

# SBFI NEWS SERI

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Secretariat for Education,  
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## February/March 17

VPET 2030 – Feedback from the online community

Horizon 2020 – an appraisal of the current situation

Research institutions of national importance



Schweizerische Eidgenossenschaft  
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Federal Department of Economic Affairs,  
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**State Secretariat for Education,  
Research and Innovation SERI**

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Cover photo:

In the 2017–2020 funding period the Confederation will part-fund 28 research institutions of national importance with an amount of around CHF 420 million. The Balgrist Campus in Zurich is among this number for the first time.

Photo: Balgrist Campus AG

## IMPRESSUM

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Dear Reader



Mobility in education is something to be championed. For apprentices and students it often provides added value in the form of expanded specialised, inter-cultural and linguistic skills. That is why the mobility of pupils, learners and students in higher education is supported by government: by the cantons at national level and by the federal government at international level.

As far as the federal government is concerned, it has been encouraging mobility in education for many years in conjunction with corresponding European activities. While Switzerland was fully involved with the EU between 2011 and 2013 on the basis of an agreement – it was associated to the ‘Lifelong learning’ and ‘Youth in Action’ programmes – it has not as yet been possible to achieve comparable status in the follow-up programme, Erasmus+ (2014–2020). However, thanks to the considerable institutional efforts to reach a transitional solution, there are a number of well-used instruments in place to promote mobility: more and more people from the Swiss higher education, vocational and professional education sectors study abroad each year. And they benefit from federal government support, which, under the terms of reciprocity, also extends to the incoming activities of European learners and students.

Full-fledged membership to the EU’s framework research programme Horizon 2020 from 2017 was made possible because negotiations had more or less been concluded by the beginning of 2014 and were simply waiting for the right political signals to come into effect (the catchwords being the mass immigration initiative and the Croatia protocol). A comparative solution for Erasmus+ was never so far developed and still requires patient negotiation, particularly regarding the applicable financing scheme. On top of that is the considerable cost and effort involved in putting in place the necessary agency to implement it.

In this light, as things stand today, full-fledged membership in the EU’s education follow-up programme from 2021 would seem to be a realistic target. The Federal Council will shortly present a dispatch setting out an alternative solution for the period 2018–2020. The main goals being pursued are to ensure planning security for the remaining term of Erasmus+, the efficient use of synergies regarding exchanges and mobility at national and international level focusing on young people in training (apprentices and students in school and higher education), and a set of instruments compatible with any future integral cooperation at European level.

A handwritten signature in black ink, appearing to read 'Mauro Dell'Ambrogio'. The signature is fluid and cursive.

Mauro Dell’Ambrogio  
State Secretariat for Education, Research and Innovation SERI

## VPET 2030 – Feedback from the online community

# Digitisation as both an opportunity and risk for the Swiss VPET system

At the end of 2016, as part of the process 'VPET 2030 – Vision and strategic guidelines', an online community discussed the effects of megatrends on the Swiss VPET system. A post-discussion vote reveals that most people feel that digitisation will have the great-est impact on the VPET system in the future. Also involved in the process was a group of experts, who conducted an analysis of strengths, weaknesses, opportunities and threats (SWOT) affecting the Swiss VPET system. A meeting of the main partners within the VPET system will be held in mid-March 2017 to develop strategic guidelines and the vision for VPET 2030.

With the launch of the online community in November 2016, a discussion on the future 'VPET 2030' was launched. All stakeholders within the VPET system and other interested parties were invited to register on the [www.berufsbildung2030.ch](http://www.berufsbildung2030.ch) website to take part in the discussion of megatrends and their impact on the Swiss VPET system.

### Online community discusses mega-trends

The online community gave its assessment of the influence of megatrends on the VPET system and then gave thought on how likely individual megatrends might be. Based on these discussions, it appears that most of the members of the online community felt that digitisation will have the greatest impact on the Swiss VPET system.

Those who took part in the post-discussion vote also mentioned the influence of other mega-trends such as deindustrialisation, globalisation, and upskilling. Upskilling means that the employer demand for skilled workers is increasing and as a result workers need to constantly strive for higher-level qualifications. Users felt that the generation gap would not have much of an impact on the future design of the Swiss VPET system.

### Rapid change as a challenge for the VPET system

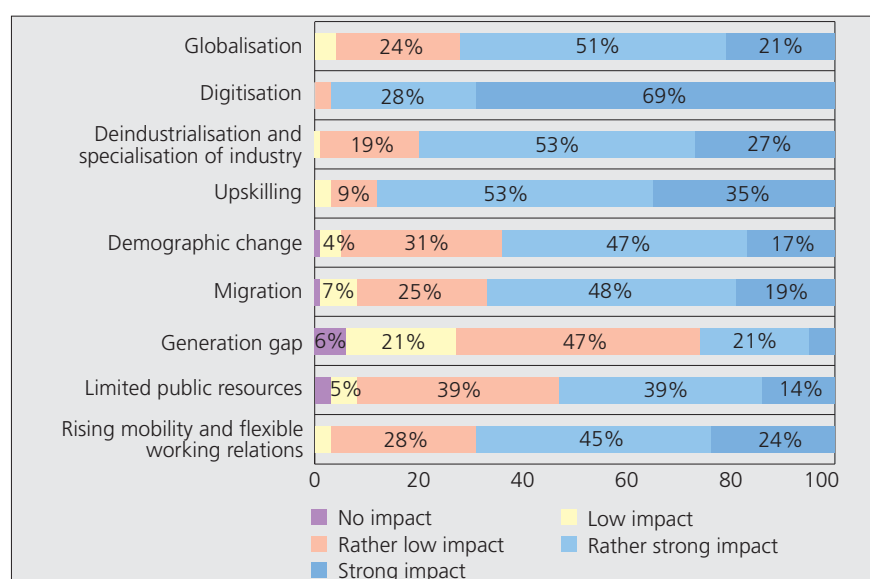
The findings and assessment of the Megatrends Forum were also discussed by the group of experts in January 2017. These experts agree with the users of the online community in their perception of the importance of these megatrends.

The 21 members of the group of experts – which include representatives of the Confederation, the cantons and professional organisations – met between October 2016 and January 2017 in three workshops to analyse the strengths, weaknesses, opportunities and threats (SWOT). They also devoted considerable attention to the baseline-target model of the VPET system. The group of experts concluded that digitisation offers considerable opportunities for the VPET system. A key threat, however is the fast pace of changes taking place in the economy and in society as a result of megatrends such as digitisation and deindustrialisation. Ensuring that the VPET system is able to respond to rapid changes and corresponding uncertainties will be a major challenge.

### Vision for VPET 2030

The interviews with experts and online discussions were used to prepare SWOT analysis and 'baseline-target' models for the group of experts. After examining both forms of analysis, the experts came up with an initial set of proposed action steps. The detailed results of the expert workshop can be found on the following websites: [www.berufsbildung2030.ch](http://www.berufsbildung2030.ch) and [www.sbf.admin.ch](http://www.sbf.admin.ch).

### Assessment of the influence of megatrends on the VPET system, as posted by users of the online platform [berufsbildung2030.ch](http://berufsbildung2030.ch)



Source: Ecoplan: [Berufsbildung2030.ch](http://Berufsbildung2030.ch) – Assessment by the Megatrends Forum, Figure 2, page 3.

The work of the group of experts shall serve as the basis for subsequent action to be taken in the design phase, which will be discussed by the VPET partners on 16/17 March 2017. During this two-day period, the strategic guidelines and vision for VPET 2030 will be developed. These two documents will provide a general overview of the future of the Swiss VPET system and shall be the starting point for in-depth discussion. After the consolidation phase and final decision at the end of 2017, both documents will

enable the main partners and interested parties to develop or align their own strategies as well as specific models and ideas.

The entire process should take around two years. There are many ways in which the cantons, professional organisations,

companies or individuals can become involved in the process and help to shape the future VPET system.

#### Further information

VPET 2030:

[www.berufsbildung2030.ch](http://www.berufsbildung2030.ch)

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## Bilingual VET programme in commerce

# ‘Two vocational qualifications and three years of work experience are non-negligible assets for entry into the labour market’

**On the international labour market, foreign language proficiency greatly facilitates the mobility of learners and future workers. In the bilingual VET programme in commerce, both classroom instruction at the vocational school and workplace training at the host company are handled in two languages. In the classroom, lessons are given in the foreign language, which then enables learners to use this language more effectively at the workplace. The State Secretariat for Education, Research and Innovation (SERI) considers introduction of bilingual VET programmes to be an important objective. It has therefore provided project funding under Art. 54 VPETA for an ongoing pilot project in the town of Geneva.**



The international company Société générale des Surveillance (SGS) in Geneva offers bilingual workplace training to learners. Both workplace trainer Arnaud Luisier and 3rd-year learner Diogo Da Cunha are convinced of the added-value of this project. Photo: Laurie Josserand, SISP.

Geneva, an international town hosting around twenty international organisations – UN institutions in particular – and no fewer than 250 NGOs. The town also has a robust private sector: eighty-five Swiss and foreign multinational companies belonging to the Groupement des entreprises multinationales (GEM), employing over 30,000 people, offering around 400 traineeships and 200 apprenticeships. Moreover, the GEM intends to increase the number of available apprenticeship

positions by 40% over the next few months. ‘One-third of the jobs in Geneva require a good level of English,’ explains Grégoire Evéquoz, head of the Canton of Geneva’s Office for Career Guidance, Vocational Training and Continuing Education (OFPC). ‘Every day, nearly 50,000 people use the language of Shakespeare and around 100,000 workers use it on an occasional basis.’

#### Pilot project

With this awareness, the OFPC secured SERI funding for a pilot project launched in 2013 to introduce a new bilingual VET programme in commerce. ‘We created the bilingual VET programme from scratch’, recalls Christoph Schindler, head of the OFPC’s pilot project. ‘We drafted the training plan, made the necessary arrangements for lessons to be taught in English, translated learning materials and then reviewed and adapted the competence profile and training content of the existing VET programme in commerce for learners wishing to also obtain the Federal Vocational Baccalaureate: we went out of our way to satisfy the needs of companies based in Geneva. Seeing the first group of bilingual learners obtain their qualifications in 2016 is therefore quite an accomplishment for everyone involved in this innovative project, particularly the workplace trainers.’

#### Linguistic immersion

In 2013, around fifteen companies signed up to provide workplace training as part of the new bilingual VET programme. Three years later, over twenty more structures (banks, travel agencies, transport companies, etc.) followed suit in support of young learners, including the Société

Générale de Surveillance (SGS). 'We have been training apprentices for over forty years', states Arnaud Luisier, who is responsible for apprenticeship training at the world headquarters of this Swiss multinational, which maintains offices in more than 140 different countries. 'Adding language skills to the VET programme in commerce brings true added value to training. On our end, it fully satisfies our needs and matches our corporate culture; for apprentices, training in a multilingual environment allows them to add another tool to their arsenal, which is certainly useful later on when they enter the labour market.'

### Two vocational qualifications

This excellence comes at a price, with high demands placed on learners throughout the entire duration of training. 'In only three years, learners prepare for and obtain two vocational qualifications in commerce: the Federal VET Diploma and the Federal Vocational Baccalaureate. The latter qualification entitles the holder to

enrol in any Swiss university of applied sciences' explains Mehrshad Gaffary, dean in charge of VET programmes at the Collège et Ecole de Commerce André-Chavanne. 'After obtaining their FVB, learners who wish to enrol in a cantonal university or federal institute of technology may do so by preparing for and passing the University Aptitude Test.'

However, before taking their training to tertiary level, learners must first learn how to juggle work, school, language stays and training content taught to them in French and English (400 hours) as set forth in the training plan established for the French-speaking region of Switzerland. Diogo Da Cunha, a learner in his third year of training at SGS, admits that he had to get used to the fast pace of this dual-track VET programme: 'At school or at the company, everything goes very quickly and you have to make quick adjustments early on in the course. The level of English is relatively high, which will allow us to obtain the Business Eng-

lish Certificate (BEC) in the last year of training.'

(continued on page 7)

### Other projects supported by SERI

SERI also provides funding to a pilot project carried out by the Canton of Zug since 2014. Young people may enrol in a bilingual VET programme in commerce or information technology. As in the Canton of Geneva, the economy of the Canton of Zug is very heavily weighted in favour of international activities. The pilot project, which will continue until 2019 is intended to encourage new multinationals to provide apprenticeship positions within the framework of Swiss VET programmes.

### Further information

Berufsbildung International Zug:  
[www.zg.ch/behoerden/volkswirtschaftsdirektion/amt-fur-berufsbildung/berufsbildung-international](http://www.zg.ch/behoerden/volkswirtschaftsdirektion/amt-fur-berufsbildung/berufsbildung-international)

## Promotion of projects to develop the Swiss VPET system further

**The Confederation provides subsidies to the Swiss VPET system. While most of this federal funding is provided by means of a straightforward procedure of lump-sum contributions, specific support is also provided for development projects and special services in the public interest. With this project funding, the Confederation makes a substantial contribution to subsequent development of the Swiss VPET system.**

Projects aimed at developing and expanding promising structures qualify for funding under Art. 54 of the Vocational and Professional Education and Training Act (SR 412.10). This includes pilot projects, studies and start-up funding.

Art. 55 VPETA allows the Confederation to subsidise services that, while serving the public interest, cannot be provided without additional funding. These include such things as measures to help young people who face scholastic, social or linguistic hurdles that prevent them from enrolling in VET programmes. Support is also given for the development of learning materials for linguistic minorities or to ensure adequate or increased availability of apprenticeship positions.

### Entitlement and application procedure

A broad range of applicants may qualify, including cantons, professional organisations, schools, host company networks, consortiums, companies or individuals.

### Prepared for the future

Looking back over recent history – project funding was introduced with revision of VPETA in 2004 – we find that this instrument has proven effective. The content of sponsored projects and supported measures is a reflection of social and economic factors and has changed over time. Thanks to the open structure of project funding as an instrument, various projects have enabled barriers to further development of the Swiss VPET system to be addressed and overcome. In 2016 alone, SERI provided funding for around 160 projects pursued by the cantons and professional organisations; of these, over three-fourths were specifically intended

to develop the VPET system further. Examples include revision of training plans in both the VET and professional education sectors, a study on training and career trajectories of various types of social workers and career leavers as well as the upcoming SwissSkills 2018 competition in Bern.

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### Further information

Support for VPET-related projects:  
 🌐 [www.sbfi.admin.ch/projektfoerderungbb](http://www.sbfi.admin.ch/projektfoerderungbb)

**Range of skills to be perfected**

Adaptability, resistance to stress, polyvalence, language proficiency and self-discipline are the soft skills that young people acquire in the bilingual VET programme. ‘Two vocational qualifications and three years of work experience are non-negligible assets for entry into the labour market, in such diverse fields as banking, tourism or public relations, just to name a few,’ explains Grégoire Evéquoz. ‘There are many different job prospects and numerous possibilities to seek tertiary-level education and training either in the Swiss profession-

al education or higher education sectors,’ concludes Christoph Schindler: ‘Familiarity with the codes used in an international setting also brings secondary benefits for young people: open-mindedness and access to other cultures can be very useful within a socioeconomic context that is changing right before our eyes.’

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**Further information**

Information about bilingual instruction at schools:  
 🌐 [www.ehb.swiss/bili](http://www.ehb.swiss/bili)

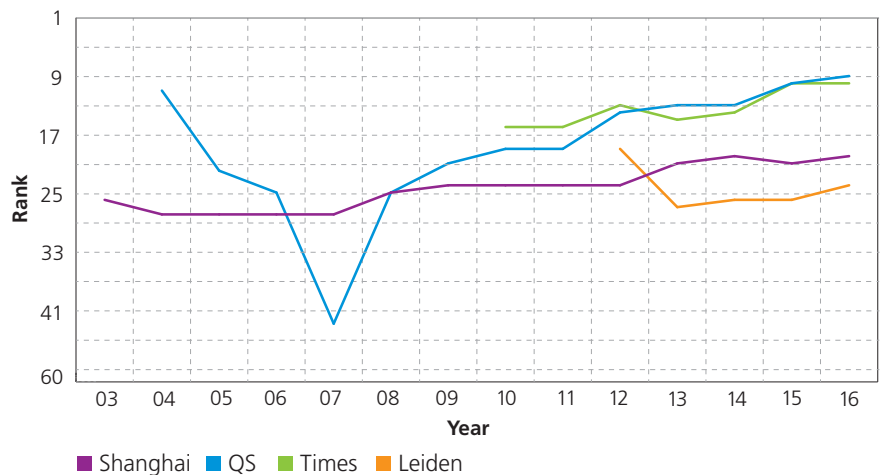
**International university ranking lists**

**Strong demand for information about universities**

In recent years, university ranking lists have become very popular. The website [www.universityrankings.ch](http://www.universityrankings.ch), which is jointly managed by the State Secretariat for Education, Research and Innovation (SERI) and the Swiss Conference of Rectors of Higher Education Institutions (swissuniversities), provides an overview of international university ranking lists. Visitor statistics show that there is indeed a demand for such a platform, especially from visitors outside of Switzerland.

University ranking lists have been around since the 1920s. In the early days, these ranking lists were not intended for worldwide use and were limited to selected university activities. In recent years, however, two international ranking lists in particular have risen to prominence: the Academic Ranking of World Universities (launched by the Shanghai Jiao Tong University back in 2003) and the World University Rankings (launched by the Times Higher Education Supplement back in 2004).

**Changes in the position of ETHZ in the four ranking lists**



Source: [www.universityrankings.ch](http://www.universityrankings.ch)

**Using a chart for a clearer overview**

At the end of 2007, SERI established a website showing the results of the four main university ranking lists. These are Shanghai (Academic Ranking of World Universities ARWU), Times Higher Education (World University Rankings), QS Quacquarelli (QS World University Rankings) and the CWTS Leiden Ranking.

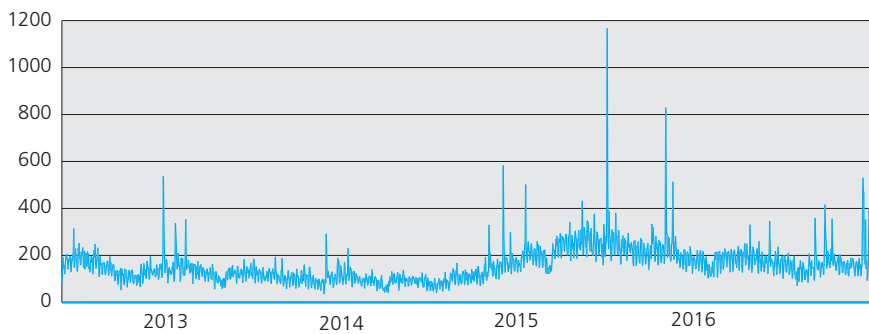
The aim of this website is to allow users to quickly find the information about a specific university: they can see the position of the given university in the four main university ranking lists (and how this position changes over time) and compare several universities on the same chart.

**International demand**

Around one-fourth to one-third of visitors to the website are Swiss residents looking for information about universities. While this proportion has remained fairly constant over the years, the composition of foreign visitors has changed considerably. When the website was first launched, over one-third of the foreign visitors were from neighbouring countries of Switzerland. Nowadays, a large proportion come from such far off places as Russia or China.

In 2008, Switzerland was the top country of origin, accounting for 23.4% of website visits, followed by Germany (10.7%), France (10.4%), United States (7.8%) and the United Kingdom (4%). Today (2016), Switzerland accounts for 27.6% of the visits, followed by Russia (6.2% of the traffic) and the United States (5.7%). Among the top ten countries, we find Iran (5.1%), India (3.2%) and China (1.5%).

**Daily volume of traffic, from 2013 to 2016**



Source: Google Analytics

The proportion of visitors who return to the site on a regular basis over the years has increased from 14.4% in 2008 to 26.5% in 2016.

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**Further information**

Results of university ranking lists:  
 🌐 [www.universityrankings.ch](http://www.universityrankings.ch)

**Rising volume of traffic**

This result is even more positive and remarkable given the fact that the volume of traffic on the website has been increasing steadily: in 2008, the average monthly volume of traffic stood at around 2,000

individual visitors; today (2016), the figure has risen to over 4,300. Unsurprisingly, the volume of traffic experiences sharp peaks in the days immediately following the release of the four main ranking lists Shanghai, Times, QS and Leiden.

**Research institutions of national importance**

**Part-funding of research institutions boosts research and innovation in Switzerland long term**

The Confederation has earmarked a good CHF 420 million in the 2017–2020 funding period to part-fund 28 research institutions of national importance. These institutions operate in a range of specialist areas, help to create added value in science, and complement the research activities conducted at Swiss universities and in the ETH Domain. In accordance with the overarching objectives of the Dispatch on the Promotion of Education, Research and Innovation for 2017–2020 (ERI Dispatch), the main focus of funding will be on promoting centres of technological excellence.



The Swiss Centre for Electronics and Microtechnology CSEM in Neuchâtel will receive the largest federal contribution in the funding of research institutions of national importance in the years 2017 to 2020. The centre plays a role in maintaining Switzerland's competitiveness and innovativeness in a range of areas, from the internet of things to networked technologies, photovoltaics and anti-counterfeiting. Photo: CSEM

Article 15 of the Federal Act on the Promotion of Research and Innovation (RIPA) allows the Confederation to part-fund high quality research institutions which are not part of the higher education sector. The law specifies three categories of research facility:

- research infrastructures: these are mainly auxiliary scientific services operating in the field of scientific and technical information and documentation, which make a major contribution to the development of research in their specialist area;
- research institutes: these are usually engaged in a highly specialised area of research or are associated with a higher education institution as part of a specific cantonal strategy;
- centres of technological excellence: these create a systematic link between





Swiss Paraplegic Research in Nottwil is one of the research institutions part-funded by the Confederation. Photo: Swiss Paraplegic Foundation

public research and the private sector, enabling knowledge and technology transfer. They operate on a non-commercial basis.

**Increased funding framework**

In the 2013–2016 ERI funding period, the Confederation part-funded 26 research institutions. In 2015 all 26 applied to SERI for further funding in the 2017–2020 ERI funding period. SERI also received five new applications, bringing the amount of funding requested in the 31 applications for 2017 to 2020 to CHF 529 million.

In its 2017–2020 ERI Dispatch, in consideration of the federal finances, the Federal Council requested a funding framework of CHF 382 million for research institutions of national importance in accordance with Article 15 of the RIPA. This request includes funding for special measures, namely contributions to the Personalised Medicine National Support Initiative and to the 3-R Competence Network in the Alternative Methods to Experiments on Animals national research programme. Parliament in fact increased the amount requested by the Federal Council to CHF 422 million, primarily in order to provide more funding for centres of technological excellence.

**Priority funding for centres of technological excellence**

In late 2016, the Federal Department of Economic Affairs, Education and Research

(EAER) decided which institutions would be awarded what contributions. Its decisions were based on a formal request made by SERI, which is responsible the examination of the applications. Prior to this, the Swiss Science and Innovation Council (SSIC) was tasked by SERI to check all the applications for scientific merit and to give an assessment.

As the submitted applications required total funding that exceeded the budget available, under the Subsidies Act the



The Swiss Institute for Art Research in Zurich possesses an outstanding collection of archived materials, documents and specialist literature on historical and contemporary Swiss art. As a research infrastructure, the Institute will be among those to receive funding from the Confederation in the 2017–2020 funding period. Photo: SIK-ISEA, Zürich

EAER had to provide a priority ranking system by which to assess the applications. This was based on the overarching objectives in the 2017–2020 ERI Dispatch: public-private partnership funding and boosting innovation promotion. In assessing the applications, priority was therefore given to supporting centres of technological excellence, followed by funding for research infrastructures and then research institutes.

Of the 31 applications submitted, 28 will receive a contribution from the Confederation in the 2017–2020 period. These include 9 institutions in the field of culture and social sciences, 15 in the biological and medical sector and 4 in technology, IT and engineering. Compared with previous funding periods, there has been a shift towards biology and medicine.

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**Further information**

Links to the research institutions of national importance:  
 🌐 [www.sbfi.admin.ch/fvnb](http://www.sbfi.admin.ch/fvnb)

## Institutions receiving funding during the 2017–2020 period

Research infrastructures		
Research institution	Short description	Federal contribution 2017–2020 (in CHF m)
Jean Monnet Foundation for Europe FJME, Lausanne	The FJME curates the archives of Jean Monnet (1888-1979), a French businessman and pioneer in the creation of the European Union, and of others who played an important role in the European project. The FJME houses a Centre for European Documentation.	0.54
Swiss Centre of Expertise in the Social Sciences FORS, Lausanne	FORS gathers data in national and international surveys, provides and documents data records for secondary analysis, and conducts research into social science issues, in particular survey methods.	11
Istituto Ricerche Solari IRSOL, Locarno	IRSOL develops observation facilities, in particular for solar research (spectropolarimetry) and works closely with international institutions.	1
Swiss Group for Clinical Cancer Research SAKK/Swiss Paediatric Oncology Group (SPOG), Bern	SAKK and SPOG are primarily responsible for cooperative studies in clinical cancer research in Switzerland. In addition to conducting research activities, their coordination centre provides services e.g. regulatory services.	27.2
Swiss Centre for Applied Human Toxicology SCAHT, Basel, Geneva, Lausanne	The three core tasks of the SCAHT are regulatory human toxicology (in conjunction with various federal offices), research and training.	10
Swiss Clinical Trial Organisation SCTO, Basel (new)	As the main cooperation platform for clinical research into non-specific pathologies, the SCTO's task is to promote and coordinate cooperation between clinical research centres. It does this in conjunction with the SAKK.	14
Swiss Institute of Bioinformatics SIB, network structure (hubs at higher education institutions)	The SIB has two core tasks: 1. providing databases for molecular biology, genomics, proteomics and system biology; 2. coordinating research and training in bioinformatics at Swiss higher education institutions.	46.5
Swiss Institute for Art Research SIK-ISEA, Zurich	The SIK-ISEA is a nationally and internationally recognised centre for art scholarship and art technology, specialising in the visual arts from the Middle Ages to the present day.	11.4
Swiss Social Archives SSA, Zurich	The SSA contains a library, archives and documentation maintained to a very high standard, giving specialists and the general public access to source material on social change and social movements.	5.1
Service scientifique auxiliaire en géosciences SSAG (Fondation Jules Thurmann), Jura	The SSAG gives the scientific community in Switzerland and abroad access to the unique Jurassica palaeontological collections (also promoting science in the canton of Jura).	1.9
Stiftung Schweizerische Theatersammlung STS, Bern	The STS is the national documentation point for Swiss theatre, comprising an archive, library and museum. In 2017 it will merge with the Swiss Dance Archives.	1.8
Vitrocentre Romont – Centre suisse de sur le recherche vitrail et les arts du verre	National centre of excellence for historical and artistic glasswork. It specialises in reverse painting on glass and uses the latest digital methods.	2.1
<b>Total</b>		<b>170.54 CHF m</b>
Research institutes		
Research institution	Short description	Federal contribution 2017–2020 (in CHF m)
Biotechnology Institute Thurgau BITg, Kreuzlingen	Research institute for application-oriented basic research with a focus on tumour biology, immunology and cell biology. The BITg was founded by the Canton of Thurgau in close cooperation with the University of Constance (Germany).	2.9
IDIAP Research Institute, Martigny	Research institution and centre of excellence with innovative approaches in computer science and a particular focus on the interaction between humans and computers.	9.7
Institut für Kulturforschung Graubünden ikg, Chur	The ikg works with higher education institutions and other institutes, conducting cultural research projects relating to Graubünden and the neighbouring regions.	2.2

Institute of Oncology Research IOR, Bellinzona	Applied research institution specialising in clinical cancer research.	2.4
Institute for Research in Biomedicine IRB, Bellinzona	Institute for basic and applied research primarily in human B-cell and humoral immunology (pathogen resistance).	8
Institute of Research in Ophthalmology IRO, Sion	Focusing on hereditary ophthalmological diseases, degenerative retinal diseases and the development of transgenic animal models, research at the IRO pursues approaches from molecular biology to gene therapy and is also increasingly involved in preclinical research.	3
Swiss Institute of Allergy and Asthma Research SIAF, Davos	Conducts basic research into allergies and asthma, focusing on new approaches for preventive and curative therapies.	3.4
Swiss Paraplegic Research SPF, Nottwil	Conducts holistic research on the interaction between physical, psychological and social factors in developing and overcoming handicaps.	2.4
Swiss Vaccine Research Institute SVRI, Lausanne	The SVRI maintains a research network in vaccinology and is the Swiss contact in major international programmes (Gates Foundation, etc.).	5
Swiss Tropical and Public Health Institute, Swiss TPH, Basel	The Swiss TPH takes a single interdisciplinary 'one health' approach (research for human and animal health), conducting research and providing teaching and services in tropical medicine and public health.	25
swisspeace, Bern	swisspeace is a service and research institute engaged in both practical work such as mediation projects and in peace and conflict research, conducted in conjunction with the Human Security Division at the FDFA and at the request of the SDC.	2.5
<b>Total</b>		<b>66.5 CHF m</b>

<b>Centres of technological excellence</b>		
<b>Research institution</b>	<b>Short description</b>	<b>Federal contribution 2017–2020 (in CHF m)</b>
Balgrist Campus AG, Zurich (new)	Our aim is to set up three technological platforms in conjunction with the ETH Zurich to create a national centre for research into diseases of the musculoskeletal system and for research into development and translation.	15.714
Fondation Campus Biotech, CBG, Geneva	CBG aims to mobilise, unite and support innovation actors in the fields of neuroscience and digital health.	14
Swiss Centre for Electronics and Microtechnology CSEM, Neuchâtel	Originally focusing on applied research and development in microtechnology, today the CSEM covers a wider range of fields and runs research programmes into surface technology, medtech and photovoltaics, among other topics. One of its focuses is Industry 4.0. Headquartered in Neuchâtel, the CSEM also has branches in Muttenz, Zurich, Alpnach and Landquart.	115.1
inspire AG for mechatronic production systems and finishing techniques, Zurich	inspire AG's mission is to transfer to Swiss industry expertise in production techniques gained at the ETH Zurich research institutes. We plan to expand our expertise in additive manufacturing and set up a research group devoted to Industry 4.0.	11.64
sitem-insel, Bern (new)	sitem-insel AG's mission is to improve conditions for translational medicine, encourage more innovation and the creation of added value and so increase Switzerland's competitiveness in the medical field.	25.0
<b>Total</b>		<b>181.454 CHF m</b>

## Horizon 2020 – an appraisal of the current situation

### Continuing a long tradition of cooperation

**Up until the end of 2016, Switzerland was only partially associated to Horizon 2020, the European Union's latest framework research programme. National measures were put in place to finance Swiss project participations in areas of Horizon 2020 to which Switzerland was not associated. Since the beginning of 2017 Switzerland has once again been fully associated to Horizon 2020. Philipp Langer, head of the EU Framework Programmes section at SERI, looks back on the period of partial association and explains how things are likely to continue over the coming years.**



Philipp Langer, Leiter Ressort EU-Rahmenprogramme, SBFI. Photo: Gaëtan Bally

#### **What is Switzerland's official position regarding Horizon 2020?**

Philipp Langer: Switzerland's official position over the last three years has always been the same, namely, the desire for full association to Horizon 2020. There is great satisfaction because this association to all aspects of the Horizon 2020 programme has been in place since 1 January. Researchers from Switzerland can now participate in all sections of the 8th programme generation (Horizon 2020) just as they could under FP6 and FP7 between 2004 and 2013. In addition, Switzerland is also able to have a say in the programme's content and strategy.

#### **Could Switzerland's status in the programme change yet again in the short term?**

Switzerland's association to Horizon 2020 is defined until the end of the programme, which is at the end of 2020. Naturally, as is the case with many agreements, there is a mutually applicable termination clause. Here there is a six-month notice period. That is not currently being discussed, but as far as the EU is concerned research cooperation is closely linked to the free movement of persons. That is explicitly stated in the Horizon 2020 association agreement. As

such, political questions surrounding the free movement of persons can continue to affect research cooperation with Europe. From 2021 there will be a new generation of European framework research programmes. Switzerland's status in this new programme will have to be negotiated in due course.

#### **Did the impediments of the last three years cause problems for higher education institutions and researchers in Switzerland?**

The possibility of participating in the Horizon 2020 research framework programme is extremely important for Swiss institutions and businesses involved in research and innovation. For one thing, collaborative projects allow Swiss actors to position themselves in international networks at the cutting edge of their scientific field. Moreover, the possibility of applying for individual funding (e.g. ERC grants) allows researchers in Switzerland to measure themselves against the world's greatest talents and is a key argument in drawing the best researchers to Swiss institutions, particularly cantonal universities, federal institutes of technology and universities of applied sciences. Obtaining such a grant brings with it prestigious recognition which is extremely important in a researcher's career.

Over the last three years, Switzerland was only able to participate to a limited extent in Horizon 2020, both in terms of content and project duration: researchers in Switzerland were only able to participate in a third of the programme as associated partners, and then only until the end of 2016. As of 2017, Switzerland had only two options: full participation as an associated country or total exclusion from the programme. The uncertainty that reigned over the last three years regarding Switzerland's partner status within Horizon 2020 diminished our country's appeal.

Including Swiss partners in a given project was considered a risk for that project so they were sometimes overlooked by international consortiums. The upshot was a significant drop in Swiss participation, a problematic situation as international staff is a key factor for Switzerland's standing as a scientific location.

#### **What further possibilities are open to Switzerland with full association?**

Full association status in Horizon 2020 allows Switzerland to sit on the programme's various advisory groups at European level and play a part in defining research topics and other strategic aspects. This is important for a number of reasons. On the one hand, calls for the topics of cooperative projects at European level are defined in a more top-down manner than in Switzerland, and that takes place in the advisory groups for each area covered by Horizon 2020 (health, ICT, environment, space, energy, climate, transport, ...). On the other, the funding available through Horizon 2020 (some EUR 80 billion over 7 years) is so important that each rule associated with these programmes (for example, the obligation to publish findings publicly on Open Access) has a real impact on the way in which research and innovation is conducted in Europe.

In addition, Switzerland also has the possibility of obtaining a positive financial return. As an associated country, Switzerland pays a fixed sum to the EU based on a proportion of its gross domestic product, while the grants paid by the EU to European and researchers in Switzerland depends on the quality of the projects. As researchers in Switzerland often produce excellent projects, Switzerland has been able to obtain a positive financial return from the last two generations of programmes to which it has been fully associated (FP 6 and 7).

**During the period of partial association between 2014 and 2016 Switzerland was considered a third country for certain programme sections of Horizon 2020. The federal government took over the funding of Swiss elements of the projects. What will happen to these projects now that Switzerland is again fully associated?**

Projects already under way which have received funding under Horizon 2020 will not be affected by the change in Switzerland's participation status. Their source of funding is assured for the full duration of the project. So SERI will continue to fund projects submitted to Brussels by researchers in Switzerland and positively evaluated between 2014 and 2016. This affects around 1,000 projects with a financing volume of around CHF 600 million. The last of these projects are expected to conclude in 2023. Until then, SERI has to maintain the structures set up to implement the transitional measures.

**After the uncertainty and stresses surrounding Horizon 2020 between 2014 and 2016, can we now expect calmer times ahead?**

The period between 2014 and 2016 was fairly work intensive. At first, one of our objectives was to negotiate the planned full association, then for the partial association. For the latter, we had to set up the whole national project funding system for partial association within a short space of time, which involved putting in

place a new legal basis and creating a new IT database (the former database dated from 1993). The national funding of projects with a normal duration of four to six years, as opposed to paying a set annual contribution to Brussels, meant we had to make adjustments to the annual payment appropriations involving hundreds of millions of francs. That is still having an impact on the federal budget.

Depending on political developments between the EU and Switzerland, the future should be somewhat more ordered, although not necessarily more straightforward. In addition to assuring the obligations that come with full association with the managing bodies in Brussels, SERI also has to ensure the continued project-based funding of researchers in Switzerland. Administering the 1,000 or so nationally funded projects will be particularly time consuming between 2018 and 2020 because that is when the most detailed invoices will be due. The Horizon 2020 projects are also more extensive than earlier EU projects. But it was clear from the outset that Switzerland's third country status would require the setting up of the necessary administration.

**When will new figures on Switzerland's participation in Horizon 2020 be available?**

SERI is set to publish a new interim report on Swiss participation in the European Union's framework programmes at the beginning of 2018 as part of its regular reporting obligations. There is no point in aiming for an earlier publication date as we will want to highlight the impact of full association in that report. For that we will have to wait until the first projects after full association have been submitted to Brussels, evaluated and the relevant funding agreements have been awarded. It takes eight months from project submission to the issuing of a funding agreement. It then takes several more months for us to prepare the data for the report and also depends on us having the necessary resources.

However, results from individual areas of Horizon 2020 are published continually. At the end of 2016 the European Research Council published the results of the fourth call for Consolidator Grants. These projects are headed by researchers

with between seven and twelve years' experience after obtaining a PhD and can be awarded up to EUR 2 million over five years. The grants fund positions for post-doctoral researchers, PhD students and other staff in the research teams. Switzerland ranks 6th among recipient countries with 22 projects (7%) spread across ten Swiss institutions.

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**Further information**

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**Information event in Bern on 14 March**

Euresearch and SERI are organising a national information event on Horizon 2020 to inform about the changes and new opportunities offered to Swiss participants. Keynote speakers from Switzerland and the European Commission, as well as from industry and academia, will talk about the opportunities of Horizon 2020 for researchers based in Switzerland. After a general part in the morning, researchers will be able to take part in thematic sessions in the afternoon.

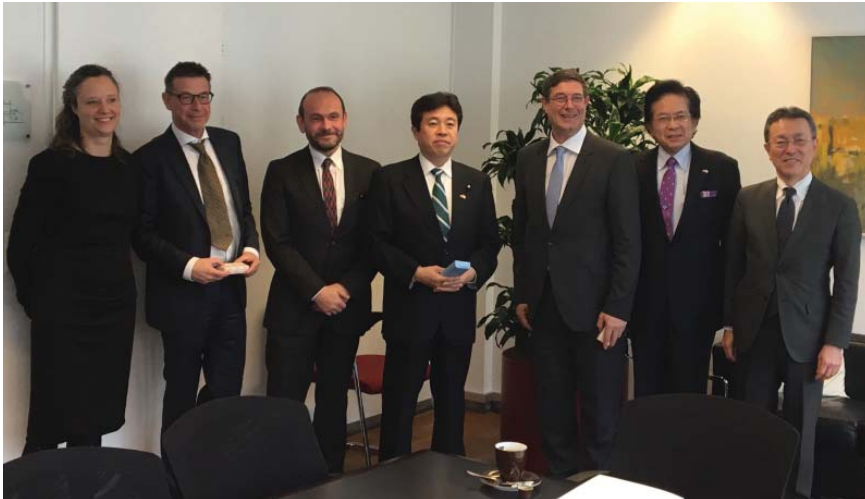
**Additional information**

[www.euresearch.ch/en/events](http://www.euresearch.ch/en/events)

## International relations

### A busy year for bilateral relations

Foreign science policy is an important aspect of Switzerland's overall foreign policy. It allows Switzerland to publicise the country's strengths as an internationally competitive location for scientific research and technological development, thereby promoting cooperation in these areas around the world. In view of the numerous meetings that have already taken place in January and February of this year, 2017 promises to be a busy year in terms of bilateral relations.



A delegation led by the Japanese minister of state for science and technology, Yosuke Tsuruho (the fourth from left), visited SERI to gain greater insight into Switzerland's system of innovation. They were welcomed by State Secretary Mauro Dell'Ambrogio. Photo: Micol Venturino, SERI.

At the beginning of the year, State Secretary Mauro Dell'Ambrogio travelled to Rome where he had been invited to speak at the annual meeting of Italian science attachés in the presence of Foreign Minister Angelino Alfano and the new minister for education, universities and research, Valeria Fedeli, with whom he also held talks. Relations with Italy in the field of science are excellent and the country is a key partner for Swiss researchers.

#### Bilateral cooperation programme with Japan

In mid-January, it was a high-level delegation led by the Japanese minister of state for science and technology, Yosuke Tsuruho, who visited SERI to gain greater insight into our system of innovation. For a number of years now the Swiss government has supported a bilateral cooperation programme with Japan aimed at strengthening ties and reducing obstacles to scientific and technological cooperation. This meeting, which was also attended by the new president of the Swiss National Science Foundation,

Prof. Matthias Egger, aimed to promote direct ties between research funding agencies.

#### South Africa, Serbia, Austria and China

In Davos, the head of the Federal Department of Economic Affairs, Education and Research, Johann N. Schneider-Ammann, met with Carlos Moedas, Commissioner for research, science and innovation: on this occasion, the ministers were able to celebrate Switzerland's full-fledged membership to Horizon 2020. For his part, the State Secretary discussed cooperation with South Africa with the vice chancellor of the University of Cape Town, Dr Max Price, as well as cooperation between Switzerland and the USA in the area of vocational education and training with the Governor of Colorado, John W. Hickenlooper.

Vocational education and training was also the main subject of the state secretary's visit to Serbia at the beginning of February. Talks during the exchange of information between the State Secretariat

for Education, Research and Innovation and the Austrian Federal Ministry of Science, Research and Economy (BMWFW) in Vienna were dedicated to developments and cooperation in academic teaching, research and innovation.

Finally, the state visit to Switzerland by Chinese President Xi Jinping provided an opportunity to reiterate that innovation is a priority for both countries, and that cooperation in this field is destined to develop in the future.

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## Astronaut Thomas Pesquet in space

# “Hello, is that the International Space Station? Sion calling!”

Those were the words used by the children aged between 6 and 12 from Châteauneuf school in Sion at the end of January. They had the opportunity to speak with ESA astronaut Thomas Pesquet, who has been on board the International Space Station (ISS) since 17 November, on a six-month mission.



Pupils were able to ask the astronaut Thomas Pesquet 20 questions. Photo: Martine Harmel, Swiss Space Center

The communication between Châteauneuf school and the ISS was possible thanks to an amateur radio link. In the room of sixty or so children, twenty from a school in Prévèrenge (VD), and the teachers, everyone waited with baited breath as the clock ticked closer to midday when the call to the space station 400 kilometres above the Earth was due to take place. The master of ceremonies had explained that several attempts might be needed, or that it might not work at all! After all, there was only a window of 15 minutes for the call. The joy was all the greater when Thomas Pesquet greeted the delighted audience.

### A host of questions

Twenty questions had been prepared, selected and repeated beforehand. Each was asked by a different pupil and ranged from “What was the most complicated task during your training?” to “Can you see the effects of pollution on our planet?” Thomas Pesquet took the time to respond to each of the questions while maintaining a certain rhythm, earning himself a big round of applause at the end.

### A moon made of cookies

In the morning, the pupils all took part in fun workshops aimed at teaching them a bit more about the theme of space. With the help of the Swiss Space Center, and supported by their teachers, they had to show the different phases of the moon using cookies, draw up a menu for a voyage to Mars and prepare an astronaut’s luggage to travel to the ISS. With the support of their teachers, the ISS has become something ‘real’ for these pupils over the last few months. The schools were selected after applying to take part in a teaching project last year, culminating in the radio link with the ISS. ESA, of which Switzerland is a member, is aware of the interest young people have for space and therefore seeks to encourage their curiosity for science and technology, also by enabling such direct links with its astronauts on board the ISS.



The children used cookies to learn about the phases of the moon. Photo: Kamlesh Brocard

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ERI | PHOTO OF THE MONTH

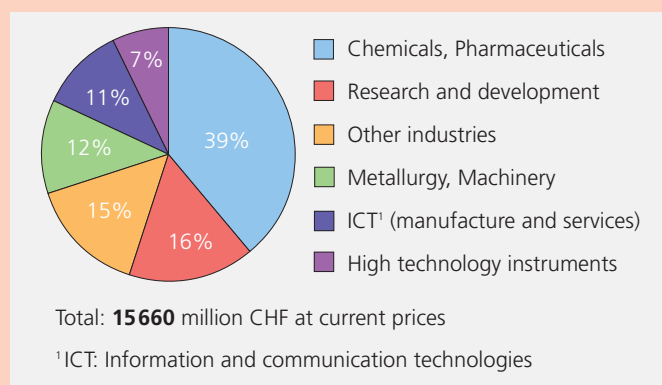


With their emphasis on realistic training, Swiss universities of applied sciences are major purveyors of skilled workers on the labour market. At the Zürcher Hochschule der Künste (ZHdK), an affiliated UAS college within the Zürcherfachhochschule (ZFH), it is possible to enrol in a degree programme in game design, which focuses on the culture and design of interactive video games. Graduates of this degree programme go on to design and develop entertainment, edutainment and infotainment products of the future and thereby position themselves in the computer gaming industry. Game designers facilitate fun interactions with digital worlds and work with numerous business and research partners. As part of their studies, Don Schmocker and Goran Saric and their team are developing the 'FAR' game, in which players need to drive a vehicle across a dry seabed. 'FAR' has already been awarded numerous prizes and was recently nominated as 'Best Student Game' at the Independent Games Festival. The awards ceremony will be held in San Francisco on 1 March 2017. Photo: Don Schmocker / Goran Saric, ZHdK.

The Figure



In-house R&D expenditure of companies by economic branch (2015)



In 2015, companies spent CHF 15.7 billion on R&D in Switzerland. This amounts to a 10% increase with respect to the previous survey year 2012. Switzerland has steadily increased R&D expenditure since the year 2000 and now finds itself among the leading countries in which companies invest heavily in research activities.

As in previous surveys, the pharmaceuticals industry accounts for most in-house R&D expenditure, regardless of the source of funding. The pharmaceuticals industry alone accounts for over one-third of total R&D expenditure in Switzerland.

With the exception of 'Metalworking' branches (which experienced a sharp decrease in R&D expenditure of -30%) and 'Other' (slight decrease of -3%), all economic branches increased their in-house R&D expenditure. The greatest increase was observed in the 'ICT services' branch (+66%).

Source: Federal Statistical Office