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European Training Foundation

POLICIES FOR HUMAN CAPITAL DEVELOPMENT

BELARUS

AN ETF **TORINO PROCESS** ASSESSMENT

THE EU AGENCY SUPPORTING COUNTRIES TO DEVELOP THROUGH LEARNING

Disclaimer

The report was prepared in the framework of the Torino Process 2018-20 by Pirita Vuorinen, ETF.

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PREAMBLE

The European Training Foundation (ETF) assessment provides an external, forward-looking analysis of the country's human capital development issues and VET policy responses in a lifelong learning perspective. It identifies challenges related to education and training policy and practice that hinder the development and use of human capital. It takes stock of these challenges and puts forward recommendations on possible solutions to address them.

These assessments are a key deliverable of the Torino Process, an initiative launched by the ETF in 2010 aimed at providing a periodic review of vocational education and training (VET) systems in the wider context of human capital development and inclusive economic growth. In providing a high-quality assessment of VET policy from a lifelong learning perspective, the process builds on four key principles: ownership, participation, holistic and evidence-based analysis.

For ETF, human capital development is the provision of support to countries for the creation of lifelong learning systems that provide opportunities and incentives for people to develop their skills, competences, knowledge and attitudes throughout their lives for the sake of employment and realisation of their potential, and as a contribution to prosperous, innovative and inclusive societies.

The purpose of the assessments is to provide a reliable source of information for planning and monitoring national education and training policies for human capital development, as well as for programming and policy dialogue in support of these policies by the European Union and other donors.

The ETF assessments rely on evidence from the countries collected through a standardised reporting template (national reporting framework – NRF) through a participatory process involving a wide variety of actors with a high degree of ownership by the country. The findings and recommendations of the ETF assessment have been shared and discussed with national authorities and beneficiaries.

The assessment report starts with a brief description of Belarus strategic plans and national policy priorities (Chapter 1). It then presents an overview of issues related to the development and use of human capital in the country (Chapter 2), before moving on to an in-depth discussion of problems in this area, which in the view of the ETF require immediate attention (Chapter 3). Chapter 4 provides the overall conclusions of the analysis.

The annexes provide additional information: a summary of the recommendations in the report (Annex 1), an overview of the education and training system of Belarus (Annex 2).

A summary of the National Torino Process Report in English and Russian compiled by the country can be found at : https://openspace.etf.europa.eu/sites/default/files/2020-01/TRPreport_2019_Belarus_EN_Summary.pdf as well as the complete National Torino process report : https://openspace.etf.europa.eu/trp/torino-process-2018-2020-belarus-national-report

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Context

The European Training Foundation (ETF) assessment provides an external, forward-looking analysis of the country's human capital development issues and VET policy responses in a lifelong learning perspective. It is based on evidence provided in Belarus' National Torino Process Report compiled in 2019 using a standardised questionnaire (National Reporting Framework – NRF) and additional information sources, where relevant.

This report comes at an important time in the development of the country. There is increasing evidence that some of the factors contributing to Belarus's remarkable growth record pre 2008 are no longer present, and that the potential growth is substantially lower than had previously been observed (WB, 2018). In spite of several years of strong growth and significant strides in reducing poverty, Belarus's combined debt (domestic and foreign) has increased to the highest in the history of the country. According to World Bank (June 2019), the need for structural economic reforms is now urgent to avoid economic instability.

Given the dominant position of state-owned companies in the economy, their performance has a determining effect on the country's economic growth. While heavy government interventions in the economy have helped Belarus avoid the social costs associated with economic restructuring, these policies have distorted the allocation of labour and resources, and have severely eroded the competitiveness of Belarus.

Recently, Belarus has launched ambitious programs to increase the competitiveness of the national economy in the domestic and international markets. Particular attention is paid to innovative high-tech sectors, such as IT, bio- and nanotechnology, robotics, energy-saving technologies, etc. At the same time, further innovative development of traditional industries and state-owned companies is required.

Successful implementation of such ambitious programs depends largely on the ability on the availability of skilled human resources and their adaptability. As a result, human capital development, is at the top of the government's policy agenda.

Summary of findings on human capital

Private sector is struggling to grow

In 2018 micro and SME employment in Belarus stood at 1.49 million employees or 56.1% (2019a) of total employed population - a significant increase from 2000 when the share was 42.4%. The private sector share of employment reached a peak in 2014 (63.2% of employment) and has been declining since. Despite targeted structural reforms in recent years, while the number of micro enterprises in Belarus has been growing, the overall number of micro and SMEs declined by 4% between 2012 and 2018. The problem is that while government's measures have been effective in increasing the number of micro-enterprises, the number of medium sized is declining – and the company size is shrinking. The decrease in medium-sized enterprises and their share in employment is a similar trend to that of EU member states and Eastern Partnership region and underscores the importance of supporting SMEs in moving to higher value added activities.

Working age population is shrinking

One in five citizens in Belarus is retired and the number of working age population is declining. The current pension reform is insufficient in addressing the demographic decline. As the workforce ages, education and training systems must respond. With limited opportunities to replenish the labour force, education and training policies are at the forefront of improving the adaptability and employment mobility of an ageing workforce. It needs to respond to the needs of the economy and that of learners, including the elderly (aged 65+), with skills important for active citizenship and continued personal development (e.g. digitalisation of public services). In addition, longer careers due to pension reform, a more dynamic labour market and the impact of technological changes on jobs (e.g. automation) are changing skills needs of an ageing workforce at an unprecedented speed. Fostering a culture of lifelong learning with an adaptable workforce is better able to adapt to economic shock.

Skills shortages and gaps

In 2019, the biggest labour shortages in the history of the country have hit Belarus. Skills gaps, qualitative skills mismatches, are growing in certain sectors. Despite an abundance of university graduates, in particular companies in the private sector are reporting skill shortages. The accessibility of higher education and an overall negative image of vocational education that prevails have increased the influx of graduates from higher education institutions, which has not been matched by increased availability of graduate level jobs, forcing many young people to work in roles for which they are highly overqualified (ETF, 2019). In 2017, for the first time, the number of registered unemployed with higher education surpassed that of specialised secondary education (secondary non tertiary). Widening of the disconnect between labour market skills needs and demand could threaten economic growth – in particular in a catalytic sector such as the ICT, a priority for the government.

Skills deficiencies are tying SMEs to low value added activities

In Belarus, many SMEs remain tied in low valued-added sectors. According to national statistical offices, the contribution of SMEs to value added in Belarus is modest compared to other countries in the region. At the same time, Belarus is the most export-oriented country in the eastern partnership region.

Unpacking the value added at sector level, the service sector, dominated by micro (85%[1]) and SMEs (75%[2]), grew by 3.5%[3] between 2007 and 2018. During the same period, manufacturing, dominated by state-owned companies, saw its value added decline by 3.4%, while industry declined by 3.2% and agriculture by 1.9%[4]. However, the few SMEs in the manufacturing sector generally make up one of the most dynamic areas in the high-tech sector: from information and communication technology, to biomedical and materials technology.

The problem is that although SMEs have become a major part of the economy in Belarus, this change is not reflected in skills needs analysis to identify needs and relevant education and training to boost SMEs growth by helping them move to value added activities. As a result, SMEs are often held back

[1] UNDP, Project Document "Support to Economic Development at the Local Level in the Republic of Belarus", 2018
[2] UNDP, Project Document "Support to Economic Development at the Local Level in the Republic of Belarus", 2018
[3] World Bank Open Data
[4] World Bank Open Data

by skills shortages which eventually results in a loss of value added – and threaten growth prospects in particular in the knowledge intensive areas of the economy.

Regional competitiveness is lagging despite human capital endowments

Belarus has until recently enjoyed a relatively even growth across regions. This is largely due to the state support to state-owned companies spread across the regions. However, the issue is that today, despite similar levels of human capital, the gross regional product at sub-national level is significantly lagging behind the capital Minsk. A recent assessment (IPM, 2018) on regional competitiveness in Belarus indicates significant differences in the level of competitiveness between Minsk and the regions. Important determinants of the gap in competitiveness between the capital and the regions are in business development and education.

Between 2012 and 2018 the number of individual entrepreneurs grew by 3.6% (from 232,851 in 2012 to 241,300 in 2018). However, at the regional level, the number of individual entrepreneurs declined in all regions – with the exception of Minsk region that benefited from the proximity of the capital. This is cause for concern because entrepreneurship is generally a strong driver of regional and eventually national economic growth. Often young SMEs are more innovative, implying that an increase in start-ups will probably lead to a more innovative business population, therefore enhancing regional competitiveness (Noteboom and Stam, 2008). The impact of industry and occupational concentration of ICT workers in the capital could hamper governments' efforts to reduce interregional differences – in particular for those entrepreneurs that rely on similar specialised occupations to move or to expand into digital and high-value added activities.

Industries demand that VET respond to the new quality efficiency and equity requirements

The interrelated socio-economic challenges of globalisation, demography, rapid change in the nature of the labour market, and technology-driven ICT revolution represent a challenge in providing quality education for all. The drive of the Belarusian government to diversify and modernise the economy necessitates new skills and competences – and challenges the traditional way of learning.

The structure and content of occupations is changing. New industries and traditional sectors alike are affected by innovations and technological development. Industries demand that vocational education and training prepares competitive workers with modern skills that meet the requirements of high-tech and knowledge-intensive industries. This puts the flexibility of Belarus' VET system to a test. It needs to monitor and predict future skills, develop lifelong learning, improve the quality of retraining and advanced training services. Labour market entrants with the lowest levels of educational achievement and people with low skills are at an increasing risk of unemployment and social exclusion.

Recommendations for action

The ETF assessment sets out nine recommendations for improvements in formal and non-formal schooling/training and adult education that can help address the three key human capital challenges discussed in the report: (i) skills deficiencies are tying SMEs to low value added activities, (ii) regional competitiveness is lagging despite human capital endowments, (iii) industries demand that VET responds to the new quality efficiency and equity requirements

Addressing skills deficiencies that are tying SME's to low value added sectors

Adapt skill intelligence and workforce planning to reflect the diversity of employers

The Ministry of Economy should take the lead in strengthening data collection for evidence-based planning, monitoring and evaluation (e.g. under the new Agency for SME Support). This could also serve as a means to establish a co-ordination mechanism for SME support organisations. The Ministry of Labour and Social Protection could develop and use big data tools which offer opportunities for real-time labour market analysis of the demand side to strengthen skills anticipation.

Provide targeted trainings to SME managers and entrepreneurs

The new Agency for SME Support offer an opportunity to bring all SME training under one roof. The Agency could monitor the productivity and ability of SMEs to permanently adapt to changing environments and market conditions and provide tailored training programs that target managers and entrepreneurs.

Make use of new learning opportunities offered to SMEs through actions related to smart specialisation

SME networks and collaboration, both nationally and internationally, need targeted support to facilitate their integration into global value chains. Belarus could strategically improve access to high-quality training on internationalisation (import and export) and global value chains in priority areas for growth and competitiveness building on the mapping of economic potential conducted as the starting point in designing regional smart specialisation strategies.

Addressing regional competitiveness which is lagging despite human capital endowments

Bring entrepreneurial learning under one common policy home

There are several policy documents that contain provisions for supporting interaction between the education system and the business sector for the purpose of entrepreneurship training. Belarus should bring entrepreneurial learning under one policy home for all levels of education and training, for example, by building on the existing Council for Entrepreneurship Development

Integration of entrepreneurship key competence approach into pre and in-service teacher training is needed to ensure teachers ability to develop their students' entrepreneurship key competences

Defining learning outcomes of entrepreneurship is needed at all levels of education to effectively address entrepreneurship key competence in teaching, learning and assessment processes.

The authorities should define entrepreneurship key competences in teaching materials and learning outcomes to ensure teachers ability to develop their students' entrepreneurship key competences.

Integration of entrepreneurship key competence approach into pre and in-service teacher training is needed to ensure teachers ability to develop their students' entrepreneurial learning key competences.

Establish formal career guidance to provide more targeted and systematic support to students with entrepreneurial aspirations.

Provide targeted support to regional entrepreneurial ecosystems in competitive areas of economic activity

The current efforts in student mini companies are unlikely to result in a significant number of start-ups. A much more significant potential are spin-offs, from state-owned companies or clusters such as the Hi-Tech Park where geographic proximity creates the conditions for learning. Additional analysis would be needed to identify what those sub-sectors of the economy would be in each region (e.g. smart specialisation mapping) to identify such areas of economic activity and companies at regional level and to provide targeted support in areas where the region has a competitive advantage.

Addressing the demand of industries for VET to respond to the new quality efficiency and equity requirements

Make use of resource centres to improve VET quality, efficiency and equity

Regional resource centres lay the ground for establishing Centres of Excellence in the regions instead of equipping modest and small-scale laboratories and resource centres in every vocational school. The centres could play a role in advancing vocational excellence, both by deepening and extending their relationship with employers (small-scale partnerships to strengthen the participation of small companies) and by cooperating and coordinating with other skills providers – other schools, companies, universities, research organisations, specialist development agencies and others to boost VET quality and effectiveness at regional level for a more equitable VET.

Modernise teacher training (ETF, 2020b)

Modernisation of education and training of VET professionals incl. managers, teachers and trainers is key for responding to industries need. VET teacher education and requirements would need to be revisited where the focus on VET teacher education should be on teachers' professional competence and practical work experience and perhaps less on pedagogical aspects. Moreover, Belarus could slowly move from the separation differentiation between practical and theoretical teaching where theory teachers have a higher status and pay.

Restructuring and optimisation of VET provider networks at Oblast level

Enhance relevance of VET by optimising the VET provider network. Most of the providers are now relatively small in size and there are overlaps in provision, resource constraints etc. which could be overcome with a well thought and rational restructuring of VET school networks. This would need to be accompanied by capacity building in change management and redesigning organisational and management structures as well as funding schemes. This could also prepare a ground for establishing Centres of Excellence at regional level.

1. INTRODUCTION

1.1 About this assessment

This ETF assessment offers an analysis of evidence provided in the national Torino Process report of Belarus (RIPO 2019), which was compiled by the TRP national coordinator and endorsed by the national stakeholders, following a standard analytical framework. The evidence collection included for the first time focus groups discussions in selected regions. The assessment summarises the main challenges with the development and use of human capital in the country and discusses how education, in particular VET, and labour market policies can contribute to their resolution.

This ETF assessment comes at an important point as the country prepares for the next Eastern Partnership multiannual programme. Launched in 2009 as a joint policy initiative, Eastern Partnership aims to deepen and strengthen relations between the European Union (EU), its Member States and its six Eastern neighbours: Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova and Ukraine. In May 2020, all six Eastern Partnership countries and the EU will launch the third phase of the initiative and agree on the new ambitious work plan, revising the 20 Deliverables for 2020. It will aim at bringing tangible benefits to the lives of citizens across the region. In this context, cooperation between the European Union and its six Eastern partner countries will focus on working towards stronger economies, stronger governance, stronger connectivity and stronger societies.

In the country context the timing of the assessment is important and means it can be used to inform the new 5-year development plan (2021-2025). In addition, the assessment will inform the new EU programming and, more precisely, the support to regional investment and competitiveness and to VET and employment.

The assessment process included an extensive phase of desk research based on responses to a standardised questionnaire, the National Reporting Framework (NRF), and the preparation of an issues paper with an overview of themes to be discussed in the present report, which were then finalised in consultation with the ETF country and thematic team responsible for Belarus. A presentation of issues and opportunities was discussed at a consultation meeting held at RIPO in December 2019 to verify the findings and recommendations.

Like other ETF assessments, this paper is not meant to be exhaustive. The national report covers a broad selection of issues around human capital development and use, while the focus here is on challenges which the ETF recommends addressing as a matter of priority.

1.2 Country overview

Belarus is a landlocked upper-middle income economy with a GDP per capita of USD 5.757 (USD 18,891 in PPP terms) (IMF, 2017) and is bordered in the northeast and east by the Russian Federation, in the southeast and south by Ukraine, in the southwest by Poland and in the northwest by Lithuania and Latvia. The population is just under 9.5 million inhabitants (Belstat, 2019) with a high (78.4%) urbanisation level (Belstat, 2019) with similar urbanisation rates at regional level. The capital Minsk, home to a fifth of the population, continues to benefit from internal migration from all regions.

Belarus has maintained many features of a centrally planned economy, with the government wielding significant control over the factors of production and the decisions of economic agents at national and

regional levels. The economy of Belarus is highly industrialised and largely dependent on the import of energy and raw materials.

Belarus experienced a period of relatively strong GDP growth which ended with the financial crisis of 2008. According to the International Monetary Fund (IMF, 2019), economic recovery started in 2017 but the medium-term outlook is subdued absent vigorous structural reforms (medium-term growth is projected at 2%, limiting convergence towards the income levels of richer neighbouring countries) (IMF, 2019). Weak growth, increasing expenditures (including wages and salaries) and falling revenues have paved the way for a wider budget deficit in 2019 (from 1.3% of GDP in 2018, and 0.3% in 2017). Public debt is rising rapidly and expected to stabilise at around 56% of GDP in 2020.

According to the United Nations World Population Prospects 2019 (UN, 2019), the population of Belarus is projected to continue to decrease for the years to come. According to the National Statistical Committee of the Republic of Belarus (Belstat), in spite of 10 years (2006-2016) of slightly higher birth rates, birth rates began declining again in 2017. Since 2000, the population of Belarus has declined by 527.3 thousand or by 5.27%. The share of working age population has been increasing slightly since the launch of a pension reform in 2017.

According to Belstat, the activity rate in Belarus is high and increased from 81.4% in 2010 to 87.1% in 2018 for both men (aged 16-69) and women (aged 16-54)[5]. However, according to the Labour Force Survey, which looks at a broader age group for both men and women (17-74) and is thus affected by the low pension age, the activity rate in 2018 was lower, 70.9% (76.1% for men and 66.2% for women)[6]. Belarus has an exceptionally high level of employment, ensured by deliberate efforts of the state to preserve labour collectives, to provide social support for the released workers, the unemployed, and to provide first job guarantees for graduates of vocational education institutions. According to Belstat, employment rate is 83.1% (82.2% for men and 84.0% for women whereas according to the Labour Force Survey, the employment rate is lower, 67.5% (71.6% for men and 63.9% for women)[7]. Inactivity rates spike up for those aged 50 or over (35.7% against 4.8% for those aged 25-49).

Gender gaps in Belarus are small. According to the overall Global Gender Gap Index 2020 (WEF, 2019), Belarus ranks 29th – ahead of many EU member states. Due to a high participation of women in the labour force (74.7%) and a remarkable high share of women in senior roles (47%), Belarus ranks 5th - before any EU member state - on the sub index on Economic Participation and Opportunity Belarus. On the educational attainment sub index Belarus ranks 39th. However, although, women's share in skilled occupations is significantly higher than that of men's, despite greater educational attainment there is a gender wage gap – in particular in male-denominated occupations (WB, 2018).

Thanks to the Constitution that guarantees access to education for all and the inclusive approach to economic growth, Belarus ranks 50th in the world in the 2019 Human Development Index (HDI) - higher than would have been expected based on per capita income (WB, 2018).

[5] ETF database
[6] ETF database
[7] ETF database

TABLE 1. SELECTED COUNTRY INDICATORS, BELARUS (2015-2018)

Indicator	2015	2016	2017	2018	2019
Gross Domestic Product (GDP) per capita, Purchasing Power Parity (current international $)	18,389.7	18,098.4	18915.9	19,959.5	-
GDP, growth rate (%)	-3.8	-2.5	2.5	3.0	-
Population (in thousands)	9,481	9,498	9,505	9,492	9,475
Youth population (15-24), in % of the working population	16.6	16.0	15.4	14.9	-
Youth unemployment ratio (% aged 15-24)	-	5.1	4.5	4.9	-
Enrolment in VET, in % of total upper secondary enrolment	42.6	42.4	41.9	41.7	-
Share of young people (15-24) not in employment, education or training	-	8.2	7.3	6.3	-

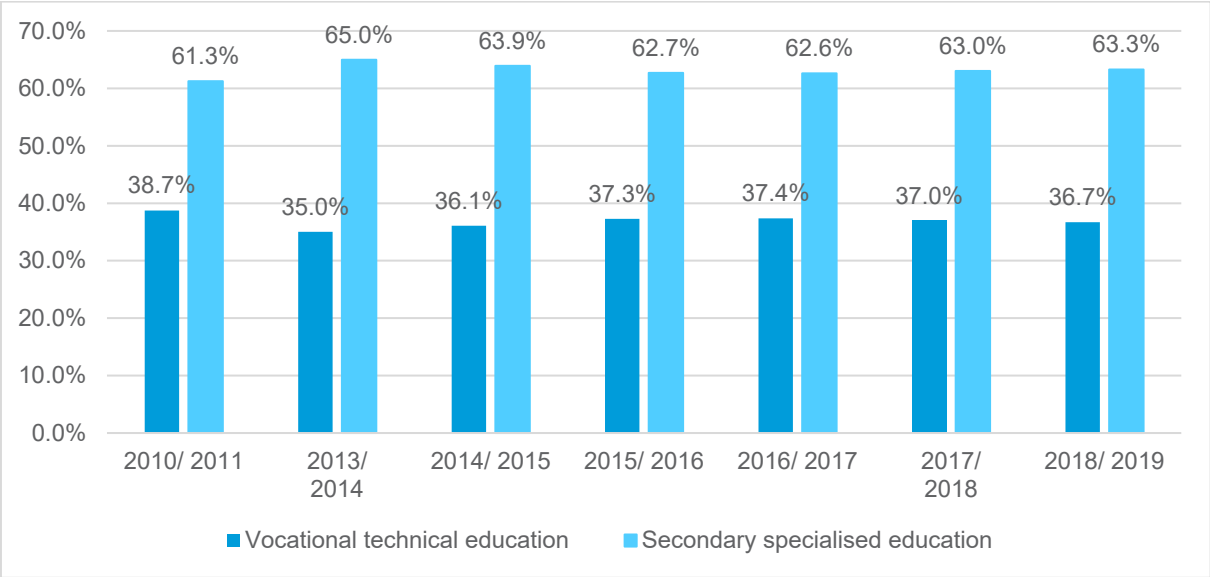
Source: ETF database

According to Belstat, emigration is low (approx. 1% in 2018) but has practically doubled in the last five years. Low wages in Belarus as compared with neighbouring countries is affecting the country's ability to retain skilled workforce, and exacerbating labour shortages and skills mismatches in the national labour market. For incoming migrants the problems include not only attracting qualified labour migrants and retaining them, but also providing them with long-term employment[8].

Education and training is high in the government's agenda. Belarus spends (public and private spending) on education 4.9%[9] of the GDP which is the average of developed countries and just below Moldova and Ukraine that each invest about 6% of GDP[10] on education. The performance of the education system is high, evidenced in the mean years of schooling received by people aged 25 and over (12.3 mean years of schooling) which comes second only to Israel (13 mean years of schooling) among all ETF partner countries (UNDP, 2018). Tertiary education attainment (aged 30-34) is 58.3% (68.2% for women and 48.6% for men) gross enrolment rates in both primary and secondary education are close to 100%. One-third of the adult population is estimated to have tertiary education, around 40% has VET education and 25% upper secondary education. In 2018 the share of students in VET and specialised secondary education pathways was respectively 36.7% and 63.3%.

[8] NRF, A.3.2 Migration and refugee flows and B.1.3 Specific challenges and opportunities: migration
[9] ETF database
[10] ETF database

FIGURE 1. SHARE OF STUDENTS IN VET AND SPECIALISED SECONDARY EDUCATION PATHWAYS



Source: Belstat, 2018a

Regionalisation has been high on the government's agenda for the several years. The regional development policy 2020-2030 focuses on place-based development and competitiveness: regional growth centres, cluster development, job creation, export promotion, and SME and entrepreneurship development. Centralisation in education policies and management is still visible with limited attention to specific goals of education development in the regions. The competences of regional and district education departments (structural units of local and regional public authorities) include: participation in planning the development of the education system by working out programmes on education development on a specific territory, supervision of subordinate educational institutions, and forecasting staffing needs (DIE, 2017).

There are public and private VET providers. Public VET is financed primarily from regional budgets. The Ministry of Education has adopted regulations that provide for fee-based education services at all levels of VET e.g. training, retraining and further training of employees (DIE, 2017).Such extra-budgetary activities enables in theory for VET providers to compensate for lack of budgetary funds (no data was found on the extent this possibility is used by VET providers).

1.3 Strategic context

During the past two decades, GDP growth in Belarus was higher not only than the average in its closer neighbours, but also than that of the countries of Central and Eastern Europe as well as the average rate of GDP growth in Southeast Europe. Thanks to its policies of social welfare and internal cohesion, Belarus also achieved a relatively equitable distribution of the growth dividend.

However, there is increasing evidence that some of the factors contributing to Belarus's remarkable growth record pre 2008 are no longer present, and that the potential growth is substantially lower than had previously been observed (WB, 2018). In spite of several years of strong growth and significant strides in reducing poverty, Belarus's combined debt (domestic and foreign) has increased to the

highest in the history of the country. According to World Bank (June 2019), the need for structural economic reforms is now urgent to avoid economic instability.

Prompted already by the 2015-16 recession, Belarusian authorities have pursued structural reforms aiming to put the economy on a more stable footing. Given the dominant position of state-owned companies in the economy, their performance has a determining effect on the country's economic growth. While heavy government interventions in the economy have helped Belarus avoid the social costs associated with economic restructuring, these policies have distorted the allocation of labour and resources, and have severely eroded the competitiveness of Belarus.

Strong labour productivity growth over the last decades came mainly from productivity growth within sectors and industries rather than from the reallocation of labour to more productive sectors and industries. In recent years, while there has been a gradual shift in employment from industry and agriculture towards services and digital economy, this shift is associated with a decline in average labour productivity, and employment growth is observed primarily in the low value-added services sector. Thus, over the past decade, labour was, on average, moving toward less productive sectors, and, as a result, the overall contribution of structural change to productivity was negative (WB, 2018).

Longer-term growth prospects of the economy continue to depend on the extent of structural adjustment and on scaling-back state interference in the economy. Recently, Belarus has launched ambitious programs to increase the competitiveness of the national economy in the domestic and international markets. Particular attention is paid to innovative high-tech sectors, such as IT, bio- and nanotechnology, robotics, energy-saving technologies, etc. At the same time, further innovative development of traditional industries and state-owned companies is required.

Successful implementation of such ambitious programs depends largely on the ability on the availability of skilled human resources and their adaptability. As a result, human capital development, is at the top of the government's policy agenda.

The main commitments of the Belarusian authorities with regards to the development of the country are outlined in the National Sustainable Development Strategy (NSDS) for the period to 2030, which aims, inter alia, at a strategic modernisation of the Belarusian economy based on the development of the private sector, more efficient indicative planning of the economy, reinforcing innovation and green economy policies. The strategy emphasises the need for decentralisation and focuses on economic growth and reducing interregional differentiation. The regional development policy 2020-2030 complements the NSDS by focusing on regional growth centres, cluster development, creation of new productive jobs, innovative local economies based on local resources, export promotion, SME and entrepreneurship development. Specifically, the policy is directed at strengthening local self-government in ensuring sustainable development and providing high quality of life in all regions of Belarus.

The National Programme for SME Support 2016-2020 further details policies and instruments for enhanced SME development (EC, 2019a). Fostering the digital economy is become part of Belarus' national strategy. Restructuring efforts in the private sector have thus far been focused on developing new technologies and digitalisation through support to micro, small and medium sized enterprises (MSMEs). Since 2016, the country has been called the "Silicon Valley of Eastern Europe" (WSJ, 2016). The state program of innovative development for 2016-2020 includes actively developing the IT industry. During the last decade, Belarus' IT industry has distinguished itself from other sectors. It is the fastest growing industry in the national economy in terms of investment inflows and exports, the

second-largest contributor to a positive balance of service exports (EY, 2017) and the highest growth rate in terms of value added. On December 21, 2017, President Lukashenka signed Decree No. 8 "On the Development of the Digital Economy," which aims to develop a competitive 21st-century digital economy which seeks to create a more favourable business environment for IT companies.

With the advent of new and innovative development of traditional sectors of the economy, the country's economy needs competitive workers that meet the requirements of digital high-technology and knowledge-intensive industries. The VET system needs to monitor and predict future skills, develop lifelong learning, improve the quality of retraining and advanced training services.

Belarus National Sustainable Development Strategy 2030 defines development of an education system that would meet the requirements of individuals, society and state. An education system with sustained people centred market economy. In this context, the substance and methods of teaching should be adjusted to develop creative qualities of individuals, their capacity to make decisions and take action independently, to continually replenish knowledge and improve professional competence (EC, 2019b).

At present, in the absence of a framework agreement between the EU and the Republic of Belarus that defines EU-Belarus Partnership Priorities, the EU's policy towards Belarus is carried out in line with the 2016 Council Conclusions as well as the wider Eastern Partnership policy framework.

2. HUMAN CAPITAL: DEVELOPMENT AND CHALLENGES

2.1 Overview and key data

Education has been a focus of national policy since the current structure of education was established in a 1994 decree. The legal foundations of the Belarusian educational system are in the Constitution adopted in 1994 and further revised in 1996. The law governing the education sector is the Education Code of the Republic of Belarus (2011).

Article 49 of the Constitution guarantees every Belarusian citizen the right to a free and compulsory general primary and basic general education as well as vocational training. As a result, general basic, general secondary and professional education coverage of the working population is 98% and the country boasts full literacy rate (99.8% adult literacy rate). Based on national statistics, 12% of working age population has vocational technical education, 30% has secondary specialised education, and 20% has higher education.

According to Article 14 of the Law on Education, the system is composed of pre-primary education, general secondary education, vocational technical education, secondary specialised education and higher education. In addition, the article covers teacher training, advanced training and retraining, and independent education. The ratio of specialised secondary and university students (120 and 298 respectively per 10,000 people as of 2018/2019 academic year), is higher than many EU member states.

Pre-school education is not compulsory; however, most children attend it before they start school. This is largely due to the fact that mothers have a right to retain their employment and get child-care allowance until their children are three, at which point most toddlers (in particular in urban areas) start pre-school (DIE, 2017).

Compulsory or basic general education starts at the age of six and lasts nine years. Upon completion of basic general education, students receive a Certificate of Basic Education.

In terms of educational standards, Belarus is on par with developed countries. The results of Belarus in the 2018 Programme for International Student Assessment (OECD, 2019), the first time the country took part in the assessment, is a testament to that. The results (36th place – just below Russia that ranked 30th, and above Ukraine 40th , Moldova 51st, Georgia 69th, and Azerbaijan 62nd) indicate that socio-economic status is a strong predictor of performance and that disadvantaged students hold lower academic ambitions than would be expected given their academic achievement. In terms of gender, as opposed to the OECD average, in Belarus girls scored similar to boys in mathematics. Amongst high-performing students in mathematics or science boys and girls have similar aspirations to work in the field of engineering or science. Some 13% of boys and 2% of girls in Belarus expect to work in ICT-related professions.

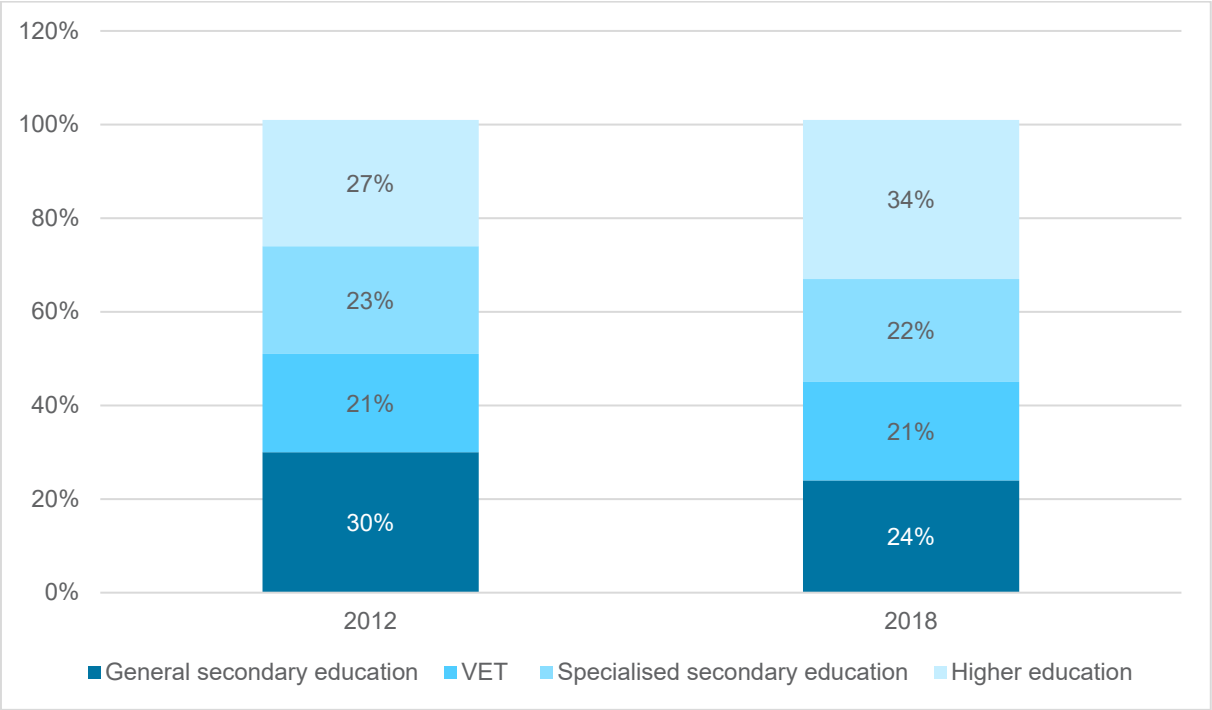
TABLE 2. HUMAN CAPITAL DEVELOPMENT INDICATORS

Indicators	Value	Year
Skilled labour force (% of labour force) (UNDP)	98.6	2019
Employment in agriculture (% of total employment) (UNDP)	10.6	2019
Employment in services (% of total employment) (UNDP)	58.7	2019
Average years of schooling (UNDP)	12.3	2019
Expected years of schooling (UNDP)	15.4	2019
Literacy for those 15 years and older (UNESCO)	99.8	2018
Gross enrolment ratio in secondary education (% of the total population in that age group) (UNESCO)	102.44	2018
Net enrolment rate in secondary education (% of the total population in that age group) (UNESCO)	95.64	2018
Enrolment in technical and vocational education and training (TVET) as % of the total enrolment in secondary education	41.65	2018
Gross enrolment ratio in tertiary education (% of the total population in that age group) (UNESCO)	87.43	2018
Number of pupils per teacher in secondary education	8.56	2018
UNDP's Human Development Index – ranking among 189 countries	50	2019
Global Innovation Index – ranking among 126 countries	86	2018
Research and development expenditure (% of GDP) (UNDP	0.6	2019
Female shares of graduates in science, technology, engineering and mathematics programmes at tertiary level (%) (UNDP)	15.4	2019
Internet users, total (% of population) (UNDP)	79.1	2019
Old-age (65 and older) dependency ratio (per 100 people ages 15-64) (UNDP)	21.7	2019
Net migration rate (per 1,000 people) (UNDP)	0.9	2019

Following completion of basic general education, students can either opt for general secondary education (2 years), provided by general secondary schools, or pursue their education in gymnasiums, lyceums and colleges, or specialised and technical schools. Gymnasiums provide general secondary education at a higher level and focus on the study of foreign languages. Lyceums provide vocationally oriented education that completes general secondary education. As a rule, lyceums use the teachers and educational facilities of universities and research institutes.

Colleges provide general secondary education that is oriented towards vocational education and training. Secondary vocational education (3 years, ISCED4) is offered by vocational technical schools and apprenticeship programmes. Specialized secondary education (2-4 years, ISCED3 to ISCED 5) is offered by technicums, technical schools, and colleges.

FIGURE 2. DISTRIBUTION OF WORKING AGE POPULATION BY EDUCATION LEVEL (END OF THE YEAR)



Source: Republican Institute for Vocational Education (RIPO)

VET remains relatively popular in spite of the declining participation in recent years. While the employment of VET graduates does not seem to be a problem as the system is able to guarantee nearly 100% employment, the Belarusian partners acknowledge the need to diversify and modernise their economy for which new skills and competences are needed (EC, 2019b). Diploma of vocational education

Secondary specialised and higher education can be obtained free of charge in state educational institutions on a competitive basis. In 2018/2019, the share of publicly funded students was 64% in secondary specialised and 44% in higher education indicating a high level of commercialisation of higher education. The principles and functions of education are further defined in the laws: "On Education in the Republic of Belarus," "On Languages," "On National and Cultural Minorities," "On the Child's Rights," as well as a number of statutes and regulations.

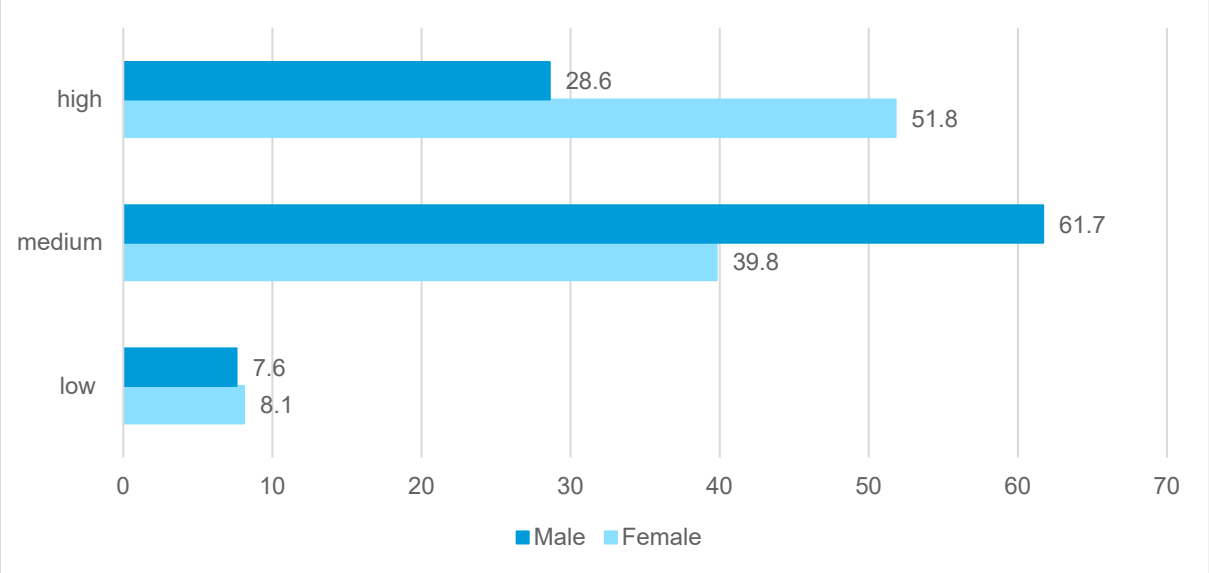
Belarus has a high level of participation in higher education. Higher education (3-4 years, ISCED 5 to ISCED6) is offered by public and private universities, academies and institutes. These higher education institutions offer a 2-stage (full-time as well as part-time) system of higher education that leads to the academic degrees of Bachelor and Master. About half of the students study for free while the other half can apply for financial support from the government or private financing.

Students who complete the secondary stage can go for postgraduate education. Postgraduate education comprises of doctorate studies. Doctorate last for 3 years and lead to Doctor of Science degree.

The overall scope and structure of education and training provision is defined annually. They are based on the state order for the training of workers and specialists (Decree of the Council of Ministers

of the Republic of Belarus No. 972 of 19 July 2011), taking into account the current situation of the labour market, the regional demography and the potential of the educational establishments. This system of "State order and reception" (GOSZAKAZ and PRIYEM) is an automated system for the formation of an order for the training of qualified personnel for all sectors of the economy and creates the conditions for statistical accounting and analysis of changes for human capital development.

FIGURE 3. EMPLOYMENT BY BROAD ISCO08 OCCUPATIONS (% AGED 15-74)



Source: ETF database

2.2. Private sector is struggling to grow

Due to the state policy of maintaining a high level of employment, state owned enterprise restructuring is a matter of deep social concern and, due to fears of significant labour shedding, a key argument for delaying reforms in the past (WB, 2018). The private sector share of employment reached a peak in 2014 (63.2% of employment) and has been declining since (Figure 4). Particularly SMEs seem to struggle with growth, while the number micro enterprises is rising (Figure 5). Further research would be needed to understand the specificities of skills shortages, in the pursuit of turning the country into an innovative and competitive knowledge-based economy, are becoming an increasing concern for SMEs in Belarus.

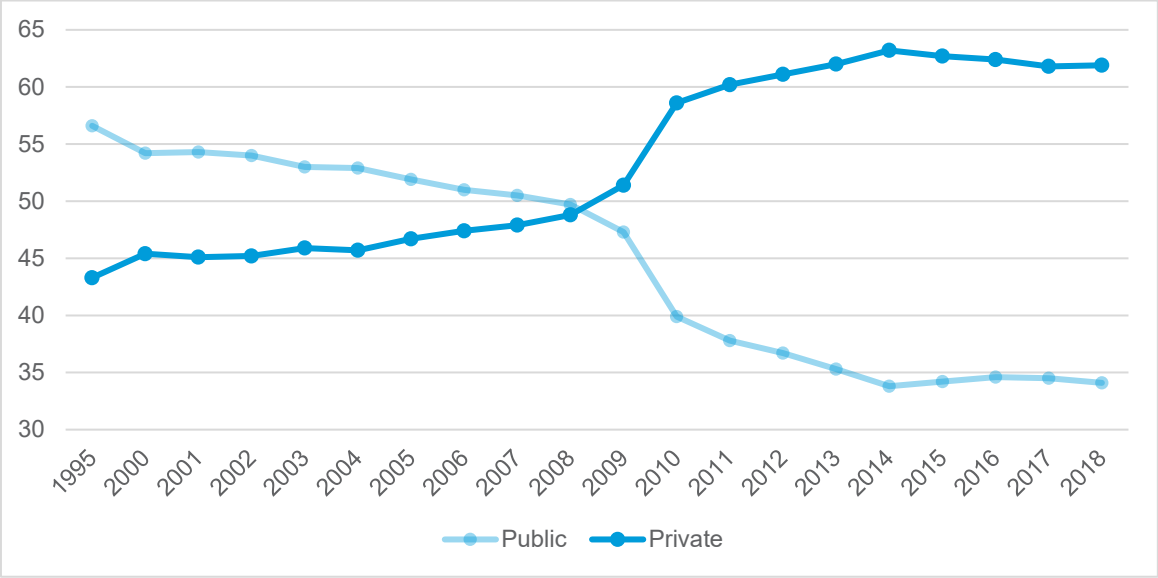
Belarus has the highest share of industrial employment (30.1%, 2017) in the region, followed by Ukraine (24.3%)[11]. Normalising the number of state-owned companies (4,734) by population puts Belarus at the top all countries in Central, Eastern, and South-eastern Europe with 380 state-owned companies (SOEs) per one million inhabitants (with about 220 in Russia). The high concentration of industrial employment is driven by SOEs which play a central role in the economy and account for more than 75% of industrial output, around 60% of fixed capital investment, and almost 50% of employment in 2016 (IMF, 2017).

By contrast, in 2018 micro and SME employment stood at 1.49 million employees or 56.1% (2019a) of total employed population - a significant increase from 2000 when the share was 42.4%. However,

[11] ETF database

despite targeted structural reforms in recent years, while the number of micro enterprises in Belarus has been growing, the overall number of micro and SMEs declined by 4% between 2012 and 2018. Nevertheless, the overall loss of labour in SOEs which declined from 54.2% in 2000 to 34.1% in 2018 (see Figure 4), has been compensated by the private sector - primarily by micro-enterprises.

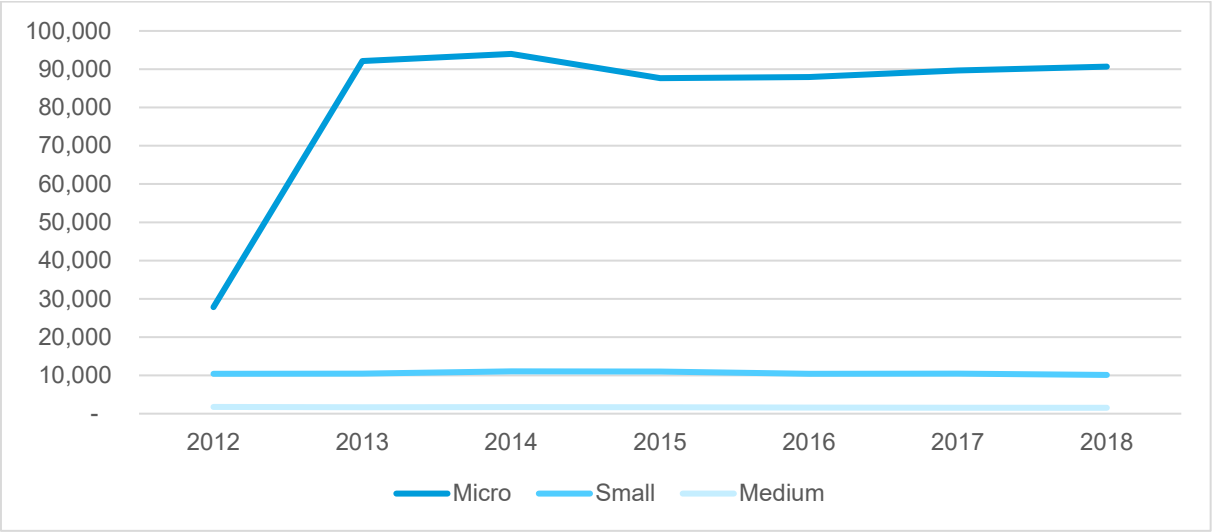
FIGURE 4. DEVELOPMENT OF PUBLIC AND PRIVATE SECTOR EMPLOYMENT SHARES (% OF TOTAL, 1995-2018)



Source: Belstat, 2018b

The breakdown by size of business shows that in 2018 micro-enterprises make 89%, small 10% and medium sized businesses 2% of the total number of MSMEs (93% of which are operated with private capital) (Belstat 2019a and authors calculations). Between 2012 and 2018 the number of small enterprises decreased by 3% and the number of medium enterprises decreased by 13% – while the number of micro entrepreneurs increased by 226% (Belstat 2019a and authors calculations). The decrease in medium-sized enterprises 66% of which are in industry, construction and agriculture and their share in employment indicate that they may be facing difficulties in terms of growth. This trend is similar to that of EU member states and the region and underscores the importance of supporting SMEs in moving to higher value added activities. The problem is that while government's measures have been effective in increasing the number of micro-enterprises, the number of medium sized is declining – and the company size is shrinking.

FIGURE 5. NUMBER OF MICRO, SMALL AND MEDIUM SIZED BUSINESSES WITH PRIVATE CAPITAL



Source: Belstat, 2019a

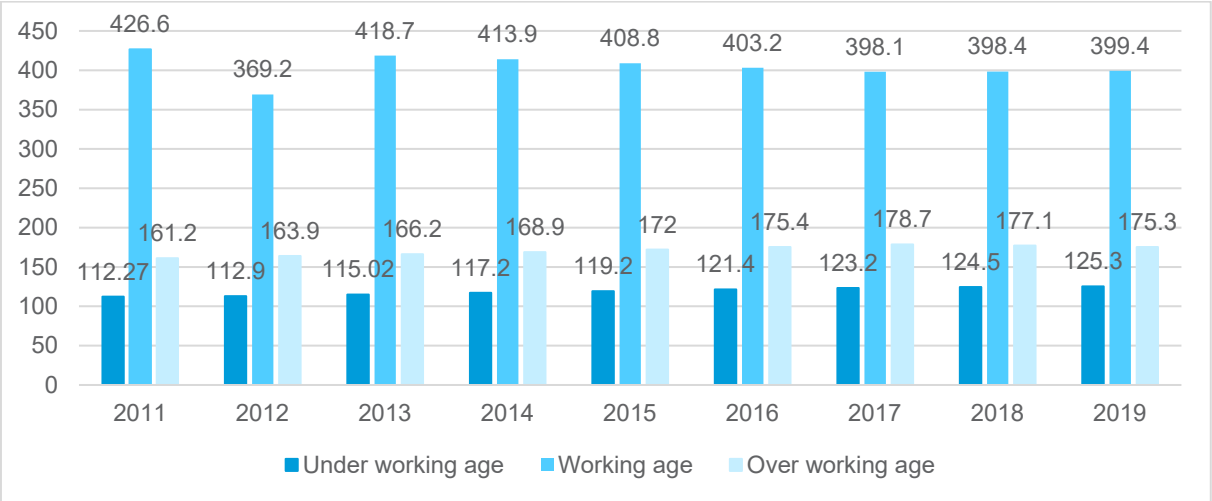
2.3. Workforce age population is declining

Belarus is ageing. One in five citizens in Belarus is retired. The number of working age population is declining. The current pension reform is insufficient in addressing the demographic decline. Further analysis is required to why job seekers over 45 are refused employment and high inactivity rates for those over 50. With an ageing population and limited immigration (Figure 11), the share of working age population will continue to decline and the role of lifelong learning in ensuring active citizenship and social inclusion is increasing[12].

At the beginning of 2019 there were 2.4 million retirees in Belarus, which is more than 25% of the total population (26% in the capital - and between 29% and 30% in all regions). According to the demographic forecast, by 2030 the share of retirees will increase to 27%. This is putting a considerable strain on the state budget (9% of the GDP in January 2017) and likely to increase.

[12] NRF, B.1.1 Participation in VET

FIGURE 6. THE PROPORTION OF THE POPULATION OF THE MAIN AGE GROUPS IN THE TOTAL POPULATION (AT THE BEGINNING OF THE YEAR; IN %)



Source: Belstat 2018b

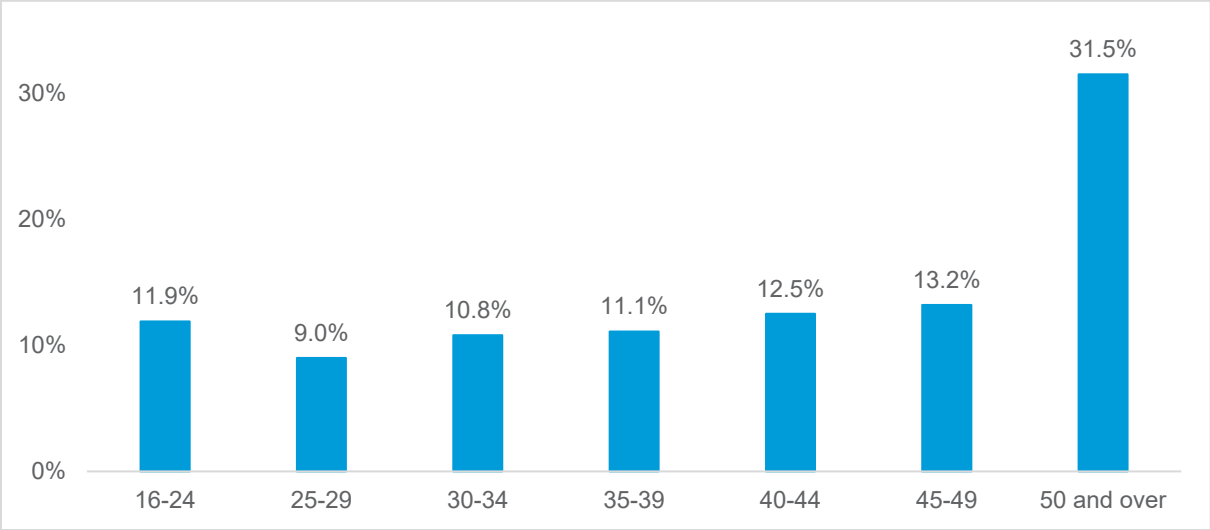
By 2022, the pension age from women will have increased from 55 to 58 for women, and from 60 to 63 for men. Further changes in pension legislation have not yet been envisaged. In addition, according to Decree 534 of 31 December 2015, the minimum qualifying pensionable service will also increase gradually to 20 years by 2025.

However, raising the pension age may not be sufficient. Structural developments, technological, organisational and market changes are affecting jobs and skills needs of an ageing workforce. The changes are affecting employment prospects for adults[13] and registered unemployment is growing with age – with women the most affected (see Figure 8). Today, 44.3% of people of aged 45-54 are refused of employment due to age (21% of whom have vocational technical education, 33% secondary specialised education, and 14% higher education) (EC, 2019b).

Inactivity rates are high (35.7%) in age group 50-64 (24.8% for men and 44.6% for women).To ease the financial burden of pensions, the government has been gradually raising the retirement age since January 2017 (raised by 6 months annually) and aligning the pension ages for men and women. The causes of the low activity rate among older people must be addressed to ensure that the potential benefits of longer working lives are achieved. To ensure the ability of adults to adapt to a changing labour market and find employment, access to job-related adult learning and continuing vocational training needs to be re-looked at.

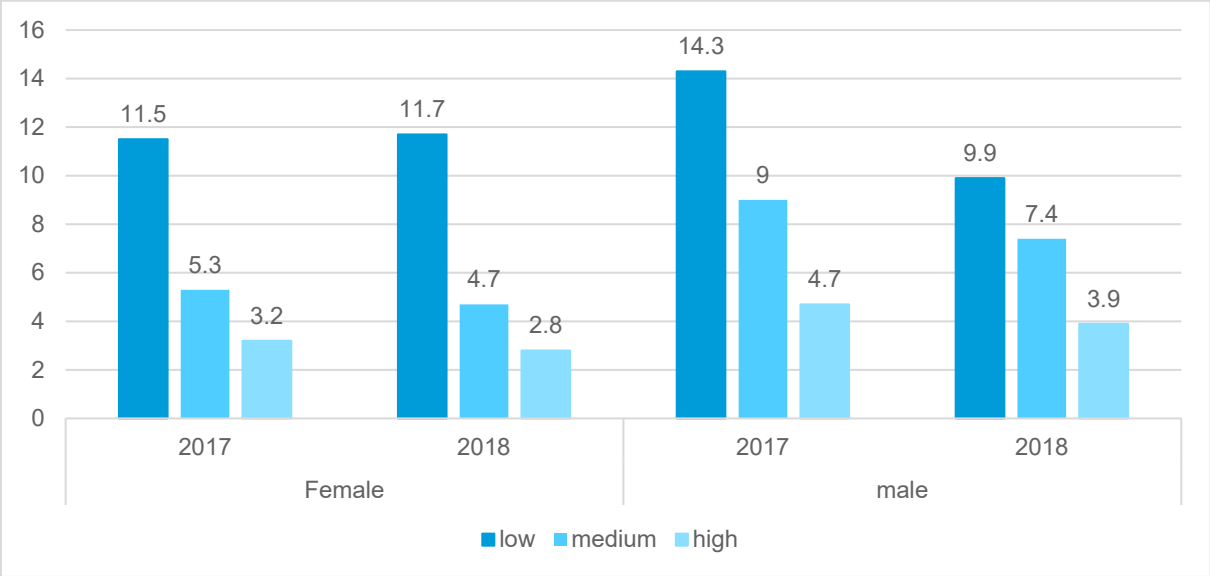
[13] NRF, B.1.6 The role of VET through active labor market policy

FIGURE 7. SHARE OF REGISTERED UNEMPLOYED, % OF TOTAL (2017)



Source: Belstat and authors calculations

FIGURE 8. UNEMPLOYMENT RATE BY EDUCATIONAL ATTAINMENT (% OF AGED 15-74)



Source: ETF database

As the workforce ages, education and training systems must respond. With limited opportunities to replenish the labour force, education and training policies are at the forefront of improving the adaptability and employment mobility of an ageing workforce. It needs to respond to the needs of the economy and that of learners, including the elderly (aged 65+), with skills important for active citizenship and continued personal development (e.g. digitalisation of public services). In addition, longer careers due to pension reform, a more dynamic labour market and the impact of technological changes on jobs (e.g. automation) are changing skills needs of an ageing workforce at an

unprecedented speed[14]. Fostering a culture of lifelong learning with an adaptable workforce is better able to adapt to economic shock.

At present, in terms of ageing, labour legislation does not address prolonging active working life but rather focuses on social integration of the elderly. Also, the government does not provide financial support for entrepreneurship training for silver entrepreneurs (aged 50+) nor are civil society organisations active in this area. However, within a new project “Employment, Vocational education and training in Belarus", funded by the European Commission, a lifelong learning strategy will be developed.

The adult education system in Belarus includes state, local executive and administrative bodies. Various educational institutions (391 in total) carry out advanced training and retraining of public sector employees: executives and specialists, as well as workers and employees. The vast majority of VET institutions (88%) implement VET programs for adults[15]. A distinctive feature of the system of additional adult education in Belarus in accordance with the Code of the Republic of Belarus on education is that all organisations, including individual entrepreneurs, can implement continuing education programs for adults.

In spite of the importance of adult education, at the moment no monitoring system that would provide an overview of the provision by public and private providers is in place. The Ministry of Education, Department of Advanced Training and Retraining, is responsible for overall coordination of adult education. However, focus is on public retraining of civil servants and existing monitoring covers only provision of adult education by public institutions. In practice, among civil servants, additional adult education is significantly more used by higher education graduates (44.1%) than VET (7.7%) or secondary specialised education (16.1%) (Novak, 2019). This is due to the fact that until recently, certain professions e.g. public administration, teachers, have been required to undergo retraining every five years. In 2020 Belstat is expected to release the participation rate in lifelong learning (from 25 to 64 year old) based on new calculations where the LFS has been adapted to reflect better the Eurostat standards. According to the preliminary calculations based on the previous LFS questionnaire on LLL the participation rate has been around 8% which is relatively high and comparable to many EU member states. Belstat Head of Labour Statistics estimates participation rate to be slightly lower based on the new set of questions.

At present, there is no data collection and monitoring system in place to provide an overview of non-formal learning services provided by civil society organisations (CSO). Based on a survey conducted by the German Institute for Adult Education (2017), one can conclude that the capacity of civil society organisations is rather limited. According to the data, even if all providers of civic education were equally effective in outreach as the CSOs responding to the survey, the overall outreach by civic education programmes would not exceed 100,000 participants over 5 years, which is about 1.8% of the working age population (approx. 5,430 thousand, Belstat 2018). Of this, according to the survey, only 2% is targeted at the elderly.

State program ‘Education and youth policies’ 2016–2020 aim is that in 2020 15% of the population benefits from adult education (up 5% from 2017, advanced training and retraining). This goal is consistent with the goal set by the European Union. However, as official statistics only relate to formal

[14] NRF, B.3 Active labour market measures
[15] NRF, A.2.3 Basic statistics on VET

professional education and the upskilling of the working-age population, it can be expected that, if the measures are successful, the actual share of the adult population involved in learning will be higher.

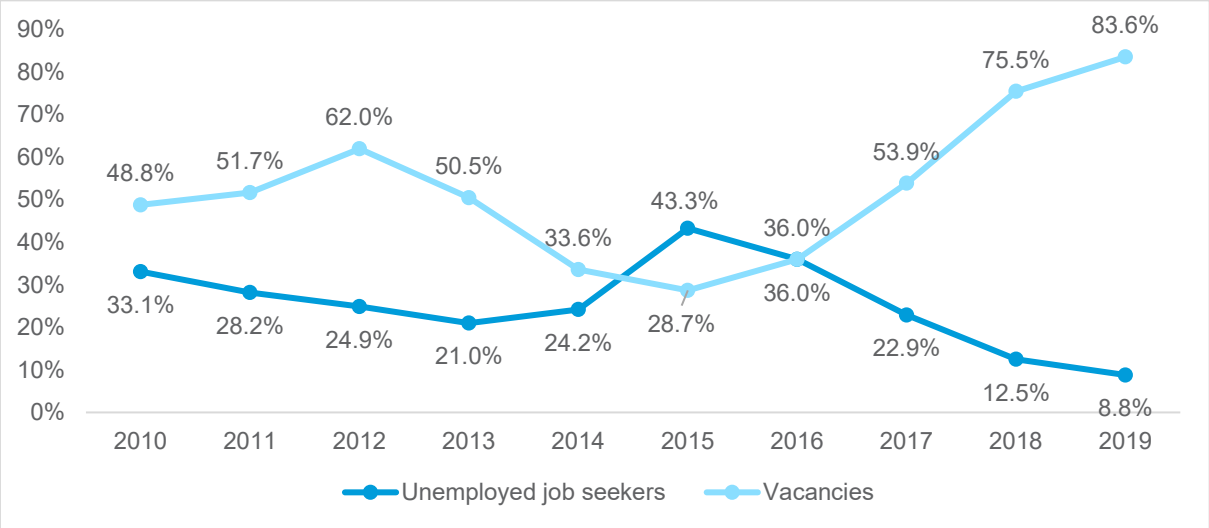
2.4. Skills shortages and gaps

In 2019, the biggest labour shortages in the history of the country have hit Belarus. The shortages are both quantitative and qualitative. Skills gaps, qualitative skills mismatches, are growing in certain sectors. OECD data in 2013 indicated that 17.9% of Belarusian employers identified an inadequately educated workforce as a major constraint for their competitiveness. Similar results were identified in a Belarusian study in the same year, in which 19.8% of SMEs surveyed reported low skills levels and the low quality of the workforce as obstacles for their business (IPM Research Centre, 2013). Widening of the disconnect between labour market skills needs and demand could threaten economic growth – in particular in a catalytic sector such as the ICT, a priority for the government.

Already in 2011 the Torino Process Report stated the mismatch between the content of vocational education and the needs of digital and hi-tech economic sectors, the lack of forward planning in relation to future training for innovative enterprises and the underestimation of the limited possibilities to replenish the labour force with the young generations while there is a significant dropout from the working age of the workers at a relatively young age due to low pension age.

Evidence shows that labour markets do not work perfectly and some lag between emerging demand for labour and skills (e.g. as a result of the development of private sector or new sectors such as ICT) and the response of labour supply (as education and training programs typically take a few years to catch up) is normal. However, while some labour shortages and gaps in Belarus are a healthy in that they indicate the changing skills needs due to economic transformation[16], excessive mismatch risks having adverse consequences both for the individual and the employer, and eventually – the economy.

FIGURE 9. SUPPLY AND DEMAND FOR LABOUR (IN THOUSANDS)



Source: Ministry of Labour and Social Protection[17]

[16] NRF, B.1.3 Policies on VET access
[17] Ministry website

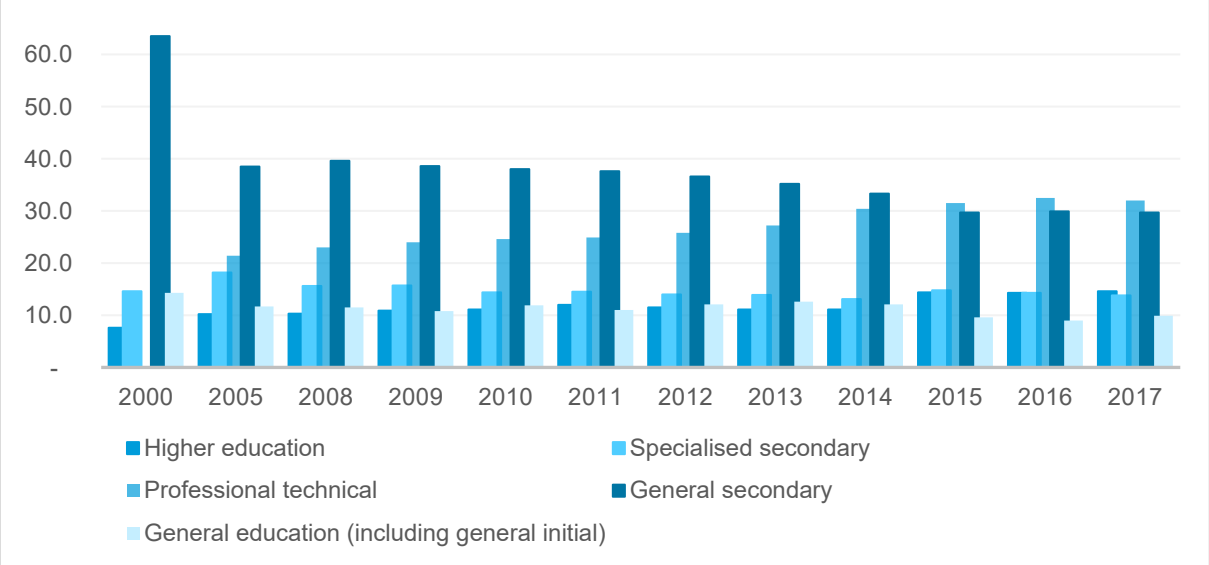
Labour shortages in Belarus are the result of demographic changes with a reduced supply of labour, structural (caused by changes in the structure of demand and production technology) and technological (arising from the development of automation of production activities) changes. Despite an abundance of university graduates, in particular companies in the private sector are reporting skill shortages.

Skills mismatches result from both over-qualification and under-qualification. The accessibility of higher education and an overall negative image of vocational education that prevails have increased the influx of graduates from higher education institutions, which has not been matched by increased availability of graduate level jobs, forcing many young people to work in roles for which they are highly overqualified (ETF, 2019). In 2017, for the first time, the number of registered unemployed with higher education surpassed that of specialised secondary education (secondary non tertiary).

Lack of specialised education is rarely the reason for employers to not employ a job seeker. The fact that even if workers have an education and training background that is seemingly unrelated to their work implies that their field of studies per se may not matter so much. What will matter, in terms of future productivity growth in manufacturing, particularly in the context of ongoing technological changes, is that either skills mismatches are corrected through occupational mobility or through different forms of training. Currently no data is available to the cost of skills mismatches in terms of productivity or investment in skills development.

While share of workforce with higher education has been relatively stable over time the share of jobseekers with post-secondary VET (specialised secondary) has been declining while the share of those with initial VET is increasing (Figure 9). Therefore, considering that the number of job seekers is low, there might be a slight oversupply of skilled workers in elementary occupations and better employability of highly skilled workers.

FIGURE 10. UNEMPLOYED REGISTERED WITH LABOUR, EMPLOYMENT AND SOCIAL PROTECTION AUTHORITIES, BY LEVEL OF EDUCATION (% OF TOTAL)

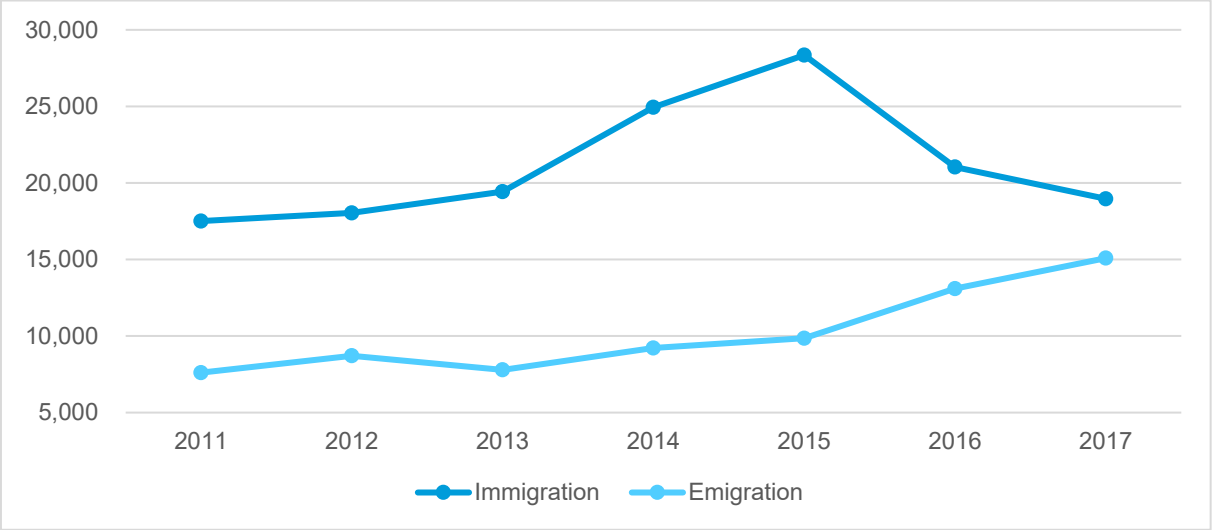


Source: Belstat[18]

[18] Belstat website

Emigration for work is low but practically tripled between 2011 and 2017 (see Figure 10). Low wages in Belarus as compared with neighbouring countries is affecting the country's ability to retain skilled workforce, and exacerbating labour shortages and skills mismatches in the national labour market. For incoming migrants the problems include not only attracting qualified labour migrants and retaining them, but also providing them with long-term employment.

FIGURE 11. EMIGRATION AND IMMIGRATION 2015-2018



Source: Belstat, 2018b

3. ASSESSMENT OF KEY ISSUES AND POLICY RESPONSES

This chapter focuses on three main issues related to human capital in Belarus: how skill deficiencies are affecting SMEs ability to move to from low to high value added activities, lagging regional competitiveness and entrepreneurship as a means to boost catch-up, and how the knowledge economy is setting new quality and equity requirements for VET. While many of the issues related to knowledge and digital economy – a cross cutting issues in all three issues - equally affect state owned companies and the public sector in general, the focus of the assessment is on the private sector and SME and entrepreneurs. The focus was chosen due to the contradiction in their skills development, employment and economic potential and their contrasting relative absence VET planning and provision – formal and non-formal. In the view of the ETF, they require immediate attention as not addressing them could jeopardise progress towards strategic priorities of the country towards innovation, growth and competitiveness – all the while maintaining the inclusive nature of economic growth and raising the quality of life of citizens.

While these problems are not entirely new, the economic reality of today means that they have evolved into long-term policy challenges that are at times not aligned with the government other priority policy of supporting state-owned companies. The more detailed analysis of reasons for their persistence which this assessment offers, as well as the associated recommendations, might add value to the ongoing efforts of authorities, stakeholders and international partners in Belarus to move ahead through better education and training for all.

3.1 Skills deficiencies are tying SMEs to low value added activities

3.1.1 The problem

Although SMEs have become a major part of the economy in Belarus, this is not reflected in skills needs analysis. The problem is that although SMEs have become a major part of the economy in Belarus, this change is not reflected in skills needs analysis to identify needs and relevant education and training to boost SMEs growth by helping them move to value added activities. As a result, SMEs are often held back by skills shortages which eventually results in a loss of value added – and threaten growth prospects in particular in the knowledge intensive areas of the economy.

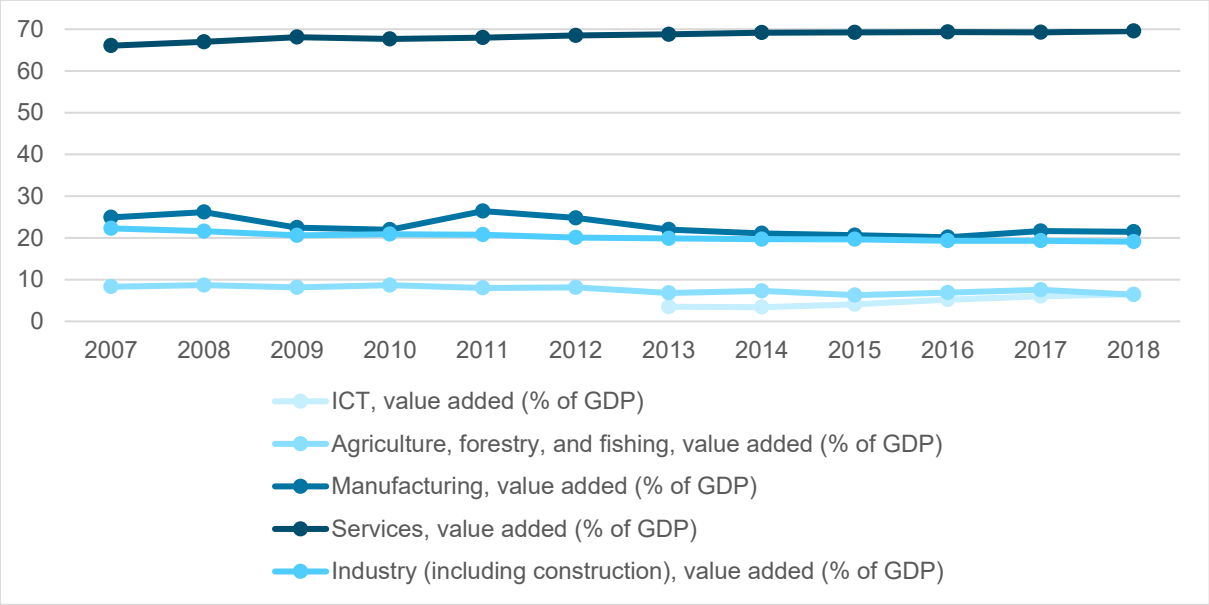
Skills policies that target SMEs are important for economic growth, and investment in human capital is a key resource for competitiveness (Europe 2020, New Skills Agenda for Europe). Skills are essential in expanding the potential of SMEs to contribute to GDP, value added, employment and increasing the wealth and standard of living of citizens. The education and training system plays an important role in supplying qualified workers to SMEs and strengthening the skills of their human resources.

In Belarus, many SMEs remain tied in low valued-added sectors. According to national statistical offices, the contribution of SMEs to value added in Belarus is modest (29% of GDP) compared to other countries in the region: Moldova (71%), Georgia (62%), Armenia (60%) and Ukraine (47%). At the same time, Belarus is the most export-oriented country in the eastern partnership region, with exports representing 67% of GDP in 2017. From 2014 to 2017, the share of SMEs in total exports increased to 47.2% in 2017, slightly below the EU average of 50% (OECD, 2020).

Unpacking the value added at sector level, the service sector, dominated by micro (85%[19]) and SMEs (75%[20]), grew by 3.5%[21] between 2007 and 2018. During the same period, manufacturing, dominated by state-owned companies, saw its value added decline by 3.4%, while industry declined by 3.2% and agriculture by 1.9%[22]. However the few SMEs in the manufacturing sector generally make up one of the most dynamic areas in the high-tech sector: from information and communication technology, to biomedical and materials technology.

The steepest growth in value added between 2007 and 2018 was in the IT industry where all major companies that provide IT products and services are private. Between 2012 and 2018 the industry practically doubled its value added (6.5%[23] in 2018 – at par with EU member state). The SMEs in the IT sector are characterised by very high annual growth, are highly innovative and continuously expanding, thus guaranteeing a rate of new job creation that is much higher than that of large firms. In 2016 the IT and related sector employed approximately 115,000 people (EY, 2017).

FIGURE 12. VALUE ADDED BY SECTORS AND INDUSTRIES



Source: World Bank Open Data

What is the role of skills in helping SMEs move to value added activities? In the context of global megatrends such as demographic and technological changes, digitalisation, and fragmented production processes, jobs are becoming increasingly skills-intensive. This brings its own challenges to SMEs (not applicable to micro companies that rely mostly on their own human capital) which often have higher skills deficiencies than large companies. SMEs are often held back by skills shortages and slow application of new technologies which, combined with poor management practices and low levels of workforce training, limit productivity and innovation – and eventually, results in a loss of value added. The problem is that although SMEs have become a major part of the economy in Belarus, this

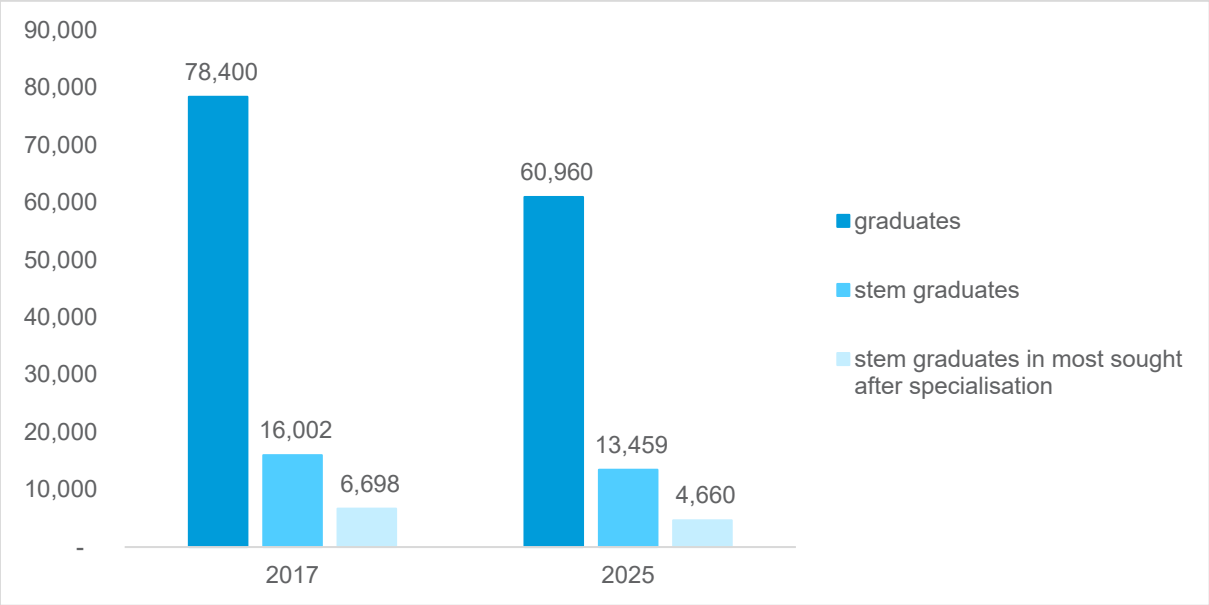
[19] UNDP, 2018
[20] UNDP, 2018
[21] World Bank Open Data
[22] World Bank Open Data
[23] World Bank Open Data

change is not reflected in skills needs analysis to identify needs and relevant education and training to boost SMEs growth by helping them move to value added activities.

Let's take the IT industry as an example. SMEs often also face challenges in identifying and retaining highly qualified workers with sought-after ICT skills. The IT industry is growing fast in terms of value added. For the Belarus IT industry to continue to add value, it is going to need a steady pool of skilled workers, and the demand is expected to increase globally which in turn could encourage skilled emigration.

Between 2005 and 2016, the number of ICT specialists graduating increased by 39% (or by about 21,000 graduates). However, estimations of Ernst & Young (EY, 2017) based on current trends (demographic factors and enrolment rates) indicate that the number of graduates in most in demand by the ICT sector will decline by 30% by 2025 which indicates that the education and training system (currently no breakdown is available between VET and higher education) is not able to respond to the growing demand. The gap between the demand for digital transformation of the economy on the one hand and the digital knowledge, skills and competences of the workforce on the other is likely to grow and as a consequently the insufficient supply of ICT graduates compared to the exponentially increasing demand for ICT professionals will undoubtedly negatively affect SME recruit.

FIGURE 13. EDUCATION SYSTEM GROWTH FORECAST (BASED ON EXISTING TRENDS)

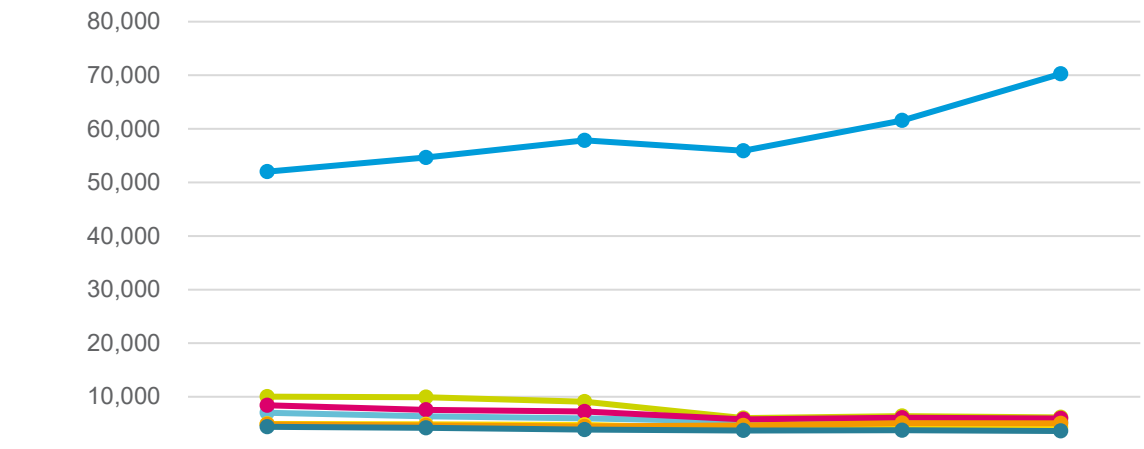


Source: Ernst & Young (2017)

The forecasted ICT skills shortages will affect all company sizes in all sectors, public and private. Already now over half of the growing demand for ICT specialists is outside the IT sector itself. According to McKinsey, more than 75% of the value added created by the internet can be found in traditional industries. Therefore, unless VET policies and systems urgently adapt to the rising skills shortages and gaps that will spill over to other sectors, delaying government goals for a digital economy, the situation is likely to worsen with negative consequences on productivity, growth and competitiveness of all companies and consequently dampen growth perspectives. The hardest hit will be SMEs who won't be able to compete against larger companies able to offer higher salaries.

Labour shortages are compensated by wages which increase as labour gets scarce. In 2018 the IT industry offered the highest average monthly salary across all industries (in finance and insurance which comes second, wages are 43% lower than IT). The high demand for ICT occupations is continuing to inflate wages and the average monthly salary of the Hi Tech Park residents is expected to reach 2,400 USD in 2020.

FIGURE 14. AVERAGE ANNUAL NUMBER OF EMPLOYEES IN ICT SECTOR, PERSONS BY REGION (2013-2018)



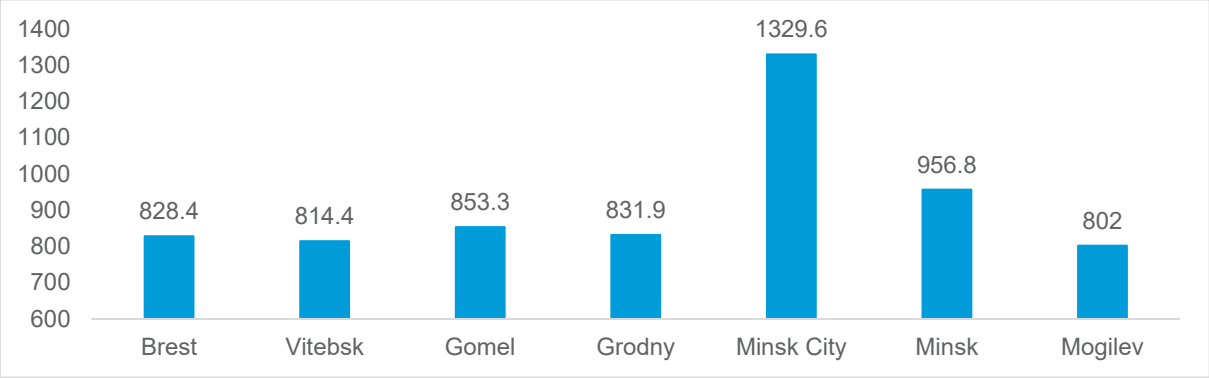
	2013	2014	2015	2016	2017	2018
Brest	7,020	6,377	5,981	5,367	5,183	5,313
Vitebsk	10,026	9,920	9,092	6,028	6,406	6,155
Gomel	8,415	7,570	7,245	5,790	6,083	5,947
Grodno	4,938	4,858	4,758	4,055	4,126	4,316
Minsk City	52,011	54,648	57,841	55,904	61,564	70,268
Minsk	4,851	4,649	4,476	4,656	5,080	5,039
Mogilev	4,397	4,199	3,883	3,705	3,751	3,617

Source: Belstat (2018)[24]

The clustering of high wages in the capital feeds internal migration from regions, where salaries are about a third lower, to the capital. The resulting accumulation of skilled industries and labour in the capital erodes regional competitiveness.

[24] Information society in the republic of Belarus, Statistical book, national statistical committee of the Republic of Belarus, 2019

FIGURE 15. NOMINAL ACCRUED AVERAGE MONTHLY WAGES OF EMPLOYEES, IN THOUSANDS OF ROUBLES (2011-2015)



Source: Belstat, 2019b

3.1.2 Policy responses

1. Actions at the level of policy framework

Priorities and effectiveness (OECD, 2020 forthcoming)

The institutional framework for SME policy is defined by the strategic guidelines set in the law "On SME Support" approved in 2010. The Ministry of Economy's Entrepreneurship Department has the mandate for SME policy while policy implementation is conducted, in addition to the Ministry of Economy, by the Regional Executive Committees and the state accredited business support infrastructure.

Key policy tools in Belarus are concept and programs. The SME program 2016-20 outlines the goals and priorities for SME development. The programmes contain a list of support measures and initiatives, as well as a set of quantitative targets, related to SME contribution to employment and GDP, as well as targets related to the outputs of specific SME support programmes.

SME policy implementation is currently conducted by a mix of institutions, such as the Ministry of Economy, the Belarusian Fund for Financial Support of Entrepreneurs (BFFSE) under the Ministry of Economy, the Regional Executive Committees, and the state accredited business support infrastructure.

In 2018, the Council of Ministers approved the first country strategy for SME development, which covers the period to 2030: "Belarus – a country for successful entrepreneurship". The strategy sets medium-term objectives for SME development for the first time. The Ministry of Economy led the elaboration of the strategy, with the support of a working group including the Council for Entrepreneurship Development, other central and local government bodies and private sector organisations.

The National Export Support and Development Programme for 2016-2020 is the main strategic document guiding policy developments in the area of SME internationalisation. The programme calls for the implementation of policy measures in six areas, including promotion of an export-oriented IT sector and the development of export financing instruments.

Shortcoming and policy gaps

The Ministry of Economy is elaborating a concept paper to establish a dedicated SME development agency. The work should be led to conclusion and the Agency, once operational, should clarify the role, responsibilities and the relationships between the new agency, the Ministry of Economy, and other relevant government bodies and regional administrations, as well as civil society organisations with regard to formal and non-formal VET as it relates to SMEs. The Agency could bring under one roof all SME training and coaching to provide targeted support to help SMEs moving to value added activities.

2. Actions in SME skills needs analysis and anticipation

Priorities and effectiveness

The Ministry of Education's Information and Analytical Centre is responsible for education statistics. The Republican Institute of Vocational Education (RIPO) is responsible for research and analysis on VET.

In order to strengthen skills anticipation and forecasting at national level, at the end of 2015 the Belarusian government established a national working group on skills anticipation/forecasting involving the key ministries (Ministry of Labour and Social Protection, Ministry of Education and Ministry of Economy), expert organisations and businesses. Another working group on enrolment planning was established under the same decree. This group has developed a matrix on skills anticipation that includes three modules: economy, labour market and professional education (ETF, 2017). In 2017 a resolution "On some issues of forecasting the needs of the economy for personnel" further defined the role and functions of the government in the process of skills anticipation.

At present three databases to forecast labour market needs are produced by Belstat, the Ministry of Labour and Social Protection and the Ministry of Education. Belstat provides all the statistical information used for the elaboration of annual programmes of socioeconomic development, state programmes, etc. Belstat conducts a survey and produces an annual statistical book "Information society in the republic of Belarus" with a segment on "Training of ICT Specialists" which only looks at the supply side of human capital. The Republican Institute for Vocational Education (RIPO) conducts some studies analysing employers' requirements for employees and their competences (UNEVOC, 2015).

Education and training needs are assessed through a State Order and Admission system, operated by the Ministry of Education. Based on the data from this automated system, forecast figures on educational profiles for the state programmes for five years are developed. Estimated figures for admissions to vocational and higher education institutions are adjusted annually, taking into account the updated order for public service training, the results of graduate job placements and information obtained from the Ministry of Labour and Social Protection on graduates from educational institutions who are registered as unemployed with the Public employment Services as of 1 December of the reporting year. In addition, the Nationwide Data Bank of Job Openings has been created and provides information on professions and specialisation needed to fill existing vacancies (ETF, 2019). Currently about 85,000 vacancies are available on the website. SME are able to enter into an agreement directly with a VET institution to request graduates and to benefit from graduate placement programme.[25]

[25] NRF, B.1.6 Validation of non-formal and informal learning

In the absence of a national data on SME skills needs, some training providers (non-formal VET) try to align training provision with the legislative framework while others conduct their own training needs assessments (e.g. the Institute of Business or the Belarus Hi-Tech Park). A report by the German Institute for Adult Education (2017) refers to a study in 2014 which found that in 2014, most of training programs offered were short-term and focused on sales (26%) and marketing (20%).

Training providers also address gaps in skills intelligence by building on good practice through donor collaboration (e.g. the IPM Business School, Kozminski University, or the Bled School of Management collaboration with the Swedish Institute of Management).

Shortcoming and policy gaps

There are many statements on the impact of reforms on SMEs and their contribution to economic development. However, the impact of this change on skills has not been measured nor has it been reflected in skills needs analysis and anticipation.

The State Order and Admission system does not meet the flexibility requirements of SMEs – and the smaller companies generally do not submit requests for workers through the system. This creates a discrepancy between SME skills needs and the training provision offered in the market.

At present there is no national framework for systematic and meaningful collection or analysis of SME skills needs. Studies or surveys on skills demands are not carried out regularly and the findings of most of them are not available to stakeholders. In formal VET, the planning of educational profiles for public institutions under the state order, relying primarily on requests submitted by state-owned companies, is still at the core of statistical analysis and skills needs anticipation.

However, although in VET all providers are public, in secondary specialised education a small number of private institutions cater for nearly one in ten students in specialised secondary educations – the planning for which is outside the state order.

ETF Working together Learning for life

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RECOMMENDATIONS

1.Adapt skills intelligence and workforce planning to reflect the diversity of employers

Strengthen data collection for evidence-based planning, monitoring and evaluation.

Establish a co-ordination mechanism for SME support organisations.

Use big data to strengthen skills anticipation.

2. Provide targeted courses to SME managers and entrepreneurs

Bring all SME training under one roof.

Monitor the productivity and ability of SMEs to permanently adapt to changing environments and market conditions.

Build on the existing Council for Entrepreneurship Development

3. Make use of new learning opportunities offered to SMEs through smart specialisation

Provide targeted support to SMEs to facilitate their integration into global value chains.

Encourage SMEs to move from low to high valued-added activities.

4. Integrate the entreprene key competence approach and in-service teacher trai

Define learning outcomes of entre at all education levels.

Ensure teachers' ability to develop entrepreneurship key competenc

Establish formal career guidance more targeted and systematic su students with entrepreneurial asp

5. Provide tar regional entre

Focus on co activity.

Identify pos companies

Concentrate economy in

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6.Make use of resource centres to improve VET quality, efficiency and equity

Establish Centres of Excellence in the regions.

Deepen and extend the relationship of these centres with employers.

Cooperate and coordinate with other skills providers.

7. Modernise teacher training

Focus vocational teacher education on professional competence and practical work experience.

Move away from the differentiation between practical and theoretical teaching.

rgeted support to
epreneurial ecosystems

mpetitive areas of economic

sible spin-offs from state-owned
or clusters.

e on relevant sub-sectors of the
each region.

8. Restructure and optimise VET provider networks at regional level

Optimise the VET provider network.

Provide capacity building in change management and redesign organisational and management structures.

Prepare the ground for establishing Centres of Excellence at regional level.

TABLE 3. VET AND SPECIALISED SECONDARY EDUCATION IN NUMBERS (2010-2018)

	2010/ 2011	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019
Vocational technical education							
Number of institutions	229	219	213	206	196	182	180
Number of students (in thousands)	106.0	74.6	72.8	72.2	70.3	66.9	65.7
Students admitted (in thousands)	34.6	34.5	33.7	32.0	29.7	30.3	28.4
Secondary specialised education							
Number of institutions	214	231	231	231	230	226	226
of which public	202	219	219	219	218	214	213
of which private	12	12	12	12	12	12	13
Number of students (in thousands)	167.6	138.4	129.0	121.4	117.8	114.1	113.3
of which public	146.4	124.1	115.5	109.1	106.5	103.6	103.0
of which private	21.2	14.3	13.5	12.3	11.3	10.5	10.3
Government funded students (in thousands)	85.4	81.9	77.7	74.4	73.5	72.1	72.6
Privately funded students (in thousands)	82.2	56.5	51.3	46.9	44.3	42.0	40.7
Students admitted (in thousands)	43.8	40.9	38.9	38.9	38.3	38.4	38.1
of which public	38.3	36.1	34.7	34.9	34.5	34.6	34.7
of which private	5.5	4.8	4.2	4.0	3.8	3.8	3.4

Source: Belstat, 2018a

In 2016 the ETF conducted a baseline study on the labour market information systems and skills anticipation. The study produced an analysis of the existing sources of labour market information, gaps and areas for improvement. The findings indicated that Belarus has a strong statistical base on labour market information and that the data and information are regularly generated and used at macro level. However, information gaps were found in analysing private sector training needs. The main recommendation of the analysis was to develop modern skills anticipation approaches and methodologies in order to gain a better understanding of future needs, to increase the dissemination and use of labour market information among various stakeholders and users, and to further develop information sources (Vankevich, 2016). Many of the recommendations are followed up by the ongoing EU-financed project on Employment and VET in Belarus, which has a substantial labour market information component

Government-financed trainings for SMEs are required to report to the Ministry of Economy on the number of trainings and the number of people trained. However, accurate data on the number and structure of participants – or impact of training programs is not available.

Limited studies on SME skills are conducted by organisations active in research and advocacy (e.g. the IPM Research Centre or the Economic Research Centre BEROC). Data specifically on women, whether employees or in SME management, is collected by the National Statistical Committee. However, data from the existing studies and assessments is not pooled and analysed, nor is it used as evidence for policy learning to improve policymaking in the area of SME training. Therefore, with the exception of the IT industry identified as a policy priority with targeted measures and resources, the

current data does not enable identification of value added activities by private sector and therefore specific measures to provide targeted training to SMEs.

Development of big data tools offers opportunities for real-time labour market analysis of the demand side. While not a substitute, big data could be used to complement existing labour market information systems and to monitor rapidly changing demand for skills. Different criteria for structuring information about vacancies and resumes etc. are at present hampering the use of the data on multiple job websites (Gsz.gov.by, Работа.tut.by, Praca.by, Riv.by, Vakantno.by, Mnogo-Raboty.by, Jobs.Dev.by, Rdw.by, Belmeta.com, Trudbox.by). A single platform with comprehensive and open forecast of future demanded competencies, skills, concise and clear reviews of the status of various segments of the labour market (industry, regional, professional) is needed for big data to be useful and complement existing labour market information systems.

3. Actions in upskilling SMEs

Priorities and effectiveness

The Ministry of Economy is the government body responsible for SME training and provides financial support for SME training providers that support SMEs throughout their lifecycle through different channels. Given Belarus's ageing society (less than 15% of youth in the total population), the young are an increasingly important source of economic dynamism and innovation. The Imaguru start-up hub (https://imaguru.co) develops fast-growing, young entrepreneurship and innovation from the idea stage through to the establishment of the business, but also analyses the mistakes of start-ups and monitors their development throughout their lifecycles. Start-ups are also served by dedicated business associations, such as the centre for start-up technologies and the start-up school of Belarusian State University of Informatics and Radioelectronics. The Youth Business Incubator runs free-of-charge training courses that aim to develop entrepreneurial and managerial skills while increasing the financial and legal literacy of young, aspiring entrepreneurs and start-ups; the incubator factors into their training the good practices and lessons learnt of its tenants. (ETF, 2020a)

The Belarusian Chamber of Commerce and Industry and the National Centre for Marketing and Price Study provide some support for exporting companies, such as information on foreign markets, organisation of trade missions and certification. In addition, the EU Ready to Trade project implemented by ITC supports the internationalisation of SMEs operating in the textile and apparel sectors (OECD, 2020).

The Ministry of Economy plans, under the SME Development Strategy 2030, to gather and present information on all SME training opportunities on one web platform. At present, the most comprehensive training portal is the one hosted by "Aspect", which provides links to training providers that are grouped by type and topic of training provision.

Probably the most effective way to attract SMEs to upskill is though sectoral cooperation through the Sectoral Councils that have been created.

Shortcoming and policy gaps

Government intervention in providing targeted training for SMEs is justified by market failures. SMEs generally invest significantly less in training due to lack of information on training availability, lack of information on training quality and the return on investment, high transaction costs in purchasing training services, and lack of relevant training.

The “Belarusian Fund of Financial Support of Entrepreneurs” established in 1992 was established to provide funding for programmes and actions aimed at the development of entrepreneurial activities in Belarus. Since its establishment, the economic realities have shifted and the number of SMEs significantly exploded. As a result, the Ministry of Economy is planning to establish a new Agency to coordinate SME support. Without a single body (under Ministry of Economy) to coordinate SME support, organising efficient and effective public support for SMEs, a heterogeneous group of thousands of small companies with very different and constantly evolving needs has been impossible.

4. Actions in education business cooperation for relevance of VET

Priorities and effectiveness

The National Council on Labour and Social Issues is the main social partnership organisation in Belarus. It works with representatives of economic sectors and the private sector to determine the VET programme and quality requirements[26].

As reported by the OECD in the 2019 Belarus SBA assessment (OECD, 20202), Belarus has introduced formal requirements concerning public-private consultations. The Resolution of the Council of Ministers on Public-Private Consultations states that all legal acts that have a significant impact on business activity must go through a formal consultation process before final approval. In line with Presidential Decree No. 4, 40 national and 133 regional advisory councils have been created within state authorities for public-private consultations, and 722 meetings have been held in the country since 2011 (including 74 in the first half of 2018). The private sector representatives sitting in the advisory councils have the right to submit legislative and regulatory proposals and may call for exceptional meetings. In addition, all draft laws are posted on a single central government web site for public consultations (www.pravo.by). Since 2018, public-private dialogue has grown even stronger, with the expansion of the mandate of the Council for Entrepreneurship Development of Belarus, an advisory body under the President. Chaired by the First Deputy Prime Minister, the Council brings together successful representatives of the private sector (out of 20 members of the Council, 19 are heads of the most prominent and successful businesses). It meets on a quarterly basis and has a mandate to review and propose amendments to existing and draft legislation, and to propose government support programmes for entrepreneurs.

As part of the EU project Employment and VET in Belarus, the first pilot questionnaire was created to identify the skills that will be needed in the future.

The Law on Technical and Vocational Education introduced a possibility for employers to initiate proposals for changes in the list of occupations. Within the framework of the Law a great number of educational standards; training programmes; thematic plans and curricula have been developed with the help of employers, institutions and social partners.

Shortcoming and policy gaps

Dual VET systems with heavy employer involvement (e.g. Austria, Germany and Denmark) tend to engage employers in setting qualification standards and curriculum development and perform better in terms VET provision of supplying the relevant skills and competences needed by SMEs.

While there is no major obstacles in Belarus to cooperation between VET and SMEs, whereas collaboration with state-owned companies is historically well-established, practice shows that

[26] NRF, E.GOVERNANCE AND FINANCING OF VET

collaboration with SMEs remains limited and difficult. During the national and regional Torino Process workshops, the needs to strengthen cooperation between VET and SMEs was highlighted.

While there are many positive developments driven by ICT employers, due to the geographic concentration of the industry in Minsk (68%, Belstat), these developments do underscore the disadvantaged position of students in VET as the HTP Administration is focused on promoting close collaboration primarily with the system of higher education. The same phenomena extrapolates regional differences and the limited possibilities for spill over effects of the High Technology Park to other industries at regional level.

3.1.3 Recommendations

R.1 Adapt skill intelligence and workforce planning to reflect the diversity of employers

The Ministry of Economy should take the lead in strengthening data collection for evidence-based planning, monitoring and evaluation (e.g. under the new Agency for SME Support). This could also serve as a means to establish a co-ordination mechanism for SME support organisations. The Ministry of Labour and Social Protection could develop and use big data tools which offer opportunities for real-time labour market analysis of the demand side to strengthen skills anticipation.

R.2 Provide targeted trainings to SME managers and entrepreneurs

The new Agency for SME Support offer an opportunity to bring all SME training under one roof. The Agency could monitor the productivity and ability of SMEs to permanently adapt to changing environments and market conditions and provide tailored training programs that target managers and entrepreneurs.

R.3 Make use of new learning opportunities offered to SMEs through actions related to smart specialisation

SME networks and collaboration, both nationally and internationally, need targeted support to facilitate their integration into global value chains. Belarus could strategically improve access to high-quality training on internationalisation (import and export) and global value chains in priority areas for growth and competitiveness building on the mapping of economic potential conducted as the starting point in designing regional smart specialisation strategies. Connecting SMEs to global value chains opens up new training and learning pathways, technological transfer, skills upgrading, and innovation that would give a much-needed boost to SMEs and encourage them to move from low- to high-valued-added activities. For most SMEs it is more fitting to their absorptive capacity to seek collaboration with VET schools and centres than academic partners.

3.2 Regional competitiveness is lagging despite human capital endowments

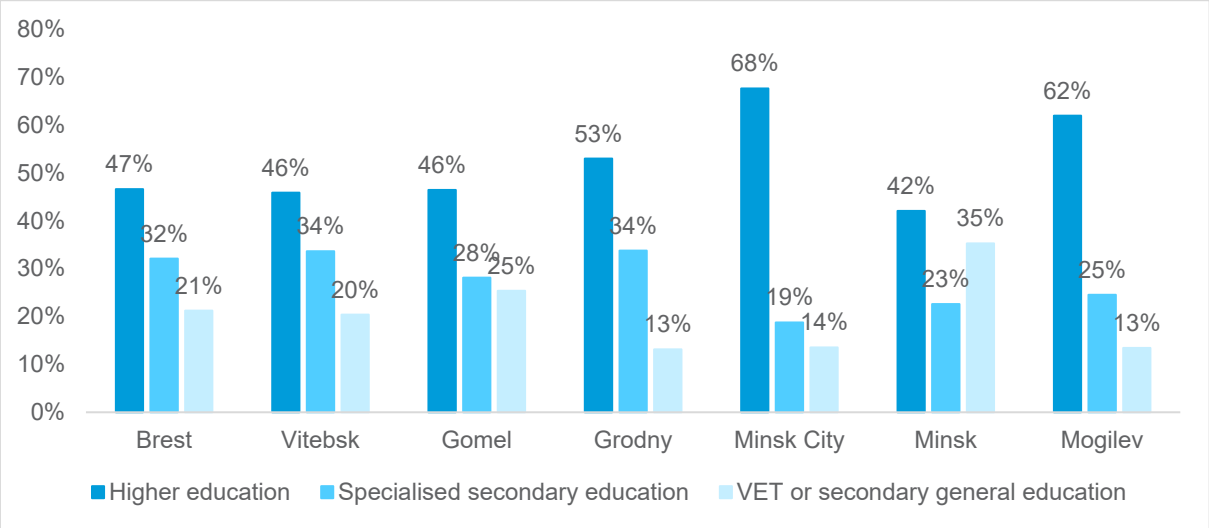
3.2.1 The problem

Despite similar levels of human capital, the gross regional product at sub-national level is significantly lagging behind the capital Minsk. A number of indicators (Figures 17-20) point to links between stagnating levels of entrepreneurship, innovation and related investment - which is concentrated in the capital. The modest number of entrepreneurs at regional level and the decline in their number in the majority of regions is cause for concern. Entrepreneurship is generally a strong driver of regional and eventually national economic growth. Often young SMEs are more innovative, implying that an increase in start-ups will probably lead to a more innovative business population, therefore enhancing regional competitiveness (Noteboom and Stam, 2008).

Belarus has until recently enjoyed a relatively even growth across regions[27]. This is largely due to the state support to state-owned companies spread across the regions. The shift from a planned economy with a strong role of the state-owned companies to a growing private sector share of employment is among the most important changes Belarus has been facing over the last decade. However, in July 2019 the World Bank issued a statement where it stated that economic recovery is slowing down, reflecting low productivity growth and a worsening external environment, and that Belarus needs to strengthen competitiveness for economic resilience and robust growth.

Regions in Belarus differ from each other. Thus, despite similar levels of human capital endowments at regional level, what fosters growth and competitiveness in one region may hamper it in another.

FIGURE 16. REGIONAL SHARE OF EDUCATED WORKFORCE



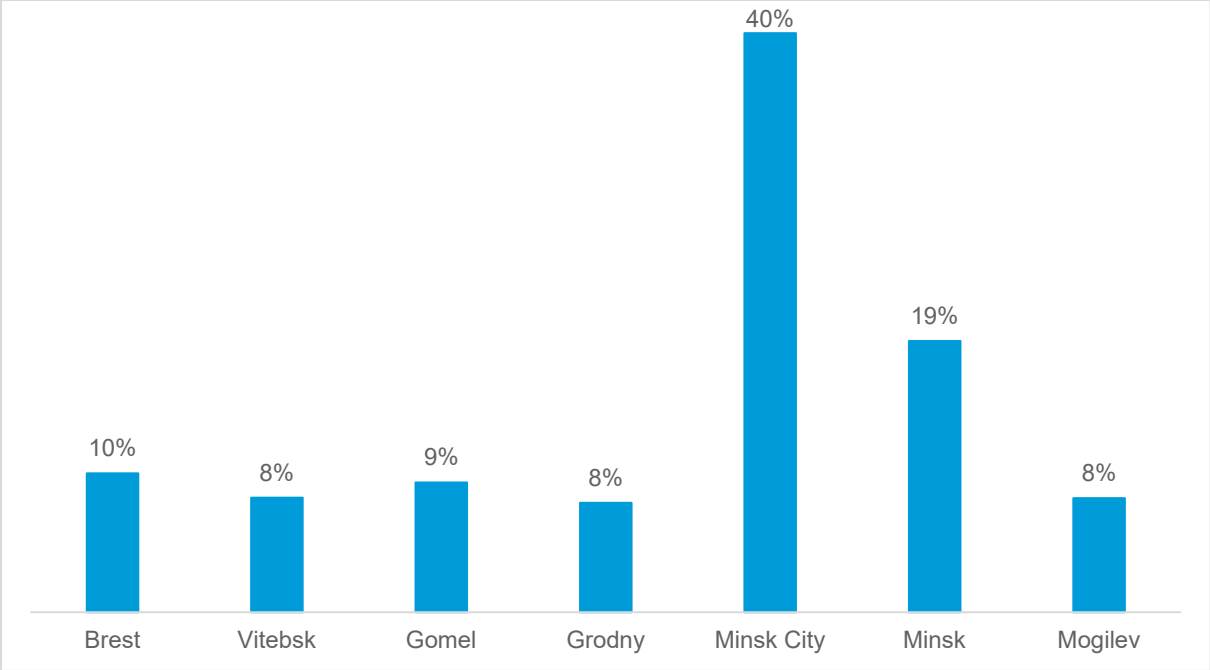
Source: Belstat, 2019b

The new focus on smart specialisation (since 2019) in driving regional growth and competitiveness requires regions to identify their local strengths in terms of activities within existing sectors and industries - and the companies that drive them. Weak regional development is casting a shadow on

[27] NRF, B.1.1 Participation in VET

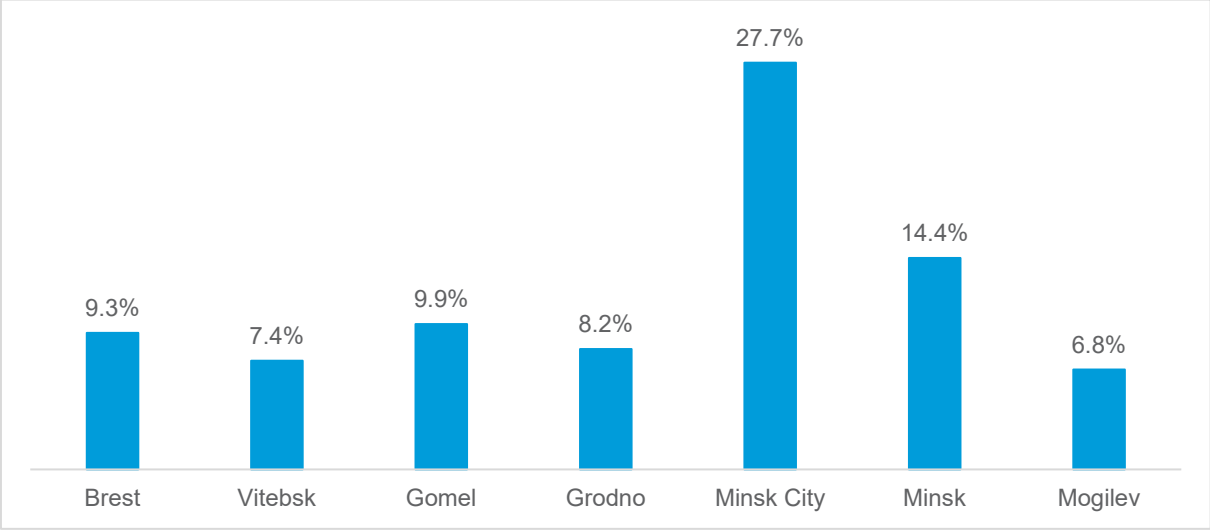
the sustainability of economic growth. Decreasing population at regional level, lack of investment, and depressed business climate accompanied by low average wages play here a crucial role.

FIGURE 17. SHARE OF MICRO AND SMALL ENTERPRISES (2018)



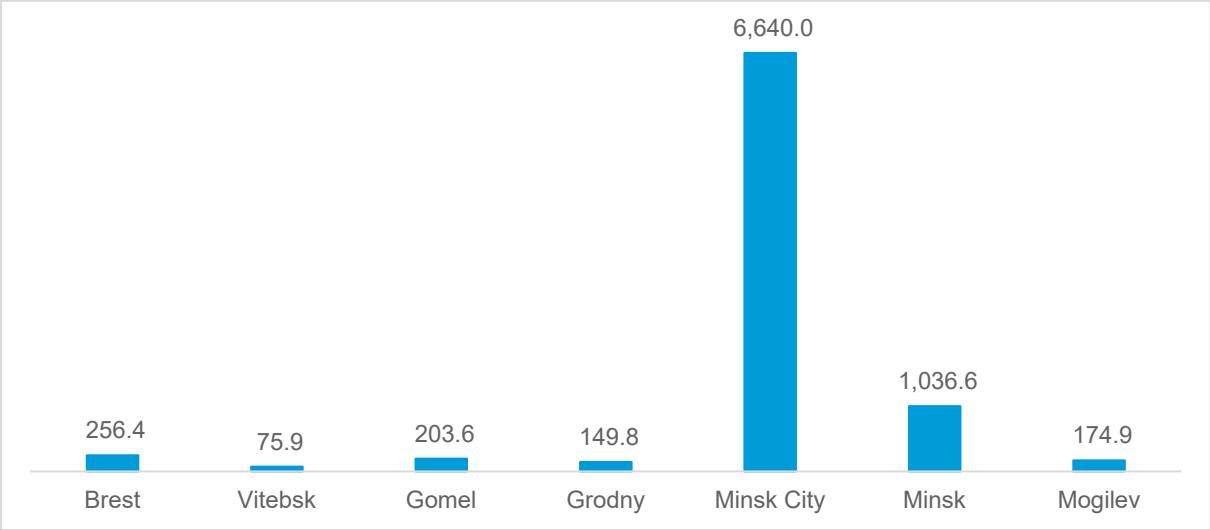
Source: Belstat, 2019b

FIGURE 18. GROSS REGIONAL PRODUCT (2018)



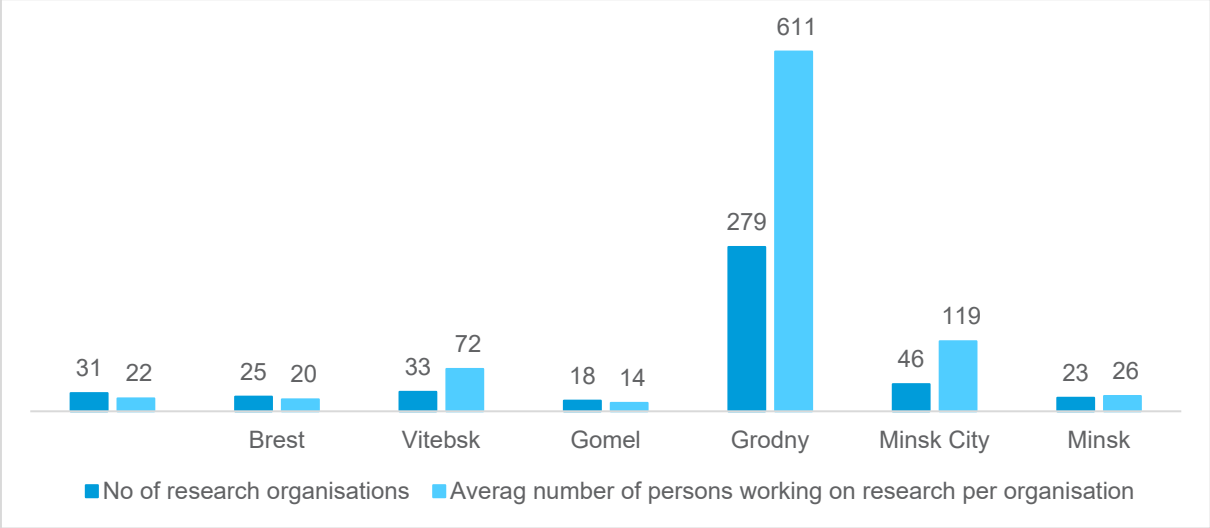
Source: Belstat, 2019b

FIGURE 19. FOREIGN DIRECT INVESTMENT IN 2018 ($US IN THOUSANDS)



Source: Belstat, 2019b

FIGURE 20. RESEARCH ORGANISATIONS AND CONCENTRATION OF PERSONNEL IN 2018

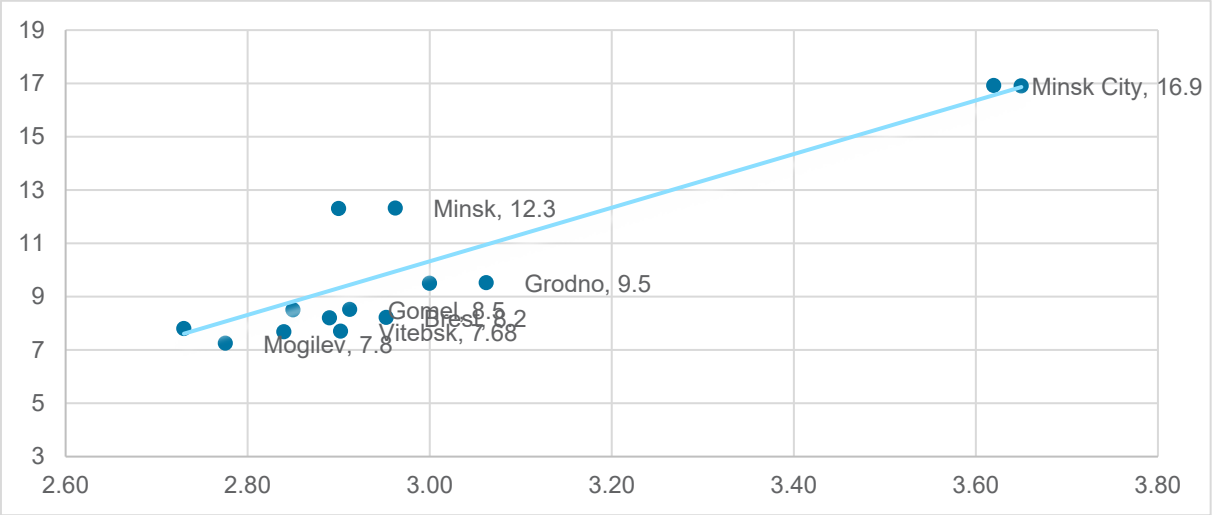


Source: Belstat, 2019b

In 2017 the EU conducted an assessment on regional competitiveness in Belarus. The assessment calculated competitive indices to show the position of the regions relative to each other and the country as a whole[28]. The findings indicate significant differences in the level of competitiveness between Minsk and the regions. The capital Minsk scores the highest in terms of competitiveness, followed by Grodno. The gap in competitiveness is the largest between the capital and Mogilev. All regions except the Minsk region have lower per capita income than can be expected based on their level of human development.

[28] The index for Belarus is not comparable with similar WEF indicators and can only be considered as an average value for interpreting regional indices. Since all indicators based on which indices were calculated were reduced to a five-point scale, their approximate interpretation is as follows: the higher the index value, the closer it is to the best indicators among regions

FIGURE 21. REGIONAL COMPETITIVENESS INDEX (2018)



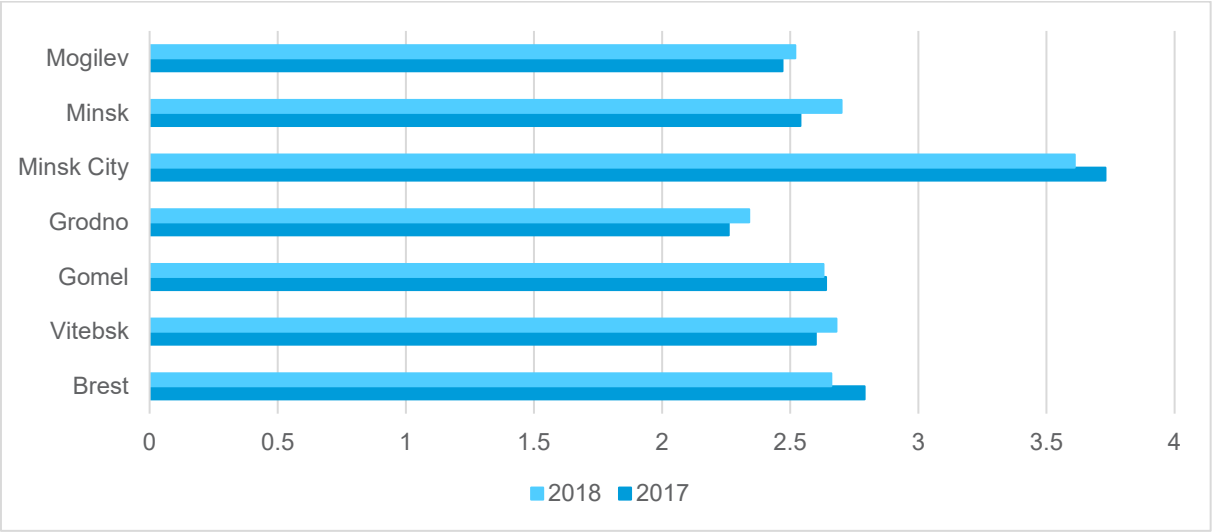
Rank in 2018	Region/City	Score in 2018	% from highest score	Rank in 2017	Score in 2017	Change in index, %
1	Minsk City	3.65	100	1	3.57	2.2
2	Grodno	3.00	82	5	2.80	7.1
3	Minsk	2.90	79.5	6	2.78	4.5
4	Brest	2.89	79.1	2	3.04	-5.2
5	Gomel	2.85	78.1	4	2.84	0.3
6	Vitebsk	2.84	77.9	3	2.87	-0.8
7	Mogilev	2.73	74.7	7	2.73	-0.1

Source: IPM, 2018

Important determinants of the gap in competitiveness between the capital and the regions are in business development and education. This change to a regional perspective naturally shifts focus to the regional entrepreneurial human capital and innovation potential as key issues in addressing growth, competitiveness and wealth creation at regional level[29].

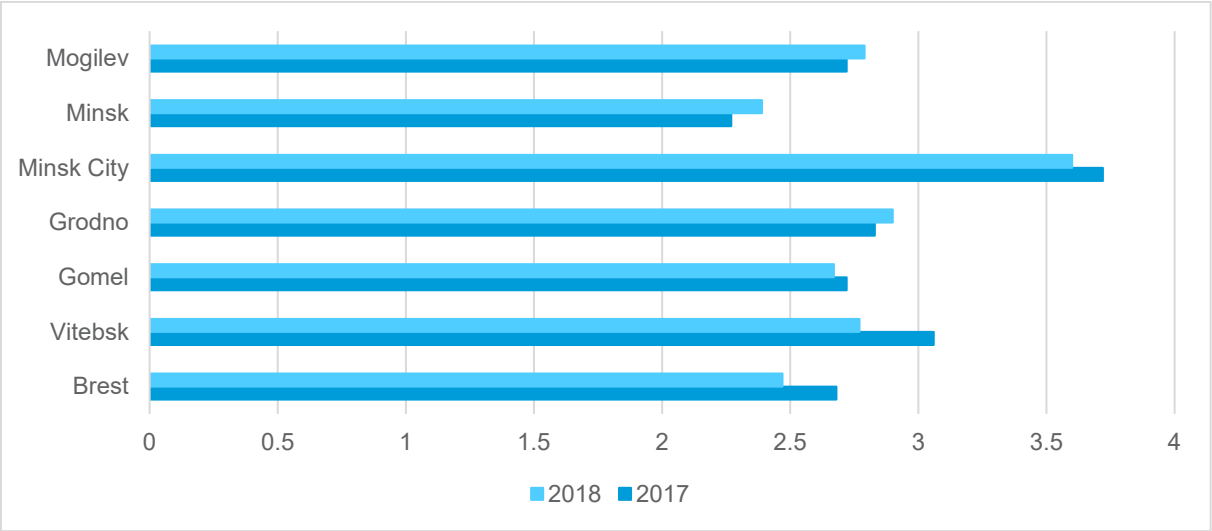
[29] NRF, B.2 Entrepreneurial learning and entrepreneurship

FIGURE 22. REGIONAL COMPETITIVENESS INDEX: SUB INDEX INNOVATION AND BUSINESS DEVELOPMENT (2017)



Source: IMP, 2018

FIGURE 23. REGIONAL COMPETITIVENESS REGIONAL: FACTORS THAT INCREASE EFFICIENCY, THE EDUCATION COMPONENT (2017)



Source: IPM, 2018

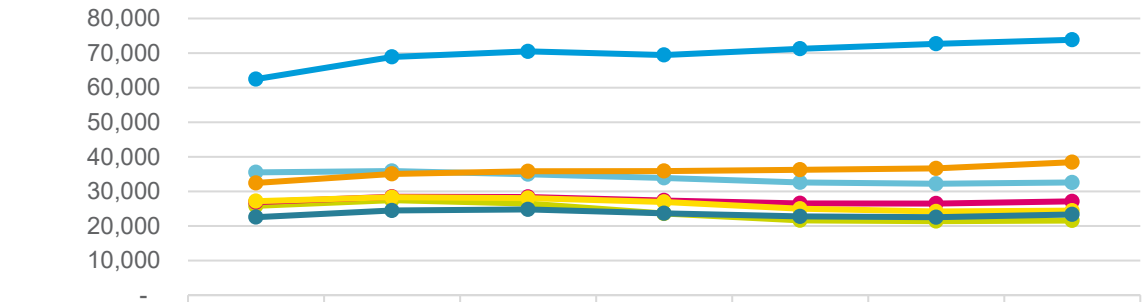
Innovation and entrepreneurship are considered the main drivers of regional growth and competitiveness. A review of recent studies reveals that high levels of newly growing up innovative companies are strongly related to economic growth (Stam, 2008). While there is no single, official definition of "high-growth, innovative firms", the scale of their presence is considered to be an important measure of business dynamics in a country (JRC, 2017).

In Belarus, between 2012 and 2018, the overall number of individual entrepreneurs[30] grew by 3.6% (from 232,851 in 2012 to 241,300 in 2018). However, the number of individual entrepreneurs declined

[30] In accordance with article 3 of the Law of the Republic of Belarus dated 01.07.2010 "On support of small and medium-sized enterprises", the maximum number of employees of microorganizations is 15 people.

in all regions – with the exception of Minsk region that benefited from the proximity of the capital. At the same time the ability entrepreneurs to generate employment grew by 202.7% (from 17,614 in 2012 to 53,317 in 2018). The strongest growth was in the capital where employment by individual entrepreneurs grew by 292%, followed by Gomel 237%. Growth in other regions was more subdued: Minsk 188%, Brest 185%, Vitebsk 164%, and Grodno 163%. While there is no data on the share of high growth innovative companies in Belarus, based on European and international practice, it can be assumed that their share at regional level varies from 0.1% to 10%.

FIGURE 24. NUMBER OF INDIVIDUAL ENTREPRENEURS BY REGION

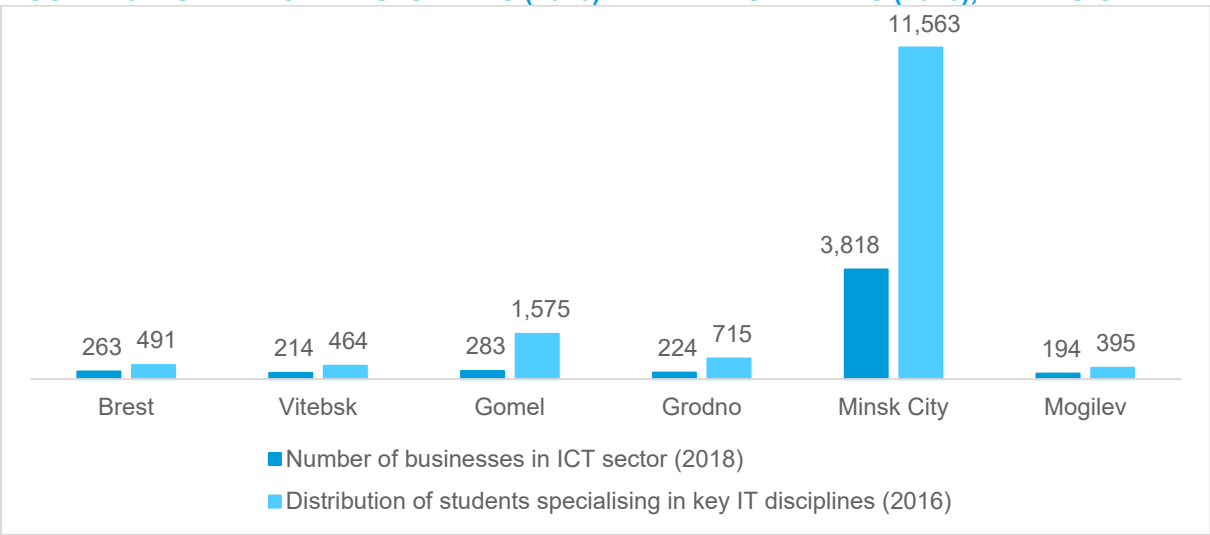


	2012	2013	2014	2015	2016	2017	2018
Brest	35,503	35,890	34,947	33,886	32,597	32,215	32,578
Vitebsk	25,813	27,464	26,481	23,595	21,622	21,389	21,587
Gomel	26,875	28,450	28,393	27,377	26,532	26,482	27,111
Grodno	27,193	28,322	28,059	26,958	24,995	24,200	24,422
Minsk City	62,465	68,886	70,475	69,427	71,245	72,670	73,833
Minsk	32,443	35,048	35,810	35,873	36,245	36,642	38,438
Mogilev	22,559	24,486	24,787	23,665	22,759	22,540	23,331

Source: Belstat, 2019a

What is eating up the innovation potential of entrepreneurs is the concentration of both ICT education and training and IT companies in the capital. This limits the spill over effects of digital economy at regional level, affecting all sectors and industries – all concerned with new and high technologies.

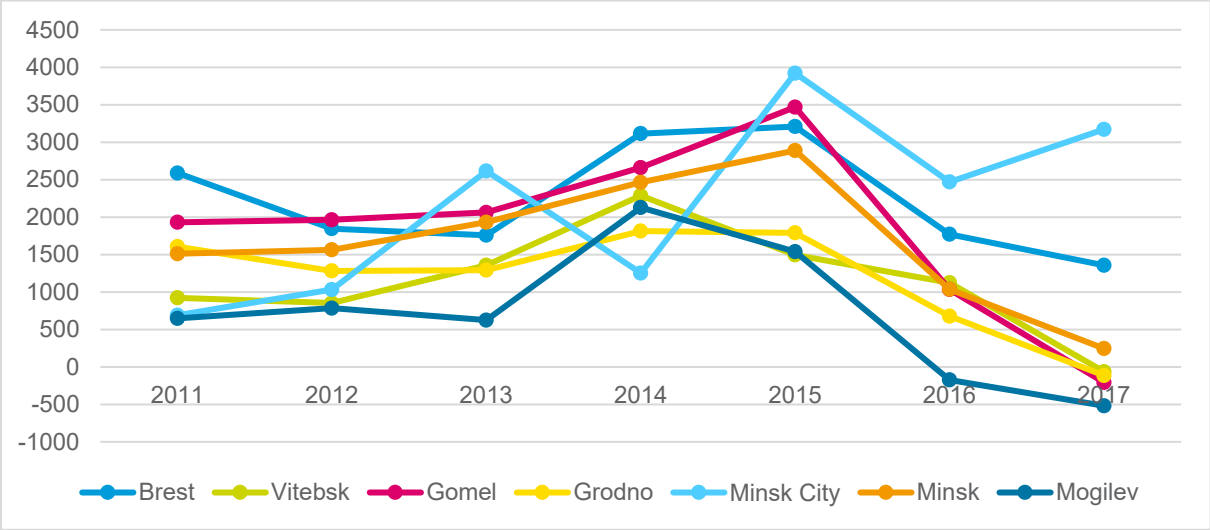
FIGURE 25. NUMBER OF ICT STUDENTS (2016) AND ICT COMPANIES (2018), BY REGION



Source: Number of businesses in ICT sector (Belstat, 2019c), and Distribution of students specializing in key IT disciplines (EY, 2017)

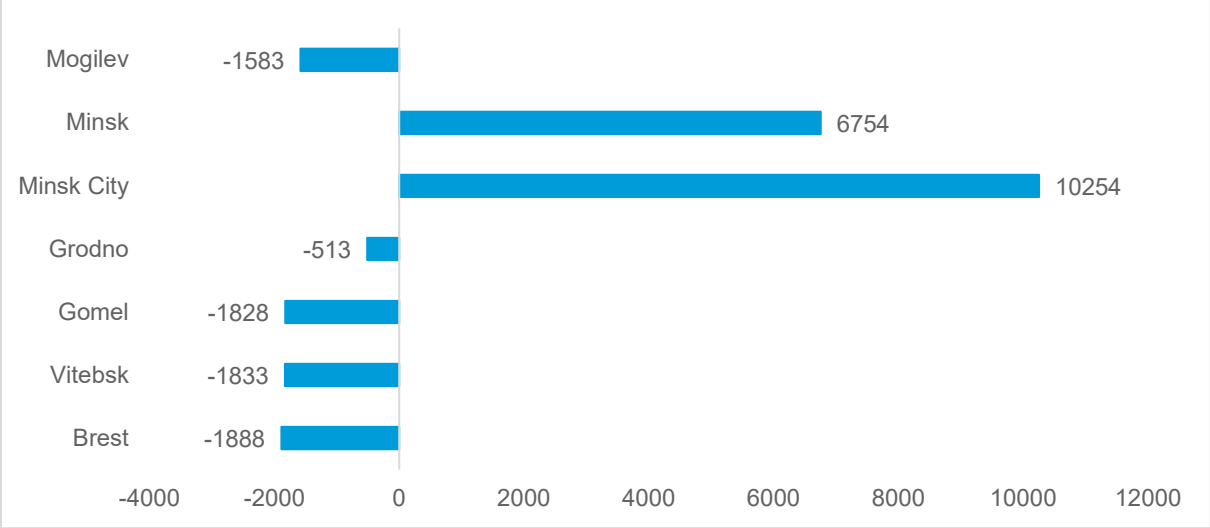
Another negative of the concentration of the ICT sector – with up to 40.000 workers in 2020 - is also that it is affecting the geographic distribution of highly skilled youth. Given Belarus's ageing society with less than 15% of youth in the total population, the young are an increasingly important source of economic dynamism and innovation. Among the young that reside in the capital 24.3% originally moved there with the aim of receiving an education but did not return to the region.

FIGURE 26. NET INTERNATIONAL MIGRATION BY REGIONS (2011-2017)



Source: Belstat, 2018b

FIGURE 27. NET INTERNAL MIGRATION BETWEEN MINSK AND REGIONS IN 2018



Source: Belstat, 2019b

While the concentration of IT industry helps companies network and cooperate, the impact of industry and occupational concentration of ICT workers in the capita on the regions has not been analysed. It would require further analysis to understand potential impact of the concentration on ICT occupations in other industries that rely on similar specialised occupations to move or to expand into high-value added activities – and therefore hamper governments' efforts to reduce interregional differences.

3.2.2 Policy responses

1. Actions in supportive policy framework

Priorities and effectiveness

Belarus National Sustainable Development Strategy 2030 promotes comprehensive and balanced development of each region of Belarus as a strategic goal. The regional policy will continue to focus on economic growth and reducing interregional differentiation. Questions of self-development and regional cooperation, increasing the responsibility of local communities for territorial development and active public participation in local planning underpin the new approaches to the regional policy-making (EC, 2019a).

The Belarusian authorities acknowledge the growing imbalances in the development of the Belarusian regions and territories. The government intends to reduce interregional differences, to ensure decent living conditions for the population and wages. The regional development policy in the period 2020-2030 will focus on regional growth centres, cluster development, creation of new productive jobs, innovative local economies based on local resources, export promotion, SME and entrepreneurship development.

As noted in the SBA assessment (ETF, 2020), the need for a coherent system for entrepreneurship skills is emphasised in the National Strategy for Sustainable Development (2004-2020), the Concept of Business Education Development (2015), the Program for Continuing Education of Children And Young People (2016-20), and the programme "Small and Medium Entrepreneurship" (2016-2020). The latter foresees entrepreneurial learning through student-created mini-companies, but does not specify budget allocations. The implementation is financed through a number of ministries and regional executive committees.

The Ministry of Economy's SME Development Strategy outlines the country's main policy priorities which include the promotion of entrepreneurial activity and private enterprises, introduction of measures supporting innovation, and strengthening the institutional framework, with the establishment of new institutions to support SME policy implementation (OECD, 2020).

The new the Council for Entrepreneurship Development has brought public-private dialogue on entrepreneurial learning to an institutional platform. The Council's main objectives are to develop proposals on state regulation of business education, coordinate the development the business education system, and assess the quality of business education services. The activities of the Council allow for the creation and approval of a new model of state policy in the field of business education – a model focused on the development of public-private dialogue and on increasing the level of self-regulation of the professional community of business-education market participants. This contributes to the modernisation of social education and entrepreneurship institutions, which is extremely relevant for Belarus.

Directive of the President no.4 of 31 December 2010, 'On the development of entrepreneurial initiative and stimulation of business activity in the Republic of Belarus', resulted in a significant growth in the number of SMEs. However, the education system had not until then had a meaningful effect on entrepreneurship which was seen as "the final parachute" in dealing with unemployment.

Innovative entrepreneurship falls the provisions of the Decree of the President of the Republic of Belarus dated January 3, 2007 No. 1 "On approval of the Regulation on the procedure for creating subjects of innovation infrastructure" and the Law of the Republic of Belarus dated July 10, 2012 "On

state innovation politics and innovation in the Republic of Belarus". As stated in the SBA assessment (OECD, 2020), the Programme's objective is to ensure the growth and competitiveness of the national economy, concentrating its actions and resources (about EUR 190 million from the State budget) on building the high-tech sector and introducing advanced technologies into more-traditional sectors of the economy. The State Committee for Science and Technology co-ordinates the implementation of the Programme and is responsible for overall state policy in the field of science, technology, innovation, and protection of intellectual property.

Shortcoming and policy gaps

Despite the correlation between innovative companies and economic growth, there is no clearly formulated state policy in relation to this segment of entrepreneurship (NAS, 2018). One shortcoming in supporting innovative entrepreneurship is its legal uncertainty in the field of scientific, technical and innovative activity. The current legal framework (the law "On the Foundations of State Scientific and Technical Policy" (1993), and the law "On the State Innovation Policy and Innovation Activities of the Republic of Belarus" (2012) are primarily aimed at serving the interests of the public sector. As the issue of innovative entrepreneurship is not defined, there is also no skills intelligence on start-up training needs and the data that is available is often not pooled together and analysed. At present there are no feedback mechanisms to support the improvement of government policies on innovative entrepreneurship.

As reported in the SBA assessment (OECD, 2020), in the case of on-technological innovation, the policy framework is at a very early stage of development. There is only one reference to organisational innovations in the National Programme and no dedicated measures for the diffusion of new technologies. Nevertheless, the State Committee on Science and Technology maintains a database that can help businesses find research partners and information about innovative projects, R&D initiatives, and high-tech products.

2. Actions in fostering of an entrepreneurial learning (ETF, 2020)

Priorities and effectiveness

The Ministry of Economy drives the policy agenda on entrepreneurial learning. In 2017 a Council for the Development of Business Education (Resolution of the Council of Ministers No. 456) was established and brought public-private dialogue on entrepreneurial learning to a single institutional platform. The Council's main objectives are to develop proposals on state regulation of business education, coordinate the development the business education system, and assess the quality of business education services. The activities of the Council allow for the creation and approval of a new model of state policy in the field of business education – a model focused on the development of public-private dialogue and on increasing the level of self-regulation of the professional community of business-education market participants.

There is a wealth of teaching or learning materials in Belarus on entrepreneurial learning. Dedicated formal trainings are held for teachers to support implementation of the concept of student mini-companies. Important teacher training resources are the Resource Centre for Financial Literacy and Entrepreneurship within the Minsk State Palace of Children and Youth that provides non-formal trainings on active learning methods for teachers in secondary education and VET. The Centre for Support and Development of Youth Entrepreneurship has dedicated website for teachers on new educational technologies and active learning methods. In addition, the centre provides consultations to secondary teachers, general and VET, preparing teams for the entrepreneurship competition "Ladder of Success" and the Minsk city competition "Winter Youth Business Doctrine". Teacher training is of

particularly relevance at sub-national, rural levels, where teachers rarely have experience working in the private sector.

Shortcoming and policy gaps

During discussions with national stakeholders, the importance of developing entrepreneurship as a key competence in educational programs and curricula was underscored. Practical implementation of the entrepreneurial learning approach in curricula varies greatly between levels of education. Progress can be seen in primary and secondary education, where elements of the entrepreneurship key competence have been integrated into the curricula, as envisaged in the Programme of Continuous Education of Children and Young people for 2016-2020, under economic education as a "behavioural model and a life strategy". Development of entrepreneurial learning at the level of primary education is implemented through optional courses (e.g. logic, creative thinking, and innovative activity). In general secondary education, the new state program for SME support (2016-2020) contains actions to develop student mini-companies (an initiative that started in 2011), which has made practical entrepreneurship experience accessible at school (about 250 student mini-companies were operating at the time of the assessment). Another model being tested at the level of general secondary education (in four regions) is the concept of "Entrepreneurial School", which aims to integrate both the "entrepreneurial learning" and "entrepreneurship key competence" elements into curricula.

Progress in vocational education and training (VET) and higher education has been slower. However, similar innovative approaches in offering entrepreneurial learning have also been identified in VET and higher education, including the provision of practical entrepreneurship experiences to students. The Ministry of Education has developed a model to promote the entrepreneurship key competence among VET students through mini-student companies at most VET schools. At the level of higher education, national and regional start-up forums called "Youth in Entrepreneurship" are conducted annually with the support of regional authorities, the Ministry of Education, and the Ministry of Economy. During the forums, teams of students develop business ideas and present them to potential employers.

In January 2019, the new educational standards for general secondary education (primary and general secondary) came into force. However, although the new educational standard moves the competence-based approach forward, the approach is not geared towards the entrepreneurship key competence and is not expressed or assessed in learning outcomes.

3. Actions in developing support infrastructure

Priorities and effectiveness

The network of innovation support infrastructure has been expanding in Belarus since 2016. In addition to the widely available business incubators mostly offering support to start-ups, 16 technology parks and 9 technology transfer offices are present in nearly all regions of the country and provide favourable conditions in which to do business, invest in R&D, and transfer innovations from development phase to practical applications.

Companies acquiring the status of residents of technology parks, receive additional opportunities for development. These are tax benefits, rental benefits, the ability to use special equipment and production capacities of industrial parks, legal and business consulting services, business incubation opportunities and participation in the State Program for Innovative Development, as well as in other state programs.

The main activities of residents of technology parks are instrumentation, mechanical engineering, electronics, information technology, software development, medicine, pharmaceuticals, the production of medical equipment, R&D, optics, laser technology, energy, energy conservation, bio and nanotechnology.

An initiative that stand out is the Hi tech Park and the “Great Stone” industrial park. The latter is a special economic zone hosting high-tech and export-oriented production and is building an R&D centre for innovative SMEs. As of 2018, there were 41 residents of the Park: 29 manufacturing enterprises, 10 research and development organizations, 1 logistics firm and 1 architectural firm.

In the coming years, it is planned to further develop technology parks as platforms for organising innovative and high-tech industries that have the necessary resources for this, as well as create conditions for organising business incubation of innovative start-ups on the basis of technology parks.

Recently, the government has focused its attention on fostering SME internationalisation at the regional level through executive committees. In Mogilev a dedicated export support centre for SMEs has been established within the Regional Development Agency with the aim of supporting export-oriented SMEs and promoting local production. Industry associations and business unions (e.g. the Association of International Road Carriers) regularly conduct training events for their members, which are primarily SMEs. At the national level, the Center for Business Education of the Chamber of Commerce and Industry has launched the School of Export, but the training is not specifically tailored to the needs of SMEs.

Shortcoming and policy gaps

Only a fraction of entrepreneurs seems to resort to technology parks. The reasons can be found in that no distinction is made by technology parks between young starting entrepreneurs and successful international companies, between orientation to profit and the provision of public services – and therefore the support services are not tailored to the needs of the entrepreneur.

In the case of digital innovation, Ernst & Young survey results (2017) state that the activities of business unions representing IT industry interests, as well as the current infrastructure created to support and develop entrepreneurship, have a relatively low impact on IT companies’ operations. Firstly, this results from the fact that a significant part of their functions is consolidated by the Hi Tech Park administration and, secondly, from the fact that these institutions are underdeveloped in and business is not prone to rely on them.

Strong representation of the private sector in the governing boards or advisory bodies is recommended.

3.2.3 Recommendations

R.1 Bring entrepreneurial learning under one common policy home.

There are several policy documents that contain provisions for supporting interaction between the education system and the business sector for the purpose of entrepreneurship training. Belarus should bring entrepreneurial learning under one policy home for all levels of education and training, for example, by building on the existing Council for Entrepreneurship Development

R.2 Integration of entrepreneurship key competence approach into pre and in-service teacher training is needed to ensure teachers ability to develop their students' entrepreneurship key competences.

Defining learning outcomes of entrepreneurship is needed at all levels of education to effectively address entrepreneurship key competence in teaching, learning and assessment processes.

The authorities should define entrepreneurship key competences in teaching materials and learning outcomes to ensure teachers ability to develop their students' entrepreneurship key competences.

Integration of entrepreneurship key competence approach into pre and in-service teacher training is needed to ensure teachers ability to develop their students' entrepreneurial learning key competences.

Establish formal career guidance to provide more targeted and systematic support to students with entrepreneurial aspirations.

R.3 Provide targeted support to regional entrepreneurial ecosystems in competitive areas of economic activity

Most entrepreneurs either operate non-scalable companies or do not wish to grow - even under favourable conditions. A regional entrepreneurial eco-system is important for nurturing entrepreneurs and identifying those with the potential and growth ambitions – and facilitate them leaving their comfort zone. The current efforts in student mini companies are unlikely to result in a significant number of start-ups. A much more significant potential are spin-offs, from state-owned companies or clusters such as the Hi Tech Park where geographic proximity creates the conditions for learning. Additional analysis would be needed to identify what those sub-sectors of the economy would be in each region (e.g. smart specialisation mapping) to identify such areas of economic activity and companies at regional level and to provide targeted support in areas where the region has a competitive advantage.

3.3 Industries demand that VET respond to the new quality efficiency and equity requirements

3.3.1 The problem

The interrelated socio-economic challenges of globalisation, demography, rapid change in the nature of the labour market, and technology-driven ICT revolution represent a challenge in providing quality education for all. The drive of the Belarusian government to diversify and modernise the economy necessitates new skills and competences. The structure and content of occupations is changing. New industries and traditional sectors alike are affected by innovations and technological development and need competitive workers with modern skills that meet the requirements of high-tech and knowledge-intensive industries. The VET system needs to monitor and predict future skills, develop lifelong learning, improve the quality of retraining and advanced training services. Labour market entrants with the lowest levels of educational achievement and people with low skills are at an increasing risk of unemployment and social exclusion.

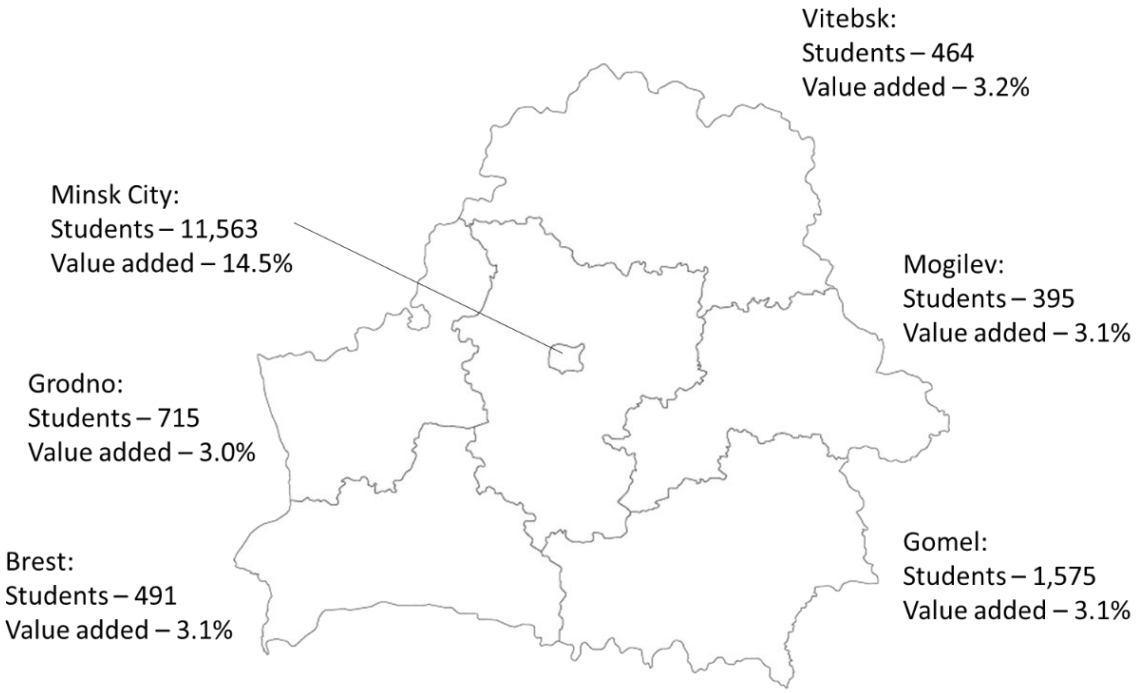
Two issues that directly impact the ability of Belarus to meet the new quality, efficiency and equity requirements for VET in a knowledge economy:

First, efficient and quality VET is based on partnerships between business, the public sector, social partners and regional actors, and focus on specific target group, often at sectoral level. A good

practice in networks and partnership building in Belarus is the Hi Tech Park in Minsk, established in 2006 and estimated to reach 36-40 thousand (EY, 2017) workers in 2020 (most residents create 15-20% more jobs annually). According to Ernst & Young estimates, over 115,000 ICT specialists worked in the Belarusian IT and related sectors - of which 70,268 in Minsk, 3,617 in Mogilev (3%, lowest concentration) and up to and up to 6,155 in Vitebsk (5%, second highest concentration after Minsk). The same concentration is seen in education and training where 76% of students are concentrated in Minsk City.

However, while the Hi Tech Park certainly meets the targets on quality and efficiency and has had a significant positive impact on economic and social outcomes, it has not hit the equity target as it has also exacerbated regional differences more than any other industry. With the majority of the most sought after skills and innovation infrastructure concentrated in Minsk, this is affecting VET institutions ability at regional level to create partnerships and networks with companies in the industry and therefore the ability of regions to grasp the opportunities of digital economy in ICT and other - non ICT sectors. Educational policies alone cannot address educational disadvantage at regional level. There are economic factors which combine to limit opportunities for VET. To correct regional imbalances, cross-sectoral approaches are important to link VET with those related to employment, the economy, social inclusion, youth, and lifelong learning.

FIGURE 28. DISTRIBUTION OF STUDENTS SPECIALISING IN KEY IT DISCIPLINES (2016) AND GROSS VALUE ADDED OF ICT SECTOR IN GDP (SECTOR IN GRP), % (2018)



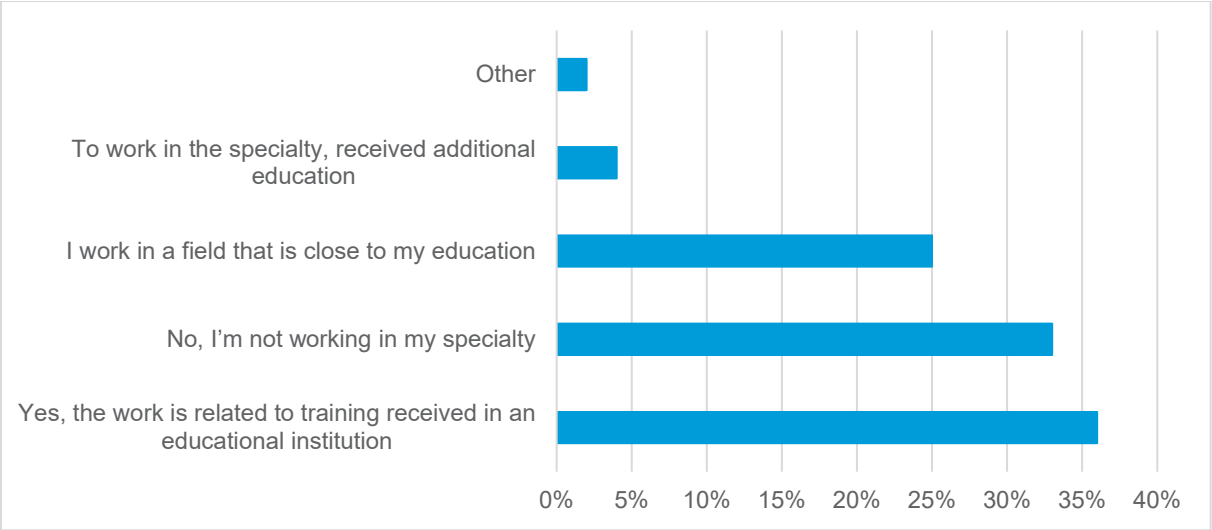
Source: Distribution of students (EY, 2017), Value added of ICT sector in GDP (Belstat)

The shrinking pool of graduates combined with such concentration will result in a significant blow to employers at regional level as the demand for ICT specialists with expertise in medicine, chemistry, and mechanical engineering is predicted to continue to grow for the years to come. Formal VET, in particular specialised secondary and continuing VET will have an important role in helping to reduce skills shortages and gaps though improving or updating knowledge and skills of workers, helping

workers acquire new skills and continue their personal or professional development. Non-formal VET will have a key role in ensuring SMEs are able to upskill and keep pace with the knowledge economy.

In terms of efficiency, accessibility of higher education and an overall negative image of vocational education that prevails have increased the influx of graduates from higher education institutions, which has not been matched by increased availability of graduate level jobs, forcing many young people to work in roles for which they are overqualified. While no regular employer survey is conducted in Belarus and therefore doesn't allow for a closer and up to date analysis, according to some assessments (Figure 29), more than one in three workers in Belarus is currently affected by horizontal mismatch i.e. work in a sector in which the knowledge acquired in the training is not directly applicable.

FIGURE 29. RELEVANCE OF OBTAINED SKILLS OR EDUCATION TO THOSE REQUIRED BY THE JOB



Source: Novak, 2019

Due to an important supply of graduates with higher education, many occupations where VET qualifications would be appropriate now require higher education. No assessment has been conducted on the mismatch, however, according to Pro Business, a large online portal about business and entrepreneurship in Belarus, in July 2019 more than 3,300 ICT vacancies were opened - of which nearly one in three was for one occupation, a programmer - a qualification where VET institutions should play a strong role. Yet, according to Ernst & Young (EY, 2017), in 2018 76% of workers in ICT had higher education.

Qualification of a programmer may indeed be provided mainly by higher education institutions. One would need to analyse the types of ICT related qualifications in secondary specialised institutions to comment on that.

Second, for VET provision to be relevant to the labour market, it must be strongly linked to employers' skills needs[31]. This requires developing data and assessing skills needs not just of the public employers but also of SMEs and individual employers which is currently not conducted. While in the

[31] NRF, B .1.5 Strategic policy responses involving education and VET

case of IT industry employers are taking on some of the cost of training, in general, the private sector shows little interest in providing funding to VET institutions to train qualified workers.

3.3.2 Policy responses

1. Actions to improve VET relevance

Priorities and effectiveness

The ambitious programs to increase the competitiveness of the national economy in the domestic and international markets with particular attention to innovative high-tech sectors, such as IT, bio- and nanotechnology, robotics, energy-saving technologies, etc. is accompanied with a need for VET to improve the quality of retraining and advanced training services[32]. Restructuring the network of VET institutions is part of the state program "Education and Youth Policy" for 2016-2020.

Among the main directions of VET development, the following can be distinguished (UNEVOC, 2015):

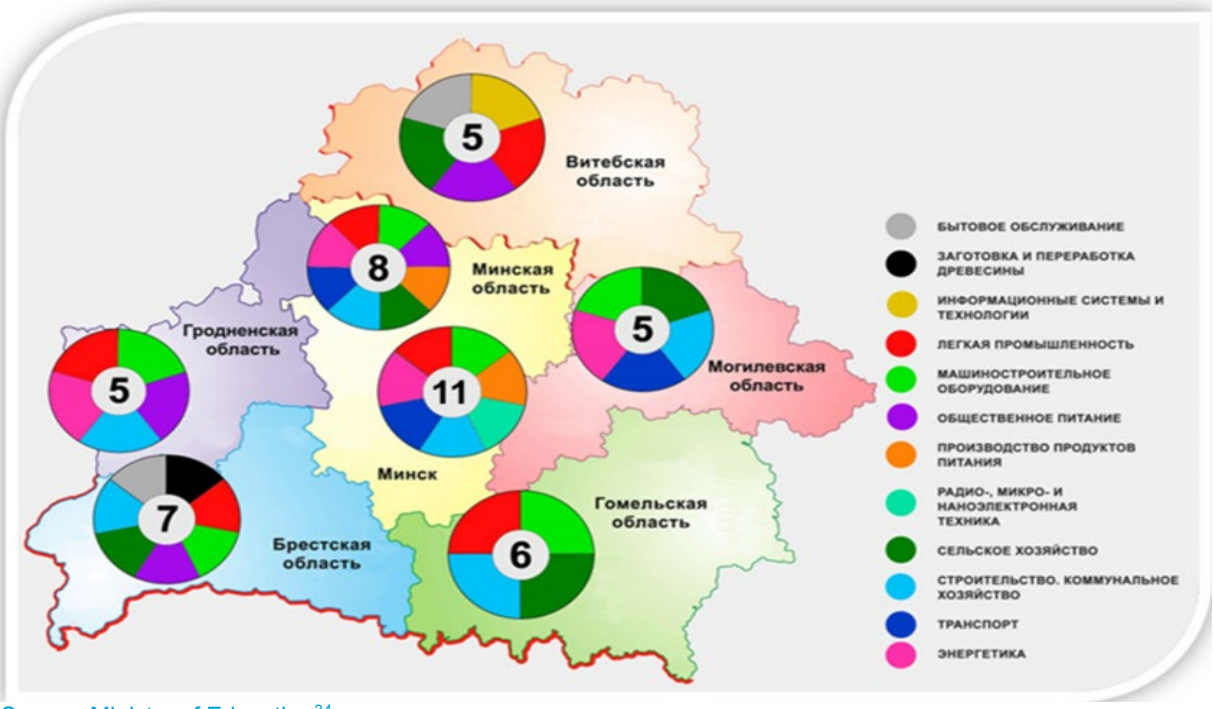
- Increasing attractiveness of VET, so that it is no longer considered as a choice of poor and academically challenged people;
- Introduction of a more efficient resources allocation system and investigation of the possibilities of other (non-public) sources of funding;
- Development of a Quality Management System (QMS) in accordance with ISO-9001 (family of standards that relates to quality management systems and is designed to help organizations ensure they meet the needs of customers and other stakeholders);
- Provision of innovative technological equipment and study material in line with current developments of the industry in question;
- Investing in increasing employment opportunities for young VET graduates;
- Further development of the retraining system where workers with outdated qualifications can be retrained and gain skills more in demand on the labour market; and
- Increase of international involvement in VET development projects.

VET provision has been modernised by equipping training providers with new technologies and machinery, in-service teacher training and updating national curricula and standards. VET institutions have sought to actively learn from developments in the EU and establish partnerships with other countries. Participation in international skills competitions (including World Skills Belarus) has contributed to an improvement in the image and attractiveness of VET (ETF, 2017).

To improve the quality of professional education, a network of 48 resource centres has been established at regional level[33]. The purpose of the resource centres is to be used as platforms for VET students, professional guidance, retraining and advanced training of personnel, as well as for the training of contestants of national and international WorldSkills competitions. By concentrating investments in fewer locations, materials are used more efficiently and the return on investment is higher.

[32] NRF, A.2.4 Vision for VET and major reform undertakings and C.1.3 Policies to improve VET access
[33] NRF, B.1.5 Flexibility in providing training to support participation in VET

FIGURE 30. REGIONAL DISTRIBUTION OF RESOURCE CENTRES IN 2019



Source: Ministry of Education[34]

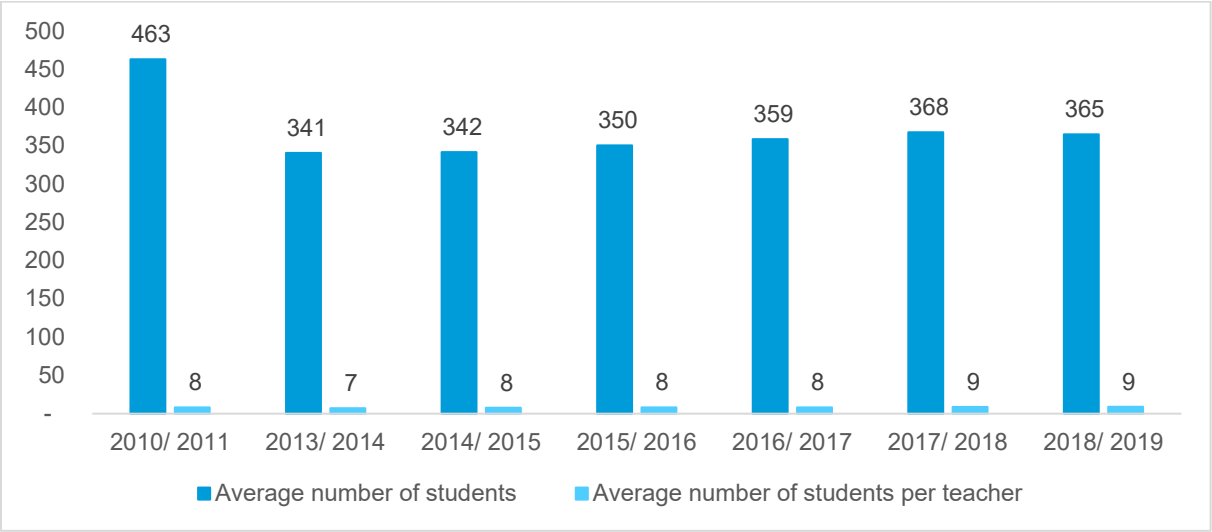
Shortcomings and policy gaps

The changes in demographics, declining population and internal migration have not been reflected, in the network of VET institutions. Most of the VET institutions in Belarus are relatively small and there are overlaps in terms of education and training provision. In addition, the size of the network causes resource constraints. Between 2010 and 2018 the average number of students per VET institution declined by 21%. The average number of students per teacher is also very low (9 students per teacher in 2018).

Rational restructuring of VET school networks to fit the socio-economic developments of each region is part of an upcoming EU project. The project will also address capacity building in change management, and redesigning organisational and management structures as well as funding schemes. This restructuring of the school network would benefit from the analysis of regional economic potential that will be developed within the Smart Specialisation exercise that will be piloted within the framework of Belarus Regional Investment and Competitiveness Programme (BRIC, AAP2019).

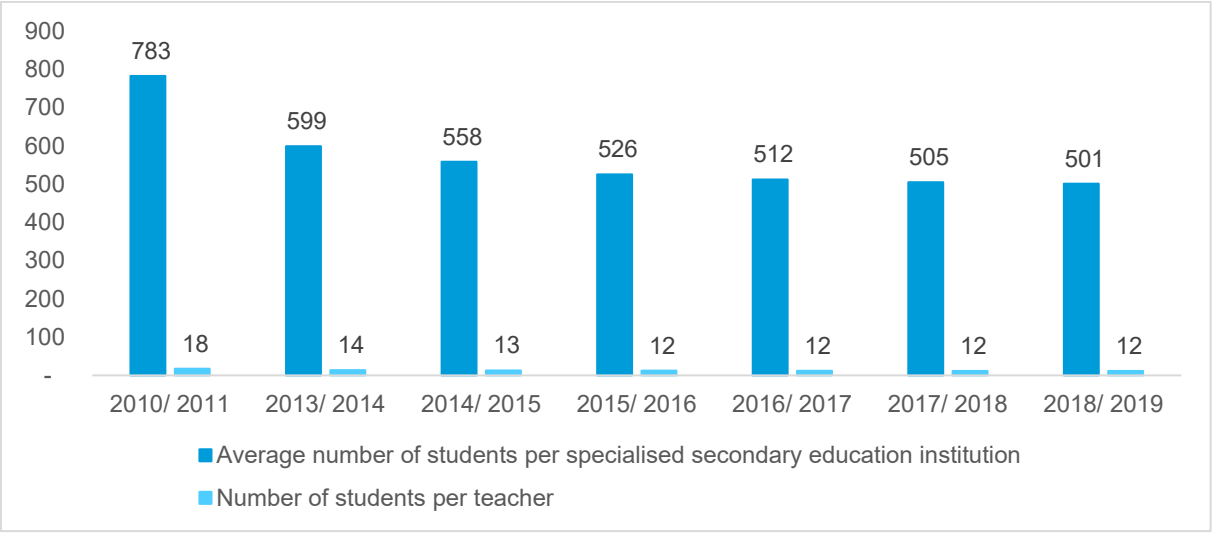
[34] Ministry of Education website

FIGURE 31. EVOLUTION OF VET INSTITUTIONS BY NUMBER OF STUDENTS AND STUDENTS PER TEACHER (2010-2019)



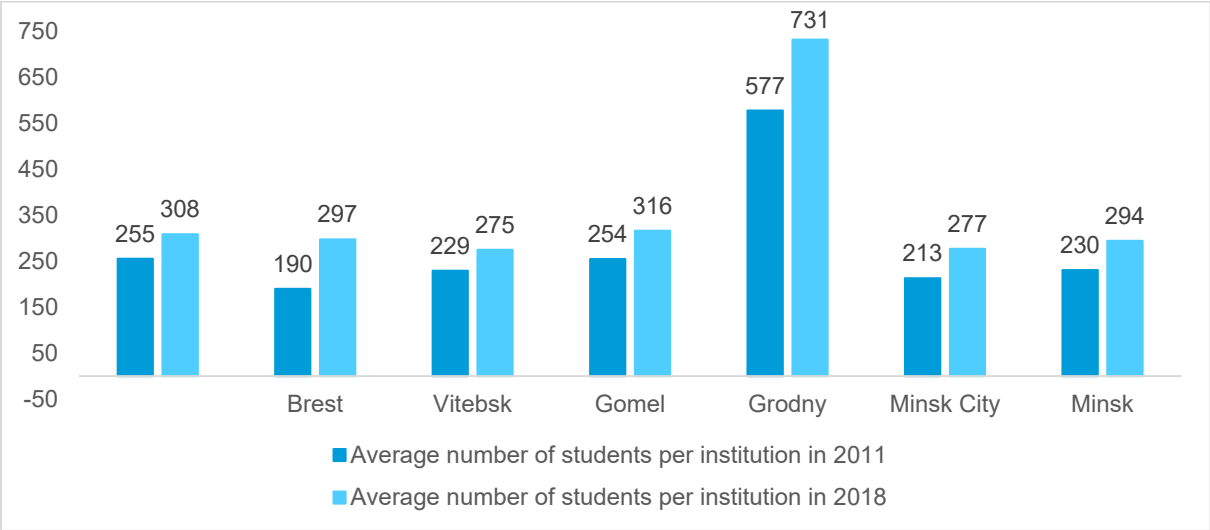
Source: Belstat, 2018a

FIGURE 32. EVOLUTION OF SPECIALISED SECONDARY EDUCATION INSTITUTIONS BY NUMBER OF STUDENTS AND STUDENTS PER TEACHER (2010-2019)



Source: Belstat, 2018a

FIGURE 33. EVOLUTION OF NUMBER OF STUDENTS PER VET INSTITUTION AT REGIONAL LEVEL



Source: Belstat, 2018a

2. Actions to enhance continuing professional development for vocational teachers, instructors, principals and trainers

Priorities and effectiveness (ETF, 2020b)

The State program "Education and Youth Policy" foresees updating competencies of teaching staff, the creation of mechanisms for motivating teachers to improve the quality of work and continuous professional development. [35]

Responsibilities relating to initial and continuing professional development for teachers and instructors are clearly assigned. There are eleven specialist colleges dedicated to the training of instructors and four higher education institutions with responsibility for the training of teachers (at Bachelor or Masters level). However, initial teacher education does not provide specialist training for many branches. RIPO is the main provider of CPD for teachers and instructors. It also sets standards, manages data and analyses needs and advises the Ministry with respect to strategy. There is a specialist body that collects data and schools have clear responsibilities for the CPD of their teachers. Regional authorities help to research needs and provide pedagogical expertise and training. Employers contribute by providing traineeships for teachers. On occasion employers contribute to the design of some CPD programs.

National priorities for CPD for vocational teachers and trainers are set at Ministry level taking account of national policies and analysis of information emerging from school evaluations. The Ministry issues an annual letter which shapes the design and provision of CPD programmes for vocational teachers and instructors.

Funding for CPD for vocational teachers and instructors is assigned to RIPO and the Regional Methodological Centres. The funding is used to design and provide CPD which is provided free of charge to vocational schools although schools pay for travel, food and accommodation of participating

[35] NRF, B.1.3 Policies to improve VET

teachers. Schools are expected to organize professional development for their own teachers. Usually a deputy principal is responsible.

The licensing system of educational institutions, the career promotion system and the low cost of training for teachers all encourage teachers to participate in CPD. Overall 65% of vocational teachers and instructors in Belarus participated CPD over the last 12 months – this is below the OECD average of 85%. Only 64% of these participants benefited from 30 hours or more CPD. More positively, 59% of teachers and instructors reported participating in CPD relating to their vocational specialism. Participation in CPD or training on employers' premises was only 16%. On the other hand, 49% of teachers and instructors independently make use of digital and online learning opportunities to support their own CPD.

CPD often takes the form of seminars – perhaps for 2 days in a span of 12 months. Most teachers collaborate in their teaching, particularly with their peers. 94% of principals participated in courses, conferences or observational visits during the last 12 months, of which 75% obtained at least 30 hours of CPD.

Mentoring takes place in most schools. Mentors may receive additional payment for their work. Mentoring appears to be limited to new teachers and only 24% of mentors have received training. Induction for new teachers is usual but not universal.

Overall approximately 80% of vocational teachers and instructors believe that the CPD offer is relevant. 17.7% of teachers and 17% of principals identified the lack of relevant professional development as a barrier to participation. However, around one third of those teachers that received no training reported unmet training needs in relation to particular topics.

Teachers report that most CPD has moderate or good impact upon their teaching. However, for some kinds of training around 20% of participants reported that it had no or little impact.

According to the SBA assessment (ETF, 2020a), on entrepreneurship key competence dedicated formal trainings are held for teachers on the concept of student mini companies. Important sources of teacher training are the Resource Centre for Financial Literacy and Entrepreneurship (within the Minsk State Palace of Children and Youth) that provides non-formal trainings on active learning methods for secondary and VET teachers. The Centre for Support and Development of Youth Entrepreneurship has dedicated website on new educational technologies and active learning methods and provides guidance on preparing for entrepreneurship competitions (e.g. Ladder of Success or Winter Youth Business Doctrine).

Teacher training is of particularly relevance at sub-national levels where teachers lack practical work experience. Dedicated formal trainings are held for teachers on the concept of student mini companies. Important sources of teacher training are the Resource Centre for Financial Literacy and Entrepreneurship (within the Minsk State Palace of Children and Youth) that provides non-formal trainings on active learning methods for secondary and VET teachers. The Centre for Support and Development of Youth Entrepreneurship has dedicated website on new educational technologies and active learning methods and provides guidance on preparing for entrepreneurship competitions (e.g. Ladder of Success or Winter Youth Business Doctrine).

Shortcomings and policy gaps

ETF survey on teachers' professional development (ETF, 2020b) revealed that around 37% of them have no practical work experience in the field they are teaching. The survey shows that the teachers have an insufficient level of professional competence in order to meet the challenges and

opportunities of new industrial and educational technologies, in particular those associated with Industry 4.0. Instructors of practical training who should have the work experience are lower paid than theory teachers and much lower paid than their peers working in industry which makes this profession unattractive for professionals.

Looking at the capacity of VET to respond to the growing need of digital skills, there are a number of deficiencies. According to an ETF survey (2019), 51% of teachers lack the necessary quantity of computers for training and internet access, 44% of teachers say that digital technologies are used only occasionally by students in class and two-thirds of classes have access to reliable and appropriate computer hardware and software. In discussions on findings of the TRP assessment, stakeholders noted the necessity to improve the issue of professional skills development of the principals of educational institutions and teachers - particularly in terms of IT technologies.

There is an increasing need in trainers for adult learning. In May 2019 Belarus introduced the qualification of andragogue and RIPO is experimenting with training for adult learning methods (ETF, 2020b).

The ETF survey (ETF, 2020b) found 86% of principals find that their effectiveness is either greatly or to some extent limited by shortage of budget and resources while at least 50% see their effectiveness constrained by: the lack of 'a career-based teachers' wage system'; lack of participation and support by parents or guardians and a high workload and level of responsibility for their work. More than half report the lack of the necessary quantity of computers for training and internet access (51%).

Belarus still has a lot of work ahead on renewing standards and qualifications. The quality of learning outcomes and VET curricula would need to be redesigned to be more competence based and modularised to address specific needs of different types of learners, including young people, adults, unemployed, etc.

3. Actions in adjusting VET system to the changing demands of the labour market

Priorities and effectiveness

Adjusting the national VET system to the changing demands of the labour market has become one of the main goals of the national educational system development (UNEVOC, 2015). A number of measures have been implemented in order to optimise the structure of VET, taking into consideration opinions and suggestions of employers and social partners in terms of the qualifications of workers and skills acquired during training. Educational institutions are strengthening their cooperation with enterprises with a view to (ETF, 2011):

- Anticipating enterprises' demands for skilled workers and specialists;
- Arranging in-service practice[36] and training[37];
- Developing requirements for the knowledge and skills to be acquired by graduates;
- Updating national curricula and developing educational standards so that they correspond to the actual situation on the labour market;
- Arranging employees' training, retraining and further training within departments (in groups) of educational institutions;
- Attracting support from enterprises for equipping study rooms and workshops.

[36] In-service practice is the final stage of in-service training and it is usually carried out in the manufacturing environment
[37] In-service training encompasses initial, basic, final (in-service practice) stages, and can be carried out in TVET institutions, specialist institutions (separate subdivisions) for in-service training, customer and other organisations.

Shortcoming and policy gaps

The ETF study (ETF, 2020b) findings noted the rising importance of trainers and mentors in companies. In a learner focused context, the differences between pedagogy and andragogy are fading, with elements of andragogy becoming more and more important for VET teachers. It could be worthwhile to explore whether this division between andragogues and VET pedagogues is really the way forward, or whether these profiles could be further integrated. Application of modular provision would facilitate better integration of theory with practice, which could mean teachers/trainers in the future will likely deal with both theory and practice, making them more flexibly deployable. Within the national qualifications system, a sectoral qualifications framework for teachers and trainers could be established to bring together the most advanced teachers and trainers from VET providers, companies and the private sector to work on reviewing the profiles.

Learning process is constrained by the lack of interaction between providers and companies. The participation of social partners in the provision or quality assurance of vocational teacher CPD is still very limited. Nowadays practical training in Belarus should occupy 40% of the curriculum, but it often takes place in school-based workshops, rather than at the workplace. Only a small part of teachers regularly communicate with employers.

3.3.3 Recommendations

R.1 Make use of resource centres to improve VET quality, efficiency and equity

Regional resource centres lay the ground for establishing Centres of Excellence in the regions instead of equipping modest and small-scale laboratories and resource centres in every vocational school. The centres could play a role in advancing vocational excellence, both by deepening and extending their relationship with employers (small-scale partnerships to strengthen the participation of small companies) and by cooperating and coordinating with other skills providers – other schools, companies, universities, research organisations, specialist development agencies and others to boost VET quality and effectiveness at regional level for a more equitable VET.

R.2 Modernise teacher training (ETF, 2020b)

Modernisation of education and training of VET professionals incl. managers, teachers and trainers is key for responding to industries need. VET teacher education and requirements would need to be revisited where the focus on VET teacher education should be on teachers' professional competence and practical work experience and perhaps less on pedagogical aspects. Moreover, Belarus could slowly move from the separation differentiation between practical and theoretical teaching where theory teachers have a higher status and pay.

RIPO and regional authorities should work in partnership with companies to set up more internships for teachers that address innovative technologies which match the needs of teachers and instructors. RIPO and regional authorities should access additional expertise to design and deliver Continuing Professional Development (CPD) that addresses training needs, e.g. by upskilling trainers of trainers, working with industry, higher education. They should develop awareness of the opportunities for participating in international technical assistance programmes (projects) among vocational education institutions.

Teachers and instructors need industrial experience in the field of modern technologies and CPD to enable them to make use of digital technologies in education. Industry should be engaged in designing and providing CPD, for example, by providing more internships for teachers. The ministry and RIPO

should develop incentives to motivate social partners to cooperate in the field of improving the professional competence of teachers. Design and deliver CPD that addresses these needs at VET centres of excellence. Provide additional internships for teachers and instructors. Enact legislation to permit RIPO, the centres of excellence and other bodies to carry out this work.

R.3 Restructuring and optimisation of VET provider networks at regional level

Enhance relevance of VET by optimising the VET provider network. Most of the providers are now relatively small in size and there are overlaps in provision, resource constraints etc. which could be overcome with a well thought and rational restructuring of VET school networks. This would need to be accompanied by capacity building in change management and redesigning organisational and management structures as well as funding schemes. This could also prepare a ground for establishing Centres of Excellence at regional level.

ANNEX 1. SUMMARY OF RECOMMENDATIONS

Human Capital Development and use problem	Recommendations		
	Recommendation		Description
Issue 1 Skills deficiencies are tying SMEs to low value added activities	R.1	Adapt skill intelligence and workforce planning to reflect the diversity of employers	The Ministry of Economy should take the lead in strengthening data collection for evidence-based planning, monitoring and evaluation (e.g. under the new Agency for SME Support). This could also serve as a means to establish a co-ordination mechanism for SME support organisations. Big data tools offer opportunities for real-time labour market analysis of the demand side. Big data could be used to strengthen skills anticipation.
	R.2	Provide targeted trainings to SME managers and entrepreneurs	The new Agency for SME Support offer an opportunity to bring all SME training under one roof. The Agency could monitor the productivity and ability of SMEs to permanently adapt to changing environments and market conditions and provide tailored training programs that target managers and entrepreneurs.
	R.3	Make use of new learning opportunities offered to SMEs through actions related to smart specialisation	SME networks and collaboration, both nationally and internationally, need targeted support to facilitate their integration into global value chains which opens up new training and learning pathways, opportunities for technological transfer, skills upgrading, and innovation that would give a much-needed boost to SMEs and encourage them to move from low- to high-valued-added activities.
Issue 2 Regional competitiveness is lagging despite human capital endowments	R.4	Bring entrepreneurial learning under one common policy home.	There are several policy documents that contain provisions for supporting interaction between the education system and the business sector for the purpose of entrepreneurship training. Belarus should bring entrepreneurial learning under one policy home for all levels of education and training, for example, by building on the existing Council for Entrepreneurship Development.
	R.5	Integration of entrepreneurship key competence approach into pre and in-service teacher training is needed to ensure teachers ability to develop their students' entrepreneurial learning key competences.	Defining learning outcomes of entrepreneurship is needed at all levels of education to effectively address entrepreneurship key competence in teaching, learning and assessment processes. The authorities should define entrepreneurship key competences in teaching materials and learning outcomes to ensure teachers ability to develop their students' entrepreneurship key competences. Integration of entrepreneurship key competence approach into pre and in-service teacher training is needed to ensure teachers ability to develop their students' entrepreneurial learning key competences. Establish formal career guidance to provide more targeted and systematic support to students with entrepreneurial aspirations.
	R.6	Provide targeted support to regional entrepreneurial ecosystems in competitive areas of economic activity	The current efforts in student mini companies are unlikely to result in a significant number of start-ups. A much more significant potential are spin-offs, from state-owned companies or clusters such as the Hi-Tech Park where geographic proximity creates the conditions for learning. Additional analysis would be needed to identify what those sub-sectors of the economy would

			be in each region (e.g. smart specialisation mapping) and active companies to provide targeted support in areas where the region has a competitive advantage.
Issue 3 Knowledge economy sets new quality, efficiency and equity requirements for VET	R.7	Make use of resource centres to improve VET quality, efficiency and equity	Regional resource centres lay the ground for establishing Centres of Excellence in the regions instead of equipping modest and small-scale laboratories and resource centres in every vocational school. The centres could play a role in advancing vocational excellence, both by deepening and extending their relationship with employers (small-scale partnerships to strengthen the participation of small companies) and by cooperating and coordinating with other skills providers – other schools, companies, universities, research organisations, specialist development agencies and others to boost VET quality and effectiveness at regional level for a more equitable VET.
	R.8	Modernise teacher training	VET teacher education and requirements would need to be revisited where the focus on VET teacher education should be on teachers' professional competence and practical work experience and perhaps less on pedagogical aspects. Moreover, Belarus could slowly move from the separation differentiation between practical and theoretical teaching where theory teachers have a higher status and pay.
	R.9	Restructuring and optimisation of VET provider networks at regional level	Enhance relevance of VET by optimising the VET provider network. This would need to be accompanied by capacity building in change management and redesigning organisational and management structures as well as funding schemes. This could also prepare a ground for establishing Centres of Excellence at regional level.

ANNEX 2. THE EDUCATION AND TRAINING SYSTEM OF BELARUS

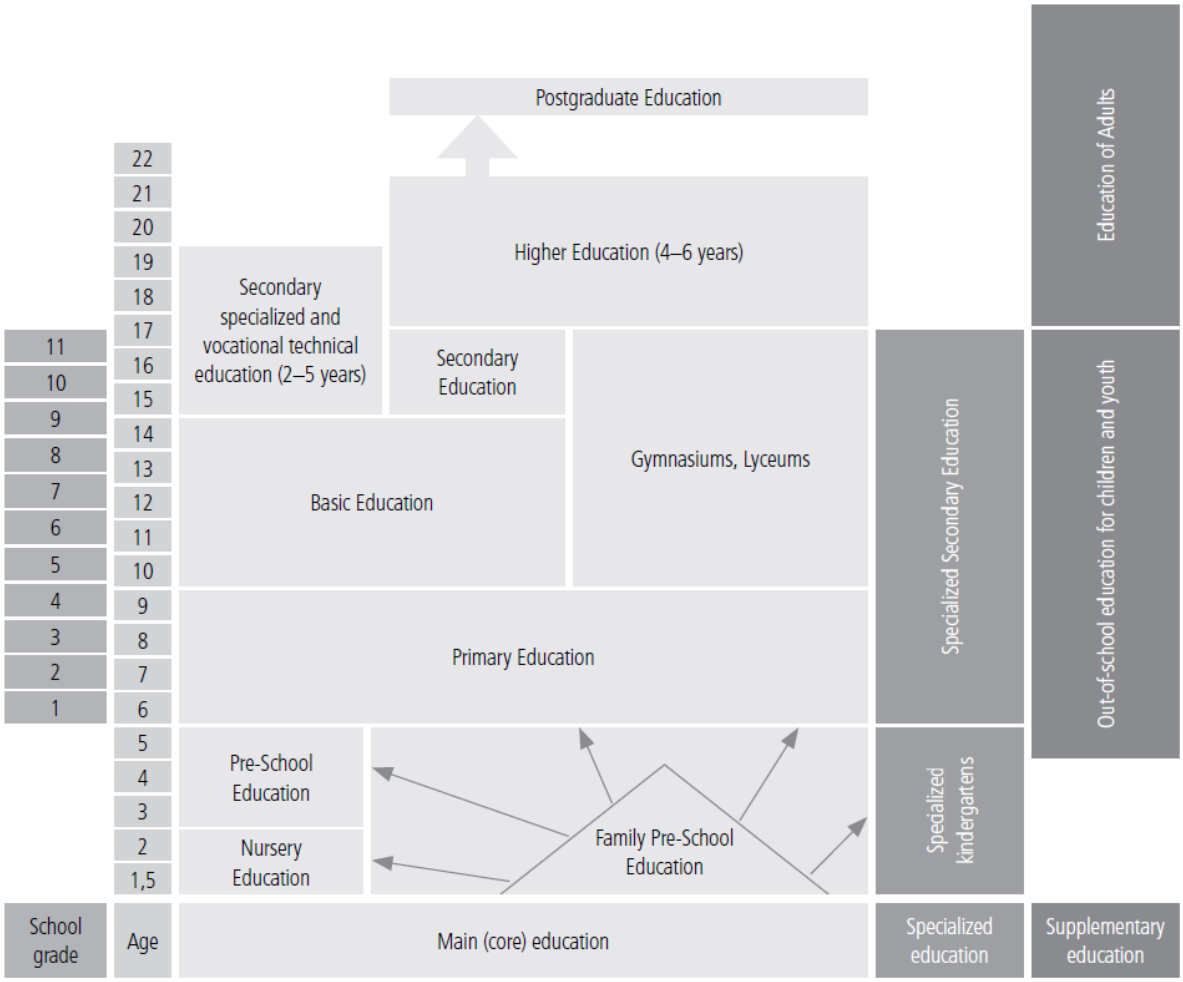


Table. Belarusian education system in numbers (school year 2018/2019

	2010/ 2011	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019
Preschool							
Number of institutions		4,027	3,972	3,951	3,879	3,812	3,803
Number of students (in thousands)		407.0	410.6	409.8	418.1	426.3	435.1
Number of teachers (in thousands)							56.7
General secondary education							
Number of institutions	3654	3,395	3,293	3,230	3,155	3,067	3,035
Number of students (in thousands)	962.3	931.3	946.1	969.1	982.3	994.5	1010.4
Number of teachers (in thousands)	133.1	122.1	117.7	116.6	116.1	114.9	112.5
Vocational education							
Number of institutions	229	219	213	206	196	182	180
Number of students (in thousands)	106.0	74.6	72.8	72.2	70.3	66.9	65.7
Students admitted (in thousands)	34.6	34.5	33.7	32.0	29.7	30.3	28.4
Number of teachers (in thousands)	12.8	10.4	9.3	8.9	8.5	7.6	7.3
Secondary specialised education							
Number of institutions	214	231	231	231	230	226	226
of which public	*202*	*219*	*219*	*219*	*218*	*214*	*213*
of which private	*12*	*12*	*12*	*12*	*12*	*12*	*13*
Number of students (in thousands)	167.6	138.4	129.0	121.4	117.8	114.1	113.3
of which public	*146.4*	*124.1*	*115.5*	*109.1*	*106.5*	*103.6*	*103.0*
of which private	*21.2*	*14.3*	*13.5*	*12.3*	*11.3*	*10.5*	*10.3*
Government funded students (in thousands)	*85.4*	*81.9*	*77.7*	*74.4*	*73.5*	*72.1*	*72.6*
Privately funded students (in thousands)	*82.2*	*56.5*	*51.3*	*46.9*	*44.3*	*42.0*	*40.7*
Students admitted (in thousands)	43.8	40.9	38.9	38.9	38.3	38.4	38.1
of which public	*38.3*	*36.1*	*34.7*	*34.9*	*34.5*	*34.6*	*34.7*
of which private	*5.5*	*4.8*	*4.2*	*4.0*	*3.8*	*3.8*	*3.4*
Number of teachers (in thousands)	9.5	10.2	9.9	9.8	9.9	9.7	9.6
Number of students per teacher	17.6	13.6	13.0	12.4	11.9	11.8	11.8
Higher education							
Number of institutions	55	54	54	52	51	51	51
of which public	*45*	*45*	*45*	*43*	*42*	*42*	*42*
of which private	*10*	*9*	*9*	*9*	*9*	*9*	*9*
Number of students (in thousands)	442.9	395.3	362.9	336.4	313.2	284.3	268.1
of which public	*382.8*	*354.1*	*382.3*	*307.6*	*290.9*	*265.2*	*250.7*
of which private	*60.1*	*41.2*	*34.6*	*28.7*	*22.4*	*19.2*	*17.4*
Government funded students (in thousands)	149.6	142.9	138.7	134.0	130.6	121.2	117.5
Privately funded students (in thousands)	293.3	252.4	224.2	202.4	182.7	163.1	150.6
Students admitted (in thousands)	68.7	63.4	63.1	62.7	61.8	58.9	60.0
of which public	63.9	59.2	58.4	58.7	57.8	55.6	56.7
of which private	4.8	4.1	4.7	4.1	4.0	3.3	3.3
Number of teachers (in thousands)	24.5	23.9	23.3	22.0	21.6	20.9	20.3
Number of students per teacher	18.1	16.5	15.6	15.3	14.5	13.6	13.2

ACRONYMS

BFFSE	Belarusian Fund for Financial Support of Entrepreneurs)
CPD	Continuous professional development
CSO	Civil society organisation
ETF	European Training Foundation
ICT	Information and communication technology
ITC	International Trade Centre
LFS	Labour Force Survey
LLL	Lifelong learning
MSMEs	Micro, small and medium-sized enterprises
NRF	National Reporting Framework
NSDS	National Sustainable Development Strategy
RIPO	Republican Institute for Vocational Education
SBA	Small Business Act for Europe
SMEs	Small and medium-sized enterprises
SOE	State-owned enterprise
STEM	Science, technology, engineering and maths
TVET	Technical and vocational education and training
VET	Vocational education and training

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