PILLARS – Pathways to Inclusive Labour Markets: The case study of the Közép-Dunántúl region

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1 Introduction

The Central Transdanubia (Közép-Dunántúl) region is in the Western part of Hungary, bordering Slovakia in the North. The total population of the region is 1 060 755 inhabitants, and the population density is about 99.1/km^2 per person. Over 80% of the region is composed of rural areas, however, about 45.7% of the population is living in capital cities and towns.[1] This makes it the most populated and the most densely populated rural region in Transdanubia. The high concentration of people in specific areas of the region is related to clustering of economic activities, which has been the main cause of significant income inequalities within the region.

The region is considered the third most developed in Hungary, due to growing automotive industry, manufacturing, electronics, wood and furniture, food, chemicals and steel/aluminium industries, logistics and IT sectors.[2] In the last 10 – 15 years, many large foreign companies and their suppliers have entered the region, setting up export-oriented manufacturing facilities. The favourable geographic position, namely its proximity to Slovakia and to the capital city (Budapest), low wages and good quality infrastructure, increased attractiveness of the region.[3] In addition, lake Balaton is in the region, making it an attractive location for tourists. Despite that, the region's GDP per inhabitant in PPS falls below the EU average, reaching only 70% of EU-27 average in 2021, which reflects the overall state of the Hungarian economy.

The population of the region has been declining in the last decade, due to emigration and low birth rates. However, since 2015 the emigration trend has slowly diminished and since 2020 some reverse migration has been observed, namely, between 2020 and 2021, the net migration was at 2.5%.[4] Overall, foreign population in the Central Transdanubia region is small, representing only 1.2% of the population.[5] Thus, recent migrants represent returning Hungarians rather than foreign-born individuals.

The Central Transdanubia region has over a thousand educational institutions, ensuring that all children have access to education.[6] Based on data of 2021, 54.5% of the population in the region has attained a tertiary education, which is significantly higher than in the EU on average, which comes in at around 41.5%. This is typically explained by recognition of the

[1] https://www.ksh.hu/stadat_files/ele/en/ele0018.html

[2] https://circabc.europa.eu/webdav/CircaBC/ESTAT/regportraits/Information/hu02_geo.htm

[3] https://journals.openedition.org/espacoeconomia/4912

[4] https://www.ksh.hu/regionalatlas_administrative_units

[5] https://stats.oecd.org/Index.aspx?DataSetCode=REGION_MIGRANTS

[6] https://docplayer.net/10414773-Local-report-on-the-situation-and-perspectives-on-inclusive-education-in-the-central-transdanubia-region-hungary.html

importance of higher education for employability and internal labour mobility within Hungary, given that the Central Transdanubia region offers more job opportunities for the highly skilled.[1]

The region is the biggest governmental unit. Within the region there are three sub-regions, or counties: Fejér, Komárom-Esztergom, and Veszprém.

Total population in 2021	Population density (persons per square km)[2], 2021	Average crude rate of net migration plus statistical adjustment (2013-2020)	GDP per inhabitant in PPS (% of EU-27 avg. from 2020 average) in 2021	Tertiary education attainment (ages of 30-34), 2021[3]
1 060 755	99.1	2.5%	70%	54.5%

2 Overview of the labour market in Közép-Dunántúl

Labour market trends and key skills in demand

Over the last decade, the Central Transdanubia region has improved employment rates, labour productivity and decreased female unemployment, mostly due to a strong industrial development in the region, as well as, emigration and low birth rates in Hungary.[4] The labour market trends across three sub-regions of the Central Transdanubia region differ between and within sub-regions, being strongly influenced by the intensity of economic activities. Prior to the global economic recession of 2008, the region experienced a significant labour shortage, due to expansion of the labour-intensive manufacturing sector. The labour shortages are still present in the Komárom-Esztergom County, therefore local companies try to attract and recruit workers from elsewhere. However, the Fejér and Veszprém Counties have a less stable economic performance following the 2008 recession, therefore these sub-regions have been experiencing an oversupply of labour force in the product manufacturing, vehicle repair sectors, and in the professional, scientific, technical and administrative activities.[5]

[1] https://www.oecd.org/regional/HUN-RCG2022.pdf

[2] The EU average population density in 2021 was 109

[3] The EU average of tertiary education attainment in 2021 was 41.5%

[4] https://www.obserwatorfinansowy.pl/in-english/macroeconomics/exceptionally-low-unemployment-rate-in-hungary/

[5] https://eures.ec.europa.eu/living-and-working/labour-market-information_en

Many companies in the manufacturing sector are still labour-intensive, therefore the demand for low/middle-skilled labour is still high. Thus, around a half of currently posted vacancies do not require any professional qualifications, while the share of remote employees in the Central Transdanubia region is relatively low, only 4.2% compared to 21.3% in Budapest.[1] However, in recent years, the Central Transdanubia region has experienced a decline in the share of manufacturing employment, as many production processes are becoming automated.[2] This highlights the gradual technological transformation that some industries and organisations in the region are undergoing.

Major job sectors/industries

The main industries of the region are the manufacturing, food, chemical, construction, catering and IT. For many years, the car manufacturers have been one of the key employers in the region. However, gradually, the regional economic structure has been becoming more diversified. Many IT companies decided to (re)locate in the region to service local industries and, possibly, to get access to larger markets through collaboration with foreign companies.

Key challenges on the labour market and vulnerable groups

The key challenges that the Central Transdanubia region faces are significant labour market mismatches and labour shortages, due to aging population and emigration from the region and from Hungary in general.[3] The emigration of highly skilled individuals from the region to Budapest or to foreign countries, in part, has been associated with a lack of high-quality employment opportunities, in terms of type of work, job prospects and salaries. The labour market mismatches are the result of a lack of needed human resources, knowledge and skills of the population in the region. In the view of local experts, the education sector is relatively rigid, and few education institutions develop linkages with the industries to ensure high-quality education/training services. This further aggravates the labour market mismatches and prevents from developing effective solutions.

Among the traditional vulnerable groups that struggle to get employment in the region/country are listed the Roma people, low-skilled/low-educated individuals and population closer to the retirement age. The education levels within the Roma communities are significantly lower than in the country/region, on average.[4] This is associated with the

[1] https://www.statista.com/statistics/1285136/hungary-share-of-employees-working-remotely-by-region/

[2] https://www.oecd.org/cfe/Hungary-Regions-and-Cities-2020.pdf

[3] https://www.researchgate.net/publication/29716620_Az_alacsony_szintu_foglalkoztatas_okai_Magyarorszagon_The_causes_of_low_level_employment_in_Hungary

[4] Interview 2 and Interview 3

segregation of the Roma people, lower quality of provided education in schools in poorer communities and cultural biases against their employment.

One important issue that, at times, leads to educational inequalities in Hungary is that public schools are allowed to select children/students that will be studying in them. Thus, schools that have many applicants typically dismiss children from lower socio-economic backgrounds. This results in segregation, prevents children from entering better quality schools and, as a result, they face higher barriers to join universities and high-paid jobs.

Indicator	**Data**
Employment rate, 2021[1]	81.5%
Employment in high-tech sectors, 2021[2]	5.1%
Unemployment rate, 2021[3]	2.1%
Youth unemployment rate, 2021[4]	4.9%
Unemployment rate of males (15 years or over), 2021[5]	2%
Unemployment rate of females (15 years or over), 2021[6]	2.2%
Unemployment rate among individuals with less than primary, primary and lower secondary education (levels 0-2), 15 years or over, 2021[7]	5.2%
Unemployment rate among individuals with upper secondary and post-secondary non-tertiary education (levels 3-4), 15 years or over, 2021[8]	2.2%
Unemployment rate among individuals with tertiary education (levels 5-8), 15 years or over, 2021[9]	4.7%

[1] The EU average rate of employment in 2021 is 73.2%

[2] The EU average of employment in high-tech sectors in 2021 was 4%

[3] The EU average unemployment rate in 2021 was 7.2%

[4] The EU average youth unemployment rate in 2021 is 14.5%

[5] The EU average unemployment rate among males (15 years or over) in 2021 was 7%

[6] The EU average unemployment rate among females (15 years or over) in 2021 was 8.1%

[7] The EU average unemployment rate among individuals with less than primary, primary and lower secondary education (levels 0-2), 15 years or over, in 2021 was 13.9%

[8] The EU average unemployment rate among individuals with less than primary, primary and lower secondary education (levels 3-4), 15 years or over, in 2021 was 7.6%

[9] The EU average unemployment rate among individuals with tertiary education (levels 5-8), 15 years or over, in 2021 was 5.4%

Labour market slack, 2021[1]	4.2%

3 Technological transformation and policies/instruments to stimulate innovative and inclusive job creation

As mentioned earlier, the economy of the Central Transdanubia region is largely driven by FDI. In recent years, foreign companies have been driving innovation, technology development, adoption and job creation in the region. Their investments in R&D&I made the production-related activities more efficient and profitable, leading to the expansion of some of their operations and to the creation of new jobs.[2] These jobs require different skills levels, although most of them are low and middle-skilled, posing challenges for future employability of individuals engaged in such jobs.

Since 2013, the region has improved its performance on several indicators, such as product process innovators, innovative SMEs collaborating with others, and employment knowledge-intensive activities. Nevertheless, the innovation ecosystem is still relatively under-developed in the region, compared to other EU Member States, due to a lack of entrepreneurial activity among the local population and limited public investment in the STI. The Hungarian entrepreneurs realise that collaboration with the foreign companies might provide access to large markets, support know-how and stimulate innovation. As a result, the region has attracted new companies and contributed to the development of start-ups.

The European Commission has been investing in several large programmes, such as "Central Transdanubia Operational Programme"[3], seeking to capitalise on a strong industrial base. Most efforts focused on stimulating SME development, tourism sector, infrastructure, and human resources. In 2005, a consortium of eight non-profit regional innovation organizations and a higher education institution have developed a three-year project to support innovation and business in the region. Based on this project, the Central Transdanubia Regional Innovation Agency (KDRIÜ) has been established. This agency plays a central role in the innovative job creation in the region and represents a good practice.

[1] The EU average labour market slack in 2021 was 14%

[2] Interview 2

[3] https://ec.europa.eu/regional_policy/in-your-country/programmes/2007-2013/hu/operational-programme-central-transdanubia_en

The Central Transdanubia Regional Innovation Agency (KDRIÜ) was founded in 2008.[1] The Agency provides a diverse set of activities, such as:

- promoting innovative, high-growth potential SMEs,
- development of technology transfer networks,
- R&D&I project development and project management,
- international project development,
- innovative project evaluation, impact assessment,
- innovation promotion.

The Agency is supporting the implementation of the national research and development and innovation policy in the region. As a result of its activities, more than 100 innovation projects have been developed and over 600 companies received support. Due to strong networks of KDRIÜ, local innovation and business stakeholders gained access to public authorities, company managers, competence centres within Hungary and abroad.

The success factors of the Agency are the following:

- KDRIÜ has been one of the first and most active business/innovation agencies in the region;
- The agency offers a comprehensive package of services and support mechanisms to companies, regardless of their size;
- It is an active stakeholder in many large international projects, therefore the staff at KDRIÜ continuously build expertise and develop professional networks.

Central Transdanubia has strong Creative and Cultural Industries (CCIs). CCIs are made up of all sectors whose activities are based on cultural values, or other artistic individual or collective creative expressions.[2] The region boasts about successful collaboration between the CCIs and the IT sector that results in innovative, technology oriented CCI projects.[3] This collaboration has been strengthened through the Albacomp Innovation Centre, which emphasizes importance of business/innovation hubs for the regional economy.[4]

[1] https://www.kdriu.hu/en/cegtortenet/

[2] https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1515750305.pdf

[3] https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1515750305.pdf

[4] https://autopro.hu/en/news/albacomp-establishes-innovation-centre-in-szekesfehervar/230555

The Albacomp Innovation Centre was established in 2014 in Székesfehérvár (a city in the Central Transdanubia region of Hungary).[1] The Centre serves as a business/innovation hub that stimulates R&D&I activities, offers the space for business development and commercial activities, education/training services and production facilities.[2] Specifically, the Centre has a high-security server room, servers for cloud-based ASP services and high-performance network infrastructure. The provision of infrastructure and services was possible, due to the EU and national funding (4.8 mln EUR).

The Albacomp Innovation Centre has an agreement with the Alba Regia Technical Faculty (part of Óbuda Uniersity) to provide expert support and training activities.[3] On a national level, the Agency for IT Development (KIFÜ) also supports the ICT sector and digitisation through infrastructure and funding projects.[4] Thus, Albacomp Innovation Centre and its members benefit from various support structures and synergies between them.

The Centre has been considered a success, due to its stimulation of cross-industry collaboration and innovative projects that it generated. In addition, the Centre stimulated knowledge sharing and contributed to the expansion of the local entrepreneurial and IT ecosystems.

Limited human resources remain one of the biggest challenges that the regional innovative companies face. For this reason, the regional government, in collaboration with the EU, has been launching education/training initiatives. Among the most successful initiatives is listed the “Programme Your Future Project”.

Programme Your Future Project is the public-private partnership that aims to encourage students to pursue an IT career.[5, 6] The programme started in 2016 and will run until 2023. Its total budget is €28 million, partially funded through the European Regional Development Fund (ERDF).

The project is being implemented by the Hungarian Governmental Agency for IT Development, in partnership with the Ministry of Technology and Industry, and with

[1] https://autopro.hu/en/news/albacomp-establishes-innovation-centre-in-szekesfehervar/230555

[2] https://www.interregeurope.eu/good-practices/albacomp-innovation-centre-as-a-driver-of-the-local-creative-sector

[3] https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1515750305.pdf

[4] https://kifu.gov.hu/en/main-page/

[5] Interview 3

[6] https://programozdajovod.hu/

industry organisations. The programme focused on five pillars: the development of a knowledge base supporting the renewal of IT education; promoting of cooperation between training institutions and ICT companies operating in their environment; increasing the socio-economic recognition of IT professions; implementing activities of communication; and opening digital experience centres to help IT career guidance.

The fifth Pillar has been considered particularly successful, as it focused on bringing children aged 6 to 19 to "experience centres" where they could play games that increase their interest in IT careers. According to the programme's website, about 54 thousand people attended these centres.

The programme has attempted to address the future labour market mismatch. Among its success factors are included:

- The programme has stimulated collaboration between industry organisations and education institutions to ensure high-quality and relevance of education for the companies in the region;
- Children perceived learning as a game, which increased their willingness to participate in the awareness raising campaign;
- The programme provided excellent IT software for education and research purposes to universities and research organisations

4 Policies/instruments to prevent and mitigate job displacement

In view of experts, the technological transformation, especially in large manufacturing or labour-intensive companies, has been resulting in job displacement in the Central Transdanubia region. It has mostly affected low-skilled/low-education individuals, particularly in the agricultural sector. The job displacement does not have a wide scale, as technological transformation is gradual, but the trend should not be ignored.

Although the official literacy rate in Hungary is 99%, experts suspect that around 20% of working age adults lack basic literacy and numeracy skills; and around 50% of working adults are lacking basic digital skills.[1, 2] The PISA 2018 results reflect that the students in Hungary scored lower than the OECD average in reading, mathematics and science.[3] The

[1] https://kohesio.acceptance.ec.europa.eu/en/projects/Q3936213

[2] Interview 3

[3] https://www.oecd.org/pisa/publications/PISA2018_CN_HUN.pdf

transformation of the education system across all levels is slow, as the education sector does not have strong links with industry, there is a shortage of teachers, teacher salaries are low, while the knowledge of current teachers is relatively outdated. In view of experts, the education system in the region, and in Hungary generally, should undergo a significant transformation, stimulating the development of language skills from primary school to facilitate international collaboration, STEM, IT and communication skills that are essential for the future of work. In addition, experts indicate that the local culture is not focused on productive collaboration. As a result, entrepreneurship is also hampered. There are concerns that digital technologies will make people even less communicative/collaborative, therefore high-quality education should ensure that students can develop both technical and social skills.

In view of the challenges in the education sector, the government pursues a rather reactive policy approach in dealing with job displacement, focusing its effort on ALMPs. The list of ALMP measures that are offered in the region are relatively standard. However, the special feature of the AMPL policies in Hungary is its strong emphasis on subsidised jobs. Subsidised jobs refer to the Hungarian government's efforts to preserve or incentivise employment by

temporarily giving a company support per employee to cover the employee's wage.[1] Many of these subsidies have been given out as part of the "Path to the Labour Market" programme, which targets the long-term unemployed. Similarly, large public works programmes have been simultaneously deployed throughout the country, especially in the poorest regions of Hungary where there is a high concentration of Roma people. These programmes have been implemented as a response to high unemployment rates following austerity measures introduced during the economic recession of 2008, thereby replacing unemployment benefits.[1] It has been widely agreed that these programmes are not effective in stimulating employment and reducing labour market mismatch. However, there is evidence that such programmes have been effective at keeping the poor, especially the rural poor, out of extreme poverty.[2]

In recent years, all three sub-regions within the region (Fejér, Komárom-Esztergom, and Veszprém) have reported a declining number of subsidised jobs.[3] This indicates the government limits its intervention into the regional economy, assuming that the free-market forces will be able to reach some balance on the labour market. Among the successful ALMP policies in the Central Transdanubia region is highlighted the "GINOP-5.1.1-15 Road to the labour market" programme.

"GINOP-5.1.1-15 Road to the labour market" programme has been launched in 2015 and was mostly funded under the ESF. The programme included two parts.[5] The programme has been aimed to help long-term unemployed and people that reside in areas with limited job opportunities to re-enter the labour market.

The key activities of the programme focused on making the services provided by the PES more accessible, efficient, of higher quality, and strengthening the targeting of services and support through a profiling system. The profiling system was designed for the PES to facilitate the provision of personalised services to customers, such as career guidance and training opportunities.

In addition, the programme incentivised inclusion into the labour market through wage subsidies to employers and set up a free job board where companies can share vacancies with potential employees. The programme funded general labour market services and professional activities for all jobseekers, including those who did not participate in this labour market programme.[5]

[1] https://etui.org/sites/default/files/2021-11/Job%20retention%20schemes%20in%20Europe%20-%20Hungary_2021.pdf

[5] https://kohesio.acceptance.ec.europa.eu/en/projects/Q3936213

It has been considered effective, due to the following:

- The profiling aspect of the programme follows previous European Commission recommendations to develop a PES customer categorisation system (profiling). This is essential for data analysis and the design of future ALMP measures;
- The programme provided a wide range of personalised mediation, counselling, mentoring/training services;
- The free job board has been a much-needed tool and it proved an effective and efficient mechanism for reducing unemployment and improving labour market mismatches.

Limited human resources, as mentioned above, remain a key issue for the labour market in Central Transdanubia. To increase the availability of these resources in the long-term, since 2015 the Hungarian government has launched the migration programme "Gyere haza fiatal" and developed a strong pronatalist agenda.[7] Various financial incentives, such as writing off loans and the possibility of taking parental leave for up to three years, are provided for families that will have children or already have children.[8] Such incentives, together with a lack of childcare services, decreased employment rates among women and increased gender pay gap.[9] In the Central Transdanubia region, the impact on female unemployment has been milder than in other regions of Hungary, due to availability of jobs that encouraged women to retain employment. In view of this, in 2022 the European Commission provided recommendations to enhance availability of childcaring facilities for children below three years of age, and to facilitate access to education and employment for women, as well as, for other vulnerable groups.[10]

"Gyere haza fiatal" (Come home young) programme has been launched in 2015 by the Hungarian government to encourage the return of young Hungarians living in the UK. The programme offered Hungarians with a higher education degree job opportunities, housing

[3] https://kohesio.acceptance.ec.europa.eu/en/projects/Q3936213

[4] *https://eures.ec.europa.eu/living-and-working/labour-market-information_en*

[5] https://kohesio.acceptance.ec.europa.eu/en/projects/Q3936213

[6] https://kohesio.acceptance.ec.europa.eu/en/projects/Q3936213

[7] https://academic.oup.com/sp/article-abstract/29/4/1425/6700657?redirectedFrom=fulltext

[8] https://www.theguardian.com/world/2020/mar/04/baby-bonuses-fit-the-nationalist-agenda-but-do-they-work

[9] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD%3A2022%3A614%3AFIN

[10] https://commission.europa.eu/system/files/2022-05/2022-european-semester-csr-hungary_en.pdf

assistance, and mobility grants to facilitate the travel of returning Hungarians for job interviews and mentoring.[11]

The eligibility criteria included the following: the migrant should be young (below 30) and should have excellent English language skills and higher education degree in a profession/industry that experiences labour shortage.[12] In addition, preference has been given to migrants that were employed abroad for at least one year. The programme funded only 50 young people, due to limited budget. However, it has been effective in stimulating highly skilled individuals to return to their home country. Based on interviews with the returned migrants, the programme represents an attractive offer, as it provides comprehensive support.

The ultimate goal of the policymakers was to stimulate local entrepreneurship through the programme. The success with achieving this goal was questionable, however, the suggested eligibility criteria was considered the key success factor.

5 Policies/instruments to support employers and employees during job transformation

The adoption of technologies in organisations in Central Transdanubia has made the skills gaps more apparent. To close the skills gaps, the national and regional policymakers, education associations, NGOs have been launching educational and/or training programmes that will satisfy market needs and improve career prospects of individuals. To promote training and lifelong learning, the government has set up the Hungarian Association for Lifelong Learning (ALLL). It is an umbrella organization in the field of adult education and lifelong learning in the country, representing 22 member organizations – registered and accredited as an adult training provider organisations. The aim of the ALLL is to raise awareness about the importance of lifelong learning and knowledge sharing, offer professional support services and influence the policymakers.[13] Despite the above, lifelong learning and adult education are not common in Hungary, as individuals have a low motivation to join training, lack information on available offers and time to invest in training, assume that the quality of training will be low, but costs high. Some interviewees argued that

[11] https://hungary.iom.int/hungarian-emigration

[12] https://kdnp.hu/ezaz/elindult-gyere-haza-fiatal-elnevezesu-program

[13] https://basicskills.eu/current-members/the-association-for-lifelong-learning-alll/

the biases against training are related to previous education experience in Hungary, which, as discussed above, has not been characterized by high quality.

In view of the stakeholders, the Second Chance Education Programmes that have been operating in the Central Transdanubia region for more than two decades represent an effective approach for upskilling/reskilling.[14] These programmes belong to the group of initiatives that offer education/training support for students who have dropped out of secondary education. Given that in Hungary it represents a significant number of students, the programme has been launched in different phases across years.

The Second Chance Programmes are not unique to Hungary, as they have been launched across the EU. Based on the European Council, the Second Chance Programmes pursue several aims:[15]

- Implement lifelong learning and mobility,
- Improve the quality and efficiency of education and training,
- Promote equity, social cohesion, and active participation in society,
- Develop innovation and creativity, with a focus on entrepreneurship.

In the Hungarian context, the initiatives launched under the Programmes have targeted low-educated and disadvantaged students, such as Roma students, who also face discrimination on the labour market.[16] The Second Chance Education Programmes fund not only individual initiatives, but also organisations that deliver education/training services to students who dropped out of education.

InDaHouse Hungary Association is a grassroot organisation that works with disadvantaged, mainly Roma, children starting from the age of 5.[17] With the help of volunteers, the Association provides education services to vulnerable children until they become "responsible and self-fulfilling adults".[18]

The Association has been enrolled in the Second Chance Education Programme in Hungary. The programme is implemented during the school year, on the weekends. It offers individual and group development sessions at school, in combination with individual early childhood development sessions in the families' homes. The sessions focus on bettering the

[14] http://fogyatekossagtudomany.elte.hu/wp-content/uploads/2020/11/Billedi_FT_2020_2.pdf

[15] http://fogyatekossagtudomany.elte.hu/wp-content/uploads/2020/11/Billedi_FT_2020_2.pdf

[16] http://fogyatekossagtudomany.elte.hu/wp-content/uploads/2020/11/Billedi_FT_2020_2.pdf

[17] https://indahousehungary.hu/make-it-possible

[18] http://fogyatekossagtudomany.elte.hu/wp-content/uploads/2020/11/Billedi_FT_2020_2.pdf

children's self-awareness and self-confidence, learning to deal with negative feedback that children face in education institutions.

Additionally, the Association transports children to and from schools to encourage employability among parents. It is also an active employer in the communities and a social enterprise that offers its facilities as a guesthouse.

Among the success factors of the InDaHouse Hungary and of the Second Chance Education Programme in which it has been involved are the following:

- Long-term and individualised support is offered to children/students from disadvantaged backgrounds;
- The programme focuses on empowerment of children, as it aims to provide skills that will support their experience in education institutions and in places of work;
- The programme actively engages with local communities and brings awareness to families on the long-term benefits of education. Thus, it focuses on long-term relationship building to affect the local culture.

Another successful programme implemented as part of the Second Chance Education Programmes is the "Bridge to the World of Work" initiative, organised as part of the Dobbantó (Springboard) Programme.[19]

The "Bridge to the World of Work" initiative was implemented between 2008 and 2011 in Hungary. The initiative focuses on providing young people who were not in any type of formal education, or who had dropped out of school with training and individualised life path planning.[20] The programme also tended to further focus on people who had behavioural and learning difficulties.

The initiative aimed to improve the self-image of young people, better their skills in relation to their peers and employees, and to acquire and/or further develop professional competences.

The success factors of the initiative include:

- Both employed and unemployed young people who did not complete formal education could join the initiative and develop necessary skills;

[19] https://www.oecd.org/edu/ceri/HUN.004.Final%20with%20cover.pdf

[20] http://fogyatekossagtudomany.elte.hu/wp-content/uploads/2020/11/Billedi_FT_2020_2.pdf

- The initiative offered a comprehensive support to young people with disadvantages, recognising additional, behavioural difficulties, that prevent from successful integration on the labour market;
- Young people were given insights about work through workplace visits, discussions with employers and employees. This has increased their awareness of job-related tasks, activities and career choices, and stimulated their better preparation to the world of work.

6 Lessons learned

Stimulation of innovative and inclusive job creation, powered by automation technologies:

- The economy of the Central Transdanubia region is largely driven by FDI and export-oriented manufacturing companies. The presence of foreign companies attracts other Hungarian companies and contributes to the development of the start-up ecosystem. Similarly, the development of the IT sector in the region and in Hungary, in general, is strongly linked to the industries to whom IT services could be provided. Thus, digitisation and industrialisation are strongly related.
- The adoption of automation technologies may lead to the creation of new jobs in organisations, including low and middle-skilled jobs. The latter may discourage investment in education and training of individuals, lead to deskilling, and reduce job prospects of these individuals if they become unemployed.
- The favourable geographic position, low wages and good quality infrastructure increased attractiveness of the region for FDI. In essence the geographic position is only a factor that implies greater connectivity and accessibility to resources, larger markets, and other opportunities. Thus, good infrastructure and the culture of collaboration play a key role in ensuring connectivity.
- The labour market trends across three sub-regions of the Central Transdanubia region differ between and within sub-regions, being strongly influenced by the intensity of economic activities. This impacts labour mobility patterns within and between the regions. It was noted that the emigration of highly skilled individuals from the region to Budapest or to foreign countries is associated with a lack of high-quality employment opportunities, in terms of type of work, job prospects and salaries.
- The business/innovation hubs are effective in stimulating local innovation, cross-industry collaboration, and entrepreneurship in the region. Their effectiveness is conditioned by funding and availability of expertise/advisory services. Hence, it is essential to ensure that they are connected to other STI stakeholders and receive sufficient public funding.

- Given that the Hungarian government aims to stimulate digitisation and the IT sector, but faces labour shortages, the education approach in Hungary focuses on attracting children/students across all education levels, except tertiary, to IT career. The gaming approach has been considered particularly effective in making IT fun and engaging for children/students.

Prevention and mitigation of job displacement, following adoption of automation technologies:

- It is more effective to have a preventive rather reactive approach to job displacement. The preventive approach focuses on education/training, as employability is strongly associated with the levels of educational attainment. In case of Central Transdanubia region and Hungary, in general, the education system should undergo significant transformation to better suit the needs of the market.
- The most relevant skills that ensure current and future employability of individuals are digital, language and communication skills. By possessing these skills, individuals will have more opportunities for (international) collaboration that is essential for the future of work. Culture is also considered a part of the education environment, therefore a wider promotion of collaboration in the society is needed.
- Regions that are characterised by lower availability of financial resources struggle to invest in the development of human capital that is central for the development of local economies and for deployment of innovation capabilities.
- Transformation of the education sector should centre on upskilling of teachers, as key channels of education/training, which is impossible without teachers' motivation for training. To stimulate that motivation, teachers should be offered high-quality training options and decent working conditions (including good salary), have time for upskilling activities and be well-equipped to integrate new knowledge in an educational setting. Overall, more focus on attractiveness of the teaching profession is needed.
- Subsidised jobs (wage subsidy or public works) are not effective in stimulating employment and reducing labour market mismatch. It may represent a short-term solution to alleviate poverty and to ensure integration of an individual on the labour market. Thus, upskilling/reskilling is the most effective approach that ensures a real match on the labour market and does not mimic full employment.
- The design of effective ALMP measures should be informed by data that reflects needs of specific groups of individuals. Such profiling systems provide a good understanding of challenges, needs of unemployed customers and facilitate the development of tailored training opportunities.

Supporting employers and employees during job transformation, following adoption of automation technologies:

- Among the key barriers for adult education and lifelong learning are listed low motivation to join training, a lack of information on available offers and a lack of time to participate in training, (perceived/assumed) poor quality of training and high costs of training.
- Motivation for adult and lifelong learning is rooted in previous education experience. If the quality of compulsory education was poor, it will be difficult to attract people to join training courses later in life.
- The ALMPs policies in Hungary recognise that vulnerable groups have many barriers for (re)entering the labour market. Thus, it is not effective to provide a standard set of services and trainings to all, even if they are considered highly relevant for the labour market. This calls for a personalised, and at times resources-intensive, approach in tacking exclusion of people from the labour market, especially in light of technological transformation, as it strongly affects the low-skilled individuals.
- The integration of vulnerable communities on the labour market may need the involvement of NGOs that can engage in lasting relationships with these communities and provide a more comprehensive support. Only then a cultural change and deep integration of these communities can be achieved.
- It is essential to target young people, especially those with low levels of educational attainment, as they represent the next generation of the labour force, affecting the future of a country/region. By failing to successfully integrate them on the labour market as soon as possible, this group might become the long-term unemployed, losing motivation to enter education/training or/and employment. Such individuals would have to be continuously supported through a comprehensive set of ALMPs and PLMPs.