

New Technologies vs. Old Skill Sets: Competitiveness in the Age of Disruptive Innovation

The success of Central and Eastern Europe's (CEE) ambition to replace its increasingly outdated competitiveness model with a knowledge-driven one is contingent on the region's ability to prepare its labour force and society as a whole for a highly-digitalised world. In complete agreement with regards to the pressing need for such a transition, the participants of the **GLOBSEC Tatra Summit 2018** discussed ways and means to manage the transition as well as a division of roles between the public and private stakeholders in this process.

The region is well positioned to increasingly reap the benefits of the 4th Industrial Revolution. A rapidly expanding digital economy, membership in the European market, a tradition of STEM (Science, Technology, Education and Math) education, continuous legal harmonisation across the region, homegrown world-class industries (e.g. antivirus and gaming) create propitious grounds for CEE to be highly competitive in the global economy's new tech and digital era.

Transition periods always require the squaring of not always compatible long-term and short-term goals. In the short run, Central European countries are pressed to address the shortages of labour both in the established manufacturing sector and in IT-driven enterprises. At the same time, new labour regulations, education schemes, and social programmes need to be introduced to ensure competitiveness and social stability in the future. Furthermore, CEE is more vulnerable to automation than other parts of Europe.¹ The maintenance of the currently well-functioning industrial base should not be prioritised over the need to invest in innovation, new business models, and human capital.

To facilitate the transition to new, knowledge-driven economies in the region, the Focus Group on *New Technologies vs Old Skill Sets: Competitiveness in the Age of Disruptive Innovation* advanced the following policy recommendations:

Coordinated effort

Transformation of education and training systems will not happen through centralised state efforts alone. Stronger **private public partnership** is crucial to facilitate the improvement of skills of the population. Digital skills need to be instilled across the whole of society, embracing primary school, high school, university, company management, and policy coordination (in education, social affairs, IT, economy etc.). The region needs to upgrade its culture of dialogue among the societal stakeholders to better distribute the roles in addressing the digital skills gap.

Cross-regional dialogue should complement and expand national efforts. Regional innovation and development agencies are well placed to promote acquisition of the appropriate skills. These agencies could lead on establishing new forms of partnership between those who possess the knowledge and those who need the knowledge.

Education and training

40% of Europe's workforce needs digital upskilling. Approximately 40% of firms also claim that they experience difficulties finding candidates with sufficient digital skills.² Digital skills have to become integral part of educational and training systems.

While Central Europe's STEM-focused degrees historically produce graduates with decent STEM skills, the low level of capitalising on these skills limits the potential of STEM graduates to contribute to and benefit from new economic models. Significantly smaller numbers of start-ups are created in CEE compared to other regions. Integrating **entrepreneurial components into STEM education** will help the region integrate their well-trained science and IT graduates into the innovation economy.

Insufficient **foreign language skills**, primarily of English, continue to hamper the ability of businesses to hire in the region. Talented and creative individuals often cannot benefit from the globally available knowledge and be part of global value-creation networks due to their lack of English language skills. Solving the problem of foreign language acquisition is a long overdue investment. Transition to language training approaches that emphasise the ability to use

¹ https://www.oecd-ilibrary.org/employment/automation-skills-use-and-training_2e2f4eea-en

² https://ec.europa.eu/commission/sites/beta-political/files/digital-single-market-all-europeans_en.pdf

and communicate in a foreign language is often highlighted as an urgent measure in the reform of formal education systems.

More broadly, educational systems perfected for the needs of industrial society cannot cater to the needs of new economies. The types of skills necessary to thrive in the tech world are changing. Job-specific technical skills are depreciating at a faster rate. Due to automation, previously relevant training puts workers in competition with the machine. Focus on narrow knowledge areas and training for specific narrow sets of skills tailored to a particular job is increasingly counterproductive in today's competitive landscape. The shrinking lifetime of such skills makes the acquired training obsolete within a few years. Instead, **cognitive skills** such as numeracy, literacy, critical thinking and problem solving, as well as **social and behavioural skills** such as determination and flexibility are gaining in importance.

This implies the need to develop new educational schemes. As most of the workforce of the upcoming decades has already completed primary and secondary education, emphasis will have to be placed on providing opportunities for **'continuous' learning and training**. Long-term reform should be complemented with targeted immediate action to refocus on re-skilling and upskilling in each industry.

The comprehensive overhaul of educational programmes necessitates a corresponding **retraining of teachers**. The lack of industry experience among teachers slows down the preparation of students for market realities. Promoting industry experience among teachers and attracting industry representatives to join teaching positions would help bridge the gap. For this to happen, businesses, public administration and educators need to coordinate incentives for individuals to combine or alternate teaching and industry jobs.

Low salaries of teachers in the region continue to make the profession relatively unattractive in the already tight labour market. Increased public spending on remuneration would be justified given the strategic importance and clear potential of improved educational system to boost the economy and secure the region's economic future.

Business investment

On-the-job training is an unavoidable feature of the new economy since the skills needed for constantly evolving technologies change rapidly. However, companies in CEE systematically invest less in vocational and on-the-job training than in the West, with FDI being the dominant source for knowledge development in the region. Given CEE's high job turnover, SMEs have little incentive and less capacity to train their employees and invest in future-oriented skills of the workforce. This situation can be improved through targeted tax incentives and joint programmes with educational institutions. Digital Hubs jointly operated by the government, the EU and businesses could serve as useful platforms to help SMEs modernise their production and assist with upskilling of employees.

The **design of apprenticeships** should focus on future expectations rather than current skills that are likely to be obsolete in a few years' time. Creating **skill maps** and forecasts would better inform the bases for such designs.

Expanding the talent pool

Shortages of labour in IT jobs could also be reduced by better **incorporating women and minorities** into the digital economy. Promoting STEM education among girls and minorities from an early age, and the introduction of flexible training programmes would help break stereotypes, biases and barriers that resulted in today's STEM being a male-dominated area.

Attracting **workers from abroad**, including from neighboring non-EU countries, helps to alleviate immediate shortages of skilled labour. Streamlining bureaucratic procedures associated with the acquisition of work permits by non-EU citizens and the further promotion of partnerships with foreign universities are necessary steps for businesses to utilize this short-term solution.

Managing the transition

There is no economic law that guarantees that the digital economy will benefit everyone, or benefit everyone equally. The highly unequal distribution of benefits from the new economy and pains of the transition process risk triggering even faster growth of social inequalities. Fears of being left behind have already produced unhealthy levels of populism in Europe and elsewhere. Moreover, the patchy inclusion of the population into new knowledge-driven realities also

hampers the economic potential of the entire society. The fewer people that participate in digital economies — as workers, consumers of services, or producers of knowledge — the slower the growth is.

Furthermore, workforces that need retraining the most tend to receive it the least. Workers in high-risk jobs are considerably less likely to participate and spend less time in on-the-job-training, requalification courses, distance learning or other forms of reskilling.³ State-sponsored programmes would need to encourage workers in high-risk jobs to participate in trainings, provided by the state or by industries. The latter might need an incentive from the state to invest more into workers who have larger skill gaps to overcome.

For the large part of the population still involved in today's industrial economy, transitioning to new types of jobs with flexible work contracts for different types of skills will not be stress-free. Continuous dialogue between state agencies, workers, and businesses is crucial to design and adjust transition models that include labour contracts that protect workers in the gig economy, re-skilling programmes linked to unemployment benefits, and measures to deal with long-term unemployment.

The necessary comprehensive reform will not be designed and implemented overnight. Smaller **pilot projects** will help test ideas, adjust models, and make it easier to reach the region's ambitious goals.

³ <http://www.oecd.org/employment/future-of-work/Automation-policy-brief-2018.pdf>