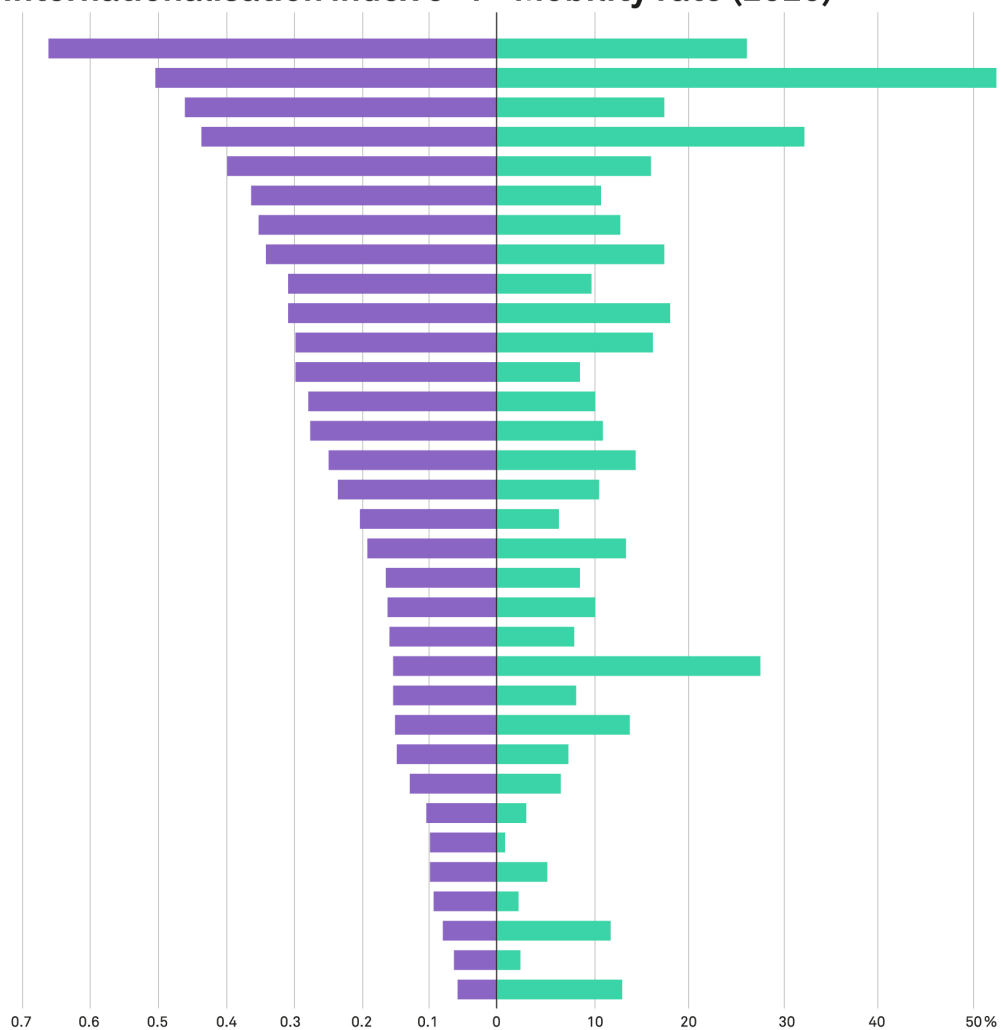


Report

Mobility Rates and Internationalisation Index of Swiss Higher Education Institutions

Internationalisation index 0–1 Mobility rate (2020)



Solothurn, 31 January 2023
Lucas Haldimann

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Main messages

- The content of study programmes, especially those offered in partnership with institutions abroad, has a significant impact on student mobility. Double degrees or joint degrees are an effective way to increase their internationalisation.
- Student mobility depends on the students' social network. It tends to increase in relation to their contact with international faculty and teaching staff, international academic assistants and staff, or international students.
- Accommodation for international visitors facilitates their stay in Switzerland and thus increases the contact between the local student population and the international community.
- The results indicate that there is no evidence of a direct link between the internationalisation of research and the internationalisation of education. As mobility depends on students' interactions with an international network, synergies between research and education could be strengthened.
- Some institutions tend to focus on developing a network of international institutions, while others focus on the funding of outgoing mobility for the local student population. Institutions less often use these two aspects together. A better combination of these two complementary aspects of internationalisation would be called for in order to allow and encourage access to internationalisation for all students.

1 Introduction

The notion of internationalisation has evolved from a marginal concept in the 1990s to a major component of higher education institution operations (Knight & Wit, 2018). Originally, the concept focused on student mobility, with the idea of allowing students to visit other institutions during their studies. The aim was to counter the dangers of isolationism and racism through immersion in a different context, in order to increase openness to multiculturalism (King & Ruiz-Gelices, 2003; Maunaye, 2013). This type of mobility offers several advantages to young people, such as the opportunity to improve language skills (Lulle et al., 2019), increase autonomy (Frändberg, 2015) and gain an advantage on the job market (IW & DAAD, 2020; Waibel et al., 2018).

The notion of internationalisation has evolved in a relatively fragmented way since the concept was first introduced into higher education, and several models now coexist (Wit, 2019). Tertiary education has adapted to it, on the one hand with political incentives to integrate an international dimension into higher education, and on the other hand with the emergence of international competition, driven by economic interests. Fragmentation and the lack of common policies have pushed institutions to focus primarily on the economical dimension of internationalisation, and led them to develop their international visibility guided mainly by international rankings (Hauptman Komotar, 2019), thus developing a highly competitive global market between tertiary institutions (Salmi, 2009). In response to these developments, several authors have recently issued recommendations, stating that internationalisation at home should be reinforced, in order to create conditions for national students to become international (Knight, 2008), and that internationalisation's main goal should remain to serve the improvement of education, research and societal change (Hauptman Komotar, 2019).

The objective of the Bologna Process and the European Higher Education Area (EHEA), which was reaffirmed in 2020, is to enable at least 20% of students to undertake a mobility during their tertiary studies and to allow all students to acquire international and intercultural skills. This is to be achieved through the internationalisation of study programmes or the participation in international projects at their higher education institution. All students should also have experienced some form of mobility, whether physical, digital (virtual) or mixed (EHEA, 2020). The definition of mobility retained by the EHEA is broader than the one used in this study (see chapter 1.3): the EHEA looks at all the study degrees (from bachelor's to PhD level), and different mobility formats are taken into consideration, be it a semester abroad (credit mobility) or a complete degree followed abroad (degree mobility).

At the national level, the Swiss 'Exchanges and mobility' strategy provides a long-term vision for young people's educational pathways (DFI et al., 2017): 'In the course of their education or during their transition into the workplace, all young people take part in a long-term exchange and mobility activity at least once. They will thus improve their language, social and professional skills as well as their prospects on the labour market. They also discover the linguistic and cultural diversity of Switzerland and other countries.' The strategy goes on to define four objectives:

- Objective 1: Exchanges and mobility are valued and recognised in order to achieve an increase in their quantity and quality.
- Objective 2: Exchanges and mobility are embedded in education, in the professional context and in the fields of culture and leisure.
- Objective 3: A targeted offer is available, and access to information and to the available offer is guaranteed.
- Objective 4: Stable partnerships are established, collaboration with third party partners at national and international level is intensified.

Since 2003, the Federal Statistical Office has had an indicator measuring the mobility rate during studies, whether gross (all mobilities combined), or net (mobilities of more than three months or at least 15 ECTS). This tool provides a global view of temporary student mobility at tertiary level in Switzerland (credit mobility). However, the definition of what is meant by the internationalisation of higher education institutions remains unclear, and its indicators are not always comparable across Swiss institutions. In order to help institutions achieve their student mobility objectives, it is therefore necessary to better understand, and to account for, the conditions that enable students to undertake a mobility programme.

In fact, temporary mobility generally remains a selective phenomenon in terms of socio-economic background and of a number of other factors (Haldimann et al., 2022; Stam & Rérat, 2019). Among these factors, it has been observed that social networks are critical determinants for students that decide to become mobile (Beech, 2015). Exposure to an international context during tertiary education can thus positively influence student mobility. It has been shown that young people learn to become mobile over time (Carlson, 2013; Gerhards, 2017), and that their motivations tend to change as they learn to be mobile

(Haldimann et al., 2021). Young people with less mobility experience need a greater amount of favourable conditions in order to participate in an exchange. The availability of student mobility for studies is a frequently cited incentive in the final decision to take the step.

This report focuses on the internationalisation of higher education institutions in order to provide elements for the interpretation of mobility rates. Although student mobility provides the starting point for this study, it aims to look beyond the mobility rate and to provide a comprehensive analysis of internationalisation in order to highlight the dimensions that positively influence the international mobility of students.

Internationalisation is defined by Knight (2008, p. 21) as ‘The process of integrating an international, intercultural or global dimension into the purpose, functions and delivery of post-secondary education’. The notion thus refers to a continuous development within different areas of higher education institutions, be it courses, research activities or services to society. The above definition has since been supplemented as follows: ‘[...] in order to enhance the quality of education and research for all students and staff, and to make a meaningful contribution to society.’ (Wit & Hunter, 2015)

More recently, Wit (2019) has shown the importance of making internationalisation widely accessible to students instead of focusing on international competitiveness, as the latter tends to be more in the interest of an elite subset of students. In order to democratise internationalisation, governance must take the lead in defining strategies and funding to meet internationalisation objectives.

This broad theoretical definition of internationalisation is further complemented by different dimensions (see section 1.1) and several possible operationalisations. For the purpose of this study, it had to be adapted to the reality of the field and to the necessity of obtaining comparable data between institutions. The present analysis seeks to provide a common base for the discussion of good practices relating to students’ internationalisation, as well as for the comparison between higher education institutions and the observation of their evolution over time.

The report first provides some theoretical background about the indicators selected for the measurement of internationalisation and the different dimensions of internationalisation that are to be explored. It then presents the results for each higher education institution. The original data and a brief description of the methodology used to create the index are available on Movetia’s [website](#) (documents available only in French).

The following section explains the theoretical background on which the index is based. The functioning of the Swiss higher education institutions, which are divided into universities and institutes of technology, universities of applied sciences and universities of teacher education is then described in detail, along with their specific characteristics. Section 2 presents the institutions’ mobility rates, as calculated based on data from the Swiss Federal Statistical Office, and the internationalisation index, based on data collected specifically for this study. Section 3 looks at the correlation between the indicators of the internationalisation index and student mobility in order to identify the dimensions that have a direct influence on mobility. Section 4 then details the results by indicator. Finally, the study’s limits are outlined and elements for improvement for future editions are suggested, and the report concludes with recommendations for Swiss higher education institutions.

1.1 The dimensions of internationalisation

Knight's (2004) first comprehensive definition of internationalisation identifies three levels of action: national policy, the education sector and the institutions. At the institutional level, Knight identifies eight dimensions, which are grouped into two categories: programmes strategies and organisation strategies (Table 1).

Programmes strategies	Organisation strategies
Academic programmes <i>Mobilities, inter-institutional agreements, study topics, etc.</i>	Governance <i>Management commitment, staff involvement, setting internationalisation targets, etc.</i>
Research and scholarly collaboration <i>Projects, publications or conferences</i>	Operations <i>Integration of the international dimension in planification, budgets and quality assessment processes; implementation of adequate organisational structures</i>
External relations <i>Cross-border: cooperation with other institutions on different themes</i> <i>Domestic: cooperation with non-governmental institutions</i>	Services <i>Institutional support for the actors involved (obtaining grants, orientation of international students or researchers, etc.)</i>
Extracurricular <i>Associations or events</i>	Human resources <i>Recognition of international expertise, ongoing development of this expertise</i>

Table 1: Dimensions of internationalisation according to Knight (2004)

The programmes strategies include *academic programmes*, which may present an international dimension through the subjects they touch upon, through the inclusion of student mobility (voluntary or compulsory), or through inter-institutional agreements allowing for double degrees (two degrees are obtained at the end of the programme) or joint degrees (a joint degree from both institutions is obtained at the end of the programme). *Research and scholarly collaboration* is another dimension of internationalisation, with international projects, publications or conferences. Knight also identifies *external relations*, which include cooperation with academic institutions abroad as well as with local non-academic institutions. The *extracurricular aspects* include events and associations which allow to create or maintain contact between students.

Within the different organisation strategies, *governance* stands for the institution's commitment to achieve its internationalisation objectives, be it through a global or sectoral internationalisation strategy or the formulation of specific objectives. The *operations* relate to the integration of internationalisation in planning, budgeting and quality assessment processes and the implementation of organisational structures supporting effective communication. The *services* refer to the support provided by the institution for the actors involved in internationalisation, and *human resources* can also influence internationalisation by recognising specific expertise and by supporting the organisation of mobility and other tasks in the international field.

In this project, the above elements were used as a basis for establishing the internationalisation index, while taking into account the difficulty of obtaining quantifiable indicators that also allow comparability between institutions. The selected indicators illustrate four key dimensions of the internationalisation process (the indicators are described in more detail in section 2.2 and on the [data sheet](#), available only in French):

– Nationalities

The hosting of international students or the recruitment of international staff is at the heart of the notion of internationalisation. Indicators of the proportion of foreign nationals among students, faculty and teaching staff, academic assistants and staff, and administrative staff provide information about the institution's recruitment strategies as well as on the functioning of research, of human resources and of related services.

– Study programmes

The internationalisation of study programmes is supposed to encourage student mobility, be it through courses taught in English which facilitate the integration of international students, through international studies which focus on global themes and often encourage students to follow part of the course abroad, or through partnerships (such as double or joint degrees) which encourage mobility in both directions.

– Research

This dimension is characterised by the difficulty of defining indicators that are comparable between institutions. Research projects are rarely centralised and strategies differ from one higher education institution to another. The most relevant indicator is given by the published articles, which is a comparable measure between institutions. To assess internationalisation in the field of research, it is thus possible to take into account the number of an article's co-authors based in a foreign institution. However, this dimension is only useful for universities and institutes of technology (UIT), as other types of higher education institutions have a lower number of publications.

– Strategy

The last dimension includes elements of governance and services. This dimension makes it possible to assess the strategic importance of internationalisation for higher education institutions, through indicators relating to the accessibility and democratisation of internationalisation. These indicators were compiled by Movetia especially for this project.

1.2 Higher education institutions in Switzerland

Switzerland's geographical location is particularly favourable to exchanges. The country is relatively small (8.5 million inhabitants) and benefits from a good economic situation. It is located in the middle of Europe and has an efficient transport infrastructure connecting it to neighbouring countries. Its four language regions and highly globalised economy require strong language and intercultural skills in the labour market, particularly for the tertiary sector. Switzerland also has the advantage of allowing young people to be exposed to a different culture within the country itself. For all these reasons, encouraging the educational mobility of young people is a political goal (DFI et al., 2017).

Since 2014, Switzerland is no longer associated with the European education programme Erasmus+. The Swiss-European Mobility Programme (SEMP) was introduced as a way of maintaining a mobility offer for students and higher education institution staff. With the SEMP, European mobility to and from Switzerland is guaranteed. For other programmes and strategic measures offered by Erasmus+, Switzerland is partially excluded from participation and active development.

The SEMP is now part of *the Swiss Programme for Erasmus+*, which promotes European cooperation not only in higher education, but also in vocational, school and adult education as well as in extracurricular youth activities.

In Switzerland, there are three types of higher education institutions, focusing respectively on basic research, applied sciences and arts, and teacher training (swissuniversities, 2020):

- **Universities and institutes of technology** aim to offer a high quality scientific and theory-based education in many research fields. They also focus on the development of scientific research.

Several types of study programmes are only available at these institutions, such as the humanities, many science degrees and some engineering degrees. There are 10 universities and two institutes of technology in Switzerland, which offered courses for about 153,000 students in 2018. They are divided between the three language regions, with five institutions in German-speaking Switzerland, two in bilingual cantons, four in French-speaking Switzerland and one in Italian-speaking Switzerland.

Most major Swiss universities cover all disciplines. They offer study programmes at bachelor, master and doctoral level, as well as further education. There is a strong emphasis on basic research and teaching is research-based. The internationalisation of these institutions is often cited as being particularly important. To be eligible, students must usually have obtained a Swiss Matura or an equivalent foreign diploma.

- **Universities of applied sciences** focus on practice-oriented teaching and preparation for the professional context. The programmes cover health, arts, social, technical and economic fields. Their aim is to provide scientific and vocational education, to conduct applied research and to promote cooperation with practice and industry. In 2018, there were 8 universities of applied

sciences with a total of about 95,000 students. The University of Applied Sciences of the Grisons was part of the University of Applied Sciences of Eastern Switzerland until 2020. It then became independent, forming the 9th university of applied sciences in Switzerland.

Some programmes, such as landscape architecture, various health sciences, music, theatre, film, and art and design, are only available in this type of institution. They promote partnerships with companies and professors often come directly from the field. Universities of applied sciences ensure that study programmes are practice-oriented and offer application-oriented research. To be eligible, students must usually have obtained a Swiss vocational diploma or an equivalent foreign diploma.

- **Universities of teacher education** aim to train teachers for the primary and secondary levels, or in the field of special education. The courses are based on practice. There are a total of 20 universities of teacher education in Switzerland with approximately 21,000 students. However, some of the universities of teacher education are part of a university of applied sciences, and in some cases, it was not possible to differentiate the data for the university of teacher education from the data for the university of applied sciences as a whole (see groupings in Annex A1).

The size of these institutions varies, some are relatively small. Their main objective is to train teachers, although they are also increasingly developing research in the field of education. Most professors hold both academic and teaching degrees.

In general, the different types of higher education institutions differ in size and in their teaching and research objectives.

1.3 Objectives

The aim of this report is firstly to analyse the mobility of students at Swiss higher education institutions (universities and institutes of technology, universities of applied sciences and universities of teacher education). The term *mobility* is used to refer to a temporary mobility in the sense of the Federal Statistical Office: a mobility experience abroad of at least three months or worth at least 15 ECTS, that was completed during a bachelor or a master degree in a Swiss higher education institution.

Secondly, the present report aims to measure the institutions' internationalisation with the help of different indicators. These indicators are based on data from the Federal Statistical Office, swissuniversities, Elsevier, as well as on data collected by Movetia specifically for this study. The indicators focus mainly on students at bachelor's and master's level, in order to provide interpretative elements for the differences in mobility rates between institutions.

These indicators are then compiled in an index in order to simplify the information and to compare the scores of Swiss higher education institutions. This first edition of the index is based on data from 2018, to avoid bias due to the coronavirus pandemic. It is important to note that the index is not meant as a qualitative assessment of Swiss higher education institutions. Instead it aims to provide comparable indicators related to internationalisation, in order to formulate recommendations for the sector's actors.

A brief description of the indicators and the index's composition as well as the original data for each indicator can be found on Movetia's [website](#) (documents only available in French).

2 Mobility and internationalisation rankings

2.1 Student mobility

Data on outgoing student mobility are provided by the Federal Statistical Office. They are sourced from the *Survey of higher education graduates (EHA)*. Although the study is exhaustive, the participation is optional. In order to compensate for the missing data, the answers are weighted based on the characteristics of the overall student population (e.g. their affiliation to a higher education institution, their field of study, their study level or their gender) that are provided by the Swiss information system for higher education. The probability of the different responses is calculated and adapted to their occurrence within the surveyed population. The numbers obtained make it possible to extrapolate results for the entire population of graduates. To inform about the quality of the relative frequency estimate (%), the confidence index is reported in the tables using half the 95% confidence interval value (+/-) around the estimated value.

The survey interviews students in order to understand their situation after graduating at Bachelor or Master level. One of the questions concerns the undertaking of a mobility of at least three months or 15 ECTS credits during the course of their studies. This mobility may take the form of a study period in an institution abroad or of an international internship. If more than one stay took place, only the longest one is counted.

Figure 1 shows the proportion of students who undertook a mobility at some point during their studies and graduated at bachelor or master level in 2020. As there is a time gap between the year of graduation and the year in which the mobility took place, it was decided to compare the 2020 data on graduates' mobility with the 2018 internationalisation indicators. The 2020 data are the most recent data presently available. They present the advantage of not having been impacted by the coronavirus pandemic, as for most of the students who graduated in 2020 the mobility will have taken place before the start of the pandemic in early spring 2020.

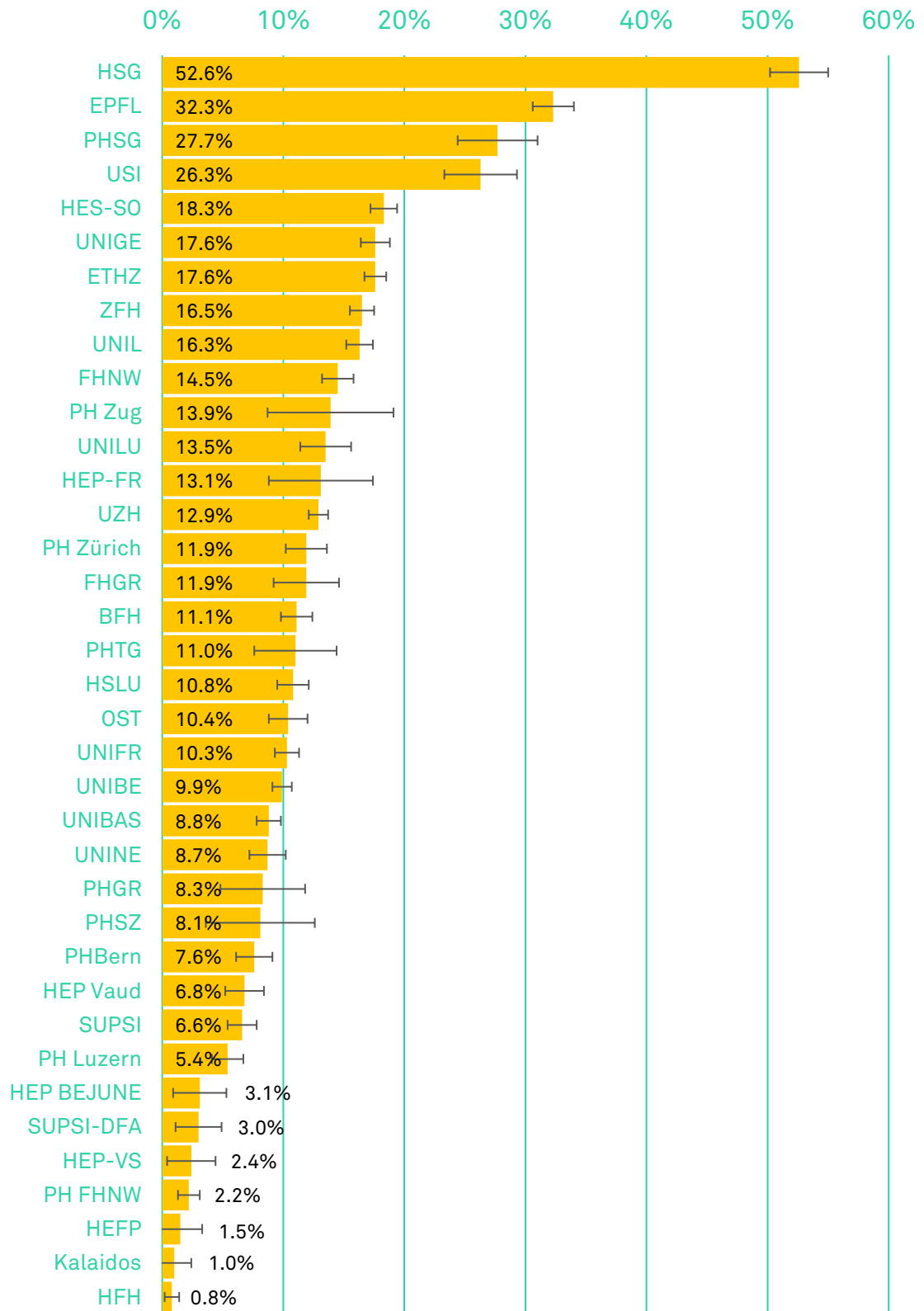


Figure 1: Proportion of students having completed a mobility programme during their studies and having graduated in Switzerland in 2020. Data from the following institutions are too scarce to be taken into consideration: PSHH, HETS-GE, SHLR. The University of Applied Sciences of the Grisons became independent from the University of Eastern Switzerland in 2020, so the data of the two institutions are presented separately. Some universities are grouped under the denomination "other higher education institutions" in the original data and are not presented in this ranking. The abbreviations used for the higher education institutions are described in Annex A1.

When considering all 2020 graduates at bachelor and master level, the Swiss average is 15.7% of mobile students (margin of error $\pm 0.3\%$).

When analysing the individual institutions, four universities stand out. Among these four, the University of St.Gallen (52.6% ; $\pm 2.4\%$) has a particularly high mobility rate compared to other higher education institutions. The following institutions also have rates above 20%: EPFL, the Swiss Federal Institute of Technology in Lausanne (32.3% ; $\pm 1.7\%$), the University of Teacher Education St.Gallen (27.7% ; $\pm 3.3\%$) and the Università della Svizzera italiana (26.3% ; $\pm 3.0\%$). The other higher education institutions have mobility rates below 20%, starting with the HES-SO University of Applied Sciences Western Switzerland (18.3% ; $\pm 1.1\%$) and ending with the University of Applied Sciences for Special Needs Education Zurich (0.8% ; $\pm 0.6\%$). Although most Universities of Teacher Education are to be found at the lower end of the ranking, some have high mobility rates, such as the Universities of Teacher Education of St.Gallen, Zug, Fribourg, Zürich and Thurgau. The middle part of the ranking is mainly occupied by the universities and institutes of technology as well as by the universities of applied sciences.

Data from the Federal Statistical Office refer only to *outgoing* mobility. Data on *incoming* mobility are not collected by the FSO, but are available in the institutions' administrative data. In order to obtain another type of comparison between institutions, Movetia collected data on the total number of students on incoming mobility in 2018 at each institution. In order to be able to compare the institutions between them, this number was then correlated with the total number of students registered at the institution that same year, which gives an idea of the institution's size. The underlying assumption being that an institution with a total of 200 students cannot accommodate the same number of incoming mobilities as an institution with over 20'000 enrolled students.

It is important to underline that the data on incoming mobility and the data on outgoing mobility are being looked at from an entirely different perspective. It is thus impossible to make a direct comparison between the numbers pertaining to incoming mobility (stated in relation to the institution's overall student population) and the ones pertaining to outgoing mobility (stated in relation to the overall number of graduates of a given year).

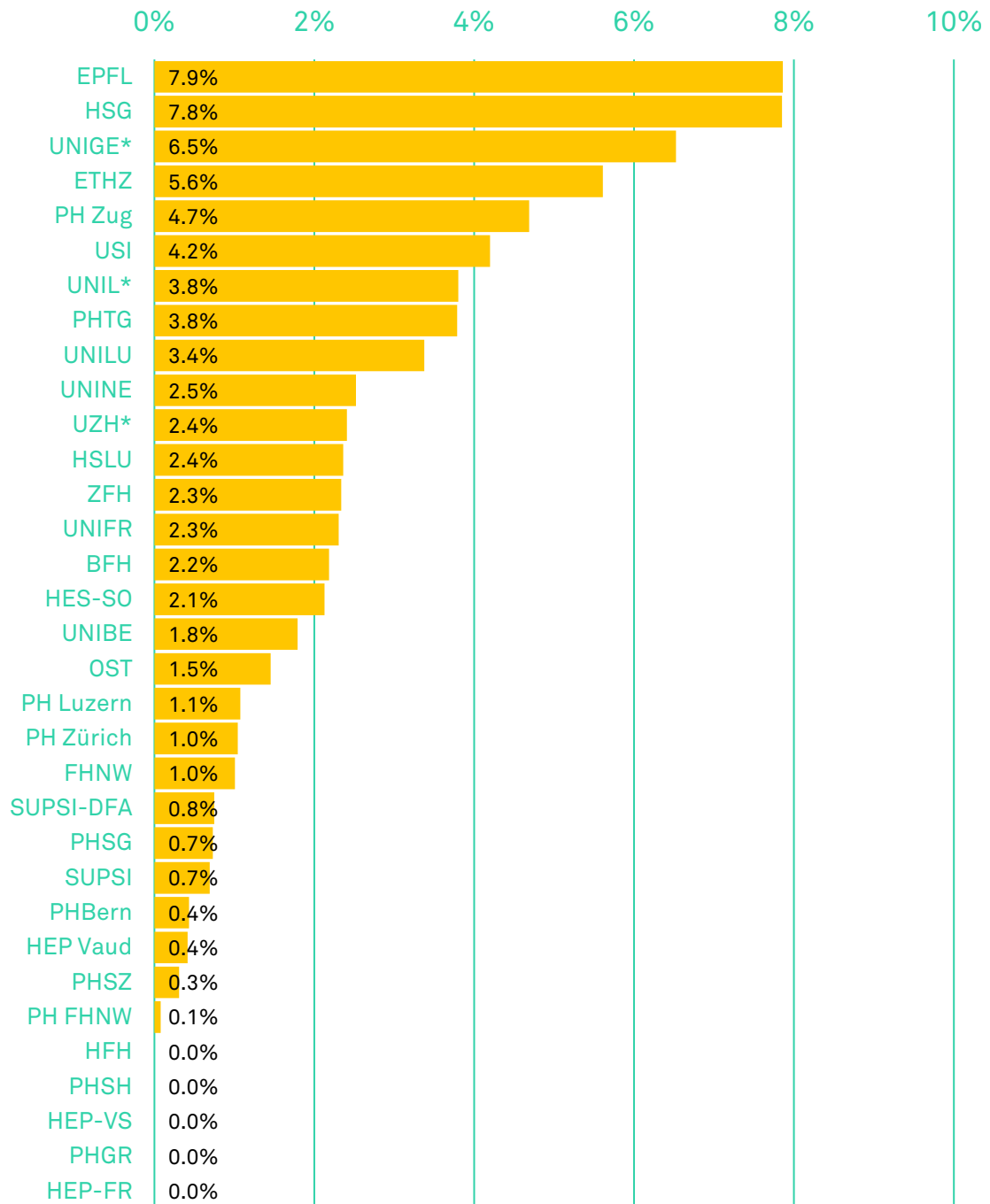


Figure 2: Percentage of students on incoming mobility in relation to the total of enrolled students in 2018. Universities marked with an *: only exchanges under agreement (free-movers not included). Data are missing for the following institutions: UNIBAS, HEP BEJUNE, Kalaidos, SHLR and HEFP. The University of Applied Sciences of the Grisons was still part of the University of Eastern Switzerland in 2018.

The ranking with regard to incoming mobility is relatively similar to the one for outgoing mobility. The federal institutes of technology gain several places in the ranking, probably due to their good international exposure. The same applies to the University of Geneva. In contrast, the Università della Svizzera italiana falls back a few places in the ranking. Similarly to the data on outgoing mobility, the universities of teacher education are found in the lower part of the ranking, while universities and institutes of technology, as well as universities of applied sciences share the middle part of the ranking.

2.2 Internationalisation index

In this project, internationalisation was defined by 11 indicators related to four different dimensions (see Table 2): these indicators are detailed in part 4 of the report.

The index is a way of summarising the information contained in several indicators in order to make the results more accessible and to allow comparison between institutions. The information gathered from all the different indicators comes as a score between 0 and 1. This 'internationalisation score' makes it easy to compare institutions and see how each institution ranks. The detailed methodology for this index is available [in the data sheet](#) (only in French).

Dimension	Indicators
Nationalities	Proportion of foreign nationals among: <ol style="list-style-type: none"> 1. Students 2. Academic assistants and staff 3. Faculty and teaching staff 4. Management, administrative and technical staff
Study programmes	Proportion of study programmes containing courses in English Proportion of study programmes with an international dimension Proportion of study programmes in collaboration with a foreign institution
Research ¹	International collaboration (weighted)
Strategy	Accommodation available for visitors Additional funding for student mobility provided by the institutions Number of partner institutions enabling student exchanges

Table 2: Dimensions and indicators of internationalisation

The internationalisation index is shown below (Figure 3). The score represents the average of each dimension², which in turn represents the average value of each indicator within it. It should be noted that all indicators are transformed before being included in the final internationalisation index formula:

$$\frac{\text{value of the institution} - \text{minimum Swiss value}}{\text{maximum Swiss value} - \text{minimum Swiss value}}$$

This transformation makes it possible to obtain positive values between 0 (minimum value) and 1 (maximum value) for each indicator and thus to summarise the information in a coherent way, while preserving the variations between the institutions. For more details, see the [data sheet](#).

If a higher education institution were to achieve the highest Swiss scores in all four dimensions, it would receive a score of 1. In contrast, if a higher education institution were to have the lowest scores across all indicators, it would receive a score of 0.

¹ Only for the 12 universities and institutes of technology

² The dimension of research is only included for universities and institutes of technology. This dimension is ignored for the other types of institutions. As the score in the index is an average of the dimensions, its absence for universities of applied sciences and universities of teacher education does not influence the final ranking.

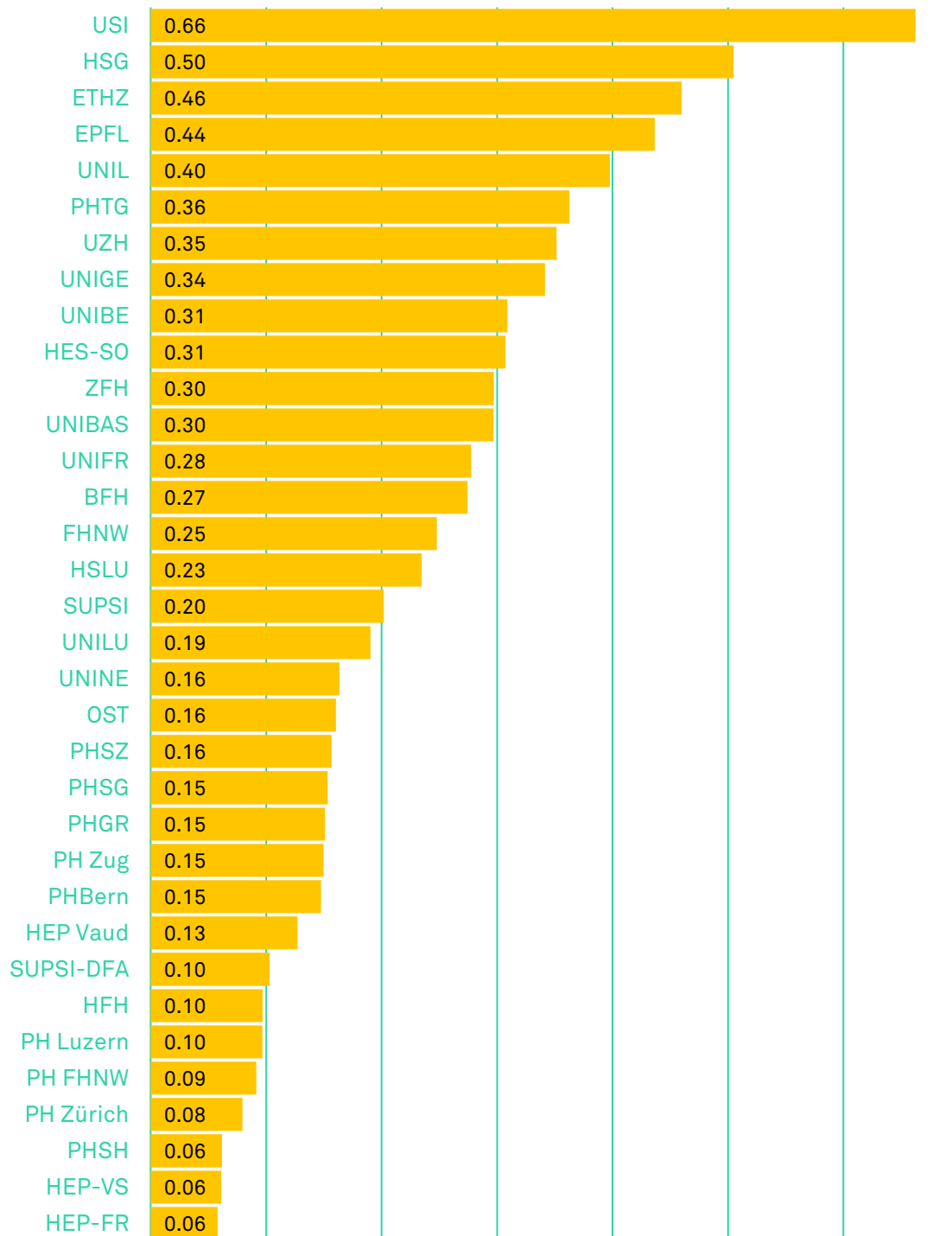


Figure 3: Internationalisation index – Results for higher education institutions in 2018. The abbreviations used for the higher education institutions are described in Annex A1. Data are missing for the following institutions: HEP BEJUNE, Kalaidos, SHLR and HEFP. The University of Applied Sciences of the Grisons was still part of the University of Eastern Switzerland in 2018.

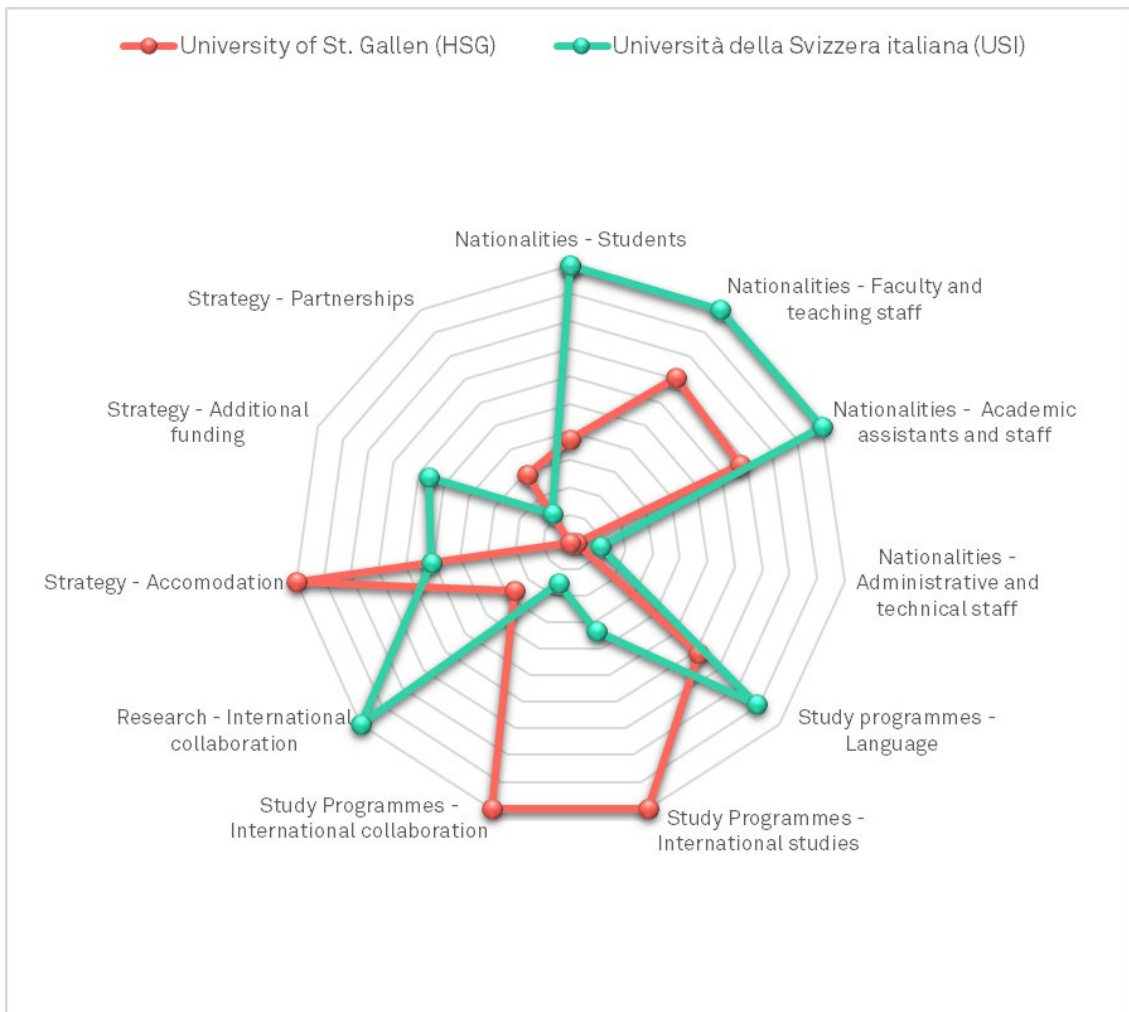
Universities and institutes of technology rank at the top of the index, highlighting the importance of internationalisation for this type of institution. The University of Teacher Education Thurgau (PHTG) is ranked 6th and the University of Applied Sciences and Arts Western Switzerland (HES-SO) 10th.

The Università della Svizzera italiana (USI) is ranked first, followed by the University of St.Gallen (HSG) and the two federal institutes of technology (ETHZ, followed by EPFL). It is interesting to note that between the highest ranking institutions in the index, the score's composition varies significantly when looked at in more detail (see for example Figure 4). The university ranking ends at the 18th rank, with the University of Neuchâtel (UNINE). The importance of internationalisation for universities and institutes of technology can thus be clearly seen by their position in at the top and in the middle of the ranking.

The universities of applied sciences occupy relatively central positions in the ranking, ranging from the 10th place for the University of Applied Sciences and Arts Western Switzerland (HES-SO) to the 20th place for the University of Applied Sciences Eastern Switzerland (OST). Compared to universities and institutes of technology, they offer a more practice-oriented education, which may in part limit their internationalisation. The variations observed between different universities of applied sciences can be explained by differences in the local context, but also by the relative size of each institution, which may vary according to the groupings of schools under the same institution.

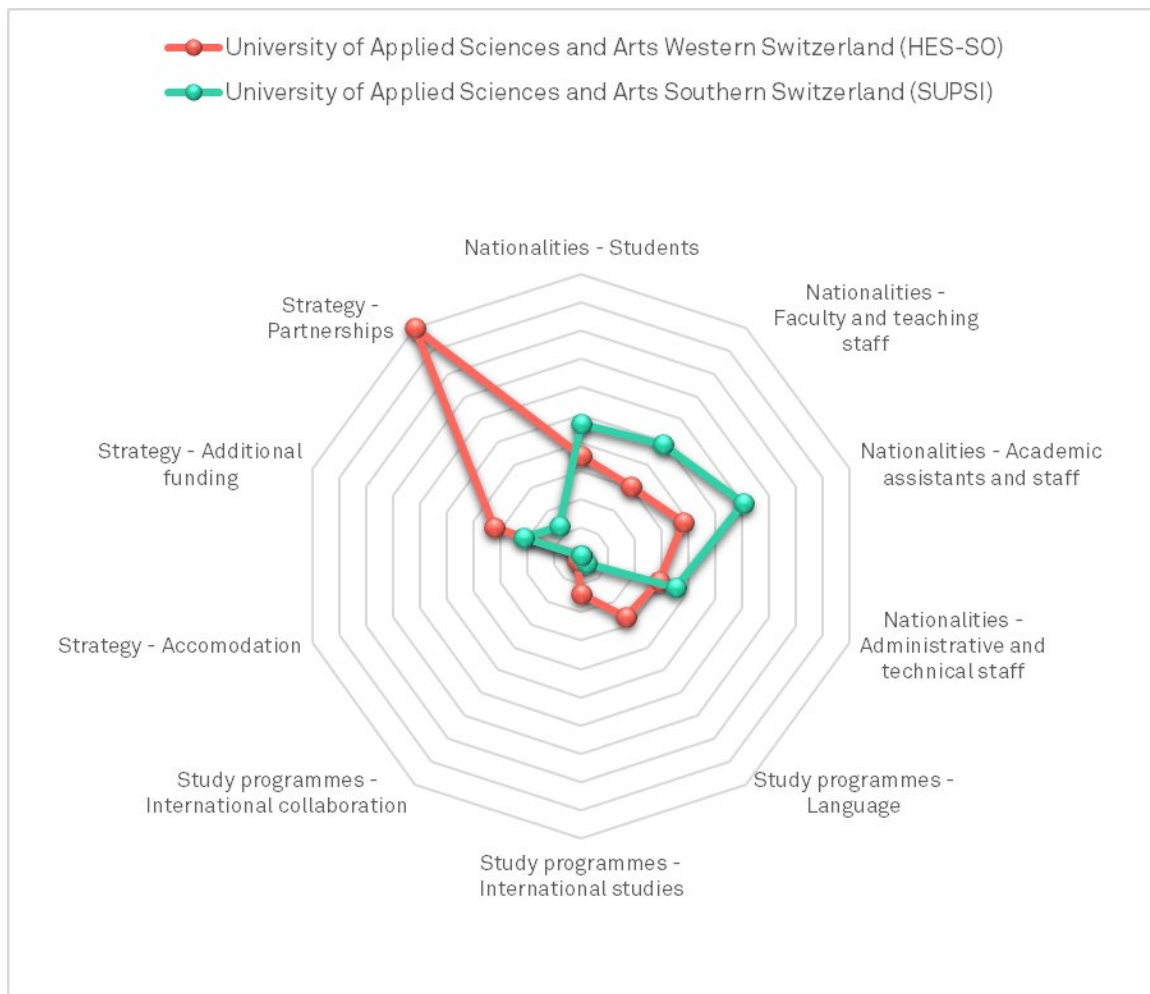
Finally, with the exception of the University of Teacher Education Thurgau (PHTG) in 6th place, the universities of teacher education tend to be found in the lower part of the index, ranging from the 21st place for the Schwyz University of Teacher Education to the 34th place for the University of Teacher Education Fribourg (HEP-FR). Universities of teacher education offer practice-oriented education geared towards the Swiss school system, and internationalisation may not be among the top priorities for these institutions. The special case of the University of Teacher Education Thurgau is mainly due to its cooperation with Germany and Austria (see detailed results in section 4).

The internationalisation score may cover different realities depending on the context or strategies of the institutions. To illustrate these data and before going into the details of each indicator, two examples of the composition of the internationalisation index will help show the differences between similarly positioned institutions.



The first example shows the values obtained for the different indicators for the first two institutions in the ranking: the Università della Svizzera italiana, and the University of St.Gallen (Figure 4). Although the two institutions are close in terms of their ranking in the index, the composition of their score differs. The Università della Svizzera italiana stands out mainly due to the nationality of its students, faculty and teaching staff, and academic assistants and staff, achieving the highest values in Switzerland for these indicators. The same applies to international research collaboration. These values could be explained by the particular geographical position of the Italian part of Switzerland.

The University of St.Gallen stands out through the content of its internationally oriented study programmes. It achieves the highest values in Switzerland in the dimension of education, with a large number of international study programmes, offered in partnership with international institutions. In addition, it offers plenty of accommodation for visitors from abroad. Thus, despite their similar position in the ranking, the indicators for the Università della Svizzera italiana and the University of St.Gallen reveal different strategies: where the Università della Svizzera italiana might have an advantage due to its geographical position, the University of St.Gallen seems to be pursuing an internationalisation strategy that focuses on its study programmes.



The comparison above illustrates the case of two universities of applied sciences (Figure 5): the University of Applied Sciences and Arts Western Switzerland (HES-SO) and the University of Applied Sciences and Arts of Southern Switzerland (SUPSI). These two institutions are eight ranks apart in the index, with the HES-SO in 10th place and the SUPSI in 18th place. However, their ranking is not influenced by the same indicators. SUPSI ranks higher in terms of the proportion of international students and staff (across all categories). This situation is similar to the one of the Università della Svizzera italiana.

In contrast, the HES-SO scores slightly better in the educational indicators, with more study programmes including English language courses or covering global topics. It also offers more funding for student mobility than SUPSI. Finally, it has a very large number of international partner institutions enabling students to undertake mobility.

These two examples illustrate the diversity of situations that may lie behind a similar position in the index.

A full description of all indicators can be found in section 4.

3 The influence of internationalisation on mobility

One of the objectives of this project is to measure the influence of internationalisation on student mobility. To this end, a correlation analysis was carried out between the index's dimensions and indicators on the one hand, and student mobility (incoming and outgoing) on the other.

The Pearson coefficient measures the correlation between two continuous variables by estimating the best regression line between the two indicators and observing the dispersion of the points with respect to this line (see Figure 6). The closer the points are, the better the correlation. The indicator consists of two numbers. The first value is the best possible regression line between the two variables analysed (see the dotted line in Figure 6). The value of the number corresponds to the slope of the line and lies between -1 and +1. A positive slope means that the variables follow the same trajectory, while a negative slope means an opposite association: when the value of the first variable increases, the second decreases. The second value lies between 0 and 1 and determines the significance, i.e. the proximity of the points to the regression line. The best association would be indicated by a value of 0, meaning that all points lie on the regression line. The maximum value of 0.05 is generally accepted to determine that there is an association between the two variables.

It is important to note a limitation of this analysis. In order to determine a correlation between two variables, it would be necessary to be able to observe them 'all other things being equal'. In this context, it would mean having exactly the same number of students in each institution, which cannot be achieved in practice. It is therefore possible that certain characteristics of the institutions influence the results, such as the geographical context or the admission criteria for students. While these elements may bias the results of individual institutions, these influences are considered to be minimal in an analysis of all 34 Swiss institutions. Finally, a correlation does not necessarily imply a causal link between these two indicators. It simply means that there is an association between them. It is generally to be expected that internationalisation influences student mobility. The causality may be equivocal in certain cases. These cases are explicitly mentioned in the text.

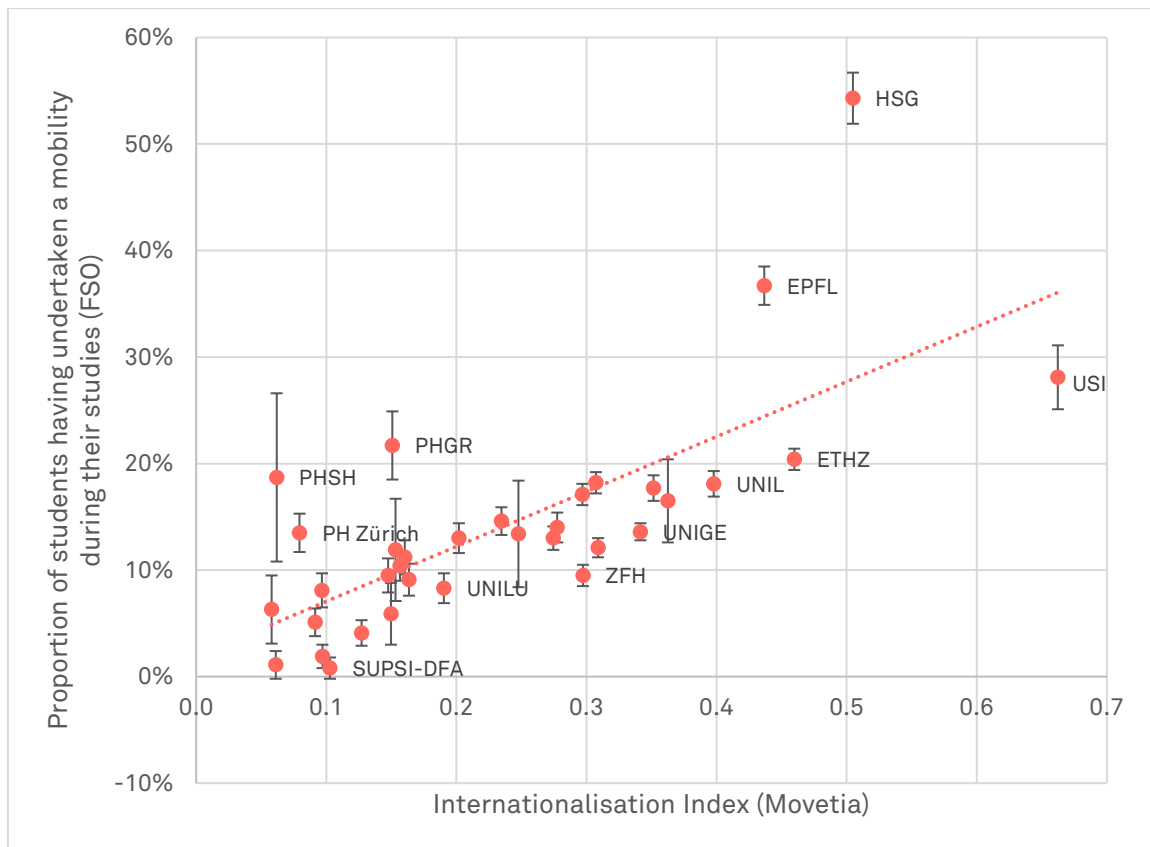


Figure 6: Internationalisation index score and proportion of mobile (outgoing) students³

There is a strong correlation between our internationalisation index and the proportion of students who have been mobile. As shown in Figure 6, which plots the internationalisation index horizontally and the proportion of students who have been mobile during their studies vertically, most institutions follow the linear regression line shown in dotted lines. In statistical terms, the slope of the Pearson correlation coefficient has a value of 0.721 and a significance of 0.000, which corresponds to a very strong association between the two variables.

The same is true if the exercise is repeated with incoming mobility: the slope of the Pearson correlation coefficient is 0.772, with a significance of 0.000, revealing the same very strong correlation between internationalisation and incoming student mobility. The exercise is then repeated with each dimension and indicator of the index; the measures of association are summarised in Table 3 below. All measures have been made both with the indicator for incoming mobility and the indicator for outgoing mobility⁴.

³ Analyses were conducted prior to the release of 2020 data. Although the analyses presented include 2018 graduate data, it was verified that the interpretations do not differ with the 2020 graduate data.

⁴ The same applies here.

Dimensions	Indicators	Pearson correlation coefficient			
		Outgoing mobility		Incoming mobility	
		Slope	Sig.	Slope	Sig.
Nationalities		0.592	0.000 ***	0.675	0.000 ***
	Students	0.579	0.000 ***	0.607	0.000 ***
	Faculty and teaching staff	0.526	0.001 **	0.590	0.000 ***
	Academic assistants and staff	0.558	0.001 **	0.708	0.000 ***
	Management, administrative and technical staff	0.056	0.754	0.073	0.685
Study programmes		0.770	0.000 ***	0.722	0.000 ***
	Proportion of study programmes containing courses in English	0.587	0.000 ***	0.687	0.000 ***
	Proportion of study programmes with an international dimension	0.576	0.000 ***	0.557	0.001 ***
	Proportion of study programmes in collaboration with a foreign institution	0.601	0.000 ***	0.385	0.027 *
Research	International collaboration	0.249	0.435	0.196	0.563
Strategy		0.447	0.008 **	0.515	0.002 **
	Accommodation available for visitors	0.754	0.000 ***	0.700	0.000 ***
	Additional funding for student mobility provided by the institution	0.212	0.237	0.308	0.086
	Number of partner institutions enabling student exchanges	0.038	0.833	0.116	0.521

Table 3: Correlation between internationalisation indicators and student mobility (incoming and outgoing). The stars refer to the usual significance levels: st = $P > 0.05$; * = $P \leq 0.05$; ** = $P \leq 0.01$; *** = $P \leq 0.001$

A majority of indicators are directly correlated to student mobility, both incoming and outgoing. The exceptions are the nationality of administrative and technical staff, the research dimension, the number of partner institutions for student mobility and the existence of additional funding for mobility. The lack of direct influence between a given indicator and mobility does not invalidate its presence in the index; internationalisation is not a uniform process and institutions may choose to prioritise different dimensions. Even if they do not necessarily influence each other, they all participate in the internationalisation process.

In this respect, the results indicate that the internationalisation of research is not directly linked to student mobility. In this case, it is possible that some institutions prioritise the promotion of internationalisation of research, while others focus on student mobility. The absence of a direct link may be explained by a lack of synergies between these dimensions. However, both remain relevant to the internationalisation process.

However, there is a clear link between the range of study programmes on offer and student mobility, particularly for international study programmes and partnerships with foreign universities. These results are intuitive: study programmes offered in partnership with a foreign university greatly facilitates (and often requires) mobility on the part of students. The same is true for study programmes that offer topics related to international studies⁵ which deal with global issues and strongly encourage students to be mobile.

The dimension of nationalities is also strongly correlated with incoming and outgoing mobility. This association seems to vary according to the number of interactions between different categories of people and students; interactions with students from abroad are the most significant, followed by those with international faculty and academic assistants and staff. The proportion of international staff among the management and administrative and technical staff, on the other hand, is not correlated with student

⁵ The indicator for the proportion of international studies was defined on the basis of the study programmes' names. More details are available in section 4.2.2 and on the [data sheet](#) (only available in French).

mobility. These results therefore support the importance of social networks in the choice to become mobile.

Regarding the dimension of strategy, the results differ between the indicators. The number of available accommodations is strongly correlated with the number of incoming mobilities, but also with the number of outgoing mobilities. However, the causality between available accommodation and incoming mobility could be equivocal as the amount of accommodation could also be related to the number of visitors. The link between accommodation for international visitors and outgoing mobility would require further investigation but it seems to point in the same direction as the relation observed between the dimension of nationalities and outgoing mobility. Greater attendance by international students may encourage the local student population to become mobile.

However, the number of available destinations (represented by the number of partner institutions) has no direct influence on student mobility rates. The same is true for additional funding available for mobility. Several interpretations are possible for this last result. It could mean that SEMP grants are a sufficient incentive for students to undertake exchange programmes, and that additional funding does not have more incentive power. Another possible explanation lies in the composition of the student population at each institution; highly internationalised institutions may attract students who can more easily afford mobility and do not need financial incentives. Conversely, less internationalised higher education institutions may be tempted to promote mobility through additional funding, although they may not be able to reach the level of mobility of the most globalised institutions. This interpretation should, however, be treated with a degree of caution. The main finding is that there is no direct link between additional funding for mobility and a higher mobility rate. A more detailed analysis based on destinations would provide more insight into the effect of additional funding for mobility, particularly for destinations outside Europe (that were not covered by the SEMP until 2021).

In conclusion, the results mainly reveal the influence of study programmes on mobility rates. While it is clear that not all institutions have a vocation to offer international studies as part of their programme, partnerships with foreign universities and the use of English as a lingua franca can be highlighted as strategic choices to help students become mobile, and thus increase the institution's mobility rate.

Furthermore, the number of accommodations provided to visitors is clearly correlated with incoming and outgoing mobility. The same applies to the proportion of foreign nationals at the institution, be it among students, faculty and teaching staff, or academic assistants and staff. These correlations highlight the fact that, besides the study programmes on offer, social networks are also an important factor influencing mobility: the presence of students from abroad encourages outgoing mobility among the local student population. These results tend to speak for comprehensive strategies aimed at furthering exchanges between the local and international populations (for example by developing international visibility or by actively recruiting international staff).

4 Details of the dimensions of internationalisation

The fourth part of the report details the results for the different indicators making up the index in order to propose elements of interpretation for the data shown in the internationalisation index. The results for every indicator are presented together with a top 10 of the institutions⁶ achieving the highest score. The main take-aways are highlighted for each indicator.

4.1 Dimension of nationalities

Main messages

- Some institutions consistently rank high in the nationality indicators for students, faculty and academic assistants and staff. These results could be linked to the institution's international exposure as well as to strategic recruitment choices.
- The results are different when higher education institutions are ranked according to the share of foreign nationals in their administrative and technical staff.

⁶ The full rankings for each indicator are available on Movetia's [website](#). For the following institutions, the survey submitted by Movetia was not completed and the data are therefore missing: HEP BEJUNE, Kalaidos, SHLR and HEFP. The data are also missing for the institutions that are grouped under the denomination "other higher education institutions" in the data provided by the Federal Statistical Office: the FSO did not have access to these institutions' data.

The dimension of nationalities looks at indicators that measure the proportion of foreign nationals among students and staff. It touches upon several elements mentioned in Knight's definition of internationalisation (2004), be it governance, through the recruitment of international staff, resources, through the recognition of international expertise for administrative staff, or services, in an indirect way.

The nationality indicators take into account the proportion of foreigners present on the labour market of the canton in which the institution is implemented in order to avoid a bias in cross-border regions. The indicators correspond to the difference between the share of foreign nationals among the staff of the higher education institutions and the share of foreigners on the labour market. A value of 100% therefore means that the proportion of foreign nationals among staff of the higher education institution is equivalent to the proportion of foreign nationals on the labour market of the corresponding canton.

This weighting does not apply to students, as they do not study at universities situated in border regions specifically for reasons linked to the labour market.

4.1.1 Proportion of foreign nationals among students

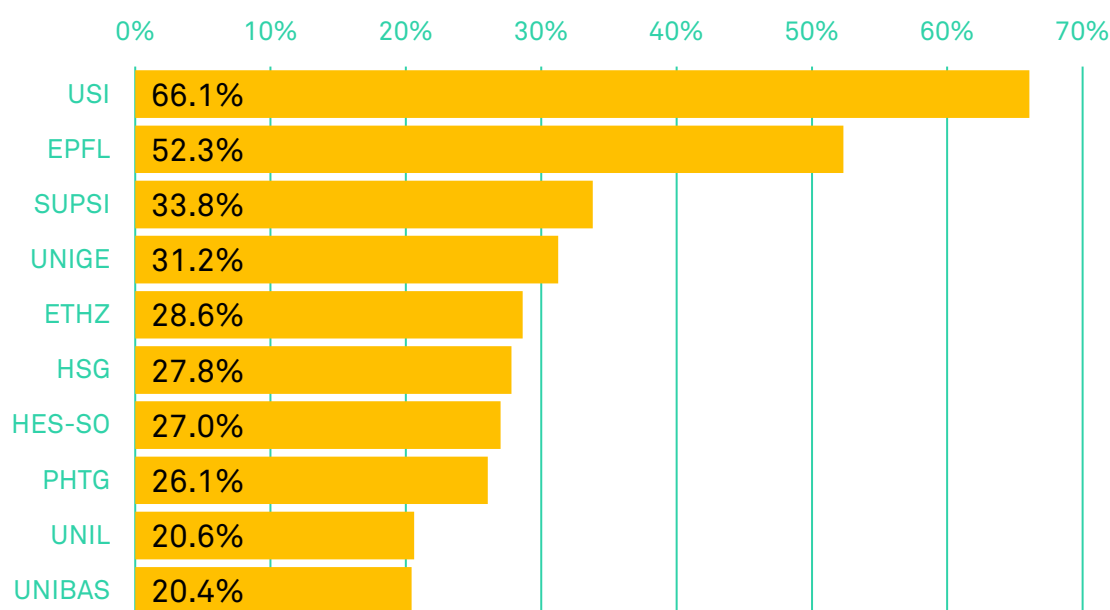


Figure 7: Proportion of foreign nationals among students in 2018

The proportion of foreign nationals among students (Figure 7) is to be differentiated from the mobility rates observed in part 1. For students to be included in this category, they must be enrolled in a full course of study (bachelor's or master's programme) at a Swiss higher education institution. Students visiting the institution for a semester or two are not included in this category. Similarly, students registered at a Swiss institution who are spending a semester abroad will appear as registered at the Swiss institution.

The results of this indicator show a very high concentration of foreign nationals among students in the Italian-speaking part of Switzerland, as well as at the federal institutes of technology and at the universities of Geneva and St.Gallen. The HES-SO and the University of Teacher Education Thurgau are ranked 7th and 8th. Several elements can be put forward to explain these results. The geographical location of the Università della Svizzera italiana and its connections with Italy could provide an incentive for Italian students to attend its courses. Moreover, the institutes of technology benefit from high international exposure, thus attracting more foreign students. This is also the case for the University of Geneva, which could benefit from Geneva's international exposure, as well as from its proximity to France. The case of the University of Teacher Education Thurgau is special: one explanation lies in the study programmes it offers (see section 4.2.3).

4.1.2 Proportion of foreign nationals among teaching staff

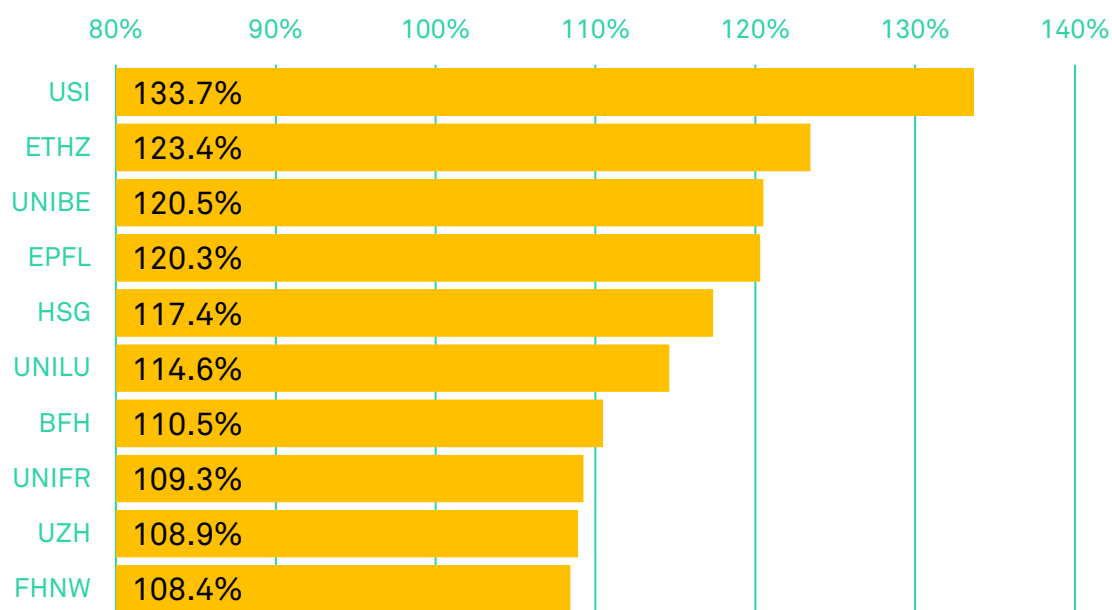


Figure 8: Proportion of foreign nationals among teaching staff at higher education institutions (difference with the working population) in 2018

The indicators looking at the nationalities of staff are all weighted according to the number of foreign nationals present in the working population of the institution's canton. This weighting makes it possible to analyse higher education institutions' policies more precisely by isolating the attractiveness of the Swiss labour market in border areas. The indicator in Figure 8 therefore represents the difference between the share of foreign nationals among the institution's staff and that of the canton in which it is located.

The ranking of higher education institutions according to the proportion of foreign nationals among their teaching staff⁷ is similar to the results for the indicator looking at students' nationalities. The reasons mentioned in the previous point such as the geographical location of the Università della Svizzera italiana or the exposure of the institutes of technology are still relevant here. The University of Bern comes third in the ranking, with a difference of 20.5 percentage points between the share of foreign nationals among its faculty staff and the share of foreign nationals on the labour market of its canton.

The universities of applied sciences are less represented at the top of this ranking, and the Bern University of Applied Sciences only comes in at rank 7. It should be noted that only 14 higher education institutions have a higher proportion of foreign nationals among their faculty staff than their canton's labour market. This means that 20 of them have a proportion of international faculty that lies below the proportion of foreign workers on the labour market in their canton, including all the universities of teacher education.

⁷ All persons employed at a higher education institution on 31 December (survey date) are considered to be staff members. The category of teaching staff includes faculty members and other teachers, defined according to the Swiss Higher Education Information System (SHIS).

4.1.3 Proportion of foreign nationals among academic assistants and staff

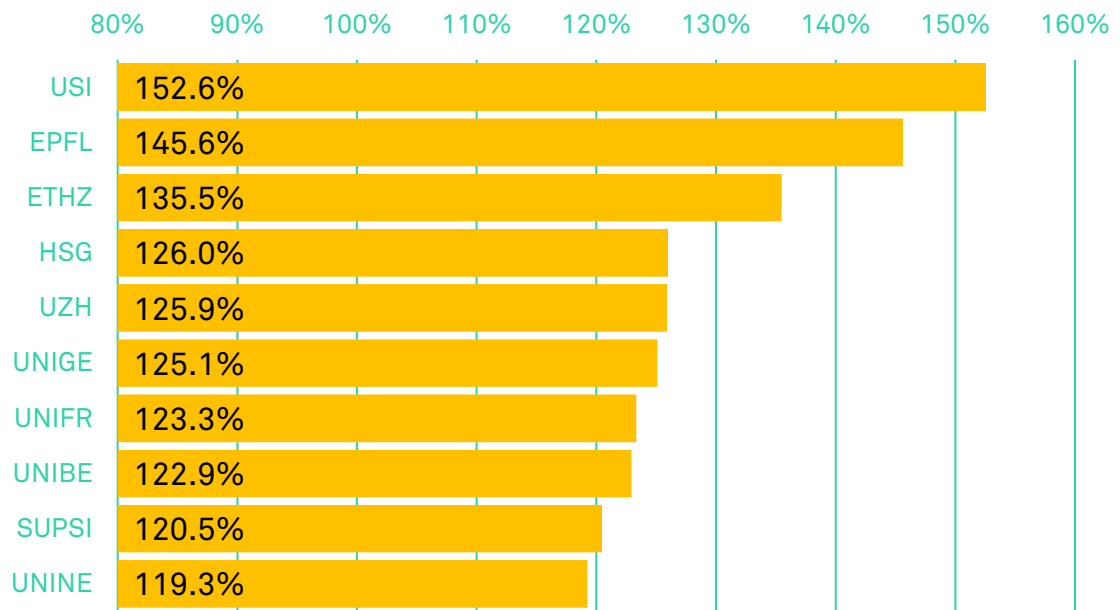


Figure 9: Proportion of foreign nationals among academic assistants and staff at higher education institutions (difference with the working population) in 2018

The indicator for the proportion of foreign nationals among academic assistants and staff at higher education institutions also uses the weighting according to the proportion of foreign nationals on the labour market of the canton in which the institution is located.

The top of the ranking is similar to the ranking for faculty members, with the Università della Svizzera italiana in first place, followed by the institutes of technology. Although most of the institutions shown in Figure 9 are universities and institutes of technology, the SUPSI is ranked 9th and is thus the only university of applied sciences to be included in the top ten.

4.1.4 Proportion of foreign nationals among the management, administrative and technical staff

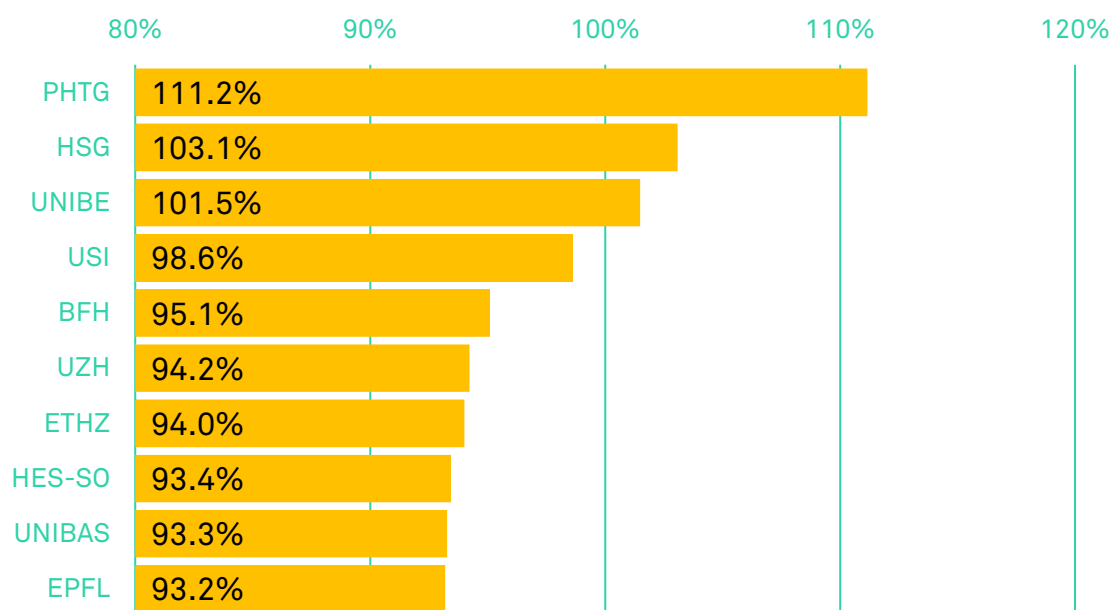


Figure 10: Proportion of foreign nationals among the management, administrative and technical staff of higher education institutions (difference with the working population) in 2018.

Finally, the last nationality indicator focuses on the management, administrative and technical staff of higher education institutions (Figure 10). Once again, the weighting according to the proportion of foreign nationals in the canton in which the institution is located is taken into consideration.

In general, most institutions have lower shares of foreign nationals in this staff category. The University of Teacher Education Thurgau ranks first in this category. It is followed by the universities of St.Gallen and Bern, which have a slightly higher proportion of foreign nationals among their administrative and technical staff than the labour market in their canton. The Università della Svizzera italiana, the Bern University of Applied Sciences, the University of Zurich and the institutes of technology all have lower shares than the proportion of foreign nationals on the labour market of their canton.

4.2 Dimension of the study programmes

Main messages

- Half of the institutions already offer international study programmes, with a proportion of up to 10% of the programmes offered. However, although some universities stand out with a high proportion of study programmes offered in cooperation with international institutions, such partnerships are not yet widespread in Swiss institutions.
- Courses in English are available at most universities and universities of applied sciences, but they are still scarce at universities of teacher education. With the exception of the University of Teacher Education Thurgau, internationalisation is still relatively absent from the study programmes offered by universities of teacher education.

The study programme indicators provide information on the content of the courses on offer and thus make it possible to highlight their internationalisation. Three indicators were defined on the basis of data provided by swissuniversities, the umbrella organisation of Swiss higher education institutions. These three indicators focus on the bachelor and master levels of education.

The first indicator concerns the course language: it has a value of 1 if English is among the course languages indicated in the study programme's description, and 0 if it does not. It is therefore not necessary that the entire study programme be given in English. The indicator is then expressed as a proportion of all the study programmes available.

The second indicator explores the dimension of international studies. In order to analyse the number of study programmes with a global, international or intercultural focus, the programmes' titles were scanned using the following keywords:

- **Keywords:** Cooperation, economic development, human development, global, intercultural, international, peace, standardisation, world (only in English), Weltgesellschaft (only in German)
- **Keywords based on regions of the world:** African, Latin American, Asian, European, Oriental

This indicator reflects the importance of topics related to internationalisation within the study programmes offered by the institutions. It is expressed as a proportion of all the programmes on offer.

The last indicator looks at the proportion of study programmes that are given in partnership with international institutions. It is also expressed as a proportion of all the programmes on offer.

4.2.1 Proportion of study programmes that include courses in English

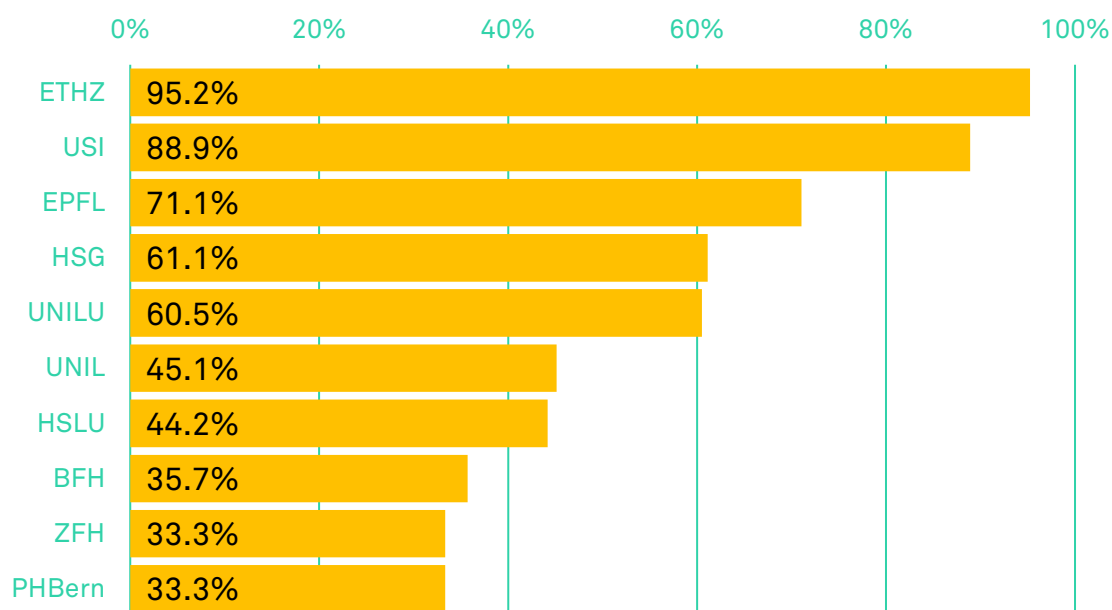


Figure 11: Proportion of study programmes including courses taught in English in 2018.⁸

The language indicator for study programmes shows varying results across institutions (Figure 11). The institutes of technology rank highest, along with the Università della Svizzera italiana. They are followed by the universities of St.Gallen and Lucerne. All of them offer more than half of their study programmes in English. The universities of applied sciences are well represented in the ranking, with the universities of Lucerne, Bern and Zurich in 7th to 9th place.

All universities and institutes of technology as well as the universities of applied sciences offer at least some study programmes with courses in English. In contrast, with the exception of the universities of teacher education in the cantons of Vaud and Bern, the universities of teacher education do not include any courses in English.

⁸ Data for the University of Teacher Education Fribourg are missing for 2018. Based on current data (2022), the study programmes do not contain courses in English.

4.2.2 Proportion of international study programmes

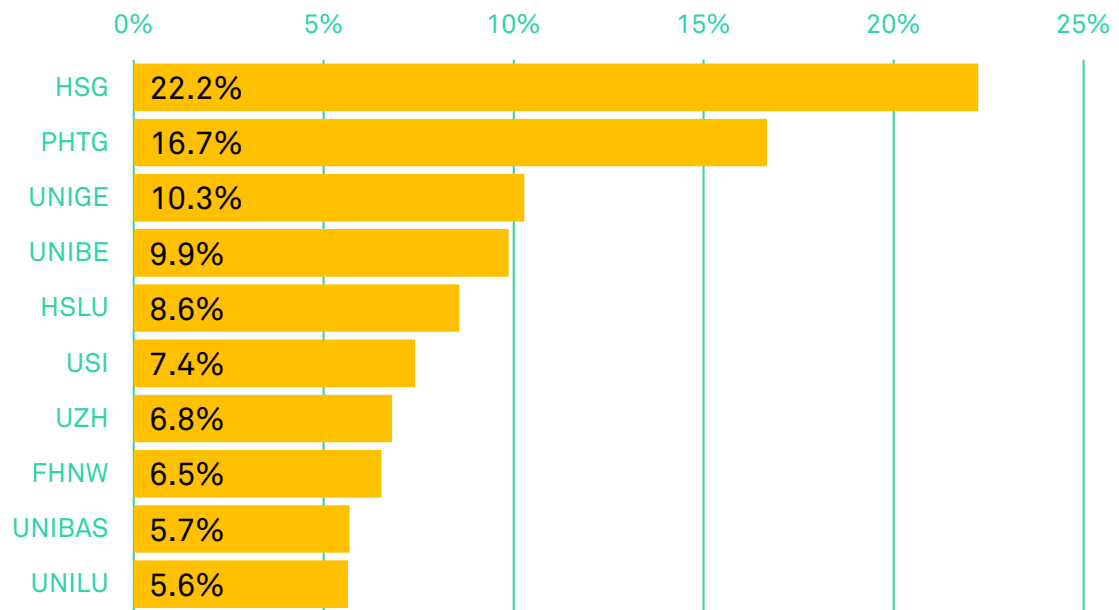


Figure 12: Proportion of international study programmes in 2018

The indicator looking at international studies provides a measure of the relative importance of study programmes related to internationalisation, globalisation or interculturality (Figure 12). The University of St.Gallen is in first place, with almost one fifth of all study programmes focusing on internationalisation. In second place is the special case of the University of Teacher Education Thurgau, which has one international study programme out of a total of six study programmes at bachelor and master levels. Then there is the University of Geneva, which has an institute for global studies.

At the other end of the ranking, 17 institutions do not offer studies defined as international in the sense of the indicator. This is the case for all universities of teacher education (with the exception of the one in Thurgau), the universities of applied sciences in Eastern and Italian-speaking Switzerland, and the EPFL.

4.2.3 Proportion of study programmes given in collaboration with an institution abroad

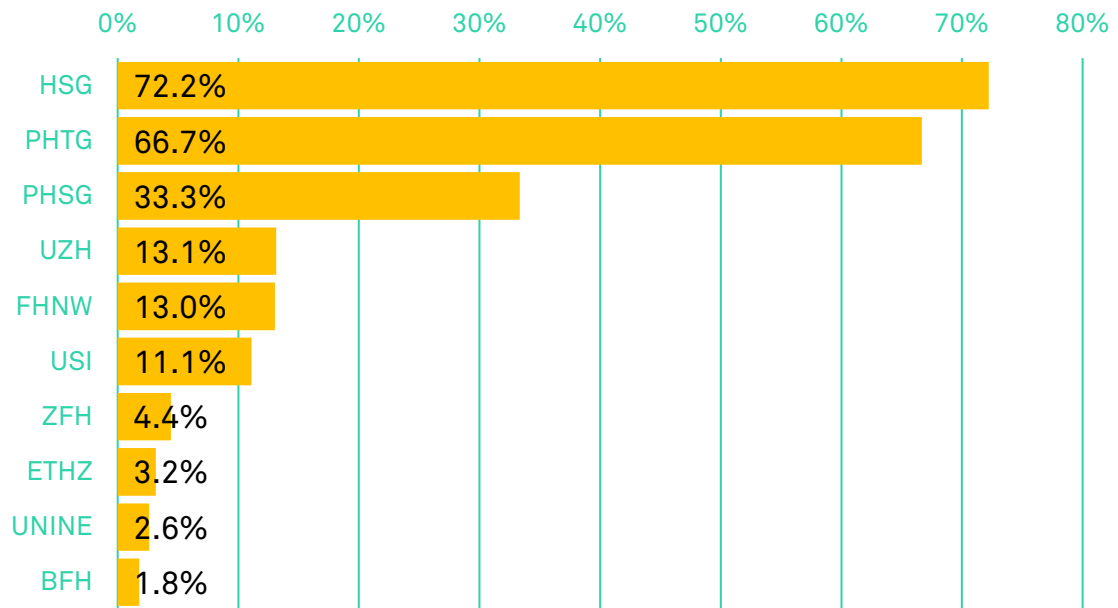


Figure 13: Proportion of study programmes in collaboration with a foreign institution in 2018. Data are missing for the following institutions: EPFL, UNIFR and HSLU

The indicator looking at study programmes that are given in partnership with international partners is highly strategic for the institutions. This indicator shows the importance of international partners for the University of St.Gallen, which offers numerous double degrees in cooperation with different countries. The ranking continues with the universities of teacher education in Thurgau and St.Gallen, which offer a number of study programmes in cooperation with German institutions (4 out of 6 programmes for the University of Teacher Education Thurgau and 2 out of 6 for the University of Teacher Education St.Gallen). In both cases, the total number of study programmes is relatively small, making the share of programmes offered in international collaboration very high in the indicator.

The University of Zurich, the University of Applied Sciences North-western Switzerland and the Università della Svizzera italiana, which offer more than 10% of their courses in collaboration with an institution abroad, come next in the ranking. In total, 15 out of 31 institutions offer at least one study programme in partnership with a foreign institution. The remaining 16 institutions are mainly universities of teacher education, a few universities of applied sciences (the ones of Italian-speaking Switzerland, Lucerne and Eastern Switzerland) and the University of Lausanne. For a few other universities, the data are missing (regarding the limitations and methodological challenges, see [data sheet](#), only available in French).

4.3 Dimension of research

Main message

- The internationalisation of research shows little correlation with the other dimensions of internationalisation presented in the index. It is possible that the internationalisation of research and the internationalisation of study programmes are addressed via separate strategies within the institutions. In view of these results, more synergies could be developed between study programmes and research.

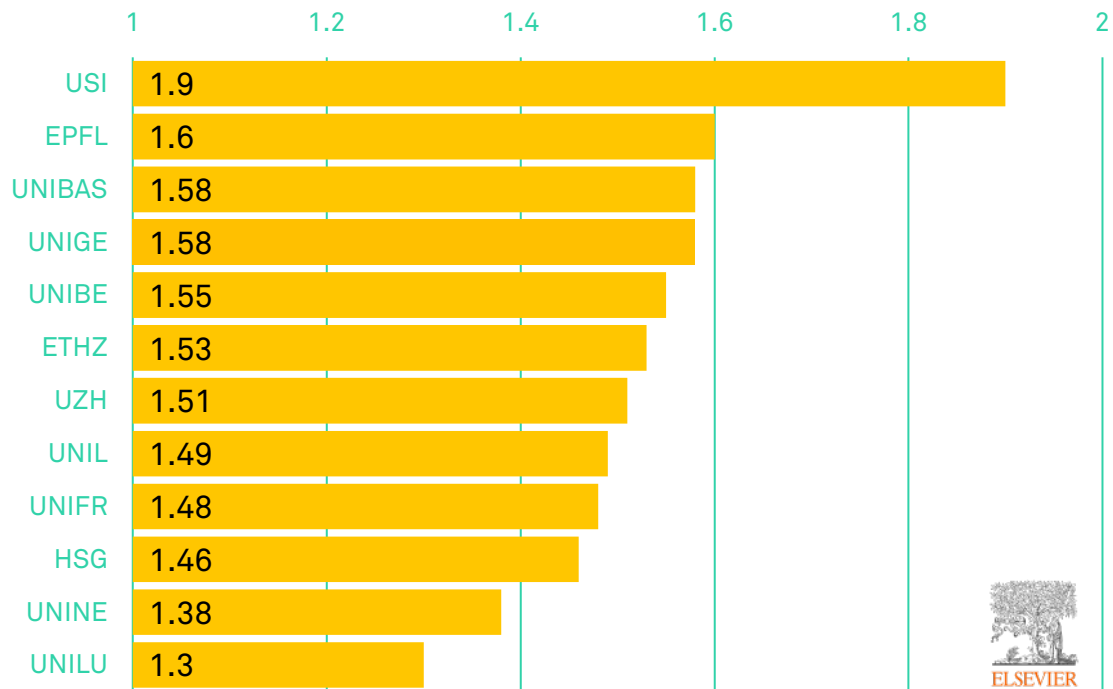


Figure 14: International collaboration weighted by field in 2018. The indicator is only presented for universities and federal institutes of technology.

The internationalisation of research is measured by the number of publications with co-authors affiliated to a foreign university (Figure 14). This indicator is provided by Elsevier (Pohl et al., 2014).

This indicator of international collaboration weighted by field is an improved version of the traditional index of the proportion of international co-publications. A weighting is added according to the year, the type of publication and the research field (the current value of the indicator is divided by the expected value in the same field, for the same type and for the same year). In addition, this index considers the number of countries that co-publish an article (the indicator will be higher if various countries are included). The indicator has a value of 0 when it corresponds to the world average. It can be positive (above the world average) or negative (below world average). This international collaboration weighted by field score is available for almost all higher education institutions worldwide in the Elsevier SciVal system.

Due to differences in functioning and expectations between the different types of institutions, the research dimension is only included in the index of universities and institutes of technology, which are strongly focused on the development of scientific research.

The ranking according to the research indicator differs from the previously observed results. While the Università della Svizzera italiana and the EPFL feature at the top of the list once again, they are now followed by the universities of Basel, Geneva and Bern. The University of St.Gallen, which is usually at the top of the ranking, comes in at the 10th rank, ahead of the universities of Neuchâtel and Lucerne. This ranking tends to confirm the absence of a direct correlation between the internationalisation of studies and the internationalisation of research, which may be subject to different strategies at the institutional level.

4.4 Dimension of strategy

Main messages

- Half of the institutions offer accommodation for their visitors. The results show that this offer has a strong influence on incoming mobility, but also on outgoing mobility; more accommodation for visitors could be a way to increase student mobility in general.
- Few institutions provide extra funding for mobility in addition to the SEMP grants. However, this is the case for several institutions with relatively low scores in the rest of the internationalisation indicators.

The dimension of strategy looks at elements from the institutions' governance and services. The data for the three indicators were collected by Movetia directly from the institutions. The three indicators reflect the importance of strategic support for internationalisation and student mobility.

4.4.1 Accommodation available for visitors

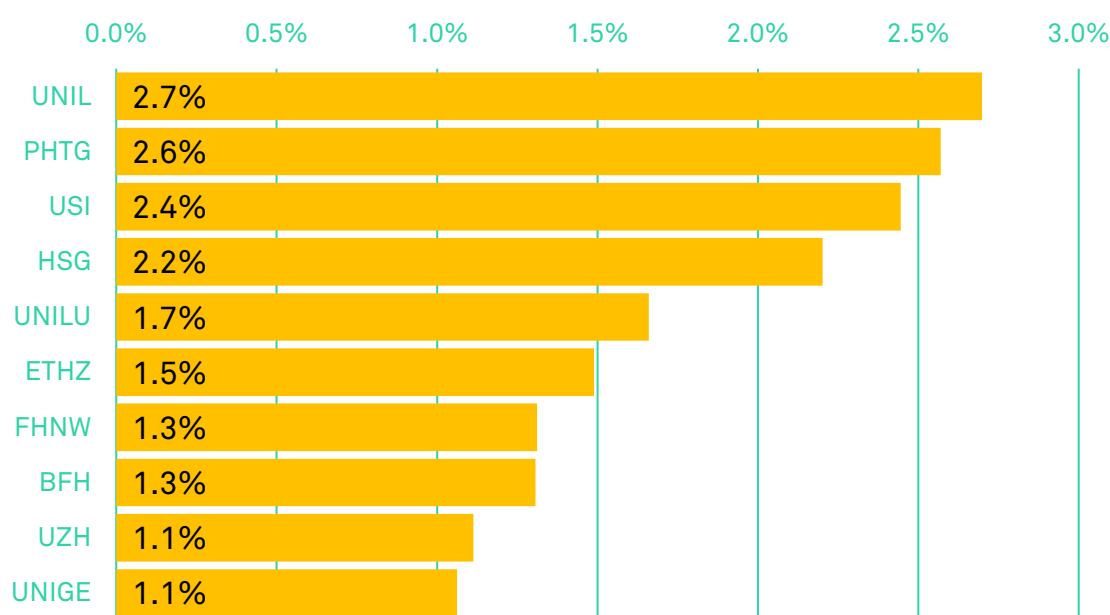


Figure 15: Accommodation available for visitors in 2018

The indicator looking at the number of accommodations available for visitors (be it students or researchers) focuses onto accommodation directly provided by the institution or involving its governance (Figure 15). Where such accommodation is part of a collaboration with other institutions, the reported number relates to accommodation reserved exclusively for the use of the institution.

This number is then expressed in proportion to the institution's total number of students and researchers in order to obtain a comparable value. The University of Lausanne comes in first, followed by the University of Teacher Education Thurgau, the Università della Svizzera Italiana and the University of St.Gallen. This ranking thus reveals positions that are relatively comparable to the previous indicators, although the geographical and urbanistic aspect comes into play. The University of Lausanne, for example, is located on a campus outside the city, which allows it to offer more student accommodation on the campus itself.

17 institutions do not provide accommodation for visitors. These include most universities of teacher education (with the exception of the ones in Thurgau, Zurich and Lucerne), but also SUPSI and HES-SO, as well as the universities of Bern, Neuchâtel and Basel.

4.4.2 Additional funding for student mobility provided by the institutions

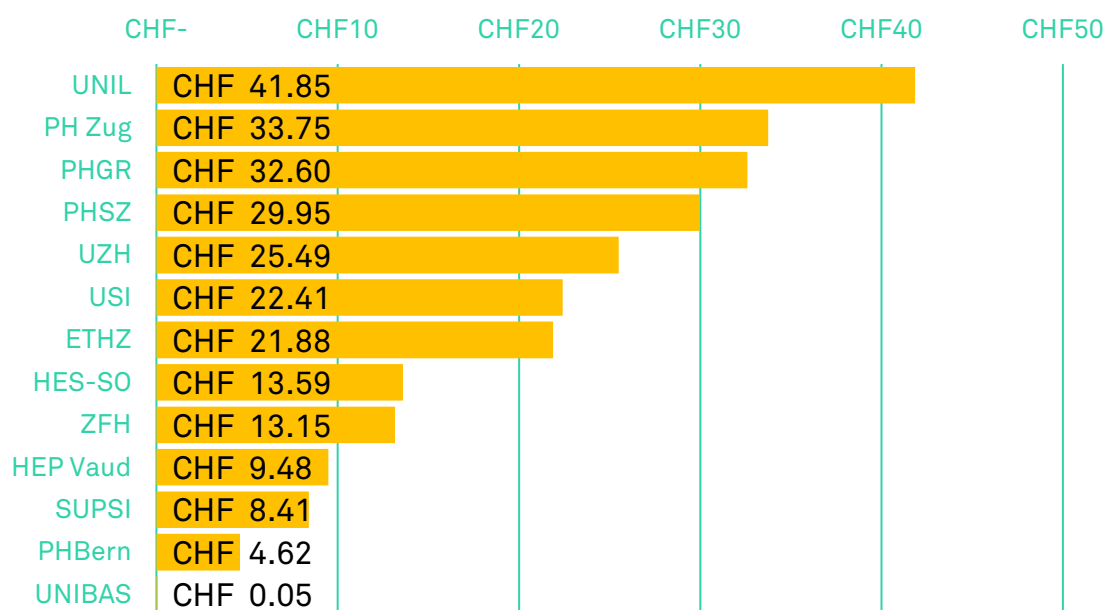


Figure 16: Additional funding for student mobility provided by the institutions in 2018

The Swiss-European Mobility Programme (SEMP) is the Swiss equivalent of Erasmus+ since 2014. Within this scheme, incoming and outgoing mobility is financed via funds provided by the State Secretariat for Education Research and Innovation (SERI). Until the summer of 2021, SEMP funding for mobility was limited to European mobility.

During the period studied in this index, some institutions offered additional funding either to encourage mobility to destinations other than those covered by the SEMP, to finance other types of mobility, or to provide additional incentives to undertake a SEMP mobility.

The indicator is based on an average funding per student (rounded to the nearest 100 CHF) and the number of students funded. This number was then divided by the total number of students in the institution using the following formula:

$$\frac{\text{Average funding} * \text{Number of students funded}}{\text{Total number of students in the institution}}$$

Figure 16 shows all the institutions providing additional funding for mobility. The University of Lausanne is ranked first, followed by the universities of teacher education in Zug, Grisons and Schaffhausen. It is interesting to note that some of the universities of teacher education tend to encourage student mobility by offering additional financial support (this is the case for 5 of the 15 universities of teacher education surveyed). At the same time, these institutions present relatively low scores across the other indicators of internationalisation.

21 institutions do not offer additional funding. Among the institutions that figure at the top of the internationalisation index but do not provide additional funding are the University of St.Gallen, the EPFL, the University of Teacher Education Thurgau, the University of Geneva and the University of Bern.

These results show an aspect of internationalisation that has not yet been widely studied in the academic literature, but provides many insights and can help formulate recommendations for the institutions. Two trends can be seen: on the one hand, higher education institutions with strong international networks (thanks to partnerships, many foreign students or staff, etc.), but little additional funding for student mobility. On the other hand, certain higher education institutions that provide additional funding for mobility without investing in the internationalisation of their study programmes or their staff. In this case, the mobility rate usually remains quite low, despite the funding provided.

While additional funding can be useful, particularly with regard to the democratisation of mobility, higher education institutions should also focus on other aspects of internationalisation, such as study programmes or the recruitment of international staff, in order to increase student mobility. Conversely, it is possible that some institutions that do not offer additional funding for student mobility, but that focus on study programmes with international content, achieve a social selection effect by indirectly advantaging students who are able to afford to finance their mobility.

4.4.3 Number of partner institutions enabling student exchanges

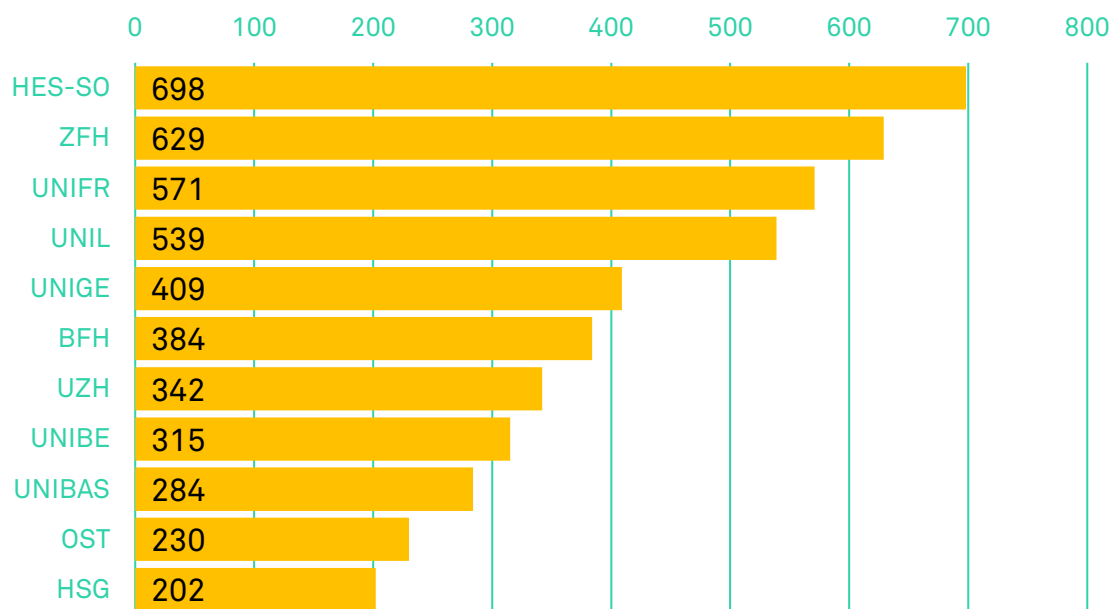


Figure 17: Number of partner institutions enabling student exchanges in 2018⁹

Finally, the last indicator of our index represents the number of international partners (SEMP partnerships or others) enabling student exchanges (Figure 17). This ranking is dominated by the two largest universities of applied sciences in Switzerland in terms of student numbers; those of Western Switzerland and Zurich. They are followed by the universities of Fribourg, Lausanne and Geneva. It seems, therefore, that the link between the number of institutions available for exchanges and student mobility is rather weak.

4.5 Additional data

The last part of this report presents data that provide useful additional information regarding the internationalisation of institutions, but that were not included in the index. The data were obtained from the survey conducted by Movetia and the Federal Statistical Office.

The main additional indicator is based on data from the Federal Statistical Office and represents a crossover between the proportion of mobile students in each institution and their parents' highest level of education (Figure 19). This indicator is used as a substitute for the socio-professional origin of the students. The indicator provides information on differences in mobility according to social background for each institution.

⁹ Missing data for the following institutions: FHNW, HSLU, HEP-VS.

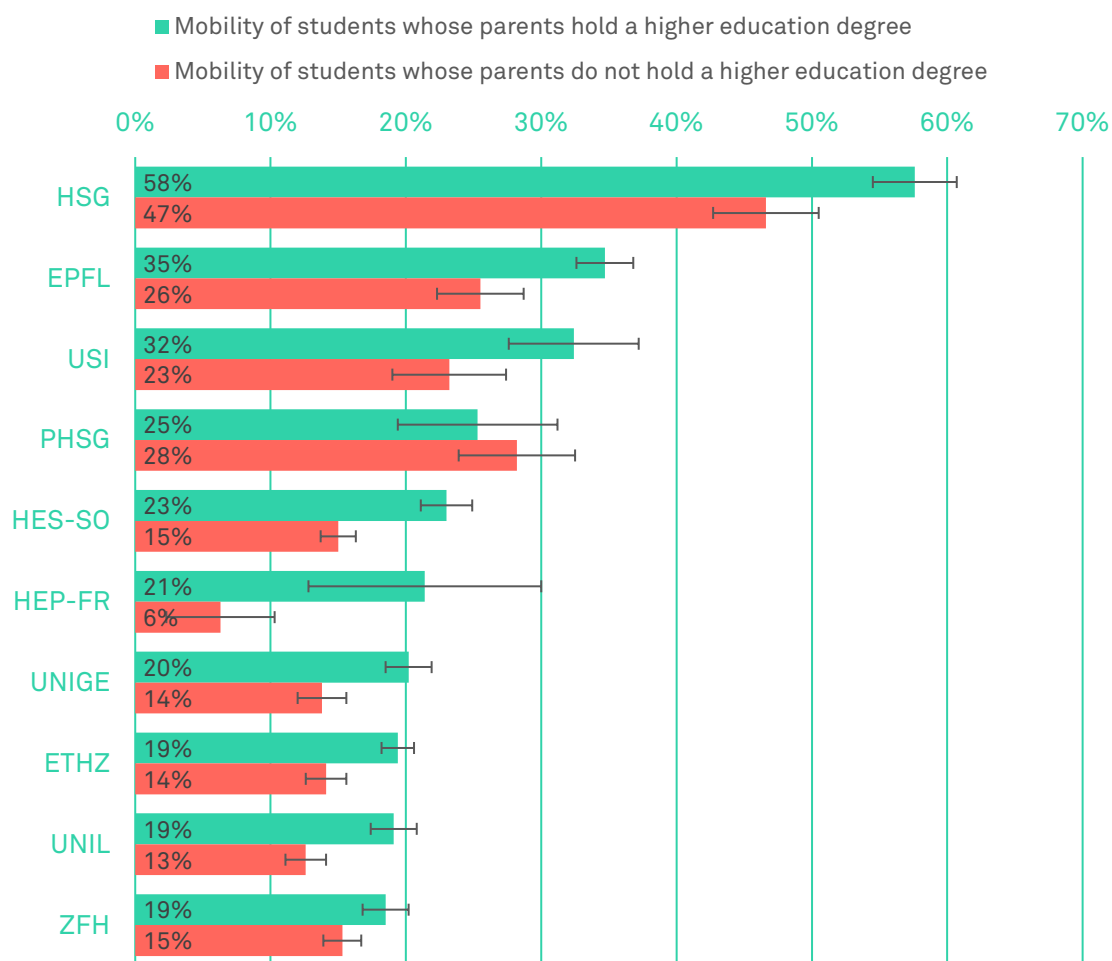


Figure 18: Proportion of students who undertook a mobility programme during their studies and graduated in 2018, as a function of their parents' study degree. Data are missing for the following institutions: PHGR, PH Zug, PHSZ, PHS, SHLR and HEFP.

In this indicator a large difference between the mobility of students whose parents have a higher education degree (green) and students with parents without a higher education degree (red) means that there is an effect of social selection in student mobility. The first category of students potentially benefit from more financial and/or cultural resources than the second category of students, and are thus more mobile. In other words, the greater the difference between these two categories, the less equal the access to temporary mobility among graduates of the institution¹⁰. In these cases, targeted support (e.g. financial support) could help to make access to mobility more widely available.

Most of the leading institutions in the internationalisation index are also those showing the biggest differences in mobility according to their students' social background. While the accuracy of the indicators does not allow these results to be extended to all institutions, they do provide a perspective on the results of our internationalisation index. Significant differences are observable between students depending on their social background. This is particularly true of institutions with high mobility rates. The problem has already been addressed in the scientific literature: the current internationalisation of higher education institutions and globalised competition tend to distance this process from its main objective, namely to improve the quality of education and research for society as a whole (Wit & Hunter, 2015; Wit, 2019). While it is important to increase the internationalisation of higher education institutions, this increase must be aimed at promoting and democratising the practice by means of incentives, in order to avoid excluding part of the student population.

¹⁰ If the margins of error intersect, it is not possible to conclude that there is inequality of access between categories of students.

5 Limitations

The approach used for the creation of this index is exploratory. The aim is to propose a basis for discussion based on indicators of internationalisation and student mobility. There are several limitations regarding the indicators and methods used, as well as the solutions adopted. Some suggestions for the improvement of future versions of the index are also mentioned.

The first limitation is linked to the practical aspects of data collection, and to the impossibility of using all the indicators defined in the scientific literature. In order to be considered valid and to be included in the Movetia survey, the indicators had to meet the following criteria:

- Have a link to the internationalisation process and be likely to influence student mobility
- Be comparable between institutions
- Be accessible to the institutions, and be centralised by the administration for groups of institutions.
- Not be accessible through other external sources

The priority was first placed on the available data. In a second step, questions regarding the data that were not immediately accessible were collected and put into a survey. The survey was then addressed to the higher education institutions. This two-step process was decided upon in order to limit the time needed to respond to the survey and to maximise the response rate.

When collecting the data, the nomenclature of the institutions was primarily based on the one used by the Federal Statistical Office. In some cases, it was adapted using groupings to facilitate data collection (see institutions and groupings in Annex A1). Furthermore, as the data of the Federal Statistical Office are collected over a period of one year (from the beginning of January to the end of December), it was decided to proceed in the same way for the data collected directly at the institutions (i.e. the data from the spring and autumn semesters of 2018). This made it difficult to obtain data for some institutions that only had data by academic year. Some provided data for the autumn semester of 2017 and spring of 2018, and others for the following year. The weightings applied (in terms of number of students or researchers) were therefore adapted according to the responses. The next version of the index could use the academic calendar to avoid this problem. For the same reason, the data collected concerns only higher education institutions. Colleges of Higher Education could be included in a future version of the index.

Finally, the swissuniversities data were subject to a secondary analysis. The primary purpose of these data is to inform students (via swissuniversities' website), and some data are not harmonised between institutions. They have been corrected in some cases, where the public data currently available made it possible¹¹. Furthermore, the swissuniversities data only concern full study programmes (bachelor's or master's degrees). Some higher education institutions, however, offer international courses that are not part of a study programme (e.g. the University of Teacher Education St.Gallen). In such cases, these courses are not considered in the index. A possible improvement of the index would be to establish a database of higher education institutions' courses, in order to improve the accuracy of the study programme indicators.

The Federal Statistical Office publishes data from the *Graduate Survey* (from which the mobility rates of graduates are derived) every two years. The indicators of the internationalisation index in this project are likely to have a slower variation, and the recommended periodicity for the publication of the index is therefore 4 to 5 years. However, it would be interesting to conduct a new survey once the 2022 data are available, in order to observe the impact of the two-year pandemic on the internationalisation indicators.

¹¹ After verification with external experts, it appears that the data concerning the EPFL, the Lucerne University of Arts and Applied Sciences and the University of Fribourg did not reflect the actual offer of study programmes given in collaboration with international partners. The missing data would imply some changes in the internationalisation index: according to this data, the EPFL would come at the 3rd rank (instead of the 4th) and the Lucerne University of Arts and Applied Sciences would be in 14th position (instead of 16th). A corrected version of the data is available on [Movetia's website](#).

6 Conclusions and recommendations for higher education institutions

The aim of this report was to explore different dimensions of internationalisation in relation to student mobility, drawing on existing academic literature as well as on data available for all Swiss higher education institutions. The objective was to (1) observe student mobility rates at each Swiss higher education institution, (2) measure the internationalisation of Swiss institutions using comparable indicators, (3) analyse the links between internationalisation indicators and student mobility in order to provide recommendations to higher education institutions, and (4) develop an internationalisation index to simplify information and compare Swiss higher education institutions.

Firstly, data from the Federal Statistical Office show significant differences between Swiss institutions of higher education. The Swiss average is situated at 15.7% of students with a mobility experience at the end of their studies in 2020. This average stands for very different realities depending on the institutions. Four institutions stand out: the University of St.Gallen, followed by the EPFL, the St.Gallen University for Teacher Education and the Università della Svizzera italiana. The data on incoming mobility show a similar pattern, with some differences probably due to differences in the international exposure of the institution concerned.

Based on Knight's (2004) original definition, this project selected 11 indicators, linked to the four dimensions of internationalisation: nationalities, study programmes, research and strategy. The study of the internationalisation indicators makes it possible to establish the existence of a direct link between indicators and student mobility (outgoing or incoming).

The nationality indicators show a variable degree of influence on student mobility, which may depend on the amount of contact between the staff category concerned and the students. The proportion of foreign nationals among students shows the strongest association with the mobility rate. It is followed by the proportion of international faculty and academic staff, while the proportion of foreign nationals among the administrative and technical staff has no direct influence on student mobility. The study programme indicators show a strong correlation with the data on student mobility, be it in terms of programmes taught in English, of programmes offering international studies, or courses given in partnership with foreign institutions. While the nationality of professors and researchers is correlated with student mobility, this is not the case for the internationalisation of research. The internationalisation strategies for the two dimensions (study programmes and research) may be different within the institutions, and there is no direct correlation between them.

Finally, the dimension of strategy highlights elements that facilitate access to mobility for students. The availability of accommodation for visitors is directly correlated to outgoing and incoming mobility. Conversely, the number of partnerships that allow students to study in a foreign institution, as well as the accessibility of additional funding for mobility, do not seem to be directly linked to student mobility. There are several possible explanations for this result: SEMP grants could be a sufficient financial incentive; or it could be explained by the differences in the student populations. Highly internationalised higher education institutions tend to attract a population that is already very mobile, and would therefore need to rely less on financial incentives. Institutions with a less mobile population however, tend to offer additional funding. Finally, a more detailed analysis of the chosen mobility destinations could also reveal differences between institutions: the ones offering more additional funding could be the ones focusing on worldwide mobility.

The ranking of institutions according to their results in the internationalisation index is relatively similar to the ranking according to the student mobility rate. The Università della Svizzera italiana, the University of St.Gallen and the federal institutes of technology are among the top-ranked institutions and have the highest values in Switzerland for most indicators. The analysis according to the indicators reveals different strategies, with, for example, highly internationalised study programmes at the University of St.Gallen, whereas the internationalisation of the Università della Svizzera italiana is achieved by recruiting international staff and students. Differences between the internationalisation index and the mobility rates can be explained by differences in the institution's international exposure, or by differences in the student population.

Differences in internationalisation are also noticeable according to the type of institution. Although there are a few exceptions, universities are generally at the top of the indicator rankings, followed by universities of applied sciences and universities of teacher education. As universities are often focused on their research mission in addition to academic teaching, they have a greater incentive to be part of international networks. Universities of applied sciences have a more practice-oriented education, which

would require a stronger local anchorage with professionals in the sector. The universities of teacher education train teachers and, although there are some exceptions with regards to study programmes offered in cooperation with foreign institutions, these institutions generally have a lower level of internationalisation.

In the light of the results shown in this report, several recommendations can be made. First of all, the results show a strong correlation between the proportion of foreign nationals among the institution's staff (professors, academic staff) and student mobility. The same is true for the proportion of foreign nationals among students, and a clear correlation between incoming and outgoing mobility can be seen. These two components of internationalisation work in a complementary way, with outgoing mobility enabling students and researchers from the institution to spend time at institutions abroad, and incoming mobility enabling students and researchers from abroad to pursue courses or research at the local institution (Wit, 2019). This interdependence reveals the importance of the social network in the internationalisation process, which is also highlighted in the academic literature (Beech, 2015).

To this end, a first recommendation can be made regarding the accommodation provided. They represent an ease of access for visitors and can be seen as a way of fostering contacts between the local and the international student population, and thus increasing student mobility. Other ways of developing these contacts can be implemented through specific recruitment or quotas.

One of the main incidental factors for student mobility identified in this report are the study programmes. Study programmes offered in partnership with international institutions, such as double or joint degrees, are effective ways of encouraging mobility during the studies. While such degrees are often challenging to set up, the results show that studies with a global, international or intercultural dimension are also a means of fostering exchanges with other countries, as is the use of English in the courses.

Furthermore, the links between the internationalisation of research and the internationalisation of students still appear as quite weak. More synergies and exchanges between research and the study programmes at bachelor's and master's degrees would be desirable. This could be achieved, for example, through meetings or participation in research projects.

These initial recommendations are based on the appropriation of internationalisation by students, i.e. taking action to create incentives to 'want' to go mobile, whether through the content of study programmes or through their social network.

The dimension of the strategy explores the issue of access to temporary mobility. While it is clear that the provision of visitor accommodation represents can be recommended to institutions in order to increase student mobility, the other results concerning strategy are more mixed. Partnerships, while absolutely necessary to student mobility, are not a direct incentive for mobility. However, they remain essential in order to guarantee a wide choice in destinations and are thus an indicator of the quality of the mobility offer (DFI et al., 2017).

Finally, the lack of correlation between mobility and additional funding raises several questions and could be subject to further analysis. A first interpretation lies in the effectiveness of the SEMP grants, which already represent a significant incentive for student mobility. However, the social selection indicator presented at the end of the report, as well as the scientific literature on this subject (see Haldimann et al., 2022 or King et al., 2011), still show a tendency towards social selection; advantaged young people are more mobile than others. The institutions at the top of the internationalisation index show significant differences in mobility rates according to social background. The internationalisation of higher education institutions should aim at the democratisation of mobility, in order to avoid the reproduction of social inequalities in access to mobility (Wit, 2019).

A twofold recommendation is thus put forward: on the one hand, certain higher education institutions that already have extended international networks (through the dimensions of nationality or study programmes) could integrate additional funding in order to encourage the mobility of less privileged students. On the other hand, the results show that some universities encourage mobility through financial incentives, but show room for improvement in the other dimensions of internationalisation. In this case, it is important to emphasise the development of international networks and to also invest in the other dimensions of internationalisation highlighted in this project.

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Annex A1

Institution	Type of higher education institution
University of Basel (UNIBAS)	Universities and institutes of technology
University of Bern (UNIBE)	
University of Fribourg (UNIFR)	
University of Geneva (UNIGE)	
University of Lausanne (UNIL)	
University of Lucerne (UNILU)	
University of Neuchâtel (UNINE)	
University of St.Gallen (HSG)	
University of Zurich (UZH)	
Università della Svizzera italiana (USI)	
Swiss Federal Institute of Technology in Lausanne (EPFL)	
Swiss Federal Institute of Technology in Zurich (ETHZ)	
Bern University of Applied Sciences (BFH)	Universities of applied sciences
University of Applied Sciences and Arts Western Switzerland (HES-SO) ¹²	
University of Applied Sciences and Arts North-western Switzerland (FHNW)	
Lucerne University of Applied Sciences and Arts (HSLU)	
University of Applied Sciences and Arts of Southern Switzerland (SUPSI)	
OST - Eastern Switzerland University of Applied Sciences	
University of Applied Sciences of the Grisons (FH GR) ¹³	
Zurich University of Applied Sciences (ZFH)	
Kalaisdos University of Applied Sciences	Universities of teacher education
University of Applied Sciences and Arts North-western Switzerland (PH FHNW)	
University of Teacher Education of Ticino (SUPSI-DFA)	
University of Teacher Education in Special Needs (HFH)	
Zurich University of Teacher Education (PH Zurich)	
University of Teacher Education Vaud (HEP Vaud)	
University of Teacher Education Valais (HEP-VS)	
University of Teacher Education Fribourg (HEP-FR)	
Bern University of Teacher Education (PH Bern)	
University of Teacher Education Lucerne (PH Luzern)	
Schwyz University of Teacher Education (PHSZ)	
University of Teacher Education Zug (PH Zug)	
University of Teacher Education Thurgau (PHTG)	
University of Teacher Education Schaffhausen (PHSH)	
University of Teacher Education of the Grisons (PHGR)	
University of Teacher Education St.Gallen (PHSG)	
Swiss University of Speech Therapy Rorschach (SHLR)	
Swiss Federal Institute for Vocational Education and Training (SFIVET)	
University of Teacher Education – French-speaking Bern, Jura, Neuchâtel (HEP-BEJUNE)	

Table 4 : List of higher education institutions and abbreviations

¹² The HES-SO data also includes the Geneva School of Social Work.

¹³ The University of Applied Sciences Chur (HTW Chur) left the OST in 2020 and became the University of Applied Sciences of Grisons (FH GR). It was part of the University of Applied Sciences of Eastern Switzerland in 2018 and is included in the data of this university.