
EFFECTS OF THE FOURTH INDUSTRIAL REVOLUTION ON ISRAELI LABOR MARKET

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Abstract

In this article we aim to discuss the implications of the Fourth Industrial Revolution (Industry 4.0) on the employment market in Israel, from the perspective of disadvantaged populations who find it difficult to enter the job market today. In the article we present the results of indebt interviews with three umbrella organizations which collaborate on the basis of three factors: employment organizations, employers and employees. The findings lead to a series of actions that each factor must adopt in order to better cope with the expected changes in the future employment market. The conclusions point to the fact that employees should become more active about their career development, employers should be more involved in employee training, and employment organizations should be more involved in identifying new needs for workers and employers.

Keywords

Industry 4.0, future of jobs, reskilling, up-skilling, lifelong learning, Non-Profit Organizations

JEL Classification

A10, D7, D8, E24, J08

Introduction

The future labor market presents both challenges and prospects for growth and innovation. Specialists in the field speak of necessary changes in the structure and characteristics of the labor market. The changes are the product of technological developments, demographic changes and globalization. A new concept called "The Fourth Industrial Revolution" (Industry 4.0), was born. It will have an impact on the way governments, organizations and academics choose their best strategies of growth, the best way to survive competition, how to manage their supply chain, to train their employees, service their costumers, control environmental impact, choose their strategies of social corporate responsibility, in order to maintain sustainability over time (Schwab, K. 2016)

This paper presents Industry 4.0, seen from several angles and underlines its effects on the labor market.

We will stress the implications of the expected changes in the employment market from the aspect of vulnerable populations, and the role of employment organizations in preparing these populations for the future labor market.

Literature Review

The Fourth Industrial Revolution (Industry 4.0). Definitions

Germany (2011) was the first country to coin the term Industry 4.0 as connected to engineering based on high tech strategies (Mosconi, M, 2015). Later on, we came across the term in management and economy. Pan at al. (2015, p. 1537) suggested that "Industry 4.0 represents the ability of industrial components to communicate with each other".

Kovacs at all, (2016, P.122) also define the fourth industrial revolution as "Industry 4.0 conception is the introduction of intelligent systems (artificial intelligence – AI, Information communication technology – ICT) linked to network (the internet of things -IOT), which realize self- regulation production; machines, people, products, equipment, that will communicate with one another".

Piccarozzi et al., (2018) identified six methodologically studied related categories that influenced Industry 4.0:

- **strategy**- governments and organizations' strategies will remodel following the changes brought by Industry 4.0;
- **value chain**- Industry 4.0 will be responsible for greater strength and flexibility of the business structure;
- **competitiveness**- Industry 4.0 will add to steady global competition;
- **technical components** – Industry 4.0 brings new levels of information technology tools, simplifies smart manufacturing and logistics processes, by using 3D printing, Big Data, IOT, Cyber Physical System (CPS), Internet of services;
- **smart factory**- Industry 4.0 will innovate and lead to the birth of new, customized products and shorter product lifecycles;
- **internet of things**- the combination between internet new technologies and industrial value.

Industry 4.0. Influence on the Labor Market

The Future of Jobs Report (2018), World Economic Forum, and ILO-International Labor Organization (2017) speak of the impact of Industry 4.0 on the labor market. Industry 4.0 brings both benefits and limits. On the one hand, it improves the job productivity and creates new high-quality jobs. On the other hand, it threatens the relevance of today's jobs and professions. The changes brought by Industry 4.0 speak of the need to acquire new skills or capabilities in the very near future.

In this new context, governments, businesses, non-profit organizations, employees, and academic institutions will be responsible for reskilling and upskilling present and future employees. Table no.1 presents what specialists consider to be the ten critical future workforce skills.

Table no. 1 The 10 most important workforce skills

in 2020	in 2015
1. Complex Problem Solving	1. Complex Problem Solving
2. Critical Thinking	2. Coordinating with Others
3. Creativity	3. People Management
4. People Management	4. Critical Thinking
5. Coordinating with Others	5. Negotiation
6. Emotional Intelligence	6. Quality Control
7. Judgment and Decision Making	7. Service Orientation
8. Service Orientation	8. Judgment and Decision Making
9. Negotiation	9. Active Listening
10. Cognitive Flexibility	10. Creativity

Source: Future of Jobs Report, World Economic Forum, 2016

The conclusion we draw after examining (table no.1):

- soft and non-cognitive skills are imperative;
- the rapid changes will require individuals and business to cultivate the capabilities of lifelong learning according to age and gender. According to the World Population Project by the United Nations (2015), in 2050 we expect to see about 34% of the population over the age of 60 in Europe;
- employment relationships will move towards freelancing and temporary arrangements.

The relationship employees - employer will be different. We are likely to see more outsourcing by organizations, among them Non-Profit (Gotesman Bercovici, E. et al., 2017) and the evolution of the Gig-Economy (Jolley. D. 2018). This new kind of relationship can also create a new sharing economy that enables people to get what they need from each other without intermediaries (Honeycomb 3.0).

Along with the new skills required, the management system will change and become more automatic.

After examining more than 2000 companies from all over the world related to the level of automation and use of digital processes, Price Waterhouse Coopers, a leading player in the consulting industry, examined the current level of integration of automated business sequences and the forecast for the next five years.

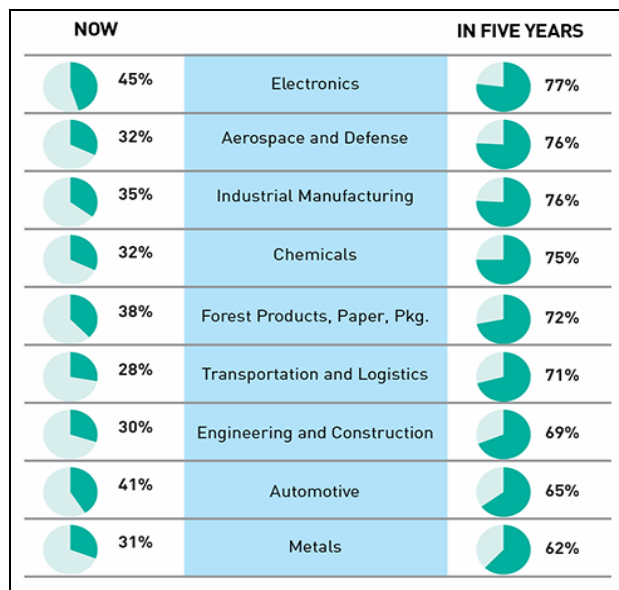


Fig. no. 1 Industry 4.0: Building the Digital Enterprise

Source: Geissbauer 2018 Study by PWC

Industry 4.0 and the Labor Market in Israel

Israel's unemployment rate is relatively low (4.1% in February 2019). There is an increase in hourly wages, along with a high number of work hours. Though, we notice spot gaps in the participation of certain populations in the labor market. In addition, those who work deal with unfair promotions. According to Taub Center (2018), those populations are: Ultra-Orthodox Jewish population (10% of Israel's total population), Arab population (20% of Israel's total population), Israelis of Ethiopian origin (2% of Israel's total population), people with disabilities (7%-13% of Israel's total population between age 20-44) and other peripheral populations, can't compete with the majority group (non-Orthodox Jews) in terms of employment- earnings and promotion. It is estimated that by 2059, the proportion of

Arabs and Orthodox Jews in Israel will increase to 50% of the total population (The Israeli Central Bureau of Statistics, 2018).

Following the expected future changes in the labor market, governments, businesses and Non-governmental Organizations must take more action on behalf of those population for closing those gaps.

This article maps some of these solutions and offers new points of view.

In this article, we chose to focus on the perspective of employment organizations (nonprofit organizations/business), employers, and marginalized employees), regarding the implementation of the future labor market in Israel.

Research Methodology and Findings

Alongside government services it is estimated that in Israel function about 200 employment organizations for underrepresented or weak populations in the labor market. Among them are organizations that are incorporated as non-profit organizations or as businesses. Some are nationwide and some are regional.

We collected information from three umbrella Israeli organizations that advise and link dozens of employment organizations to businesses: Joint-Tevet, Zionut2000, Eretzir.

We performed in-depth interviews with program managers of these organizations and analyzed data they had pulled together on the issue between 2017-2019.

We examined the issue from several points of responsibility view of the candidate, employer and the employee organization.

We asked "How will the recruitment processes of new employees and the promotion of existing employees change in light of Industry 4.0?"

In Table no. 2 we present the current state of these processes and the necessary changes to be made in accordance with Industry 4.0.

Table no. 2 Current versus Future stages of employment needs

	Candidate point of view	Employer point of view	Employment organization point of view
Current preparation before entering the labor market	➤ Expectation that new knowledge will be supplied by others (like government, employers, employment organizations)	➤ Responsibility for market adaptation is on government, employment organization and academy	➤ Provide only short-term professional solutions
Future preparation before entering the labor market	<ul style="list-style-type: none"> ➤ Self-assessment of capabilities, skills, strengths and weaknesses ➤ Autodidact of new technologies, professional knowledge 	<ul style="list-style-type: none"> ➤ Industry incorporation to jointly study the future employment needs of their industry ➤ Collaboration with other sectors (as academy, government, non-profit-organizations) ➤ partnership in funding of professional training 	<ul style="list-style-type: none"> ➤ Developing managerial ability to identify long term employment needs. ➤ Identifying specific employment needs for different industries ➤ Provide new types of training for candidates (like lifelong learning, flexible thinking, team work, big data analysis, basic technological skills)
Current recruitment process	➤ Candidate is passive in the processes	➤ Do not share with candidate what the recruitment process will	➤ Keep the knowledge about the employer and the

		<ul style="list-style-type: none"> ➤ look like ➤ Screening process is based on a shallow reading of the resume or a very short telephone interview 	<ul style="list-style-type: none"> ➤ preoccupation process inside and not enough is transferred to the candidate ➤ Focus on presenting the candidate's employment experience rather than his skills
Future recruitment process	<ul style="list-style-type: none"> ➤ Candidates are more active in the recruitment process, reveals curiosity, asks questions, flexible in dealing with new ways of work 	<ul style="list-style-type: none"> ➤ Wider participation of the candidate in the screening and recruitment process ➤ Broadening the recruitment channels in social media ➤ Expand their recruitment tests, in a more interactive way with the candidates for enabling them to show their soft skills 	<ul style="list-style-type: none"> ➤ Research the new needs of the employer and pass it on to the candidate ➤ Teach candidates to be more independent in the process ➤ Teach candidates how to present soft skills in the process ➤ Accompany the candidate also after the recruitment period
Current employees promotion processes	<ul style="list-style-type: none"> ➤ Employees are waiting for the employer to offer them promotion ➤ Promotion is usually perceived as management promotion and not up-skilling or new knowledge 	<ul style="list-style-type: none"> ➤ Promotion is seen mainly on the basis of granting management level or salary rise 	<ul style="list-style-type: none"> ➤ Are not involved in those stages
Future Employee promotion processes	<ul style="list-style-type: none"> ➤ Independently and actively promote their professional knowledge 	<ul style="list-style-type: none"> ➤ Promotion should also be seen in the ability to teach employees new professional areas relevant to the future organization and new skills 	<ul style="list-style-type: none"> ➤ Should be more involved in those stages by encouraging candidates to apply for promotions, and provide new training for the employers
Current Training processes	<ul style="list-style-type: none"> ➤ Expects the organization to pass new knowledge, and only during certain career periods 	<ul style="list-style-type: none"> ➤ Professional training is usually done in a classroom with a teacher 	<ul style="list-style-type: none"> ➤ Enter the field only on demand of employers
Future Training processes	<ul style="list-style-type: none"> ➤ The employee has to adapt self-lifelong learning skills 	<ul style="list-style-type: none"> ➤ Independent learning through technologies ➤ Learning through experience and mentoring by others employees 	<ul style="list-style-type: none"> ➤ Should initiate tests of future needs, and begin initiating training for employers
Current Preparation for retirement	<ul style="list-style-type: none"> ➤ Is not aware of all his social rights ➤ Is frightened of the changes-socially and economically ➤ Is removed 	<ul style="list-style-type: none"> ➤ The organization deals with the cultivation of young workers 	<ul style="list-style-type: none"> ➤ Few organizations are involved in a second career for people age 45+, while the needs of this population are rising

	occasionally from their responsibilities and new knowledge		
Future Preparation for retirement	<ul style="list-style-type: none"> ➤ Be more proactive in finding solutions independently for themselves 	<ul style="list-style-type: none"> ➤ Inform hits employees about their rights prior to retirement ➤ Encourage its employees to continue working after official age of retirement ➤ Create supporting infrastructures that enable employees to pass on their knowledge. 	<ul style="list-style-type: none"> ➤ Develop more tools and knowledge to accompany employees in their second career even at old age

Source: Authors, 2019

From table no. 2 we can learn that employees should be more active in their career developing and not wait for external sources to lead them on to developing new capabilities, skills and professional knowledge.

Employers should work together with other companies and sectors to provide new solutions for new and existing workers.

Employment organizations should be more active in understanding the new changes in the field and escort employees for a longer period.

Conclusions

The Fourth Industrial Revolution will affect the jobs of the future, the way in which organizations work and the characteristics of employees, employers, and employment organizations. These organizations should pay more attention especially to weak populations who find it difficult to enter the labor market. There is no doubt that these populations, whose numbers are in continuous growth in Israel, will require additional attention in order to be able to join the labor market. Given the small number of subjects interviewed, we suggest that further research will be done with more employers and employment organizations in Israel.

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