Evaluation of measures to promote access to and retention in higher education

EVALUATION REPORT EXECUTIVE SUMMARY

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Executive summary

The overall objective of the evaluation is to increase the number of applications to higher education and to strengthen the career guidance role of higher education within the development schemes of the Human Resources Development Operational Programme (HRDOP) and the Competitive Central Hungary Operational Programme (CCHOP), and the reduction of drop-out rates, the evaluation of the results of the developments implemented in the fields of increasing enrolment in higher education, the exploration of the experiences of implementation and the examination of how the results of the implemented developments contribute to the achievement of the objectives set out in the strategy documents and to what extent the developments supported the link between public education and higher education. Given the nature of the interventions, the evaluation focuses primarily on the areas of mathematics, science, technology and information technology (hereinafter referred to as STEM) and social education. The other guiding thread of the evaluation is the focus on women and disadvantaged pupils/students.

11 schemes were included in the evaluation. The evaluation was conducted using a mixed methodology, including document analysis, semi-structured interviews and student focus group discussions, online student data collection and analysis of available aggregated higher education data and EUPR data.

Target group reach

One of the objectives of the improvements that we analysed in particular was to encourage more disadvantaged people and women to enrol and complete courses at STEM.[1] However, the definition of disadvantage was not precisely defined in the projects, which also limits the scope for evaluation. This data was not available to the evaluators at project level[2] , so indirect information could be obtained through available statistics.[3] In order to still have some data on disadvantage that could be linked to specific interventions, we also conducted our own data collection among heads of public education institutions and students enrolled in STEM courses in the last five years. In the former case, we asked about the family background of the students attending the institution, and in the latter case, about the highest educational attainment of the students' parents. The latter is also one of the most important components of

[1] The legal definition of disadvantaged and severely disadvantaged children was previously regulated by the **1993 Act on Public Education**. However, in 2011 the Hungarian Parliament adopted the **Act on National Public Education**, which did not include the definition of disadvantaged and severely disadvantaged children, so the **Act on the Protection of Children and Guardianship Administration** was expanded in 2013 to include the necessary definitions. Education statistics therefore link disadvantaged status to the existence of regular child protection support and one other condition (low education or employment level of parents or inadequate housing).

[2] This type of information was not systematically collected during the projects and the indicators in the EUPR database did not contain this type of data. No such data on the proportion of women is available for career guidance and drop-out reduction interventions, and no relevant information on disadvantage is available at all. The relevant outcome indicators within the HRDOP indicators will only be reported in 2023.

[3] Although there is a student database linked to the national competency survey data, where disadvantage could be identified on the basis of the family background index, publicly available studies from this database show that it only covers the classes starting in autumn 2015 and 2016, and therefore does not cover the whole period covered by the assessment. The Felvi database provides data on those who received extra points for a particular preference, but for data protection reasons this was not available from the Educational Authority by title (i.e. titles such as childbearing, disability, etc. were treated together when providing the data). Therefore, we only had indirect information on disadvantage, specifically the average proportion of pupils with disadvantaged and cumulatively disadvantaged children, as defined by the Public Education Act, studying in the applicant's secondary school. The FIR database was also only available in aggregated form for equal opportunities information. These data are not complete in the first place, given that in the FIR only preferences can be submitted for these data, and also because of the risk of disclosure, individual rows with a number of courses of 5 or less have been deleted based on prior consultation.

the National Competence Survey's family background index, which, along with the number of books, correlates most strongly with students' academic performance.

During the interviews, several programme leaders indicated that identifying disadvantaged students was explicitly not feasible for administrative and data protection reasons, and therefore, according to our interviewees, they could focus mainly on students from disadvantaged counties, which does not mean that the student is disadvantaged. In the **projects, analysis based on targeted data collection on marginalised groups not only did not take place during planning, but also during implementation, and in no case was there any pedagogical planning for marginalised groups**. Thus, the focus on the main target groups of the interventions (EROP 3.4.3-16, 3.4.4-16 and 3.2.5-17) is not included in the considerations of most of the institutional actors, neither in the recruitment and enrolment process, nor in the monitoring and support of the learning process, nor in the follow-up of graduates.

The data from our online survey of heads of public education institutions, who also participated in the EFOP 3.2.5-17 and 3.4.4-16 projects, show that the career guidance projects reached schools with fewer disadvantages (see also the background study on the results of the survey of institutions). And the results of the online student survey show that students in STEM courses do indeed make greater use of drop-out reduction services such as remedial courses, student or faculty mentoring, but paradoxically, the higher the admission score, the more likely they are to participate in such services. **The student survey also reveals that men, those with more educated parents and those living in larger municipalities have significantly more access to such services, which does not point towards the equalisation of opportunities that is the goal.**

According to education statistics, only a very small proportion of disadvantaged people under the Child Protection Act graduate (2% in 2020 according to KIRstat), which already limits the opportunities for higher education institutions in this area. This is therefore the biggest barrier to disadvantaged students' access to higher education, and career guidance programmes alone can only have a very limited impact in this area. It is clear that disadvantage accumulates at an early stage, which is why resources for equal opportunities would be much more effectively used in family support, early childhood institutions and public education than in higher education.

At the same time, the proportion of female students in the STEM courses has not increased in the recent period, which also indicates that the target group has not been reached in these projects, and according to the interviews - with one or two exceptions - there was no clear effort to do so, despite the fact that this was a professional expectation in the call for projects.

The expected impact/outcome of the programmes in the light of statistics

The evaluation has only indirect results on the impact of the programmes. This is because neither projects had this information and, although higher education databases would allow it, for reasons of data protection, evaluators did not have access to individual serial databases capable of conducting a factual impact assessment.

In terms of attracting disadvantaged students, as defined by public education statistics, the project has set higher education institutions an insurmountable task, because while only two percent of this population pass their school-leaving exams, higher education institutions cannot make a meaningful impact. However, overall, aggregate institutional statistics give an idea of the enrolment and drop-out rates in STEM courses. Although very little time has elapsed since the start of the projects and therefore no strong impact can be expected, most of the data show stagnation or deterioration.

The trend in the number of applicants and enrolments in STEM courses between 2015 and 2021 shows that the overall number of applicants and enrolments is decreasing.In 2015, 31.2% of all applicants applied for STEM courses, which dropped to 29.3% in 2016.It increased slightly from 2016 to 2019, but dropped significantly from 2019 onwards, so that in 2021, the percentage of STEM enrolments is 5.3 percentage points lower than in 2015 (25.9%).

During the period under review, the proportion of women enrolled in IT courses in the beneficiary institutions increased slightly, while the other two courses decreased. The proportion of women enrolled in these courses stagnated. In higher education institutions, the number of students entering from institutions with a higher proportion of disadvantaged and cumulatively disadvantaged students among the graduates has been decreasing in recent years, a trend that is common to both beneficiary and non-beneficiary institutions.

In the first two academic years (2015/16 and 2016/17), less than half (43.7% and 40.5% respectively) of IT courses were successful. This rate was also higher for engineering and science: 54.7% and 47.7% respectively for engineering and 51.9% and 51.3% respectively for science. For both, the drop-out rate was above 40% in the first two years. This is higher than the average, which is between 30 and 35% for all subjects. **There is no significant difference in the drop-out rates between higher education institutions involved and not involved in the intervention**. However, the change in student composition (fewer self-financed and correspondence students) should in itself have led to an improvement in the drop-out rate, as the drop-out rate among self-financed and correspondence students is higher than average according to the FIR data. It can therefore be assumed that **these projects have not been able to improve the enrolment and drop-out rates in the STEM courses during the period under review**.

The achievement of the **programme indicators is** typically not at risk for any project, except for dual training, where the target is to reach six percent of first-year students by 2023 in the relevant fields of training, where the target was not yet reached at the time of the evaluation, but the SAO's assessment shows a slow improvement. [4]

Career guidance projects

The most important results of the projects have been to bring STEM content to schools (and teachers), to provide (where planned) the opportunity for teachers to work professionally within the school by laying the foundations for specialist work, and to provide pupils with the unique opportunity to participate in STEM activities outside the classroom. **In addition, the projects have also provided an opportunity for pupils who, due to infrastructural and other difficulties, have never been able to go to a university town, to learn about the world of higher education and to build their motivation to continue their studies. For many of them, this in itself was a defining experience and opportunity.** The project also gave universities the opportunity to provide a recognised framework for their work in the field of career guidance. In addition, the fact that **higher education institutions support the secondary education system with early career guidance and skills development programmes can be considered an innovation in the Hungarian system.**

Despite their shortcomings in terms of approach and methodology, the projects have played a very important role in the career guidance of the STEM. Teachers' knowledge of career guidance is incomplete, but the projects have helped to improve it. During the interviews, several teachers reported that they had visited an industrial site for the first time, typically in the area, and that it was also instructive for them to be confronted with the

[4] https://www.asz.hu/storage/files/files/elemzesek/2021/felsooktatas_valtozasok_tukreben_20210406.pdf?download=true

conditions and expectations there. They also experienced it as a learning experience when universities reported on their work or organised visits. This is also an important step forward because, as the interviewees said, before the programme they were able to talk about the STEM professions mainly based on their own university or college experiences, and these experiences, given the age of the interviewees, were at least 20-30 years earlier. The EU projects aimed precisely at strengthening the specific role of higher education STEM training in career guidance in public education. This also seems justified because, according to them, teachers in the field of STEM are not regularly exposed either to the (very rapid, fundamental) developments in the discipline or to the methodology (subject pedagogical approaches and tools) of the discipline. The teachers involved in the project (and the most active) were better prepared mainly because of their own commitment to learning (typically through self-taught learning), but most were also new to the information delivered through less modern methods.

The institutional interviews also revealed that the most important aspect in the design of projects was to facilitate the continuation of career guidance and academic outreach activities in higher education institutions, and thereby to secure the financial (and sometimes organisational legitimacy) of existing (often decades-old) cooperation and programme elements. In addition, innovation or reflective adaptation was rarely considered alongside this aspect. **Career guidance was typically understood by universities as more of a recruitment exercise and programmes were structured accordingly.** Therefore, long-term thinking (e.g. mapping future careers, lifelong career guidance work) was completely absent from the projects, and designers and implementers were thinking more in terms of university degrees than in terms of STEM careers, including in terms of current careers.

An innovative example of good practice **to follow is the project that used embedded design and participatory design. Both the embedded design and the participatory approach can be considered as innovative elements**. **In addition, the re-framing of previous activities (e.g. merging peer support prevention and career guidance) or the involvement of teachers in revising the training courses or developing the teaching materials for them can also be considered innovative elements of the programmes.**

Projects typically used the deficit model of science communication.[5] The contextual model is rare (in the case of health awareness as a career guidance element and the design of the online career guidance tool), but no science communication tools based on lay expertise or community involvement were used. **For this reason, the inclusiveness of the projects was inherently limited by the model and methodology used.** Thus, the target groups, as evidenced by the student focus groups and the teacher interviews, were mainly those groups (boys, interested and talented students) who had already planned to pursue further education in this field. Clearly, their empowerment is not a wasted resource, but projects could have a greater potential for inclusion (career guidance).

The knowledge management tools, in line with the deficit model, were mainly used for information transfer and typically aimed at changing the conditions of information transfer (e.g. through traditional activities in unconventional locations). The need for digitisation was more pronounced in two of the projects studied: one where the development of an online tool was an objective in itself, and the other where the emergency of the coronavirus epidemic led to the digitisation and online accessibility of previously developed learning materials.

Perhaps this is also the reason why, in the implementation of the projects, teachers were typically seen as the "audience organisers" and pupils as the receptive medium. Among the marginalised groups, the inclusion of disadvantaged people was preferred, and the inclusion of

[5] The deficit model is based on the assumption that learners are disadvantaged and therefore need to be excluded, and the contextual model on the assumption that learners have prior knowledge that can be built upon effectively.

girls was seen as a given, but the possibility of positive discrimination against certain groups caused some reluctance on the part of the implementers. No more precise identification of target groups was carried out during the design phase, no exploratory experiments (environmental studies or mini-surveys) were carried out, and neither during the design nor during implementation did the professional implementers cooperate with creative professionals (typically from outside the STEM field) who could have embedded knowledge management, communication and marketing aspects in the activities towards the target groups, although this was the task of the projects according to the call for proposals.

Throughout the project, participants made little use of the opportunity to find new partners. Universities and institutions moved around their existing networks of contacts, with only a small number of new professional relationships being established, both between the different implementers and between implementers and participants. The linkages between projects were random and contingent (only in the case of personal matches). This was true for the history of each project and for the parallel projects, both within and between institutions. **Knowledge sharing or knowledge building between projects is also an opportunity that could benefit from more attention in** the **future.** Dissemination has largely focused on newsletters and conferences, without a targeted communication strategy and messages.

Projects to reduce attrition

The EFOP 3.4.3 project focused on reducing drop-out rates and promoting student retention. The project was highly complex, multifaceted in its objectives and the activities supported, and the resources available were substantial. At the same time, the transparency of the proposals examined, the publicly shared documentation and the data available are limited (e.g. feasibility studies for individual proposals, technical reports of projects are not publicly available basic documents).

Overall, the projects are designed to help modernise higher education through a wide range of supported activities, and their impact is not just in reducing drop-out rates. The main results identified by project participants are the promotion of a change in attitudes, methodological innovation, the production of digital teaching materials and improved cooperation between faculties.

The complexity of the project had less of a negative impact on the technical side and more on the project management side. **The problem was that there was a lack of decision-making/negotiating/administrative expertise and capacity to manage a project of this magnitude, which led to a** high turnover in management. The administrative management of the project was also not smooth. The problems were partly due to the complexity of the design and partly to the difficult-to-change characteristics of the application framework. Few formal links with other projects can be identified.

All the universities involved in the research have made reducing student drop-out a priority and have been addressing the problem with increasing intensity for a long time. To varying degrees, but in **all the universities surveyed, in addition to education statistics, they also rely on their own input measures of competences to understand the causes and trends in drop-out rates. However, these are not comprehensive and use a variety of methodologies.** The vast majority of the activities carried out in the project focus mainly on modernising course offerings and course content, individual and small group learning support or personal counselling and competence development for students. **Typically, the project did not generate the development of new activities, services or the identification, development and implementation of completely new educational and methodological innovations. Typically, it has involved a more in-depth and systematic development of previously used activities, an improvement in their accessibility, and an institutional extension of the**

approach to the activity. The implementation of the planned project elements and activities at organisational and teaching level was largely achieved without any particular problems, although there were difficulties in involving students.

In some areas, the pandemic has benefited and in others, it has harmed the activities undertaken in the project. On the one hand, the development and improved accessibility of e-learning materials have benefited from the digital switchover, while on the other hand, activities that require personal presence have been delayed or not implemented at all. The negative impact of the pandemic is also that some equipment purchases are delayed and the effectiveness of some digitally delivered activities (e.g. student counselling services, competence development) is questionable for the implementers.

The project was very indicative in terms of the organisation of teaching and the modernisation of curricula. **It was felt that it would greatly assist the development of good practice in the organisation of training in universities if they were given the opportunity to try out, even in the context of a pilot programme, such elements of the programme which go beyond (or are exempt from) the current rules**. The aim in these cases is the same as in the call for proposals: to strengthen individual learning pathways and to develop a learning outcomes approach.

The evaluation of the activities is complicated by the fact that the beneficiaries did not carry out impact assessments and analyses related to the project, so there is no quantitative feedback on which activities have been successful and which have not. Institutions **typically identified general, not necessarily specific activities as good practice: strengthening faculty cooperation, strengthening the approach to methodological innovation in education, mentoring, training of trainers, improving (pedagogical) methodological culture, developing student competences and soft skills.**

However, the majority of beneficiaries, based on the information gathered during the interviews, are uncertain whether the project will have a marked impact on changing drop-out rates. This is due partly to the complexity of the project, partly to causes outside the activities and partly to the uncertain impact of a pandemic. In any case, one of the stated objectives of the new university maintenance is to reduce the drop-out rate, and the institutions surveyed will continue to pursue activities in this direction.

Dual training

Those institutions that had already started to develop dual training around 2013-2014, often as a response to a decline in student numbers and in order to make use of the available funding, and also using the preceding project, (and many of them have come a long way: they have reached a level where they can be self-sustaining), have acquired the key skills needed to operate successfully and have found the points that make it beneficial for them to operate this form of training.

The EFOP-3.5.1-16 scheme gave them the opportunity to continue building. Where the dual form was started later, possibly only because of legal constraints, and where there are few such courses, the same can be expected after the end of the project period as at the end of the predecessor project: high maintenance costs will reduce expenditure and the dual form will become less dominant.

The usefulness of the EFOP-3.5.2-17 scheme is less clear: some people thought that it gave a boost to developments that were to be launched anyway, while others admitted that they had launched the project because of the need for resources, and that they had in fact used it to achieve other professional goals. It also became apparent that the dual training format in social work was neither professionally advantageous nor beneficial to student learning, so that neither

trainers nor students were motivated to participate. This realisation has been followed up with very substantial support from the institutions.

Recently, several institutions and the Education Office have conducted surveys among students and companies involved in dual training. These show that **both students and companies are mostly satisfied with the training**. Two groups of students can be distinguished: one group is career-oriented and chooses this form of training for its future employment benefits, while the other group is financially secure. However, the **disadvantaged groups are hardly more represented than average among the dual form students** (the surplus may be around 20%, which is negligible in terms of actual numbers), and the presence of the other target groups of the scheme is not noticeable.

The return on investment and the impact of the aid for the scheme are difficult to assess. On the one hand, there is no labour shortage to justify further support for this form of training, especially in comparison with other cooperative training solutions, which many firms consider more flexible and competitive: on the other hand, the number of students reached is low, the vast majority of students involved find it difficult to comply with the dual study arrangements and the need to commit themselves to a company or firm for the long term is considered counterproductive.

While both students and graduates acknowledge that dual training offers the opportunity to gain work experience, find a job and earn money during their studies, with regional/regional variations, non-dual students and graduates consider that this is also well achieved outside the dual format. In other words, here too, only a small additional benefit is apparent, which is negligible in terms of numbers.

Although the drop-out rate in dual education is lower than in non-dual forms, it also has a small overall impact on the overall drop-out rate in higher education due to the small number of students involved. At the same time, the interviews suggest that **higher education institutions require significant internal resources to organise, maintain and cooperate, while the internal transferable effects are small and companies and partner organisations do not see a return on their costs, at most in the long term, and many prefer to see their participation as a matter of social responsibility.**

The long-term effects of the training are not known, and there is not enough time to assess this. However, large-scale, longitudinal international data analyses covering the countries of the European Union (Hanushek et al, 2012, 2017) have shown that **in countries where training systems have traditionally been more attentive to the needs of firms and the labour market, and where dual or similar cooperative training is widely used to this end, although initial employment rates are well above those in other countries, workers drop out earlier (usually during major changes in production technologies) and remain outside the labour market for longer than graduates in countries with more general training.** This suggests that these experiments should be treated with due caution and with considerable follow-up.

Lessons learned and how to move forward?

Our assessment is that the projects have achieved partial successes, but overall there is no radical change in the STEM enrolment and drop-out rates. There are **several reasons for the lack of results**. Firstly, to improve equal opportunities in higher education, it is necessary to reach disadvantaged people and other equal opportunities groups. The fact that hardly anyone from this group is graduating suggests that **the root of the problem lies elsewhere than in the areas targeted by the projects.** This was partly recognised by the Higher Education Careers Guidance project when it tried to make an impact at the level of public education. The PISA data also show that the Hungarian school system is one of the least opportunity-rich in the

world, with one of the strongest determinants of pupils' educational achievement by family background. Another reason is that the **bulk of resources have been devoted mainly to infrastructure investments**. The **scope of programmes** targeting marginalised groups **was rather narrow**, with relatively few schools intensively involved in career guidance and a very large number of other objectives and activities in drop-out reduction projects. A third reason is that there has **been little focus on marginalised groups**, either in pedagogical methodology or in monitoring (there were no such project indicators in the EUPR database examined for monitoring projects). However, in the HRDOP, a total of sixteen indicators measure the effectiveness of higher education projects. The monitoring of the performance of nine indicators is continuous throughout the project implementation period. The achievement of seven indicators will be reported to the HRDOP managing authority (EFOP IH) in 2023. Two of these indicators are directly linked to the themes under review: the proportion of students receiving individual support from the programme who obtain a tertiary or equivalent qualification out of all individual support and the proportion of disadvantaged students who obtain a diploma. Data on the former indicator were not available at the time of the survey. The latter, i.e. the share of disadvantaged students among students with a baccalaureate, is reported by the Educational Authority to be 8.13% in 2021, while the target for 2022 is 10%. Overall, therefore, the indicator stands at 81.3% completion in 2021.[6]

The tools assigned to the objectives oriented the development focus appropriately according to the field, but during implementation - despite the wide range of activities carried out - the approach gaps were due to the traditional deficit model-based approach rather than the lifelong career guidance approach, recruitment rather than active learning-based personal development. The programmes did not build on previous EU-funded Social Renewal Operational Programme (SROP) developments and did not involve a wide range of experts in career guidance, counselling and inclusion. It is certainly **worthwhile to build more intensively in the future on the results of previous EU development projects (SROP, HRDOP) and on guidance and inclusion professionals. This would also contribute to the development of a modern, complex lifelong career support system with appropriate databases, guidance, institutions and portals.**

It is clear, however, that the main reason for the lack of results is not to be found in the poor implementation of projects. Low social mobility is a societal problem and would therefore require much greater cohesion and resources. Therefore, the problem of equal opportunities and the effectiveness of efforts in this area should be examined in a more comprehensive way, taking into account all the operational programmes and budgetary expenditure in this area. In order to ensure that an unfavourable family background does not become a lifelong factor, children must be given opportunities from an early age, and this does not only concern educational institutions, but also has a social, municipal and housing dimension. That is why, if we really want more children to enter higher education, we need to start from the bottom up.

The evaluation of EU projects aimed at reducing early school leaving found that the mere fact that institutions had up-to-date and comparable data on pupil drop-outs with other institutions caused a significant shift in the system, with improvements in maths performance in the bottom fifth. This was possible to show because time-series data at individual level were available,

[6] However, the fact that this is calculated on the basis of the students' family background index makes it difficult to interpret, but we are not aware of any impact analysis or background study that would show the distribution of this indicator in higher education, nor of a breakdown of the STEM by degree programme. A disadvantaged student is defined as a student whose family background index, as measured by the National Competence Measurement, is below -0.5, but it is not known why this threshold is set. This indicator is not reliably produced on an annual basis, partly because the drop-out rate in the National Competence Measurement is also increasing (according to the just published 2021 annual report, thousands of students have disappeared from the database), and partly because the linking of this data to the student database is not automatic (it has been done for only two cohorts so far) and is not transparent and not available to researchers.

where it was possible to identify precisely where the intervention was taking place. The Education Office has built up a huge and valuable database: this **could be** used as a basis for **a system of predicting drop-out rates** in **higher education,** similar to that in general education. Research has clearly identified indicators that are good predictors of drop-out risk. These include, in particular, the number of semesters of inactivity, but exam results and admission scores can also be useful. In addition, a range of data on disadvantage could be collected, in particular on the educational attainment of parents. These data could be used to compare the performance of the same courses at different universities. This is the direction taken by the higher education performance funding system introduced in 2021, which includes indicators on drop-out rates. In order to make a real difference in the area of early school leaving, it would be worthwhile to monitor and analyse these data on an annual basis and to publish an analytical report on the area down to the level of institutions. This would certainly encourage universities to take greater and more effective action. At the same time, such a forecasting system would also enable action to be taken in good time and where it is needed. The higher education sector expects that a significant increase in spending on higher education, from 1.87% of GDP in 2021 to 2% of GDP in 2022, will contribute to improving educational outcomes.

In addition to catch-up courses and student mentors, **more emphasis should be placed on mentor teachers**. Based on student feedback, this seems to be the most effective intervention, and therefore a reduction or restructuring of the teaching burden, appropriate remuneration for student teaching support and training for mentor teachers to enable the necessary change of approach and pedagogical methods in higher education would be necessary.

Several national and international research studies point out that **boys' drop-out rates are often due to inadequate competences, especially in the area of reading comprehension and other soft skills, and that it is therefore important to focus on developing them in this area.** In addition, OECD experts suggest that boys' improved performance in reading comprehension and emotional intelligence may paradoxically encourage girls to pursue STEM studies, as girls' competitive advantage in the humanities decreases.

Fewer young people are entering higher education from vocational education and training, which tends to have a higher proportion of disadvantaged young people. **Pedagogical innovation in vocational education and training (VET)**, project-based approaches, creative learning approaches could help to develop the competences needed for access to higher education for VET students. **The new regulatory environment for vocational education and training from 2020 onwards will place considerable emphasis on methodological innovation, which will hopefully also help in the future. In addition, access from VET to higher education should be further facilitated through specific channels or scholarship schemes**. One such innovation in the reformed vocational education and training system is the introduction of a technician diploma, based on a professional programme developed jointly with a higher education institution, which provides advanced professional knowledge.

The evaluation of EU programmes and the implementation of educational improvements would also be much more efficient if existing databases were used much more intensively, and if educational research were carried out on a continuous basis to measure the effectiveness of innovations in a methodologically sound way. This would be greatly assisted by opening up the individual student databases for higher education to researchers and creating anonymised research databases or a **research room** where data could be analysed, similar to the public education data. This would require the creation of a legal environment.