growing young population.

¹⁴ The following comments are extracted from a report by EAER on digitalisation for education and research in Switzerland. See SERI, Challenges of Digitalisation for Education and Research in Switzerland, July 2017.

best use their innovation impulses. This should help Switzerland become one of the world's leading digital states.

While information and communication technologies were initially used to automate repetitive business and production processes, the world is currently undergoing a transformation that can best be described as the 'digitalisation of everything'. In the future, activities and areas not affected by digitalisation will probably only exist to a very limited extent.

In the ERI sector, digitalisation opens up the possibility of new opportunities, such as generating and more quickly processing data on a previously unachieved scale. This leads to the development of new occupations, new learning and teaching methods, new fields of research, new insights and new fields of application. In addition, digitalisation opens up new avenues for cost-effective, immediate, cross-border and cross-cultural communication. It provides all ERI sectors with the opportunity to optimise the provision of day-to-day activities, to lower barriers to education and to access research findings and to identify and exploit new value creation potentials. With this however, new problems such as fighting abuses and cybercrimes must be addressed. In turn, this will also lead to an increased demand for know-how based on high-quality education and research.

2.3.3 Locating potential – identifying risks

On the one hand, there are highly promising prospects opening up for the ERI sector. Potential opportunities include personalised disease management and the prognostic assessment of health risks to improve the quality and efficiency of clinical medicine and thus the healthcare system; or the possibility of conducting data-supported transdisciplinary research into the interactions between individual sustainability goals, thus optimising the implementation of the Agenda 2030. On the other hand, there are constraints that risk narrowing the scope for action. It is already acknowledged, for example, that education and research require significant funding, and that the amount of funding required will continue to grow in the medium and long term. Reasons for this include the necessary expansion of research infrastructure¹⁵, increased international competition, and scenarios based on an increasing number of students and people in continuing education and training.¹⁶ At the same time, calls for more public funding for other areas such as healthcare, pension and social welfare, national defence and migration and refugee policy are also on the rise.

The continuity-focused ERI funding policy is also confronted with the fact that established international cooperation efforts are being called into question, such as in the case of the UK's withdrawal from the EU. Here, the continuing divergences in Switzerland's relations with the EU should also be mentioned.¹⁷ The resulting uncertainties are difficult to estimate reliably and can have adverse effects on the ERI sector.¹⁸ This makes it all the more important to recognise emerging developments early on, to correctly assess them and, if necessary, to act quickly and flexibly.

¹⁵ SERI, Swiss Roadmap for Research Infrastructures in view of the 2017–2020 ERI Dispatch.

¹⁶ www.bfs.admin.ch/bfs/fr/home/statistiques/education-science/scenarios-systeme-formation/hautes-ecoles-etudiants.html.

¹⁷ Federal Council Policy Report 2017, p. 17.

¹⁸ SERI, Swiss Participation in European Research Framework Programmes – Facts and Figures 2015, p. 8.



3 Guidelines and objectives

The objectives are grouped along two guidelines. Their focus is on (A) the optimal framework conditions for the development of ERI actors' own initiatives and (B) the attractiveness of Switzerland as an ERI location. The strategy assumes that digitalisation as such and the new instruments it brings with it are integral components in implementing *all* the subsequently formulated objectives.

Guideline A: Continuous creation of optimal framework conditions for Swiss ERI actors to freely engage in international activities

Objective 1: Infrastructures, programmes and services abroad are open to Swiss actors and help them to safeguard and improve the quality of their own services.

Through participating in and co-financing of organisations, institutions and programmes abroad, the Confederation enables Swiss ERI actors to make use of the infrastructures, funding instruments and services available to them at their own initiative, either as bidders, or as lead or participating partners.

Objective 2: Switzerland makes use of the available opportunities for the cross-border promotion of young professionals and scientists. It promotes transnational research and learning mobility as well as the international recognition of Swiss educational qualifications and extracurricular practical experiences.

In order to be able to gauge their performance against the world's best in their field, talented individuals should have the opportunity to take part in international exchanges. Cooperation and competitions, carried out in partnership with industry and society, are a firmly established way of promoting young professionals and young scientists and for promoting research and learning mobility in general, whether it is within Switzerland itself, from Switzerland to other countries, or from other countries to Switzerland. Transparency and international comprehension ensure that Swiss educational qualifications and experiences on the labour market are internationally comparable.

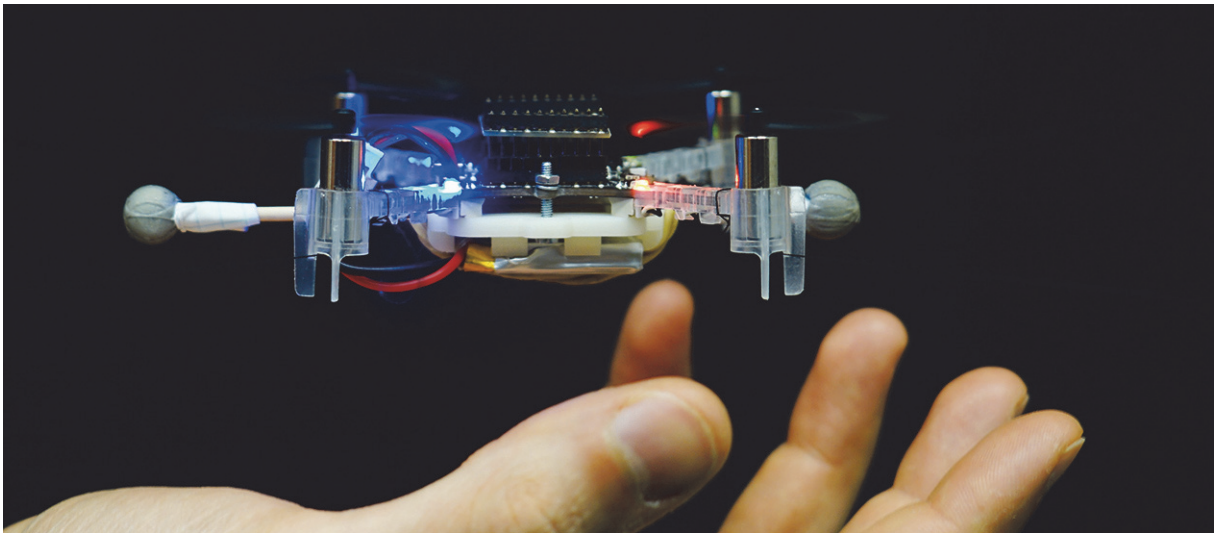
Guideline B: Strengthening Switzerland's international attractiveness as one of the world's leading countries in education, research and innovation
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Objective 3: Switzerland is and will remain a high-quality focused, globally renowned and competitive location for education, research and innovation. The Swiss ERI system knows how to assess the relevance of nascent global trends and how to proactively use them.

The fact that people choose to come to Switzerland for training, education and research both demonstrates and strengthens the quality of our educational and research institutions. As a result society and the economy gain competent and responsible specialists and managers who are familiar with Switzerland and who help to promote international understanding for our country and the features of our education system: a system that is based on labour market-oriented and cost-effective vocational education and training and public schooling with strong local roots which enjoys broad social acceptance. The Swiss ERI sector attracts world-class talent and is characterised by the necessary openness and the ability to early on recognise new ideas and valorise them as a knowledge advantage.

Objective 4: Switzerland is globally perceived as an attractive location for high-quality research institutions and innovation-based companies.

The main pillars for maintaining the innovative capacity of companies are an education and research system geared towards effectiveness and efficiency; a dynamic science community with strong ties with the private sector; being a world leader in protecting intellectual property; and offering equivalent practice-oriented vocational education and general education paths. By promoting autonomous cooperation between science and industry, the Confederation contributes to safeguarding Switzerland's international attractiveness as a location for excellence in innovation, thereby creating jobs.



4 Implementation

The following explanations show how the present strategy will be implemented. This section provides a summary grouped by subject area.¹⁹ Activities that are predominantly carried out autonomously by individual ERI actors, such as higher education institutions, are covered in the annex 2.

4.1 Cross-border mobility in the ERI sector

Mobility in education, research and innovation beyond our own borders includes a broad spectrum of diverse activities and exchanges worldwide. The main goals are to acquire and transfer knowledge and skills, to reflect on and question existing knowledge in an interdisciplinary manner and to support young scientists and professionals. This involves fostering both cooperation and competition among individuals, teams, networks and institutions.

Individual mobility

Professional, methodical and linguistic competencies acquired abroad will continue to gain in importance. It is therefore important to have a broad range of funding opportunities for people who study, train or conduct research abroad. The focus needs to be global in nature and must increasingly be broadened to include North and South America, Africa and Asia.

As far as Europe is concerned, the European Union offers a broad range of periodically redefined mobility instruments for ERI actors. The aim is to be able to participate in the corresponding exchange and mobility activities.²⁰

¹⁹ Individual mention of all the activities involved in implementing this strategy would go beyond the scope of a strategic view. This chapter therefore provides a summary grouping according to subject areas. More detailed information can be found in the annexes (chapter 6-10). ERI dispatches respect systematic lists according to a legal basis and the quantification of objectives and resources.

²⁰ Similar to Switzerland's participation in the EU's research framework programmes, Switzerland's participation in the EU's education programmes also offers various decision options, which need to be politically assessed both from technical and financial perspectives.

Beyond the EU framework, the Bologna Process²¹ which led to the creation of the European Higher Education Area takes on an important role. As one of the initial signatory states, Switzerland is actively involved in shaping and developing it.

Global exchange possibilities and the resulting opportunities need to be explored and used in a targeted manner. These include the support for Swiss delegations to take part in international professional competitions, or the intergovernmental dialogues held at the Asia-Europe Meetings (ASEM), which also aim to deepen relationships between Asia and Europe in the higher education and research sectors.

Recognition of professional qualifications

Internationally mobile professionals and apprentices from Switzerland rely on their qualifications being comprehensible, comparable and accepted abroad, be it for a job or further training.²² The main instrument is Switzerland's participation in the EU's system of mutual recognition of professional qualifications under the Agreement on the Free Movement of Persons. The rules on recognition must continue to evolve and ensure a certain degree of parallelism to the legal situation in the EU. Agreements on the mutual recognition of professional qualifications should be extended to countries with similar educational systems. Information systems such as the National Qualifications Framework (NQF), which are intended to help improve the comparability of Swiss qualifications in Europe, also serve that purpose.

Promotion of young scientists – Scholarships for foreign students

Promoting young scientists is one of Switzerland's ERI policy's priorities. Swiss talents selected according to the criteria of excellence should have the opportunity to mix with and measure themselves against the best in their field worldwide, take part in competitions, or spend time abroad at internationally renowned centres of excellence. To this end, the Confederation provides subsidiary support to funding organisations, institutions and networks.

Swiss Government Excellence Scholarships awarded to foreign nationals are open to all states with which Switzerland maintains diplomatic relationships, with the offer for industrialised countries being determined on a reciprocal basis. The scholarships are primarily designed for young postgraduate researchers with the aim of establishing long-term scientific cooperation.

4.2 International cooperation in education and vocational education and training

In order to structure cooperation with member and partner states, the EU produced the strategic framework for European cooperation in the field of general education and vocational education and training ET 2020 in 2009, and formulated proposals to establish a European Education Area by 2025 in 2017²³. Switzerland contributes to these efforts wherever possible. It can also give targeted support to

²¹ In addition to the Bologna Process, agreements on academic recognition exist, such as the Lisbon Convention of 11 April 1997 on the Recognition of Qualifications concerning Higher Education in the European Region and bilateral agreements with neighbouring countries.

²² Conversely, Switzerland is also dependent on highly qualified workers from abroad.

²³ European Commission. Press release of 14 November 2017.

bottom-up initiatives launched by Swiss ERI actors to promote cross-border educational cooperation or partnerships.

International Cooperation in Vocational and Professional Education and Training (IC-VPET) is part of several sectoral policies such as international development cooperation and, according to the needs, migration policy and general foreign policy.²⁴

The priorities of ERI policy focus on promoting the cosmopolitan character of Swiss vocational education and training, on raising its profile abroad and on facilitating the international exchange of knowledge and experience, as showcased by the International Congress on Vocational and Professional Education and Training held since 2014. This is achieved, in particular, through contacts with other countries with a dual-track vocational education and training system, especially Germany, Austria and Liechtenstein.²⁵ In vocational education and training cooperation projects with other countries, Switzerland ensures that no contradictions with the objectives of its own education system arise.²⁶

4.3 International research cooperation

Federal research funding, primarily provided through the Swiss National Science Foundation, specifically supports and accompanies the internationalisation efforts of Switzerland as a research location. Switzerland's international cooperation in the field of research is indispensable where problems have to be tackled on a global scale and where an exchange of knowledge with foreign actors is therefore imperative, or where the critical national size, the natural or climatic conditions for specific research purposes are lacking. In addition, the costs of setting up and operating large-scale research infrastructures are currently so high that they cannot be carried by one state alone, and require the know-how provided by world's leading specialists.²⁷

The EU Framework Programmes for Research and Innovation (FPs) are also essential. Horizon 2020, the 8th EU Framework Programme, is currently the world's largest research and innovation funding instrument. In particular, the FPs issue international calls for proposals, support cooperation projects with partners from higher education institutions and industry and support outstanding individual researchers.

In addition, Switzerland's lasting and successful research cooperation is structured through its participation in various international organisations. Switzerland's participation in international research organisations and infrastructures is based on the broad-based interest of relevant national scientific communities. Switzerland hosts CERN, one of the world's largest and most renowned research infrastructures. This not only enhances Switzerland's reputation, but also brings along economic

²⁴ The resulting, partly different objectives and their weighting are transparently presented and coordinated within the framework of interdepartmentally regulated coordination. See SERI, SECO, SPS, SDC, DEA, FOM, Strategy Paper on International Cooperation in Vocational and Professional Education and Training 2014 (IC-VPET) (available in German and French), and chapter 1.4 of this Strategy.

²⁵ Cooperation between Germany, Austria, Switzerland and Liechtenstein in this area is subsumed under the term DACHL cooperation (DACHL is the German acronym of the combined first letters of the German names of Germany, Austria, Switzerland and Liechtenstein).

²⁶ In the case of industrialised countries, cooperation only takes place with the aim of establishing a corresponding equivalence between the qualifications obtained through dual-track education and those obtained in full schooling.

²⁷ Research funded by public development and cooperation is geared towards the long-term goals and priorities of global sustainable development for all. One example is the 'Swiss Programme for Research on Global Issues for Development' of the SDC and the SNSF (www.r4d.ch). See annex 1.4.1.

benefits. This is one of the reasons why Switzerland must continue to consider any opportunity to take part in similar efforts made by other countries.

4.4 International innovation cooperation

Proven multilateral instruments are also available for cross-border innovation cooperation to promote market driven industrial research and development. One of the most important instruments are the FPs which are centrally managed by the EU. In addition, Swiss companies and research institutions can participate in the EUREKA initiative, which is jointly managed by more than 40 countries and the EU. In the future and in addition to SERI, Innosuisse will be increasingly active internationally.

4.5 International networking of ERI actors

Bilateral research programmes at state level

The launch of bilateral research cooperation programmes aims to support the diversification of international partnerships and to provide instruments for cooperation. This should facilitate the emergence of new partnerships of excellence with scientifically promising countries or regions. The programmes aim to reduce obstacles to cooperation, such as those resulting from different ERI funding systems, cultural or linguistic communication problems or geographical distance. The instruments can be used to facilitate exchange between national funding agencies or to support Swiss institutes of Higher Education in their internationalisation efforts. They also contribute to increasing Switzerland's international attractiveness.

swissnex network

swissnex is the Swiss global network connecting the dots in education, research and innovation. The swissnex network is an initiative of the State Secretariat for Education, Research and Innovation and is part of the Confederation's network abroad managed by the Federal Department of Foreign Affairs (FDFA). The activities of the swissnex network are based on a cooperative approach and on public and private partnerships and financing.

The swissnex network allows Swiss ERI actors to efficiently pool their strengths in their international networking efforts and commitment to the global exchange of knowledge, ideas and talents. Switzerland has a long tradition of linking its policy of scientific cooperation to its diplomatic relations with its partner countries. The assignment of science counsellors to strategically important countries gives Switzerland privileged access to local information and networks.

Over the years, the swissnex network was strategically expanded but maintained its dynamism and flexibility while taking on various shapes in order to adapt to the possibilities of bilateral cooperation.²⁸ The current five swissnex locations and their outposts are established in some of the world's most innovative hubs outside Europe. Together with the science counsellors based in Swiss Embassies, they network and advise the Swiss ERI actors, thereby also strengthening Switzerland's profile as a world-leading hotspot for innovation and knowledge.

²⁸ See SERI: A roadmap for the further development of the swissnex network, 2015.

4.6 Space affairs

Space exploration and space travel are integral parts of Switzerland's ERI policy. Our country can only participate in space projects at an international level. The federal institutes of technology, cantonal universities and universities of applied sciences are all strongly involved in international scientific space programmes, which in turn contribute to maintaining and further enhancing Switzerland's quality as a science location. In a digitised society, satellite data is increasingly important. Participation in space programmes opens up a wide range of innovation opportunities for Swiss industry in the high-tech sector and in the development of innovative user applications. Switzerland's participation in the European Space Agency (ESA), which covers the entire spectrum of civilian space activities, including research and development for space, plays a key role here.

4.7 International organisations with ERI-related responsibilities

Switzerland has the possibility to apply its ERI know-how in order to participate in transnational activities run by international organisations such as the UN, UNESCO, the OECD and the Council of Europe. Its involvement is based on solidarity and a transnational sense of responsibility, as well as a desire to protect its own interests. Examples include Switzerland's active involvement in the development and implementation of the UN's 2030 Agenda, its participation in the OECD's *PISA* programme to measure and compare competencies acquired in compulsory education, and its key role in co-initiating the 2010 Council of Europe Charter on Education for Democratic Citizenship and Human Rights Education.²⁹

²⁹ Council of Europe Charter on Education for Democratic Citizenship and Human Rights Education, 2010.

Annex

1 Actors and responsibilities

Switzerland's ERI policy is based on close cooperation with a large number of political, economic, scientific and civil society actors. Coherence and complementarity in the interaction of individual forces are ensured within the framework of the constitutional and legal allocation of individual responsibilities. The individual actors play a key role in this. As mentioned above, the term actor includes individuals as well as institutions, associations, networks and groups.

The explanations are grouped as follows: First, there are brief descriptions of the most important actors in the fields of education, higher education, research and innovation. Then there are outlines of the authorities active in the ERI sector and their responsibilities. This is then followed by an overview of existing cooperation arrangements with foreign and international partners. Links to the websites of the players mentioned below can be found in the annex (chapter 9).

1.1 Education

1.1.1 Skills development

Professional organisations

Vocational and professional education and training is a joint task of the Confederation, the cantons and professional organisations, which work together as partners to deliver high quality vocational education and training and which strive to create a sufficient number of apprenticeship positions and courses. Professional organisations (trade associations, industry associations, social partners and companies) also contribute to international cooperation in vocational education and training (IC-VET) and pool their different types of expertise within the framework of IC-VET projects.³⁰

Swiss Federal Institute for Vocational Education and Training (SFIVET)

As a specialist organisation and the Confederation's centre of expertise for VET research, SFIVET trains those responsible for vocational education and training, supports vocational reforms and developments and conducts research on VET. It provides transversal support for the federal IC-VET strategy and activities. It contributes methodological, didactic and scientific expertise to cooperation activities, presents the Swiss VET system at international conferences and receives foreign delegations and experts.

SwissSkills Foundation

The aim of the SwissSkills Foundation is to promote the attractiveness and international competitiveness of apprenticeship training by taking part in international competitions. It also supports and advises the associations in organising Swiss championships. In addition, the Foundation aims to inform the public about the competitions and helps boosting the visibility of VET programmes.

³⁰ Some Swiss companies train apprentices in their foreign branches, and provide the opportunity for Swiss apprentices to spend part of their training abroad. In this way, they provide bottom up support to promoting the attractiveness of VET programmes in Switzerland and their acceptance abroad.

1.1.2 Mobility

In jointly sponsoring the Swiss Foundation for the Promotion of Exchanges and Mobility (SFAM) and its promotion agency Movetia, the Confederation and the cantons have created an instrument to reinforce exchange and mobility programmes. They share a coordination tool allowing them to combine their strengths to promote exchange and mobility activities. The Foundation covers a wide range of services. It supports exchange projects on behalf of the Confederation and offers information, advice and support for exchange activities.

Cooperation with third parties is also a key factor for the success of this strategy, which hinges on the involvement of the concerned actors – young people, teachers, school administrators, parents, companies and their organisations – who directly participate in exchange activities of the Confederation and the cantons or their funding agencies. It is, however, also important to coordinate with actors who operate as providers, intermediaries, sponsors or promoters of exchange and mobility, such as youth organisations, associations and foundations. The Confederation and the cantons regard these actors as partners and take them into account accordingly. Their commitment is also decisive in ensuring that exchange and mobility become a natural part of education, work, leisure and culture and create benefits.

1.2 Higher education sector

Higher education institutions

The Swiss higher education institutions (ETHZ and EPFL, cantonal universities, universities of applied sciences, universities of teacher education or other institutions within the higher education sector) have all developed their own international strategies within the framework of their autonomy and are continually putting them into practice. International cooperation, exchange and mobility are also priorities in their respective strategic planning.

swissuniversities

swissuniversities is the central academic body which supports coordination and cooperation among Swiss higher education institutions at the national and international level. They are represented by their rectors or presidents. In addition, swissuniversities assumes coordination tasks and can act on an international level on behalf of all tier-one universities, universities of applied sciences and universities of teacher education in Switzerland. The individual institutions are internationally active on their own responsibility within the framework of their autonomy. swissuniversities has extensive rights of participation when the Federal Council concludes international treaties relevant to higher education in the fields of international cooperation, promotion of international mobility and participation in international support programmes and projects.³¹

Swiss Conference of Higher Education Institutions (SHK)

The SHK is the highest policymaking body within the Swiss higher education sector of the Confederation and the cantons. It is responsible for nation-wide coordination of the Confederation's and the cantons' activities within the higher education sector, and is headed by the responsible member of the Federal Council. Within the framework of their cooperation, the Confederation and the cantons pursue common

³¹ See. Art. 66 Higher Education Act in conjunction with Art. 9 of the Cooperation Agreement between the Confederation and Cantons: Prior rights to information, rights to be heard prior to the commencement of negotiations and the involvement of representatives in the preparation of negotiating mandates and for the negotiations.

objectives, such as the creation of general conditions that favour high-quality teaching and research, the promotion of permeability and mobility between higher education institutions and the crafting of a coherent Swiss higher education policy that is aligned with federal policy to encourage research and innovation. The SHK also has extensive participation rights when the Federal Council concludes international treaties relevant to higher education in the fields of international cooperation, promotion of international mobility and participation in international support programmes and projects.³²

ETH Board

The ETH Board is the strategic management and supervisory body of the entire ETH Domain. It defines the strategy of the ETH Domain within the framework of the strategic objectives of the Federal Council; it represents the ETH Domain in dealings with federal policy and authorities; it issues rules and regulations on the financial control process and it carries out on the strategic level; it approves the development plans of the research institutes within the ETH Domain and monitors their implementation; and it supervises the ETH Domain. It concludes agreements with the ETHZ and the EPFL and the four affiliated research institutes³³ and allocates federal funds based on the budget applications of the institutions. Within the framework of their autonomy, the six institutions are internationally active on their own responsibility.

1.3 Research and innovation

Swiss National Science Foundation (SNSF)

Along with Innosuisse, the SNSF is the most important federal funding body in the ERI sector. Its main task is to promote scientific research in all disciplines through basic research initiated by the science community. The SNSF's strategy is mainly focused on the following objectives:

- Supporting high-quality research and researchers in their quest for excellence
- Aligning research funding to the needs of researchers
- Supporting the development of the generated knowledge in society, economy and politics and showcasing the value of research.

The SNSF strives to facilitate and promote the international integration of the Swiss research community. To do so, it offers a number of funding instruments. At the international level, the SNSF plays an active role in initiatives and organisations that serve to promote scientific cooperation and improve the framework conditions for research, including through increased direct cooperation among sister organisations.

Innosuisse

Innosuisse is the federal centre of excellence tasked with promoting knowledge-based innovation in the interest of the economy and society, with a focus on the areas of R&D Project Funding, Start-up and Entrepreneurship, and Knowledge and Technology Transfer. It is responsible for the implementation of the European programmes EUREKA, AAL and ERA-NET and the management of Enterprise Europe Network (EEN). In addition, it maintains bilateral cooperation agreements, currently with Japan and

³² Ditto.

³³ Federal institute of technology of Zürich ETHZ, Federal institute of technology of Lausanne EPFL, Swiss Federal Institute of Aquatic Science and Technology Eawag, Swiss Federal Institute for Forest, Snow and Landscape Research WSL, Swiss Federal Laboratories for Materials Science and Technology Empa, Paul Scherrer Institute PSI.

Korea, and supports start-ups in their internationalisation strategy by facilitating short stays in markets of interest. The aim of this international cooperation is to strengthen the innovative power of Swiss companies. In view of the new legal foundation that came into force on 1 January 2018, Innosuisse will develop its own strategy to expand its international activities.

Swiss Academies of Arts and Sciences

The Swiss Academies of Arts and Sciences are an association of academies in the fields of natural sciences, humanities, social sciences, medicine and technology, and of two foundations serving as competence centres for technology assessment. The association of academies is anchored in the scientific community through a large number of committees and companies across institutions and disciplines, letting its expertise flow into policy advice and dialogue with society. The association is also committed to promoting young scientists, primarily in the STEM disciplines (science, technology, engineering, mathematics). Internationally, the commitment of the academies is aimed at strengthening Switzerland as a location for science. Various networks and processes – particularly in Europe – are supported to provide scientific support for policy decisions of importance to Switzerland.

Swiss Innovation Park

The aim of the Swiss Innovation Park is to help secure and expand private research and development investments in Switzerland. Switzerland needs to have fully developed areas (properties and floor space) at its disposition in the vicinity of existing higher education institutions and companies to consolidate and increase its attractiveness for national and international research and development facilities.

Federal Institute of Intellectual Property (IPI)

The protection of intellectual property plays an important role in creating incentives for investments in research and development, particularly in promoting the exchange of ideas (e.g. in the form of technology transfer). The IPI is the central contact point of the Confederation³⁴ for all questions concerning patents, trademarks, geographical designations of origin, design protection and copyright. As the federal government's relevant centre of expertise, the IPI is committed to ensuring adequate protection of creative and innovative works at national and international level.

1.4 Authorities

1.4.1 The Confederation

Several federal offices are involved in drawing up and implementing Switzerland's ERI policy. The federal government's centre of expertise for national and international issues in education, research and innovation policy is SERI, which reports to the EAER. SERI works in close cooperation with other federal offices and the cantons, since cross-border activities related to education, research and education are part of other federal sectoral policies. These include areas such as health, migration, economy, energy, environment, youth, social affairs, culture, languages and equality.

³⁴ See the Federal Act on the Statute and Tasks of the IPI (in German, French and Italian): www.admin.ch/opc/de/classified-compilation/19950083/index.html.

The Federal Department of Foreign Affairs (FDFA) is responsible for safeguarding Switzerland's foreign interests within the framework of its constitutional mandate. To this end, it ensures that Switzerland's foreign policy is applied coherently in cooperation with other departments.³⁵

The exchange of information between different authorities and the measures required to ensure coherence are carried out, among others, by flexibly composed committees on specific topics, areas and levels, such as the interdepartmental coordination group for international skills development cooperation of the Confederation.

Science and technology play an increasingly important role in addressing global challenges (sustainable development, climate change, etc.). Switzerland's commitment in multilateral bodies for disarmament, non-proliferation and security policy focuses, among other things, on systematically considering the effects of new technologies. In addition, the excellence of Swiss science plays an important role in the platforms for reflection and debate on global governance, including platforms created with the support of the FDFA and various actors in 'International Geneva'.

The aim of science for diplomacy is to use international cooperation between scientists to initiate or improve intergovernmental political dialogues. The exchange on neutral and non-politicised issues can foster dialogue between actors who otherwise do not discuss political matters. Science thus serves as a bridge and instrument for strengthening trust. In this way, Swiss diplomacy can benefit from the excellence of Swiss science institutions, for example in fragile regional and political contexts such as the Middle East, or in areas of international strategic importance such as the Arctic.

Education, research and innovation are among the key priorities of Presence Switzerland (PRS), the administrative unit within the FDFA responsible for implementing the Federal Council's strategy on Switzerland's communication abroad. The ERI sector holds great potential for Switzerland's image; despite a high performance by international standards, the country's perception abroad is still hardly associated with it.

PRS works with public and private partners to strengthen the ERI sector's presence in international communication activities through the production of information platforms, communication activities in social media, support for communication activities in Switzerland or abroad, in particular in the representations or in collaboration with the swissnex network, or in the context of major international events (such as World Exhibitions or Olympic Games). The foundation for this is provided by this strategy and PRS's own strategy on Switzerland's communication abroad.³⁶

The Swiss Agency for Development and Cooperation (SDC) is the FDFA's agency for international cooperation. The SDC is responsible for the coordination of development cooperation and cooperation with Eastern Europe together with other federal offices, and for the humanitarian aid of Switzerland. The production of new findings and innovative solutions and the practical application of scientific knowledge,

³⁵ SR 172.211.1. Organisation Ordinance for the Federal Department of Foreign Affairs (OrgO-FDFA) of 20 April 2011. Last updated: 1 July 2018.

³⁶ Strategy on Switzerland's communication abroad for 2016–2019, www.eda.admin.ch/dam/eda/de/documents/das-eda/landeskommunikation/strategie-landeskommunikation-2016-2019_DE.pdf.

in a bid to reduce poverty and global risks, was made a key objective for research financed by public development cooperation funds.³⁷ The SDC continuously reviews its cooperation in this field to ensure support for innovative research.

Education is a thematic priority of Switzerland's *international cooperation*. As stated in the SDC's Education Strategy, this priority covers both basic education and vocational education and training. The SDC has many years of development cooperation experience in both areas. Its education strategy serves as a guideline for South cooperation, cooperation with Eastern Europe, global cooperation and humanitarian aid.³⁸

In addition, the State Secretariat for Economic Affairs (SECO) promotes skills in professional education and training and measures to improve working conditions in the countries concerned within the framework of international economic cooperation. The private sector plays a key role here. Existing activities are implemented bilaterally, or with multilateral implementation agencies in South cooperation. Fighting the shortage of skilled workers makes businesses more productive and competitive, ultimately contributing to more and better jobs. In addition, SECO, as an active member of the European Union's EURES network³⁹, supports cross-border mobility in general and that of young people in particular. SECO also exchanges information and best practices with public labour authorities of the European Union and members of the *World Association of Public Employment Services* in the field of professional (re-)integration as well as unemployment of young graduates of higher education.

Within the field of migration policy, cooperation with countries of origin and transit in the field of education is gaining in importance. The Interdepartmental Structure for International Cooperation on Migration (ICM Structure), in which the main actors in Swiss migration policy, particularly the State Secretariat for Migration (SEM), the FDFA and SECO are represented, coordinates Switzerland's activities in this framework.

As part of its health foreign policy⁴⁰, Switzerland is committed to strengthening the framework conditions for research in the field of global health. This includes coordinating and funding the research and development of remedies for diseases for which there are insufficient investment incentives; improving the coordination of fragmented research and development initiatives at international level; and promoting exchange platforms and research and teaching facilities in the healthcare sector.

Last but not least, the Federal Office of Culture (FOC) promotes Swiss schools abroad, which are designed to foster dialogue and exchange between different cultures and where courses are taught in one or more of the Swiss national languages and in the language of the host country.⁴¹ The teaching is based on Swiss curriculums and is supervised by a patron canton. The network of Swiss schools abroad not only plays a role in Switzerland's educational presence in host countries, but also in the mobility of

³⁷ SDC Policy Sector Development and Cooperation, Research Concept 2017–2020.

³⁸ The SDC's Education Strategy: Basic Education and Vocational Skills Development, 2017, p. 2.

³⁹ Labour mobility network coordinated by the EU's Directorate-General for Employment, Social Affairs and Inclusion.

⁴⁰ FOPH, Swiss Health Foreign Policy, 2016.

⁴¹ FOC, Development of the network of Swiss schools abroad, 2016 (in German, French and Italian).

teaching staff. By supporting these schools, the Confederation facilitates the employment of Swiss teachers at attractive conditions and also ensures knowledge transfer.

1.4.2 The cantons

The *cantons* participate in the preparation of foreign policy decisions that relate to their jurisdiction and affect their interests.⁴² The authority responsible for education policy is the Swiss Conference of Cantonal Ministers of Education (EDK), which coordinates the work of the cantons on education and culture at national level and represents them abroad.⁴³ Several cantons also carry out their own international education cooperation, such as the supervision of Swiss schools abroad (see also 1.4.1 above).⁴⁴

1.5 International organisations, programmes and initiatives

For the sake of clarity, cooperation partnerships with foreign and international actors are presented in tabular form. For information on the overarching principles of ERI cooperation with international organisations, see chapters 3 and 4.4.

⁴² SR 138.1. Federal Act on the Participation of the Cantons in the Foreign Policy of the Confederation. For information on the participation of the cantons in the framework of the Swiss Conference of Higher Education Institutions, see point 1.2.

⁴³ In accordance with Art. 61a Cst., the Confederation and the Cantons shall, within the scope of their powers, jointly ensure the high quality and accessibility of the Swiss Education Area. Coordination between the Confederation and the cantons in the area of cross-border education policy is carried out within the framework of education monitoring, which is jointly supported by the Confederation and the cantons and regulated by a cooperation agreement. The main function of the framework is the systematic and long-term procurement and preparation of information on the education system and its environment. The Swiss Education Report commissioned by the Confederation and the cantons and published every four years provides an evaluative overview covering all levels and areas of education.

⁴⁴ The FOC is responsible for the implementation of the Federal Act on the Provision of Swiss Education Abroad (Swiss Schools Act). Under the Swiss Schools Act, educational supervision of recognised Swiss schools is devolved to the patron cantons.

1.5.1 Large international research organisations

Organisation	Research area / purpose	Headquarters / location
European Organization for Nuclear Research (CERN) ⁴⁵	High energy and particle physics	Geneva
European Molecular Biology Conference (EMBC) ⁴⁶ / European Molecular Biology Laboratory (EMBL)	Promotion of molecular biology research in Europe	Heidelberg
European Space Agency (ESA) ⁴⁷	Space activities	Paris
European Southern Observatory (ESO) ⁴⁸	Terrestrial astronomy	Garching / Chile
European Synchrotron Radiation Facility (ESRF) ⁴⁹	Physics, molecular biology, materials science	Grenoble
European X-Ray Free-Electron Laser facility (XFEL) ⁵⁰	Physics, molecular biology, materials science	Hamburg
Institut Laue-Langevin (ILL)	Materials science, solid state physics, chemistry	Grenoble
European Spallation Source (ERIC)	Materials research and structure elucidation	Lund
International Thermonuclear Experimental Reactor (ITER)	Fusion research	Cadarache
Cherenkov Telescope Array (CTA)	Astroparticle physics	Bologna / Chile / Spain
ELIXIR	Bioinformatics	Infrastructure spread over several locations
Human Frontier Science Program (HFSP)	Interdisciplinary basic research in the life sciences	Strasbourg

⁴⁵ European Organization for Nuclear Research (CERN), <https://home.cern>.

⁴⁶ European Molecular Biology Conference (EMBC), <https://embc.embo.org>.

⁴⁷ European Space Agency (ESA), www.esa.int.

⁴⁸ European Southern Observatory (ESO), www.eso.org.

⁴⁹ European Synchrotron Radiation Facility (ESRF), www.esrf.eu.

⁵⁰ European X-Ray Free-Electron Laser facility (XFEL), www.xfel.eu.

1.5.2 Cross-thematic multilateral research and innovation programmes

Organisation / initiative	Research area / function	Location / headquarters
EU Framework Programme for Research and Innovation (Horizon 2020)	Promotion of research and innovation in all thematic areas in accordance with the principle of excellence. Promotion of collaborative projects, individuals, research infrastructures and other European R&I programmes (e.g. P2P and PPPs based on Articles 185 and 187, TFEU, see below). EU instrument for implementing EU policies in areas such as healthcare, environment, energy, transport, space and ICT.	Brussels
European Atomic Energy Community (EURATOM)	Research on the peaceful use of nuclear energy, as a supplement to Horizon 2020.	Brussels
EUREKA	Strengthening Europe's competitiveness. Promotion of cross-border cooperation between companies, research centres and higher education institutions.	Brussels
Cooperation in Science and Technology (COST)	European initiative to strengthen cooperation in science and technology with global participation.	Brussels

1.5.3 The EU's multilateral research and innovation programmes⁵¹

Organisation	Research area / purpose	Location / headquarters
European and Developing Countries Clinical Trials Partnership (EDCTP)	Fight against HIV / AIDS, Malaria, tuberculosis	The Hague / Cape Town
Ambient Assisted Living (AAL)	Cross-border innovation cooperation for an ageing society	Brussels
European Metrology Programme for Innovation and Research (EMPIR)	Promotion of science in the field of measurement and its application	Braunschweig
Eurostars	Promotion of cross-border innovation cooperation by research-intensive SMEs	Brussels
Innovative Medicines Initiative (IMI)	Health promotion in collaboration with the EFPIA (European Federation of Pharmaceutical Industries and Associations)	Brussels
Fuel Cell and Hydrogen (FCH)	Research on hydrogen as an energy carrier. Development of a competitive fuel cell and hydrogen industry	Brussels
Clean Sky CS2	Reduction of CO ₂ and noise emissions from aircraft	Brussels
Bio-Based Industries (BBI)	Efficient use of resources and reduction of CO ₂ emissions	Brussels
Electronic Components and Systems for European Leadership (ECSEL)	Research and innovation focused on advanced electronic components and systems	Brussels
Shift2Rail S2R	Promotion of research and innovation in the rail sector	Brussels
Single European Sky ATM Research (SESAR)	Uniformity and harmonisation of Air Traffic Management (ATM)	Brussels

⁵¹ Public-public partnerships in accordance with Art. 185 of the Treaty on the Functioning of the European Union (TFEU) and public-private partnerships in accordance with Art. 187 of the TFEU.

1.5.4 Cooperation with the European Commission

Several Directorates-General of the European Commission contribute to the development of ERI policies and programmes (research and innovation framework programmes,⁵² education, training and youth programmes, as well as Euratom and ITER):

Directorate-General for Research and Innovation

Directorate-General for Education, Youth, Sport and Culture

Directorate-General for Employment, Social Affairs and Inclusion

Directorate-General for Communications Networks, Content and Technology

Directorate-General for Energy

Directorate-General Joint Research Centre

Directorate-General for Neighbourhood Policy and Enlargement

1.5.5 Centres and initiative for the relevant sectoral and transdisciplinary promotion of scientific excellence

Istituto Svizzero di Roma (ISR) (Rome and Milan)

The Swiss-Liechtenstein Foundation for Archaeological Research Abroad (SLSA) (Switzerland, Liechtenstein Greece, Sudan and other locations)

European University Institute (EUI) (Florence)

Switzerland also supports the *Institutes for Advanced Study* abroad with the overriding goal of promoting scientific excellence and to provide lecturers from higher education institutions in Switzerland with the opportunity to spend one to two semesters abroad as part of a faculty exchange with the world's best in their field and other disciplines. These include the following institutions:

Wissenschaftskolleg zu Berlin

Center for Advanced Study, Sofia

Institut d'Etudes Avancées, Nantes

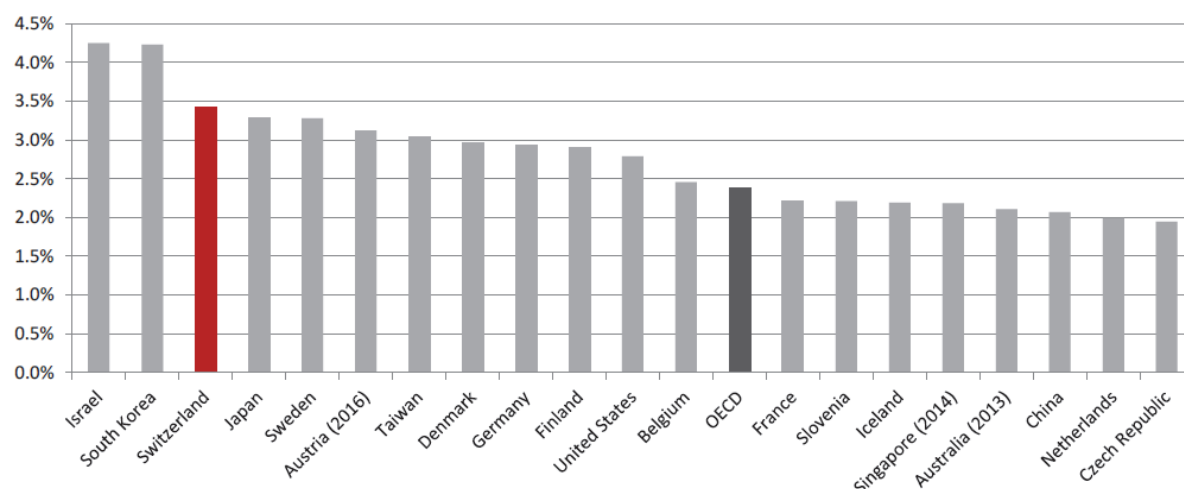
New Europe College, Bucharest

Fondation suisse à la Cité Internationale Universitaire de Paris

⁵² Several Directorates-General contribute to the development of the research and innovation framework programmes: Directorate-General for Energy, Directorate-General for Growth, Directorate-General for Health, Directorate-General for Mobility and Transport, Directorate-General for Agriculture and Rural Development.

2 Key figures for the ERI sector

Gross domestic R&D expenditure as % of GDP in 2015:



Source: Survey by OECD, Main Science and Technology Indicators Database, 2017.

Position of Swiss tier-one universities in international rankings:

	EPFL	ETHZ	Basel	Bern	Fribourg	Genève	Lausanne	Lugano	Neuchâtel	St. Gallen	Zürich
Shanghai Ranking 2017	76	19	95	101-150	401-500	60	151-200	601-700	601-700		58
QS Ranking 2019	22	7	160	139	601-650	188	149			375	78
Times Ranking 2018	38	10	95	105	201-250	130	152		401-500	401-500	136
Leiden Ranking 2018	17	18	57	174		75	84				56

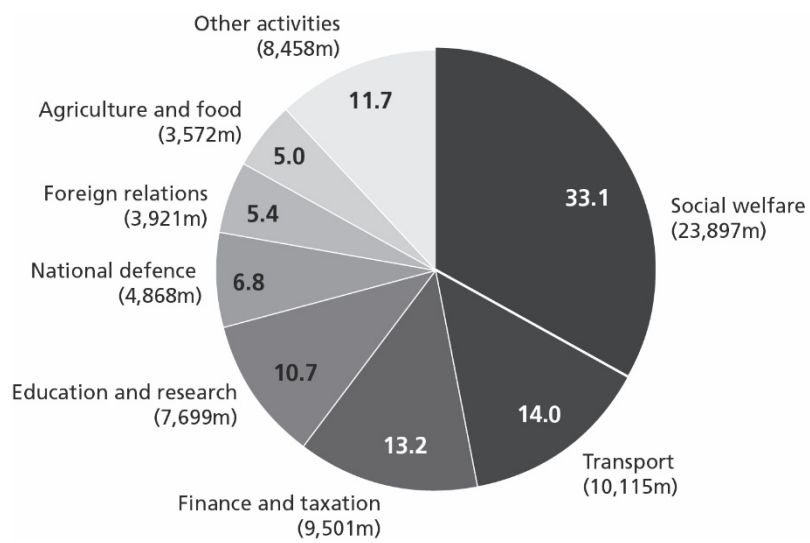
Source: www.universityrankings.ch/en/. The tier-one universities listed appear in at least one ranking.

Switzerland's position in the most important innovation rankings:

	European Innovation Scoreboard	Global Innovation Index	Innovation Report	Global Competitiveness
2017		1	1	1
2016		1	1	1
2015		1	1	1
2014		1	1	1

Source: own survey from European Innovation Scoreboard, Global Innovation Index and Global Competitiveness Report.

Federal expenditure by area of activity in 2018 according to the budget for 2018 (share in per cent)



Source: FFA (2017), Federal finances at a glance. Budget for 2018.

3 Bilateral agreements in the ERI sector

The following list contains only the formal bilateral agreements adopted by the Federal Council.

3.1 European Union and Alpine countries (in alphabetical order)

Partner	Title of the agreement	Date of signature
Austria	Agreement of 10 November 1993 between the Swiss Confederation and the Republic of Austria on the reciprocal recognition of equivalencies within the higher education sector (with exchange of grades)	10 November 1993 , entered into force on 1 October 1994
European Free Trade Association (EFTA)	Convention establishing the European Free Trade Association (Art. 22 Mutual recognition of professional qualifications and Annex K)	Adopted on 4 January, entered into force on 1 June 2002
European Union (EU)	Framework agreement on scientific and technological cooperation of 8 January 1986 between the Swiss Confederation and the European Communities	8 January 1986, entered into force on 17 July 1987
	Agreement on scientific and technological cooperation between the European Union and European Atomic Energy Community and the Swiss Confederation associating the Swiss Confederation to Horizon 2020 — the Framework Programme for Research and Innovation and the Research and Training Programme of the European Atomic Energy Community complementing Horizon 2020, and regulating the Swiss Confederation's participation in the ITER activities carried out by Fusion for Energy	5 December 2014, applied provisionally from 15 September 2014, entered into force on 8 October 2015
	Agreement between the Swiss Confederation and the European Community and its Member States on the Free Movement of Persons (Annex III Mutual recognition of professional qualifications)	Adopted on 21 June 1999, entered into force on 1 June 2002
France	Exchange of letters between the Directorate-General of Cultural, Scientific and Technical Affairs of the Ministry of Foreign Affairs of the French Republic and the Federal Office for Education and Science of the Federal Department of Home Affairs of the Swiss Confederation	11 July 1984
	French-Swiss framework agreement ⁵³ on the recognition of diplomas between the Conference of University Presidents (CPU) and the Conference of Directors of French Engineering Schools (CDEFI), and the Rectors' Conference of the Swiss Universities (CRUS), the Rectors' Conference of Universities of Applied Sciences (KFH) and the Swiss Rectors' Conference of Universities of Teacher Education (COHEP)	Adopted and entered into force on 10 September 2008, effective from winter semester 2008/09

⁵³ Contracting parties to the framework agreement are the conferences of university rectors of both countries.

Germany	Agreement between Germany and Switzerland on the reciprocal recognition of examinations in manual occupations	1 December 1937, entered into force on 1 January 1938
	Agreement of 20 June 1994 between the Government of the Swiss Confederation and the Government of the Federal Republic of Germany on the reciprocal recognition of equivalencies within the higher education sector (with exchange of grades)	20 June 1994, entered into force on 1 July 1995
Italy	Agreement between Switzerland and Italy regarding the exercise of the profession of engineer and architect	Adopted on 5 May 1934, entered into force on 11 January 1938
	Agreement of 7 December 2000 between the Swiss Federal Council and the Government of the Republic of Italy on the reciprocal recognition of equivalencies within the higher education sector (with annexes)	7 December 2000, entered into force on 1 August 2001
	Agreement of 14 May 2003 between the Swiss Federal Council and the Government of the Republic of Italy on scientific and technological cooperation	14 May 2003, entered into force on 16 May 2006
Liechtenstein	Agreement of 30 October 2014 between the Swiss Federal Council and the Government of the Principality of Liechtenstein on the reciprocal recognition of VET diplomas and VET certificates for VET programmes	30 October 2014, entered into force on 1 January 2015
	Agreement of 11 November 2016 between the Swiss Federal Council and the Government of the Principality of Liechtenstein on the promotion of science-based innovation	11 November 2016, entered into force on 1 March 2017
Slovenia	Agreement of 2 March 2008 between the Swiss Federal Council and the Government of the Republic of Slovenia on scientific and technological cooperation	2 March 2008, entered into force on 22 May 2009

3.2 BRICS countries (in alphabetical order)

Land	Title	Date of signature
Brazil	Agreement of 29 September 2009 between the Swiss Federal Council and the Government of the Federative Republic of Brazil on scientific and technological cooperation	29 September 2009, entered into force on 15 June 2012
China	Agreement of 24 February 1989 between the Swiss Confederation and the People's Republic of China on scientific and technological cooperation	Adopted and entered into force on 24 February 1989
India	Agreement of 10 November 2003 between the Swiss Federal Council and the Government of the Republic of India on scientific and technological cooperation	10 November 2003, entered into force on 8 September 2004
Russia	Agreement of 17 December 2012 between the Swiss Federal Council and the Government of the Russian Federation on scientific and technological cooperation	17 December 2012, entered into force on 24 June 2013
South Africa	Agreement of 7 December 2007 between the Swiss Federal Council and the Government of the Republic of South Africa on scientific and technological cooperation	Adopted and entered into force on 7 December 2007

3.3 OECD countries (in alphabetical order)

Land	Title	Date of signature
Japan	Agreement of 10 July 2007 between the Swiss Federal Council and the Government of Japan on scientific and technological cooperation	Adopted and entered into force on 10 July 2007
South Korea	Agreement of 6 May 2008 between the Swiss Federal Council and the Government of the Republic of Korea on scientific and technological cooperation	6 May 2008, entered into force on 26 May 2008
USA	Agreement of 1 April 2009 between the Swiss Federal Council and the Government of the United States of America on scientific and technological cooperation	1 April 2009, entered into force on 24 July 2009

3.4 Other countries (in alphabetical order)

Land	Title	Date of signature
Côte d'Ivoire	Framework agreement for cooperation in scientific research between the Swiss Confederation and the Republic of Côte d'Ivoire	Adopted and entered into force on 10 December 1998
Ethiopia	Agreement of 27 November 2008 between the Swiss Federal Council and the Government of the Federal Democratic Republic of Ethiopia on capacity building and research partnerships between Swiss and Ethiopian institutions in field of science and technology	Adopted and entered into force on 27 November 2008

4 swissnex network



5 Documents – Literature

This strategy draws on a number of sources of government and private bodies. The following information, which is thematically structured, does not claim to be complete. It refers to key documents, which have all been drafted by Swiss actors.

Official documents (in alphabetical order)

(last updated: 30.06.2018)

Dispatch on Switzerland's Contribution to Reducing Economic and Social Disparities in the Enlarged European Union

www.admin.ch/opc/de/federal-gazette/2007/489.pdf (available in German, French and Italian)

Dispatch on Switzerland's International Cooperation 2017–2020

www.eda.admin.ch/deza/en/home/sdc/strategy/legal-bases/message-international-cooperation-2017-2020.html

Dispatch on the Promotion of Education, Research and Innovation for 2017–2020

www.sbf.admin.ch/sbf/de/home/das-sbf/bfi-2017-2020.html (available in German, French and Italian)

Education, Research and Innovation (ERI): Funding by the Confederation and the cantons, ERI Bulletin 2017

www.sbf.admin.ch/sbf/de/home/das-sbf/bfi-finanzberichte.html (available in German and French)

Federal Council Dispatch on the Promotion of International Mobility in Education 2018–2020

www.admin.ch/opc/de/federal-gazette/2017/3885.pdf (available in German, French and Italian)

Foreign Policy Strategy 2016- 2019

www.eda.admin.ch/dam/eda/en/documents/publications/SchweizerischeAussenpolitik/Aussenpolitische-Strategie_EN.pdf

International Cooperation in Vocational and professional education and training: a consolidation of Switzerland's international ERI strategy (2014)

www.sbf.admin.ch/dam/sbf/de/dokumente/internationale_berufsbildungs-zusammenarbeitibbz.pdf.download.pdf/internationale_berufsbildungs-zusammenarbeitibbz.pdf
(available in German and French)

Policy Sector Development and Cooperation: Research Concept 2017–2020

eda.admin.ch/dam/deza/en/documents/publikationen/Diverses/Forschungskonzept-160216_EN.pdf

Research and Innovation in Switzerland 2016 (www.sbf.admin.ch/sbf/en/home/topics/research-and-innovation-in-switzerland/forschung-und-innovation-in-der-schweiz-2016.html)

Strategy for developing a network of Swiss schools abroad

www.bak.admin.ch/dam/bak/de/dokumente/kulturelle_bildung/merkblatt_hinweis/entwicklung_des_netzesderschweizerschulenimausland.pdf.download.pdf/entwicklung_des_netzesderschweizerschulenimausland.pdf (available in German, French and Italian)

Strategy Paper on International Cooperation in Vocational and Professional Education and Training
2014

www.sbfi.admin.ch/dam/sbfi/de/dokumente/2017/06/Internationale%20Berufsbildungszusammenarbeit%20IBBZ.pdf.download.pdf/Internationale_Berufsbildungszusammenarbeit_IBBZ_d.pdf (available in German and French)

Swiss Education Report 2018

www.skbfc-sre.ch/en/education-report/education-report/

Swiss Health Foreign Policy

www.bag.admin.ch/dam/bag/en/dokumente/int/schweizerische-gesundheitsaussenpolitik.download/swiss+health+foreign+policy.pdf.schweizerische-gesundheitsaussenpolitik

Switzerland's Strategy for Communication Abroad 2016–2019

www.eda.admin.ch/dam/eda/de/documents/das-eda/landeskommunikation/strategie-landeskommunikation-2016-2019_DE.pdf (available in German)

The SDC's Education Strategy

Basic Education and Vocational Skills Development

www.eda.admin.ch/dam/deza/en/documents/themen/grund-und-berufsbildung/strategie-deza-bildung_EN.pdf

Web links – further information

(last updated: 30.6.2018)

1. Federal offices (alphabetical order)

Directorate of Political Affairs

www.eda.admin.ch/eda/de/home/das-eda/organisation-deseda/direktionen-und-abteilungen/politische-direktion.html

Federal Office of Culture (FOC)

www.bak.admin.ch

Federal Office of Public Health (FOPH)

www.bag.admin.ch

Presence Switzerland

www.eda.admin.ch/presenz-schweiz

State Secretariat for Economic Affairs (SECO)

www.seco.admin.ch

State Secretariat for Education, Research and Innovation (SERI)

www.sbfi.admin.ch

State Secretariat for Migration (SEM)

www.sem.admin.ch

Swiss Agency for Development and Cooperation (SDC)

www.eda.admin.ch/deza

Swiss Federal Institute of Intellectual Property (IPI)

www.ige.ch

2. Cantons

Swiss Conference of Cantonal Ministers of Education (EDK)

www.edk.ch

3. Institutions and organisations (in alphabetical order)

Association of Swiss Scientific Olympiads

<https://science.olympiad.ch/>

ETH Board

www.ethrat.ch/

Federal Commission for Scholarships for Foreign Students (FCS)

Federal Excellence Scholarships awarded to foreign researchers and artists

www.sbf.admin.ch/scholarships_de

Innosuisse

www.innosuisse.ch

Movetia Foundation

www.movetia.ch

Research programme for Young Swiss

<http://sjf.ch/> (available in German, French and Italian)

Swiss Academies of Arts and Sciences

www.akademien-schweiz.ch

Swiss Federal Institute for Vocational Education and Training (SFIVET)

www.ehb.swiss/

Swiss National Science Foundation (SNSF)

www.snf.ch

Swiss Skills Foundation

www.swiss-skills.ch/ (available in German, French and Italian)

Swiss Study Foundation

www.studienstiftung.ch/

swissuniversities

www.swissuniversities.ch/

6 List of abbreviations

AAL	Active and Assisted Living Programme
ASSO	Association of Swiss Scientific Olympiads
BBI	Bio-based Industries
BBI	Bundesblatt
CERN	European Organization for Nuclear Research
COST	Cooperation in Science and Technology
CS2	Clean Sky 2
CTA	Cherenkov Telescope Array
EAER	Federal Department of Economic Affairs, Education and Research
EAWAG	Swiss Federal Institute of Aquatic Science and Technology
ECSEL	Electronic Components and Systems for European Leadership
EDCTP	European & Developing Countries Clinical Trials Partnership
EDK	Swiss Conference of Cantonal Ministers of Education
EEN	Enterprise Europe Network
EFTA	European Free Trade Association
ELIXIR	European Life Science Infrastructure for Biological Information
EMBC	European Molecular Biology Conference
EMBL	European Molecular Biology Laboratory
EMPA	Swiss Federal Laboratories for Materials Science and Technology
EMPIR	European Metrology Program for Innovation and Research
ERA	European Research Area
Erasmus+	EU's Programme to support education, training, youth and sport
ERI	Education, Research and Innovation
ERIC	European Research Infrastructure Consortium
ESA	European Space Agency
ESO	European Southern Observatory
ESRF	European Synchrotron Radiation Facility
EU	European Union
EUI	European University Institute
EURATOM	European Atomic Energy Community
FCH	Fuel Cell and Hydrogen
FDFA	Federal Department of Foreign Affairs
FOC	Federal Office of Culture
FOPH	Federal Office of Public Health
FP	EU Framework Programme for Research and Innovation
HFSP	Human Frontier Science Project
IC-VPET	International Cooperation in Vocational and Professional Education and Training
INI	Innovative Medicines Initiative
IPI	Federal Institute of Intellectual Property
ISR	Istituto Svizzero di Roma
ITER	International Thermonuclear Experimental Reactor
NQF	National Qualifications Framework
OECD	Organisation for Economic Co-operation and Development
OrgO	Organisation Ordinance
PISA	Program for International Student Assessment
PPP	Public Private Partnership
PSI	Paul Scherrer Institute
S2R	Shift 2 Rail
SDC	Swiss Agency for Development and Cooperation
SECO	State Secretariat for Economic Affairs
SEM	State Secretariat for Migration
SERI	State Secretariat for Education, Research and Innovation
SESAR	Single European Sky ATM Research
SFAM	Swiss Foundation for the Promotion of Exchanges and Mobility
SFIVET	Swiss Federal Institute for Vocational Education and Training
SHK	Swiss Conference of Higher Education Institutions
SME	Small and medium-sized enterprise
SNSF	Swiss National Science Foundation
STEM	Science, Technology, Engineering, Mathematics
TFEU	Treaty on the Functioning of the European Union
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
WSL	Swiss Federal Institute for Forest, Snow and Landscape Research
XFEL	European X-Ray Free Electron Laser