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ABSTRACTS

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Foreword

The 71B Annual Audit Report is the second part of the State Comptroller's annual report. This part deals with a variety of topics and includes, inter alia, several audits regarding the preparedness of the Israeli authorities to the challenges of the changing labor market, focusing on aspects relating to human capital of the current and future workers.

The importance of the state audit is particularly evident at this time, in light of the COVID-19 pandemic, which had significant effects on population's needs in many fields. I wish we all return to routine life soon.

Extensive and rapid changes occur in the labor market around the world and these changes are reflected in new combinations between technologies from different fields - physical, biological and digital. The scope of these changes, as well as the speed of their occurrence and their impact is unprecedented, affecting also the Israeli labor market. The unique aspects of the labor market in Israel emphasize the need to adapt the skills provided to students by the education system – the future workers – as well as the skills of current workers, to those changes.

The audit regarding The Preparedness for a Changing Labor Market was conducted as part of an international audit in cooperation with the State Comptrollers of the European Union and several countries – Finland, South

Korea, Italy, Bulgaria, and North Macedonia. The following is a brief review of the findings.

The audit regarding **The Preparedness of the Ministry of Education for the Changing Labor Market** indicated that the Ministry prepared policy documents on the matter of the required skills, and had started to implement it in its units. However, the audit found deficiencies in the plan and the policy, in the implementation of the skills in the curricula, in assessment and measurement methods, and in the level of pedagogical flexibility given to schools. These deficiencies made it difficult for schools to provide students with the required skills for the 21st century.

The section on **The Learning Environment in Secondary Schools as the Infrastructure for Providing 21st Century Skills** indicates that at the eve of the Covid-19 pandemic crisis in 2020, the physical, technological and ICT environment of schools (especially high schools) did not provide optimal conditions required to effective imparting of the 21st century's skills in general, and technological and digital literacy in particular. The availability of ICT learning means to students and teachers was poor, and the changes performed to the physical environment of high schools were not sufficient to support optimal innovative learning.

To prepare its graduates for future success, the education system must impart to its students, in addition to values and knowledge in various subjects, the skills they will need as adults in their social, personal, and professional lives in the 21st century. It is recommended that the Ministry of Education formulate a comprehensive policy and a designated strategic program for the implementation of these skills among students in the education system. The strategic program should be the foundation to fruitful collaboration between all relevant Ministry units and should deal with, Inter alia, the following aspects:

inclusion of the skills in the curricula, assessments and measurements, and examination of means to expand the pedagogical flexibility of high schools.

In regard to the physical and technological environment, the procurement program the Ministry of Education formulated during the COVID-19 pandemic in order to narrow ICT gaps in schools and promote digital infrastructure for remote learning is noteworthy. It is recommended that the Ministry of Education utilize the budget allocated to it to implement a comprehensive program for remote learning, and that it continues to take actions to improve the physical and technological learning environment. The Ministry should also increase the number of schools that benefit from an innovative and effective learning environment and from various technological tools. It is also recommended that the Ministry encourage schools (primarily high schools) to participate in projects that advance such environments while removing barriers, taking into consideration the gaps in schools of a lower socio-economic level and in ultra-Orthodox and non-Jewish education.

The advanced High-Tech industry in Israel stands out in international comparison, and has earned it the status of a 'startup' nation. This industry is the principal growth engine of the Israeli economy, contributing 12% to the state's gross domestic product (GDP). The section regarding the **State Actions to Increase the Number of Employees in the High-Tech Industry** shows that, in 2019, there were 18,500 vacancies in the high-tech industry, and that the industry needs excelling university graduates with professional experience in the hardware and software fields. To ensure that Israel continues to be a 'startup nation', government authorities (The Council for Higher Education; the Ministry of Finance; the Ministry of Education; the Ministry of Labor, Social Affairs and Social Services; and the Ministry of Defense) should work to remove the barriers that prevent attaining this objective. It is necessary to address the existing shortage of skilled personnel in the high-tech industry

and ensure a long-term solution for suitable personnel; a special and crucial emphasis must be placed on fully involving the Ministry of Education in this task. An additional source for broadening the potential high-tech workforce lies in integrating populations that are currently insufficiently represented in the industry, and practically excluded from it - first and foremost - women, but also the Arab and Jewish-ultra-Orthodox populations. A further challenge that emerged from this audit, is addressing the shortage of academic staff and reducing the dropout rate of university students from high-tech subjects - this is essential in order to ensure the next high-tech generation.

The State Comptroller also conducted an audit on the matter of **Adapting Lifelong Learning and Vocational Training for Adults to the Changing Labor Market.** The audit indicated that the number of workers in Israel employed in jobs at high risk of profound transformation in the next few years reaches approximately 600,000 (15% of all jobs), whereas 2.1 million employees (54% of jobs) face a medium-level risk. In light of the changing labor market and the concern that many workers will find it difficult to integrate into it, it is recommended that the relevant ministries - primarily the Ministry of Labor, Social Affairs and Social Services; the Ministry of Education; the Ministry of Economy; and the Ministry of Finance - examine the current vocational and professional training array and ways to improve it, including training programs for adults, taking into consideration the need to offer these programs to the most needed populations. The relevant ministries should collaborate with employers in vocational qualification programs according to the audit's recommendations. These actions is significantly important, in light of the economic crisis caused by COVID-19 pandemic, which will most probably require adaptations and professional changes in the economy, especially in the affected sectors. This should be seen as an opportunity to upgrade the skills of many unemployed people enabling them to adapt to the

changing labor market and integrate into the workforce as soon as possible.

Digital literacy is defined as the set of skills, proficiency and knowledge required for functioning well in a digital environment and is recognized as essential in the 21st century. In an era of a unique and rapid technology revolution, digitally literate workers are expected to have a significant advantage in the labor market. The section on **Teaching Digital Literacy to Children and Adults** indicates that in 2015, Israel had the widest digital gap among participating OECD countries in the problem solving in technology-rich environments test[1], taken as part of the PIAAC[2] skills survey. The digital gap is prevalent among the Arab-Israeli and the ultra-Orthodox populations. As digital literacy is considered essential for optimal integration in the changing labor market, promoting digital literacy has the capacity to prevent the broadening of gaps and to improve labor productivity. For this reason, promoting digital literacy should be set as a goal to be achieved in all learning and training environments. Emphasis should be placed on imparting all kinds of digital skills to children and youth - as tools they will use throughout their lives and as a basis for lifelong learning; as well as enabling adults who do not have a strong grasp of these skills, to acquire them. At the audit completion

1 This refers to the gap in Israel between the scores of the 95th percentile and the 5th percentile on the test. The digital gap is also expressed in the inequality between groups based on accessibility to technology, ability to use it, opinions regarding it and the range of uses of it.

2 PIAAC (the Programme for the International Assessment of Adult Competencies) is a programme of assessment and analysis of adult (ages 16 through 65) skills. The PIAAC Survey of Adult Skills - conducted on behalf of the OECD (Organisation for Economic Co-operation and Development) - measures adults' proficiency in key information-processing skills - literacy, numeracy and problem solving in technology-rich environments - and gathers information and data on how adults use their skills at home, at work and in the wider community. It examines, inter alia, the individual's ability to use digital technology, the level of their technological proficiency and its alignment with labor market needs. The first cycle of the PIAAC survey was conducted in three rounds–in 2001–2012, 2014–2015, and 2017. Israel participated in the second round, between April 2014 and January 2015, and is scheduled to participate in the second cycle of survey that will be conducted in 2022–2023.

date, the COVID-19 pandemic had erupted in Israel and around the world, its impact emphasizing the need of students and teaches for digital literacy that enables remote learning; It is recommended to improve the level of digital literacy among adults, with an emphasis on the unemployed, in order to enable them to integrate into the changing labor market in stable and quality employment.

The employment crisis resulted from the outbreak of the COVID-19 pandemic in March 2020 emphasizes the importance of investing in human capital, in the unemployed, and in future workers (today's children and youth), in order to increase their employment capabilities in a constantly changing reality and to reinforce the high-tech sector. This is particularly necessary for Israel's low-income and unskilled populations, and the audits in this report put special emphasize on these populations. Furthermore, this crisis creates an opportunity for change and investment in imparting the skills in the education system, seeing the future need of today's students to optimally and stably integrate into the changing labor market.

The report includes a section on the **Driving Test Reform** of 2017, which was formulated by the Ministry of Transportation. The reform contributed to reducing the waiting period for driving tests and to improving the effectiveness of the tests. Furthermore, video documentation of the driving test allows better supervision of the test and assist students to appeal against the results. Notwithstanding, the State Comptroller found several deficiencies in the implementation of the reform that led to additional costs. These included mitigations given to concessionaries by the Ministry of Transportation not according to the tender provisions, and changes to the IT system that were not taken into consideration when the system was characterized. Since the implementation of the reform, there has been a decrease in the percentage of

students successfully passing the driving test (38.8% compared to 44.8%); and an increase in the percentage of justified appeals (8.5% compared to 1.7%); the average payment made by the Ministry of Transportation to concessionaires per test was higher than the tests fees charged to the students (a difference of 12.6 million NIS in 2019); and supervisors were overtasked, making it necessary to evaluate the effectiveness of their work. It is recommended that the Ministry of Transportation draw conclusions from the implementation of the driving test reform so that in the future, before publishing a tender, it will conduct a comprehensive strategic work, in order to reduce uncertainty and to present accurate data. It is also recommended that the Ministry conduct a satisfaction survey among students and driving teachers to draw conclusions from the reform and improve its service for the benefit of the public.

Plastic materials used in the production of beverage containers, if not recycled, can remain in nature for hundreds of years and its degradation is slow. As a result, the environmental pollution these containers generate constitutes a global problem whose damages reach billions of dollars a year. The audit on the **Aspects of the Application of the Deposit Law on Beverage Containers** indicated that, in 2008, 28%. of household waste in Israel stemmed from the dumping of beverage containers in landfills - 22% from large containers and 6.5% from small containers. In 2018, more than 1.8 billion beverage were sold in Israel, out of which 765 million were large ones. According to the Deposit Law on Beverage Containers of 1999, a deposit of 30 agorot must be placed on each beverage container of volume less than 1.5 liters. A manufacturer or importer can decide that the amount of the deposit for a full container will be higher than the amount provided by the law.

The State Comptroller recommends that the Ministry of Environmental Protection (MoEP) continue to promote actions that lead to the preservation of the land and the reduction of environmental pullution, as is customary

in OECD countries. It is also recommended that the MoEP examine the amendment of the targets, so that the target of collection of plastic beverage bottles sold every year reaches 77% by the year 2025, and 90% by the year 2029. Furthermore, the MoEP should regulate the issues under its responsibility to ensure that the Israeli economy is able to make the adaptations required to apply the Deposit Law on Large Beverage Containers on the determining date, December 1, 2021.

Netivei Israel, the National Transport Infrastructure Company, Ltd., is the government company engaged in the planning and executing significant national projects in transportation, economic and social aspects. As a government company, Netivei Israel manages hundreds of projects simultaneously for which it employs hundreds of vendors. This requires the company to be efficient, transparent, and cost-concious. The audit on **Netivei Israel – Engagements with Vendors and Employee Recruitment** found deficiencies in the company's engagements with various vendors, in the evaluation of vendors, and in the management of its pool of legal advisors. The audit also found deficiencies in the recruitment process of senior employees, most of whom were recruited after the crisis in 2015, when Netivei Israel operated without a proper management structure. In light of the deficiencies found, the company's management and the Companies Authority should ensure that engagements with vendors and recruitment of personnel at all levels are held in accordance to the Company's procedures and guidelines, in full transparency, while maintaining equality and good governance principles.

The sections in this report deals with many issues that have a significant effect on various aspects of our lives. I wish to thank the employees of the State Comptroller's Office for their professional, thorough and objective work, especially in light of the challenges, during the COVID-19 pandemic.

The audited bodies must act quickly and efficiently to rectify the deficiencies that have not yet been rectified, as required by law. The Office of the State Comptroller will continue to monitor and ensure the rectification of the deficiencies.

Matanyahu Englman

State Comptroller
and Ombudsman

Jerusalem, March 2021

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CHAPTER 1

The Preparedness for the Changing Labor Market

Abstract

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The Preparedness of the Ministry of Education for the Changing Labor Market

Abstract

The Preparedness of the Ministry of Education for the Changing Labor Market

Background

In the last decade, studies indicates a trend of change in the labor market in the near future: Although the required knowledge and education differ between professions, workers in the changing labor market will have to develop and strengthen personal and professional skills in any profession.

The success of the State of Israel in facing the challenges of the changing labor market will depend, to a great extent, on the preparedness of the education system, especially on providing the skills required by its graduates (from kindergarten to twelfth grade).

The skills of the 21st century were defined as a key challenge to the educational system also in the International level. One of the global goals for sustainable development adopted by the United Nations' General Assembly in 2015 is to ensure equitable and quality education and promote lifelong learning opportunities.

Key facts

1,835,459

Students in grades 1 to 12 studied in the education system from September 2019 to October 2020, representing 20% of the population. 42% of all students are in secondary school (grades 7 to 12).

8

The number of skills that research indicates are essential in the 21st century: These are critical thinking, problem - solving ability, self-learning and self-directed learning, creativity, collaboration, information management, digital and technological literacy. This audit focuses on these skills.

57

The number of skills mentioned in four policy papers prepared by MOE units in 2016-2019. These documents were not translated into a program with priorities.

29 and 33

Israel's ranking in the international Pisa[1] student tests of 2015 and 2018, respectively (out of 37 OECD[2] countries that participated in the test).

38%

Percentage of students in secondary schools who believe that the school does not train them for life, and does not provide them with the tools they need to integrate into the workforce in the future[3].

10-11

Number of matriculation exams Israeli students are required to take to obtain a matriculation certificate. In other countries, the number of exams ranges from 2 to 5.

67%

Percentage of secondary school principals who indicated in the State Comptroller's[4] questionnaire that they enjoy only a medium and lower level of pedagogical flexibility[5].

61%

Percentage of secondary school principals who indicated in the State Comptroller's questionnaire that, in their opinion, lower secondary schools provide students with the skills they need at a low or medium level.

Audit actions

From January 2019 to March 2020, the State Comptroller examined the Preparedness of the Ministry of Education's (MOE) in adapting the education system for the 21st century and in providing students with the skills they need to integrate into the changing labor market. The audit focused on lower secondary schools and upper secondary schools. The audit also examined the process for formulating a policy regarding the required skills for 21st century students, and the adaptation of the pedagogical programs to provide these skills, including their

1 The Program for International Student Assessment (PISA) is an international OECD test that measures literacy level among 15-years-old in three areas: reading, mathematics and science knowledge. The test is conducted every three years. The last one was in 2018.

2 The Organization for Economic Co-operation and Development (OECD). In 2020, the organization had 37 member countries, among them the United States, Great Britain, Germany, and France.

3 Based on the Pedagogical Climate and Environment report for the school year 2018-2019 prepared by the National Authority for Measurement and Evaluation in Education.

4 During the audit, the State Comptroller distributed a questionnaire among the principals of all secondary schools in all sectors, in all regions and of all supervision types. The questionnaire was sent to 1,961 principals and 757 responded (39% of all principals).

5 "Pedagogical flexibility" is the possibility the MOE gives education institutions to make decisions and act independently in pedagogical matters, for example - the curricula, time management, students' management, educational methods and approaches, teaching, learning and evaluation, and use of teaching resources to provide a response to unique local needs.

integration into the curricula, measurement and evaluation methods, and the level of pedagogical flexibility granted to schools.

The audit was conducted at the MOE's units and in secondary schools across the country. Complementary audit actions were conducted in teaching research institutions, including the Mofet Institute and the Henrietta Szold Institute. Furthermore, the audit included a comprehensive public participation process, including all head supervisors, focus groups of subject coordinators, and students of 11 upper secondary schools. A questionnaire was sent to 1,961 principals, with 757 responding (39%).

Key findings

- **Effects of and conclusions from the "meaningful learning" Reform** - the implementation of this reform began in 2014-2015, and its purpose was to adapt the education system to the 21st century and provide students with the skills they need. Five years since the MOE began implementing the reform, half of the staff in secondary schools - head supervisors, principals, and subject coordinators - believe that this reform had little effect on advancing the provision of the 21th century skills to secondary school students. It was found that until the audit completion date, the MOE did not carry out a methodical and comprehensive process for drawing conclusions regarding the reform to be able to formulate a continuing policy for providing these skills.

- **Comprehensive program for providing the 21st Century skills** - from 2016 to 2019, different MOE units prepared policy papers to provide students with these skills. The policy papers pointed to many and diverse required skills, and in fact 'spoke in different languages'. Moreover, the MOE did not use these documents to formulate a comprehensive program with objectives, priorities, means, and schedules. As of October 2020, the ministry had not yet completed (or regulated in the Director General's circular) strategic work to define and implement the skills students need for the 21st century, with the "optimal graduate of the education system" at its core.

- **Participation of external stakeholders in the strategic change process** - the audit found that external professional stakeholders were involved in the formulation of a future-oriented pedagogical policy, and all main MOE units were involved in the formulation of the strategic program. However, representatives of other Government ministries and of the higher education system did not participate in the process of formulating policy papers, and neither did representative from statutory bodies that have an impact on the labor market and on the skills the market may require. At times, even interested parties from the MOE's units were not involved in the process.

- **Mapping the curricula to assess the skills included in them** - the Pedagogical Secretariat mapped the curricula to assess the extent of implementation of skills. This mapping work was conducted based on OECD guidelines, but only for a very limited number of curricula, and only in lower secondary schools. It did not take into consideration compulsory subjects, the curricula of upper secondary schools, and the head supervisors were not included in this process. The head supervisors conducted their own mapping, but 58% of them indicated that they did not map the curricula of lower secondary schools, and 36% indicated that they did not map the curricula of upper secondary schools. As a result, the status report conducted by the MOE regarding the required skills in the curricula is lacking.

- **Schedule for updating the curricula and adapting them to the "Meaningful Learning" Reform** - since the launch of the Meaningful Learning Reform over five years ago, half of the curricula has not yet been updated, and the principles of meaningful learning were not integrated. According to the data of February 2020, 42 out of 82 curricula for all secondary schools (51%) were approved over ten years ago, and have not been updated since.

- **Implementation and assessment of skills in the evaluation and measurement of students** - despite the fact that the international exams are changing, putting more emphasis on the evaluation of skills and less emphasis on the evaluation of knowledge, written matriculation tests in Israel (which today account for 49% of the students' final grade) almost do not refer to and do not test the skills of the 21st century.

- **The scope of Matriculation tests in Israel** - the large number of exams in Israel (10 to 11 exams compared to 2 to 5 in other countries) creates a system that makes it difficult for schools to prioritize and invest in providing students with the skill they need. Alternative assessments, aimed at replacing some of the written matriculation exams stumble upon many obstacles, and therefore do not enable to assess how students manage the important skills that will allow them to integrate into the changing labor market.

- **Pedagogical flexibility** - the level of flexibility given to schools is low - 67% of principals who answered the questionnaire indicated that they enjoy a medium to low level of pedagogical flexibility. In areas in which principals believe that increased flexibility would have greater contribution to the ability of providing students with the skills, they find there is the least flexibility.

- **The role of lower secondary schools and their ability to teach skills** - only 18% of secondary school principals believe that the main purpose of lower secondary schools from the MOE's perspective is to teach skills; 61% believe that, in fact, lower secondary schools teach the required skills to a limited or medium level only. Despite the fact that the MOE began a process for adapting teaching approaches and methods in lower secondary schools to the 21st century, including skills tutoring, the many subjects studied and the high number of exams in these schools affect the ability to provide their students with the required skills.

Formulation of a policy by the MOE for teaching the 21st century skills - in July 2019, the MOE began defining the skills required by students in the 21st century and started setting a schedule to include them in the curricula, and in the professional training for teachers.

Changes in matriculation exams - the inclusion of questions about Values, Involvement and Relevance and high-level thinking[6] in matriculation exams is an appropriate step. It seeks to express a skill that is based on an in-depth understanding of both knowledge and thinking. This step points to the potential of using external evaluations as a compass in the education system, and may contribute to the provision of essential skills throughout the learning effort.

Key recommendations

- **Formulating a comprehensive plan for imparting skills** - it is recommended that the MOE conducts a comprehensive process of drawing conclusions from the Meaningful Learning Reform. It is also recommended that the MOE complete formulating the program for imparting the required skills to students based on these conclusions and working in cooperation with relevant external bodies in the fields of education, government, employment, and civil society. This should be done by establishing either a National Education Council or an ad-hoc forum to deal with the changing labor market. It is further recommended that this program will be regulated in a binding MOE document such as a Director General's circular, which should be distributed to all field factors and outline the skills required by students. At the same time, it should synchronize and describe the status of the policy documents prepared in recent years by the MOE units.

- **Mapping the curriculum and implementing skills within their framework** - it is recommended that the MOE's Pedagogical Secretariat will consider to expand the mapping of the curricula into a system-wide, in-depth, and comprehensive process covering all curricula (or, at least, the curricula of all compulsory subjects), in cooperation with the head supervisors. This will enable them to assess how the skills of the 21st century appear in each curriculum.

- **Changing the method of measurement and evaluation for improving skills acquisition** - it is recommended that the MOE evaluates the inclusion of 21st century skills in the current matriculation exams. The Ministry should assess the high number of matriculation exams and its effect on the entire system. It is recommended that the MOE consult with relevant educational, government, employment, and civil society bodies.

- **Increasing the pedagogical flexibility to improve the imparting of skills** - it is recommended that the MOE will act to increase pedagogical flexibility according

6 According to the MOE's definition, high-level thinking develops problem-solving, information analysis and critical thinking skills

to its policy, to the extent and in the areas required, in a way that will improve the imparting of skills to students.

- **Defining the role of lower secondary schools with an emphasis on imparting skills** - in addition to the MOE's positive initiative led by Pedagogical Secretariat and the Pedagogical Administration to shift the focus and learning approaches in lower secondary schools and adapt them to the 21st century, it is recommended that the two entities complete the formulation of a policy regarding the unique and current role of lower secondary schools in the education system. Emphasis should be put on imparting the required skills to students.

Summary

In order to prepare graduates to succeed in their future lives, in addition to imparting knowledge in various areas and values, the education system should also teach the skills students will need as adults in their social, personal, and professional lives in the 21st century. This is further reinforced by the fact that education systems around the world are working to implement such skills.

The findings of the audit indicate that in addition to preparing policy documents regarding the required skills and formulating a program for their implementation, there are deficiencies in both the planning and the policy, as well as in the operational implementation of the skills in the curricula. Deficiencies were also found in assessment and measurement methods, and in the level of pedagogical flexibility given to schools, in a way that makes it difficult for them to provide students with the required skills for the 21st century.

It is recommended that the MOE formulate a comprehensive policy and a strategic plan for implementing 21st century skills among students. The strategic plan should provide the framework to coordinated activity of all relevant MOE units. Inter alia, it should also include guidelines regarding ways to implement the skills in the curricula, the methods measurements and assessment, methods for teaching the skills in lower secondary schools, and the means to expand pedagogical flexibility in upper secondary schools.

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The Learning Environment in Secondary Schools as the Infrastructure for Providing 21st Century Skills

Abstract

The Learning Environment in Secondary Schools as the Infrastructure for Providing 21st Century Skills

Background

A learning environment is a physical space that enables different types of teaching; it combines up-to-date learning technologies and encourages student involvement. Numerous studies around the world show that an in-depth, long-term pedagogical change in schools requires a change in their environment as well. Therefore, changing the education system to adapt it to the 21st century and enabling schools to provide students with the skills they need, involve changing the physical and technological learning environment.

Redesigning of the learning space is one of the main challenges the modern education system faces these days. Recognizing the importance of adapting these spaces to innovative learning, the Ministry of Education's (MOE) five-year plan includes the objective of adapting the learning environment - including both the physical and ICT (Information and Communications Technology) infrastructures - to meaningful learning.

This report presents the situation as of the beginning of 2020, before the COVID-19 pandemic outbreak. Towards the completion of the audit and due to the pandemic, the MOE formulated a procurement program to narrow IT gaps in schools and to improve the digital infrastructures for remote learning.

Key facts

2,265

Number of secondary schools in Israel (including schools also for children of elementary-school ages)[1].

23%

Percentage of secondary schools included in the MOE's ICT program[2] at the end of 2018 (the program implements new IT infrastructures into schools and upgrades old ones).

48%

Percentage of secondary schools that have one computer per more than 10 students[3] at the end of 2018.

50%

Percentage of secondary school principals[4] who believe that the digital learning environment in schools supports the provision of the required skills to a medium or low extent (as of 2019).

52% and 62%

Percentage of secondary school principals[5] who believe that the physical environment in the schools they manage (does not contribute to providing 21st century skills (52% of them believe this is the case with laboratories, and 62% believe this is the case regarding the school's buildings, classrooms, and innovative spaces).

1.5%

Of the new secondary schools that the MOE recognized the need to establish in the period 2016-2018 were established under the Innovative Education Institutions project (20 out of 1,291 schools).

1.5%

Percentage of classrooms out of the total classrooms in secondary schools that were upgraded for innovative learning (M21 project) between the years 2016-2019 (496 out of 32,756 secondary school classrooms existing in the 2017/2018 academic year).

1%

Rate of schoolyards in secondary schools that were upgraded for outdoor learning (under the Outdoor Learning project) between the years 2016-2019 (19 out of 2,265 schoolyards).

Audit actions

From January 2019 until March 2020, the State Comptroller examined the preparedness of the Ministry of Education to adapt the Israeli education system for the 21st century, and to provide students with the required skills in the changing labor market. The audit focused on lower secondary schools and upper secondary schools, examining, inter alia, whether the MOE encourages secondary schools to create a technological and physical environment that supports the teaching of the 21st century skills to students, and whether it provides them with relevant tools for this purpose.

1 Data from the "Education Institutions Search System", November 2019, processed by the State Comptroller.
2 Lower secondary schools, upper secondary schools and six-year schools; data from the IT Administration as of the end of 2018, processed by the State Comptroller.
3 See Footnote 2.
4 Out of 757 principals who answered the questionnaire distributed by the audit team (respondents constitute 39% of all secondary school principals in Israel).
5 See Footnote 4.

The audit was conducted in the main units of the MOE and in secondary schools across Israel. It included an extensive public participation process, with head supervisors and focus groups of subject coordinators, and of students of 11 secondary schools. In addition, a questionnaire was distributed to 1,961 secondary school principals; 757 principals responded (39% of all principals)[6].

Key findings

- **Implementation of the ICT program in high schools** – the ICT program that the MOE is operating in recent years focuses on the implementation of new IT infrastructures in schools and on upgrading old ones. The program operates primarily in elementary-primary schools, and in only 23% of secondary schools. The data refers to the period before the implementation of the procurement program due to the COVID-19 pandemic.

- **Implementation of the ICT program in lower socio-economic clusters**[7] – 25% of secondary schools in the higher socio-economic clusters (7-9) participate in the program, whereas only 16% of secondary schools in the lower clusters (1-3) - that need this program - participate in it. The data refers to the period prior to the implementation of the procurement program due to the COVID-19 pandemic.

- **Implementation of the ICT program in ultra-orthodox schools** – schools in the State-Jewish education sector represent almost 50% of the schools that participate in the ICT program (whereas their percentage among all schools is 34%). Ultra-Orthodox schools comprise only 1% of all schools that participate in the program (whereas their percentage out of all schools is 30%).

- **Ratio of students per computer in secondary schools** – the MOE did not establish a standard for a reasonable ratio of students to the number of computers in schools. 48% of secondary schools have one computer per more than 10 students, and 23% have one per more than 20 students. Moreover, in higher clusters, 10% of secondary schools have a ratio of 20 students per computer, whereas this ratio is found in 40% of schools in the lower clusters. In State-Jewish education, 14% of secondary schools have a ratio of more than 20 students per computer, while this ratio is found in 50% of schools in the Arab education sector. The data refers to the period before the implementation of the procurement program due to the COVID-19 pandemic.

- **Ratio of teachers per computer in secondary schools** – the rate of availability of computers to secondary school teachers is low. In 40% of secondary schools, there is one computer per more than five teachers; in the lower clusters, this is the

6 The questionnaire enables to draw conclusions with a certainly of 95% and a sample error of ±2.8%.
7 The Central Bureau of Statistics ranks and groups settlements in Israel to clusters, based on their socio-economic status - from cluster 1 - weakest settlements, to cluster 10 - strongest settlements.

ratio in 52% of schools. The data refers to the period before the implementation of the procurement program due to the COVID-19 pandemic.

- **Upgrading the physical environment in secondary schools** – the percentage of secondary schools that participate in the MOE's project for improving the physical environment in schools in order to adapt it to the 21st century is very low. Between the years 2016-2019, as part of the M21 project for classroom improvements, the MOE approved the renovation of only 496 secondary schools, which represent 1.5% of all 32,756 classrooms in Israel and 33% of all requests received. As part of the Outdoor Learning program the MOE approved the construction of 19 schoolyards in secondary schools, which constitute 1% of all 2,265 secondary schools in Israel and 17% of all requests submitted.

- **Accompanying research for projects to improve the learning environment** – the MOE did not perform accompanying research to support the projects. Moreover, there was no monitoring of the quality of the new schools built, the renovated M21 classrooms, the new learning schoolyards, and how these spaces contribute to innovative learning adapted to the 21st century. The Ministry also failed to assess the level of satisfaction of the actors in the field, and the disadvantages and barriers of these projects.

Active actions to improve the physical learning environment in schools – the MOE has been executing projects for improving the physical learning environment in schools since 2016. These projects include innovative educational institutions, M21 classrooms, and learning schoolyards, although the scope of these projects is limited.

Procurement program during the COVID-19 pandemic – in its response of October 2020 to the audit's findings, the MOE indicated that it had formulated a procurement program during the COVID-19 crisis, allocating to it a budget of 1.2 billion NIS. The aim of the program was to narrow the ICT gaps in schools and establish a digital infrastructure for remote learning.

Key recommendations

- **Including all schools in the ICT program** – it is recommended that the MOE complete the required procurement so that the schools obtain the technological and digital tools they need, by including all schools to the ICT program. The program should focus on schools in the lower socio-economic clusters in order to give them essential tools to develop technological and digital skills among their students. Furthermore, in light of the COVID-19 crisis that reinforces the importance of a comprehensive and quality technological and digital infrastructure as the foundation for remote learning, it is recommended that the MOE use the budget already allocated to implement a comprehensive plan for remote learning during the Covid-19 pandemic. The plan should include all schools into the ICT program, and the Ministry should make efforts to reduce the shortage of laptops for students at home.

- **Define appropriate ratios for students per computer and teachers per computer and strive to achieve them** – it is recommended that the MOE define appropriate students to computer ratios taking into consideration the computing equipment available to schools (tablets, laptops, etc.), and completes the mapping of students' needs through a nationwide survey of available ICT infrastructures. Thereafter, it is recommended to update the data routinely so that it will be possible to continuously monitor the situation regarding this issue. It is also recommended that the MOE act within the current and future procurement plans to improve the students-to-computer ratio in schools in the lower socio-economic clusters and in Non-Jewish schools, in order to ensure adequate access to computers for every student in every school.

- **Adapt technological and digital infrastructures to provide students with the skills they require** – it is recommended that the MOE complete the upgrade of the technological and digital infrastructures in schools, including internet infrastructure, in order to impart technological and digital literacy to students. The COVID-19 pandemic and its repercussions on the education system indicates the importance of using the internet and the digital skills students require to use it effectively; and it is appropriate to develop the capabilities already developed in this time of crisis. Therefore, it is recommended that the MOE continue to monitor and ensure that the use of the internet and of digital skills continue to be effective, while adding the training and technical support required.

- **Formulate a comprehensive plan of projects for improving the physical learning environment, including studies that support these projects** – it is recommended that the MOE formulate long-term plans for projects of innovative educational institutions, M21 classrooms, and schoolyards. It is also recommended that the Ministry improve the data available for these three important projects, supporting them with accompanying research for improvement and effectiveness. The MOE should also evaluate the possibility of increasing the number of secondary schools that participate in these projects, giving priority to schools in lower socio-economic clusters and in non-Jewish settlements where the scope of innovative construction is low.

differences between classrooms in the Gymnasia Herzliya Hebrew high school in Tel Aviv in -1912 and today, and an innovative M21 classroom, Ort Bistritzky, Ramla.

Source: 1912 classroom from High School, Wikipedia; today's picture from the class4u website for classroom rentals; picture of the M21 classroom from the MOE repository. .

Summary

To prepare secondary school graduates for future success, and in light of the global engagement in this area, the education system must provide students with the skills they will need as adults in their social, personal, and professional lives in the 21st century.

The audit's findings show that on the eve of the COVID-19 crisis at the beginning of 2020, the physical, technological and IT environment of schools in general and secondary schools in particular did not provide optimum conditions for the effective acquisition of the skills of the 21st century in general, and technological and digital literacy in particular. The availability of IT learning resources to both students and teachers was low. The changes made to the physical environment in secondary schools were not sufficient to enable optimum innovative learning.

The COVID-19 pandemic further emphasized the importance of a comprehensive quality technological and digital infrastructure in schools. Such infrastructure should provide the essential foundation for remote learning. In this regard, the procurement plan the MOE prepared for the pandemic (as indicated in its complementary response of October 2020), to bridge ICT gaps and promote a digital infrastructure for remote learning, is noteworthy.

It is recommended that the Ministry of Education utilize the budget allocated to it to implement a comprehensive program for remote learning and continue to act to improve the physical and technological learning environment. The Ministry should also expand the number of schools that benefit from an innovative and effective learning environment and technological devices, and encourage schools (mostly secondary schools) to participate in projects that promote such environments. At the same time, it should work to remove barriers and take into consideration the gaps in schools of a lower socio-economic level, and in the ultra-Orthodox and Non-Jewish sectors.

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Teaching Digital Literacy for Children and Adults

Abstract

Teaching Digital Literacy for Children and Adults

Background

Digital literacy is defined as the skills, proficiency and knowledge required for functioning well in the digital environment in the 21st century and is recognized as essential in our time. In an era of a unique and rapid technological revolution, digitally literate workers are expected to have a significant advantage in the labor market.

In 2015, Israel had the widest digital gap among participating OECD countries in the problem-solving in technology-rich environments test1, taken as part of the PIAAC[2] skills survey. The digital gap is prevalent among the Arab-Israeli and the ultra-Orthodox populations. Digital skills and technological understanding can, and should, be taught to children and youth during their time in the education system, before they enter the labor market. This preparedness will enable students, throughout their adult lives, to continue to upgrade their digital literacy. Working-age adults also need to acquire digital literacy and this necessity is especially pressing for employees in jobs that will likely be automated in the near future. Assistance in improving their digital literacy may enable these workers, many of whom are low-skilled and earn low wages, to remain in the workforce.

1 This refers to the gap in Israel between the scores of the 95th percentile and the 5th percentile on the test. The digital gap is also expressed in the inequality between groups based on accessibility to technology, ability to use it, opinions regarding it and the range of uses of it

2 PIAAC (the Program for the International Assessment of Adult Competencies) is a program of assessment and analysis of adult (ages 16 through 65) skills. The PIAAC Survey of Adult Skills - conducted on behalf of the OECD (Organisation for Economic Co-operation and Development) - measures adults' proficiency in key information-processing skills - literacy, numeracy and problem solving in technology-rich environments - and gathers information and data on how adults use their skills at home, at work and in the wider community. It examines, inter alia, the individual's ability to use digital technology, the level of their technological proficiency and its alignment with labor market needs. The first cycle of the PIAAC survey was conducted in three rounds—in 2001–2012, 2014–2015, and 2017. Israel participated in the second round, between April 2014 and January 2015, and is scheduled to participate in the second cycle of survey that will be conducted in 2022–2023.

Key facts

24th

Israel's ranking - out of 33 participating countries[3] - in the PIAAC problem solving in technology-rich environments test, for youth aged 16–19

73%

Percentage of the adult population in Israel (ages 16–65) with low levels of digital literacy according to the PIAAC survey - similar to a 70% average in participating OECD countries

1 of 10

Individuals aged 20–74 in Israel did not use the internet in 2019 - approx. 560,000 people

4%, 19%

Percentage of the Arab-Israeli and ultra-Orthodox adult populations (ages 16–65), respectively, with high levels of digital literacy (according to the PIAAC survey) vs. 37% in the Jewish non-ultra-Orthodox population and about 30% on average in participating OECD countries

36%

Of the schools in the Israeli education system participated in 2018 in a program for supplying computing equipment to schools (1,808 of about 5,000 schools); 1% of the schools that participated are ultra-Orthodox schools

40%

The percentage of teachers who noted in a 2016–2017 survey that they had not participated in training for teaching in a digital environment

50%

The percentage of students in grades 5–11 who used a computer to study and take exams during academic years 2015–2019

1%

The percentage of participants in a government-sponsored guided program for developing digital literacy in 2019, of the approx. 3.7 million working-age individuals (18–64) in Israel with low levels of digital literacy

Audit actions

From September 2019 to May 2020, the Office of the State Comptroller examined the actions of the State authorities to promote digital literacy among children and youth, and among working-age adults in general, and specifically among the ultra-Orthodox and Arab-Israeli populations. The audit was conducted in the following government units and ministries: the Ministry of Education; the Headquarters for the National Digital Israel Initiative; the Labor Branch of the Ministry of Labor, Social Affairs and Social Services; the Ministry of Science and Technology; and the Israeli Employment Service.

3 This refers to the 33 countries that participated in the first cycle of the survey between 2011–2017.

Key findings

- **National tests to measure the level of digital skills among students:** Although the Ministry of Education attempts to assess the extent of use of digital means in various ways, it does not measure the level of digital skills of the majority of students at any school grade. Consequently, it does not have the information regarding the level of digital skills of students in the education system - data it requires as a basis for formulating policy in general, and regarding the need reduce gaps specifically.

- **Teaching digital skills to students:** During the academic years 2014–2017, only about half of the students in elementary (primary) school, and a minority (23%-30%) of students in secondary school were taught internet literacy. About 50% of students in the various age levels used computers for study and exam purposes throughout the academic years 2015–2019.

- **The digital gap in the Jewish ultra-Orthodox and Arab sectors:** A significant percentage of Israeli students, particularly in the Jewish ultra-Orthodox and Arab sectors, do not acquire, as part of their studies, the digital skills essential for integrating successfully in the changing labor market. For example, the percentage of Arabic speakers who use computers for study purposes decreases from grade 7 onwards, becoming lower than that among Hebrew speakers—by grade 11, the gap reaches 21% regarding searching information on the internet and 13% regarding information processing and presenting using the computer. In ultra-Orthodox schools, the percentage of computerized classrooms out of all classrooms, is the lowest among all sectors—about 2%.

- **Imparting digital skills to teachers:** The level of teachers' digital skills is not optimal as is their training in this area. Only 52% of teachers who participated in the TALIS 2018[4] survey reported that they had the sense of capability to assist students in learning using digital technology, versus the OECD average of 67%.

- **Monitoring and control of the use of digital educational content by students and teachers:** The Ministry of Education does not monitor and control the use students and teachers make of digital educational content in a way that will allow it to examine the effectiveness of this use.

- **Computational thinking[5]:** The actions of the Ministry of Education did not lead to teaching computational thinking among significant parts of the education system (e.g., it did not appear in 91% of content items in the 12 study subjects that were examined in the mapping conducted by the Ministry of Education according to

4 TALIS – the OECD Teaching and Learning International Survey - examines issues related to teacher's work and the school learning environment. In Israel, teachers and students in grades 7–9 (lower secondary schools) participated in the survey.

5 Computational thinking is a problem-solving process that includes the ability to design solutions that can be executed by humans or computers or a combination of the two.

OECD instructions). Israel is still in the initial stage of integrating computational thinking into the curricula.

- **The scope of Government activity to teach digital literacy to adults:** Only 1% of working-age adults (18–64) whose levels of digital literacy were low participated in 2019 in a government-sponsored program (with guidance) for developing digital literacy. Despite a Government decision of June 2017[6] regarding joint action by various ministries, it was found that each ministry considered itself to be a leader in this area and that, in practice, no entity or team is responsible for coordinating issues such as target populations and scope of participants. Moreover, given the fact that each year, the working-age population grows, if the number of participants in digital literacy programs remains unchanged, the share of individuals with low levels of digital literacy who participate in programs, might decrease.

- **Imparting digital literacy to adults from the Arab and ultra-Orthodox populations:** In the Arab-Israeli population there were about 1,029,000 working-age adults (18–64) with low levels of digital literacy, but only 13,700 Arab-Israeli participated in a government-sponsored program (with guidance) for developing digital literacy (about 1.3%) in 2019; among the ultra-Orthodox population, there were about 360,000 with low levels of digital literacy, and about 13,100 who participated in a digital literacy program (about 3.6%). The limited participation of these population groups, who are characterized by low levels of digital literacy, and generally having limited means, raises the concern that they will experience difficulties in attempting to reduce the existing digital gap on their own, which may have implications on their ability to improve their economic situation and find a stable job.

Providing digital skills to teachers: Israel is ranked just above the OECD average in regard to the percentage of teachers who indicated that they received digital skills training for teaching needs – 58% vs. 56%, respectively.

Activity during the COVID - 19 pandemic: During the economic and employment crisis stemming from the pandemic, various government entities worked to promote digital literacy: The Ministry of Education worked to equip schools with computer infrastructures and provide teachers with digital skills. For example, during August 2020, the Ministry of Education trained about 70,000 teachers at centers for teaching staff development as well as through short digital courses; the Labor Branch, the Employment Service and the Digital Israel Initiative increased the use of online means and adapted their activities to teach digital literacy to adults.

6 Government decision 2733 (11 June 2017) related to the Ministry of Social Equality, to which at that time Digital Israel Initiative was subordinate. At the end of the audit, Digital Israel Initiative was transferred to the Ministry of Cyber and Digital Matters.

Key recommendations

- **Teaching digital skills to students:** It is recommended that the Ministry of Education examine ways to expand the integration of digital skills and computational thinking in the curricula for all students. It is further recommended to establish performance indicators for these elements, considering the extent and quality of use of digital infrastructures by students, and to assess outputs through a national exam, as is done in other countries. In particular, the Ministry of Education should act to reduce the digital gaps in the Arab and ultra-Orthodox sectors.

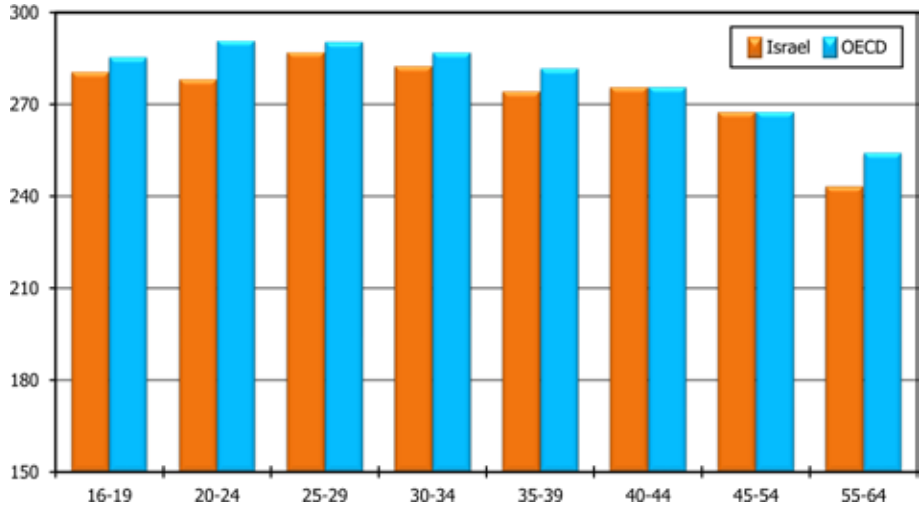
- **Imparting digital skills to teachers:** It is recommended that the Ministry of Education expand and adapt the training program for teachers in a way that will provide them with the digital skills required for fulfilling their jobs. It is recommended that the Ministry of Education will make this program accessible online to all teachers, and monitor its implementation.

- **Monitoring and control of the use of digital educational content by students and teachers:** It is recommended that the Ministry of Education develop a management-system that will include all data related to digital content being used in schools by teachers and students — both the scope of use and the quality of learning resulting from it. In this way, the Ministry would have the data needed to enable it to assess the effectiveness of the learning using digital content.

- **The scope of Government activity to teach digital literacy to adults:** It is recommended that the Digital Israel Initiative, the Ministry of Labor, the Ministry of Science and the Employment Service act together and each in its sphere of responsibility, to significantly increase the share of adult participants in government-sponsored programs for promoting digital literacy. It is also recommended that they promptly formulate a coordinated program, delineating the aspects necessary for effective teaching of digital literacy and setting measurable goals. Actions should also include efforts towards increasing awareness among groups lacking digital literacy to the importance of acquiring it, as well as measurement and assessment of programs. Such efforts are expected to contribute to narrowing the digital gap as well as socioeconomic gaps, and in the future, improve labor productivity.

- **Imparting digital literacy to adults from the Arab and ultra-Orthodox populations:** It is recommended that the Digital Israel Initiative, the Ministry of Labor and the Ministry of Science, in cooperation with the Employment Service and the Ministry of Finance, work jointly to plan and lead actions to promote digital literacy, taking into consideration the wide scope of the populations in need—about 1.4 million adults in the Arab and ultra-Orthodox populations and another 2.3 million adults (approx.) from the general public—to ensure optimal integration of populations with low levels of digital literacy in the changing labor market, especially the Arab and ultra-Orthodox populations. It would be appropriate to utilize the opportunities arising from the economic and employment crisis caused by the Covid-19 pandemic, in order to advance the level of digital literacy of as many groups as possible, which will enable them to occupy stable, quality jobs in the future.

The average score in the PIAAC 'problem solving in technology-rich environments' test in Israel, compared with the OECD average, by age groups, 2015



According to OECD data[7]; processed by the Office of the State Comptroller

Summary

As digital literacy is considered essential for quality and lasting employment in the changing labor market, promoting digital literacy has the capacity to prevent the broadening of gaps and to improve labor productivity. For this reason, promoting digital literacy should be set as a goal to be achieved in all learning and training environments. Emphasis should be placed on imparting the various types of digital skills to children and youth—as tools they will employ throughout their lives and as a basis for lifelong learning; as well as enabling adults who do not have a strong grasp of these skills, to acquire them. At the time the audit was completed, the COVID-19 pandemic had erupted in Israel and around the world, its impact emphasizing the need of students and teaches for digital literacy that underpins remote learning; It is also recommended to improve the levels of digital literacy among adults, with an emphasis on the unemployed, in order to enable them to integrate into the changing labor market in stable, quality employment.

7 PIACC data explore [link]

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Adapting Lifelong Learning and Vocational Training for Adults to the Changing Labor Market

Abstract

Adapting Lifelong Learning and Vocational Training for Adults to the Changing Labor Market

Background

Labor markets around the world are changing profoundly, bringing about transformations in professions and in work-activities. In Israel, a large percentage of those jobs estimated to be at a high risk for transformation, are in sectors that employ nonacademic and low-skilled workers. These workers may become unemployed, as many of the jobs that require only basic skills may disappear.

In order to enable hundreds of thousands to integrate into, and remain part of, the workforce, there is a rising need to adapt the skills and knowledge of those entering the workforce - as well as of those already working - to the needs of the changing labor market; The need is particularly acute for low-skilled workers. Updating skills is necessary in light of the increasing demand for skilled workers, even in nonacademic professions, and as Israel holds a high percentage (in international comparison) of adults with low basic skills[1], particularly among the Jewish ultra-Orthodox and Arab populations, and among other people of low socioeconomic status. Due to market failures, they might find it difficult to upgrade their skills without assistance.

The adaptation of competencies and skills[2], which will improve the employability of workers, is achieved through "lifelong learning" – various learning and training activities performed in the context of employment, including vocational and technological training (for reskilling) and adult learning (for upskilling).

1 In particular literacy, numeracy and digital skills.

2 The terms "skills", "competencies", and "capabilities" are used interchangeably in the employment discourse, and are often difficult to define accurately. The terms in this audit are used according to context.

Key facts

600,000 Workers

Estimated number of workers in Israel employed in jobs that are at a high risk of profound transformation in the next few years (15% of jobs); 2.1 million workers are employed in jobs at a medium-level risk (54% of jobs).

37%

Percentage of adults in Israel (ages 16 to 65) with low levels of literacy or numeracy (compared to an average of 27% in the OECD countries in 2015).

500 Million NIS

State budget for vocational and technological training in 2018.

53,200

Number of participants in State-sponsored vocational and technological training in 2018.

29%

Percentage of young people who do not participate in State-sponsored trainings or academic studies. Many of them come from a lower socioeconomic background.

7%

Percentage of participants in vocational trainings executed in collaboration with employers, out of the total participants in trainings sponsored by the Vocational Training Department of the Ministry of Labor, Social Affairs and Social Services (MOL).

0.07%

Public expenditure on vocational training as a percentage of the Gross Domestic Product (GDP), compared to a 0.11% average in the OECD countries.

38%

Percentage of workers in jobs at a high risk who wished to participate in lifelong learning activities, but did not do so, due to cost considerations.

Audit actions

From March 2019 to May 2020, the State Comptroller examined the programs for vocational and technological training for adults, and Government initiatives for lifelong learning, and their adaptation to the changing labor market and its workforce. The audit was conducted in the Labor Branch of the MOL, the Ministry of Education (MOE), the Ministry of Economy and Industry (MOEI), the Ministry of Finance (MOF) – Budgets Division, the National Digital Israel Initiative, and the Israeli Employment Service. A supplementary audit was conducted in the Ministry of Aliyah and Integration (MOAI).

Key findings

Integration and improvement of the vocational and technological training mechanisms – there are a number of entities in charge of trainings, but they lack coordination in various main aspects. For example, courses for similar professions

include different pedagogical content; the Vocational Training Department, the Institute for Technology and Science Training[3], and the MOE's programs for grades 13 and 14, each collaborate with employers to different extents and in different professional committees; there is no single website containing information regarding all training options available to the public; and there is no unified process of evaluation, guidance, and recruitment. The lack of integration prevents effective utilization of resources and makes it difficult to adapt trainings to the needs of the changing labor market and to those of different populations.

- **Scope of trainings for young people who do not pursue an academic degree and for the Arab population** – about 29% of young people (ages 18-27) did not enjoy any State funding for improving their employability in 2018; most of them come from a lower socioeconomic background, and they constitute about half of those not pursuing an academic degree. This may affect their prospects in the workforce. Furthermore, the share of Arabs among young participants in State-sponsored vocational and technological trainings (22%) is lower than their percentage in the population (27%), and also lower than their share among the young people who do not pursue an academic degree (33%).

- **Collaborating with employers on trainings of the Vocational Training Department** – the Vocational Training Department does not have an adequate process for consulting employers from various sectors in order to learn about market developments, nor with employers from the geographic periphery or with small and medium-sized enterprises. Consequently, surveys among training graduates indicate that the effectiveness of trainings is less-than-adequate. Only a small portion (7%) of participants in vocational training programs sponsored by the Vocational Training Department do so in one of the tracks executed in collaboration with employers, despite a wide consensus that such programs are the most effective.

- **English as an essential skill for those who do not pursue an academic degree** – 40% of all 12th-grade students took the English matriculation exam at the lowest level (three-unit level) or did not take the English exam at all in the academic year 2018/2019; Many of them are from lower socioeconomic clusters. The MOE did not sufficiently collaborate with employers and other ministries in order to ensure that the English language curriculum adequately prepares students also for non-academic professions. In addition, the extent of English studies offered in the adult training courses of the Vocational Training Department and the MOE program for grades 13 and 14, is not expected to suffice for the needs of the changing labor market, raising concerns that graduates will not have a sufficient grasp of the English language needed to integrate successfully into the workforce.

- **Integration of Government activity and a national strategy for lifelong learning** – there is no single entity coordinating the activities for lifelong learning and leading

3 Vocational Training and Human Resources Development Department, and Government the Institute for Technology and Science Training, are both part of the Labor Branch of the MOL; the Institute for Technology and Science Training trains and certifies technicians and practical engineers.

the assessment of the skills most required in the changing labor market. The array of public entities involved may create difficulties for the clients – the public – to explore their options and adequately select their preference.

- **Participation in lifelong learning and its quality** – a relatively high percentage (25%) of adults in Israel (in any job) who wished to participate in learning or training activities did not do so due to cost considerations, compared to a 16% average in the OECD countries. Moreover, the return in terms of wages for participation in lifelong learning is low in Israel (5.4%) compared to the average in the OECD countries (8.5%).

- **Encouraging low-waged and low-skilled populations to reskill or upskill** – despite the need for proactive and personalized activities, there is no comprehensive program to engage low-skilled populations in adult learning or trainings. There is no framework for in-depth assessment of people's capabilities and needs in order to guide them to learning and training activities best suited to them. In addition, many low-waged workers in jobs that are at a high risk of transforming profoundly, and many unemployed people, may refrain from participating in a State-sponsored training course, or may drop out of it, due to time and cost considerations.

Actions to improve the vocational and technological training mechanisms – the Committee for Employment Policy for 2030 (appointed by the MOL), conducted an in-depth evaluation of vocational trainings and the changing labor market. Furthermore, at the time the audit was completed, a reform was underway in the Institute for Technology and Science Training in accordance with Government resolutions, in order to improve the quality of technological training.

Online accessibility – at the audit completion date, the MOL was in the process of developing an online database and occupational guidance system, intended to make information about studies, trainings, and work options more accessible. Furthermore, the National Digital Israel Initiative runs a free online learning platform for adults – CampusIL.

Actions following the employment crisis resulted from the COVID-19 pandemic – the Israeli Employment Service expanded the selection of the free workshops it offers job-seekers, and adapted them to digital platforms. In addition, the Employment Service began to offer online courses teaching skills and knowledge useful for the labor market. Moreover, The Labor Branch and the National Digital Israel Initiative have also adapted some of their activities to the limitations imposed as a result of the pandemic.

Key recommendations

- **Integration and improvement of the vocational and technological training mechanisms** – it is recommended that the MOL, MOE, MOAI, MOF and the Israeli Employment Service work together to improve the coordination between them, the integration of the training mechanisms, and their quality. In this respect, it is recommended that the Ministries consider the recommendations of the Committee for Employment Policy for 2030 and prepare an action plan accordingly.

- **Scope of trainings for young people who do not pursue an academic degree and for the Arab populatio**n – it is recommended that the MOL, MOE and MOF (in consultation with other entities that engage in vocational training, such as the MOAI, MOEI, the Ministry of Defense and the Israeli Employment Service) analyze together the scope of State-sponsored trainings being provided. It is recommended that they define which populations require training and the ways to increase their participation in them, in order to optimally address their needs for adapting their professional skills to the changing labor market, taking into consideration the immediate implications of the economic and employment crisis caused by the COVID-19 pandemic. It is also recommended that the MOL and MOE work to increase the share of the Arab population in the trainings of the Vocational Training Department and in the MOE program for grades 13 and 14, both of which train a small percentage of Arab participants, compared to their percentage in the group that does not pursue an academic degree.

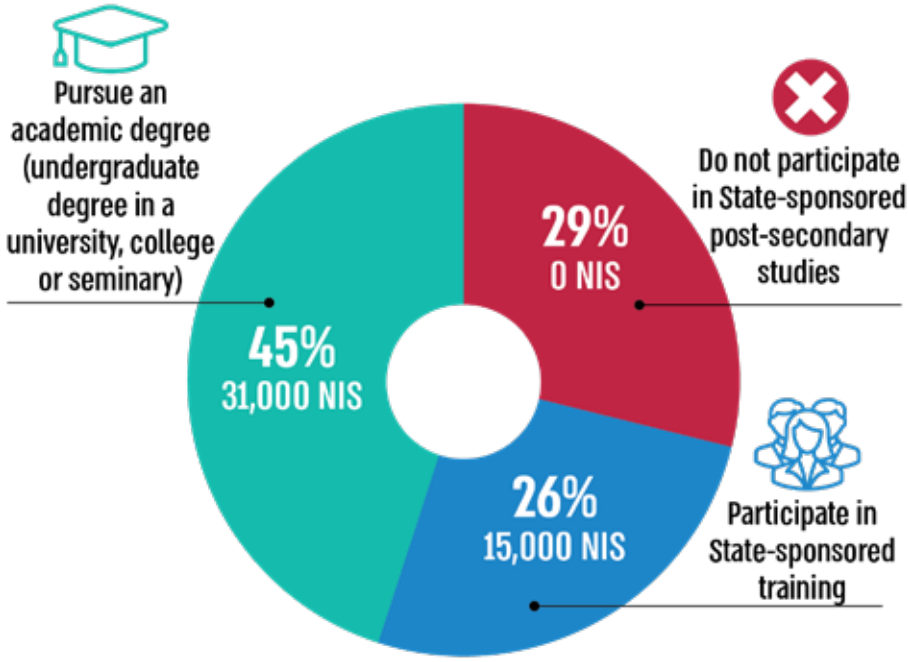
- **Collaborating with employers on trainings of the Vocational Training Department** – it is recommended that the Vocational Training Department establish a systematic dialogue with a wide range of employers in various sectors across Israel, in order to stay updated on their needs. It is also recommended to consider conducting, from time to time, a comprehensive employers' survey, to encourage employers to organize on the sectorial level and cooperate with such organizations, to methodically analyze data on vacancies, and to train employees for the professions that are in demand, while taking into consideration the needs of small and medium-sized enterprises. It is also recommended that the MOL and MOF complete the evaluation of the barriers that prevent more substantial participation of employers and students in those vocational trainings executed in collaboration with employers, work to remove those barriers, and consider increasing the investment in such trainings.

- **English as an essential skill for those who do not pursue an academic degree** – in light of the future need of all students for a good grasp of the English language to enable them to optimally integrate into the workforce, it is recommended that the MOE define a strategic goal to improve the level of English for students in weaker schools, and work to achieve this goal. It is also recommended that the entities engaged in vocational and technological training for adults and the Employment Guidance Centers evaluate the required extent of English language studies in view of the changing labor market's needs, and update their programs accordingly.

- **Participation in lifelong learning and its quality** – the gaps in skills among the adult population in Israel are tightly related to the substantial gaps in labor productivity, and may hinder the survivability of workers in a changing labor market. It is therefore recommended that the MOL, MOE, MOEI and MOF (in consultation with the Israeli Employment Service and other relevant Ministries) jointly examine the option of increasing the share of participants in lifelong learning activities for adults, both employed and unemployed. They should also evaluate the effectiveness of existing learning activities and strive to improve it. It is further recommended that the MOL and MOE work together to appoint a single leading entity that will assess the skills most required in the Israeli labor market, both currently and anticipating the future, and formulate the methods to provide those skills.

- **Encouraging low-waged and low-skilled populations to reskill or upskill** – it is recommended that the MOL, in collaboration with the MOF, examine courses planning and support mechanisms in order to address the training needs of various populations, including low-waged groups. It is further recommended that the MOL, MOE, MOEI and the National Digital Israel Initiative, in cooperation with the Israeli Employment Service, create a personalized outreach evaluation and guidance program for lifelong learning, that will effectively serve low-waged and low-skilled populations, giving them the tools to succeed in the labor market.

Young people (ages 18-27) by type of post-secondary State-sponsored studies or trainings, and average funding per student per year, 2018



Data from the relevant Ministries processed by the State Comptroller's office; the analysis is for an average age-group of young people.

Summary

In light of the reality of the changing labor market and the concern that many workers will have difficulties successfully integrating into it, it is recommended that the relevant Government Ministries, headed by the MOL, MOE, MOEI and MOF, jointly examine the vocational and technological training mechanisms and the options for updating them. They should also evaluate the existing adult learning activities, and improve their accessibility for those populations that need them the most. Moreover, they should improve collaboration with employers regarding vocational training programs, based on the above recommendations. These actions are of particular importance at a time of an economic crisis resulted from the COVID-19 pandemic - when there is a pressing need for professional adaptations and reskilling across the labor market, and especially in those sectors which were most affected. This reality should be taken as an opportunity to upgrade the skills of many unemployed people, enabling them to adapt themselves to the changing labor market and reintegrate into the workforce as soon as possible.

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State Actions to Increase the Number of Employees in the High-Tech Industry

Abstract

State Actions to Increase the Number of Employees in the High-Tech Industry

Background

Israel's advanced high-tech industry has earned it the status of "Start-Up Nation", and made it stand out in international comparison. This industry is a principal growth engine of the Israeli economy, contributing 12% to the State's gross domestic product (GDP).

Various international entities predict far-reaching changes in the labor market as a consequence of the rapid technological revolution the world is witnessing. The present trends are expected to create a demand of 20–50 million new positions worldwide in various technological professions, including —computer science and engineering. A chronic shortage of skilled employees in Israel's high-tech industry is a strategic threat to this sector, in particular, and to the Israeli economy, in general: in July 2019, there were an estimated 18,500 vacancies in the high-tech industry. The shortage is primarily of excelling university graduates from the fields of computer hardware and software engineering with professional experience.

In January 2017, the Israeli Government adopted a resolution to formulate the "National Program to Increase the Skilled Workforce for the High-Tech Industry", which intended to advance a solution for the shortage of skilled personnel in the high-tech industry. The Government resolution details the objectives to be achieved and the steps required in higher education, in non-academic training, and in the Ministry of Defense, including in the Israel Defense Forces (IDF), in integrating underrepresented populations and more.

Key facts

9.2%

The percentage of employees in the high-tech industry in Israel in 2019, out of the Israeli workforce (approx. 321,000 employees)

18,500

Estimated number of technological vacancies in the Israeli high-tech industry as of 2019

900 million NIS

The budget of the "National program to increase the skilled workforce for the high-tech industry"

17%

Of the students taking the 5-unit (highest level) mathematics matriculation exam do not have a computer science program in their school

40%

The rate of increase in the number of undergraduate university students majoring in academic high-tech subjects, in line with the target set in the Government resolution

22%

of students who began their University undergraduate studies majoring in computer science, did not complete their degree within 6 years.

Another 20% switched majors during their undergraduate studies.

4.9%

The percentage of ultra-Orthodox and Arab employees (women and men) in the high-tech industry in 2019, compared to 20% in the general workforce.

31%

The percentage of Jewish non-ultra-Orthodox women working in the high-tech sector in 2019, compared to 40% in the general workforce

Audit actions

From January 2019 to March 2020, the Office of the State Comptroller examined the actions taken by the Government to increase the number of employees in the high-tech industry, in accordance with Government resolutions and in view of the need to prepare the industry for future demand for employees. The audit examined the actions of the education system; the actions of the Council for Higher Education (CHE) to increase the number of students majoring in high-tech subjects; actions to integrate underrepresented populations in the high-tech sector; and IDF actions to leverage military service for the benefit of the high-tech industry. The audit was conducted in the Labor Branch of the Ministry of Labor, Social Affairs and Social Services (Ministry of Labor), the Ministry of Education, the National Economic Council, the IDF and the Ministry of Defense, the Ministry of Finance, the CHE and the Israel Innovation Authority. Supplementary audits were conducted in some universities and colleges.

Key findings

- **The education system as the infrastructure for increasing the number of high-tech employees:** The majority of students taking the five-unit matriculation exams in scientific–technological subjects—areas that are highly relevant for academic studies in high-tech subjects and for employment in the high-tech industry—studied in schools which are 'strong' in socioeconomic terms. For example, more than half of the students taking the five-unit mathematics and computer science exams (53% and 55%, respectively) studied in stronger schools, whereas, only 8% of them (in each subject) studied in weaker schools. The education system is not fulfilling the potential of those students who are capable of studying scientific–technological subjects—especially among girls, and students from the Arab and the Jewish ultra-Orthodox populations.

- **Schools teaching mathematics and computer science:** Only about 40% of the weakest schools (those lowest on the Ministry of Education's school nurture index[1]) offer their students the opportunity to study at the five-unit level both in mathematics and in computer science. In contrast, among the "strong" schools (in socioeconomic terms), the percentage of schools offering both these subjects at the five-unit level is the highest. For example, 88% of the strongest schools (those ranked highest on the school nurture index) that teach five-unit level of mathematics also teach five-unit level of computer science. This situation paves the way to academic studies in high-tech subjects mostly for students from "strong" schools. In general, approximately 3,000 students taking five-unit mathematics in school have no opportunity to study computer science in school, mainly due to a shortage of teachers.

- **Increasing the number of university graduates in high-tech subjects:** The main barriers hindering an increase in the number of university graduates in high-tech subjects are a shortage of academic staff and high dropout rates of students from these subjects. Nonetheless, the Planning and Budgeting Committee (PBC) in the CHE has not set objectives for increasing the number of academic staff and reducing the dropout rates. The PBC has also not requested the universities to examine the reasons for student dropout.

- **Leveraging military service to increase the number of trained personnel for the high-tech industry:** The Ministry of Defense has not formulated an operative program for leveraging the military service in the IDF to increase the number

1 The Ministry of Education ranks every school according to a performance index, based on the demographic and socioeconomic background of its students. The index includes the following parameters: level of education of the most educated parent in the family (40%); per capita income level in the family (20%); periphery-level of the school (20%); status as immigrant, specifically from developing countries (20%). The performance index determined for each school is used to establish the differential allocation of resources for the school, with the objective of improving the economic support to those schools that require more nurturing compared to other schools.

of trained personnel for the high-tech industry, as required by the Government resolution in this matter.

- **Integrating women into the high-tech industry:** In 2019, the share of women in the high-tech industry working in technological positions was about 22%, and in technological management positions—18%. The government programs for integration of women into the high-tech industry lacks comprehensive planning.

- **Integrating the Jewish ultra-Orthodox into the high-tech industry:** The head of the Labor Branch has not formulated a methodological program for increasing the number of employees from the ultra-Orthodox population in the high-tech industry. The majority of Government activity in this regard does not focus on the core professions in the industry, but rather trains for junior technological positions. No suitable program has been developed for the approx. 1,900 ultra-Orthodox women studying practical software engineering in seminaries, even though some of them clearly have the potential to study high-tech subjects at a higher level and later work as software developers in the high-tech industry.

- **Non-academic training:** There is no mechanism in place to coordinate the operation of the two main Governmental entities responsible for non-academic training for the high-tech industry—the Israel Innovation Authority and the Labor Branch. The two operate without defining the scope of responsibility and authority of each of them.

- **Monitoring the implementation of the Government resolution regarding the high-tech industry:** The ministerial committee for skilled personnel in the high-tech industry, established according to the Government resolution in this matter, has not convened. The professional team responsible for this matter has met twice. Consequently, tasks included in the resolution were not advanced.

The Initiative of the Ministry of Education to increase the number of students taking the five-unit exams in technological and scientific subjects ("Double the 5's"): The initiative succeeded in doubling the number of students matriculating in five-unit mathematics—from 9,000 in 2013 to 18,000 in 2018. An increase was noted also in the number of students taking the five-unit exams in technological and scientific subjects such as physics, chemistry, biology, computer science and system design and programming.

The number of undergraduate students majoring in high-tech subjects: The higher education system has met the target established by the Government, and as early as the academic year 2018/2019, the number of university students majoring in high-tech subjects, increased by 40%, compared to academic year 2015/2016.

Key recommendations

- **The education system as the infrastructure for increasing the number of high-tech employees:** It is recommended that the Ministry of Education formulate a program for removing the barriers hindering the increase of the number of students studying scientific–technological subjects in upper secondary schools and act to fulfill the potential of all students, and specifically those taking the five-unit mathematics exams. It is recommended that a special emphasis be placed on increasing the number of girls studying scientific–technological subjects as well as students from the Jewish ultra-Orthodox and Arab populations.

- **Addressing the shortage of teachers for computer science:** It is recommended that the Ministry of Education examine additional ways to increase the number of teachers for computer science, including the option of formulating training programs and programs for encouraging teachers to teach computer science in communities belonging to low socioeconomic clusters; consider adding computer science as one of the subjects in the "Virtual high schools[2]"; consider establishing centers for computer science studies accessible to students from geographic areas characterized with small settlements; and try to integrate in the school teaching staff appropriate instructors from programs operating outside of the schools. These actions may place the foundations for more of the future generation to study computer science, with an emphasis on schools with students from weaker populations.

- **Increasing the number of university graduates in high-tech subjects:** It is recommended that the CHE and PBC in cooperation with the Ministry of Finance and the heads of academic institutions prepare a systematic program to advance a long-term solution—which will enable optimal handling of the shortage of academic staff in high-tech subjects and will include objectives to increase the number of staff. It is also recommended that they systematically analyze the dropout reasons and the characteristics of students who drop out, establish yearly goals for reducing the numbers of dropouts, and provide tools and solutions for achieving these goals.

- **Leveraging military service to increase the number of trained personnel for the high-tech industry:** It is recommended that the Ministry of Defense, in cooperation with relevant entities, formulate a program for this objective, which will include details of all the entities responsible for every task, will examine ways to remove the barriers to its implementation, will present a timeline for implementation and will detail its budget requirements as well as the funding sources.

- **Integrating women into the high-tech industry:** It is recommended to advance a comprehensive program that will propose a range of solutions for removing the barriers to integration of women in the high-tech industry, according to their life stages and professional development. The program should start with solutions

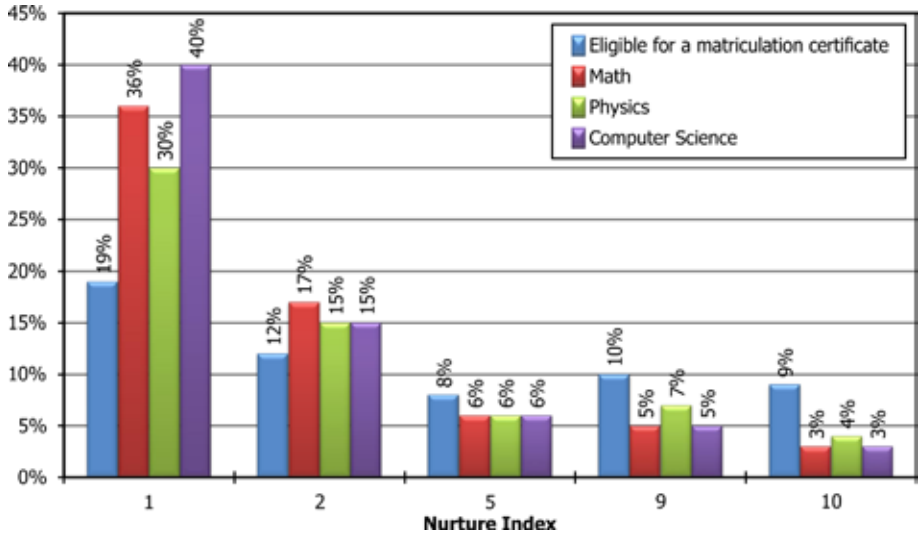
2 The "Virtual High-School" allows students from high-schools across Israel to study online such subjects as mathematics and physics at the five-unit level.

for the education system, through to the military service, academia, and finally - employment in the high-tech industry.

- **Integrating the Jewish ultra-Orthodox into the high-tech industry:** It is recommended that the head of the Labor Branch open additional channels, aside from academic high-tech education, to integrate the ultra-Orthodox into the high-tech industry. For example, retraining ultra-Orthodox university graduates from other study fields, could be considered. It is suggested that the formulation of plans will be done in consultation with relevant representatives from the ultra-Orthodox population, as well as other relevant entities including the Ministry of Education, the IDF and the National Civil Service, the CHE, the Israel Innovation Authority and actors from the high-tech industry. It is further recommended that the Government Institute for Technology and Science Training and the Ministry of Education examine ways to fulfill the potential of ultra-Orthodox female students and, including ways to broaden and upgrade the curricula in relevant high-tech subjects.

- **Non-academic training:** It is recommended that Israel Innovation Authority and the head of the Labor Branch establish a mechanism for coordination between them and define their respective areas of responsibility in order to efficiently utilize the resources available and achieve maximum outputs. It is further recommended to consider establishing a joint internet website, containing comprehensive information regarding all the non-academic training options for various populations.

The distribution of the share of students taking five-unit exams in mathematics, physics and computer science out of all the students taking those exams, and of the share eligible for a matriculation certificate, by their school's performance on the nurture index (1 – the strongest population; 10 – the weakest population), 2018.



Summary

In order to ensure the continued status of Israel as a "Start-Up Nation", the relevant Government entities (CHE, Ministry of Finance, Ministry of Education, Ministry of Labor, Welfare and Social Services, Israel Innovation Authority, Ministry of Defense) should undertake to remove the barriers blocking this objective: address the existing shortage of skilled personnel in the high-tech industry and ensure a long-term solution for suitable personnel; a special and crucial emphasis must be placed on involving the Ministry of Education fully in this task; an additional source for broadening the potential high-tech workforce lies in integrating populations that are at present only slightly represented in the industry, and practically excluded from it—first and foremost, women, but also the Arab and Jewish ultra-Orthodox populations. A further challenge that emerged from the audit is addressing the shortage of academic staff and reducing the dropout rate of university students from high-tech subjects - this is essential in guaranteeing the next high-tech generation.

CHAPTER 2

Government Ministries

Abstract

Office of the State Comptroller
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Driving Test Reform

Abstract

Driving Test Reform

Background

In February 2017, the Ministry of Transportation and Road Safety (Ministry of Transportation, MOT), published a tender for a reform in road tests. According to the tender, road tests would be outsourced to two private concessionaires (the Reform). The Reform was intended, inter alia to improve services to the public, ensure the objectivity of the driving tests, create consistency between tests, and enable to document them. The Reform was implemented with an advanced IT system. Following several appeals regarding the results of the tender, in March 2018 the court approved the decision of the MOT's Tenders Committee regarding the two winning companies – Company A and Company B (the Concessionaires). In July 2018, the MOT began implementing the Reform. The reform is based on the Brosh system, which was established especially for the MOT and has an interface with IT components installed in the vehicles used for the road tests. The Concessionaires selected operate 46 road test sites in Israel.

Key facts

7-14 days

Waiting period for a driving test following the Reform, compared to more than two months prior.

38.8%

Percentage of examinees who passed the driving test (the passing rate) in the first six months of 2020. In 2019, the rate was 38.4%, compared to 44.8% prior to the Reform.

8.5%

Percentage of appeals received against the results of the driving test, or led to the scheduling of a retest in the period from April 2019 to August 2020, compared to 1.7% in the period from July 2018 to March 2019.

NIS 20.4

Surplus of the average cost of a driving test paid by the state. The surplus cost reflects the gap between the driving test fees in the amount of NIS 141 examinee pay the MOT, and the average payment per test paid by MOT to the concessionaires in the amount of NIS 161.4.

NIS 226 Million

Amount of fines accumulated by the concessionaires in 2019 due to failure to comply with the conditions of the tender. The amounts were not collected.

29,347

The number of times the concessionaries were late scheduling driving tests in 2019. Delays ranged from 24 hours to more than 72 hours.

Audit actions

From January to July 2020, the State Comptroller a examined the implementation of the driving tests Reform at the MOT.

Key findings

- **Driving tests passing rates** – in the period prior to the Reform, the percentage of examinees who passed the test increased, reaching 44.8%. Following its implementation, the percentage decreased; in 2019 it was 38.4% and in the first six months of 2020 it was 38.8%. There was also a variance in the percentage of examinees passing the test between the two concessionaires.
- **Rate of justified appeals against the driving test results** – from April 2019 to August 2020, the rate of appeals accepted, or led to the scheduling of a retest , was 8.5% of the total appeals submitted, compared to the rate of 1.7%. In the first nine months of the Reform. From the beginning of the Reform until August 2020, the rate of appeals out of all driving tests (more than one million) was 1.3%.
- **Average surplus cost per test** – In 2019, the average amount paid by the MOT to the test concessionaires was NIS 161.4, compared to the driving test fee in the amount of NIS 141.0 that MOT charges students. In other words, there is a surplus cost to the state in the amount of NIS 20.4. Taking into consideration that in 2019 617,599 tests were held, this indicates a budget gap of NIS 12.6 million.
- **Mitigations in the tender's conditions** – due to the difficulties experienced by the concessionaires to comply with the conditions of the tender, the MOT granted several mitigations. Even though some of these were granted by decision of the Tenders' Committee, these mitigations may constitute an incentive for bidders in future for the tenders for the outsourcing of vital services, to submit offers, win the tender, and then request mitigations and changes.
- **Recruitment of experienced driving testers** – the MOT did not foresee the difficulties recruiting experienced testers, and was thus forced to grant mitigations in the tender, inter alia, relative to the qualifications of testers.

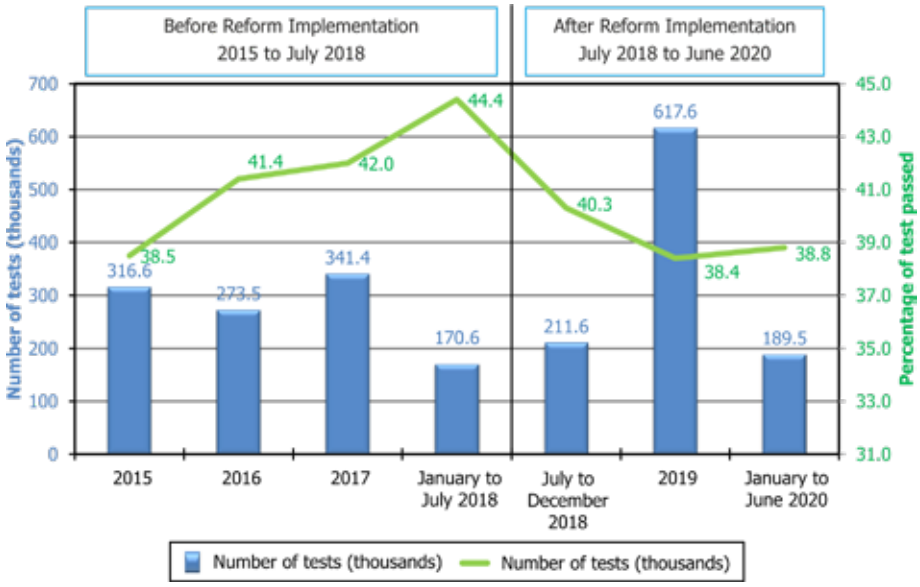
Shortening the waiting time for driving tests – as a result of the Reform, service to the public improved and the waiting time for a driving test was substantially shortened, from 60-90 days to 7-14 days.

The use of Advanced IT system – an advanced IT system was used for the implementation of the Reform, which enabled improvements and consistency of the driving tests irrespective of where they are conducted and the identity of the student. The system also determines randomly the driving tester and the test's route, and enables video documentation take a picture of the test. The video can then be used as evidence by a student in case of an appeal and for the professional supervision of testers.

Key recommendations

- The MOT should study the pattern of decrease in the percentage of students who passed the driving test since the implementation of the Reform and its reasons. It is also recommended that the MOT evaluates the variance in the percentage of students who passed the tests between the two concessionaires since the implementation of the Reform and the reasons for that variance.
- The MOT should conduct a satisfaction survey among students and driving instructors to ascertain how the driving test system is working from the perspective of the service recipient. The survey will also help improve the new system and the level of service to the public, especially regarding the new system.
- The MOT should draw conclusions from this tender so that in the future, before publishing a tender, they can conduct a strategic work. Tender documents should be prepared in a way that they ensure minimum uncertainty and that the data provided is as accurate as possible.
- The MOT should complete its assessment of the changes and improvements necessary for the Brosh system. The MOT must decide on their full or partial implementation according to priorities and costs, to improve the service and to optimize the supervision and control over the operation of the system.
- The MOT should examine all current sites used for driver tests to check the loads they create, their proximity to main roads, and how they impact the quality of life of people living nearby. If necessary, the Ministry must work with the concessionaires to find alternative locations.

Number of driving tests and rate of tests passed



MOT data processed by the State Controller.

Summary

The driving tests Reform, which aimed at improving service to the public, contributed to reducing the waiting time for tests and to improving them using a new and advanced IT system that enables consistent tests, transparency, professionalism, and better availability. In addition, video documentation of the test allows better supervision and effective appeals. However, the State Comptroller found several deficiencies in the implementation of the Reform that resulted in additional costs. These include mitigations given by the MOT to the concessionaires in the tender's conditions, and changes to the IT system that were not taken into consideration when it was characterized.

Since the implementation of the Reform, there has been a drop in the percentage of students passing the test and an increase in the percentage of approved appeals. Furthermore, the average payment by the MOT to the concessionaries for each test is higher than the fees charged to students, high fines were accumulated by the concessionaries due to their failure to comply with the conditions of the tender (primarily due to delays in scheduling tests), and supervisors are overloaded, making it necessary to evaluate the effectiveness of their work.

It is recommended that the MOT draw conclusions from the implementation of the Reform, so that in the future, before publishing a tender, the MOT conducts a strategic work to reduce the level of uncertainty and to present more accurate data. It is also recommended to conduct a satisfaction survey among students and instructors to draw conclusions from the Reform and improve its services for the benefit of the public.

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Aspects of the Application of the Deposit Law on Beverage Containers

Abstract

Aspects of the Application of the Deposit Law on Beverage Containers

Background

The Plastic material used in the production of beverage containers, if not recycled, can remain in nature for hundreds of years and its degradation is very slow. As a result, the environmental pollution these containers generate constitutes a global problem whose damages reach approximately 9 billions of dollars a year. In 2008, 28% of household waste in Israel stemmed from the dumping of beverage containers in landfills - 22% from large containers and 6.5% from small containers. In 2018, more than 1.8 billion beverage containers were sold in Israel, out of which 765 million were large ones. The Deposit Law on Beverage Containers of 1999 determined a deposit of 30 agorot on each beverage container of volume less than 1.5 liters. A manufacturer or importer can decide that the amount of the deposit for a full container will be higher than the amount provided by the law.

An amendment to the law in 2010 determined a mechanism whereby beverage manufacturers and importers are obligated to collect 55% of large containers sold and recycle 90% of those collected without applying a deposit. The amendment also stipulated that if the rate of collection is lower than 55% but higher than 47%, the Minister of Environmental Protection would be entitled to issue an order postponing the date of application of the deposit to large containers and determine new conditions for application.

On October 19, 2020, the Minister of Environmental Protection announced that the target for collection of large beverage containers in 2016 was not achieved. She also published, for public comment, the Memorandum of the Deposit on Beverage Containers Order (Deferral of the Date of Application of the Law on Large Beverage Containers), 2020, which delays application of the deposit on large beverage containers. On December 1, 2020, the Knesset's Economic Affairs Committee (the Economic Affairs Committee) approved the application of the deposit on large beverage containers as of December 1, 2021.

Key facts

1.8 billion
Number of beverage containers sold in Israel in 2018.

300 Million NIS
More than 300 million NIS Deposit fees paid in 2018 for small beverage containers.

30%
Of the deposit fees for beverage containers paid in 2012 were refunded to the public directly and through organizations like education institutions.

7%
Rate of household waste recycled in Israel in 2018, compared to an average of 26% in OECD countries.

23,000
Number of recycling bins for beverage containers in Israel, from which 22% of the large bottles sold were collected in 2017.

57%
Approved collection rate of large containers in 2017.

78%
Approved collection rate of small containers in 2017.

54%
Percentage of containers recycled out of the total large containers collected in 2017.

Audit actions

From October 2019 to September 2020, the State Comptroller examined aspects relating to the Deposit Law on Beverage Containers at the Ministry of Environmental Protection (MoEP). Supplementary audits were conducted at the Israel Competition Authority, Israel Tax Authority, the Ministry of Economy and Industry (Ministry of Economy), and the Federation of Local Authorities in Israel.

Key findings

- **Rate of waste recycling in Israel** – according to 2018 OECD data, the average weight of waste per person in Israel (675 kg) was high, the percentage of recycling (7%) was low, and the rate of waste disposal in landfills was high (76%) compared to the average in OECD countries (39%), and especially relative to countries with a high population density.
- **Rate of collection of large beverage containers in Israel** – the rates of collection of all beverage containers in European countries where a deposit is imposed (80% to 97% in recent years), are substantially higher than the rate of collection of large beverage containers in Israel in 2017 (57%). Furthermore, Israel makes minimal use of advanced technologies that enables to improve the collection process and the refund of deposit fees.

- Application of the Deposit Law to large beverage containers – in the six years since the 2010 amendment of the law until the determining date of application of the amendment to large containers, the MoEP failed to properly prepare for the collection of these containers. As of September 2020, the Ministry had not yet decided on approved collection data for 2018.

- **Estimates to determine the number of large bottles collected** –in order to report on the number of large containers collected, they are weighed, and their total weight is converted into the number of units. The conversion requires statistical calculations and estimates. Until the t audit completion date, the MoEP had not given instructions to manufacturers and importers on how to determine the estimates and each collection company reports its own estimates.

- **Participation of the public in the collection of large beverage containers** – the participation of the public in the collection of large beverage containers in container recycling bins decreased from 41% in 2016 and 2017 to 33% in 2019. Participation of the public in collections in containers recycling bins and in orange bins together decreased from 45% in 2016 and 2017 to 40% in 2019. On the other hand, there was an increase in the retrieval of beverage containers from the waste sorted at transfer stations from 55% in 2016 and 2017 to 60% in 2019.

- **Control of beverage imports to Israel** – according to the Central Bureau of Statistics, 10.5% of nonalcoholic beverages sold in Israel in 2018 and 40.4% of alcoholic beverages sold in 2015 were imported. On the audit completion date, neither the MoEP nor the Ministry of Economy had data that could quantify the surplus costs of applying regulations to control the import of beverage containers in the customs release process, and there are no regulatory tools that enable to control, in real time, how beverages are introduced into Israel.

- **Information activity to encourage recycling** – in the period 2015-2020, the MoEP did not conduct an information and orientation procedures regarding collection and recycling of beverage bottles in general ,and didn't encourage individuals to exercise their right to receive a refund on the deposit in particular. In cities with 50,000 residents or more, 22 containers on average per capita were collected from recycling bins in 2017. Local authorities of high socio-economic level of 8 and above collected 31 containers per capita (141% of the average) in 2017, whereas local authorities of lower socio-economic level of 3 and below collected only 8 containers per capita (36% of the average).

- **Rate of recycling of large bottles** – the recycling target stipulated in the Deposit Law for large beverage bottles (90% of the approved collection) was not achieved in 2016 and in 2017 (43% and 54% respectively). There are concerns that containers that were collected but not recycled were dumped in landfills.

Compliance with the collection targets of small beverage containers - in 2016-2018, the rate of collection of small beverage containers ranged from 78% to 79%, in compliance with the targets stipulated in the law (annual target of 73%, biannual target of 77% on average).

Online reporting – the MoEP is working to establish an online reporting system for manufacturers, importers, and collection companies.

Application of the Deposit Law to large beverage bottles – on October 19, 2020, the minister of Environmental Protection announced that the collection targets for large beverage containers in 2016 had not been achieved. On December 1, 2020, the Economic Affairs Committee approved application of the deposit to large beverage containers as of December 1, 2021.

Key recommendations

- It is recommended that the MoEP evaluate, in collaboration with the collection and recycling companies, manufacturers, importers and retailers, the installation of automatic machines across the country. These machines will enable consumers to receive a refund without having to wait for cashier at supermarkets. It is also recommended to consider adopting the labeling and identification system for beverage containers used in Germany, which may improve the collection process.
- It is recommended that the MoEP work together with collection and recycling companies, the Federation of Local Authorities in Israel, and the Ministry of Education to improve the public's participation in collection and recycling processes. This should be achieved by increasing the orientation in relevant communication channels among local authorities of lower socio-economy level and in educational institutions, especially in the Arab and ultra-Orthodox sectors.
- It is recommended that the MoEP conduct independent statistical tests to define the estimates required to convert the total weight of containers collected from different sources to the number of units. This will enable to determine the percentage of collection for the years 2018-2021, when large containers were and will be collected primarily from recycling bins and transfer stations.
- It is recommended that the MoEP work with the Ministry of Economy and the Customs Directorate to examine the regulation required enforcing the Deposit Law on the import of beverage containers in the spirit of the OECD position paper, and in a manner that will minimize the burden imposed due to the new regulation. In addition, they should evaluate including online reporting and control mechanisms that will be shared by the relevant entities to minimize the amount of financial offenses committed in this area.

It is recommended that the MoEP continue to work with the Ministry of Economy to encourage high-level recycling in Israel and control the export of recyclable containers to other countries. This will enable to export to global sites with a high-level of recycling in compliance with the principles for global environmental protection.

Large beverage containers in an open field in the Jordan river – Ateret Fortress

Source: Picture taken by Ben Zion Rabi, August 2020

Summary

The dumping of plastic in landfills causes environmental damages whose global cost is estimated at tens of billions of dollars every year. The State Comptroller recommends that the MoEP continue to promote actions that will lead to the preservation of the land and the reduction of environmental pollution, as is customary in OECD countries.

It is also recommended that the MoEP examine the amendment of the targets, so that the target of collection of plastic beverage bottles sold every year reaches 77% by the year 2025, and 90% by the year 2029. Furthermore, the MoEP should regulate the issues under its responsibility to ensure that the Israeli economy is able to make the adaptations required to apply the Deposit Law on Large Beverage Containers on the determining date, December 1, 2021.

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CHAPTER 3

State Institutions, Government Companies and Corporations

Abstract

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Netivei Israel – Engagements with Vendors and Employee Recruitment

Abstract

Netivei Israel – Engagements with Vendors and Employee Recruitment

Background

Netivei Israel – National Tarnsport Infrastructure Company Ltd. (Netivei Israel or the Company), is the government company engaged in the planning and execution of hundreds of transportation infrastructure projects in Israel. The Company designs, develops, and maintains inter-city roads, bridges, tunnels, junctions, road and traffic signs, and road lighting.

Organizational changes in the company in recent years in addition to new projects assigned to the company like the development of railroads tracks and the planning of the international airport, required the recruitment of many new employees. The Company operates as a management company that employs external personnel for its core activities, including vendors like planners, project managers, consultants, and contractors.

Key facts

8,000 km
Length of the roads the Company maintains, supervises, and manages traffic in them.

1,300
Bridges and tunnels maintained and managed by the Company.

NIS 51.9 Billion
The Company's multiannual budget for the years 2017-2021.

3,000
Number of engagements between the Company and vendors in 2017-2019.

NIS 1.268 Billion
Value of the Company's engagements with vendors in 2017-2019.

417
Number of employees in the company in 2019.

211
Number of new employees recruited by the company in 2016-2019.

Audit actions

From September 2018 until March 2020, alternately, the State Comptroller examined the process of recruiting employees in Netivei Israel and its engagements with vendors. Supplementary audits were conducted at the Government Companies Authority and the Ministry of Transport and Road Safety (MOT).

Key findings

Engagements with vendors

- **Definition of a minimum quality score** – in 13 framework agreements out of 21 tenders published between 2016 and 2019, the Company failed to define a minimum threshold for the quality component.
- **Experience required from Project managers' in tender**s – discrepancies were found between the instructions of the MOT's Infrastructures and Coordination Administration and the experience the company required from candidates for the position of project managers compared to project size. The Company failed to adhere to the categories set in the instructions, requiring more years of experience for small projects than established.
- **Evaluations of project managers in tender processes** – the information provided by the Company to the State Comptroller, indicates that in framework tenders for the recruitment of project managers, the Company did not utilize the experience gained from working with the existing project managers and the quality evaluations these project managers underwent, to score the bids.
- **External legal advisors** – the Company employs eight legal firms for long periods of time of more than ten years. This period of engagement deviates from the limitation of six years set by the Government Companies Authority. The latter continued to approve the employment of these firms in some cases, explaining that the firms are familiar with the Company or a relevant case. In addition, the audit found that unequal payments were made to different firms based on the Company's mechanism for allocating its workload.

Appointments

- Employees' retirement – in 2017-2019, 86 employees retired from the Company (out of an average of 413 total employees for those years), out of which 62% left voluntarily.
- Adequate Female representation – in 2018-2019, the Company determined a target percentage of women employees in senior managerial positions (27%) but filled

only 26%. In addition, in three out of six tenders for senior employees in 2018 that were audited, there were no women in the Nominations Committee, contrary to the guidelines of the Companies Authority and the Company's procedures.

- Adequate representation of Ethiopian and Druze populations – out of 439 employees in 2019, 4 employees are Ethiopian and 4 are Druze. Contrary to the decision of the Board of Director's (BOD) Human Resources (HR) Committee, the Company did not publish designated positions for Ethiopians and Druze.
- Employment of people with disabilities – despite of the increase in the number of employees with disabilities employed in 2016-2019 (from 3 to 9), the percentage of people with disabilities in the Company in 2019 was only 2%, not in accordance with the required rate of 5% defined by Equal Rights of Persons with Disabilities.
- Recruitment of senior personnel – the recruitment procedure that includes the Company's criteria for professional experience and skills for senior positions was not approved by the Government Companies Authority. The audit found three cases in which the Nominations Committee did not follow the guidelines for preventing conflicts of interest and for reasoning decisions regarding rejected candidates. In one case, the preference of a (female) candidate with similar skills to the candidate selected was not considered.
- Implementation of the procedure to prevent conflicts of interest in promotion and recruitment – in three out of ten cases audited, deficiencies were found in adherence to the Company's procedures relative to conflicts of interest.

Engagements with vendors

Adoption of a code of ethics – Netivei Israel wrote and adopted a code of ethics that was implemented among all Company employees and external entities.

Reduction in the number of exceptions in tenders and process automation – the Company's Engagement and Tender Division reduced the number of exceptions in tenders from 904 exceptions in 2017 to 478 in 2019. The Company also established an IT system for distribution of work among vendors.

Professional training and appointments

Employee training – in 2017-2019, the Company reduced the number of employees who did not participate in training from 88 to 43.

Appointment of a Compliance Office – following the request of the Companies Authority, in 2014 Netivei Israel appointed a Compliance Officer. In 2017-2019, the officer sampled the recruitment process of junior employees; it was found that the Company resolved most of the deficiencies found by the officer.

Key recommendations

- It is recommended that the Company consider including a threshold for vendor quality in its framework tenders. This will enable the Company to select the best vendors for each of the areas in which they are involved.
- It is recommended that the Company review, from time to time, the tenders' categories for the selection of project managers against the requirements determined by the MOT. This will enable new management companies, especially in lower-value projects, to be included in the Company's pool of vendors, thereby increasing competition, and to offer projects to more companies.
- It is recommended that the Company complete the validation of vendor's evaluations, and that it relies on these evaluations in future vendor-selection processes.
- It is recommended that the Company utilize its size and strength as a key employer in the sector to add new legal firms to its pool in a way that will increase the number of legal advisors while complying with the principles of work distribution in fair cycles between senior and new legal advisors. Furthermore, the Companies Authority should implement guidelines to prevent situations whereby only a very small number of legal advisors provide services to the Company.
- According to the instructions of the Companies Authority, the Company should schedule a discussion of the BOD to formulate its position on the use of inspection and investigation tools. The Company should establish a procedure for using these tools, which should be based on a legal opinion.

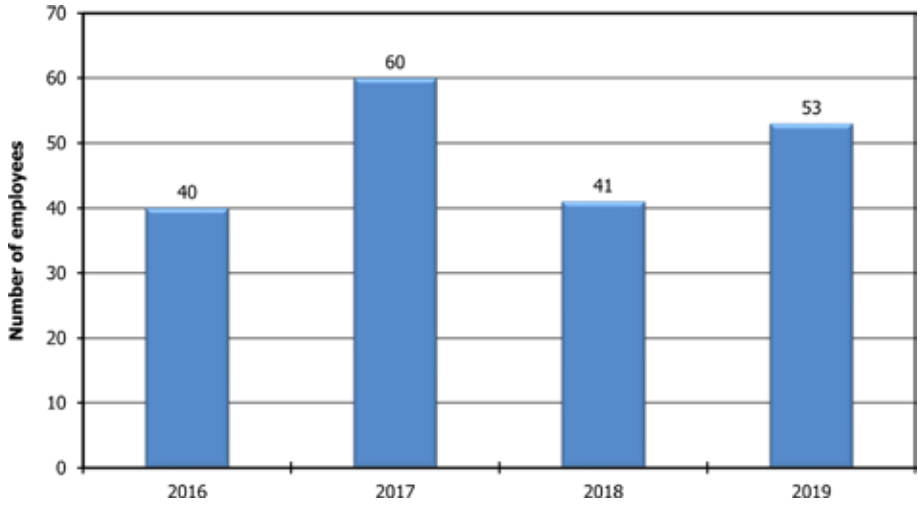
Appointments

- The Company should implement the guidelines for adequate representation of women and act to appoint women to the Nomination Committees. It should also achieve its objectives relative to women recruitment, in particular in senior management. It is recommended that the Company will work proactively to identify women candidates for management positions.
- The Company should publish designated positions for Ethiopians and Druze to comply with the requirements of the Government Companies Law and the decisions of the BOD.
- The Company more people with disabilities, inter alia by publishing designated positions for these populations. This will enable the Company to comply with the objectives of the Commission of Equal Rights of Persons with Disabilities of hiring 5% of employees with disabilities.
- The Company should submit its procedure for appointing senior personnel to the approval of the Companies Authority. The latter must ensure that the procedure

is submitted for its approval. In the procedure, the Company should address all deficiencies found regarding the appointment of senior personnel, including the issue of members of the Nominations Committee being acquainted with candidates. Further, the procedure should set quantitative and qualitative threshold conditions for candidates, explain changes in candidate scores and how they are ranked, refer to the results of tests by assessment companies, and ensure compliance with the appointments regulations and the Women's Equal rights law.

The Company should ensure its procedures to prevent conflicts of interest are implemented. The HR Division should clarify to candidates the importance of reporting in advance all issues regarding conflicts of interest.

Employees recruited – 2016-2019



Source: Netivei Israel

Summary

Netivei Israel is the executive arm of the government in everything related to vital national transportation, economic and social projects. These projects are of high importance, in transportation, economic and social aspects, as they l, shorten travel times significantly, and improves the ways available for residents of the periphery to reach the center of the country. As a government company, Netivei Israel executes hundreds of projects in parallel, for which it engages hundreds of vendors. It must therefore be efficient, transparent, and cost conscious.

The audit found deficiencies in the Company's engagements with various vendors, in the evaluation of vendors, and in the management of its pool of legal advisors. The audit also found deficiencies in the recruitment process of senior employees, most of whom were recruited after the crisis in 2015, when the Company operated without a proper management structure. In light of the deficiencies found, the Company's management and the Companies Authority should ensure engagements with vendors and recruitments procedures are held in accordance with the Company's procedures and guidelines, in full transparency, while maintaining the principles of equality good governance.

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