The Impact of Generative AI on Employment and Occupations in the High-Tech Industry

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Abstract

Background

The growing adoption of generative artificial intelligence (GenAI) is transforming work practices in the high-tech sector in both Israel and worldwide. These tools can automate tasks traditionally performed by employees, while also creating demand for new skills and professional roles. Given the central role of the high-tech sector in the Israeli economy, the rapid adoption of GenAI raises important questions about their implications for productivity, skill requirements, career trajectories, and job security. The Israel Innovation Authority commissioned the Myers-JDC-Brookdale Institute to conduct a study examining those issues.

Objective

The study examined the extent to which GenAI tools have been adopted in Israel's high-tech sector, as well as employees' perceptions of their effects on time saving, work quality, and future employment prospects.

Method

The study was based on an online survey of 523 responders, conducted between July and September 2025. The survey was disseminated through official channels of the Israel Innovation Authority. The sample comprised three groups:

- 340 employees in technological roles;
- 76 employees in non-technological roles at high-tech companies;
- 107 respondents previously employed in technological roles who, at the time of survey, were either unemployed or working in non-technological roles outside the high-tech sector.

Survey data were weighed using conversion coefficients to represent the high-tech employees in Israel, using data from the Israel Central Bureau of Statistics' Labor Force Survey. The analysis compared employee groups across demographics and employment characteristics, such as company and role type, seniority level, and industry cluster. The latter comprised three categories: "infrastructure, industry, and

energy"; "enterprise software and cybersecurity"; and "digital services". Probit regression analyses examined associations between employee characteristics and both GenAI usage patterns and perceptions of its impact on future employment prospects.

Main Findings

The findings suggest that GenAI use is widespread and common among high-tech employees. Overall, 95% reported using GenAI tools frequently, and of these, 78% reported using them several times a day.

GenAI use varied by role: employees in technological roles primarily reported using GenAI tools for core development tasks, particularly coding and debugging. Those in non-technological roles used them for a variety of tasks, including coding, content writing, information gathering, and self-directed learning.

Employees in technological roles and younger employees (aged 25–34) reported using GenAI for a wider range of tasks than employees in non-technological roles and older employees. Analysis by industry cluster showed that GenAI use was most diverse among employees working at companies in the "enterprise software and cyber" cluster, while usage patterns were more homogeneous among employees in the "digital services" cluster.

The findings also suggest that traditional boundaries between occupational roles and the type of GenAI tools used are blurred. Nearly all employees in both technological and non-technological roles reported using multi-purpose tools,[1] particularly ChatGPT, Google Gemini, and Claude. Code-specific tools,[2] such as GitHub Copilot and Cursor, were used by 67% of employees in technological roles and, notably, 43% of those in non-technological roles.

Beyond usage patterns, the study examined GenAI's perceived impact on workplace productivity. The "perceived contribution to work productivity" index assessed how high-tech employees perceived GenAI as (1) improving output quality and (2) optimizing work time. Most employees in non-technological (79%) and technological (73%) roles perceived a high contribution to productivity. Analysis of

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[1] Tools used for software development and general tasks such as writing, summarization, research, and content creation.

[2] Tools specifically designed for software development, optimization, and coding.

the individual components showed that more employees perceived improvements in output quality (68%) than in work time optimization (40%).

Employees were more likely to perceive GenAI as an opportunity for career development (68%) than as a threat to their professional future (27%). However, comparisons across employee groups showed that the perceived threat was higher among younger employees, those living in Israel's socio-geographic periphery, and those without an academic degree. Employees employed in the "digital services" cluster also perceived GenAI as a greater threat than their counterparts in the "infrastructure, industry, and energy" and "enterprise software and cyber" clusters. No other systematic differences in perceived threat were found across demographic and employment characteristics.

Respondents who by the time of survey were no longer employed in the high-tech sector were asked whether, and to what extent, they believed the adoption of GenAI contributed to their termination. Among respondents who had been laid off or whose employment ended as part of workforce reductions, 16% believed that GenAI contributed substantially to their termination. These accounted for only 6% of respondents whose employment in the high-tech sector had ended, suggesting that relatively few attributed their job loss to GenAI.

Summary

The study examined GenAI tool use in the Israel's high-tech sector and employees' perceptions of its effects on work and future employment. The findings indicate widespread, frequent use across a broad range of tasks, particularly among employees in technological roles and younger employees. Employees in non-technological roles also reported using GenAI tools for development-related tasks.

Employees perceived substantial benefits of GenAI in terms of workplace productivity, particularly through improved output quality, and most viewed it as an opportunity for career development. However, younger employees, those living in peripheral areas, those without an academic degree, and those employed in the digital services cluster were more likely to perceive GenAI as a threat to future employment.

These findings raise concerns that GenAI adoption could widen existing regional and educational disparities unless targeted efforts ensure equitable access to GenAI tools and relevant training.