

Executive Summary

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Occupations at the Intersection of Demographics, Ecologization, and Digitalization/AI

Transformations in the world of work are nothing new - change has always been a part of labour markets, whether driven by technological advances, structural shifts, international migration, evolving societal values (such as changes in family structures or increasing levels of education), or institutional reforms (like changes in pension transition regulations).

What is unique about the current situation, however, is the simultaneous impact of two disruptive events: the COVID-19 pandemic and the military escalation in Ukraine. These events have significantly accelerated ongoing changes - both toward a greener economy and greater digitalization. On top of that, demographic challenges add another layer of complexity, as large cohorts of older workers retire while fewer young workers enter the labour market.

Demographics, digitalization, and the greening of the economy will shape industries and occupations in the coming years. From a demographic perspective, occupational fields with a high proportion of older workers are coming into focus, as there may be a growing need to replace them. Similarly, fields with a greater share of younger workers may also be affected, since smaller incoming cohorts may not sufficiently meet labour market demands.

Technological advancement and digitalization can affect occupations in various ways: they may benefit from it, come under pressure, or remain largely unaffected. Especially relevant in this context is the role of Artificial Intelligence (AI), which primarily impacts cognitive tasks. Whereas earlier waves of automation mainly affected manual routine tasks, AI can also take over cognitive work - by processing large volumes of data, recognizing patterns, and making decisions.

The digital transformation is particularly evident in professions with a high proportion of young employees. In these roles, digital technologies tend to support human labour, and there is little indication that full automation or substitution is imminent. Many of these occupations are also affected by the green transition. At the same time, due to the aging population, these sectors may face labour shortages in the coming years. This applies not only to certain academic professions but also to engineering and technical fields (such as materials and process engineering, process control, and biotechnology), as well as some skilled trades, including metalworkers, mechanics, and related occupations.