

VOCATIONAL EDUCATION AND TRAINING 4.0



**MEDIUM TERM POLICY STRATEGY FOR THE RENEWAL OF
VOCATIONAL EDUCATION AND TRAINING
AND ADULT EDUCATION
RESPONSES OF THE VET SYSTEM TO
THE CHALLENGES OF THE FOURTH INDUSTRIAL REVOLUTION**



INNOVÁCIÓS ÉS TECHNOLÓGIAI
MINISZTERIUM



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As a result of the decisions taken by the Hungarian government, unemployment has hitherto decreased by two thirds and the number of employed people has risen by 800 thousand since 2010.

The number of employed persons reaches 4.5 million. Benefits were replaced by work in hundreds of thousands of families and a work-based society has been emerged. Our aim is to further strengthen this trend.

This requires good professionals and their appreciation. Therefore based on the Austrian model, in association with the market players and on the initiative of the economic chambers and the enterprises, we would like to make vocational education and training more practice-oriented and more attractive. Over the past months, we have listened to the point of view of several professional stakeholders, all of whom proposed the strengthening of vocational education and training.

After listening to these professional recommendations and taking them into account the government decided on the further steps towards a work-based society. We set the following common objectives in association with the market players.

We would like to strengthen the vocational education and training of young people not only in higher education, but also already in upper secondary-education so that they can enter the labour market and join the life of enterprises as early as possible, as good professionals.

Beside the continuation of the favourable demographic trends which have already started, we would like to reach that every Hungarian young people who leaves the school system —beyond the basic competences— possesses skills and competences which lay the foundation for the acquisition of a qualification demanded by the economy and in a life-long learning context.

The fourth industrial revolution creates new jobs and professions; therefore— naturally— the contents taught at schools also have to be continuously updated.

This transformation and these expectations present a major challenge for our VET system.

Therefore, we have jointly developed the 4.0 VET strategy, which defines the systemic renewal and further development of vocational education and training and adult education.

One of the most important objectives is to ensure that VET teachers and practical instructors possess the most up-to-date technologies of their respective professional fields. This can be achieved only if the further training of teachers teaching vocational subjects is organised at companies. Furthermore, we must provide our vocational teachers marketable knowledge with a competitive career path and income.

High-level vocational knowledge can be taught to young people only in modern laboratories and workshops equipped with state-of-the art tools. VET schools must be of such quality that they can present a real option for career choosing students.

The government supports the 4.0 Strategy and provides the resources necessary for its implementation.

One of the keys to the competitiveness of the Hungarian economy is high-quality professionals development.

The challenge we have to conform is not easy: WE HAVE TO TEACH THE FUTURE TODAY!



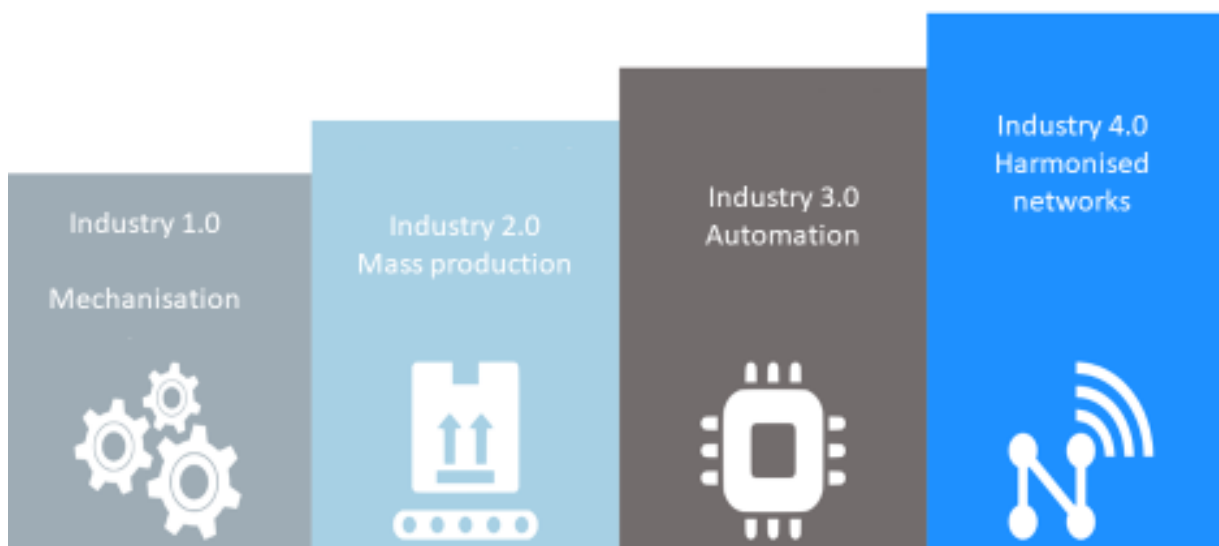
Prof. Dr. László Palkovics

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- I. **The employers' changing requirements as a result of INDUSTRY 4.0, the macroeconomic and labour market factors influencing VET and adult education**
or
the challenges of our changing environment



The transformation of vocational education and training and adult education has become indispensable due to changes in the employers' requirements, macroeconomic factors and labour market situation.

One of the reasons is the increasingly rapid development in the area of technologies, processes and materials used in the industry, which is one of the main features of the **Industry 4.0 Revolution**. The jobs are also changing, primarily due to **robotisation and automation**. The number of unskilled jobs which can be filled without a vocational qualification is decreasing, while the demand for professionals with IT and robotics qualifications, responsible for the planning, construction and operation of systems, is increasing.

As a consequence what is needed is not fewer workers, but workers performing different tasks under changed circumstances, **in jobs with higher added value**. The new technologies do not crowd out the workers from the labour market, but assist them and improve the efficiency of their work. And this also **changes the competence requirements**: there is an increasing focus on both creativity and human cooperation. **Knowledge-based society needs to be strengthened.**

On the other hand, **macroeconomic factors also make the transformation of education and training necessary**. In recent years, economic growth has been continuous in Hungary. Unemployment has decreased by half and employment has increased significantly, all this simultaneously with the growth of real wages. Labour market today is characterised by demand and not supply. A shortage of skilled workforce indispensable for the economy has appeared.

In contrast, the problem is that:

Currently, vocational education and training can meet the territorial economic needs only partly, even if significant steps have been taken in the recent period to establish the dual system of vocational education and training on the initiative of the Hungarian Chamber of Commerce and Industry (MKIK). Our system of training is, however, not based on the demand of the labour market, but primarily on supply, which leads to inability to compete in the long run.

The same can be said about the current system of adult education, which is primarily based on the educational offer of the training providers and does not react to the needs of the labour market with sufficient flexibility.

The Ministry for Innovation and Technology elaborated in 2018 its general economic development strategy for the 2018-2030 period.

The vision is that **by 2030 Hungary should belong to the first 5 countries in Europe which are the best to live, dwell and work in.**

This primarily requires the following 3 things: **strong Hungarian enterprises, stable workplaces and rising wages.**

The 3 tools which facilitate this are:

- 1) creative Hungarian people and innovative, competitive enterprises,
- 2) rapid and safe transport,
- 3) smart and clean energy.

Regarding the structure of the economy the main objectives are:

- To attract foreign companies and activities using and developing high-tech technologies, providing a high added value (especially R&D activities), which provide the Hungarian employees with high wages.
- To increase the technology-based productivity of Hungarian small and medium-sized enterprises, to promote their own product development.

Vocational education and training and adult education have to facilitate and support the achievement of these objectives. This, on the one hand, requires the development of **an attractive VET system, which provides young people with creative and flexible, competitive professional knowledge**, and on the other hand, the development of a **demand-driven, outcome-based regulation system of adult education**, based on the Digital Workforce Programme. Policy decisions need to facilitate the achievement of these objectives.

I.1 Changing expectations of the employers as a result of INDUSTRY 4.0

With the emergence of Industry 4.0 every occupation is changing

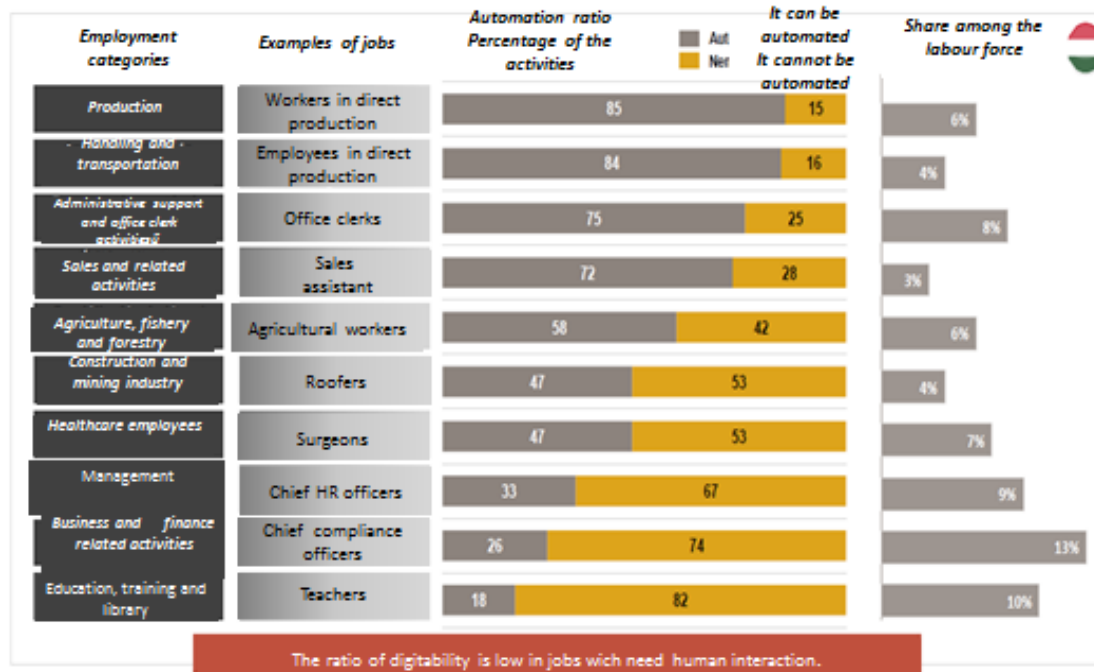


Figure 1: Ratio of digitability in different categories of employment
Source: McKinsey - 2018

Due to technological development it is typical all around the world that **a significant part of human activities are becoming automated**. Some tasks of certain professions are now carried out by machines, and this tendency will increase in the future. Due to demographic stagnation automation is of particular significance in Europe; the companies are continuously seeking solutions related thereto.

In the different professions, however, **automation appears in varying proportions**. There are areas where it can be even over 80%, such as production, handling and transportation. The percentage also reaches 75% in administrative support and office activity, but the degree of automatability can be as high as 72% in sales and trade as well.

At the same time, automation to such an extent is not possible in professions requiring human relations. This is particularly the case for areas such as healthcare, human resources, i.e. HR, support of business and financial activities, and first and foremost education and training, where the number of automatable activities is well below 50%. It is beyond doubt that digitalisation appears in and transforms these professions too.

For all these reasons, it is of **particular** necessity to assess the effect of automation and digitalisation, and to modify the teaching of certain occupations on that basis. In case of **jobs directly linked to production** it is particularly important to radically transform education and training, but the changes arising from digitalisation must be integrated into training in case of other occupations and professions as well.

The emergence of Industry 4.0 does not result in a decrease in the number of employed persons

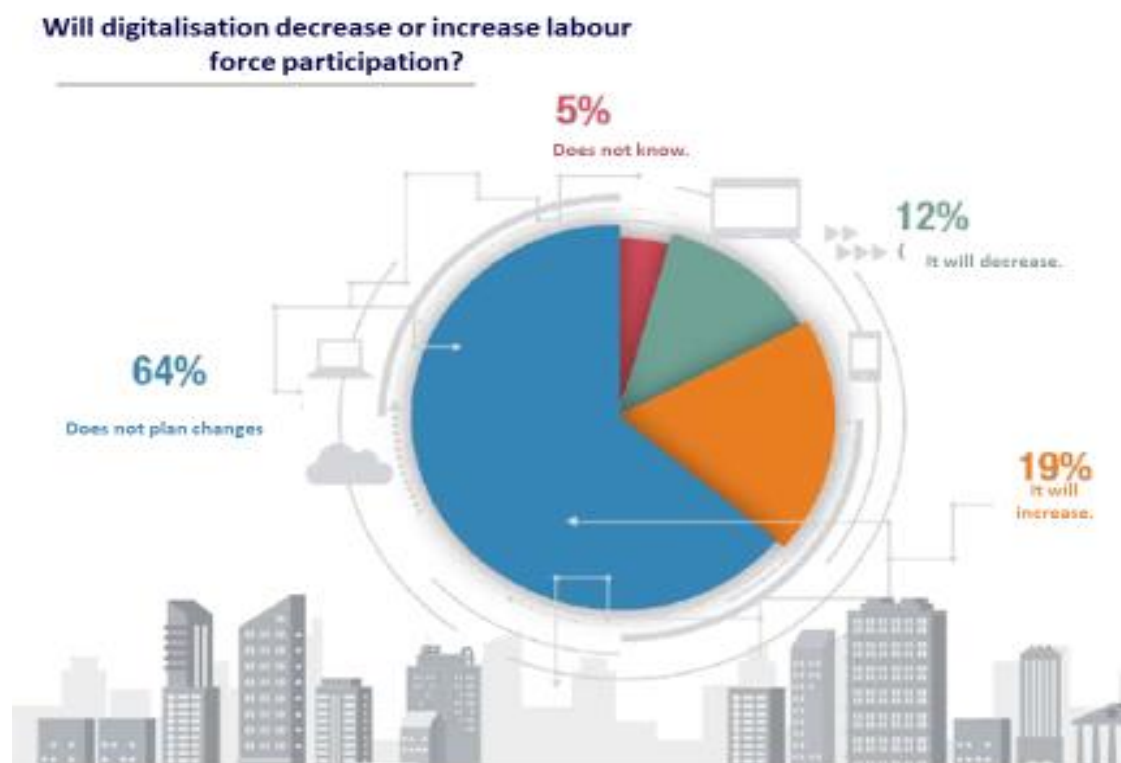


Figure 2: *Source: Expected change in the labour force participation as a result of digitalisation*
Source: Manpower – 2016

It is important to make it clear that **the increase in the degree of automation does not necessarily lead to a decrease in employment.**

According to the 2016 survey of Manpower—a leading labour market service company—the majority of the employers, notably 65% of them, think that digitalisation in itself will not decrease or increase the number of workforce. Many of the rest—19%—think that digitalisation will rather increase the number of jobs. Only 12% of them expect a reduction will take place.

Based on the survey of McKinsey and that of Manpower it can be stated that **it is expectedly the number of unskilled, operator jobs—which can be filled with a low qualification—that will decrease significantly.** Indeed, these jobs can be carried out by robots and automated solutions.

However, skilled workforce will be more and more needed, especially for the planning, construction, operation and maintenance of automated production and services. Vocational education and training and adult education need to provide the highest possible level of training for this change, and it definitely needs to provide something different—new elements and new methodology—compared to the current ones. This is how those graduating from such trainings can provide a higher value-added activity.

The emergence of Industry 4.0 changes the competence requirements

In 2020:

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. Coordinating with Others
5. Teamwork
6. Emotional Intelligence
7. Judgement and Decision-making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

In 2015:

1. Complex Problem Solving
2. Teamwork
3. Coordinating with Others
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgement and Decision-making
9. Active Listening
10. Creativity



Figure 3: *Expected changes in competence requirements 2015; 2020*
Source: *Future of Jobs Report, World Economic Forum*

The researches carried out by the World Economic Forum clearly show that Industry 4.0 is changing competence requirements. In 2019, **complex problem solving continues to be the most important**, just like in 2015. However, the role of critical thinking and especially **creativity** increases within the Top10.

New requirements, such as emotional intelligence and cognitive flexibility, also appear in the Top10.

These are all competences which cannot be entrusted to a machine, cannot be automated and are related to **humans and human cooperation**. Skills related to the latter are significantly appreciated in value.

It is particularly true for jobs where the human factor cannot be or can only to a minor extent be replaced by automation. These include for example teachers, nurses, psychologists, as well as all the professions in the course of which humans participate in the planning, constructing, operating and maintenance of automated production and services.

This also means that the **emergence of new types of occupations and jobs** can be expected—with the common characteristic of requiring a higher qualification. **Not only skilled workforce, but also workforce having received adequate trainings satisfying the criteria of Industry 4.0 is needed.**

I.2 Macroeconomic factors influencing VET and adult education

The condition for further economic growth is increase in efficiency, which implies the availability of better trained workforce

The Hungarian GDP growth is outstanding even by international standards

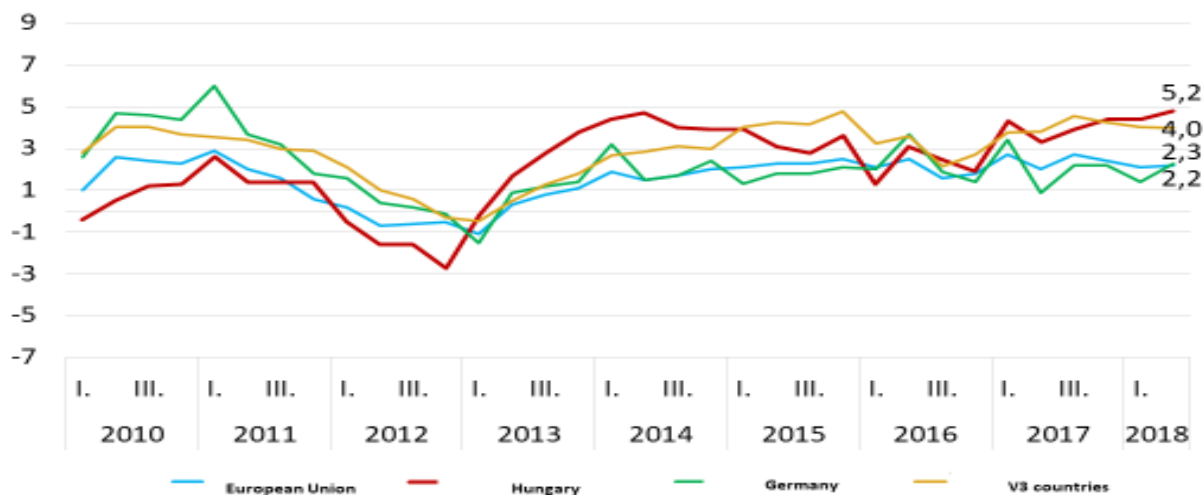


Figure 4: Changes in GDP in the European Union, Hungary, Germany and as an average of the V3 countries between 2010 and 2018. Source: HCSO, Eurostat – 2018

In the early 2010's, GDP growth in Hungary was below the average of the European Union, but also below the average of the other three Visegrád countries (Czech Republic, Poland, Slovakia). This reversed in 2013: **the growth of the Hungarian economy exceeded that of the EU, and is currently exceeding the average of the V3.** The increase in employment, of course, played a role in the growth; more and more people contributed to it with their work.

At the same time, it can be seen as well that **economic growth can only be sustained in the future if the increase of efficiency is also achieved.**

The condition for this is the availability of better trained workforce. The latter, in turn, requires vocational education and training and adult education which are even more appropriate to the needs of the economy.

I.3 Labour market processes influencing VET and adult education

In 2010, employment hit a low point in Hungary, lagging far behind that of Germany, far below the European Union average and a good few percentage points below the average of the other three Visegrád countries.

Thanks to the different labour market programmes this had radically changed by 2017. **Hungary is currently at the same level as the average of the other Visegrád countries and we have also caught up with the European Union average in terms of the employment rate.**

Employment rate is good even by international standards – the labour reserve is decreasing

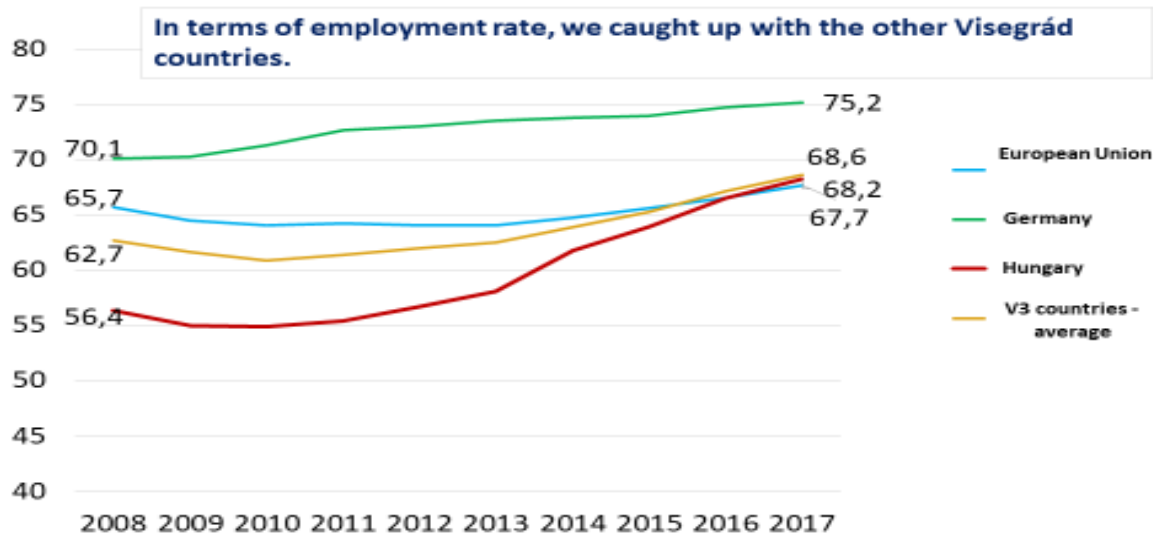


Figure 5: Changes in the employment rate 2008–2017, Source Eurostat

This naturally implies that the **labour reserve is decreasing in the meantime**. Fewer and fewer extra people can be involved in the labour market.

Further growth can only be achieved by improving the efficiency of the existing workforce, as a result of which the production value per capita will grow.

Unemployment has decreased significantly; a large proportion of those in a long-term job seeker status struggle with a severe lack of competences.

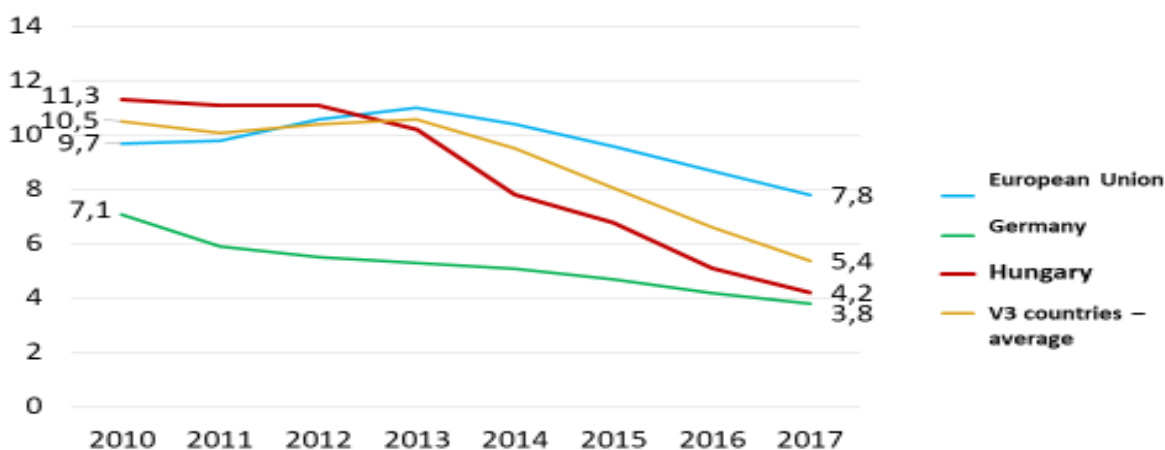


Figure 6: Changes in the unemployment rate 2010–2017, Source: Eurostat

In parallel with employment growth **unemployment decreased significantly**.

In 2010, the proportion of unemployed persons was 11.3%, which was far higher than in Germany and by far exceeded the average of the European Union. Although essentially each country in Europe has succeeded in decreasing unemployment since then, Hungary has taken the lead in this respect: **the former unemployment rate of 11.3% in 2010 was only of 4.2% in 2019**.

This is significantly lower —**about half of—the average of the European Union**. Moreover, it is almost the same as the German rate, where unemployment has been low traditionally, for decades.

According to the latest data, the number of unemployed persons has decreased by another 29 thousand people compared to the same period in the previous year; thus, it has decreased to a total of 178 thousand persons. The domestic labour market is **in a state close to full employment**; the majority of those who lose their jobs for some reason can find a job almost immediately.

This also means that **very few people have remained who are in a job seeker status for a longer period** and a great proportion of such persons **struggle with a severe lack of competences**, which is the main reason for them not finding a job. These lacks of competences must be remedied by vocational and adult education and training.

The potential labour reserve is limited to three regions of the country

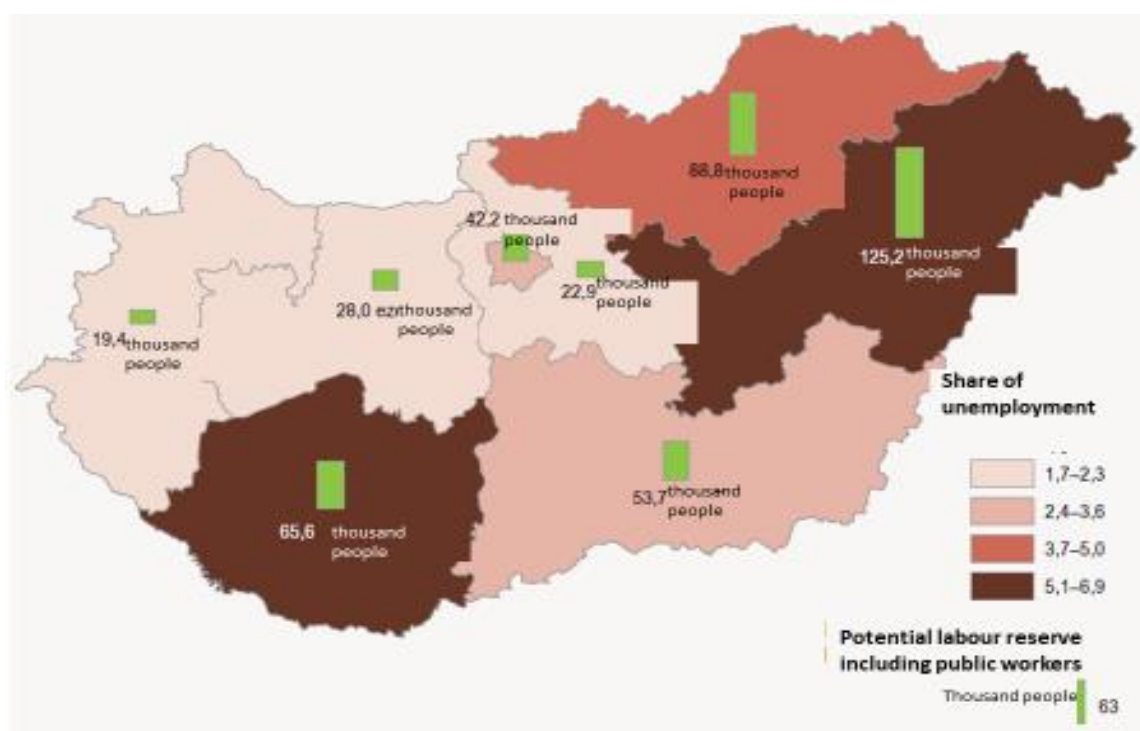


Figure7: Unemployment rate among those aged 15–64 and the potential labour reserve according to regions, First quarter of the year 2018. Source HCSO, 2018

If we look at the potential labour reserve among those aged 15–64, it can be seen that the territorial differences have remained even despite the general improvement of the labour market situation. In certain parts of the country—especially in **Central Hungary, Central Transdanubia and Western Transdanubia—there are hardly any labour reserves**; their number is maximum a couple of tens of thousands of people per region, public work programme participants included.

There are only two regions where unemployment exceeds 5%, but is still below 7%. These two regions are **Southern Transdanubia and Northern Great Plain. This is where the largest labour reserves can be found**; with 65.6 thousand people in the former and with 125.2 thousand people in the latter. In addition to these two, **Northern Hungary** has the largest potential labour reserve, which currently consists of 88,8 thousand people, but here unemployment does not even reach 5%. However, those who do not register as job seekers and are, thus, in the inactive category, and do not increase the number of unemployed people in the statistics, constitute a high proportion in these regions.

Youth unemployment rate has improved a lot even by international standards, but this target group continues to be priority labour reserves.

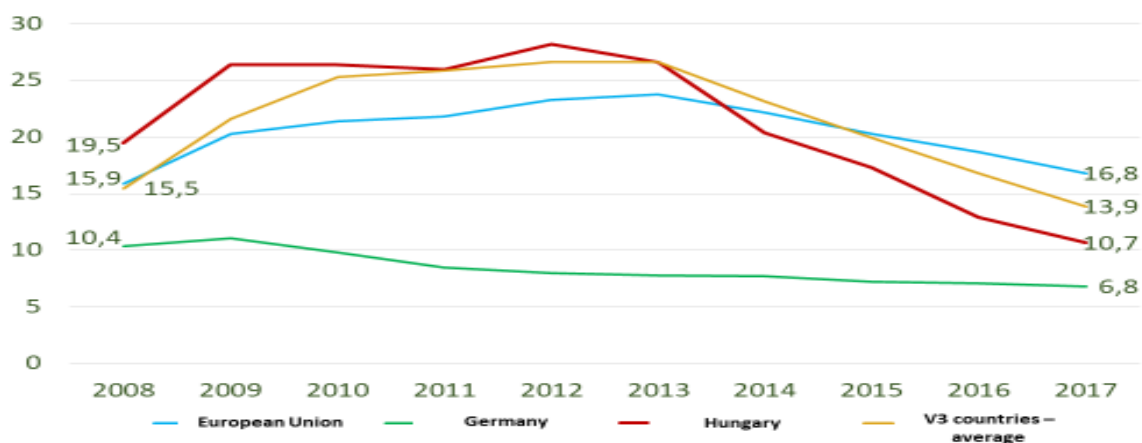


Figure 8: Changes in the youth unemployment rate between 2008 and 2017; Source HCSO – 2017

In certain countries of the European Union unemployment is significantly high among young people. This ratio is high in particular in Greece and Spain, but also in Portugal, Italy and the neighbouring Croatia.

Compared to that, Hungary is doing well: although after the crisis unemployment rate was quite high in the age group 15-24 for long years, it had decreased **to only 10.7% by 2017**, which also means that **young people find jobs more easily than in most countries of the European Union**.

However, this 10.7% is still higher than the unemployment rate of 4.2% observed in the total age group of 15-64. For this reason, this target group - those aged 15–24 - **continues to constitute priority labour market reserves**. At the same time, it is important for them to enter the labour market **with a qualification**.

The number of households without a working adult has also decreased significantly among disadvantaged, including Roma people.

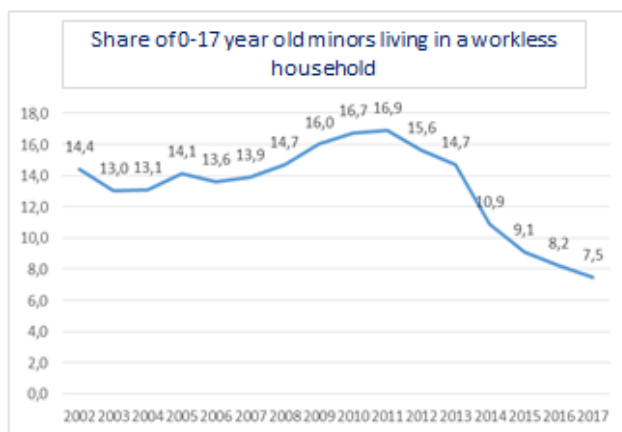


Figure 9: Share of minors living in a workless household between 2007 and 2017
Source: Educational Authority, 2018

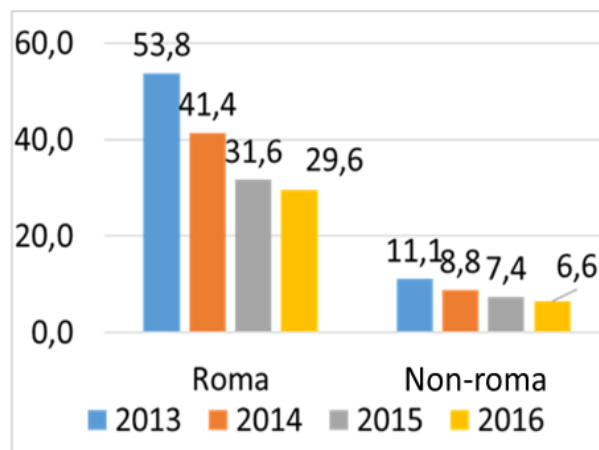


Figure 10: Share of minors living in a workless households among Roma and non-Roma
Source: Educational Authority, 2017

The number of minors living in workless households had continuously increased before 2010. This meant that the children raised in such families did not see a pattern for one or both of their parents leaving for work in the mornings. This had adverse effects not only on the labour market, but also on society as a whole.

Thanks to the labour market measures, including the system of public work, an increasing number of parents have started to work since then; therefore, the **percentage of minors living in households without a working adult had decreased from the 16.7% of 2010 by half, to 8.2% in 2019.**

This can be observed in case of Roma families too, even if not at the same rate: the percentage of minors living in households without a working adult is continuously decreasing, which means that **one or even both of the parents are working.** However, among Roma this percentage had fallen to below 30% only by 2016, which shows that Roma people need to be assisted to start working with upskilling and reskilling programmes and trainings.

Incomes have increased dynamically; the attractiveness of domestic jobs has improved

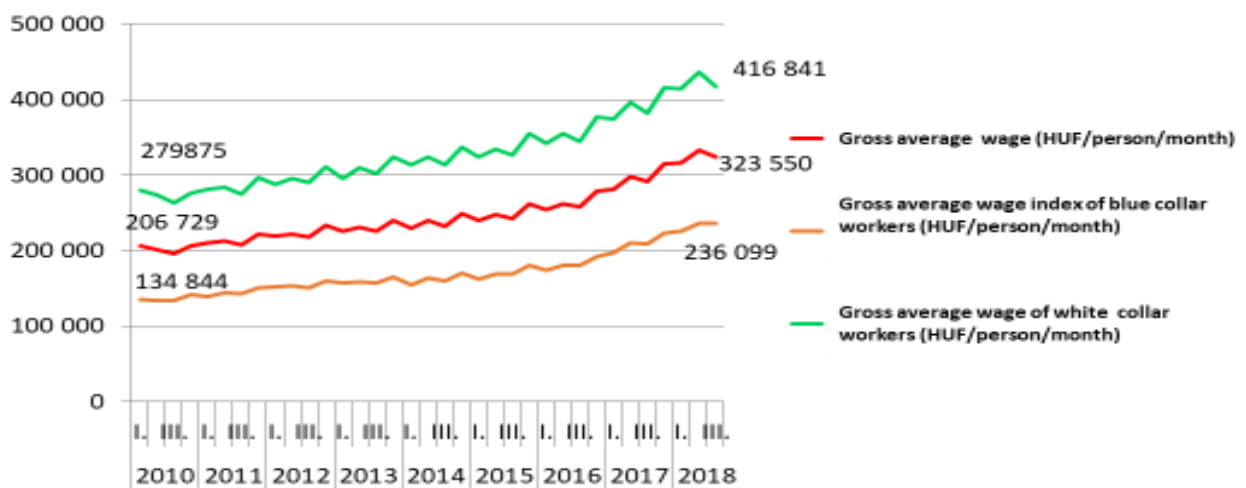


Figure 11: Changes in wages between 2010 and 2018;
Source: HCSO – 2018

In addition to the fact that since 2010 an increasing number of people have started to work, the **average income has also increased significantly.**

The average gross income of blue collar workers has increased by 75% since 2010, reaching HUF 236 thousand by the third quarter of 2018. In case of some occupations in demand the increase in incomes has far exceeded even this 75%.

In case of white collar workers the same growth has been 50%, having reached an average gross income of HUF 417 thousand by 2018.

In the meantime, both minimum wage and guaranteed wage minimum have also increased and continue to grow. In 2019, the minimum wage was HUF 149,000, which had increased to HUF 161,000 in 2020. In 2019, the guaranteed wage minimum for skilled workers was HUF 195,000, which had increased to HUF 210,600 in 2020.

Growth also means that the **attractiveness of domestic work places is improving** among the Hungarian employees.

I.4 Summary of the situation assessment

To summarise what has been said so far, the following observations can be made:

- **The condition for further economic growth is increased efficiency.**

As a result of the fourth industrial revolution and digitalization, a large proportion of jobs will have transformed and the competences required by the employers will have changed as well by 2030. As a result of automation some jobs will change, and as a consequence of sharing economy resulting from digitalization others will disappear, while a significant number of new jobs and professions will be created. In this context, one of the key factors in Hungarian economic growth is efficiency gain and the application of new technologies.

- **Increasing efficiency requires a higher attainment level.**

The marked spread of Industry 4.0 and the growing degree of automation increasingly urges efficiency gains in the economy. Thus, the number of jobs that can be filled with a lower qualification is decreasing. Professionals will be needed who are able to provide a more efficient, higher value-added production and services. Not merely qualified workforce, but workforce having received trainings satisfying the criteria of Industry 4.0 will be needed.

- **The training structure and content need to follow the changes caused by automation.**

In the post-2020 era —reshaped by robots, artificial intelligence or automotive cars—75% of the jobs will require technical trainings according to the forecasts. This means that the acquisition of higher level IT and technology knowledge will become essential, in terms of basically every occupation and job.

- **Competence requirements will change** in the digitised working environment.

As virtual reality comes to the fore, the cooperation of global, international teams will broaden, the bridge of cultural and communication differences and the role of jobs where the human factor cannot be replaced will become more significant. The importance of competences is increasing, and within those the skills related to human cooperation are becoming more valuable. By 2020 emotional intelligence is included in the Top10 competences.

- **The dynamic rise in incomes experienced in the recent period has increased the prestige of Hungarian workplaces.**

Hungarian average incomes have increased continuously since 2010 and markedly since 2016 among both blue collar and white collar workers. This means an increase of more than 60% in terms of gross average income compared to the average of the year 2010. In some occupations in demand the growth in incomes has even exceeded this percentage. Hungarian wages have approached the regional average. Thanks to the active and marked presence in Hungary of the increasingly growing global companies, the prestige of Hungarian workplaces and job opportunities has improved.

- The number of job seekers is decreasing continuously; **the labour reserve is smaller.**

In the first quarter of 2018 the number of unemployed persons decreased by 29 thousand people compared to the same period in the previous year, thus, fell to 178 thousand. In parallel—as a result of the deliberate government measures—the number of inactive people also decreased. As the domestic labour market is in a state close to full employment, a great percentage of those who have lost their jobs can find employment almost immediately. However it is a challenge, that the territorial differences have remained even despite the general improvement of the labour market situation. The domestic labour reserves can rely on the northeastern and southern Transdanubian regions of the country, public workprogrammes, and the further involvement of inactive people or their reskilling through adult education.

- **Special trainings** and reskilling **focusing on labour reserves** are needed.

The scarcity and specificities of labour reserves require focused solutions, which are tailored to the target groups. Trainings must be based on competence assessment and development compiled on the basis of the labour market requirements so that the target group struggling with a lack of competences become suitable for employment or reskilling. The involvement and activation of labour reserves can be implemented effectively with the precise assessment of the workforce potential, a strong socio-educational presence at local level, with individual mentoring and small-group competence development programmes, as well as life management programmes.

II. Presentation of the current VET and adult education system, greatest challenges and key problems

or

the situational picture of education



Demographic basis, background

Education, including upper secondary level education, is greatly influenced by demographic trends. School enrolment numbers—in comovement with the population decline—have decreased over the past nearly 20 years. **Between 2000 and 2018 the number of elementary school pupils decreased by 24%. This trend had an impact on the upper secondary education particularly after 2010.**

It is expected that thanks to the family policy measures the number of children entering elementary and upper secondary schools will stabilise in the medium term. In addition, the success of the early childhood educational programme (95.3% of children between the age of 4 and 6 participate in early childhood education and care – participation of Roma is 91%, which is close to the national average and the highest figure in the region) also provides an adequate basis for maintaining the satisfactory level of school enrolment numbers in medium and long term.

Institutional background

Regarding the share of students, secondary grammar schools are the most popular, followed by vocational grammar schools, secondary vocational schools and vocational schools. In case of secondary grammar schools the ecclesiastical involvement is 26%, while the same ratio is 11% in vocational education and training. 8% of secondary grammar schools and 5% of VET institutions are maintained by foundations and other maintainers.

In 2018 238 different vocational occupations were taught in 381 member institutions affiliated to 44 VET Centres maintained by the Ministry for Innovation and Technology. The number of IVET students has exceeded 170 thousand persons. In recent years, the number of persons participating in adult education has increased significantly due to the government measures – first and foremost the possibility of obtaining a second vocational occupation free of charge. This trend is the most dominant in the field of manual jobs.

Challenges, problems

It is a warning sign that based on international comparison **fewer people than the European average participate in VET in Hungary**, and this tendency may deteriorate even further. If no supplementary actions have been undertaken- according to a trend-analysis –after three years the **school enrolment rate of secondary grammar schools will be over 53%, that of vocational grammar schools around 33% and that of vocational secondary schools below 13%**. This problem may become extremely severe, as **there are already now serious headcount problems in the formal school-based VET. The challenges are enhanced by the dropout rate of 12% experienced in vocational training**, which is even higher in vocational secondary schools.

The number of **persons participating in adult education programmes was already nearly 1 million in 2019**, which means an **adequate quantitative basis**. Here, not a **quantitative, but a qualitative problem is observed in terms of life-long learning**.

Summary of the system's key output problems:

There are serious student headcount problems in the formal school-based VET, which can be tackled with the reform of vocational education and training and other supporting measures:

1. VET would provide a real opportunity for some young people based on their skills and realistic future prospects, but secondary grammar schools “absorb” them. In the academic year 2017/2018 in addition to the 74 thousand students studying in a **secondary vocational school**—former skilled workers training schools—and the 162 thousand students studying in a **vocational grammar school**, 43.1% of young people studied in a secondary grammar school (in the neighbouring Austria this percentage was 23%).
2. An increasing part of the students (nearly 30%) arrive to upper secondary VET from the elementary **school with severe lack of competences which do not enable them to obtain competitive knowledge**. Even if these young people formally obtain the qualification at school, they will not be able to develop and adapt to the changing technologies.
3. **Many of them (46%) leave the vocational grammar school after obtaining the secondary school-leaving examination without completing the fifth grade and acquiring a technician qualification. A significant part of the students studying in vocational grammar schools do not want to find a job in the qualification they have learnt during their vocational education and training studies.**
4. In 2018 **the number of dropouts in IVET was 12%**. Due to the inflexible system there were not any outputs that would have provided them with at least one partial qualification which could be used in the labour market.
5. Due to the inflexible regulation of compulsory education, **a significant proportion of young people - particularly in disadvantaged regions – leave school early to earn income from unskilled work**. (The national average of those leaving school without a qualification exceeds 10%, in certain regions it approaches 40%).
6. In adult education and training, with an adequate quantitative basis (nearly one million persons) typically qualitative problems are experienced. Adult education did not offer flexible learning possibilities in 2018, did not focus on the needs of the economy and its efficiency was not sufficient.

The main professional challenges faced in career guidance and education and training:

1. Elementary schools (and related teaching staff) do not support the students in entering VET, career guidance towards vocational education and training lacks the appropriate level and commitment.
2. The current VET and AL system cannot address the challenges imposed by the 4.0 Industry revolution and digitalisation. “Currently we teach the future by using teaching materials of the past!”
3. The VET system is supply-driven; it provides the same trainings as before, and those for which it has teachers and instructors, machines and equipments.
4. Not a sufficient number of enterprises participate in dual training and the number of students in dual training also lags behind the European average. Furthermore, the percentage of companies training their own employees must be increased significantly as well.
5. In the field of career guidance, several organizations are working in parallel, using significant resources, but this does not appear in the school enrolment results.
6. The structure of VET is not flexible enough, its operation is not efficient, and its management could be more professional.
7. The relationship of upper secondary VET with higher education is not functioning at the required level; that is (partly) the reason why many students choose secondary grammar schools.
8. The knowledge of teachers teaching vocational subjects does not properly follow the technological development. The number of instructors leaving their profession due to the higher income offered by the economy is high. The retirement wave expected to take place in the next period may cause a critical situation in the teachers’ and instructors’ resources.
9. Although the government has recently spent a significant amount on the renovation of the schools affiliated to VET Centres and on the development of school workshops, in many cases the lack of infrastructure and

equipment of vocational education and training does not provide an attractive opportunity for students choosing a career.

By nowadays, the number of children has stabilized in the nursery school system and elementary schools, which will manifest itself in the upper secondary school age group too within the next two-three years. It can be planned with this headcount in the longer term.

Demographic trends, changes in headcount in the education system

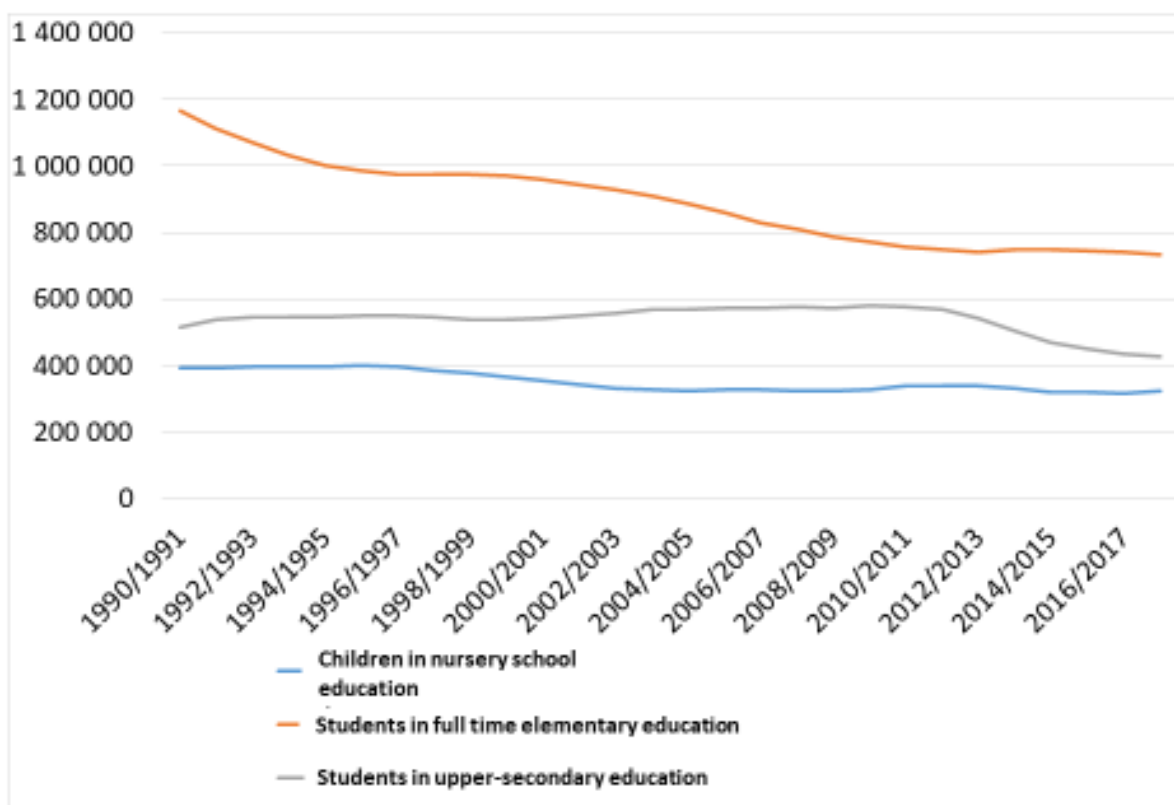


Figure 12: Children in nursery school education and students in full-time elementary and upper secondary education between the school year 1990/1991 and 2017/2018 (capita)

Source: HCSO – 2018

Between 2000 and 2018, due to the decreasing birth rates the number of those learning in elementary schools changed from 957,850 to 732,491 persons, which means a 24% decline. **It is after 2010** that the trend of decreasing number of elementary school pupils **started to have remarkable impacts in upper secondary schools**. This also contributed to the lower number of VET students.

By now, the number of children has stabilized in the nursery school system and elementary schools thanks to the family policy measures. This trend will also manifest itself in the upper secondary school age group in 2-3 years' perspective; therefore, this headcount can be planned with in the longer term. This means at the same time that a remarkable turnaround cannot be expected in demography, a greater growth in the number of children cannot be expected. Therefore, the number of students in VET, the output volume of vocational education and training need to be supported by increasing efficiency and other measures. VET should be made more attractive.

II.1 Number of students in upper secondary VET and secondary grammar schools: shares and tendencies

Based on international comparison, in Hungary fewer people participate in VET than the European average, and the trends show that this can decline further if no intervention is made.

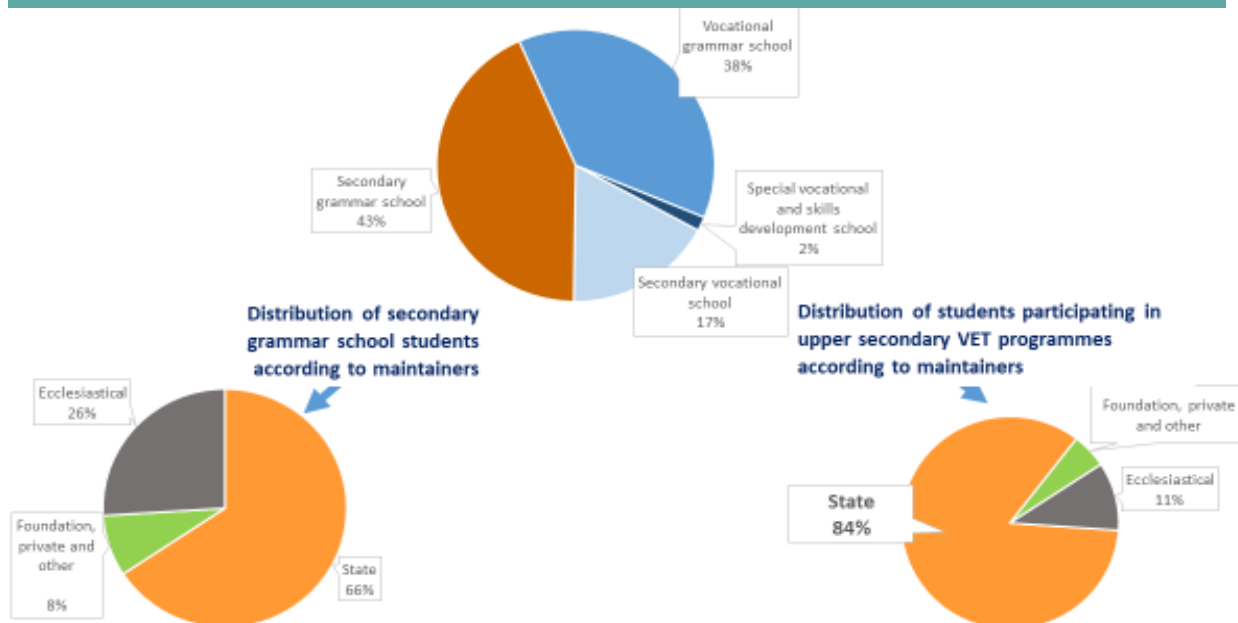


Figure 13: The share of students learning in secondary grammar school and upper secondary VET programmes, and the share of the maintainer institutions carrying out secondary grammar school and upper secondary VET programmes

In terms of the distribution of students headcount, secondary grammar schools are the most popular, followed by vocational grammar schools and vocational secondary schools. The role of state in maintenance of VET institutions and secondary grammar schools is decisive, in case of secondary grammar schools ecclesiastical maintenance also plays a prominent role beside the state involvement. Maintenance by foundations and other organisations is below 10% both in case of VET and secondary grammar schools.

It must be noted that the special vocational school-based, skills development programmes— which primarily intend to offer an opportunity for students with special educational needs—does carry out vocational education and training tasks, but the overall specialties and tasks of this institution type are rather link it to the public education than VET which directly satisfies economic needs; thus, the strategy does not specifically address this institution type and training form.

It is a warning sign that based on international comparison **fewer people than the European average participate in vocational education and training in Hungary**, and this trend may deteriorating even further.

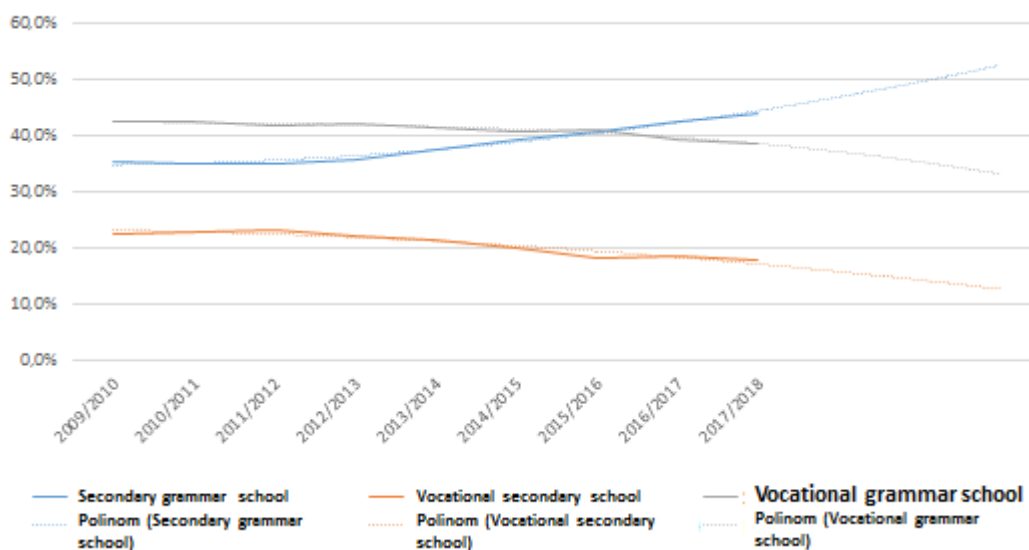


Figure 14: Share of full-time education in secondary grammar schools, vocational grammar schools and vocational secondary schools between 2009/2010 and 2017/2018.

Source: HCSO - 2018

The trend-analysis shows that if no intervention is made, in 3 years the school enrolment ratio will be

- above 53% in secondary grammar schools,
- around 33% in vocational grammar schools and
- below 13% in vocational secondary schools.

The popularity of upper secondary VET programmees (including vocational secondary schools and vocational grammar schools), has continuously decreased over the past ten years. Comparing the share of students in vocational grammar schools and secondary grammar schools, it can be seen that first time took place in the academic year 2015/16 that the share of students in secondary grammar schools exceeded those in vocational grammar schools. This trend continued in the last three years as well, to the detriment of vocational education and training. In the academic year 2017/18 in addition to the 74 thousand students studying in **vocational secondary schools** and the 162 thousand students studying in **vocational grammar schools**, 43.1% of young people were studying in secondary grammar schools.

The trend analysis shows that if no intervention is made, in 3 years the **school enrolment ratio of secondary grammar schools will be above 53%**, that of vocational grammar schools will be around 33% and that of vocational secondary schools will be below 13%. This situation would be way behind the EU average and would also have an adverse effect on the country's competitiveness.

II.2 The role and responsibility of state for a crucial VET

The medium-term supply of professionals for the economy must be based on state VET institutions.

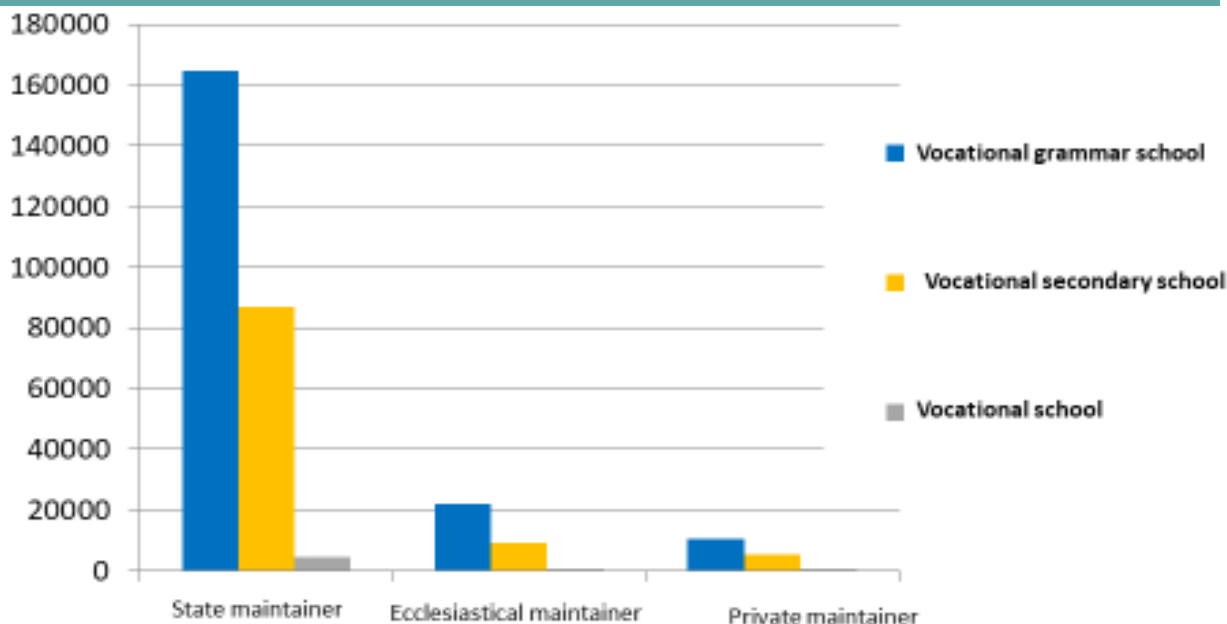


Figure 15: The distribution of VET institution types according to maintainers, the distribution of the number of students among vocational grammar schools, vocational secondary schools and vocational schools in the school year 2017/2018 Source: Hungarian Public Education Information System (KIR) – 2017

	Vocational grammar school	Vocational secondary school	Vocational school	Total
State maintainer	164,855	87,157	4,309	256,321
Ecclesiastical maintainer	21,803	9,193	529	31,525
Private maintainer	10,381	5,338	271	15,990

Maintenance by the state and the involvement of the state are decisive in vocational education and training. Regarding the total number of students four-fifths of them study in an institution operated by a public authority, only one-fifth of the number of students is distributed between ecclesiastical-maintained and privately maintained institutions. **The supply of highly qualified specialists in the economic sector must continue to be based on VET institutions maintained by the state.**

Churches need to be given a greater role **primarily in human and social sectors**. Ecclesiastical institutions have an increased affinity and are more successful **in the vocational education and training of disadvantaged young people, including Roma**. Over the past years, several good examples of this have been seen, such as the “Make Them Capable” project launched by the Salesian Order or the orientation year organised by the Piarist Order.

At the same time, practical needs show that the **quota regulation**, which causes general operational uncertainty with its annual decisions regarding the educational structure and the number of students who can be enrolled to schools, **must be phased out of the system**. Instead, as a flexible but still stable regulator—which satisfies the local economic needs—a three-year cooperation agreement with the non-state training providers must be introduced within the framework of a VET agreement.

II.3 School-based IVET system maintained by the Ministry for Innovation and Technology (ITM)

II.3.1 Number of students and its changes

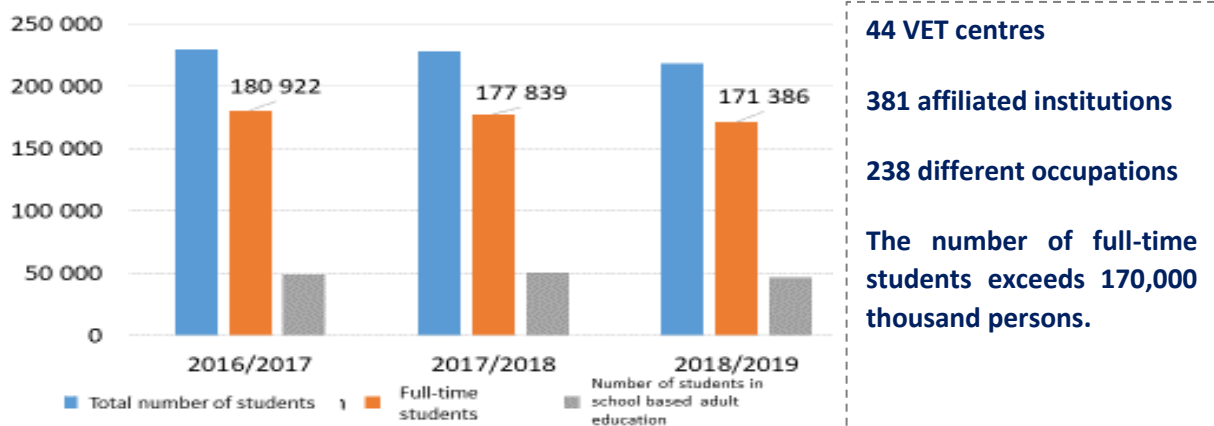


Figure 16: The headcount data of VET Centres maintained by the ITM (2016-2018)

Source: ITM, NSZFH (National Office of Vocational Education and Training and Adult Learning), 2018

In the 381 institutions affiliated to the 44 VET Centres maintained by the Ministry for Innovation and Technology a moderate decrease has been observed in the total number of students since 2016. The decrease in the total number of students is smaller than the decrease in the number of those participating in IVET—there was a drop of **nearly 10,000 persons in IVET** in three years (180,922 persons in 2016 – 171,386 persons in 2018).

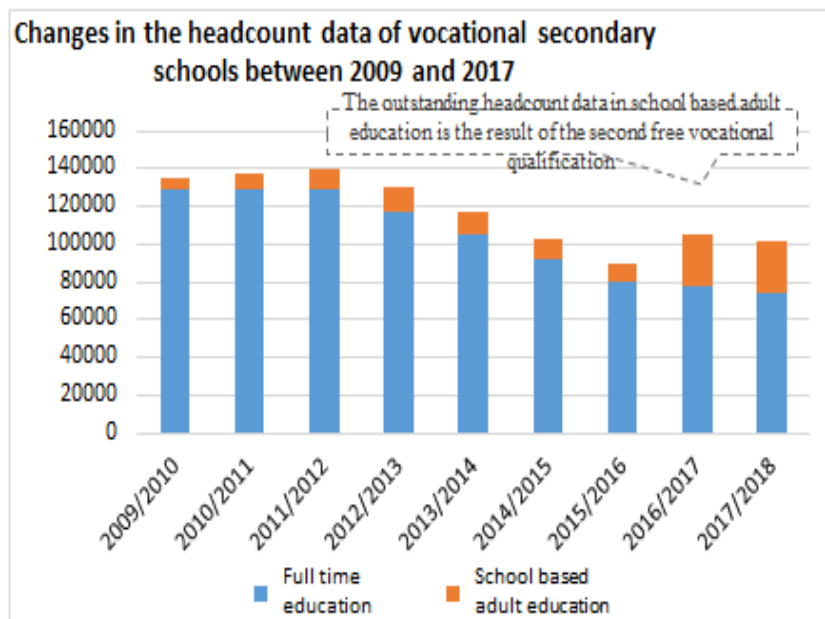
However, as the trend analysis shows, if no drastic change occurs, **this decrease can be accelerated over the next years**; therefore, increasing the efficiency of VET is of paramount importance. School enrolment must be increased, dropout rates and rates of those leaving school without a qualification must be reduced and the “loss” of the training must be decreased. The primary objective to achieve is that students studying in VET should find employment in their own vocational occupation.

There was a sharp increase in the number of those participating in **adult education** when the possibility of obtaining a second vocational qualification free of charge was provided, and this high number of adult participants can be considered stable over the last three years (2016-2018). It is, however, also important to note that the **training structure of adult education is being significantly transformed, and adapts more and more to the needs of the economy.**

The training trends also show that while due to its low social reputation vocational education and training is less attractive for the elementary school age group, this trend reverses in adulthood and the objective to acquire a “good” vocational occupation will be more and more present. It can also be observed that there are professions which attract interest specifically in adulthood, merely due to age-specific features. It is worth taking this into account at the level of regulation as well.

We will soon need to dispense practical training based on age groups. It can be seen in numerous European examples—such as in the German or the Finnish VET—that training groups are formed based on educational attainment instead of age.

II.3.2 Changes in the headcount and the expected changes in the tasks of vocational secondary schools



The number of those participating in full-time secondary vocational school education has been decreasing since 2010. This has also affected the total headcount (full-time education + adult education). In the past period (2016-2018), thanks to the effective interventions – the possibility to obtain a second vocational qualification free of charge—the significant increase in the number of those participating in adult education was somewhat able to compensate this negative trend.

One of the recent success stories of CVET was the boom in adult education. It is positive that the current educational structure is complex and reflects the needs of the economy more than previously. VET in adulthood, adult education will continue to play a decisive role in the next period. If we examine the European trends and the domestic school enrolment practice, it can be forecast that traditional skilled worker training will significantly shift towards the world of adults in the future.

II.3.3 Share of students studying in VET centres by economic sectors

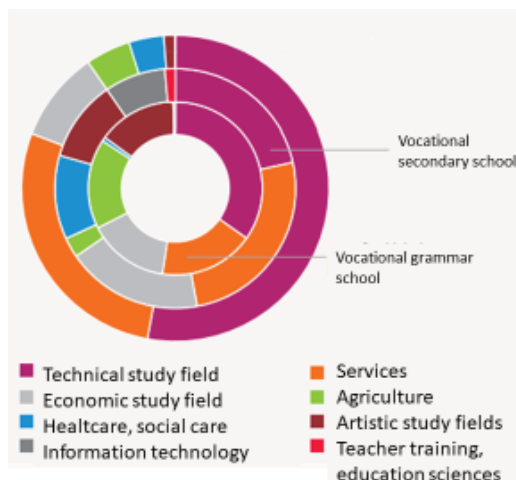


Figure 17: Distribution of VET students according to the field of study in the school year 2017/2018
Source: HCSO 2018

In addition, there is also a strong emphasis on training for the services sector.

In the vocational grammar school system, economics and management, technical sciences and the services sector are the most popular. A major problem about the distribution of students by economic sectors is the low number of those studying information technology; therefore, **the percentage of students studying technical sciences and information technology need to be increased in the vocational grammar schools.**

A high percentage of students choose “trendy jobs”, specific sectors of the area of services (e.g. cosmetics) and artistic trainings from the range of trainings offered by the secondary vocational grammar schools even nowadays: this ratio does not reflect the actual needs of the economy. Artistic trainings

are difficult to interpret anyway within the framework of vocational education and training.

Increasing the number of students in the healthcare and social segments in vocational education and training is also an important challenge, given the staff shortage problem of the Hungarian healthcare system.

However, it must be recognised that some of the healthcare and social service occupations currently taught in the IVET system are unfamiliar to young people aged 14-15; therefore, these occupations are more and more frequently chosen and learnt rather in adulthood.

II.4 School performance determined by the social and economic situation

The need that the institutional system should ensure the possibility of social mobilisation for the students also appears with a great emphasis in vocational education and training. The relationship between the students' family-home circumstances and their school performance, the strength of the correlation between the social, economic and cultural background and the performance have to be examined, namely, what proportion of the standard deviation in performances can be explained by family-home characteristics. The result of the 2015 PISA assessment shows that in terms of knowledge acquisition and skills development there are still significant inequalities in Hungary, which means that the education system is not able to exploit the full potential of the students.

If the education system is not able to compensate the handicaps of students raised in disadvantageous socio-economic conditions, then these students exiting the education system will not possess the knowledge and skills demanded by the labour market and will be also more likely to undertake a smaller part from equal tax treatment.

An increasing percentage of students (nearly 30%) leave the elementary school with such a severe lack of competences which make them incapable to acquire competitive knowledge. These young people will not be able to develop and adapt to the changing technologies even if they obtain a formal qualification at school.

One of the conditions of effective VET is that young people should start IVET with high-level basic competences and that teachers should have a clear understanding of what competences they have when entering IVET and what competences they need to develop.

Furthermore, there is, unfortunately still a significant difference in the performance of students coming from better and worse family backgrounds. **The objective is to decrease the differences between the performance of disadvantaged students and those who have a more advantageous background.**

It is a big step forward in the inclusion of disadvantaged children and the reduction of their lack of competences that in 2019 95.3% of children between the age of 4 and 6 participated in early childhood education and care.

It is a particularly important result that the participation rate of Roma children is 91%, which approaches the country average and is the highest figure in the region.

The objective of the early childhood education programme is to ensure that the differences are equalised by the school starting age. As the differences emerging in the area of performances appear at an early age **decreasing the lower age limit of compulsory nursery school education from the age of 5 to the age of 3 is a positive step**, which is expected to improve the subsequent school performance of children.



Figure 1: *Illustration, disadvantaged students entering elementary school from compulsory nursery school education*

II.5 Reducing the number of VET students leaving school without a qualification

The number of early school leavers decreased significantly over the last two years, but the system still faces serious challenges in this respect, as currently **12% of young people leave the formal school-based VET without a qualification.**

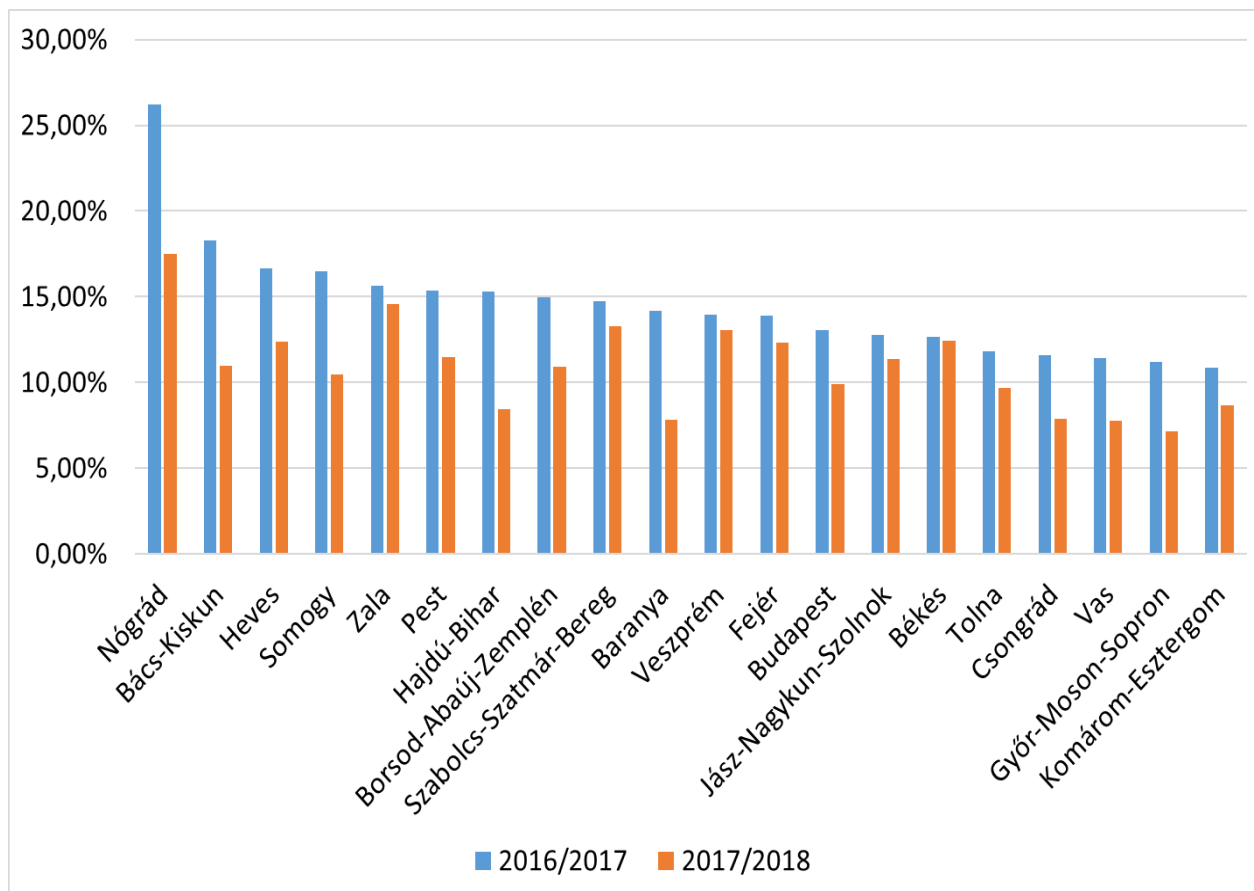


Figure 19: Changes in the share of students at risk of dropping out over the years 2016-2018
Source: Educational Authority- 2018

The share of student leaving school without a qualification **approaches 40% in certain regions.**

The VET system is inflexible in this respect, does not have an output that would provide at least one partial qualification—which can be well used in the labour market—, with a short training cycle.

It should also be pointed out that 46% of students leave vocational grammar schools with a secondary school-leaving certificate, but without a technician qualification.

The solution of the above mentioned problems **should be a strong professional control of the maintainers and the continuous monitoring of the training activity. Beside this, interventions taken by VET centres and school-level local interventions** are also needed. It is indispensable to create small-size follow up groups, where the students concerned can receive support and guidance; personalised mentoring is also a tool which can further reduce one of the greatest loss factors of VET, early school leaving.

II.6 Relationship of VET with the other actors of the public education system

The institutions of the public education system—which currently includes vocational education and training ones—have significant impacts on VET in many areas.

Nursery school is a priority institution primarily for the development of children arriving from a disadvantaged socio-cultural background because experiences show that those who receive nursery school education from the age of 3 have better academic performance, which also lays the foundation for learning a vocational occupation in the long term.

Elementary schools play an important role in career counseling. They play a significant role in achieving that students choose a suitable career. Due to the rapidly changing economy and labour market, elementary school teachers need to receive relevant information and preparation for this task. Nowadays, continuing upper secondary studies in a secondary grammar school is still considered by elementary school teachers and parents as the criterion for success.

In the lower secondary grades (5-8) of elementary schools the development of manual skills has been scaled down over the past years. The school subject Technology should be reintroduced with reconsidered and renewed contents.

The most important task of elementary schools is to develop basic skills, proficiency in reading literacy and mathematical competences respective basic digital competences. The findings of the PISA assessments, the central written entrance examination and the competence assessments carried out at the beginning of vocational education and training show a deterioration.

The renewing National Core Curriculum must further strengthen the requirement that students finishing elementary school education should have basic competences which enables them to learn a profession.

Experiences show that there are, unfortunately, still many students with many and multiple disadvantages who reach at the age of 16 the upper age limit of compulsory education without having completed the elementary school. The majority of schools do not have tools and methodology to solve this problem. These young people should be given the possibility of studying in a special training programme and exit the training system with at least one partial qualification.

Permeability after the grade 9 should be ensured to students studying in **secondary grammar schools** in case they decide to learn a vocational occupation. Due to the changes in the labour market situation, many occupations based on a secondary school-leaving certificate have become more valuable. During the career guidance taking place in secondary grammar schools the possibility of the two-year post secondary technician training should be a realistic option.

II.7 Current situation of dual training

One of the criteria of effective VET is the participation of companies in the practical training. The Hungarian Chamber of Commerce and Industry and the county economic chambers have played a decisive role in the launch of dual training and its continuous development.

The number of those participating in dual training has increased in the recent period; when evaluating this trend we also need to take into account the fact that the number of those starting a VET programme has been decreasing continuously.

In Hungary today 54.000 students participate in dual vocational training within the framework of upper secondary IVET.

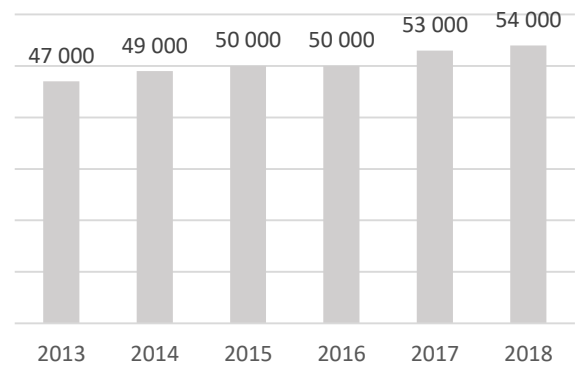


Figure 20: Changes in the number of students participating in dual training 2013–2018
Source: Hungarian Chamber of Commerce and Industry 2018

Dual training is currently present primarily in secondary vocational schools. In the academic year 2017/2018 **48.1%** of the 74.1 thousand persons studying in a **secondary vocational school**—that is 35.6 thousand persons—participated in dual training.

The vocational training tasks of economic chambers

The chambers, as bodies governed by public law, carry out their vocational training tasks delegated by the government based on the provisions of the relevant legislation and defined in the financial support agreement concluded each year, as follows:

- **Operation of an apprenticeship contract advisory network**

The chambers consider as an important task to ensure that the students participate in dual training with an apprenticeship contract, primarily concluded with external economic organizations. For this purpose, the Hungarian Chamber of Commerce and Industry (MKIK) operates an apprenticeship contract advisory network at the territorial chambers, coordinating the task countrywide. The objective is to achieve high-quality dual training and a higher number of apprenticeship contracts. The performance of this task is supported by nearly 150 advisors countrywide.

- **Operation of the national system of level examinations**

In order to assess whether a student is able to work under governance and is suitable for participating in practical training at economic organizations within the framework of dual training, he/she needs to take a so-called level examination. Level examinations are organized by the territorial chambers together with the school providing the vocational theory, under the coordination of the national chamber. The number of students taking a level examination is about 20,000 persons per year.

- **Supervision of the practical training taking place at economic organizations**

Economic organizations registered by the chamber under an official procedure can participate in dual training. The registration procedure is carried out by rapporteurs in charge of the supervision of training placements at the territorial chambers, under the coordination of the national chamber. The number of registered organizations is almost 9,000.

II.8 Labour market losses of the current VET system

There are severe headcount problems in the current school-based vocational VET which can be tackled with its reform and other supporting measures.

The losses of the VET system, i.e. the percentage of young people who do not access the labour market with a competitive vocational qualification:

1. Vocational training would provide a real opportunity for some young people based on their skills and realistic future prospects, but secondary grammar schools “absorb” them. In the academic year 2015/16 the number of students was nearly identical **in the vocational grammar schools** and secondary grammar schools. In the academic year 2018/19 the number of students studying in a secondary grammar school was **6% higher** than those studying in a vocational grammar school.
2. An increasing part of the students—nearly **30%**—arrive from **the elementary school with such a severe lack of competences that for this reason they are not able to obtain competitive knowledge**. These young people can be considered as losses even if they formally obtain the qualification at school, because they will not be able to develop and adapt to changing technologies.
3. **Many of them (46%) leave the vocational grammar school after the secondary school-leaving examination without obtaining a vocational qualification**. Some of these young people continue to study in higher education or obtain a vocational qualification in another professional field, but it can be stated that secondary vocational grammar school education without the technician grade is not a worthwhile investment either for the maintainer, or the student.
4. In the course of vocational training, **currently 12% of young people is dropping out**. The current system does not have any output that would provide at least one partial qualification, which could be well used in the labour market.
5. Due to the inflexible regulation on compulsory education, **in disadvantaged regions 5-6% of young people quit from the training without a qualification to earn income from unskilled work**.

II.9 Challenges faced by the currently operating VET system

Structure of the currently operating VET system

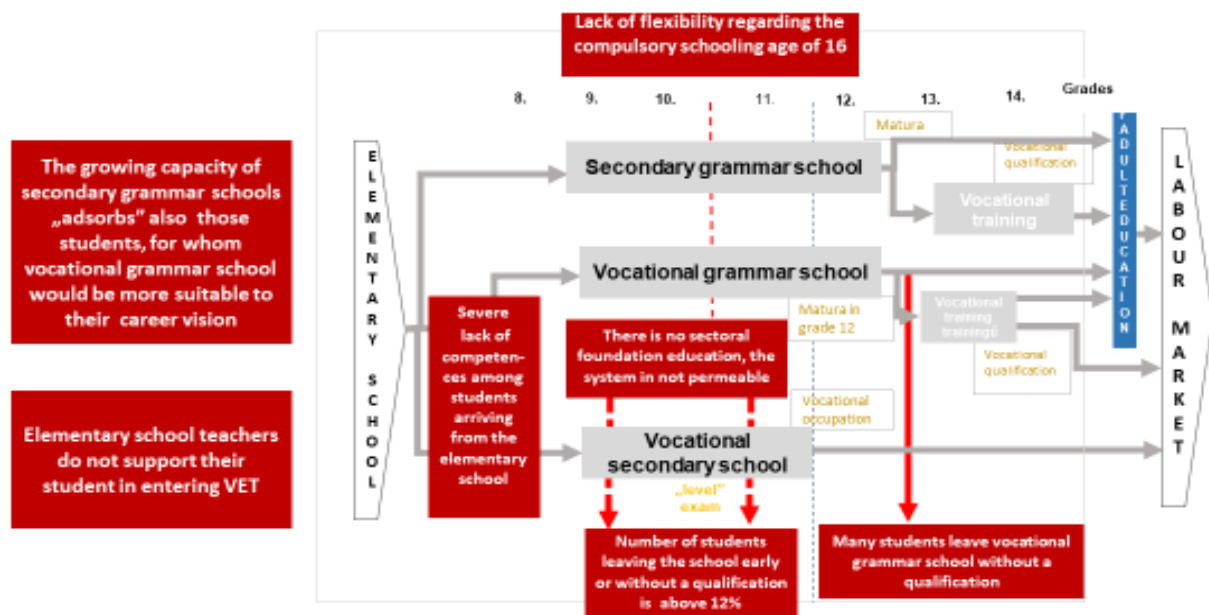


Figure 21: The structure of the currently operating VET system
Source: edited by the authors

Several elements of the currently operating VET structure carry the inherent student shortage and high loss factors.

On the input side, elementary schools do not provide sufficient guidance and do not support the children in entering vocational education and training. For a significant share of teachers the criterion of success is if the student enrolls in a secondary grammar school. Furthermore, the **growing capacity of secondary grammar schools** also counteracts vocational education and training, as they drain those young people from VET for whom vocational training would be a more suitable choice due to their life situation and future prospects.

The **perception of vocational education and training** has also suffered losses in the decades following the political transition (from 1990); thus, in many cases the parents do not support their children to enroll in such institutions either. Due to the complex nature of the VET system parents have difficulty to grasp what the real alternatives are, and elementary school teachers cannot help them either. The changes in the names of the VET institutions, unfortunately, did not make all this easier; what is more, the renaming of skilled worker training schools (vocational schools) as secondary vocational schools rather deteriorated the position of blue collar occupations as preferred choices.

In addition, **there are numerous elements within the system that cause operational problems** (compulsory education regulation, missing sectoral foundation training, the lack of permeability in the VET system, exiting vocational grammar school with a secondary school-leaving certificate but without a vocational qualification).

Four-fifths of the IVET students study in a VET Centre maintained by the state. The use of names by the affiliated member institutions of the VET Centres also often confuses the students and their parents' access to information. Experiences show that even the information regarding to which settlement operates a VET school is unclear for the public. For a student with average information it is not evident that the Virágh Gedeon Vocational Grammar School and Secondary Vocational School of the Kecskemét VET Centre operates in Kunszentmárton.

The name use of VET Centres needs to be reviewed.

II.10 The current adult education and training system

The number of those participating in adult learning in Hungary according to training types in 2015

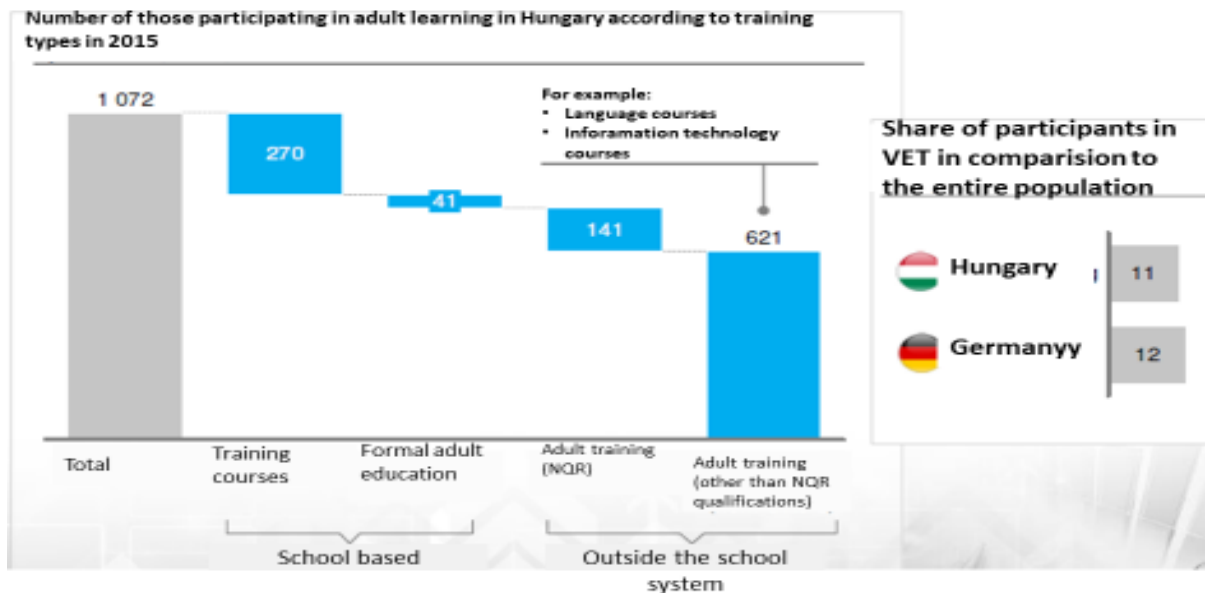


Figure 22: The number of those participating in adult learning

The high percentages of adult training and adult education suggest that the problem in the field of lifelong learning is not quantitative, but qualitative.

Today, already nearly 1 million persons participate in VET and AE in Hungary, which could mean an adequate quantitative basis.

Currently there are two paths to acquire a qualification in adulthood:

Adult education takes place in a school-based system aiming at the obtainment of a qualification listed in the NQR, in schools where full-time VET is carried out. Here the objective is that adults can obtain a vocational occupation more flexibly, within a shorter period of time, even by completing their practical training at their own workplace if that meets the professional requirements.

Adult training is carried out outside the school system, and its goal can be to acquire an NQR vocational qualification or language training or any other vocational or other type of trainings (e.g. hobbies courses), and the training providers are predominantly profit-oriented businesses. Some of the trainings -with the support of the European Union - are financed from public funds. The challenge here is to strengthen the output regulation, which ensures that the professionals who enter the labour market are meeting the needs of the economy .

In adult training the problem is not quantitative rather qualitative: **the lack of different competences is expressed by the side of businesses as quite a frequent criticism towards of those having completed adult education and training courses.** In case of the Hungarian NQR qualifications their number exceed several time the EU average, thus the Hungarian VET and AE system is characterized by fragmentation, specialisation respective that in many fields there are NQR qualifications which are not independent vocational qualifications in other European countries (e.g. lifting machinery operator). For this reason, it is recommended to radically decrease the number of qualifications included in the National Qualifications Register in order to ensure the transparency of the VET and AE system and to adapt their content to the need of the fourth industrial revolution.

The fragmentation of the NQR hampers significantly its matching with other countries qualifications, which causes many problems in the labour market already nowadays.

The majority of adult trainings do not lead to the acquisition of a qualification listed in the NQR but rather they are language and IT courses, which are important but do not provide on its own a response to the needs of the economy. The changing economic environment requires adaptation from the businesses. In order to sustain competitiveness, vocational trainings provided for employees to acquire a qualification are also essential. This area was last summarised by the HCSO in 2016 based on a methodology harmonized at the level of the European Union, with a representative data collection addressing 29 thousand businesses.

The percentage of companies training their own employees is low by international standards. The percentage of companies training their own employees must be increased significantly among small and medium-sized enterprises.

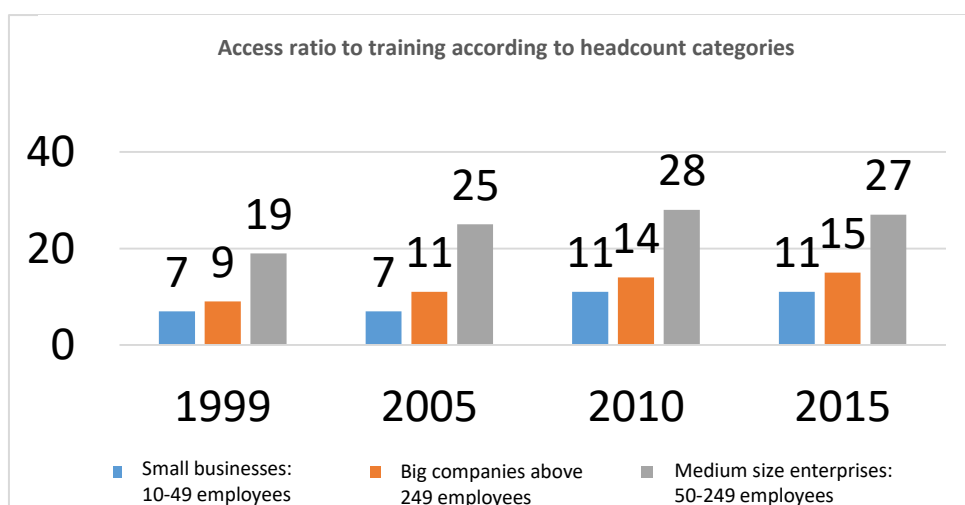
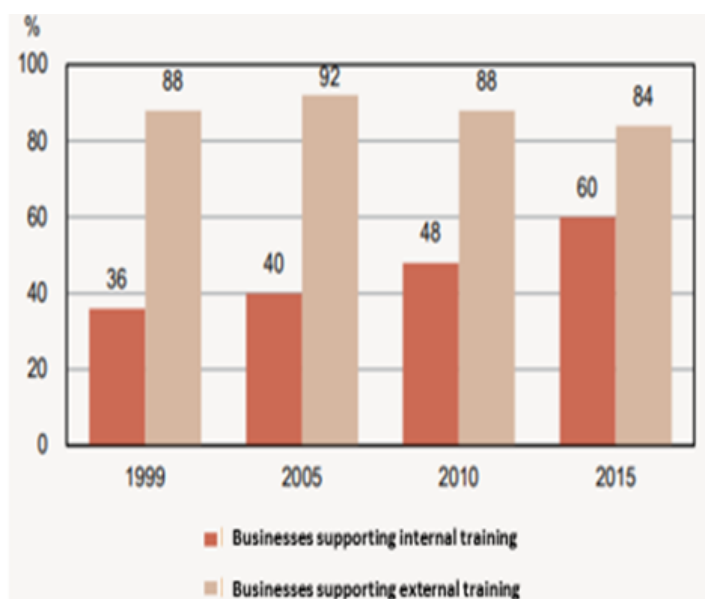


Figure 23: Access ratio to training: the share of those participating in training compared to the total number of employees. Source HCSO, December 2016

The access ratio to trainings is far the highest among large enterprises. It has increased continuously in case of medium-sized enterprises and the increase has stopped in case of small and large enterprises.



In case of company trainings the share of businesses supporting internal trainings is continuously increasing, while the share of those supporting external trainings has been continuously decreasing. In-company trainings are organised at a company placement, are built on it's production and service processes; therefore, in the future these are expected to further scaling up due to the accelerating technological progresses.

Figure 24: Source HCSO, December 2016

The result of a comprehensive survey implemented in 2016 showed that in 2015 32.8% of the Hungarian population aged 25–64 participated in formal and non-formal education and training, which means a 5.6% increase compared to the 2011 year data. The share of participants has increased both among men and women: nearly 34% of women and 31.6% of men belonged to this group. In terms of participation in education and training the most decisive factor was the educational attainment level. While just a little more than 17% of those having completed the elementary school participated in some form of learning this share is more than one third in case of those with a secondary school-leaving certificate and 55% in case of those having a higher education degree.

Similarly to the period 5 years earlier, institutionalised learning was again the most popular among the young adult age group: 41.6% of people aged 25–34 and 20.4% of people aged 55 and over participated in some kind of training in the 12 months preceding the interview. Training continued to be the most popular among the working age population and within that among employees.

As a result of the targeted government interventions and the programmes based on subsidies provided by the European Union, the involvement of people with a lower educational attainment into training has increased in the recent period.

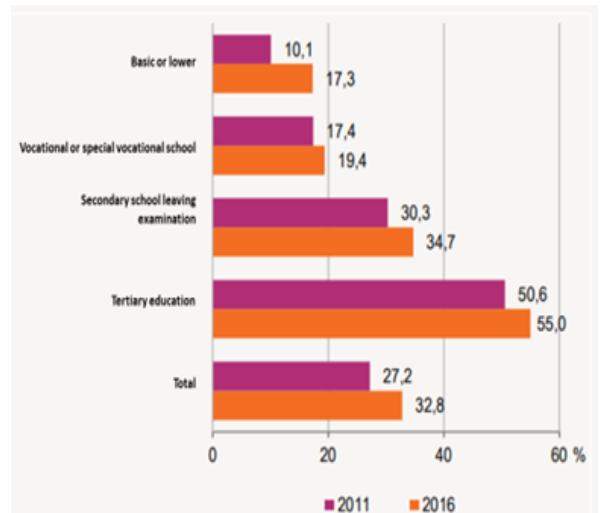
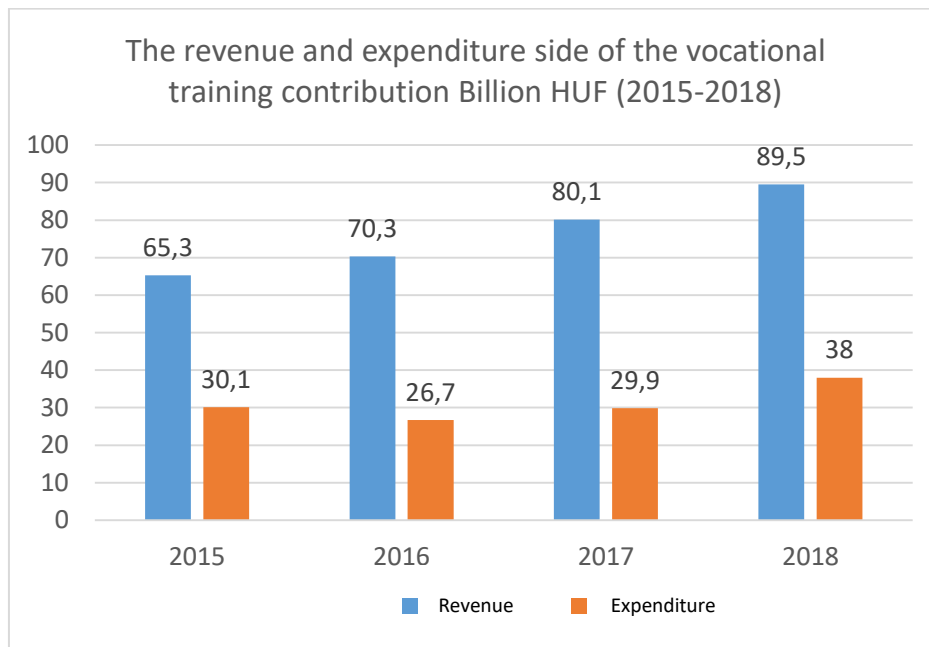


Figure 25: Participation in education and training according to the highest educational attainment.

Source: Hungarian Central Statistical Office (HCSO) - 2016

II.11 VET system financing



According to the calculations, in the next 3 years HUF 150–200 billion can be spent on the development of VET. This amount is equivalent to the renovation funds of the 44 VET Centres under the 21st Century School Programme.

Figure 26: Adult education and training (preliminary data)
Source HCSO, December 2018

A greater part of vocational training contribution, which constitutes one of the revenues of the National Employment Fund should be reinvested in training issues.

The vocational training contribution is paid by those obliged to it for the development of vocational education and training. The public revenues from vocational training contribution have been increasing significantly since 2015, by about 30%. This is much higher in volume than the expenditure side of the VET system. **A greater percentage, possibly the whole amount, of the vocational training contribution should be reinvested in the development of VET**, among others in tools and facilities which directly serve the training development goals of schools and businesses, paying special attention to the support and development of uppersecondary and tertiary dual training. Most of the VET infrastructure and - equipment has deteriorated and does not mean a real option for the career choosing students; thus, the development of VET institutions is indispensable for the overall development of the VET system.

II.12 The greatest challenges and key problems faced by the current VET and AE system

1. **The lack of sectoral competences necessary for dual training.**
2. **Supply-driven training.**
3. **Insufficient number of businesses participating in dual training, the number of students participating in dual training lags behind the European average.**
4. **In the field of career guidance, several organizations are working in parallel, using significant financial resources, but this does not appear in the school enrolment results.**
5. **Most of the VET infrastructure and equipment has deteriorated despite the development programmes launched over the last year, and does not mean a real option for the career choosing students.**
6. **The share of those leaving school without a qualification is high.**
7. **The structure of vocational training is not flexible enough, its operation is not efficient, and its management could be more professional.**
8. **The relationship of upper secondary VET and higher education is not functioning at the required level; that is (partly) why many students choose secondary grammar schools.**
9. **Few teachers teaching vocational subjects participate in further trainings taking place at a company placement; therefore, their knowledge cannot follow adequately the technological development. The number of practical instructors leaving their profession is high due to the higher income offered by the economy. Due to the retirement wave expected to take place in the next period a more smarter human resources planning is necessary.**
10. **The currently operating adult education and adult training does not offer adequately flexible learning possibilities, it does not explicitly focus on the needs of the economy and its efficiency is not sufficient.**

III. THE NEW SYSTEM OF VOCATIONAL EDUCATION AND TRAINING AND ADULT EDUCATION PROGRAMMES, VOCATIONAL TRAINING AND EDUCATION 4.0

or

What kind of vocational education and training and adult education programmes should operate in 2030?

VISION

Ensuring to every working-age Hungarian citizen at least one up-to-date vocational qualification based on the needs of the economy, guaranteeing employment in the labour market and providing modern professional knowledge.



MISSION

For the well-being and future of Hungarian people and the continuous development and sustained growth of labour supply of the Hungarian economy, ensuring modern professional knowledge based on the development of skills and key competences for the Hungarian citizens in the Carpathian Basin, through the “VET 4.0” modernisation programme.



III.1 National policy objectives for the VET system's development

What kind of VET and AE system should operate in 2030?

- Which contributes to achieving that Hungary should become one of the most liveable countries in Europe by 2030.
- Which helps to improve the country's competitiveness, which contributes to sustainable growth.
- Which contributes to the creation of more high-quality workplaces.
- Which increases the efficiency of the Hungarian enterprises, and strengthens them.
- Which encourages Hungarian businesses to support R&D activities and corporate innovation, respective to involve them in the international production chains at a level as high as possible.
- Which is viewed by the Hungarian people as an opportunity for personal professional fulfillment and which provides themselves and their families with secure livelihood based on the acquired knowledge.

Core requirements defined for the renewal of the VET system.

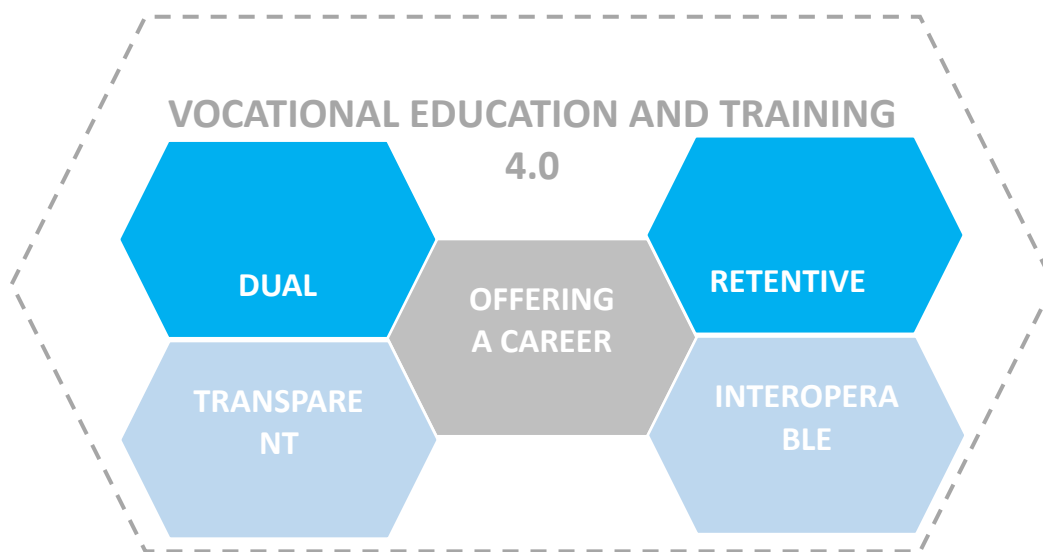


Figure 27: The core values of VET 4.0

III.2 The three pillars of VET development

The improvement of the prestige, quality and effectiveness of VET requires many interdependent interventions. During the planning of the VET system's restructuring those three areas should be emphasized which contribute to the greatest extent to an effective change.

1. **Attractive environment**

Creation of quality buildings, teaching rooms, training workshops, sports and recreational spaces which represent a **real and attractive option** for young people and their parents before choosing a career.

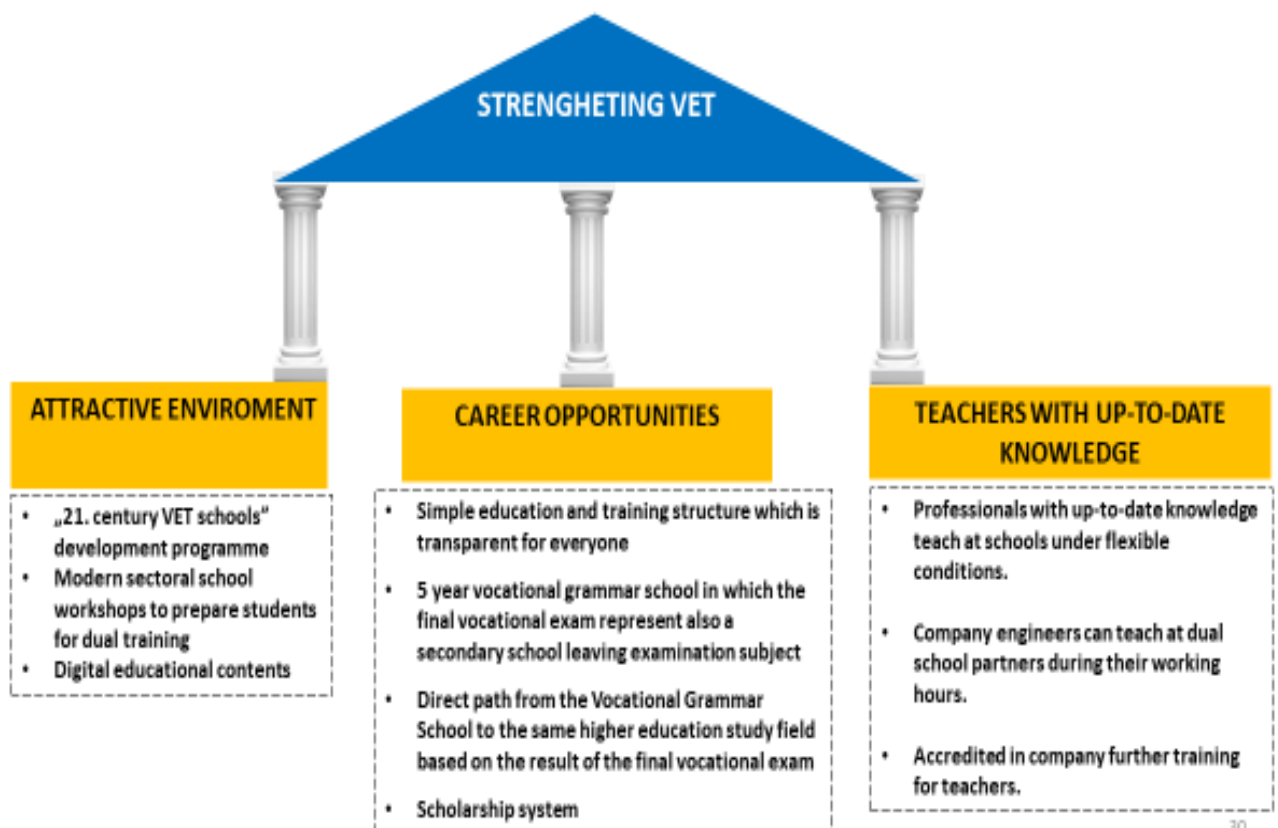
Career opportunity

2. VET has to laid the foundation for flexible and predictable career opportunities both for young people and adults. Students must have a competitive qualification and knowledge required by the economy, when they finish their studies in the Technicum, which provides **secure livelihood and high income for them**. After the technician's final vocational examination, students receive **a significant number of extra credit points depending on the result of it, which provides a direct path to the same higher education study field**.

3. **Teachers and instructors with up-to-date knowledge**

It is not possible to operate a high-quality VET system without committed and well prepared teachers. It is of paramount importance in VET that teachers and instructors teaching vocational theory and practice should have up-to-date knowledge being able to follow the development of a certain economic sector's technology.

THREE PILLARS OF THE VET DEVELOPMENT



III.3 New VET structure, the new system of vocational education and training

A/ The changing structure of the renewing VET provides responses to issues outlined in the currently operating system.

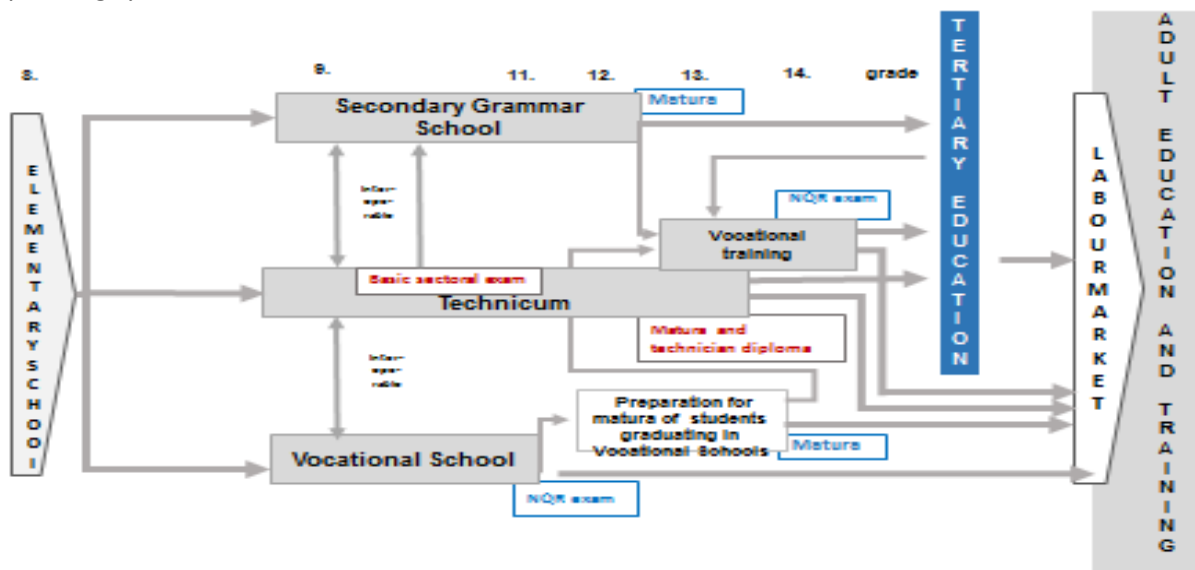


Figure 28: The new VET system
Source: edited by the authors

According to the basic principle of the new VET structure, the task of the school system is to provide broad sectoral vocational foundation and competences required by the employers. Sectoral vocational foundation enables students to acquire special vocational knowledge efficiently in the framework of dual practical training. With this clear basic vocational knowledge and ability to learn, students leaving IVET will be able to renew their knowledge during their professional career in the framework of AE and in-company CVET systems.

There are two school types in the new school-based VET:

- **Technicum**

Based on the feedbacks provided by the economy, the name **“technicum”** will be introduced to replace the name of “vocational grammar school”, which is more clearer and even nowadays symbolizes high-quality VET for many people, so it can be a buzzword for both the parents and students. Its name indicates the qualification, as those finishing their studies in it will be technicians. The technician training programme characterised by being a single unit, dual and having a strong connection with higher education justifies the changes.

The technician programme lasts for 5 years. The first two years provides sectoral knowledge followed by dual training in the second cycle. Apprenticeship contract will be replaced by an employment contract, which allows students to earn an income during the second cycle of the programme. Students take the secondary school-leaving examination, which consists of four general subjects and the fifth one will be the final vocational exam needed for the technician’s vocational occupation. Thus, after the successful examination at the end of grade 13 students obtain a certificate that attests two educational attainment. They obtain the secondary school-leaving certificate and also a technician diploma. The knowledge acquired in technicum creates the possibility for those finishing it with good academic performance, taking into account the result of the final vocational examination, to continue their studies in higher education within the same economic sector.

- **Vocational school**

The recent period has made it clear that students, parents and employers have been unable to interpret the name “secondary vocational school” so the name of this school type will change to vocational school.

Vocational school programme lasts for 3 years. The first year provides sectoral knowledge, which is followed by two years of dual training, primarily in the framework of an employment contract. After graduation it is possible to learn further and obtain the secondary school-leaving certificate or even a technician qualification. As sectoral foundation education is carried out in the first stage of both vocational schools and technicums, at the end of the grade 9 there is an interoperability within the two school types without an aptitude test. Initial sectoral foundation education is finished by a sectoral basic examination. The sectoral basic examination entitles its holder to fulfill simple jobs. Post-secondary VET is an option for those having taken only the secondary school-leaving examination, for those completed secondary grammar school, as well as for those who have given up their university studies. The 2-year training programme which takes place in technicums serves this purpose.

B/ Special functions will be added to the IVET system. . These functions primarily aim at reducing the lack of competences and leaving school without a qualification.

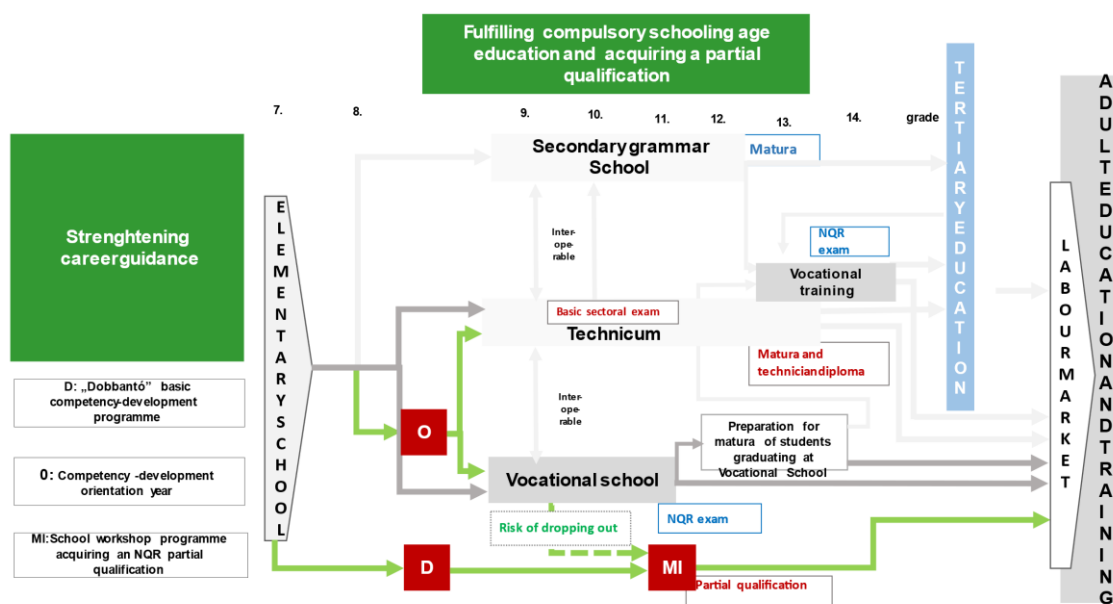


Figure 29: Special functions of the new VET system

Source: edited by the authors

The introduction of the option of an orientation year, a competence development year for young people who are uncertain about their career choice or completed the elementary school with lack of competences. Its task is not to repeat the elementary school curricula, but to develop competences based on a competence assessment. The condition for entering upper secondary VET programmes is that the student has the basic competences which are indispensable for learning a vocational occupation.

The aim of the basic competence development year organised within the framework of the **Springboard Programme (“Dobbantó Program”)** is to offer an opportunity for young people aged 15–25 with behavioral and learning disorders, lagging behind in the school-based full-time education or having dropped out of the system, which reintegrates them in the world of education or work providing opportunities in the framework of special vocational schools to find their own successful individual life path.

Young people who would drop out or leave upper secondary VET without a qualification or have obtained a basic level qualification in the Springboard Programme but cannot study in a classic school environment can obtain a partial vocational qualification in the framework of **School Workshop programme (Múhelyiskolai Program)**. The school workshop programme replaces the vocational BRIDGING programme, which is operating with low efficiency. In the school workshop programme the partial

vocational qualification is learnt at the practical training placement. The obtainment of the qualification for the students studying in school workshops is not tied to an academic year, but lasts for at least six months. There are no general subjects. All the acquired knowledge is linked to the partial qualification, which the student learns from his/her master.

Teachers support education as mentors.

III.4 Strengthening dual training in the new VET system

Dual training plays a key role in the new VET system, both in technicums and vocational schools. This is strengthened by the vocational employment contract replacing the apprenticeship contract, which is an important positive change from both the enterprises' and the students' perspective.

Differences between the current and the new structure, important changes in both school types:

- Dual training can be provided within the framework of an employment contract.
- Any person who cannot participate in dual training for a reason not attributable to him/her receives a vocational scholarship.
- While there are students in the current system who receive neither a scholarship, nor a remuneration based on an apprenticeship contract and there are students who receive both, in the new system will be either scholarship, or wage like remuneration based on an employment contract.

Vocational grammar school

Remuneration Paid by					OCCUPATIONS IN DEMAND SCHOLARSHIP STATE	OCCUPATIONS IN DEMAND SCHOLARSHIP STATE
Remuneration Paid by	NO	NO	NO	NO	and APPRENTICESHIP CONTRACT COMPANY	and APPRENTICESHIP CONTRACT COMPANY
	9	10	11	12	13	14

vocational grammar school lasting for 4+1 years

Technicum

Remuneration Paid by			APÁCZAI SCHOLARSHIP STATE	APÁCZAI SCHOLARSHIP STATE	APÁCZAI SCHOLARSHIP STATE	APÁCZAI SCHOLARSHIP STATE
Remuneration Paid by	APÁCZAI SCHOLARSHIP STATE	APÁCZAI SCHOLARSHIP STATE	VOCATIONAL SCHOLARSHIP STATE or EMPLOYMENT CONTRACT COMPANY	VOCATIONAL SCHOLARSHIP STATE or EMPLOYMENT CONTRACT COMPANY	VOCATIONAL SCHOLARSHIP STATE or EMPLOYMENT CONTRACT COMPANY	VOCATIONAL SCHOLARSHIP STATE or EMPLOYMENT CONTRACT COMPANY
	grade 9	grade 10	grade 11	grade 12	grade 13	grade 14

Technicum lasting for 5 years

vocational training after secondary grammar school lasting for 2 years

Vocational training after secondary grammar school lasting for 2 years

- In the new system talented young people can receive a scholarship from the grade 9.

Vocational secondary school

Remuneration Paid by	OCCUPATIONS IN DEMAND	OCCUPATIONS IN DEMAND SCHOLARSHIP STATE	OCCUPATIONS IN DEMAND SCHOLARSHIP STATE
Remuneration Paid by	SCHOLARSHIP STATE	and APPRENTICESHIP CONTRACT COMPANY	and APPRENTICESHIP CONTRACT COMPANY
	grade 9	grade 10	grade 11

Vocational school

Remuneration Paid by	VOCATIONAL SCHOLARSHIP STATE	VOCATIONAL SCHOLARSHIP STATE	VOCATIONAL SCHOLARSHIP STATE
Remuneration Paid by		or EMPLOYMENT CONTRACT COMPANY	or EMPLOYMENT CONTRACT COMPANY
	9	10	11

- There is no occupation in demand ; each student receives uniform vocational scholarship from the grade 9.

III.5 Compulsory education

The upper age limit of compulsory education varies between the age of 15 and the age of 18 in developed countries.

However it needs to be highlighted, that compulsory education does not necessarily mean sitting in the classroom.

Compulsory education can be completed in many countries at companies, in the framework of practical training.

The primary goal is to achieve that young people carry out activities which promote their development and their integration into the world of work.

Regarding compulsory education the lower limit is often adjusted downward, as well as compulsory nursery school attendance introduced as early as possible.

In the international practice, during the regulation of compulsory education special rules are often established and a separate range of programmes are operated taking into account the social background or the individual life path.

Defining compulsory education requires a regulation which does not focus on age, but the objective is to create opportunities for young people to obtain an elementary school educational attainment and a vocational qualification.

Therefore, those who were not able to complete their elementary school studies by the age of 15, need to participate in a basic competence development training in the framework of Springboard Programme which operates on a vocational training basis.

Afterwards, they can choose among the vocational qualifications offered by the School Workshop programmes available in the region.

The efficiency of the system is supported by the renewed scholarship system, which facilitates retention and advancement in the IVET system. When the qualification is obtained, a career starter allowance is paid in the form of a single lump sum.

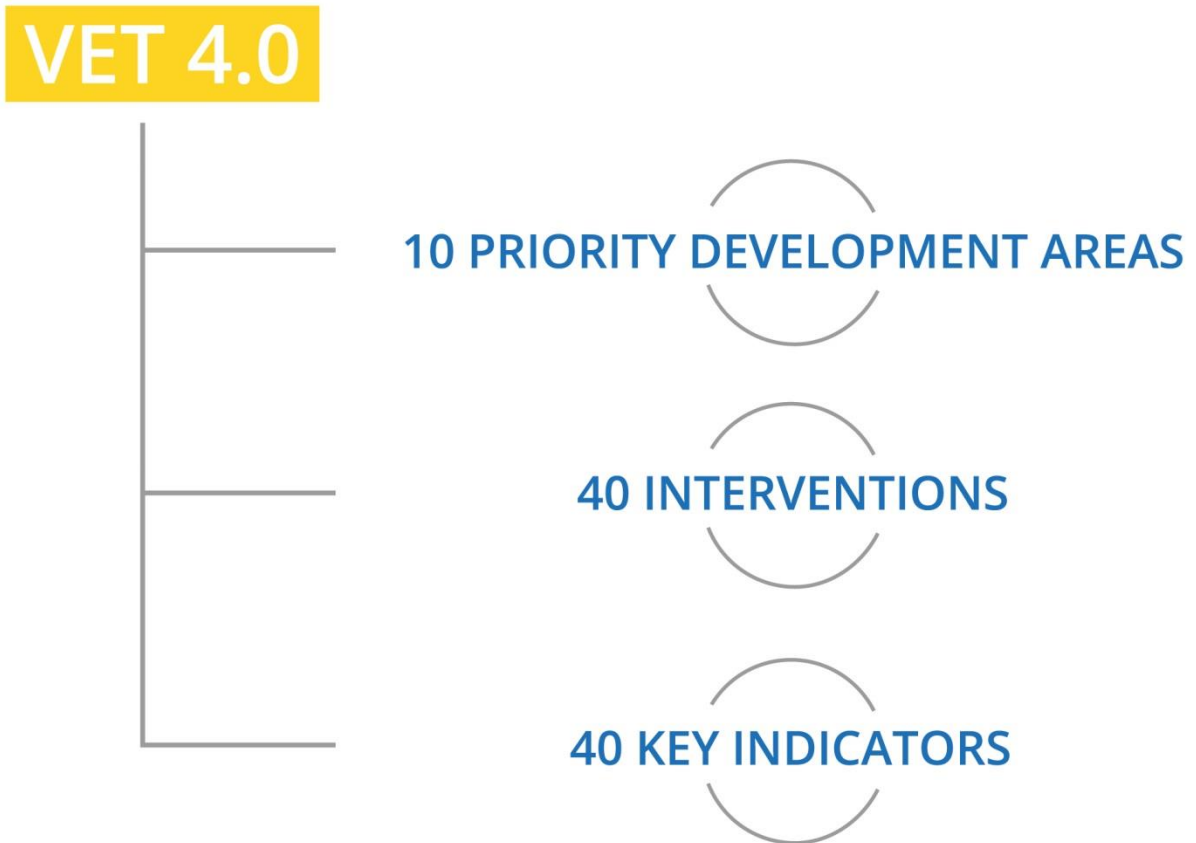
Students having completed a vocational school can be prepared for the secondary school-leaving examination in the framework of adult education so that the newly graduating young professionals can enter the labour market immediately and study in part-time evening course.

The essence of the new VET structure is to provide flexible learning paths and permeability to everyone. Those starting their studies in a secondary grammar school, technicum or a vocational school can also have access to higher education or they can enter the labour market with a competitive vocational qualification built on a basic level or secondary school-leaving certificate.

IV. IMPLEMENTATION OF VOCATIONAL EDUCATION AND TRAINING 4.0

or

**What sub-programmes, interventions are included in the strategy,
what are the measurable indicators?**



 **INDUSTRY 4.0**

IV.1 VET is attractive

The restructuring of the VET system will be effective if it becomes attractive to those concerned, primarily career choosing students and their parents.

What makes vocational education and training attractive?

1. Professional career, increasingly high salaries and secure livelihood

The wages of workers with a vocational qualification has increased significantly, and the difference between the income levels of professionals with a university degree and those with a vocational qualification has decreased.

2. Competence assessment on the computer instead of an entrance exam

VET programmes can be accessed based on an assessment focusing on key competences, laying better foundations for training and development goals, instead of the classic mathematics and Hungarian language and literature entrance examination.

3. Workload is decreased in technicums, the final vocational examination becomes also a secondary school-leaving examination subject

Currently the workload in vocational grammar schools is higher than in secondary grammar schools. The situation will be much more favourable when the secondary school-leaving examination will consist of four general subjects and the fifth subject will be replaced by the final vocational examination.

4. The technician's examination passed with a good result will be a direct path to the same higher education field of specialization

Depending on the result of the final vocational examination at the end of the technician training, those obtaining a vocational qualification will have a significant advantage when applying to the same higher education field of specialization.

5. Dual training creates the opportunity for young persons to earn an income already during their studies.

6. With the possibility of introducing an employment contract, a part of the study period can be counted towards seniority.

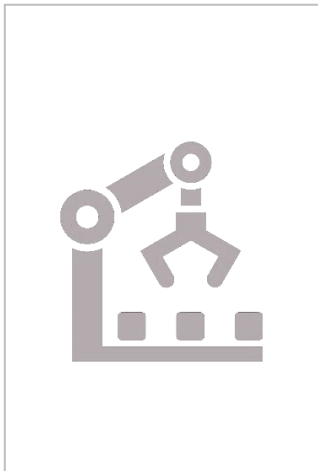
7. The scholarship system creates the possibility of supporting labour market entry.

In IVET institutions everyone receives a vocational scholarship. The students' benefits may even reach the minimum wage in case of both technicums and vocational schools' students achieving good results. A part of the scholarship is given to the student in a single lump sum after the successful final examination.

8. An attractive environment

As a result of the "21st Century VET School" development programme, students can study in attractive school buildings and well-equipped school workshops. They can study in a digital environment forming an integral part of their lives, which includes equipment, super-fast WIFI, digital curriculum and touch-screen board too.

A system of VET and adult education able to give responses both in structure and content to the challenges imposed by the fourth industrial revolution



Industry 4.0 is not a technology which is just taken off the shelf by businesses. There are very different technological solutions, so every employee needs to implement his/her own individual fourth industrial revolution.¹ This transformation brings the most substantial change to the economy, the society as well as the everyday life of the people since the third industrial revolution has been implemented.

This transformation requires for the VET system to provide school-based VET programmes which lead to professionals with stable professional basic skills, able to adapt to changes and to provide flexible learning possibilities throughout the lifetime.

A condition for this is the ability of the economy to define these requirements. With the establishment of the Sector Skills Councils the condition has been created for the prominent representatives of the different vocational fields to set out proposals relating to the structure of vocational occupations and vocational contents.

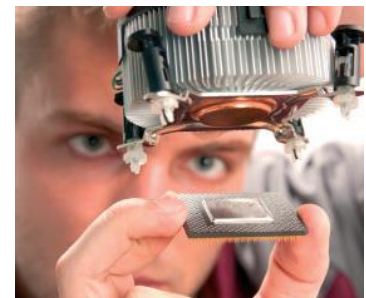
The system of vocational education and training and adult education must train professionals having the skills and competences required by the companies, learning vocational occupations demanded by the economy.

It is of significant importance to operate a VET system which is appropriate to the economic structure and situation of the different geographical regions.

The **school system** needs to give a response to the medium- and long-term labour market demands, while **adult education** needs to provide a solution to the short-term needs—those relating to new investments, capacity building and modernisation.

In parallel with the rapid technological changes of the fourth industrial revolution the skills of the employees needs to be renewed continuously; therefore, the VET system needs to provide both a stable vocational foundation education and flexibility.

The task of the of school-based VET system is to provide a sector-level basic vocational knowledge, to develop the key competences required by the employers and the capability of lifelong learning. The special vocational skills, the knowledge relating to new technologies must be acquired in the system of adult education, validating the previously acquired knowledge.



The requirements related to the structure of vocational qualifications are defined based on the system of qualifications which is uniformly recognised all around the country. The currently effective National Qualifications Register contains more vocational qualifications than it is required by the economy; it is not appropriately adjusted to the jobs defined by the employers, and the vocational occupations taught in the school system are over-specialised in many cases.

¹Sabine Pfeiffer, a professor of the University of Friedrich-Alexander Erlangen-Nürnberg

1. INTERVENTION

The Sector Skills Councils and the chambers define the professional needs of the economy

The general principle that the requirements related to VET must be defined by the economy can be implemented in practice at sector level, as the requirements of the different areas vary significantly. The **Sector Skills Councils** (hereinafter: SSCs) **have started their activities** on the basis of Act CLXXXVII of 2011 on VET **from 1 July 2018**.

The Sector Skills Councils are responsible for the harmonization of the labour market needs with the VET system, contributing with their proposals and recommendations to the development of the VET and AL systems, as well as to the process of their necessary restructuring.

The government regulated the work of the SSCs in Gov. Decree 213/2018 (XI. 22). The number of SSCs are specified in Annex 1 of the Decree. The SSCs are operating within their sphere of activities and are convened at least five times a year.

The SSCs' permanent members vary between 7 to 19 persons, which depends on the size and structure of the economic sector concerned. The permanent members of the SSCs are companies which have assumed the unifying and mediator role within them. Beside this SSCs possess sufficient information on the labour market demands and are able to formulate professional needs in order to promote VET and AE development within the sector. The SSC members also include a delegate from the trade unions operating in their economic sectors.

The delegate appointed by the minister responsible for VET and adult education and the delegate of the minister responsible for the vocational qualifications belonging to the given sector also participate in the SSC meetings as permanent invitees in a consultative role.

The Hungarian Chamber of Commerce and Industry coordinates the work of the SSCs. The work of the SSC is supported by the sectoral experts recommended by the members, which also contributes to the renewal of the chamber's network of experts.

In the course of its operation the SSC periodically reviews the following:

- the **system of the vocational qualifications** belonging to its sector;
- the **alignment of the professional requirements and curriculum contents** of vocational qualifications **with the demands of the economy**,
- the entrance **requirements of VET programmes** relevant to the sector,
- the **possibility of recognising** the professional contents of a certain vocational qualification **towards** other vocational qualifications,
- the **set of vocational and transversal skills and competences** required from the professionals working in the given sector with an upper secondary level vocational qualification,
- the possibilities **of strengthening dual training**,
- the outcome requirements related to those graduating from vocational institutions,
- the evaluation of the **labour market forecasting system data**.

Related result indicator:

Participation of at least 200 enterprises in the work of the SSCs

2. INTERVENTION

Rationalisation of the NQR, fewer vocational qualifications, adjusted to the international practice

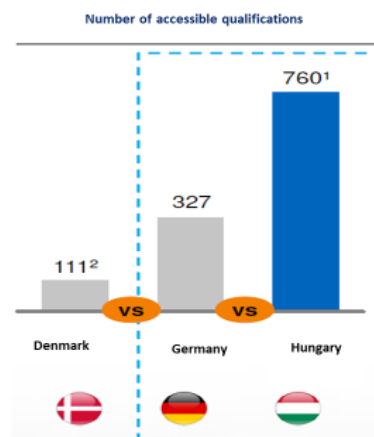
The National Qualifications Register (hereinafter: NQR) contains the vocational qualifications recognised by the state regardless of whether the vocational education and training is implemented in the school system or outside the school system. Simultaneously with the introduction of the NQR, the countrywide uniform system of vocational and examination requirements related to vocational qualifications was established.

In the recent period the mobility of skilled workforce has been increasing in the European Union as well, and in this context the significance of the simplification of the procedures relating to the recognition of vocational qualifications is also increasing. The national qualifications framework (HuQF) has been gradually referencing with the European Qualifications Framework (EQF), which allows comparison and recognition.

Despite the multiple restructuring it is clear that the NQR contains substantially more qualifications compared to the international practice, and is not adjusted to the job system of the employers. The NQR is not transparent neither for young people choosing a vocational occupation, nor for the teachers working in career guidance.

The high number of vocational qualifications included in the NQR is explained by two factors:

- In Hungary, the sphere of vocational qualifications is specialised stronger than reasonable. While for example the German qualifications register contains only one carpenter qualification, the Hungarian NQR includes carpenter, cabinetmaker and carpentry industry fitter ones.
- There are substantially more jobs in the German labour market which can be fulfilled without a vocational qualification (e.g. florist), while the Hungarian sectoral legal regulations define an unreasonably high number of such jobs (e.g. flower decorator, florist and flower retailer, flower shop assistant).



The NQR needs to be rationalised and the number of qualifications included in it to be reduced based on the professional participation of the Sector Skills Councils.

The SSCs have defined their proposals related to the rationalisation of the qualifications register by specifying which vocational occupations should remain in the NQR and which should be transferred to the “B” cycle trainings, respective which are those jobs that do not require a formal vocational qualification. As a result of the rationalisation process, the number of qualifications should be adapted to the scale of the qualifications available in the member states of the European Union. Beside the rationalisation of the NQR the domestic situation of the regulated activities (professions) must be reviewed and restructured where necessary². The system thus established must become transparent for every stakeholder: in addition to the employers, it must be transparent for career choosing young people and their parents, as well as for adults who are looking for reskilling and upskilling opportunities.

Related result indicator:

The NQR contains fewer than 200 vocational occupations

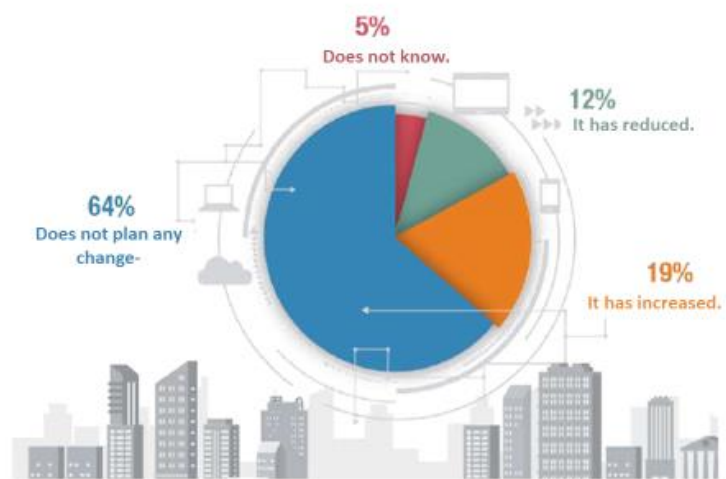
² Hungary has developed an action plan to implement Article 59 of Directive 2005/36/EC on the recognition of professional qualifications.

3. INTERVENTION

The requirements of Industry 4.0 and the digital contents required for each vocational occupation must be incorporated into each VET programme

The fourth industrial revolution and digitalisation has appeared in each economic sector: in addition to robotised industrial manufacturing, it is already present in healthcare, logistics and modern agriculture as well. In order to increase competitiveness the economic stakeholders need to develop their technologies and the skills of their employees.

National researches which examined the changes in headcount planned as a result of the INDUSTRY 4.0 showed that the increase in the degree of automation does not necessarily lead to a reduction in human workforce, but causes primarily restructuring. The emergence of new technologies does not present a risk for the number of persons employed either. If the system can appropriately adapt to the opportunities presented by INDUSTRY 4.0., then more workplaces can be created than those that are lost.



It is necessary to define for each economic sector what knowledge, skills and competences are required by digitalisation. Each VET programme must incorporate the digital contents, and the digital skills that can be applied in practice must appear among the learning outcome requirements.

A sector-level INDUSTRY 4.0 definition must be created for the stakeholders of the VET system, based on which the necessary skills can be defined.

In school-based vocational training instead of the 'information technology' subject digitalisation must appear in the teaching content of vocational subjects. Students must become familiar during their studies with the cutting-edge solutions, equipments and softwares applied in manufacturing and services sectors. This necessitates the modernisation of the school workshops and the renewal of the company practical instructors' knowledge. Within the framework of dual training the priority field for the acquisition of modern practical knowledge is the location of the real production and services.

The development of digital skills target two different groups **in adult training**. The knowledge of a great number of professionals working at companies must be renewed in connection with the renewal of technologies in order to become capable to design, install, operate and maintain robotised processes. Beside this the knowledge of disadvantaged job seekers must also be improved because in unskilled, operator jobs it has become a requirement to be able to work in a digitised environment.

The knowledge required by INDUSTRY 4.0 can be taught only by using digital teaching materials. Based on the requirements defined on a sector level, a digital teaching material repository must be created by adapting cutting-edge international teaching materials and in cooperation with the dual training partners.

Related result indicator:

Every vocational occupation included in the NQR has to be supplemented with digital levels

4. INTERVENTION

Development of the sectoral foundation education in IVET, with a comprehensive vocational basis

In the next decades—primarily as a result of the fourth industrial revolution—a significant percentage of the jobs will transform and the competences expected by the employers will also change.

The required new skills and competences must appear in the training contents too.

New entrants to the labour market having just obtained their qualifications will fulfill new jobs, but a significant number of such jobs will be also filled by reskilling employees.

The task of the technicums and the vocational schools is to provide solid vocational knowledge and key competences, in possession of which the students in their adulthood will be capable of professional development, autonomous learning or learning in a workplace environment.

Technicums and vocational schools must provide a sector level basic vocational knowledge, by teaching in the framework of IVET basic vocational occupations defined in the renewed NQR. The vocational specialisation based on this must take place primarily within the framework of adult education.

Accordingly, in the first year of the technicum and the first year of the vocational school a sectoral vocational foundation education takes place, the result of which will be measured and attested by the sectoral basic level examination.

As a result, VET becomes more flexible and permeable; students can change institution types and move between a technicum and a vocational school at the end of the grade 9 without an aptitude test. Reskilling within a sector becomes easier, because a new vocational occupation can be obtained within a significantly shorter time if the common vocational contents are counted towards the new vocational occupation.

This restructuring can contribute to increasing number of students choosing VET, because a simpler, more transparent system is established, which is more comprehensible for the students concerned and the professionals working in career guidance. The obsolete image of vocational occupations must be updated; an attractive but realistic picture should be provided of their contents, the available incomes, the possibilities of upskilling, and the required skills and interests that make a certain vocational occupation a good choice, by describing and presenting them in a youthful style.

The definition of the content of the common sectoral foundation education also takes place as part of the NQR's restructuring, with the participation of the SSCs. In addition to the required vocational knowledge, the required competences also need to be defined in case of basic vocational occupations. **Key competences** appear in the requirements of the employers as important as vocational knowledge: complex problem solving, creative thinking and cooperation with others.

Up-to-date digital curricula has to be provided for sector-level education and training and their continuous updating also needs to be ensured. The contents and obligatory set of tools of the vocational basic practice, taking place at school workshops, need to be defined.



Related result indicator:

A vocational foundation education will be launched in 19 sectors of VET based on the new sectoral regulation

A complex structural development is necessary, in which the school-based and non-school based VET form a uniform system.

II. VET policy based on cooperation, local interventions adapted to the economic needs of the regions



The renewal of vocational education and training and adult education programmes is possible based on a VET policy built on the involvement of the economy and professional stakeholders.

This primarily means the involvement of economic actors and employers, as they are the ones that can define the expectations relating to the necessary workforce. This is partly achieved in the course of the SSCs' work, but it mainly focuses on the professional content of the vocational qualifications belonging to the sector.

The development of the VET system requires a joint deliberation in other areas too. These include, inter alia, the development of the institutional system, the reduction of dropout rates, the special career model of practical instructors or the development of relations with higher education.

In order to ensure a formal framework for this dialogue and common reflection, the Ministry for Innovation and Technology created the Vocational Education and Training Innovation Council (hereinafter: VET Innovation Council). The members of the council are the representatives of those organisations which are the direct stakeholders, participants of the VET system.

The development of vocational education and training and adult education is based on a VET policy planning, which has cooperation as its core element.

The decisions relating to VET policy and the structure of vocational occupations (skills mismatches, skills in demand) need to be based on facts and data. Currently, different organisations (National Office of Vocational Education and Training and Adult Learning, Educational Authority and Government Offices) collect, analyse and use a large amount of information during the preparation of a certain decision.

Currently the County Development and Training Committees are destined to prepare the county-level decisions relating to vocational occupations structure, but their operation is not unified and not fully data-based.

In summary, it can be said that the data do not provide a unified management decision support system. At the moment, one of the key elements of the decisions relating to VET policy and the structure of vocational occupations is missing: there is not functioning a unified labour market forecasting system which would be suitable for planning school-based VET and adult education.

A unified labour market forecasting system needs to be created and operated, which facilitates data based decision-making processes

In addition to the national planning processes, the operation of a VET system which is adjusted to the needs of the different economic regions is of key importance.

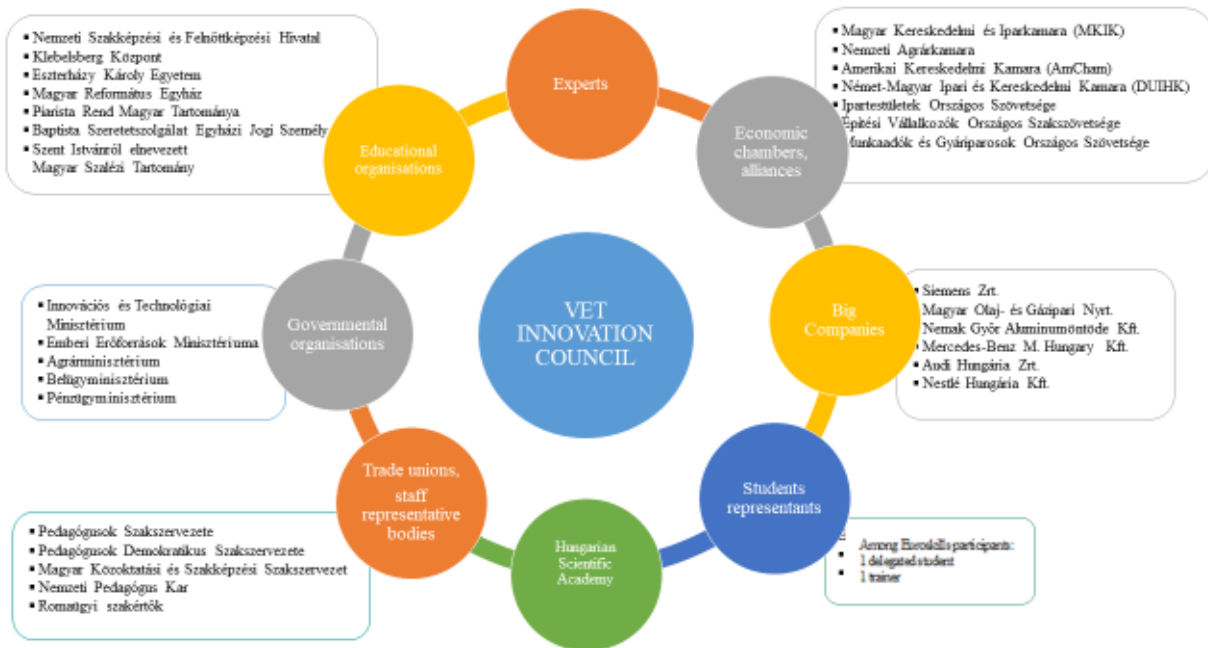
At local level it is primarily the task of the chancellors to ensure that VET Centres give a response to the labour market needs of the region's economic stakeholders.

In the recent period employment pacts have been established at county level, in municipalities and micro regions. In this context it is also important that the county chambers integrate the needs of the local enterprises.

5. INTERVENTION

The ministries responsible for VET make their policy decisions in cooperation with the VET Innovation Council and the County Employment Pacts

The labour market situation which has been developed by now requires the VET system to operate with the best possible efficiency. In order to do so, the ITM responsible for shaping VET policy and the ministries responsible for certain vocational qualifications need to make important decisions based on continuous consultation. On 7 September 2018, ITM established the Vocational Education and Training Innovation Council (VET Innovation Council).



The VET Innovation Council makes proposals

- on the measures to promote the employment opportunities of adults participating in vocational training outside the school system,
- on the establishment of a VET system responding efficiently to the challenges posed by Industry 4.0,
- on the development of a demand-driven dual training model,
- on the vocational trainings providing a professional career for the instructors,
- on the development of professional requirements, teaching materials and new procedures, and ensuring the financial resources necessary for them.

The VET Innovation Council expresses an opinion

- on the draft legislation relating VET and adult education programmes,
- on the strategic issues relating the development of the VET and AE systems, development of the quality assurance system of VET and adult education programmes, the improvement of the professional standards of VET and adult education programmes, the establishment of the set of conditions for life-long learning, the effectiveness of the VET and adult education programmes, as well as the system of career tracking.

Related result indicator:

100 professional proposals by the VET Innovation Council for developing the vocational education and training and adult education systems

6. INTERVENTION

Establishing and maintaining a labour market forecasting system.

The system of vocational education and training can adjust the training structure and training contents to the needs of the economy, if receives unambiguous needs, “orders” from the economic stakeholders.

The needs of the economy can be summarised at national economic level, based on which it is primarily the training structure of the whole school-based vocational education and training that needs to be defined, and the needs concerning the contents of the different VET programmes should be integrated (NQR - OKJ, Vocational and Examination Requirements - SZVK). In case of adult trainings, the labour market forecasting system becomes relevant in determining subsidised trainings.

The needs can be interpreted at the level of the economic regions, where the special needs of the local economy appear. The enterprises of a given region can receive answers to the workforce needs required for their normal operation from the vocational schools operating in the region. The answer to the reskilling of the workers of companies operating in the region and their further training in connection with changing technologies can be provided at local level.



The labour market forecasting system operating in Germany can be regarded as good practice. *Arbeitsmarktmonitor* is an open labour market database which contains detailed regional and sectoral data. It answers the most important questions, such as vacant positions, the average time to fill a vacant position. It is a detailed model that synthesises different sources. It models current and future labour market needs by using econometric models, based on sectoral trends.

The input data of the labour market forecasting system to be established are the needs of the employers. It must be pointed out that public entities, the field of healthcare, the social area, education and public administration are important players in the labour market. In addition to summarising and evaluating the current data, the forecasting system is able to model the next period, during which it takes into account the trends, the conjuncture analyses and the effects of the planned large investments.

The information system needs to have a platform where **analyses necessary for the decision-makers** can be generated and presented by just pressing a button. The strategic decisions need to be based on these objective data. Based on the data of the national system regional filtering and analyses can also be carried out, on which basis the coordinated training structure of state-maintained and non-state-maintained vocational schools can be fine-tuned.

The actors of the economy need to be interested and motivated in data provision and cooperation, which can be achieved if the operation of the system produces results that are perceivable for them and help them make their own decisions.

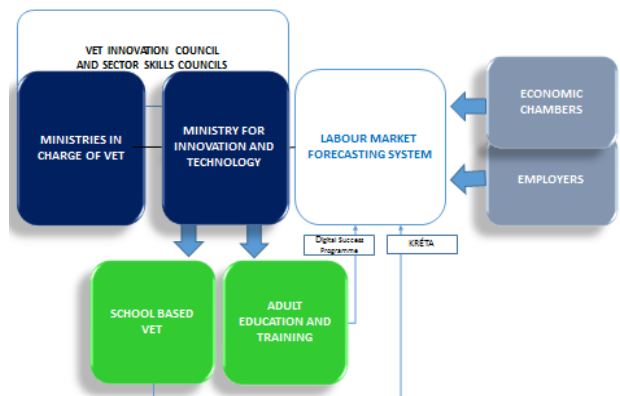


Figure 30: The structure of the labour market forecasting system
Source: edited by the authors

Related result indicator:

1,000 employers upload their current labour market needs into the system

7. INTERVENTION

VET Centres are responsible at local level for giving a response to the needs of the economy, ensuring that those who graduate there can find employment in the given settlement or region.

The nationally adopted VET policy decisions has to be implemented at the level of the different economic regions in accordance with the local conditions as efficiently as possible in order to ensure a training structure in VET which meets the needs of each region.

In the recent period this coordination task was carried out by the Regional Development and Training Committees, then the County Development and Training Committees (hereinafter: CDTC).

The activity of the CDTCs is regulated by SEction 81-83 of Act CLXXXVII of 2011. According to the provisions of these Sections the CDTC is a county body established for the development of VET and the enforcement of the labour market needs, having a consultative, opinion-providing, proposal-making and advisory role.

The task of the committee is to work out a VET development concept containing the short and medium-term plan of school enrolment ratios, which sets out what kind of VET it considers necessary in the context of the county's labour market situation. The committee also specified the qualifications in demand in the area.

In the recent period, the local chambers have contributed significantly to assessing, summarising and representing the training needs of the enterprises operating in the counties. This, however, was not sufficient to ensure that quick, data-based decisions, based on the latest information, are made for the training structure of the region.

For the efficient use of the grants provided by the European Union in this budgetary period, employment pacts were established at the level of counties, municipalities and micro regions.

The employment pacts primarily define the objectives of the labour market programmes launched within the framework of the Territorial and Settlement Development Operational Programme (hereinafter: TOP) and the necessary interventions.

The chambers with territorial competence are mandatory key operators of the employment pacts. Besides the chambers, other participants of the cooperation are local governments, government offices, principal economic players, higher education institutions, school districts, VET Centres and the ecclesiastical school maintainers.

The greatest value of the platform is that it is able to directly define the workforce needs of the territorial employers. During the operation of the pact the economic operators and the management of the local training system can also conduct dialogues.

The most important component of the territorial training systems is the training structure and school enrolment headcount of the VET Centres.

During the development of the cooperation has to be designed the protocol under which the employment pacts can display their needs related to the vocational training structure in a uniform format.

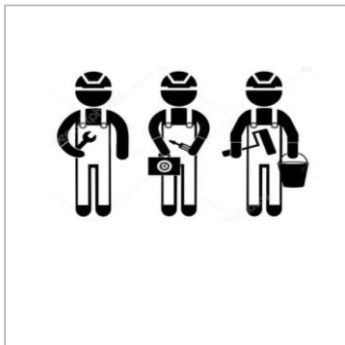
Adult education plays a major role in addressing the short-term labour market needs. The available resources can be planned based on the needs of the employment pacts, and on this basis can the state-maintained adult training institutions and those operating in the market develop their own training programmes.

Related result indicator:

Cooperation with the Budapest and 19 County Employment Pacts



III. Further development of the Hungarian dual VET model creating special tools adapted to the size of the enterprises



The dual training form is a solution based on the coordination of the stakeholders' needs and their cooperation. Theoretical education is carried out in vocational schools and practical training takes place at companies, in plants. The task of the schools is to transfer general knowledge and vocational theoretical knowledge, while the corporate training primarily develops practical skills. This training form results in the even closer connection of vocational training, economy and the labour market, because during the years spent in dual training students can obtain marketable knowledge.

Dual training means a lot of advantages for both students participating in practical training and companies. Young people can have access to jobs more easily, because the companies employing them are pleased to see professionals trained based on their needs and knowing their own technologies and workplace requirements. Students can familiarise themselves with the corporate culture, can become a member of a real workplace team, where they can encounter new professional tasks and challenges every day. This dual training form is beneficial for the company, because it can have access to capable young workforce quite soon.

Hungarian dual training has to be developed further within the framework of the domestic economic and social environment by adopting good practices of the German/Swiss/Austrian dual model. The number of enterprises

The primary goal of the dual training development is to achieve that young people learning a vocational occupation can acquire up-to-date vocational practical knowledge and workplace experience, on which basis they will be able to perform full-value work within a shorter period of time.

participating in dual training must be increased. During the training particular emphasis should be placed on the requirements of digitalisation and Industry 4.0, in the areas of new technologies and skills development too. In Hungary, the percentage of enterprises participating in dual training lags behind the results of the countries which should be regarded as references in the development of this professional field.

Currently, **among** the students studying in **secondary vocational grammar schools** 11.3 thousand students participate in practical training at companies. It should be taken into account here that currently dual training can be organised in the grades 13 and 14 of **vocational grammar schools**. **Among the students studying in secondary vocational schools, altogether** 74.1 thousand students, i.e. **48.1% of them participate in dual trainings**.

The share of dual training shows **significant variations according to economic sectors**. It can be established that it is particularly high in the area of commerce and hospitality industry (cook, shop assistant, waiter).

In some of the jobs preferred by the most dynamically developing economic fields the number of those participating in dual training is low (among those participating in CAD-CAM IT programmes only 2 students are fulfilling their practical training at companies).

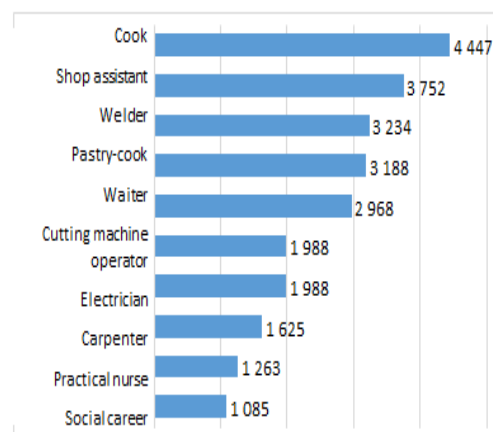


Figure 31: Vocational occupations with the highest number of students participating in dual training.
Source: HCCI - 2018

The current situation of dual training and its development potential also shows significant differences according to the sizes of the enterprises. There is a significant difference between the dual training practice at large enterprises and the practical training offered by SMEs.

Characteristics of the two type of enterprises relating the field of dual training:

	Large enterprises	SMEs
Basic practical training taking place at a separate placement - workshop	at an increasing number of companies	no
A company professional having adequate educational and methodological qualification participates in the practical training	yes	at very few SMEs
Administration of the apprenticeship contract	is not a problem	causes significant problems

The most important interventions necessary for the further development of dual training:

- further Increase of the share of students participating in dual training by strengthening the involvement of large enterprises with an educational base.
- Transformation of the apprenticeship contract into an employment contract.
- Implementation of trainings at a company placement, within the framework of real modular education.
- Establishment of Sectoral Training Centres, development of the active corporate relations of VET Centres and strengthening the involvement of SMEs in practical training.
- Establishment of modern workshops providing a broad basis for vocational practice.
- Involvement of a greater share of company professionals into vocational training and their educational-methodological preparation.
- Further development of digital competences of vocational teachers, practical instructors teaching at schools and their upskilling at a company placement.

8. INTERVENTION

The dual training model has to be made attractive for both the VET providers and those participating in the training.

The conditions for the dual practical training carried out at a company placement must be designed to motivate each participant.

I. The rationalisation of the current apprenticeship contract system

In order to increase the number of enterprises participating in dual training it is necessary to create conditions where the administration and accounting of the practical training does not create unbearable burdens. Based on the requirement of the regular and efficient use of public funds, the system of subsidies and requests for reimbursements must be transparent and verifiable.

Priority areas, points of intervention:

- The administrative processes of apprenticeship contracts must be simplified, based on the uniform school administration system. The students should be supported in having a bank account when starting the practical training.
- By using regulatory and incentive tools, dual training must be expanded among public institutions and non-profit organisations.
- The tax and contribution accounting system related to dual training must be made more transparent and simple.
- The relationship of businesses carrying out dual training with the social security system must be made uniform and transparent.

II. The introduction of student employment contracts

Instead of the rationalisation of the apprenticeship contracts' framework and administration, a new form closer to the working world has to be introduced in the company based practical training.

Apprenticeship contracts have to be transformed into student employment contracts. The advantages will appear both in case of the enterprises and students. The students with a student employment contract are more likely to stay at the company as an employee after the obtainment of the vocational certificate. Students studying a vocational occupation see themselves as belonging to a company "team", they should receive a more secure perspective on future.

To have indeed a positive effect on the actors involved in practical training, the conditions should be established under which the participants are more motivated to organise dual practical training in the framework of a student employment contract.

- It should not mean extra workload for the enterprises; its administration should be simplified. The social contribution brought by the employment contract can be designed in a way— in case of students determining a percentage of 0% —that it does not cause a greater expenditure for the enterprises.
- In addition to the higher remuneration, the employment contract will be advantageous for the students also when the time spent working will be counted towards seniority.

It is a general requirement that the businesses carrying out dual training should be granted greater discretion in determining the remunerations and in terminating the contract—under the control of the chamber— if the student's cooperation is unsatisfactory. Particular attention should be paid to the practical training of disadvantaged young people and those with special educational needs. The mentoring function should be strengthened in dual practical training.

The student remunerations should be tailored more strongly to the students' performances.

Related result indicator:

10,000 students trained in the framework of an employment contract

9. INTERVENTION

VET programmes ensuring labour supply for state-owned companies

One of the most important factors of economic growth, inclusion and competitiveness is human capital, which influences the performance of the national economy in both quantitative and qualitative terms. **The lack of qualified workforce particularly affects state-owned companies; therefore, a VET programme which solves labour supply in both the short and the long term is necessary to enable the state to perform its task.**

The 4.0 VET Strategy contains all the necessary elements needed for the state-owned companies' to develop their VET and CVET systems. The only specific situation and task is that a much better coordinated and more intensive cooperation should be established between the state-owned companies and state-maintained VET system.

State as a maintainer plays a decisive role in vocational education and training. 84% of the total number of students study in a state-maintained vocational school; therefore, public VET institutions should be given a particular emphasis in the provision of the qualified workforce needed by the economy. The practice of defining in the training plan their medium-term needs towards the VET system has not fully developed at state-owned companies. In some of the regions the relationship between state companies and VET Centres is not sufficient and the task relating to labour supply are not coordinated at a national level.

Objective: to develop VET programmes relating to the state-owned companies' missing workforce supply, which will operate in the next period at a systemic level.

Action plan:

1) **High priorities in the course of VET programmes' development**

- **Launching a pilot programme** involving two state-owned companies. Building on the experiences, an efficient model can be established which secures **the state-owned companies continuous workforce supply, necessary to ensure the continuous performance of their tasks**
- The basis of the programme is formed by the **training needs** defined by the state-owned companies; the training programmes must be demand-driven.
- Under the coordination of the National Office of Vocational Education and Training and Adult Learning **the cooperation between the stakeholders, the planning and organisation of the training programmes needs to be improved.**
- **Launching school-based VET programmes and adult education programmes at company placements**, flexibly adjusted to the needs. A priority goal is to launch trainings at company placements.
- The training programme **must be supplemented with motivational and communication programme elements** and with a campaign to address, motivate and involve potential workforce into the training.

2) **Structure – harmonisation with the general objectives of the 4.0 VET Strategy**

- **Strategic-level** decisions: Minister responsible for VET and adult education the Government Commissioner responsible for VET, Minister without portfolio responsible for the development of public assets
- Efficient development of national level practice based on uniform criteria: National Office of Vocational Education and Training and Adult Learning
- **Local-level implementation:** VET Centres

Related result indicator:

Launching a pilot VET programme involving two state-owned companies employing 40,000 persons

10. Further increase of the share of students studying in dual training by strengthening the involvement of large enterprises with an educational base

One of the possibilities of developing the system of dual training is to strengthen the involvement of large enterprises. A significant proportion of large enterprises have recognised this situation for long years, that they can ensure continuous labour supply only if they actively participate in vocational training.

Nowadays, large enterprises have already engaged in career guidance and try to address elementary school children in cooperation with IVET schools. They get involved in experience-based presentation of vocational occupations participating in the *Night of Professions*, the *Night of Researchers* and the *Modern Factories* career guidance events.

In recent years, the development of dual training has been facilitated by the government with targeted subsidy. Large enterprises can apply for non-refundable support proportional to the number of students trained in dual form to cover the costs of construction and equipment procurement related to the establishment of workshops³.

As a result of the programme, the commitment of large enterprise has improved significantly in connection with practical training, their training infrastructure has also improved, and the preparedness of human resources responsible for training has developed as well.



Figure 32: Illustration
Dual training in the construction industry

To ensure the involvement of large enterprises the training workshop development programme must be developed further by taking into account the aspects specific to the area and the sector. In company workshops the specific practical skills needed for them must be based on the sectoral foundation education and vocational contents specified in the basic NQR. By using the infrastructure created, large enterprises also need to play a greater role in the practical training of its suppliers and company partners.

In order to develop dual training the government supports a pilot programme, within the framework of which Siemens Zrt. and its partners develop solutions that can be adapted by the stakeholders of dual training in connection with career guidance, training contents, quality assurance of trainings and the system of apprenticeship contracts.

Related result indicator:

10 large enterprises engage in training models specified for Large Enterprises Training Centres

³Regulation of the Minister of National Economy 3/2015 (of 13 February), (XII. 13.) on the detailed rules of subsidies granted for training and workshop establishment and developments from the training sub-fund of the National Employment Fund based on the individual decision of the Minister for Vocational Training and Adult Training.

11. INTERVENTION

Establishment of Sectoral Training Centres, development of the active company relations of VET Centres and strengthening the involvement of SMEs in practical training

The majority of SMEs struggle with workforce problems and they have difficulty in filling vacancies; in case of new employees they experience deficiencies in their skills and competences. In order to improve the situation, more and more SMEs are willing to participate in dual training.

Usually there are several obstacles in case of SMEs: they do not have the adequate infrastructure, cannot take out the well-trained professionals from production for a long time and the administration related to the training gives them excessive burdens.

In order to strengthen the involvement of small and medium-sized enterprises the administrative burdens related to dual training need to be rationalised. On the basis of the existing school workshops, infrastructure and equipment of VET Centres the system of the Sectoral Training Centres—based on the cooperation of the SMEs—has to be created.

In order to strengthen the involvement of small and medium-sized enterprise these obstacles must be eliminated. The framework of the apprenticeship contract has to be renewed and the administration related to dual training must be reduced. The SMEs are usually not prepared for the education of basic vocational skills (use of equipment, materials, measuring instruments) and are not really willing to undertake this task. For this reason, students need to acquire the sector level basic skills in modernly equipped school workshops.

Sectoral Training Centres (STC) are non-profit economic organisations established by several SMEs, which can also have a VET Centre as a member. Its primary tasks are to perform the administrative duties related to dual training (apprenticeship contract, accounting), to organise and implement the training.

The STC can also carry out sectoral basic practical training if it meets the related conditions. It can carry out the special vocational practical training in a cost-efficient manner in groups of 8-12 persons, under the management of a well prepared professional. The equipment is ensured jointly by the VET Centre and the participating enterprises. The development and modernisation of the equipment can be supported from the training sub-fund of the National Employment Fund.

Higher education and R&D can appear in the system of STCs. The Balatonfüred Knowledge Academy (Balatonfüredi Tudás Akadémia) has been established as the pilot programme of the system: with the support of the local government 12 SMEs operating in the region in cooperation with a university create an educational base for instructors where NQR and tertiary level trainings take place at the same placement, thus modelling already during the training the completion of joint tasks performed by engineers, technicians and skilled workers.

Local governments can also undertake a role in the support of the STCs in order to contribute to the economic development of the region by improving the efficiency of dual training. The „Trade Park” (“Iparos Park”) in Veszprém was planned on the basis of this model, and it can become one of the Sectoral Training Centres.

The development of the equipment of the existing training centre in Zalaegerszeg, with the aim of developing it through the involvement of SMEs into Sectoral Training Centre is also a good example, which has a priority cooperation with the test track development programme in Zalaegerszeg.

Related result indicator:

19 Sectoral Training Centres with the participation of 100 enterprises

IV. Coordination and renewal of the career guidance activity



Career guidance primarily aims at helping—in particular—elementary school students and young people without a vocational qualification who are before choosing a career, an occupation or a school⁴.

Its two main target groups:

- Those choosing an upper secondary school, rather a technicum or a vocational school than a secondary grammar school. This includes not only students finishing the 8th grade of the elementary school directly before making their decision; those in 7th and 6th grade should also be guided.
- The graduates of secondary grammar schools, in case of whom is relevant that they will not continue their studies at a university, but instead they will choose a vocational occupation and obtain a vocational (technician's) qualification in two years.

Both groups belong to the so-called Generation 'Z', born between 1996 and 2007.

The objective of career guidance is to persuade those concerned that there is a career for every young person which fits their abilities the best and vocational education is a real option and a good decision for achieving this goal.

The basis of the development of career guidance activity is a problem map, based on which the system can be renewed:

1. Many actors participate in career guidance, but due to the lack of real coordination their activities do not reinforce each other.
2. Those concerned (parents, students, teachers) do not have a realistic picture of careers, are not familiar with the vocational occupations and the potential incomes that can be earned with them.
3. Few people use career guidance, the decision does not focus on what the child has talent for.
4. Elementary schools and their teachers are not familiar with the VET system, and usually consider as the criterion for success to continue upper secondary studies in a secondary grammar school.
5. Career guidance often tries to address students being just before making a decision (grades 8 and 12), although that is already the period of career choice and not career guidance.
6. Career guidance focuses on "large-scale events", where the aim is to make presentations and deliver information leaflets. More experience-based career guidance programmes are needed.
7. In the course of communication they do not address young people in the style of generation 'Z' and via their channels.
8. No skills and competence assessment takes place, neither proposal or counseling related to these.



In addition to the development of career guidance the system of career counseling also has to be established, which plays a priority role prior the start of dual training.

⁴ National Portal for Career Guidance

12. INTERVENTION

Coordination of the activities and messages of organisations involved in career guidance at both national and local level.

Numerous actors are involved in career guidance. Government offices, chambers and VET Centres addresses consecutively elementary schools and career choosing students being in the 8th grade. After the establishment of the employment pacts, local governments and enterprises having a forward-looking thinking also joined the career guidance programmes in many places.

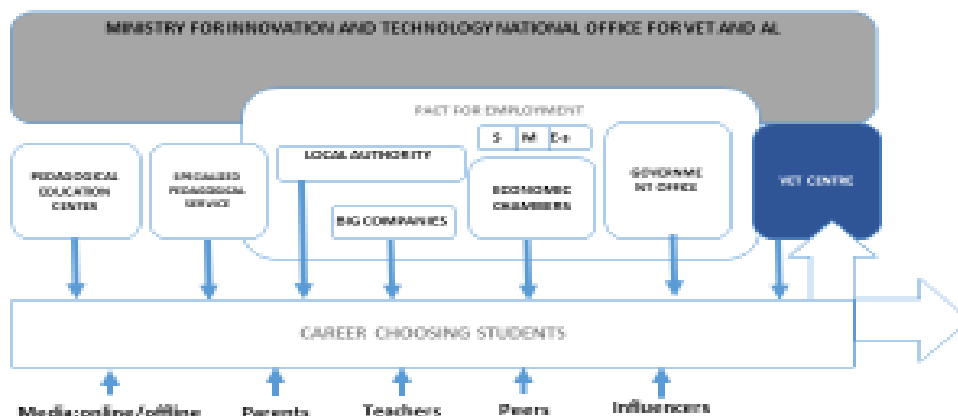


Figure 33: The system and stakeholders of career guidance

From the perspective of the target group the message of these organisations is often ambiguous. It is time-consuming for graduate students to participate in each programme. Within the framework of the career guidance activity school marketing takes place in many cases today, which does not aim at helping students to find the most suitable career, but rather at achieving that the schools can enroll an adequate number of students.

It is necessary to coordinate the work of the organisations participating in career guidance, to precisely define the tasks and competences of the actors, to plan the processes of the career guidance system as a multiannual process.

The elements of the renewed **model of career guidance**:

1. Clear definition of the actors' tasks.
2. A national-level and local- (county) level event calendar.
3. Sensitizing and more intensively involving elementary schools and teachers playing a key role in career choice.
4. Campaigns achieving large audiences.
5. Integrating competence assessments into counseling.



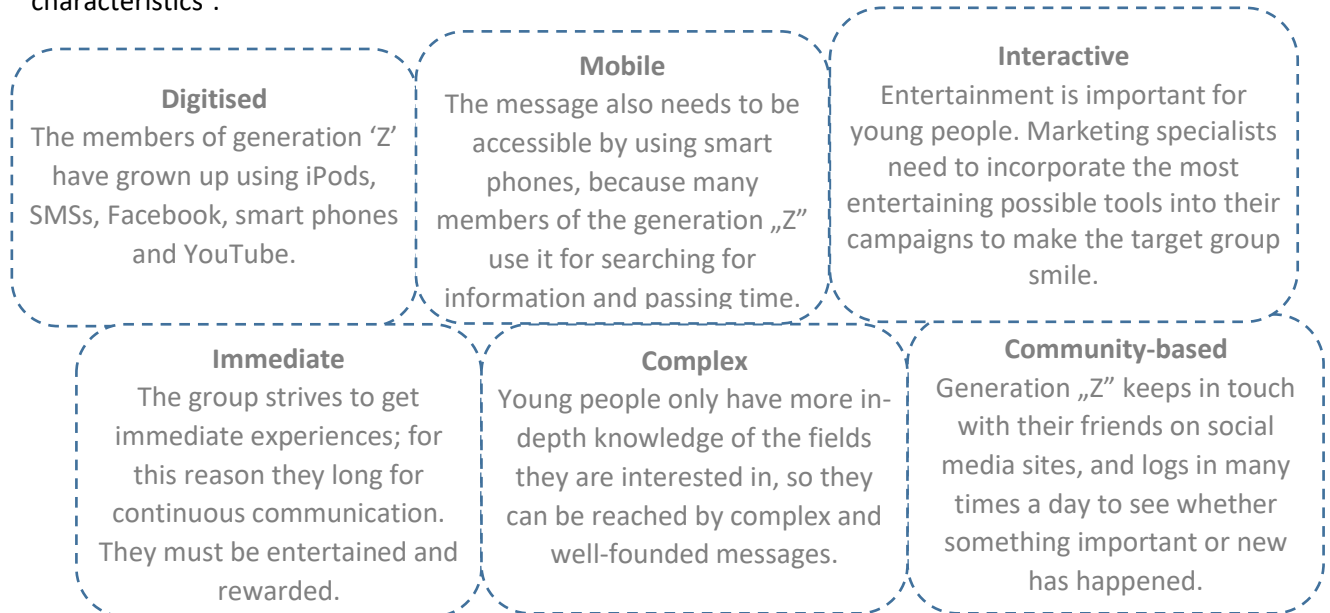
Related result indicator:

1 Budapest-based and 19 county-based career guidance cooperation systems
Preparation of 200 elementary school career guidance advisors

13.INTERVENTION

Launching intensive marketing communication campaigns which are able to address generation 'Z'

The brands and initiatives successfully addressing generation „Z” need to have the following characteristics⁵:



Career guidance campaigns have to appear on channels where generation „Z” is present, and they need to be addressed in the style that they like and follow.

Tools to be used in the course of career guidance communication:

- **YouTube video**
In many cases even **the role of Google is taken over by YouTube**: this is where the members of generation „Z” search for what they are interested in. They like **clear, transparent and ad-free websites**, but they are **surprisingly receptive in social media to the messages of brands** if they provide an entertaining content. For example, the viewing rate of **“High School” (“Középsuli”)** - a series presenting the everyday life of an average secondary school class—exceeds fifty million and the series is also present on an Instagram and a Facebook page in addition to its YouTube channel.
- **Influencers, opinion formers, youtubers**
Influencing through opinion formers, influencer marketing has grown into a separate field. Those following opinion formers, stars or celebrities primarily would like to receive **useful, interesting contents (65%)** and funny, entertaining videos (48%)⁶.
- **Instagram stars**
92% of the age group under the age of 18 has an Instagram account, and seven out of ten view the picture-sharing app several times a day, sometimes as often as every hour; one of their favourite and most liked and posted photo themes is selfie.

Related result indicator:

The viewing figures of the career guidance campaign on the different channels are 10 million annually

⁵“Targeting generation „Z”, study by Fernando Barrenechea

⁶ The survey of SAKKOM Interactive Agency and Special Media Effect, conducted in October 2017

14. INTERVENTION

The operation of an experience-based career counseling system, involving also the opportunities presented by the Digital Creative Community Spaces.

The currently operating career guidance system is “large-scale event”- centered, where the aim is primarily the presentation of schools and dissemination of information leaflets. For young people belonging to generation „Z” these situations are not the most important ones when choosing a suitable career.

Instead of career choosing large-scale events an experience-based career counseling should be strengthened in the next period, where the different vocational fields/occupations can be tried. The period of career guidance should be rescheduled to two to three years prior career choice is made instead of the last school year.

The possibilities of experience-based career counseling:
Digital Creative Community Workshops

Digital Creative Community Workshops are established in 44 VET Centres; here the students can learn about and try state-of-the-art technologies: 3D printing, laser cutting, CNC machining or programmable sewing machines. These creative spaces are suitable for 6th-7th grade students of elementary schools to participate in an all-day experiential career orientation.

1. Organising extracurricular activities for career choosing students

One of the most effective ways to learn about each professional field is to organise extracurricular career guidance activities. In addition to learn more about the profession, LEGO robot programmer, electronics or gastronomy extracurricular activities can also develop a strong attachment to a school or a teacher.



Figure 34: Illustration
Career guidance programme

2. Organising thematic summer camps for career choosing students

Several successful initiatives demonstrate that thematic summer vocational camps are popular and can contribute to informed career choices.

3. Role model programme

In the role model programmes, successful professionals who have become “stars” in their jobs, and who graduated from vocational schools, share the story of their personal career, or a student still studying in a VET programme, as a member of the best-accepted peer group, explains why VET was a good decision. Thematic weeks could provide a framework for this as well.

4. “A Day at Work” programme

The “A Day at Work” („Egy nap a munkahelyen”) programme works well in several European countries, in which an adult mentor introduces a day of his or her job and work to students.

Related result indicator:

In 44 Digital Creative Community Workshops, 10,000 elementary school students participate in experiential career guidance

V. Intensive and rapid development of VET infrastructure and equipment



One of the pillars of strengthening VET is to create an attractive environment in vocational schools. This has two important purposes:

1. VET must be a real and attractive alternative for career choosing students, an essential condition to fulfill this is that school buildings, educational, sports and leisure facilities have to be of a higher quality than at present.
2. The condition for quality VET is that the classrooms, laboratories and school workshops have to be of high quality, and the state-of-the-art technologies of the given sector have to be present in the schools. In addition to modern equipment, digitalisation must be present in the teachers' teaching methodology, in administration, teaching curricula and the students learning culture.

According to surveys, the infrastructure of VET institutions is different in each location but for the most part it is in a deteriorating state. Following the establishment of the VET Centres, a systematic infrastructure development was launched, based on budgetary resources, in which the renovation of the building stock began based on local needs. Based on the support of the European Union, the use of renewable energy has increased significantly.

A consistent medium-term development programme should be launched in the coming years. **The "21st Century VET School" development programme** ("21. századi szakképzőiskola" fejlesztési program) is a 10-year programme designed and implemented on the basis of a uniform professional strategy. Each development should be preceded by the assessment of local needs. Renovation and construction are not an end in themselves, the developments must be underpinned by the training needs of the local economy. Occupancy rates are of paramount importance during the programme, the development must not lead to a deterioration of the occupancy indicators. An equally important requirement is to taking into account operating costs. Renovation must focus on energy efficiency, the reduction of greenhouse gas emissions and the use of renewable energies.

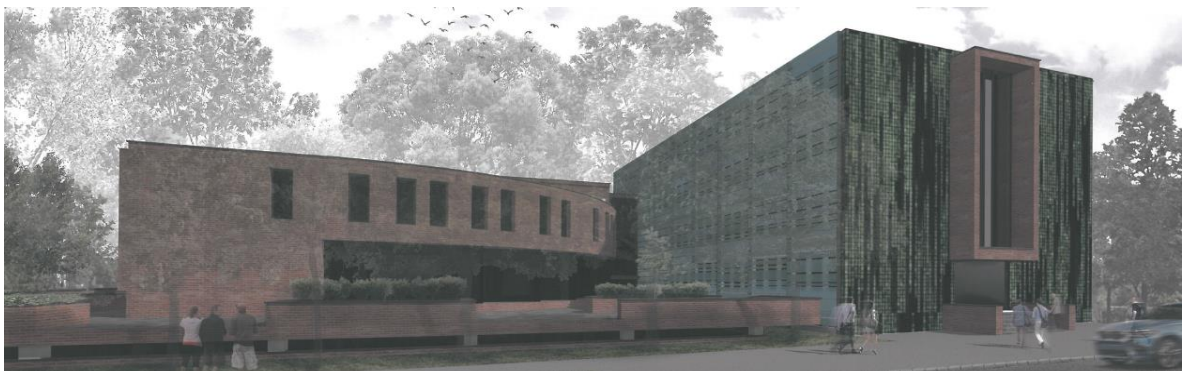


Figure 35: Visual design of the „21st century vocational school” programme

In addition to the built infrastructure should be given priority to asset development:

- The conditions for sectoral basic practice must be created in all schools, **modern school workshops** must be set up where students can learn the technologies and basic vocational skills of the sector.
- In addition to the basic IT equipment of schools, the training should include sector-specific digital hardware and software.
- Due to the rapidly changing vocational content, traditional paper-based teaching material are rapidly becoming obsolete and **digital** teaching material has to play a greater role.

15. INTERVENTION

“21st century VET school” development programme

The “21st century VET school” development programme is a medium-term national development programme aimed at renewing state-maintained vocational schools. The resource requirement for the implementation of the 10-year programme is almost HUF 50 billion/year.

The aim is to create quality vocational school buildings which provides an attractive image for young people and their parents who are about to choose a career pathway. Good-looking school buildings need to be developed with 21st century equipped classrooms, and spaces for everyday physical education and leisure activities. (Improving the conditions for practical training, ICT tools and language training is a separate intervention.)

The development project goes beyond the logic of average school renovation programmes.

The “21st century vocational school” programme focuses on:

- Improving the energy efficiency of school buildings, using renewable energies
- Improving the appearance and architectural condition of the school buildings
- Professional, visible classrooms (furniture, educational technology)
- Development of everyday physical education spaces (gym, multifunctional sports field)
- Creation, development and renovation of community spaces
- Modern ICT tools
- Tools for using e-learning teaching materials
- Broadband internet access for teachers and students
- Support for alternative transport (cycle racks)
- Increasing green areas

Infrastructure development within the framework of the project must be based on professional planning.

Expectations related to the vocational schools to be developed:

- The structure of vocational training is in line with the labour market expectations of the region's economy.
- Well-founded VET Centre level development concept for the development of the VET system.
- Appropriate occupancy rates and measures taken to achieve good utilisation.
- Appropriate enrolment data and trends.
- Cooperation with local economic stakeholders.
- Appropriate distribution of work in practical training: an appropriate link between school workshop foundation training and corporate dual training.
- The development contains really necessary, realistic elements.
- Cost-efficiency.
- Properly prepared development based on concept plan and indicative budget.



Figure 36: Illustration
Inspirational school environment

Related result indicator:

Complex renovation and development of VET Centres

16. INTERVENTION

Establishing modern school workshops to teach basic practical sectoral skills

An important element of the renewal of VET is to raise the standard of practical training. In the INDUSTRY 4.0 era, technologies are changing faster than ever before. The knowledge of students pursuing their studies now is expected to be completely renewed 5-10 times during their professional career. The condition for this is to have a stable sectoral basic knowledge, to be able to learn independently, in a company environment, and to be open to changes.

Accordingly, the task of school-based VET is to transfer sectoral level basic theoretical and practical knowledge.

Schools should have high-quality, modernly equipped workshops for sectoral foundation education which prepare students for dual training at company placements.

As a first step of the development Sector Skills Councils define the expected vocational competences and outcomes for the vocational occupations listed in the rationalised qualifications register.

Based on this, it is possible to plan which part of the practical vocational competences can be acquired in school workshops and which part should be acquired in the framework of dual training at company placements.

Based on this, the content and equipment needs of practical training in school workshops can be determined. This should be uniform at national level for territorial interoperability.

The vocational preparation of school workshops ends with the sectoral basic level exam, so it is especially important to have a uniform system of requirements and tools in practical training.

Improving interoperability between school types is also an important requirement. The sectoral training of the current secondary vocational grammar school and the future vocational school must also be better coordinated than the current practice.

Objectives of the workshop development programme:

- Improving the appearance and architectural conditions of the workshops
- Improving the energy efficiency of the workshops, using renewable energies
- Professional workshop furniture and educational technology
- Uniform, modern professional tools at sectoral level (measuring instruments, machines, tools)
- Professional tools provided by companies to suit local economic needs
- Tools for using e-learning teaching materials
- Broadband internet access for educational purposes and for teachers
- Broadband internet access for students



Figure 37: Carpentry workshop

Related result indicator:

Complex renovation and equipment development of 200 school workshops

17.INTERVENTION

Development of digital tools and modern educational technologies

With the apparition of INDUSTRY 4.0, digitalisation has accelerated further, with increased appreciation of IT knowledge and its proficiency level application in all sectors.

A paradigm shift is needed in IT education. The current IT subject should be replaced by learning about IT technologies and mastering digital culture. Instead of IT learning and application concentrated into one subject, the use of ICT tools should become part of all subjects.

Education in digital technology and culture must provide up-to-date and constantly updated knowledge and skills that will enable young people to become successful and useful members of the information society. The development of technologies, the appreciation of the role of information, the ability to learn actively, community relations and the change of the individual's place in the digital environment require a new type of knowledge that is more complex than the traditional IT skills which can be acquired in the public education.

Algorithmization and coding play an important role as it helps to develop competences such as problem solving in a digital environment, creativity, cooperation and logical thinking. Students will be able to apply the competences developed during the teaching and learning processes in other fields of knowledge, they will acquire digital literacy skills, prepare to protect their data and avoid the risks of digital world.

An important task of teaching digital technology and culture is that students are able to solve the arising problems with the tools of the digital environment, they can use the services of the information society, and they can fulfill their civic duties.

Elements of digital toolkit development:

- Super fast internet access⁷ (internet access at least 30 Mbps)
- In-building wi-fi network
- Uniform school administration system and e-class register
- Educational technological devices (touch screen interactive devices, tablets)
- Digital teaching materials
- ICT tools related to the teaching of vocational subjects
- Special software for teaching vocational skills



Related result indicator:

Equipment development of 381 VET institutions, super-fast internet access

⁷The task of the Governmental Agency for IT Development (KIFÜ) is to implement the network development by 31 December 2019. The investment cost of the developments is HUF 4.37 billion.

18. INTERVENTION

Acquisition of e-learning materials in all economic sectors, and keeping them modern and updated

In the era of the fourth industrial revolution, technology is changing faster than ever before. New technologies have not yet appeared in the teaching materials and the professional content of traditional textbooks is largely outdated.

Most of the technologies cannot be presented in the traditional way, videos, three-dimensional models, animations, simulations need to be applied.

Drawing the interest and generating the activity of young people belonging to the “Z” generation also requires new methodologies and tools. This is also a fundamental challenge for VET. In recent years it has been proven that the use of ICT environment and digital teaching materials has a stimulating effect on the activity.



Figure 38: Illustration: Association for Hungarian Digital Education

There are no sufficient textbooks or notes available for teachers teaching vocational subjects, so preparation for the lesson requires creation of time-consuming, illustrative materials.

One of the key issues in the development of vocational training is the availability of e-learning materials suitable for teaching state-of-the-art technologies for teachers who teach vocational subjects. Teachers need to be prepared to use the teaching materials and to be able to participate in community-based teaching material development.

The greatest strength of digital teaching materials developed based on a common digital pedagogical approach is that abstract vocational theoretical questions are presented in an easier-to-understand, visual way. The biggest advantage of using e-learning materials in education is that certain elements and contents can be changed in an interactive way and in real time by the students, thus providing an opportunity to explore contexts and discover new possibilities.

Using digital content in classrooms and at home, attracts students attention to MNTC subjects (mathematics, natural science, technical subjects, computer science).

What is needed to use more and better e-learning materials in vocational training?

- Purchasing and adapting high quality teaching materials used in the European education and training system.
- National coordination and financing of VET teaching material development.
- Preparing teachers to use e-learning materials.
- Training of vocational instructors in order to be able to participate in community-based teaching material development.
- Strengthening the use of distance learning frameworks.

Related result indicator:

40 e-learning materials developed for vocational qualifications

19.INTERVENTION

Creating the conditions for effective (professional) foreign language teaching / learning

Effective foreign language education and training is an essential part of high-quality VET. At present, education of foreign languages in vocational grammar schools is not adequate, and the majority of students leaving secondary vocational schools are not able to communicate in a foreign language even on a minimum level.

Objectives of the development of foreign language teaching:

- Strengthening motivation to learn a foreign language.
- Strengthening motivation among students from lower socio-cultural backgrounds.
- Development of language teaching methodology.
- Communication-oriented foreign language teaching.
- During the period of sectoral foundation education, the aim is to teach general foreign language.
- In the special vocational training phase, the primary goal is to acquire a vocationally oriented foreign language knowledge.
- With language skills development, more students should participate in international study mobility programmes.
- Foreign language communication (written and oral) should become a basic requirement for students leaving upper secondary education.



Figure39: Illustration
Source: dover.hu

In the school system, students need to acquire foreign-language and vocationally oriented foreign-language knowledge which nowadays is essential for personal success, further education and employment.

The aim is to acquire foreign language skills in course of VET. In technicum the requirement should be an upper intermediate (B2) level language exam, in vocational schools a level of professional communication adapted to the expectations of the job.

In order to improve the efficiency of foreign language education in VET, in addition to the development of the adequate toolkit, a significant change of approach and methodological renewal is also needed.

The most important elements of this are:

- Teaching a foreign language (primarily English) without reducing the number of teaching hours
- Classrooms equipped with ICT tools
- Using effective, established e-learning materials
- Developing the conditions and culture of independent learning in language education
- Renewal of teachers' methodology with targeted further trainings
- Foreign-language catch-up courses in small-groups for disadvantaged groups

Related result indicator:

10,000 students take part in free extracurricular foreign language courses organised by VET Centres

VI. Launch of a multi-element programme to tackle early school leaving without a qualification and to reduce dropout rates



Connected to the objective of the EU 2020 strategy to reduce the share of students leaving school without a qualification Hungary, like other European countries, has agreed to reduce the share of students leaving school without a qualification to 10% by 2020.

In the first semester of the year 2011, during the Hungarian Presidency, the Education Council of the European Union adopted a recommendation on policies to tackle early school leaving.

Among others, the document encourages Member States to set up an early warning system to prevent early school leaving and to develop specific interventions for those who would certainly drop out of the education system without these.

The legislative framework for government policy measures to prevent school leaving without qualification is set out in the Act CXC of 2011 on National Public Education amended in 2014, by defining the concept of students at risk of dropping out and by ordering the construction of an early warning system to prevent dropping out.

The share of students at risk of dropping out varies significantly by school type. Compared to the average of 11.39% in elementary schools, the share of those at risk of dropping out is significantly lower in secondary grammar schools (4.29%), while in secondary vocational schools is the highest (13.78%).

The number and share of students at risk of dropping out has decreased in all types of institutions, partly due to regulation and partly due to the pedagogical and organizational-supportive activities of the last school year.

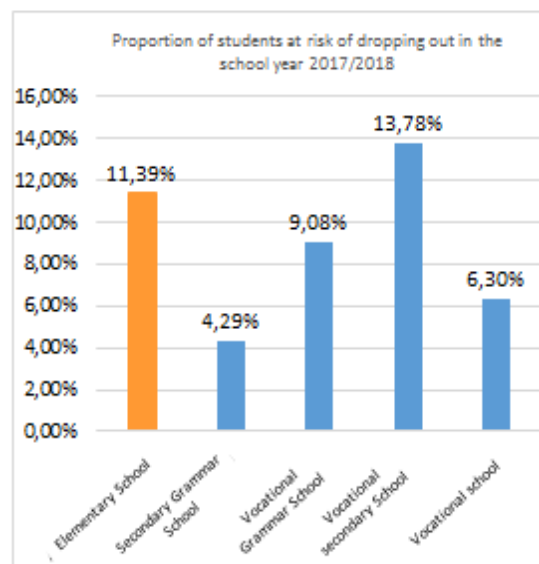


Figure 40: Source: Educational Authority, 2018

The largest decrease was among students learning in IVET: the share of students at risk of dropping out in secondary vocational grammar school decreased from 12.21% to 9.08%, and in secondary vocational schools from 18.03% to 13.78%.⁸

The decline in the number of students at risk of dropping out can be attributed to several components. With the introduction of the early warning system, more attention is paid than before to **school support for students at risk of dropping out**.

Institutions at particular risk of dropping out have recently received targeted support in the framework of EFOP (Human Resources Development Operational Programme) and GINOP (Economic Development and Innovation Operational Programme - EDIOP) calls for proposals, as well as from the Pedagogical Education Centres (Pedagógiai Oktatási Központ) of the Educational Authority (Oktatási Hivatal).

⁸ Educational Authority

Examining the risks of dropping out in secondary vocational schools we can state that **students are most unsuccessful in the specific vocational subjects of their chosen occupation.**

There are several reasons for this:

- Due to unfounded career orientation many students apply for upper secondary VET programmes for which they do not have a suitable career idea.
- Teaching of vocation subjects begins with the teaching of theoretical subjects that presuppose high level basic skills (e.g. mathematics).
- There are few practical activities suitable for learning about the beauty of a certain vocational occupation and offering a sense of achievement.

Comparing the objective data obtained after the introduction of the early warning system with the map showing the territorial distribution of disadvantaged students, it can be seen that there is generally a significant correlation between the disadvantaged / multiply disadvantaged status and dropout rates.

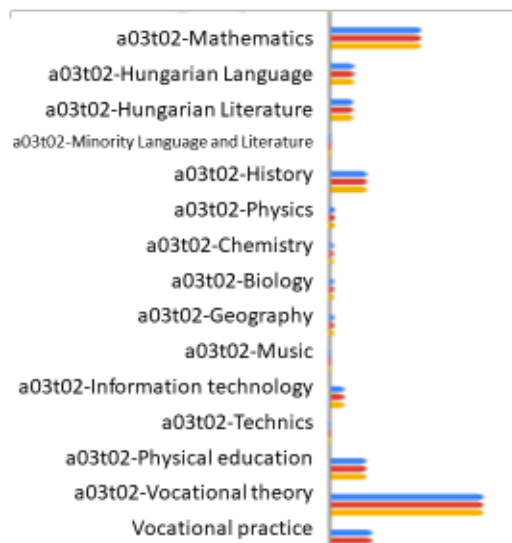


Figure 41: Risk shares of dropping out by school subjects
Source: Educational Authority

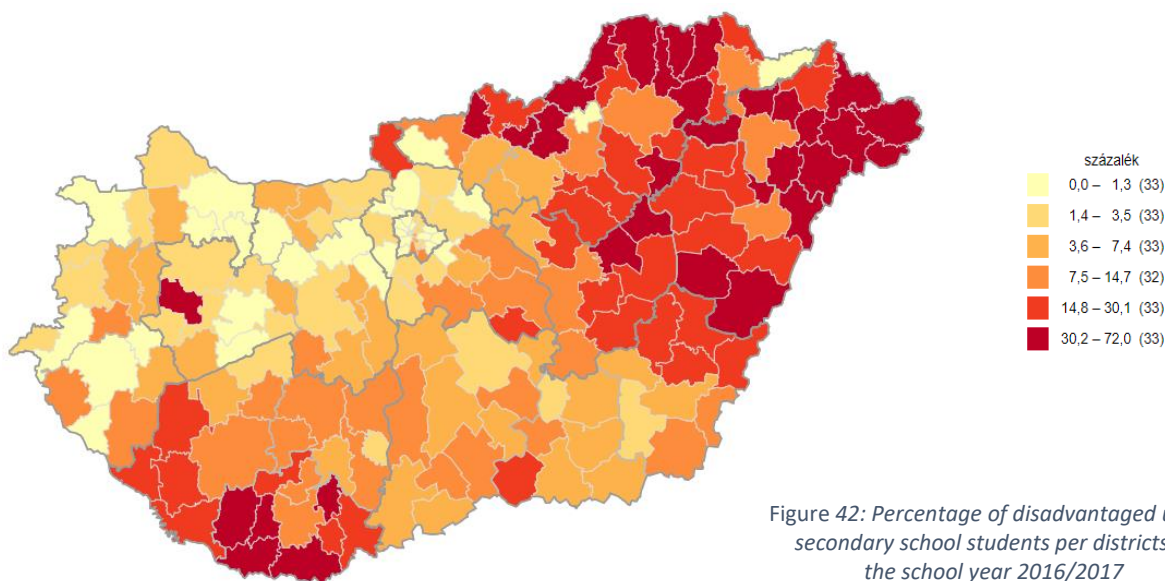


Figure 42: Percentage of disadvantaged upper secondary school students per districts in the school year 2016/2017

Very few students, 40-50 per year, participate in Public Education Bridging Programme. Dropout shares are high in the Vocational Bridging Programme, less than 20% of students obtain a vocational qualification. The main reason is that the programme takes place within that classical framework (based on frontal education) in which students at risk of dropping out were unsuccessful, in which no sense of achievement was found.

There is a need to rethink the Public Education Bridging Programme. The Vocational Bridging Programme has to be replaced by a more effective programme.

In order to reduce school leaving without qualification, programmes based on dropout data, territorially focused and designed for school types, should be implemented.

20. INTERVENTION

More flexible regulation of compulsory education, real-time monitoring of school leaving without qualifications

According to the provisions of Section 45 (1) Act CXC of 2011 on National Public Education (hereinafter: Public Education Act), every child in Hungary has to participate in institutional education and has to fulfill compulsory school obligation. Compulsory education can be completed in elementary school, secondary school, within the framework of the Public Education or Vocational Bridging Programme and in the developmental education. Compulsory education lasts until the end of the school year in which the student attains the age of 16.

Accordingly, compulsory school age students under the age of 16 (14-15 years old) who have completed elementary school are obliged to continue their education at an upper secondary school type or within the framework of the Bridging Programmes. In recent years 2,000-3,000 people have participated in the full-time trainings of the Bridging Programmes. The aim of the Bridging Programmes, launched in 2013, is to reduce dropout rates and to reintegrate dropout students into education and training. Currently Public Education and Vocational BRIDGING Programmes are available. Compulsory school age students who have completed lower secondary education but have not been admitted to an upper secondary school are sent to the former by elementary schools. During the one-year training, the missing basic skills and competences necessary for further learning are complemented.

The Vocational BRIDGING programme enrolls students who have successfully completed maximum six years of elementary school by the end of the school year in which they attain the age of 15. In addition, non-compulsory schooling age young people, up to the age of 23 at the time of entering the programme, are also eligible. The Vocational BRIDGING programme has two school years, and the participants, in contrast to the students of the public education bridging programme, are entitled to a scholarship: 8 thousand HUF per month for first year students and 10 thousand HUF for second year students.

The effectiveness of the Vocational Bridging Programme is not sufficient, less than 20% of participants obtain a partial qualification.

Obtaining a partial qualification is the basic requirement for fulfilling the compulsory education.

Compulsory education has to align with the time required to complete the **orientation year**, which is part of the interventions of this strategy, and to complete a **school workshop** programme in 6-12 months providing partial qualification under practical training conditions.

In order to reduce school leaving without qualifications, targeted programmes focusing on the specificities of the school types and reasons should be launched in highly affected districts in the next period.

At present, VET providers do not have credible, immediate information on actual dropout rates, nor do they have information on the reasons for dropping out of school without a qualification.

A unified system supporting the educational organization tasks of public education institutions should provide immediate, real data on the actual dropout rates and its causes.

IVET institutions do not make sufficient use of the advisory network that Pedagogical Education Centres operate regionally at the Educational Authority.

Related result indicator:

The rate of school leavers without a qualification is 8% in VET



Figure 43: Illustration: Vocational Bridging programme - practical training

21. INTERVENTION

Orientation year for those who would enter IVET after completing elementary school with lack of competencies and uncertain career choices

Some students in IVET have significant skills gaps and need support to develop their abilities and skills. In an interview based research study published by MKIK GVI⁹ (Institute for Economic and Enterprise Research of the HCCI) in 2016, a significant proportion of teachers in secondary vocational schools reported many students who are difficult to treat, with learning difficulties and behavioural disorders.

In many cases, the fact that teachers also have to perform basic educational tasks in the 9th grade classes seems to be an obstacle to efficient vocational education. The interest in learning is often low and students do not see the usefulness of learning in their adulthood.

There are many learning difficulties, behavioural disorders, frequent school failures and significant dropout rates. Unfavourable family backgrounds also often contribute to unsuccessful school careers¹⁰.

Students have basic literacy and numeracy problems.

To engage students in VET and company dual training, the basic skills and key competences required in all professions have to be developed. However, this does not mean repeating elementary school learning materials. Consultations with economic actors also show that, in order to ensure proper career orientation, the missing career competences must first be filled, which requires additional time, which can be achieved in an orientation year before IVET

Professional content of the orientation year:

- Vision and career development
- Bringing strengths to the surface, experiencing success
- Development of personal competences (problem solving, creativity)
- Development of social competencies during the practical training in workshops (communication, conflict management)
- Development of basic competences (reading literacy, basic numeracy, digital competences)
- Learning about vocational occupations and economic sectors in practical conditions

Organisational framework of the orientation year:

- 8-12 students
- Practical training placement
- Project tasks
- Company visits
- Testing vocational occupations
- Development of manual skills
- Tasks and situations that increase responsibility
- The main activity of the teacher is mentoring

The orientation year should be started in areas and only with the voluntary involvement of students where significant skills gaps can be measured. **The basic condition for the organization of an orientation year is the uniform, nationwide input assessment in VET as well.**

Related result indicator:

Involvement of 50 orientation classes and 500 students per year

⁹Makó et. al. Vocational schools, education, poverty - Results of an interview research (MKIK GVI, 2016)

http://gvi.hu/files/researches/477/szakiskola_interjuk_2015_elemzes_160811.pdf

¹⁰Göd 2.0 Concept for the development of vocational education, Hungarian Piarist Province - 2018



Figure 44: Göd 2.0 programme orientation year

22. INTERVENTION

Launching the school workshop programme where young people who have been dropped out from the VET system and have not been able to complete elementary school can obtain at least one partial qualification

One of the most serious issues of the VET system is school leaving without a qualification. The share of students at risk of dropping out in the school year 2017/2018 was 9.08% in the secondary vocational grammar schools and 13.78% in secondary vocational schools. By 2020, the dropout rate should be reduced to below 10%.

Examining the reasons and situations for dropping out, we can state that a significant part of young people at risk of dropping out from VET do not want and cannot perform well in the classical school learning environment. Most of these students have good manual skills, many are particularly gifted when it comes to performing manual tasks.

The school **workshop programme** is a solution for these young people. This new form of training is a formal full-time vocational training, which gives students a partial qualification. Different sectors of the labour market specifically require the partially qualified workforce with right motivation and attitude. At present, such partial qualifications are e.g. the animal handler, the pipe fitter, the tungsten electrode shielded arc welder or the formwork carpenter.



Figure 45: Illustration: Arc welder
Source: karcagisz.hu

The school workshop programme will replace the Vocational and the Public Education Bridging Programmes. Its main goal is for participants to obtain a vocational qualification in significantly higher proportions compared to the Bridging Programmes. This can be achieved through shorter-term practical on-site training based on competence development.

In the school workshop programmes the master-student relationship is decisive. Students learn general education content areas in connection with practical tasks, they interpret instructions for use and calculate raw material needs. The school workshop programme has a flexible duration. If the student is not prepared for the vocational exam, he will not fail, he/she will continue the preparation so the training time will increase by a few months.

The professional goals of the school workshop programme:

- A form of education different from the classical school (frontal classroom) situation
- Young people at risk of dropping out complete their studies with a competitive partial qualification recognised by the labour market
- Develop a realistic picture of the world of work, the achievable income
- Instead of the classic teacher-student relationship, a master-student relationship
- Ongoing mentoring support
- Development of personal and social competences (problem solving, communication)
- Job seeking support

Framework for organizing school workshop programmes:

- Duration between 3-12 months, examination schedule not bounded to the school year
- 8-12 participants
- Workshop environment
- Theoretical knowledge is also embedded in practical training
- Tasks and situations that increase responsibility

Related result indicator:

Launch of 100 groups participating in school workshop programmes, involving 1,200 students

23. INTERVENTION

Renewal of the scholarship system

A successive system of scholarship and income based on student employment contracts should be developed in IVET. In the current labour market situation almost all vocational occupations are in demand so it is necessary to introduce a uniform **VET scholarship**.

State-funded benefits:

- The Apáczai programme supports talented, disadvantaged young people in technicums
- Students in orientation year also receive scholarship so that there is no financial reason to skip it
- There are no extra scholarships for learning occupations in demand, in each IVET programme there is a uniform scholarship
- The amount of the scholarship varies according to the progress of the studies and the performance
- After a successful final vocational exam, the student receives a certain part of the scholarship in a lump sum as a graduate student allowance.

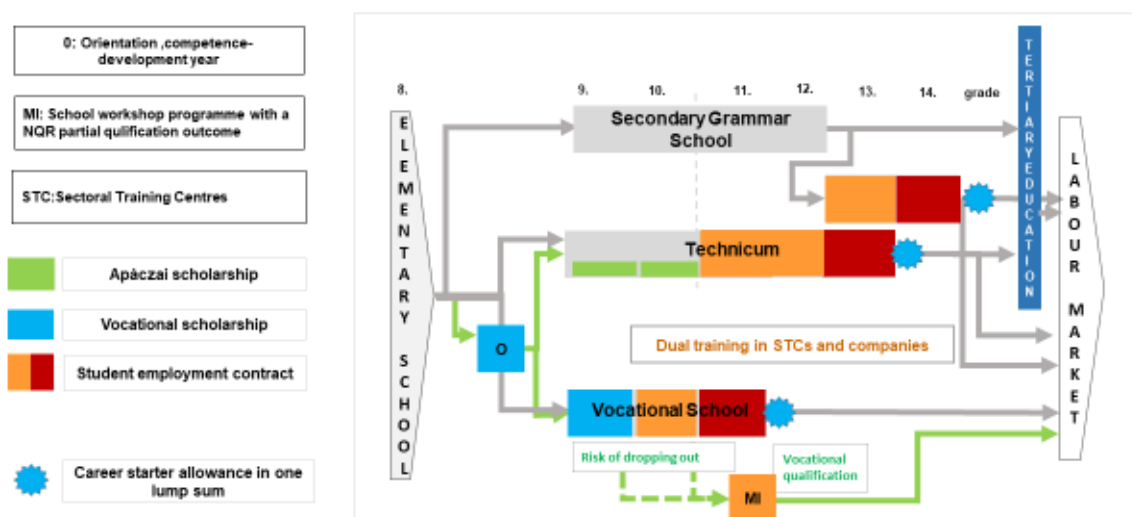
Benefits provided by the practical training company placements:

- Wage like remuneration under the student employment contract.

Economic stakeholders providing dual practical training will receive support on the basis of the relating regulations, and the system of support will be transformed.

The core principle in determining the amount of benefits is to make students to be interested in continuing their studies. The VET scholarship in the first semester- according to the current minimum wage level - amounts to HUF 20,000, which may increase to HUF 40,000 or decrease to HUF 5,000, depending on the academic results. During the school year, students receive 50% of this, and the other 50% is credited to their account as a graduate student support. In order to motivate them to obtain a vocational qualification, young people receive the graduate student allowance after passing successful the final vocational examination, which they can use to buy equipment, for housing or travel. Students also receive an allowance in the school workshop programme but it is lower than the scholarships in IVET programmes as we want to make more attractive the vocational occupations which can be obtained completing IVET programmes than partial qualifications which can be acquired in school workshop programmes in a shorter period of time.

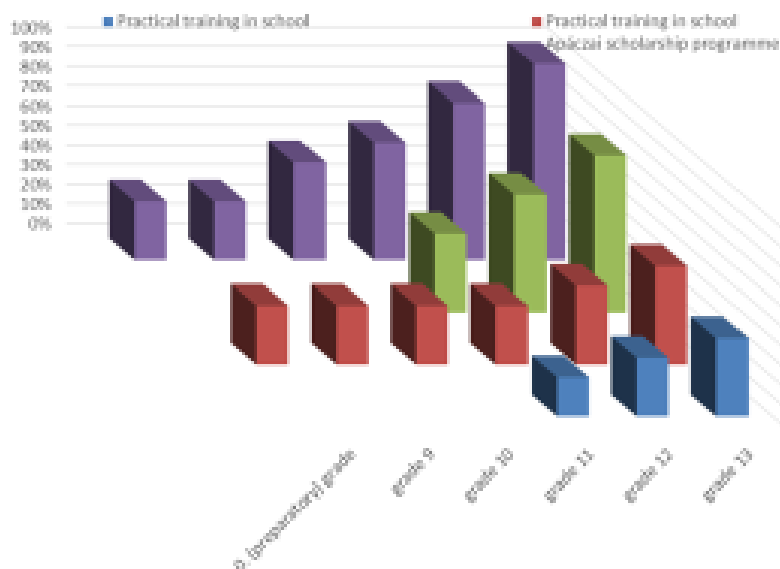
Successive system of scholarship, apprenticeship- and vocational employment contract



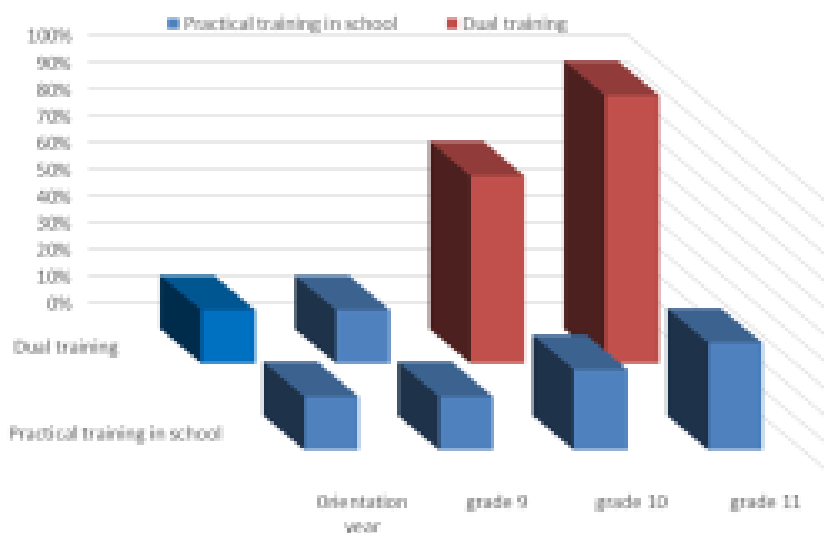
With the introduction of the system, the number of applicants for IVET programmes will increase, the proportion of students participating in dual training will increase, and the number of students who complete the training with a successful final vocational examination will increase.

The amount of benefits is adjusted to the minimum wage at any given time. The values in the charts showing the benefits show its percentages.

In the system of student benefits provided in technicums, is applying the principle that the amount of benefits increases as the studies progress. In the same grade, a student who receives an Apáczai scholarship receives a higher amount, respective there is a significantly higher amount available in dual training with employment contract than the general vocational scholarship.



In IVET institutions students receive benefit regardless of the vocational occupation. In both the orientation year and the first school year in IVET the amount of the scholarship depends on the academic results. The available scholarship in dual training is significantly higher.



Related result indicator:

15,000 students receive vocational scholarships

24. INTERVENTION

Establishment of vocational colleges for advanced studies (szakkollégium)

The proportion of students from poor families is high in the most disadvantaged districts. Many of the young people live in small settlements and commute daily to IVET institutions in nearby towns or live in IVET boarding schools. Among these young people, early school leaving without qualification is outstandingly high. This situation can only be changed by improving their social circumstances and giving them personal support. Mentoring and development of young people living in boarding schools can be implemented within the framework of vocational colleges for advanced studies based on the positive experiences of colleges for advanced studies established in higher education. Colleges for advanced studies can play an equally important role in upper secondary education, where the talent of young people has to be strengthened.

Colleges for advanced studies provide support for students

- with good skills in the field of performing or fine arts,
- achieving good results in sport,
- with outstanding academic results in subjects and vocational training.

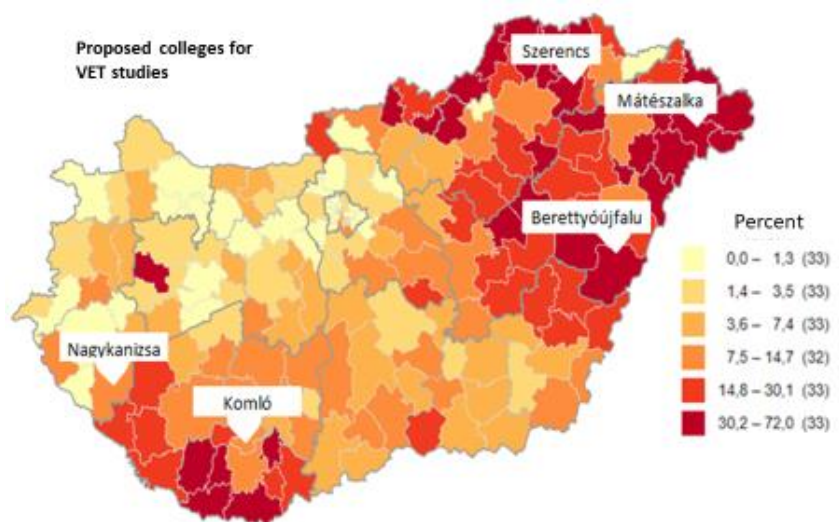
Expected results of the launch of vocational colleges for advanced studies:

- conscious and professional career planning,
- improvement of academic achievements as a result of individual and small group catch up programmes,
- improvement of results achieved in academic and vocational competitions,
- expansion of social living space,
- strengthening the example of pursuing further studies through the mentoring activity of higher education students living in colleges for advanced studies,
- strengthening the role of culture in everyday life,
- a healthy lifestyle and strengthening the role of sport among young people,
- reduction in drug use,
- reduction in early school leaving without qualification.

Health-conscious young professionals practicing their occupation on a high standard and open to further development will leave the vocational colleges for advanced studies.

The vocational colleges for advanced studies are not a substitute for the work to be done by the traditional VET but can effectively complement it. In colleges for advanced studies educational work has a bigger role than in the case of academic education. Colleges for advanced studies can be operated as church-maintained independent boarding schools or as member institutions of VET Centres' boarding schools. The specialised colleges may also establish a nationwide network.

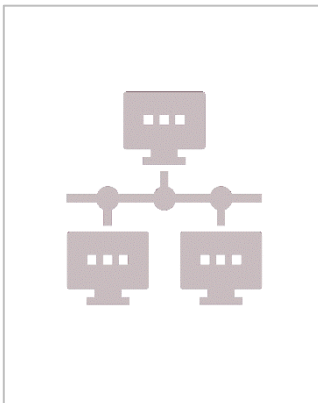
Colleges for advanced studies can be connected in several ways to the "Teach for Hungary" ("TanítsMagyarországért") programme launched by the Ministry for Innovation and Technology. The goal of the programme is to create a level playing field for all children in public education, to provide them with a chance to develop wherever they were born. The medium-term goal of the system of vocational colleges for advanced studies is that successful students from upper secondary colleges for advanced studies can set an example to follow when they return to visit elementary schools in small settlements.



Related result indicator:

500 students in vocational colleges for advanced studies

VII. Creating a professionally managed, efficient school system in VET



School-based VET in order to be a real partner for economic stakeholders, has to be a professionally managed, efficient organization. With the establishment of VET Centres the system has taken a significant step to improve the quality of organizational functioning. This centralised work organisation performs tasks requiring special professional knowledge: management, employer tasks, conducts public procurements and manages tender processes. The management of the centres treats the training structure of the schools affiliated to them as a unified system, and it can make decisions related to utilisation and cost-effectiveness overcoming the individual interests of the schools. With the introduction of the chancellery system, this management approach will be further improved.

The goal of the professional organisational operation is to guarantee quality. As a means of this, a uniform quality management system has to be developed in the VET Centres which fixes the mission of the organisations, regulates the most important processes and also measures satisfaction.

VET Centres, with the approval of the maintainers, have to make important professional decisions regarding, among other things, the training structure, the operation of the infrastructure and the number of teachers. Similarly, interventions related to professional effectiveness are important: projects launched to reduce dropout rates or to develop vocational competences. These require a unified database and management decision support based on it.

A uniform quality management system must be established at national level, which also contributes to the development of the operational standards of the VET system at the regional level. This should be based on a uniform system of academic administration and decision support, so that the professional and management activities of the centres can be assessed and developed.

The management of VET Centres is mainly done by educational professionals who focus primarily on the content issues of VET. In order to develop it, much more emphasis should be placed on cooperation with the economic stakeholders of the region, on the efficiency of economic management and the improvement of utilisation.

Dual management with managerial approach should be operated in the VET Centres, with the activities of the chancellors supplemented by a professional with expertise in the field of economics.

The centres operate with different numbers of staff and significantly different human resources. Directors-general have several years of managerial experience usually gained as heads of institutions. The effectiveness of the work of organisations depends to a large extent on the preparedness of leaders.

There is a need to organise uniform upskilling programmes for directors-general and chancellors, and to develop a uniform performance assessment for the heads of VET Centres.

25. INTERVENTION

Further development of electronic data registration systems, introduction of data-driven management decision support solutions

In the age of digitalisation, it is a basic requirement that VET should be planned, organised and administered electronically. The aim of the Public Education Registration and Core Study System (KRÉTA), which operates in the entire public education system, is to provide effective assistance to its users - maintainers, heads of institutions, teachers, students, parents.

On 15 August 2018, **the Minister of Human Capacities approved the KRÉTA system as an electronic data register replacing the compulsory academic register**, with respect to the following academic forms as per Section 94 of Decree no. 20/2012 (31th August) of the Ministry of Human Capacities on the operation of educational institutions and on the use of names of public educational institutions:

- class register;
- group register;
- other session register;
- class schedule;
- division of subjects,
- report book.

The ministerial approval will allow that, from the school year 2018/2019 the above-mentioned administrative documents can be stored in the KRÉTA system. The class registers produced in the system are considered to be officially accepted documents, and, pursuant to Section 57 (6) of the Public Education Act, it is not necessary to print them.

The system is constantly evolving, affecting an ever-widening range of educational and academic processes. The electronic administration system can also be used on mobile devices. Teachers can administer class work and record grades on mobile devices. Parents can also follow their children's school progress and absences on their smartphones.

In the public sector, VET institutions make full use of the KRÉTA system, several ecclesiastical and foundation schools have also joined the system.

Due to its specialties, VET still means special development needs for the system.

Objectives to be achieved by using and further developing the system:

- Operator-level monitoring of the subject divisions of VET Centres and their member institutions in order to track utilisation
- System-level monitoring of students' performance due to the possibility of early intervention
- Monitoring the administrative work of teachers
- Warning on the risk of dropping out
- Support for dual practical training at company placements
- Support for the creation of a separate register for adult education

The electronic data registration system needs to be further developed to be able to track early school leaving without qualification.

Related result indicator:

Administration of more than 200,000 VET students in a unified electronic system

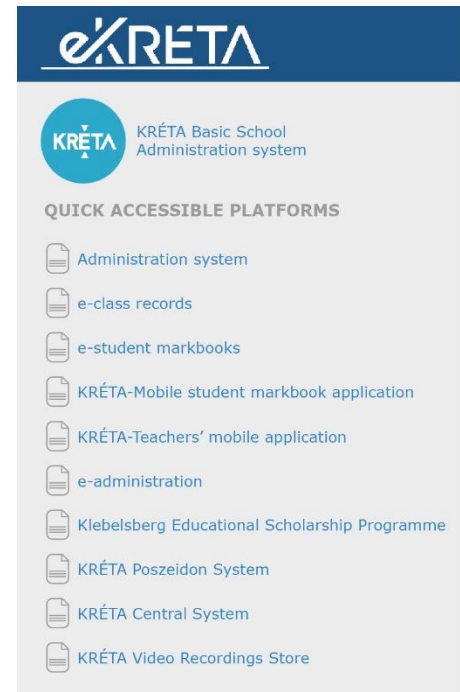


Figure 46: KRÉTA Core Study System

26. INTERVENTION

Introduction and operation of a uniform quality management system

Improving the quality of the VET system can only be effective on the basis of uniform principles, within the framework of a quality management system that monitors the processes on the basis of objective results. Recently, several quality improvement projects have been launched in the education system but in everyday practice very few schools have a quality management system in place.

Quality assurance in VET is a key European policy priority. The EQAVET RECOMMENDATION, adopted in 2009, helps Member States to improve and evaluate their vocational education and training systems on the basis of common European references. The RECOMMENDATION intends to implement EQAVET in the **European Quality Assurance in Vocational Education and Training, the EQAVET Network**, and in cooperation with the Quality Assurance National Reference Points (QANRPs).

Hungary is **one of the first EU Member States** who thoroughly and in detail reconsidered the harmonisation of its VET quality assurance system with the EQAVET Framework, and in 2010 established the Common Quality Assurance Framework (Egységes Szakképzési Minőségbiztosítási Keretrendszer, ESZMK -CQAF). The most important element of this is the Common VET Self-assessment Model, which is a complex EFQM-based self-assessment tool that fits the tasks and management of VET institutions.



Quality management systems are able to operate efficiently in the long run if the operation of the monitoring system does not cause significant additional tasks, and the results of which are taken into account by the decision making managers. The assessment of the centres and member institutions, the maintenance interventions and the decisions related to the developments are also made on the basis of the quality assurance system.

A uniformly developed quality management system must be established, which makes the results of the processes transparent at the level of the VET Centres, lays the foundation for the quality improvement and also functions as a nationwide monitoring system. This should be based on a single database and decision support system.

Priority aspects of the assessment include: infrastructure, human resources, learning outcomes, school reputation and enrolment, cooperation with the local economy, talent support, catch-up support, communities and programmes.

The basic data of the quality assurance system is obtained from the IT system supporting the educational organisation tasks of public education institutions, and the data not collected so far must be recorded in it.

A key element of the quality management system is the career tracking of young people who completed VET programmes, which is one of the most important elements of the system's effectiveness.

Related result indicator:

Uniform database and quality management system in VET Centres

27. INTERVENTION

Introduction of the chancellery system in order to improve, to prepare and to continuously upskill the management of VET Centres

VET Centres are local actors in the implementation of vocational policies, who are in direct contact with enterprises and institutions of the region. In the development of the VET system, more emphasis should be placed on company relations, cost-effectiveness and utilisation.

The chancellor's position in the changing management structure of the VET Centres plays a major role in the performance of these tasks.

In December 2018, Section 4/D was added to the Act CLXXXVII of 2011 on vocational education and training, which defines the task of the chancellors of VET Centres.

The purpose of the legislation is to support the implementation of the tasks listed above by a dual management system supplemented with a professional managerial approach and expertise in the field of economics.

To achieve the goals:

- A **network of contacts** must be built and maintained, on the basis of which the **labour market needs of the region** can be defined.
- The **development plan** of VET Centres should be created and regularly updated.
- A **unified database** must be established in consultation with the maintainer, on the basis of which the **economic results** can be judged.
- A **quality assurance system** must be established and operated, on the basis of which the **results of the professional activities** can be judged.

The chancellors of VET Centres have a great role and responsibility in the implementation of the VET development strategies at the local level.

In order to perform the management tasks of vocational training centres at a high level, it is necessary to prepare and continuously train the management.

Key areas of leadership development:

- Strategic planning
- Management science
- Legislative awareness
- Change management
- Human resource development
- Data-driven decision-making processes
- Data management, data security
- Quality management



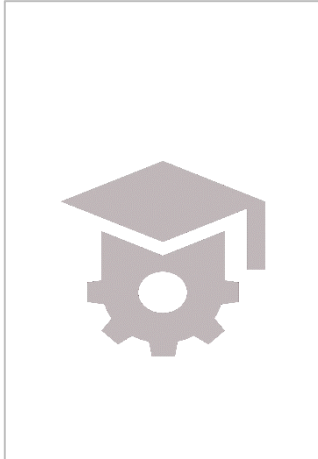
The preparation takes place partly in the framework of upskilling programmes organised in the form of trainings, partly in the framework of electronic information and e-learning materials related to the changes.

Part of the management development of VET Centres is the uniform performance evaluation of directors-general and chancellors.

Related result indicator:

Management-oriented leadership in VET Centres

VIII. Development of the cooperation between upper secondary VET and higher education



The primary goal of IVET is that young graduating people can find their place in the labour market with quality knowledge, to find a secure existence, and to find joy in their occupation

For the most talented students, the new training system offers better opportunities for higher education. They do not have to choose a fifth subject during the secondary school-leaving examination because the final vocational exam is also a secondary school-leaving examination subject.

For students pursuing further studies in the same specialisation, a technical qualification will be a surplus that will ensure that students achieving good academic results will be able to enter higher education.

One of the reasons for the popularity of secondary grammar schools is that elementary school students, their parents and teachers, who choose an upper secondary school type, all think that students with a secondary school-leaving examination passed at a secondary grammar school have better chances of getting into higher education. Currently, nearly half of the students studying in secondary vocational grammar schools are satisfied with an “ordinary” secondary school-leaving examination, they discontinue the 5-year training after completing 4 years, similarly to secondary grammar schools. In Europe, meanwhile, we find that in Finland, Germany and Austria there are significantly more people obtaining a vocational qualification than completing a secondary school-leaving examination at a secondary grammar school.

In the new education and training system, the technicum is a 5 year programme, students take a secondary school-leaving examination in four general subjects, and the final vocational exam at the end of the 13th grade is the fifth secondary school-leaving exam subject. The obtained vocational knowledge creates the possibility that, in case of the technicums, the 13th grade, i.e. the 5th year, will be a kind of entrance hall to higher education. Technicians are expected to continue their studies in BProf courses, where it will also be possible to take into account their prior knowledge based on the regulations of higher education institutions.



There are several other forms of cooperation with higher education:

- Coordination of the system of programme and outcome requirements, as well as the themes and topics, which cover not only the skills but also the competences to be developed.
- Better coordination of dual training, successive structuring of its modules in the upper secondary and tertiary level, participation of the higher education institution in the Sectoral Training Centres.
- Closer cooperation between secondary and tertiary education teachers.
- More flexible training courses for engineering teachers and practical instructors, so that professionals working in industry can more easily join the work of a IVET institution as an external lecturer.

28. INTERVENTION

Pursuing further studies with a technical qualification in specialised higher education

Students who choose VET should be offered predictable career opportunities. **In the new training structure, all students can move from IVET to higher education.**

For talented young people who have acquired a technician qualification, should lead a direct pathway from vocational training institutions to the university, recognising their previously acquired professional knowledge, taking into account the results of their final vocational examination.

Thus, those attending technicums (current secondary vocational grammar school) will be much more motivated to complete the 5th year than at present. This is also important because, as the data show, 46% of students in secondary vocational grammar schools currently graduate with a secondary school-leaving certificate but without a vocational qualification.

Currently, pursuant to Section 40 (3) of Act CCIV of 2011 on National Higher Education and Section 6 (2) of Gov. Decree 423/2012 (29th of December) on the Admission to Higher Education Institutions, for the admission to a higher education institution, in case of certain Bachelor and undivided programmes, the Communication on the requirements for passing the secondary school-leaving examination determines the additional scores achievable each year during the admission procedure.

In the Communication for the year 2018, in almost all study fields, in case of pursuing further studies in the same specialisation according to the effective legal regulation, applicants will receive 32 points for a post-secondary or higher VET qualification registered in the National Qualifications Register and obtained after 1993.

According to the dialogues conducted with higher education decision and policy-makers, regulation should be found that offers additional opportunities for those achieving a good technician qualification, without adversely affecting the chances and state aid opportunities of applicants applying within the framework of the general procedure.



Figure 47: „Educatio” event for supporting the chances of attending higher education

A reconsideration of the admission procedure is needed, which will allow students in technicums to count the results of their final vocational examination taken at the end of the 5th grade in the higher education admission procedure for the same specialization.

The Hungarian economy currently needs primarily engineers, IT specialists and specialists with natural science qualifications. A key goal is that 40% of students applying to higher education should apply for such programmes. Significant progress has already been made in recent years: while in 2012 only 22% of higher education applicants chose higher education studies in the aforementioned specialisations in 2018 this proportion had already reached 29%.

Related result indicator:

The number of students obtaining a vocational qualification in technicums at the end of the 5th year increases by 30%, whereas the number of students from the technicums pursuing further studies in higher education institutions in the same specialization will increase by 10%

29. INTERVENTION

Content harmonization of VET programmes

Higher education institutions and technicums need to better coordinate their programmes.

There are currently two general problems that face different challenges:

One of these is that for those coming from secondary vocational grammar schools (especially those who have completed the 5th grade) the university curriculum is in many respects a repetition of what has been learned before, at most at a slightly higher level, but the overlapping content appears in different parts, so the recognition of this knowledge with credits is difficult, in most cases impossible. Therefore, it is necessary to harmonize the education and training contents to identify the overlaps, in order to enable students coming from technicums to be exempted from certain subjects and modules during their university studies.



Figure 48: <http://gyartastrend.hu>

The other problem is just the opposite, that is, when the upper secondary institution's curricula is quite different from the university ones in a given field of specialisation. In this regard, it is necessary to strive for better cooperation between the same higher education and upper secondary education specialisations, for the harmonization of the content of education and training, and for successive structuring.

The system of programme and outcome requirements assigned to higher education programmes, certain study fields and specialisations must be coordinated with the same / similar system of technicum's programme and outcome requirements. All this must apply not only to the knowledge, sphere of learning contents but also to the key competences to be developed.

There is also a need for coordination in case of the dual training : students starting upper secondary level dual training at a given company should have the opportunity to continue it on a higher education level. This requires further cooperation with the particular businesses and organizations.

Related result indicator:

Coordination of the set of programme and outcome requirements of higher education and upper secondary education programmes in the same specialization, with special regard not only to knowledge but also to competence development

30. INTERVENTION

Integrating innovation into upper secondary education with the support of the higher education

Technology change, automation is the biggest challenge of our time, to which only the strengthening of competitiveness and, as its basic condition, innovation can provide an answer. A significant part of innovations are born in higher education which also acts as their mediator. However, these innovations often do not reach the upper secondary school level.

University and secondary school teachers need to work more closely together, to exchange experiences and create relevant personal and online forums. For each technicum should be indicated its partner university or universities (if there are any) which provide specialised training in the region, and a regular consultation forum should be set up.

Teachers from universities have to go to the technicums from time to time as guest lecturers. These are also lectures and practices promoting higher education programmes in a given specialization, and also promoting the particular higher education institution. At the same time, they provide an opportunity for university lecturers to become acquainted with the teaching staff, human resources and infrastructure of the given technicum.

In case of reverse visits, the teachers of technicums can familiarise with the conditions, equipment and lecturers of a particular university.

A kind of partner school system can also be established: in this case, the PhD students and young colleagues of a given university go to the given upper secondary school and present their latest research fields and innovations.

Some particular areas (e.g. robotics) can even be interpreted as an independent course. This can be learned by students as an optional upper secondary school subject, and then, upon admission to a university, its fulfilment can be recognised. The course itself can be held at an upper secondary school but also at a university, where upper secondary school students can get acquainted with the university milieu.

Student visits to university innovation centres and hubs should be organised regularly under the guidance of form masters and vocational teachers. Some of these may be related to events such as a digital theme week.

Meetings do not always have to be personal, especially if there is a long distance between the given higher education and upper secondary institution. In this case it is possible to keep in touch with each other via an online platform or even via Skype holding a university course in an upper secondary school. Innovative courses and teaching methodologies can be supported through calls for fundings.

Related result indicator:

Number of courses organised by universities for upper secondary school students and the number of upper secondary school students participating in them

31. INTERVENTION

More flexible trainings for teachers of engineering and practical instructors

Finding and retaining teachers of engineering and practical instructors is an increasing challenge in upper secondary VET.

The teaching staff is aging and more and more people are teaching in retirement or will soon reach retirement age.

One way to replace the teaching staff is to involve engineers and other professionals in education. At present, however, the education of teachers of engineering based on a master's degree programme is available in form of a minimum 2 semesters length master's course. In the same way, the length of an economics teacher training programme is 4 semesters based on a college course and 2 semesters based on master's degree. Enrolment, exams, degree thesis defence require a great deal of commitment, especially in an older age.

Therefore, it is necessary to implement shorter-term (a few occasions) non-master's degree programmes that enable engineers, economists and other professionals to teach in the upper secondary education.

The modules should be structured in such a way that later, if students wish so, they can complete a full teacher of engineering or economics, etc. course, and the modules will be recognised.

Shorter training can help engineers, economists and other professionals to transfer their knowledge in upper secondary schools.

This is also important because they can see in their everyday life how Industry 4.0 transforms the skills that employers require from their employees.

As in many cases these teachers work for international companies, it is also possible to teach a part of the subjects and courses in a foreign language, which again contributes to the development of the students.

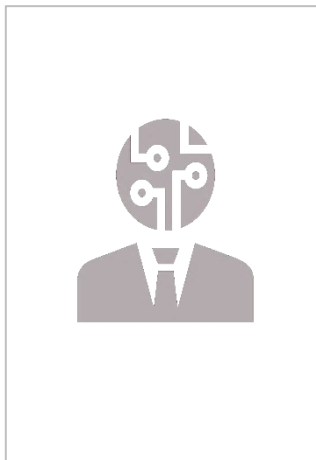
At the same time, they are the ones who can arise young people's interest in science, technology, engineering and mathematics with practical approach and experience.

- engineers, if they complement their studies with pedagogical credits, will receive two degrees during graduation
- it is also necessary to create the possibility of wage bargaining within the framework of schools
- for professionals from the business environment must be created the possibility to be involved in school education as lecturers.

Related result indicator:

Development of short teacher-pedagogical modules and trainings for engineers and other professionals working in the industry, after which 500 engineers and other professionals will join upper secondary education as lecturers

IX. Launch of a complex human resources development programme among vocational teachers



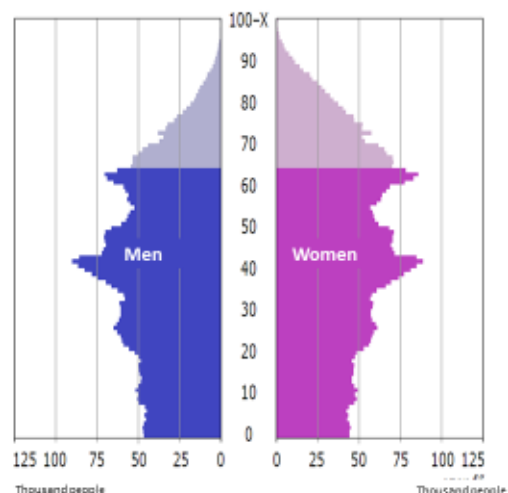
The key factors in VET development are teachers who teach theoretical and practical vocational subjects.

There are many expectations regarding teachers who teach vocational subjects:

- They should follow the explosion of technological changes in their field of specialisation
- They should be able to keep pace with digitalisation, information searching, presentation, teaching methods, school administration and communication.
- They need to adapt their methodology to the specificities of students in the ever-changing “Z” generation.
- In many cases, they need to support disadvantaged students with serious empathy and commitment.

Five key issues related to teachers human resources can be identified:

1. The average age of teachers has increased significantly in the recent period. A very strong wave of retirement is expected in the next 3 years also among teachers who are aging in the same proportion as the total population. As a result, primarily the supply of teachers teaching theoretical and practical vocational subjects will be a problem in the short term. Those leaving full-time vocational teacher training colleges cannot replace this number. Human policy interventions are needed.
2. Among the well-trained vocational teachers who follow the developments of their field of specialisation, the private sector has a large “exhausting” impact. Due to incomes which exceed with 50-100% the teachers’ salaries in some sectors, half of vocational teachers have left the profession in the last 10 years.



There is a need for a VET teacher career model which is able to differentiate between qualifications, knowledge and performance.

3. For a significant proportion of teachers in schools, the teaching methodology does not follow the development of digitalisation. Targeted further training of teachers and vocational teachers is needed to achieve more results and sense of achievement in teaching, taking into account the specificities of motivation, learning habits and communication of the “Z” generation.
4. There is no proper collaboration, no transition between school teachers and company professionals. Most of a school's vocational teachers do not have company work experience and cannot follow the technological development of their field of specialisation. Most of company's professionals do not have pedagogical or methodological skills. Companies’ specialists do not take part in school education, even for a short period of time.

In order to ensure an adequate number of teachers teaching theoretical and practical vocational subjects, to improve the staff retention power of the teacher profession, a complex human resource development programme must be launched in order to implement targeted further trainings and company cooperation.

32. INTERVENTION

Establishing a special career model and evaluation system in VET

In order to ensure the provision of a sufficient number of dedicated VET teachers with up-to-date professional knowledge in the long run, an independent career model with special employment and salary conditions must be developed.

The trend that the best-trained vocational teachers leave the teaching profession must be stopped and a realistic alternative must be made for professionals in the private sector to teach in the upper secondary VET on a part-time or even full-time basis.

Total number of people employed as teachers		27,499	The share of lecturers is 27.9% among those who teach vocational theoretical and practical subjects
Number of people teaching vocational theoretical and practical subjects	civil servants	8,558	A wave of retirement is expected in 2019
	external lecturers	3,322	
	total	11,880	The income of vocational teachers working in education is on average 30% lower than market wages.

Number of people employed as teachers in VET Centres and agricultural VET schools

Source: NSZFH (National Office of Vocational Education and Training and Adult Learning): 14 September 2018

The job of vocational teachers, which requires a high level of professional skills, must be compared to the set of conditions of the corresponding segment of the private sector. What are the set of workplace conditions in VET that can retain teachers who teach vocational subjects?

- Competitive income, appreciation and remuneration of individual achievements
- Predictability, vision, career opportunity
- Inspiring work atmosphere
- Availability of quality educational tools
- Supporting and facilitating additional and administrative tasks
- Providing opportunities for further training and professional development
- Social esteem

In addition to the regulations in force, the heads of VET Centres, the heads of member institutions do not have the opportunity, legal solution and resources to retain the best performing theoretical and practical instructors. Instead of a documentation-based assessment system, management evaluation capable of judging continuous professional performance should be given priority, and the management of the Centre with local professional responsibility and labour market knowledge should be given the opportunity to employ professionals in case of key positions, and to bargain wages. The peculiar tasks of general education teachers working in VET is mainly due to the high proportion of disadvantaged students, so they can be connected to the evaluation system of VET primarily in terms of added pedagogical value and special tasks related to supporting catching up.

The comprehensive amendment of the Act on VET will create the conditions for deviating from the Public Education Act, and at the same time for creation of a new evaluation system based on the peculiarities of VET, which will ensure more forms of teacher employment, wage bargaining and the adjustment to market wages.

Related result indicator:

Introduction of an evaluation system for VET teachers

33. INTERVENTION

Making employment conditions for vocational teachers more flexible

The number of lecturers among the teachers of theoretical and practical vocational subjects is 3,322, which is a share of 27.9% in this special segment.

As the entry of graduated vocational teachers is certainly not able to address the growing problem of teacher shortages, there is a need for short-term interventions that are not regressive but rather improve professional standards.

Possible short-term solutions:

1. Increased **involvement of professionals with non-pedagogical qualifications** in theoretical and practical training.

With some restrictions, there is still the possibility for someone to teach in vocational training without a teacher qualification. According to international experience, this can be a large proportion of teachers who start their school careers in this way.

Three factors are needed to strengthen this process:

- Attractive career pathways, competitive income - a special career model in VET.
- Flexible, fast pedagogical training to fulfill the condition of long-term teaching work (1-year training with distance learning elements).
- Broader communication of teaching career opportunities.
- Involvement of young professionals graduated in dual training in educational tasks.



2. Recalling **retired teachers** into the system.

Recently, one of the short-term solutions to the workforce shortage in the private sector has been a significant improvement in the conditions of working in retirement, since employers do not pay social contribution tax and the employee pays only 15% PIT (Personal Income Tax). In the case of vocational teachers, the regulation does not allow them to work under these favourable circumstances. This legal barrier must be resolved as soon as possible. VET Centres need to examine the expected retirement statistics several years in advance with an age management approach. Negotiations should be conducted in a timely manner to allow further employment in education.

3. **Involvement of graduated professionals working in the economy - primarily engineers - as lecturers** in vocational training.

In addition to solving the human resource problems of schools, this is also an important opportunity because professionals from day-to-day business practice bring the latest technologies and company work culture into education.

The involvement of company professionals can take place in two forms:

- The VET Centre signs an agreement with the company professionals and the centre finances their remuneration.
- The solution in which the company delegates professionals at the expense of their working time already works as a good practice in Hungary. In this case, it must be resolved so that the company can recover the amount due for the lost working time of the employee from the vocational training contribution.

Related result indicator:

Retention or involvement of 3,000 professionals in vocational training

34. INTERVENTION

Renewal of teachers further education in vocational training: company-based vocational training, strengthening further education, developing digital literacy and methodological culture

An important element of the quality development of vocational training is that the further education of teachers of theoretical and practical vocational subjects should operate in a new system.

- Currently, most teachers teaching vocational subjects are unable to keep up with the technological changes generated by Industry 4.0.
- Most vocational teachers do not have an adequate level of company connections.
- The methodological culture of teachers working in VET has not kept pace with the development of technology.
- Most teachers do not receive help to apply digital methodology

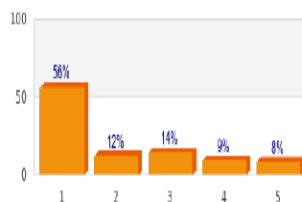
Based on the problem map, three important actions are needed:

1. In-company further education for teachers teaching theoretical and practical subjects

A survey of hundreds of people shows that:

- 61.8% of vocational teachers had a factory visit with students,
- 25.6% of vocational teachers had a factory visit organised for teachers,
- 47.7% of vocational teachers attended a company presentation or product presentation,
- only 17.2% of vocational teachers have in-company work experience.

65.2% of vocational teachers would like to participate in in-company training. This form of further training should be integrated into the system of compulsory teacher further education. Expenditures of participating companies should be recognised at a level that allows them deduct the cost of the workforce involved in the training from the vocational training contribution.



Figures 3: Do teachers search for information relating the learning material on the Internet?

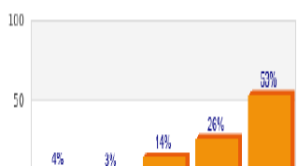


Figure 49: Do teachers use e-learning materials provided by the school?
1: no - 5: regularly

2. Teachers' further education should primarily support the acquaintance with new technologies and their integration into education. The most effective way for teachers to do this is to acquire knowledge from professionals working on a daily basis with state-of-the-art technologies in a company environment.

A key element in the renewal of the pedagogical methodological culture is the development of digital competences. Today, nearly 100% of teachers have their own computers and use the most important applications. Representative surveys show that, while 53% of them regularly search for information on education on the World Wide Web, only 8% of them use official e-learning materials. The use of interactive tools, the acquisition of authentic information and the creation and use of e-learning materials should play a key role in the further education.

- The use of **digital assistants** among the teaching staff in order to help the methodological renewal of the teachers regardless of the subject.
 - Hiring a **contact officer** in each VET Centre who takes care of school and company relations full-time and coordinate career orientation activities.
- The third area of development is strengthening **preparedness to reduce early school leaving without qualification**. Within this framework the focus is on the assessment of competences and the development of basic competences, the development of the methodology of small groups catching up activities, and the know-how related to mentoring tasks.

Related result indicator:

In-company training of 1,000 teachers of vocational subjects

35. INTERVENTION

Increased involvement of company professionals in vocational training and their pedagogical-methodological preparation

Company professionals have up-to-date professional knowledge. In addition to the lack of school teachers it is therefore justified to involve them more intensively in vocational training.

This can take place in several forms:

- As a regular theoretical or practical external lecturer
- In an intensive training programme, such as a project week
- As a learning material development specialist
- As a teacher providing preparation for competitions
- As a mentor for disadvantaged students and/or for those at risk of dropping out

In order that company professionals to be able to appear more intensively in school life, closer connection and clarification of funding frameworks are needed.

Company professionals working in vocational practical training perform important educational and pedagogical task, therefore it is essential for them to possess pedagogical and methodological competences.

Targeted, practical training should provide an opportunity for practical instructors to deal with problematic situations during training, while at the same time they have to acquire qualitative knowledge that can be used to raise practical training to a higher standard.

From September 2019, only professionals with a chamber-**approved practical instructor certificate can work with students in school-based VET**, unless they are subjects of the exemption described in Section 31 (3) of the Act on VET.

The chamber's practical instructor training and examination affects those professionals /practical instructors who are employed as practical instructors teaching students in out-of-school (external) practical placements within the framework of school-based VET.

With the training, practical instructors can be prepared for knowledge that meets the requirements of our era, which they can utilise in their daily work.

The training time is a total of 50 hours, which consists of two stages: 25 hours of theory and 25 hours (3 days) of practical training. The **theoretical training phase** covers pedagogical, socio-psychological, communication knowledge and the methodology of documenting practical training.



In the first three topics, current and future practical instructors can face with knowledge that helps them in the educational and communication difficulties that arise during the education of the young generation, while the documenting methodology related to practical training helps in precise administration. During the **training phase**, practical instructors can acquire skills that help them understand, manage, and positively influence their own and others' emotions. They may encounter lifelike situations that help them deal with the challenges of practical teaching work. At the end of the training, the instructor can provide individual advice to the participants.

In the autumn period of 2018 regional economic chambers, participating in 5 "pilot" projects, implemented the trainings and exams. These are: the Borsod-Abaúj-Zemplén County Chamber of Commerce and Industry, the Budapest Chamber of Commerce and Industry, the Csongrád County Chamber of Commerce and Industry, the Győr-Moson-Sopron County Chamber of Commerce and Industry and the Zala County Chamber of Commerce and Industry.

Related result indicator:

5,000 company professionals obtain a practical instructor certificate

X. Adult education and training focusing on the needs of the economy and providing more flexible learning opportunities



An important circumstance for the competitiveness of the Hungarian economy is to increase efficiency, which is an essential condition to increase the level of qualification. In addition to a comprehensive reform of the school-based education, there is a need for continuous updating of the adults' knowledge.

Due to the recent changes in the macroeconomic and employment situation, the objectives, tools and methods of adult education and training need to be rethought. Along with the development of the national economy, employment has increased significantly and the number of jobseekers has decreased.

Higher unemployment rate was concentrated in some regions of the country - mainly in North-Eastern Hungary and Southern Transdanubia. There is a significant workforce reserve in these areas.

The picture is nuanced by the fact that a significant proportion of long-term jobseekers and inactive people do not have a vocational qualification and many do not have an elementary school education.

There is a high number of jobseekers who also lack basic literacy and mathematics skills.

As a result, businesses operating in the aforementioned regions are also unable to fill jobs that require a vocational qualification.

Practically full employment has been achieved in several counties. The companies operating here are facing a serious problem in securing the workforce. In connection with the technological change of INDUSTRY 4.0, more professionals working in companies should be reskilled.

In the field of adult education and training, two fundamentally different training objectives and target groups must be distinguished. The system of adult education and training needs to be redesigned accordingly.

1. Jobseekers and inactive people living in disadvantaged areas who are considered as workforce reserve

Training programmes should be launched in the areas concerned, leading to real measurable development among jobseekers. This assumes that the trainings are matching with the labour market needs of the region. The trainings are quality-assured and outcome-regulated. Those who receive a vocational certificate are indeed suitable to fill the jobs required by the private sector.

2. Those who are still employed and who want to advance in their professional career or in their current job need to be upskilled

A fundamentally different segment of adult learning is the circle of those who are employed.

- These include those who want a higher or newer degree for their individual well-being. Pursuing studies while being employed is a serious burden, as evidenced by the fact that a high proportion of those entering adult education do not complete their training. They need to be provided with more flexible learning pathways. Prior knowledge must be taken into account, even if the applicant cannot prove it with a certificate because it is based on practical work experience. The potential of distance learning should be exploited.
- The other target group consists of professionals the employer wants to upskill because the development of technology requires the renewal of their knowledge. The objective here is to ensure that the further training can take place in the shortest possible time.

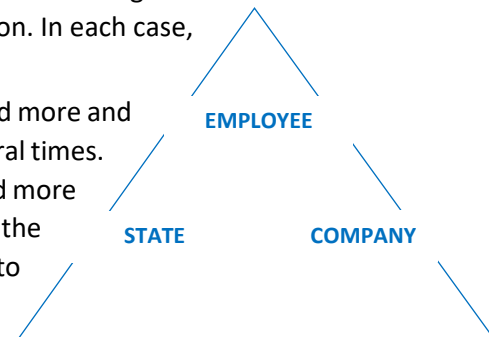
Short-cycle trainings should be supported by strengthening outcome regulations. With the reform of the NQR (National Qualifications Register) it is necessary to renew and re-regulate the "B" cycle

36.INTERVENTION

Support of short-cycle company trainings in response to the needs of Industry 4.0, the reduction of training period in adult education and training with the recognition of prior learning or practical knowledge

There are three stakeholders involved in raising the level of qualifications and funding them. In this triangle, all actors have an interest in raising the level of qualification. In each case, the right proportion of funding education and training must be found.

With the spread of Industry 4.0, professional knowledge is being amortized more and more rapidly, and companies need to up- and reskill their employees several times. It is in the utmost interest of companies to create a training plan and to find more efficient training solutions. Due to the development of the competitiveness of the national economy, it is also in the state's interest to assume a role in education and trainings related to technological changes. Employees are interested in trainings if, as a result, their employment becomes more stable or they are placed in a more valued, higher-income job.



Company trainings related to the emergence of new technologies should take place in the shortest possible time. These “needle-like” trainings last 10-30 hours, they serve to learn a specific tool, software or procedure, and they contain only the necessary theoretical knowledge.

The regulation of Hungarian adult education makes it possible to take into account the knowledge acquired earlier and, on that basis, to reduce the training time. In practice, however, the number of trainings where the training provider makes use of this possibility is low.

Significant change is needed in this area.

- Qualifications that can be formally certified must be taken into account during the training and during the final examination at the end of the training.
- In similar jobs, prior vocational skills acquired in practice should be taken into account during the training.
- In similar jobs, on the basis of the vocational knowledge previously acquired in practice, it must also be made possible for students to take an examination in accordance with the given form of adult education. (This presupposes the operation of independent examination centres to verify the uniform learning outcome requirements detailed below.)
- The system of recognising vocational qualifications obtained abroad needs to be reviewed and improved.
- In adult education and training, forms of training that include distance learning elements should be strengthened, where learning can take place on a schedule that is better adapted to the life situation of the participants.
- The condition must be created for those who are prepared to take a vocational examination without training.

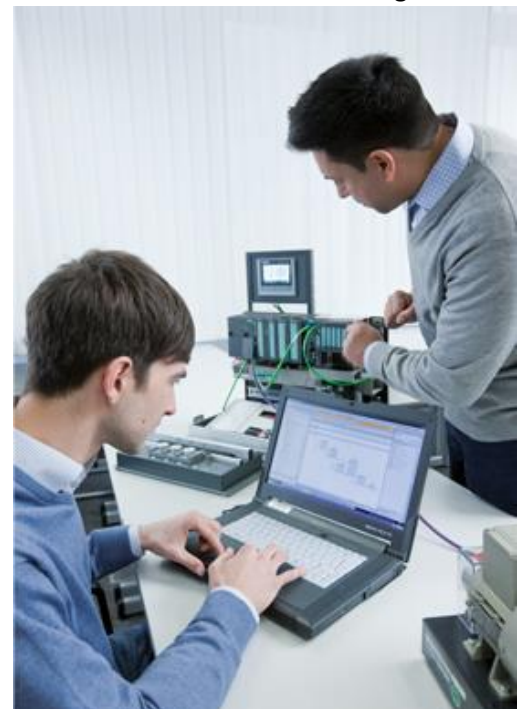


Figure 51: Short-cycle training at the Siemens training centre
Source: www.siemens.hu

Related result indicator:

10,000 people participate in short-cycle company training that responds

37. INTERVENTION

Strengthening the competitiveness of SMEs through adult education programmes

One of the keys to the competitiveness of the national economy is to improve the production and service efficiency of Hungarian small and medium-sized enterprises, and to give innovation a greater role in their operation.

The transformation of the economy and digitalisation are reshaping the framework of work and business. Many sectors are undergoing rapid technological changes, and almost every job requires ICT skills. New forms of work require new personal and key competences.

In 2016, the HCSO (Hungarian Central Statistical Office - KSH) conducted a comprehensive research on the topic. One of the most important research aspects was the level of training access at different company sizes, i.e. the proportion of participants in training compared to the total number of employees. The results of the survey also confirmed the situational picture and improving competitiveness, skills and the integration of innovation into the life of enterprises by launching special programmes in the case of SMEs.

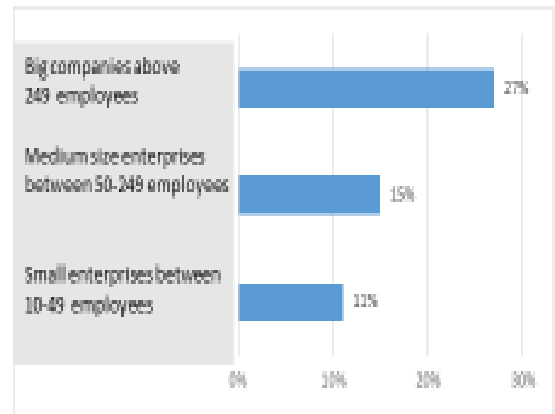


Figure 52: Training access rate for different company sizes Source: HCSO - 2016

In order for a change of approach in the development of the competitiveness of Hungarian small and medium-sized enterprises several conditions must be met:

- training opportunities should be available nationwide for all small and medium-sized enterprises
- training programmes must be specifically based on the needs of SMEs and specialised in consideration of their development,
- in case of adults entering training programmes, their competences and needs must be assessed,
- trainings must respond to individual development needs,
- the potential of digital learning should be exploited.

The main contents of the training programmes are:

- Establishing a developmental diagnosis.
- Measuring the competence of SME managers and employees who are key to success.
- Defining objectives, compiling a customised, modular development programme.
 - Challenges of INDUSTRY 4.0 in the enterprise sector.
 - Strengthening innovation practices in small and medium-sized enterprises.
 - Leadership skills development.
 - Development of key competences.
 - Development of talents, key people, management supply training programmes.
 - Development of IT competences.
 - Investing in the future - involvement in dual training.
- Flexible learning: implementation of training programmes combining the benefits of distance learning and contact training (blended, e-, m- and app-learning).
- Mentoring and coaching as part of the training programme.

Related result indicator:

Participation of 2,000 small and medium-sized enterprises in the special training programme

38. INTERVENTION

Outcome regulation in adult education, establishment of accredited examination centres

State-subsidised adult education is currently strongly **process-regulated**. It would be necessary to move from a process-regulated adult education system to an **outcome-regulated one**. Current vocational and exam requirements (SZVK) are partially outcome-regulated, but the possibility of standardised assessment is not provided. The condition for this is the precise formulation of **outcome requirements**, which allows standardised assessment.

The outcome-regulated operation of adult education is closely related to the issue of **independent examination centres**, and examination in a standardised way.

Independent examination centres should not be linked to an organisational form but to the availability of personal and material conditions. There will be less emphasis on the scope of independent examination bodies if **well-defined outcome requirements** are established in a clearly stipulated way. Competences formulated as outcome requirements need to respond to the demands of the labour market.

It is not possible to create detailed regulations that meet the interests of all economic sectors. Consequently, it is **necessary to define the regulation framework of the adult education system**, which provides flexibility to enforce sectoral aspects.

Looking at the composition of non formal education and training opportunities, it can be seen that some of them are highly regulated. These include foreign language education, driver licence trainings and other official trainings.

A significant part of learning outside the school system, which does not involve state subsidies, does not require regulation because the participant is the client who is responsible for selecting and evaluating the training (e.g. hobby training).

There are two segments in the adult education system that require stronger outcome regulation.

1. NQR trainings and other approved vocational trainings

In case of public school-based trainings it should be strengthened that, when evaluating the outcome, it can be established that the person obtaining the qualification is able to act as a professional and has the competences that employers expect. In case of vocational trainings organised in a non-state-funded system, it is justified that the examinations have to take place in independent examination centres due to the uniform assessment.

2. In case of **vocational courses that do not provide qualifications or attestations and on-the-job trainings**, the outcome regulation may be justified in case if the level of state funding reaches 50%. In these cases, the aim is also to operate a cost-effective and professionally founded control system.

Megnevezés	2011	2016
Vocational courses without a qualification	10,6	12,5
Conferences, seminars, courses	4,9	7,2
In-company, work related training courses	3,4	5,0
„Team-building” trainings	3,0	4,8
NQP (OKK) trainings	3,4	3,4
Awareness-raising courses	2,1	2,5
Language courses	2,4	2,5
Health-care thematic courses	1,9	2,0
Computer courses	1,2	1,6
Self-awareness courses	1,1	1,3
Private lessons	0,6	1,1
Trainings, courses related to sport and music	1,3	0,9
Other trainings	0,6	0,8
Trainings, courses related to other hobbies	1,3	0,8
Driver courses	0,4	0,8
Trainings regulated by public authorities	0,4	0,4
Participation in adult training outside the school system TOTAL	25,2	30,5

Figure53:
Adult education and training
(preliminary data) December 2018,
Source HCSO,

Related result indicator:

50 independent examination centres

39. INTERVENTION

Focusing on blended learning solutions in adult education and training combining the advantages of on the spot- and distance learning

The majority of adults nowadays take part in CVET while being employed, so it is important for training providers to take into account their life situation to provide flexible learning opportunities for them. The related most important individual life situations are time management and the connection among the place of residence, the workplace and the place of education.

One of the major opportunities for flexible learning is distance learning, however, the experiences of the recent period have shown that the dropout rate in purely distance learning is higher, with a lower share of students who are obtaining a qualification than in trainings requiring personal presence.

Blended learning, combining the advantages of place-based and distance learning might be a solution in adult education and training.

In Hungarian, blended learning is called “vegyesoktatás” (mixed education) or “kombinált tanulás” (combined learning). It is a form of teaching in which independent learning based on e-learning materials is supplemented with a personal presence and place-based sessions. On such occasions, consultations and mentoring take place. In case of vocational trainings, practical training can be organised in place-based sessions.

In a work environment, blended learning can be used in trainings that require a personal relationship between the trainer and colleagues.

In addition to the aforementioned positive aspects, an important factor is that the use of blended learning instead of traditional education can reduce training costs by up to 40-50%, and trainees learn more efficiently and have access to always up-to-date information more quickly.

Prior to the introduction of blended learning, tools to provide ongoing support were mandatory supplies of education. With the introduction of blended learning, these elements merge so we can easily access anything at any time.

Blended trainings have been successfully implemented in Hungary for many years, more than a thousand young people have passed the secondary school-leaving examination successfully in secondary grammar school education supporting the catch up of disadvantaged students.

The technical solution of the training form is that part of the application, learning, professional support and mid-year examinations take place in an IT framework.

A prerequisite for the introduction of blended learning in vocational education and training is the availability of e-learning materials and a closed-loop IT framework.



Figure 4: The website of the Digital Secondary School (DigitálisKözépiskola)

Related result indicator:

10,000 people participate in blended trainings

40. INTERVENTION

Tracking graduates through the Digital Labour Market Programme

A fundamental problem with the current VET and adult education system is that it is not able to measure effectiveness in an objective way. During the tracking of trainings, data collection usually refers to dropout rates, absences and the distribution of participants by education, age and gender.

During the evaluation of the efficiency of adult education and training providing vocational qualifications, the proportion of those successfully graduated and the results of the examinations or parts of the examinations are evaluated.

Practical experiences show that those who leave fully or largely state-funded vocational and adult education and training courses are unable or unwilling to enter the labour market in the expected proportions.

The real effectiveness and efficiency of the training can be examined on the basis that, in what proportion and extent can graduates who completed the training and acquired the necessary qualification find employment on the labour market.

One of the most significant issues for the managers, financiers and implementers of the education and training system is that not all information is available during the planning and launching of trainings. The databases are not connected, there is a lot of parallelism. Cooperation between organisations is largely bilateral.

The Digital Labour Market Programme (DLMP) is an IT system that follows the labour market pathway of those who obtained a qualification with public funding, building on existing digital data collection practices and records.

The DLMP also covers the tracking of those who obtained a qualification in school-based and adult education.

Data that can be extracted from the system, analyses that can be produced:

- Effectiveness of career orientation and upskilling campaigns.
- Employment data of those who obtained a qualification in adult education.
- Employment data of those who obtained a qualification in the school system.
- Data on the cost-effectiveness of the adult education system.
- Data on the preparation of state-supported adult education planned for the next period.

The system may also be suitable to make graduates available to employers looking for employees within the framework of the data management regulations.

The complex system can be extended to the entire vertical structure of the education and training system in the longer term, it can tackle the labour market pathway of those with a primary education or a secondary school-leaving certificate, and the results of higher education career tracking can also be integrated.

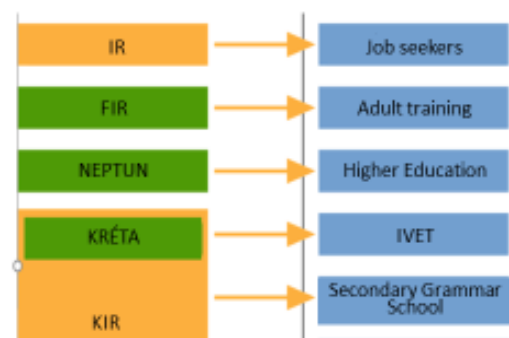


Figure 55: DLMP system data sources

Related result indicator:

Tracking the labour market pathway of graduates from 200 schools and adult education institutions

V. International aspects of VET development

During the development of the Hungarian VET it has to be taken into account the results of the planning processes of VET in the European Union and the commitments made by Hungary related to the implementation of the EU 2020 strategy. An example is the reduction of the share of early school leavers without qualification to 10%.

Bilateral economic and training collaborations that can contribute to the success of VET 4.0 should be taken into account during the development of the education system. This is reflected in the recognition of qualifications, the harmonization of training contents or the development of modern e-learning materials.

It is also a target fixed in the mission of the strategy to ensure that VET modernisation programme contributes to the improvement of the Hungarian people's competitiveness in the Carpathian Basin.

An important element of the international cooperation is the development of student and teacher mobility in VET.

1. European Union and global policy obligations, cooperation

The educational policy goals set within the framework of our membership in the European Union must also be achieved in terms of vocational and adult education and training: from the reduction of early school leaving to the transfer of high-quality professional skills.

Snapshot: Cooperation with the European Commission and the OECD in vocational and adult education and training is a task carried out partly at a level of commitments and partly for the benefit of domestic developments, of which peer learning is one of the most significant methods. In case of the European strategic targets, among the objectives set out in the Europe 2020 strategy the highest level commitment actually is to tackle the issue of early school leaving both at a pan-European and national level, and to reduce its proportion below 10%. Furthermore, the benchmarks set out in the Education and Training 2020 Strategy: participation of 15% of adults in education and training, as well as the country-specific recommendation under the European Semester: providing quality and inclusive education, specifying the inclusive education of Roma students, respective the medium-term deliverables for VET set out in the Riga Conclusions are also relevant (dissemination of dual VET; provision of flexibility; development of practical skills necessary for work; further training of teachers and instructors). The recommendations of the OECD in various strategic documents (e.g. the Economic Survey) should also be considered, which also focus on efficient skills development and the development of support tools for adult education and training; for example, an individual training card / account system to support adult learning.

Policy target system: All elements of the European target system must be fulfilled as a commitment and in consideration of the real interests of the Hungarian VET development, for which it is necessary to continue the current policy developments and during their implementation to use the European toolkits, such as grants, learning and reporting opportunities and obligations. EU funds are also available for cooperation projects with certain European countries, considered as good examples.

2. Bilateral cooperation

As part of the further development of cooperation with certain countries, the development of a flexible VET and knowledge export strategy that responds to specific needs, and as part of this, the development of a training and knowledge export supply.

Snapshot: Bilateral intergovernmental relations in the field of VET have become stronger and more intense with the Hungarian government's strategy of "Opening to the East" in 2011 and "Opening to the South" in 2015.

In addition to the enquiries through the Ministry of Foreign Affairs, following the strategic openings, the arrival of enquiries from various partner countries can also be considered unique, especially in the field of cooperations in VET. The focus of interests is the dual training, structural and management model of the NQR, and VET, the latter especially on the basis of the VET Centres which were reorganized in 2015. In accordance with the international conventions in public administration, these enquiries were laid down in the minutes taken by the Joint Economic Committees (Gazdasági Vegyes Bizottságok) respective in the form of so-called inter-ministerial Cooperation Agreements. Some VET Centres and some of their member institutions are already active in the field of international cooperation, mainly thanks to the European Union's Erasmus+ programme: mobility programmes in form of internships abroad, shorter study trips for teachers; sharing good practices, development programmes.

Policy target system: Based on bilateral needs, it is worthwhile to develop a flexible VET and knowledge export strategy that responds to specific needs, and as part of this, to develop a training and knowledge export supply, an essential element of which is an appropriate scholarship system. The aim is to streamline the started processes and transform them into a uniform activity implementing knowledge export. The steps of implementation are needs assessment, mapping of training capacities, development and implementation of trainings and other (policy) knowledge export, respective monitoring.

3. VET development in the Carpathian Basin

Supporting vocational education and training of the Hungarian population in the Carpathian Basin in order that economic and labour market cooperation to be realised uniformly in the region.

Snapshot: VET Centres are already actively supporting schools in Hungarian-inhabited areas abroad. They regularly implement programmes on various topics, with various targeted, mainly domestic support, in cooperation with cross-border institutions, receive students from these institutions and provide them with asset-type support. Non-repayable grants are available within the framework of the "Without Borders 2017!" (Határtalanul 2017!) call for proposals announced by the Ministry of Human Capacities. The aim of the programme is to establish a connection with Hungarians living abroad in the Hungarian-inhabited areas, to deepen the Hungarian cohesion in children living in the Carpathian Basin. With regard to career guidance events, several institutions from Hungarian-inhabited areas outside Hungary joined the "Night of Professions" series of career guidance events held in the spring, including secondary vocational schools in Košice, Dunajska Streda (Slovakia), Baia Mare, Miercurea Ciuc (Romania), and Bečej (Serbia).

Policy target system: Connecting to the European Commission's Communication on the creation of a single European Education Area published on 14th, November 2017, the proposal for the single European Education Area by 2025 is in line with the target system of the single Hungarian Education Area. In connection with this objectives were formulated in support of the future of Hungarian education by developing a VET and adult education system that can meet the challenges of job creation, economic growth and social justice even in the period of the Fourth Economic and Industrial Revolution. The aim is to support the development of vocational and general skills of Hungarian communities living abroad in a way that meets the growing competition in Europe and the world, thus exploiting the unused reserves of Hungarian creativity and talent, and supporting the economic, labour market and educational cooperation between Hungary and Hungarians living abroad.

4. Mobility of Hungarian students

Supporting the mobility of Hungarian students studying in VET in such a way that the skills acquired abroad to be utilised primarily in Hungary, taking advantage of the international academic and professional connections in the future as well.

Snapshot: The legal relationship of a compulsory school age student who is permanently residing abroad is governed by the Act CXC on National Public Education and its amendments, which has been in force since 29th, November 2011. Recognition of qualifications obtained abroad is carried out by the Hungarian Equivalence and Information Centre (Magyar Ekvivalencia é SInformációs Központ) operating within the framework of the Educational Authority (Oktatási Hivatal). Pursuant to the amendment to the Public Education Act effective from 1 January 2017, Hungarian citizens can also fulfil their compulsory education abroad without a permit. With regard to VET, in case of an internship abroad, the mutual agreement of the student, the school and the internship provider, or at least the consent of the internship provider is required. There is no legal regulation for this. The way, steps, method and professional conditions of recognising the experience gained during the internship are developed jointly by the stakeholders (the school and the internship organiser). EUR 6 million was available in 2017 under the Erasmus+ full-time, school-based vocational VET mobility call. The internships of 2,983 students were supported, as well as the professional study visits of 562 teachers and 392 accompanying teachers, thus the programme provided support the mobility of 3,937 people.

Policy target system: Increasing the mobility of Hungarian VET students is an objective in the sense to achieve that students return home and use the VET skills acquired abroad in Hungary. This can be done through the Erasmus Pro programme type, which has already started as a pilot and will be “ramped-up” in the near future (with a higher grant amount), with a specific focus on the dual form of vocational training. Additional domestic resources should also be considered for similar mobility purposes.

1. VET Stipendium Hungaricum / scholarship system for foreign students

The development and operation of a scholarship system for foreign students to be involved in Hungarian VET, following the model of the system operating in higher education, the aim of which is to enable students of Hungary’s partner countries to acquire vocational skills in Hungarian VET, and to support workforce mobility through global economic cooperation.

Snapshot: Currently, there is a real example of foreign students' participation in Hungarian VET, based on the Erasmus+ Programme operated by the Tempus Public Foundation (Tempus Közalapítvány). The duration of VET mobility programmes is usually short (only a few weeks), and does not cover the obtainment of a full vocational qualification. The latest European-funded Erasmus Pro type of calls specifically supporting longer-term mobility in the form of dual vocational training calls was tested in a pilot phase. The experiences of the pilot programme show that even students from Western Europe, studying in Hungarian VET, experience high added value in it.

Policy target system: Its aim is to provide an opportunity for foreign students to acquire a technician level vocational qualification. Among the age characteristics, the technician level training after a successful secondary school-leaving examination is important because long-term mobility is problematic and risky at an earlier, younger stage of life, while being a minor. An important aspect in the development of the scholarship system is to increase the capacity of the hosting VET institutions towards technician-level vocational training that may be taught in a foreign language, as well as, of course, the provision of the entire legislative background, the funding and a professional quality assurance system.

VI. Matching the VET 4.0 strategy with the VET policy concepts, strategies and proposals

VI.1 Matching the VET 4.0 strategy with the relevant VET policy objectives and support system of the European Union

Connecting to the objectives of the Europe 2020 strategy

It is important for all Member States of the European Union to adapt their education and training systems to the labour market needs. In addition to the continuous modernisation of VET, the development of lifelong learning is also a priority area. The goal set at the EU level is to improve the quality of teacher training, to promote innovation and digital competences, to develop language competences, and to reduce the share of early school leavers. The European Union has integrated these objectives into a comprehensive strategy.

The Europe 2020 strategy is the EU's strategy for employment and growth for the decade 2010-2020. The strategy emphasises smart, sustainable and inclusive growth, as it addresses the structural weaknesses of the European economy, increases competitiveness and productivity, and lays the foundation for a sustainable social market economy.

A) Objectives of the European Union

- Employment
 - 75% of the population aged 20-64 year to be employed
- Research and development (R&D)
 - 3% of the European Union's GDP to be invested in the R&D sector
- Combating climate change and sustainable energy management
 - greenhouse gas emissions to be reduced by 20%
 - share of renewable energy sources to be increased to 20%
 - energy efficiency to be improved by 20%
- Education
 - share of early school leavers to be reduced under 10%
 - at least 40% of EU citizens of 30 to 34 years old to have completed a tertiary education
- Fight against poverty and social exclusion
 - at least 20 million people fewer at or real risk of poverty or social exclusion.

B) Implementation of the strategy

The Europe 2020 strategy provides a **reference framework** for action at EU, national and regional levels. Member State governments have set national targets to help meet the overall EU targets, and report in their annual national reform programmes on the results in achieving the national targets. For more details see national targets and reports.

C) Monitoring implementation

The EU's statistical office, Eurostat, regularly publishes comprehensive reports on the progress made in implementing the strategy. During 2014 and 2015, the Commission undertook a mid-term review of the Europe 2020 strategy.

The review also included a public consultation, which concluded that stakeholders continue to see the strategy as an appropriate framework for boosting employment and growth. Following the review, the Commission decided to continue implementing the strategy.

In the period up to 2020, the primary objective of European cooperation shall be to support the further development of education and training systems in the Member States, with objectives as follows:

- For the period up to 2020, European cooperation must be developed within a strategic framework that covers education and training systems as a whole, using a lifelong learning approach.
- Lifelong learning should be seen as the underlying principle of the framework as a whole, covering all levels of the learning framework, formal, non-formal and informal, and from early childhood and basic education to higher education, vocational education and training, and adult learning.

Connecting to the Education 2020 strategy

The European Union tackles the competence development primarily in the field of education. The Education 2020 framework has four strategic objectives:

A) Make lifelong learning and mobility a reality, and developing education and training systems that are more responsive to changes and more open to the wider world.

Tackling demographic changes and the regular need to update and develop competences in line with changing economic and social circumstances is a major challenge. This reinforces the lifelong approach to learning and calls for the development of education and training systems that are more responsive to changes and more open to the wider world.

B) Improving the quality and efficiency of education and training by raising the level of basic skills (literacy and numeracy), making mathematics, science and technology more attractive and to strengthening language competences.

Efficient, yet equitable high quality education and training systems are crucial for the success of the national economy and for enhancing employability. Greater attention needs to be paid to raising the level of basic skills (literacy and numeracy), making mathematics, science and technology more attractive and strengthening language competences.

C) Promoting equity, social cohesion and active citizenship in order to enable all citizens to develop their professional skills over a lifetime, irrespective of their personal, social or economic circumstances.

Education and training policies, irrespective of personal, social or economic circumstances, should enable all citizens to acquire, update and develop their job-specific skills over a lifetime, as well as the key competences needed for employability, further learning, active citizenship and intercultural dialogue. Education has the task of promoting intercultural competences, democratic values and respect for fundamental rights and the environment.

D) Enhancing innovation and creativity at all levels of education and training, as these are the main drivers of sustainable economic development. In particular, the development of citizens' digital competences and the development of a proactive attitude, entrepreneurship and cultural awareness need to be promoted.

The aim is for everyone to be able to acquire **key competences** such as **digital competences, learning to learn, a sense of initiative and entrepreneurship** and cultural awareness. Through partnerships between the business's world and different levels and sectors of education, training and research, education and training can better focus on the **skills and competences needed in the labour market** and fostering innovation and entrepreneurship in all forms of learning.

The rules for the use of the European Union funds are regulated by Regulation 1303/2013 of the European Parliament and of the Council. Within this framework, the Hungarian Government has prepared a Partnership Agreement (PA) for the period 2014-2020, which sets out the main goals, strategies and national development priorities of the developments. The overall objective of the Partnership Agreement is to increase sustainable growth and high value-added production and employment, for which the government has identified five national priorities:

1. Improving the competitiveness of economic stakeholders and increasing their international involvement
2. Increasing employment through economic growth and social cohesion
3. Increasing energy and resource efficiency
4. Addressing the challenges of social cohesion and population
5. Implementing local and regional developments that support economic growth

In the field of vocational and adult education, the projects launched with the support of the European Union provide the basis for the implementation of VET 4.0 and provide a good basis for the planning of the programmes to be implemented in 2021-2027.

Projects launched in the field of vocational and adult education:

Call ID	Call description
EDIOP-6.1.1-15	Training of the low-skilled and public workers
EDIOP-6.1.2-15 CCHOP-8.5.4-17	Reducing the digital gap
EDIOP-6.1.3-16 CCHOP-8.5.1-17	Development of foreign language skills
EDIOP-6.1.4-16	Developing labour market competences in convergence regions
EDIOP-6.1.5-16 CCHOP-8.5.2-17	On-the-job training support for employees of large enterprises
EDIOP-6.1.6-16 CCHOP-8.5.3-17	On-the-job training support for employees of micro, small and medium-sized enterprises
EDIOP-6.1.7-CCHOP	On-the-job training support, job-specific support programme for trainings launched for employees of micro, small, medium-sized and large enterprises
EDIOP-6.1.8-17	Development and operation of the Company Training Centres system
EDIOP-6.1.9-18	Establishment of a Sectoral Training Centre in the transport sector
EDIOP-6.1.10-18	Establishment of an INDUSTRY 4.0 Sectoral Training Centre
EDIOP-6.2.1-CCHOP-15	Participation in the OECD Programme for the International Assessment of Adult Competencies (PIAAC)
EDIOP-6.2.2-CCHOP-15	Reducing the number of people leaving VET without a qualification
EDIOP-6.2.3-16 CCHOP-8.6.3-16	Comprehensive development of the system of VET institutions
EDIOP-6.2.4-CCHOP-16	Improving the quality and content of 21st century VET and adult education
EDIOP-6.2.5-CCHOP/18	Digital transition of adult- and vocational education and training management system

VI.2 Matching the VET 4.0 strategy to the “Conditions for sustainable growth - Theses for a new economic policy strategy” concept of the Hungarian Chamber of Commerce and Industry

The Hungarian Chamber of Commerce and Industry (HCCI) published its theses related to the new economic policy strategy in May 2018.

The VET 4.0 strategy matches the theses formulated in the “Circumstances for Sustainable Growth” document of the HCCI well. Further cooperation is strengthened by the fact that the also participates in the work of the VET Innovation Council (SZIT).

According to the HCCI, **the key areas in the development and future of the economy are:**

- small and medium-sized enterprises
- the state as the shaper of the economic environment
- digitalisation and its relating parts already within walls
- certain segments of VET

Correspondence: The VET 4.0 strategy increasingly focuses on the areas of VET and adult education but also covers the other three points in detail.

According to the HCCI, the new era is characterized by:

- **the development of Industry 4.0 and Agriculture 2.0**
- a fierce competition for quality workforce (global labour market)
- therefore, an adequate quantity and quality of workforce and capital is required

Correspondence: The VET strategy considers all these to be so important that the paper has been named “VET 4.0”. As highlighted, the goal is "A VET system capable of responding in its structure and content."

The HCCI emphasises the macro-level interest **of companies with higher value-added products and services to have access to workforce so that it can flow towards higher productivity areas.**

Correspondance: This is one of the basic philosophies of the VET 4.0 strategy. As the paper points out, there is a need for a VET system "that encourages Hungarian enterprises to support R&D and company innovation, and to become involved in international production chains at the highest possible level."

Among its theses the HCCI states that digitalisation has become a fundamental factor of competitiveness in all subsystems of the economy and society. Hungary’s goal is to be one of the ten most developed states in the European Union in digital development by 2030.

Correspondence: In this context, VET 4.0 prioritises the integration of digital contents into VET and adult education and training at all levels.

Related to the management of workforce shortage and wage competition, the MKIK emphasises that VET, higher education and adult education must be made demand-driven, taking into account the needs of the economy.

Correspondance: The creation of demand-driven VET instead of the current supply-driven one is also a priority in the VET 4.0.

Matching the VET 4.0 strategy to the “Progress in Education 2018-2022” document of the Hungarian Chamber of Commerce and Industry

The paper of HCCI prepared in April 2018 deals **specifically with education**.

The VET 4.0 strategy matches well with this too. In the VET 4.0 strategy, all the points formulated by the HCCI appear, though in a slightly different structure.

All points and interventions of the VET 4.0 strategy are in line with the document released by the HCCI entitled “Progress in Education 2018-2022”:

9 proposals of the HCCI:

Correspondance with VET 4.0

Systemic transformation, change of attitude



Attractive VET, competitive career prospects



Demand-oriented education and training supply, available digitalisation



Strengthening dual training: "Learn from work!"



Quality output, objective examination system



Relationship with higher education



Committed decision-makers, targeted sectoral regulation



Value-adding student training



Building a VET “brand”



9 proposals from the HCCI:

Correspondance with VET 4.0

vi.3 **Matching the VET 4.0 strategy to the concept of the National Bank of Hungary (NBH): 180 steps for the sustainable convergence of the Hungarian economy**

The central concept of the National Bank of Hungary is "**sustainable convergence**".

VET 4.0 helps it in several dimensions, mainly the economic convergence and social inclusion.

According to the NBH's paper, the extensive growth trajectory of the Hungarian economy requires, among other things, an **increase in employment** and a **flexible labour market**.

As well as an intensive growth trajectory requires, among other things, the **increase of productivity** and the **improvement of competitiveness**.

In the vision set out in the VET 4.0 strategy enhancing employability is a priority but so are the other goals mentioned: "To provide all Hungarian citizens of working age with at least one vocational qualification based on the needs of the economy, providing employment in the labour market and modern skills."

The points and interventions of the VET 4.0 strategy match in several places with the paper of the NBH: 180 steps for the sustainable convergence of the Hungarian economy.

Related proposals of the NBH:

- The education and training system should effectively reduce differences resulting from the students' social and economic backgrounds ✓
- Early school leaving should be lower than the V3 average ✓
- At least an upper intermediate level (B2) English language exam by the end of the upper secondary school education ✓
- All students should have user-level digital skills ✓
- Linking data stored in databases ✓
- Providing regular further trainings for teachers (including teaching materials and methodology) ✓
- Introduction of competency-based upper secondary school admission tests ✓
- Strengthening dual training ✓
- Support of extracurricular foreign language courses, preparation workshops for language exams ✓
- Development of e-learning materials, providing 21st century ICT tools ✓

VI.4 Incorporation of the VET Innovation Council's work into the VET 4.0 strategy

The VET Innovation Council (VIC) was established on 7 September 2018. The primary goal of its creation is to support the further development of the Hungarian VET system by involving a wide range of stakeholders. The VIC is a national body that assists the performance of the VET and adult education relating duties of the Minister responsible of VET and adult education, prepares professional decisions, gives advices and makes recommendations. In connection with its advisory role, the Council, in cooperation with interest representation organisations, formulates proposals for decision-makers to transform VET system into a demand-driven one.

The VIC consists of 38 members, including representatives of government bodies, educational organisations, maintainers, representatives of chambers, associations, trade unions, interest representation organisations, representatives of large enterprises, representatives of the Hungarian Academy of Sciences, students, representatives of the Roma minority affairs. (See the annex for a detailed list.)

The Council's work is assisted by working groups on key issues. During the consultations of the working groups, the participants discuss the challenges and possible answers of a certain area, which can be taken into account by the VIC as a proposal in the well-founded preparation of the relevant legislation.

The 4 topics formulated by the VET Innovation Council in the first round in September 2018 (and the incorporation of the proposals of the related working groups into the VET 4strategy):

1. Development of a training system that responds efficiently to the challenges of Industry 4.0, a demand-driven dual model
2. A system of education and training institutions operating within a professional organisational framework
3. Vocational education and training providing an attractive career
4. VET, adult education and on the job company education and training that offers flexible learning opportunities for adults

On the session of the VIC held on 9th November 2018, in addition to the reports of the working group leaders, the issue of the chancellery system was also emphasised. Taking into account this, new working groups have been set up in six priority areas:

1. Institutional management system
2. Reducing early school leaving without qualification in the VET system
3. Further development of the Hungarian dual training
4. Outcome regulation and career tracking in adult education
5. Recommendations of Sector Skills Councils in VET and adult education
6. Career models in VET

These proposals have also been incorporated into the VET 4.0 strategy.

**Appearance of the VET Innovation Council's proposals
in the VET 4.0 strategy, their matching:**

I. An education and training system that responds efficiently to the challenges of Industry 4.0

- Renewal of the National Qualifications Register
- All vocational education and training programmes should include the digital content expected in a particular vocational occupation

II. Development of a real, demand-driven dual model in the education and training system

- Dual training starting with an apprenticeship contract concluded with economic operators
- Further increase of the share of students in dual training by strengthening the involvement of large enterprises with an educational base
- Establishment of a Sectoral Training Centre, development of active relations of VET Centres with enterprises and strengthening the role of SMEs in practical training
- Establishment of modern training workshops providing a broad basis for vocational practice.
- Increased involvement of company professionals in vocational training and their pedagogical-methodological preparation
- Further development of digital competences of vocational teachers and practical instructors teaching in schools and their training at company placements
- Development of a motivational programme for vocational teachers working in VET institutions
- “+” The importance of competences in VET to be highlighted

III. Vocational education and training providing an attractive career

- Conclusion of 3-year vocational education and training agreements that take into account local needs instead of the quota regulation of qualifications
- Integration of the research and innovation contents of the different economic sectors into the education and training, harmonisation of elementary and upper secondary, higher and adult education and training levels
- Creation of an attractive, up-to-date equipped school environment: Launch of the “21st century VET institutions” renovation programme
- Increasing the number of students entering secondary vocational grammar schools
- Increasing the number of participants in school-based VET
- “+” Communication, marketing

**IV. Adult education and training that offers flexible learning opportunities for adults
– an innovative adult training system that provides flexible, high quality adult training programmes**

- Making the school-based adult education system more flexible and efficient
- “+” Particular attention to the development of competences in adult education

V. A system of education and training institutions operating within a professional organisational framework

- Development of a teaching career and assessment system tailored to the special circumstances of VET
- Development of IT based school administration
- Internationalisation of the VET system

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