Bootcamps and Alternate Training Programs in High-tech for Minority Populations
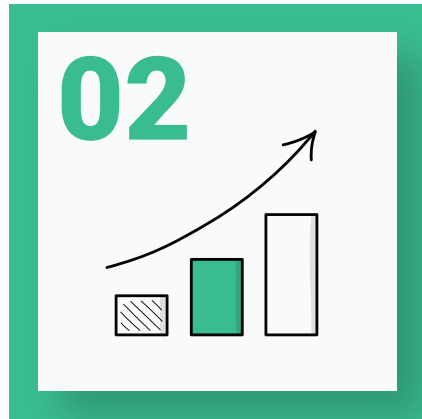
Mapping Report for the Crown Family Philanthropies

Research team: Avital Yanovsky, Sivan Buchaltzev, Inbar Admon Goldshtein, Yael Avrech and Avivit Hai
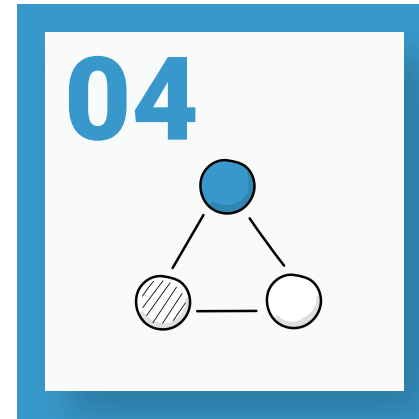
June 2022

Presentation Outline

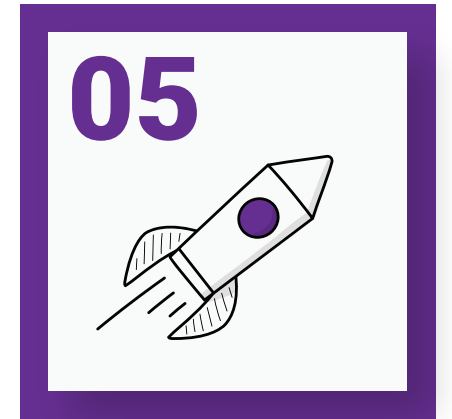**01** Rationale, Methodology and Definitions

02 Outlining the Challenge: Background & Relevant Data
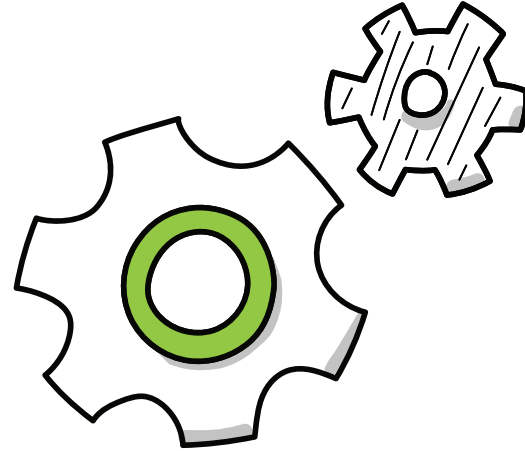
03 Government Policies and Budgets

04 Players and Programs in the Field

05 Main Insights and Recommendations

CROWN FAMILY PHILANTHROPIES
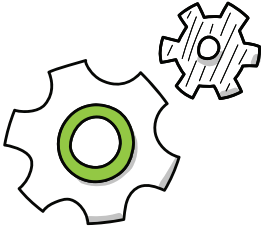
Chapter 1

Rationale,
Methodology
and Definitions

Research Rationale – Diversity

- High-tech has long been recognized as the Israeli economy's primary "engine of growth."

- Diversifying the high-tech industry has garnered increasing attention and support as:

  ▸ Companies and industries with diverse manpower are better qualified to deal with 21st century challenges;

  ▸ The Israeli high-tech industry is in dire need of additional talented professionals and underrepresented communities offer the greatest potential;

  ▸ The more segments of the population are represented in the high-paying high-tech industry, the greater the reward for Israel – economically and socially.

CROWN FAMILY PHILANTHROPIES

Research Rationale – Bootcamps
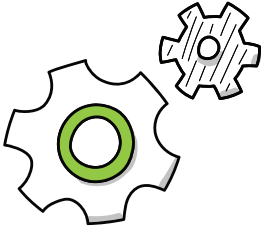
- Academic channels alone cannot fill the demand for talent, nor ensure inclusive economic growth, especially for economically marginalized communities.

- Governmental bodies, private companies, and philanthropies have piloted numerous bootcamps and alternate training programs to catapult participants directly into the industry.

- This approach towards economic inclusion has never been mapped, quantified or evaluated in terms of its scope and effectiveness.

Research Goals

To create a first-of-its-kind mapping of bootcamps and alternate training models for Arab citizens and Ethiopian Israelis examining:

▸ Governmental involvement, focus and budgets supporting these efforts

▸ Major players in the field promoting training programs – including rationale, activities, budgeting, outcomes, etc.

▸ Insights regarding the efficiency of various models vis-à-vis the two target populations

To analyze data and insights collected and prepare recommendations for the Crown Family Philanthropies regarding:

▸ How the field can best be understood

▸ Main insights and trends

▸ Opportunities for maximum impact

01

02
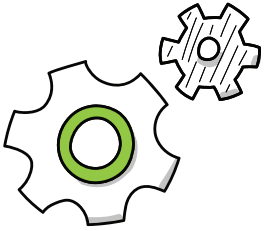
Methodology
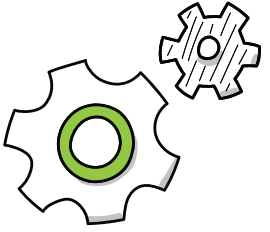
01 Theoretical framing:

- Collection of background information, including statistical data, previous research, etc.
- Defining a "bootcamp" model and setting criteria to be examined.

02 10 interviews were conducted with representatives of governmental bodies and JDC:

- Government: Israel Innovation Authority, Ministry of Economy, Ministry of Welfare and Social Affairs, Ministry of Social Equality – Authority for the Development of Arab Society, Ministry of Aliyah and Integration.
- JDC-Tevet.

03 19 interviews were conducted with field organizations:

- 3 interviews with recruiting high tech companies (Ness, Galil Software, Matrix).
- 3 interviews with training bodies (HackerU, Elevation, John Bryce).
- 12 interviews with NGOs (Tech Career, LaMerchak, Appleseeds, Tsofen, itworks, Kav Mashve, Lotus, Beyond Dev, Fursa, Enter, Siraj, AlFanar).

04 4 focus groups and 3 in-depth interviews were conducted for program alumni – 3 focus groups and interviews with Arab alumni; 1 focus group and interview with Ethiopian Israeli alumni.

Research Definitions
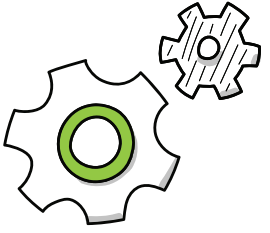
01 / Arab Society

▶ Arab citizens self-identify in various ways, using different terminologies.

▶ Arab society is far from a monolith, nor does this report aim to portray it as such.

▶ Governmental authorities often differentiate in their budgeting between subgroups such as Negev Bedouins, Druze, etc.

▶ For simplicity's sake, "Arab society" or "Arab citizens" are used as shorthand for all Arab/Arab-Palestinian citizens of Israel: Muslim (including Bedouin), Christian, and Druze. This research does not include Palestinian residents of East Jerusalem who are not Israeli citizens.

Research Definitions
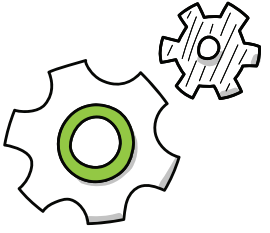
02 / Ethiopian Israelis

▶ There is no single formal definition for the Ethiopian-Israeli community.

▶ For the purpose of the research, in line with the definition of the Israel Innovation Authority, Ethiopian Israelis are defined as Israeli citizens who either they or their parents were born in Ethiopia.

01
02

CROWN FAMILY PHILANTHROPIES

Research Definitions

03 / Bootcamp

There is no one definition for "bootcamp", which is used as a "buzzword". Definitions vary regarding:

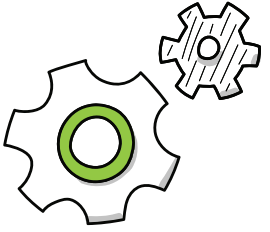▶ **Target audience** – is a "bootcamp" training only for those <u>without</u> relevant background or also for students and graduates <u>from</u> tech-relevant spheres? In other words, is a bootcamp ideally for "diverting" or for "catapulting" its participants?

▶ **Intensity and length** – how intense and how long should a training be to be considered a "bootcamp"?

▶ **Content** – is technological training on one or two issues considered a "bootcamp", or only one that includes multiple elements and content? Is a supportive envelope – e.g., empowerment, preparation for the job market – necessary for this definition?

For the purpose of this mapping, the relevant prism is not so much to define the 'ideal bootcamp', but rather to answer two questions:

1/ What does the field of alternate, non-academic, intensive technological trainings that help minority populations integrate into high-tech look like?

2/ What are key insights and recommendations in order to make the field more effective, efficient and impactful to enhance such integration?

Research Definitions
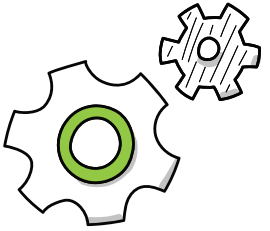
03 / Bootcamp for Minority Populations

A relatively wide definition was developed to inform the research scope, which groups together under the definition of "bootcamp" different "alternate training programs" that fulfil the following criteria:

▶ **Intensive, non-academic training for technological positions in high-tech**, specifically geared towards underrepresented populations (Arab citizens or Ethiopian Israelis), or that includes active efforts to engage these groups*.

▶ **Training includes** significant technological, applied and practical components, as well as an envelope for soft-skills development.

▶ **Training is geared towards employment**, including placement objectives and services to alumni as they seek job placement. Recruiting high-tech companies partake in the program and at least a portion of the training provides participants interface/experience with them.

*A few organizations mapped conduct training programs that place participants in non-technological positions within the high-tech industry. These programs are not included in the current mapping.

CROWN FAMILY PHILANTHROPIES
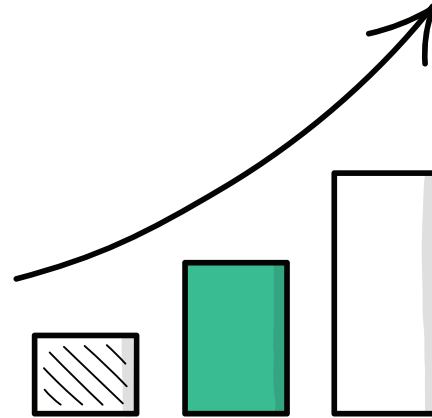
Outlining the Challenge: Background & Relevant Data

High-tech in Israel Background
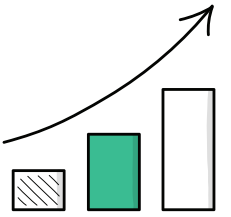
01 Scope

High-tech is customarily divided into 3 professional groups:

- **Development**
  Software, Cyber, Data & AI, Project Management, Quality Assurance and Integration.

- **Tech Support for Development**
  Data Security, User Design and Experience.

- **Business Support for Development Professionals**
  Analysts, Customer Service & Support, Marketing & Management.

Within this industry are development companies as well as manufacturing companies.

High-tech in Israel Background
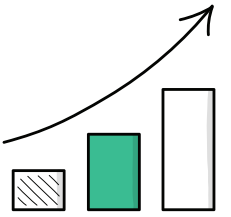
02 Israeli High-tech in Numbers

- Around 330,000 are employed in the high-tech industry in Israel, approximately **10% of Israel's workforce**.

- The average high-tech salary is **more than double** the average salary in the general workforce – ILS 26K compared with ILS 11.5K (as of December 2021).

- The average salary in foreign-owned high-tech companies is **50% higher** than in Israeli-owned companies.

- High-tech employees account for **25% of all income tax** collected in Israel. Employees of international R&D centers are responsible for 6-times their relative portion.

- The number of **non-technological high-tech positions is steadily declining** – from 50% in 2005 to 40% in 2019. This is a result of the decline in high-tech manufacturing companies, and the decline in the ratio between technological professionals and "envelope" workers.

High-tech in Israel Background
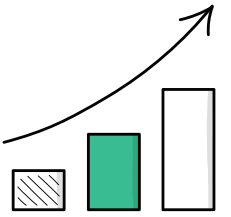
03 Workforce

Unfulfilled demand for experienced technological workers:

- According to the Innovation Authority, the demand for technological workers was approximately 18,500 in 2019, and 13,000 by the end of 2020.

- Despite drop in demand for technological employees as a result of COVID-19, a significant lack of experienced technological professionals persists.

Insufficient demand for junior positions:

- Junior level position comprise only 11% of all positions in the high-tech industry, while there is a distinct rise in the number of young, inexperienced graduates of tech-related professions.

- The so-called "Juniors Problem" relates to the small number of entry-level positions in high-tech, compared with the excess in young, inexperienced employment seekers.

- As a result of this excess supply and fierce competition, tech companies raise the level of expectations from junior employees.

High-tech suffers from both a lack of skilled employees and an excess of inexperienced employment seekers.

Main Barriers for Arab Citizens and Ethiopian Israelis to Integrate into High-tech
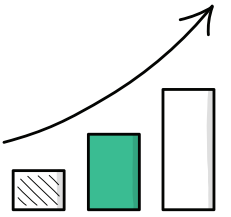
01 Sociological and Cultural Barriers

» Many are first generation in higher education.
» Studying tech is less common in the communities and is considered riskier.
» A significant lack of role models.
» Women from traditional families more limited in working in a mixed environment, working long hours, traveling etc.

02 Geographic Barriers

» Minority members live mostly in the periphery, while high-tech employment is concentrated in the center of the country.

03 Economic Barriers

» Both populations have less access to quality high school education and academia.
» Often, families lack economic means that allow for academic studies.

CROWN FAMILY PHILANTHROPIES

Main Barriers for Arab Citizens and Ethiopian Israelis to Integrate into High-tech
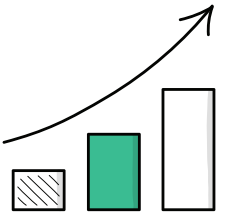
04 Institutional Barriers

» For different reasons, both populations have limited access to tech-related units in the army, that offer a major gateway into high-tech.

» For Arab citizens – an additional limitation are security clearances required by some companies.

05 Employer-driven Barriers

» Israeli high-tech extremely dependent on "friend brings friend".

» Recruitment based on networks and connections.

» Hiring processes often culturally biased and employers tend to prefer recruiting people of similar backgrounds.

» Prejudice and even racism exist at times.

» Juniors problem – fierce competition, industry looking for experience; even in entry positions expecting previous projects.

Main Barriers for Arab Citizens and Ethiopian Israelis to Integrate into High-tech
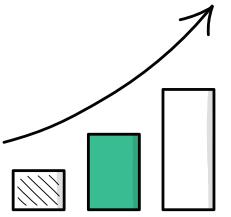
06 Individual Barriers

» Candidates lack network of connections and support.

» Arab candidates enter the job market very young and inexperienced.

» Ignorance of "rules of the game" and recruitment processes.

» Often, language proficiency (English and Hebrew) is insufficient.

07 Diversity within Arab Society

» Available training programs usually reach the stronger segments of Arab society, e.g., academic graduates, and inaccessible to the rest.

» Among Arab high-tech employees, underrepresentation of Muslims compared with Druze and Christians, stemming, among other things, from gaps in earlier educational opportunities.

Major Differences Between the Two Minority Populations
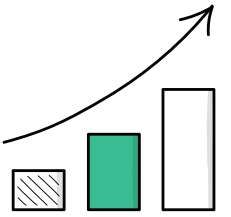
Numbers

Arab society makes up 17.2% of Israeli citizenry, while Ethiopian Israelis make up approximately 1.7% of it. From the perspective of addressing the shortage in tech workers, the significant potential lies in Arab society.

Different hurdles

Though both populations are underrepresented and excluded and face similar general barriers, the specific problems and hurdles each faces – generally and with regards to integration into high-tech – differ in scope and character.

01

02

03

Integration and data

Collecting segmented data regarding Ethiopian Israelis is difficult and often impossible. As opposed to Arabs, they do not have separate schools nor live in separate communities, and as a result are rarely accounted for separately.

Arab Society Background
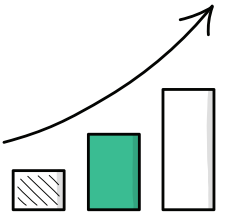
In 2020, the population of Israel was 9,289,760 out of whom 1,957,270 were Arabs (21.1%) of which 17.2% were Arab citizens of Israel (the rest are East Jerusalem residents).
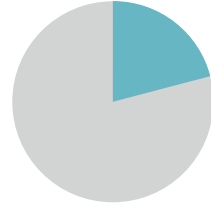
Arab society in Israel – **Place of residence**
(end of 2020)

5.5%   4.2%
41%   49.3%
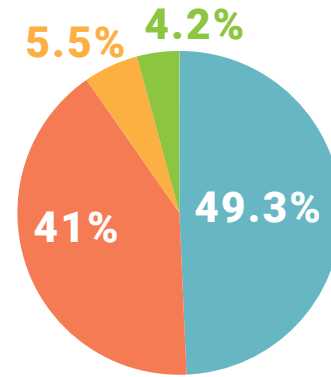
- **Local councils**
  The vast majority lives in 69 Arab local councils and few in Jewish local councils.
- **Cities**
  Most live in 12 Arab cities and some in 7 mixed cities.
- **Smaller rural localities**
  47 Arab localities that are part of Regional Councils.
- **Localities without municipal status**
  Known as "unrecognized villages", most of which are located in the Negev.

Arab society in Israel - **geographic distribution**
(end of 2020, excluding East Jerusalem)

1.1% 1.8%
17.5%
17.5%
51.6%
19.7%

- Arab Localities - North of Israel
- Arab Localities - Triangle
- Arab Localities - Negev
- Mixed cities
- Jerusalem Corridor (including West Jerusalem)
- Jewish-majority localities around the country
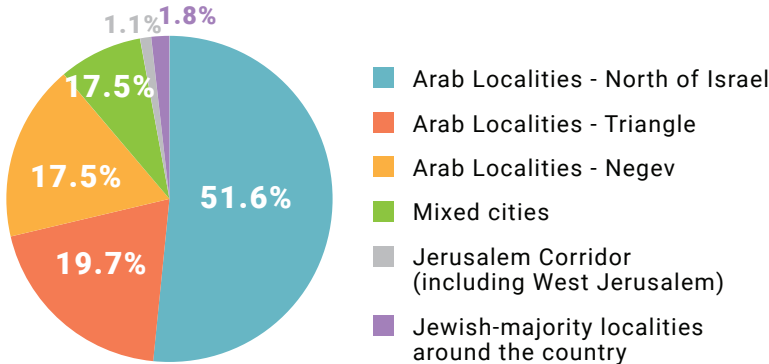
Arab society Religious affiliation

7.9%
9.2%
82.9%
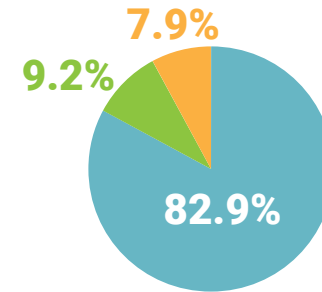
- Muslims
- Druze
- Christians

- ▪ Arab society makes up 21% of Israel's population (17.2% of citizens). According to estimates, its contribution to the GDP does not reach half their portion in society.
- ▪ In 2018, there was a 45% gap between the average salary of Arab men and non-Haredi Jewish men in Israel.
- ▪ In 2018, average household income of an Arab family was ~ILS 13,000, approximately half of a non-Haredi Jewish household, which was ~ILS 23,500.

Arab Society Background

Children in Poverty

4 out of 5 — Bedouin

3 out of 5 — Arab

1 out of 5 — Jewish
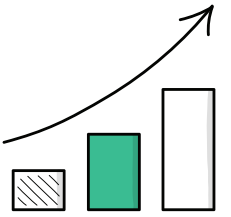
Arab children overrepresented in poverty around 3:1 compared with Jewish children

Median Age

Jewish **31.7**

Arab **23.9**

Bedouin **17.4**

Over **40%** of the population is under 19
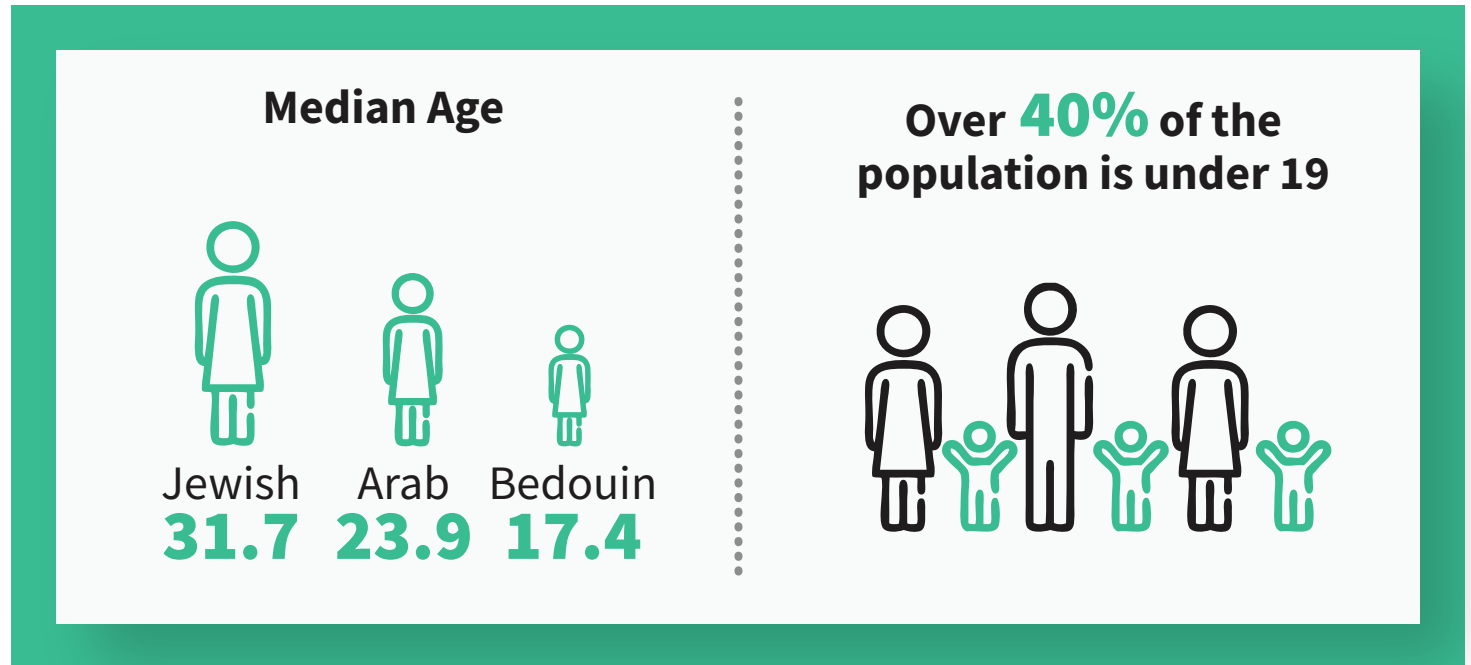
Arab society significantly younger than Jewish society

Arab Society Background
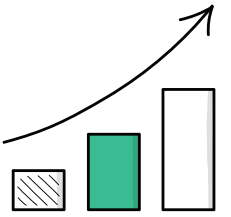
Percentage of 12th Graders who Pass Bagrut Matriculation, by Educational Sector and Year

Jewish: 62% (2009/10), 73% (2018/19), 76% (2019/20)
Arab, not including East Jerusalem: 48% (2009/10), 64% (2018/19), 69% (2019/20)
Druze: 54% (2009/10), 83% (2018/19), 89% (2019/20)
Bedouin Society in the Negev: 44% (2009/10), 48% (2018/19), 58% (2019/20)

Legend: 2009/10, 2018/19, 2019/20

> Progress is clear in all communities, but gaps, for the most part, remain.
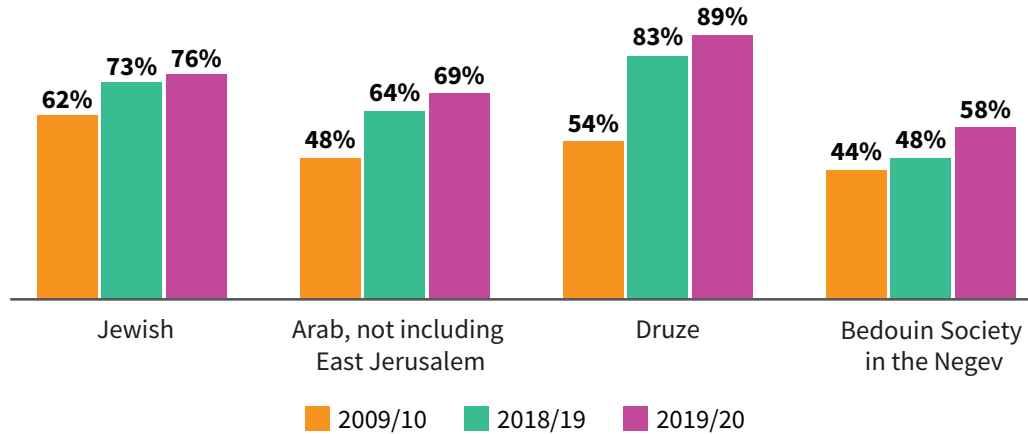
Rate of NEET (Not in Employment, Education or Training) in Arab society, Ages 19-24, by Place of Residence and Gender, 2019

Men: 22% (Jerusalem), 25% (North), 28% (Haifa), 27% (Tel Aviv & Center), 45% (South)
Women: 43% (Jerusalem), 35% (North), 40% (Haifa), 35% (Tel Aviv & Center), 54% (South)

Legend: Jerusalem, North, Haifa, Tel Aviv & Center, South

> High rates of unaffiliated young adults – different reasons for men and women.

NAS CROWN FAMILY PHILANTHROPIES

Arab Society Gaps in Higher Education and Integration into High-tech

1.9% Rate of Arabs from all employees in high-tech

3% Rate of Arabs from all employees in high-tech, ages 18-34

4% Rate of Arabs from all those with professional degrees in high-tech

12% Rate of Arab students from all those studying high-tech disciplines (up from 8% in 2012)

17% Rate of Arab students from all students in institutes of higher education

18% Rate of Arabs from all high school graduates who achieved Bagrut Matriculation, and meet University standards

25% Arabs age 18-34, as a percentage of Israeli society

NAS

CROWN FAMILY PHILANTHROPIES
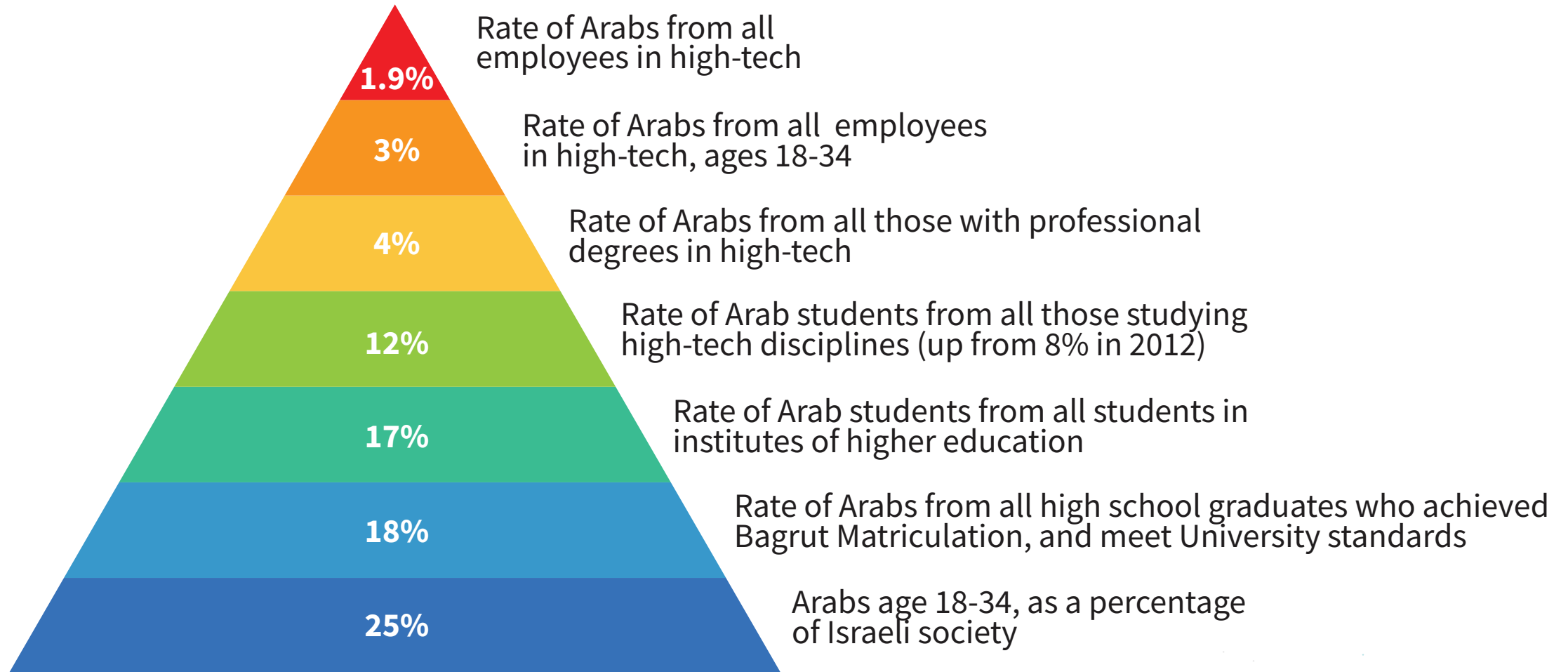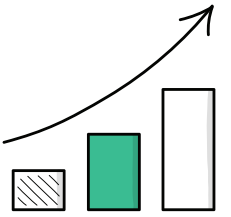
Arab Society Gaps in Higher Education and Integration into High-tech
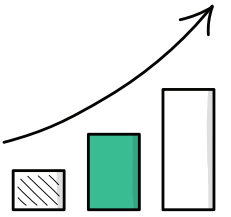
Comparison of Integration into High-tech, Birthyear 1981-1990, Arab and Jewish Israelis

Work in high-tech fields — 4.33% / 0.26%

~ 24% / ~ 38%

Earned a first degree in high-tech disciplines — 3.49% / 0.42%

~ 14.5% / ~ 43%

Studies in high-tech disciplines — 4.09% / 0.74%

~ 90% / ~ 99%

Entered higher education — 42.99% / 16.21%

~ 57% / ~ 84%

Birth year 1981-1990 — 100% / 100%

■ Jewish population born between '81-'90 ,%　　■ Arab population born between '81-'90 ,%
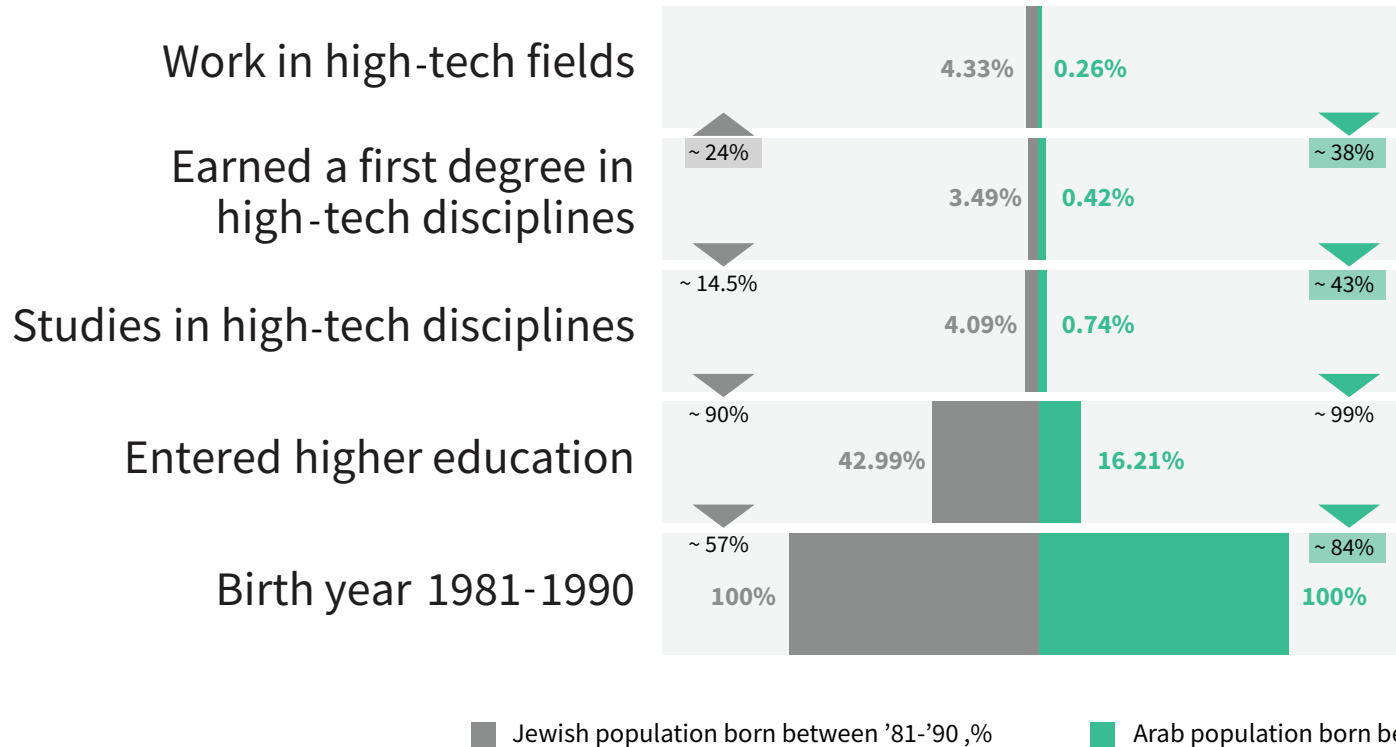
- Significant gaps along the entire path to high-tech.

- Especially "steep stairs" to higher education and to completion of studies.

- Among Arab high-tech employees ages 30+, integration rates are significantly lower than among those 18-34 (as shown in previous slide).

CROWN FAMILY PHILANTHROPIES

Arab Society Gaps in Higher Education and Integration into High-tech
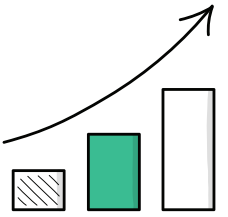
- Breakdown to populations shows the significant gaps and steeper stairs for Arab society.

Integration into High-tech Pyramid, Birthyear 1981-1990, Arabs, in Numbers

Work in high-tech fields	648
Earned a first degree in high-tech disciplines	1,055
Studied in high-tech disciplines	1,862
Entered higher education	40,642
Birthyear 1981-1990	250,743
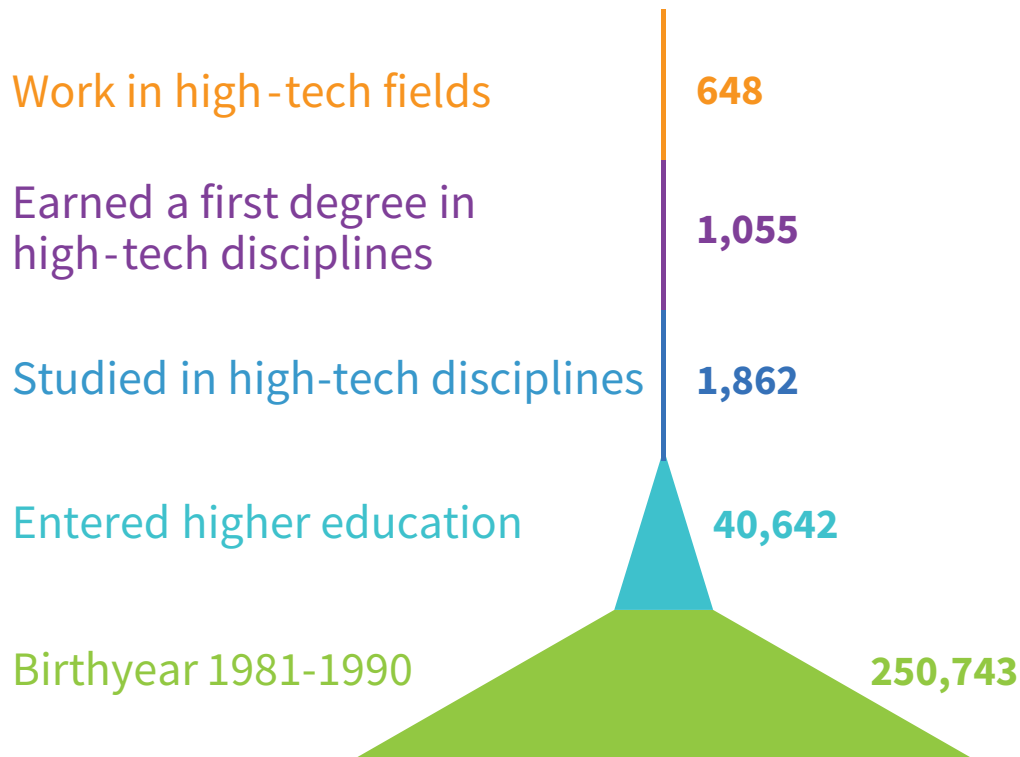
Integration into High-tech Pyramid, Birthyear 1981-1990, Jews, in Numbers

Work in high-tech fields	39,895
Earned a first degree in high-tech disciplines	32,189
Studied in high-tech disciplines	37,755
Entered higher education	396,359
Birthyear 1981-1990	922,048

CROWN FAMILY PHILANTHROPIES
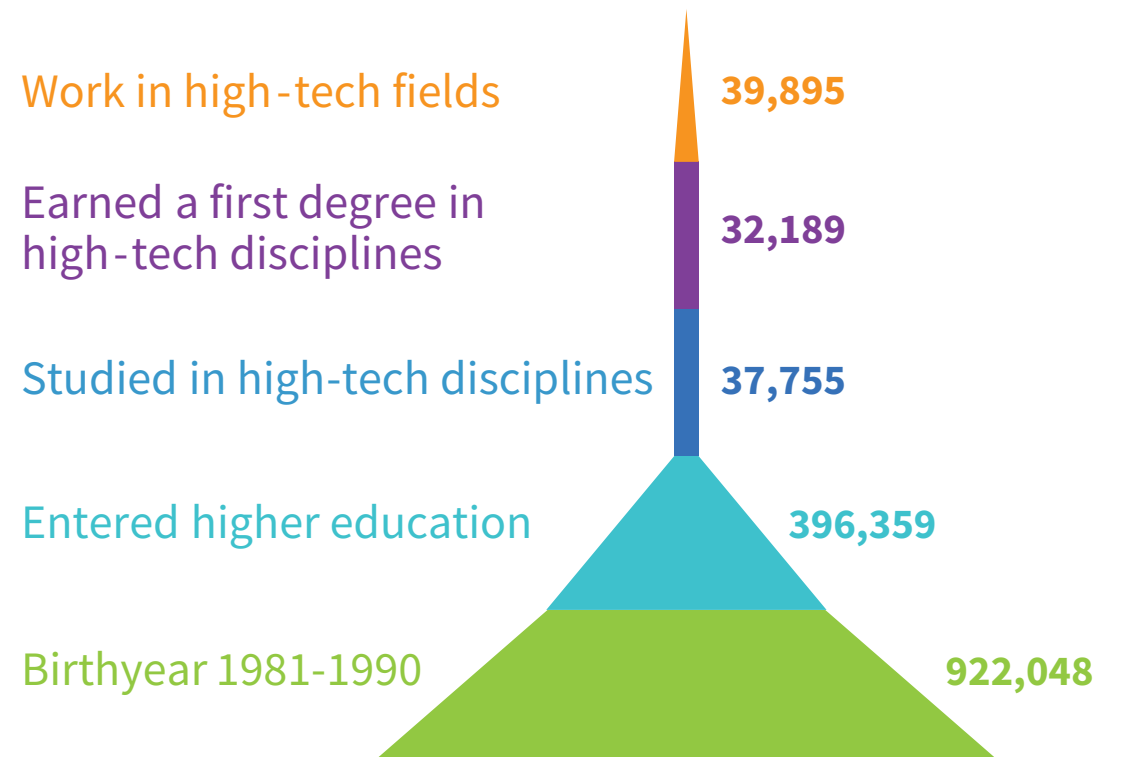
Arab Society Integration into High-tech
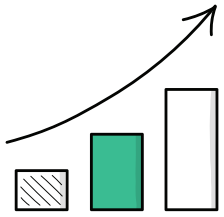
Number (in thousands) of Salaried Arab Employees and their Rate of All High-tech Employees

- 2012: 2.2 — 1.0%
- 2013: 2.9 — 1.3%
- 2014: 4.7 — 1.9%
- 2015: 3.6 — 1.4%
- 2016: 5.0 — 1.8%
- 2017: 4.7 — 1.7%
- 2018: 6.4 — 2.1%

Number of Arab employees

Rate of Arab employees of all high-tech employees
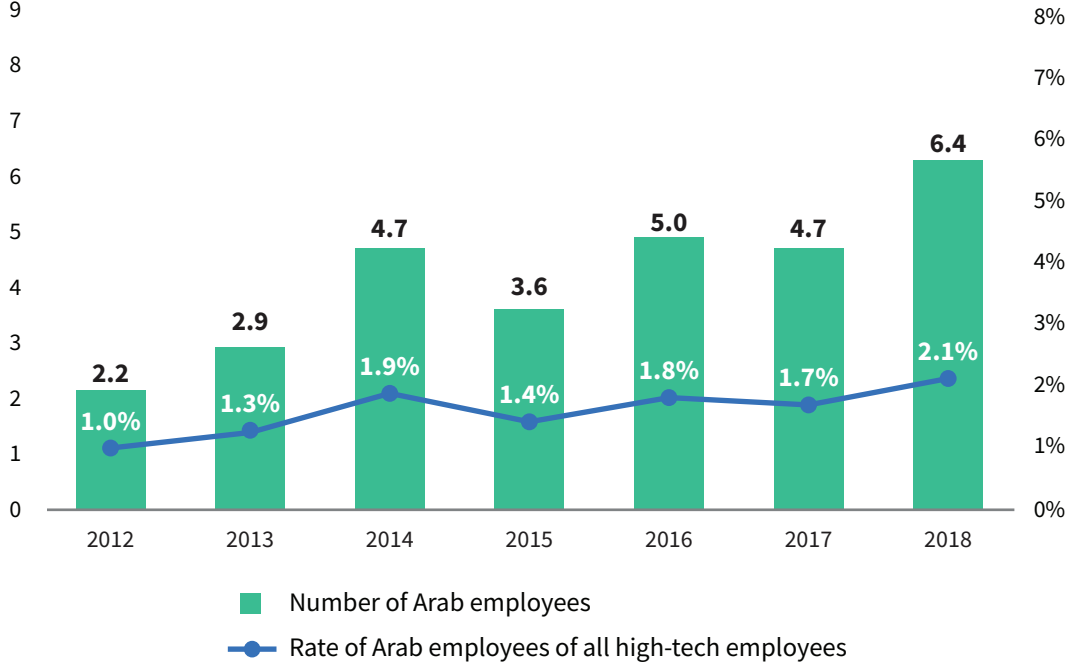
Average High-tech Salary, Jews Compared to Arabs, by Institutes of Higher Education

- Universities: Jews 31,677 — Arabs 26,152
- Budgeted Colleges: Jews 23,769 — Arabs 17,358
- Non-Budgeted Colleges: Jews 30,532 — Arabs 21,896

Jews   Arabs
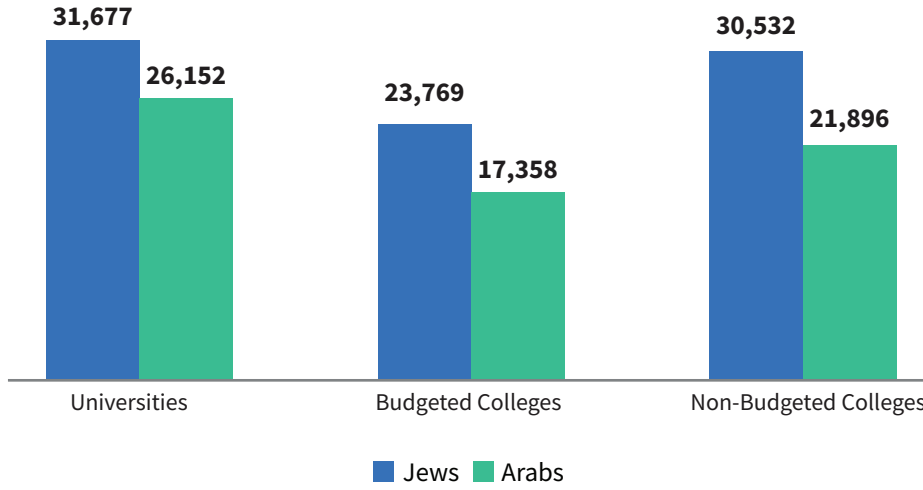
Source: Israel Innovation Authority Analysis of Israel Central Bureau of Statistics

CROWN FAMILY PHILANTHROPIES

Arab Society Integration into High-tech
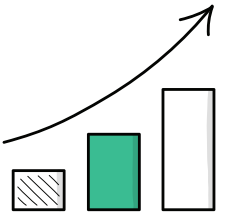
Rate of Arab Citizens of All Israeli society (% by age group)
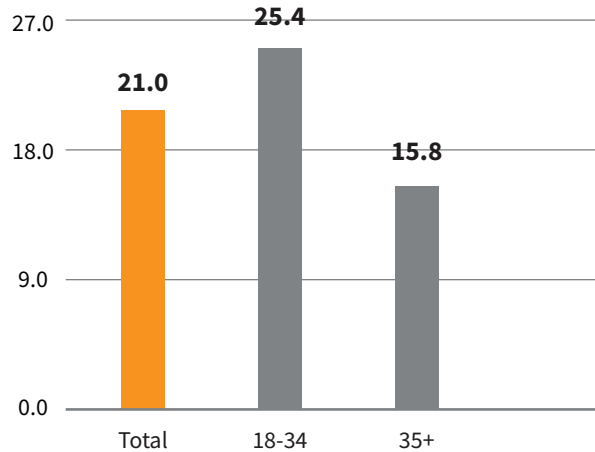
Rate of Arab Employees from All High-tech Employees (% by age group)
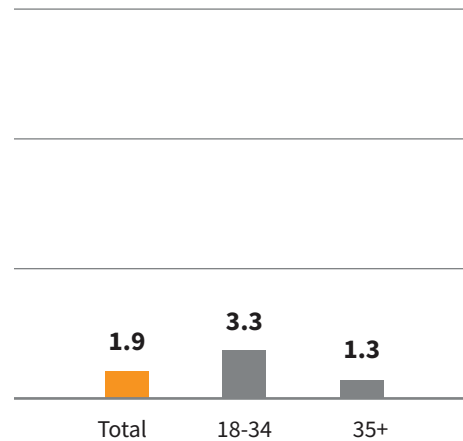
Rate of High-tech Employees from Total Employees in Each Population Group (%, by religion, 2018-19 average)
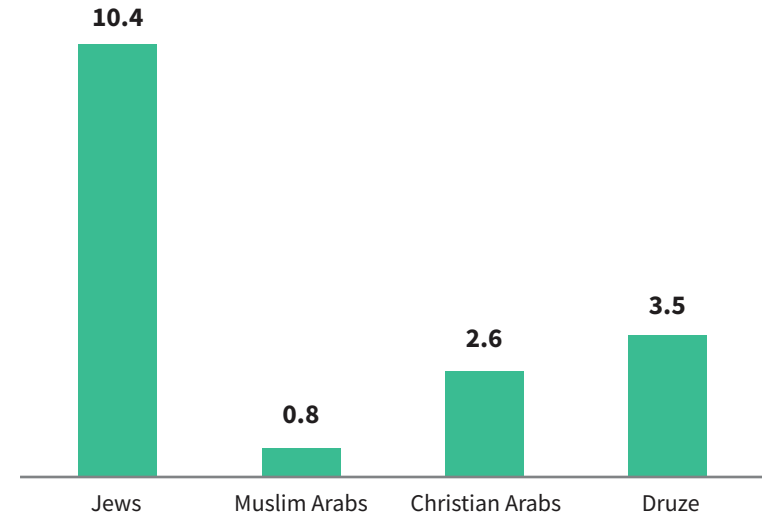
While Arab citizens are significantly underrepresented, their rate from all high-tech employees is significantly higher among the younger generation*.

When divided by religion, a higher percentage of Druze and Christian employees are in high-tech, and only 0.8% of Muslim employees are in high-tech.

*Differences between statistical data are the result of different definitions of the scope of high-tech sphere.

NAS
Research & Consulting

CROWN FAMILY PHILANTHROPIES

Ethiopian Israelis Background
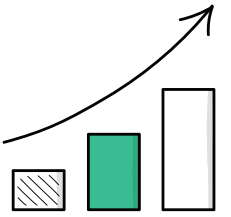
As of 2019, 153,300 Ethiopian Israelis lived in Israel – 1.7% of Israel's population.

Of them,
around **55%** were born in Ethiopia
and **45%** were born in Israel.

55% **45%**
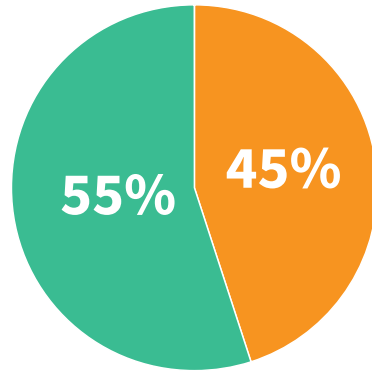
55% of Ethiopian Israelis live in the socio-economic periphery, experiencing educational gaps, reduced health and welfare services, and fewer employment opportunities.

■ The rate of poverty is high, as a result of low employment rates and salaries, as compared to the general population, in particular non-Haredi Jewish society.

CROWN FAMILY PHILANTHROPIES

Ethiopian Israelis Education
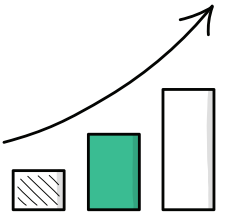
Bagrut Matriculation among Ethiopian Israeli 12th Graders
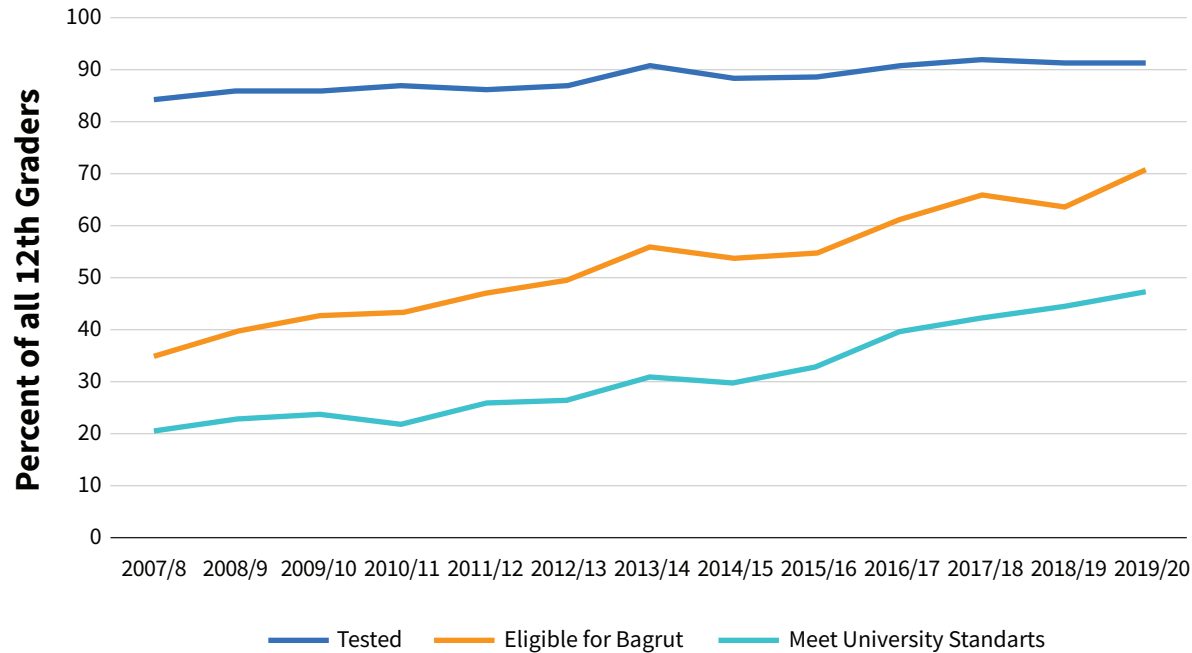
The rate of Ethiopian Israeli 12th graders who took the Bagrut Matriculation exams in 2020/21 was 92%, compared with 95.2% among non-Haredi, non-Ethiopian Jewish 12th graders.

Legend:
— Tested
— Eligible for Bagrut
— Meet University Standarts

CROWN FAMILY PHILANTHROPIES

Ethiopian Israelis Education
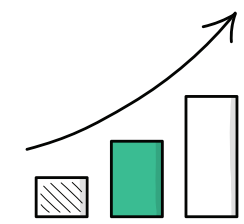
5 Points Math among 12th Grade Boys, % by Year, Origin and Generation

- 13.3% → 16.5% → 21.7% (Non-Ethiopian Jewish Students)
- 1.4% → 2.2% → 4.7% (Ethiopian Israeli Students)

2013 | 2016 | 2019

— Ethiopian Israeli Students, 1st Generation
— Ethiopian Israeli Students, 2nd Generation
— Total Ethiopian Israeli Students
— Non-Ethiopian Jewish Students
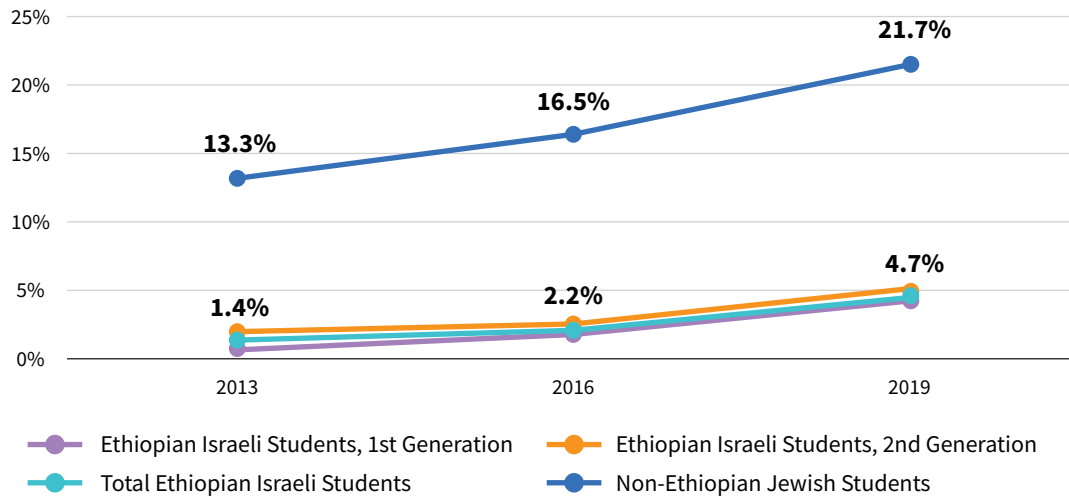
5 Points Math among 12th Grade Girls, % by Year, Origin and Generation

- 9.9% → 13.9% → 20.3% (Non-Ethiopian Jewish Students)
- 3.0% → 3.8% → 6.2%
- 1.8% → 2.5% → 4.9%

2013 | 2016 | 2019

— Ethiopian Israeli Students, 1st Generation
— Ethiopian Israeli Students, 2nd Generation
— Total Ethiopian Israeli Students
— Non-Ethiopian Jewish Students
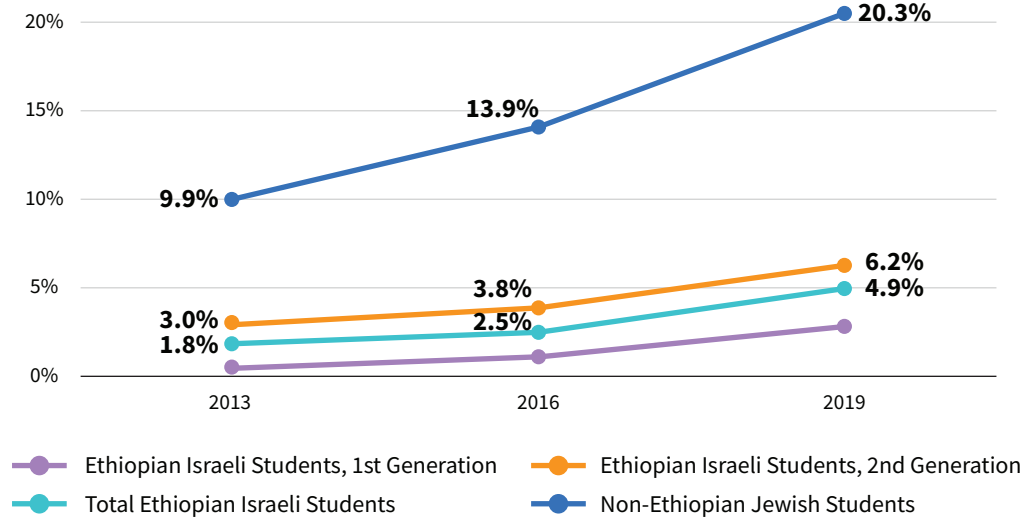
- The graphs illustrate the major gaps between Ethiopian Israeli high-school students and their non-Ethiopian Jewish-Israeli peers.
- Less than 5% of Ethiopian boys and 6% of the girls study at a 5-unit Bagrut level, compared to over 20% amongst non-Ethiopian Jews.
- With overall improvements, increase among Ethiopian students was more moderate, with gaps growing.
- As the Ethiopian Israeli community is small, in 2019 only 65 girls and 69 boys studied for a 5-unit Bagrut level in mathematic.

NAS · CROWN FAMILY PHILANTHROPIES

Ethiopian Israelis Higher Education
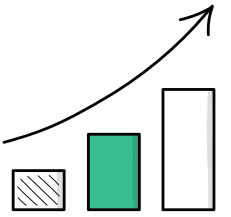
Ethiopian Israeli Students in Higher Education, by Degree, 2018/2019-2020/2021
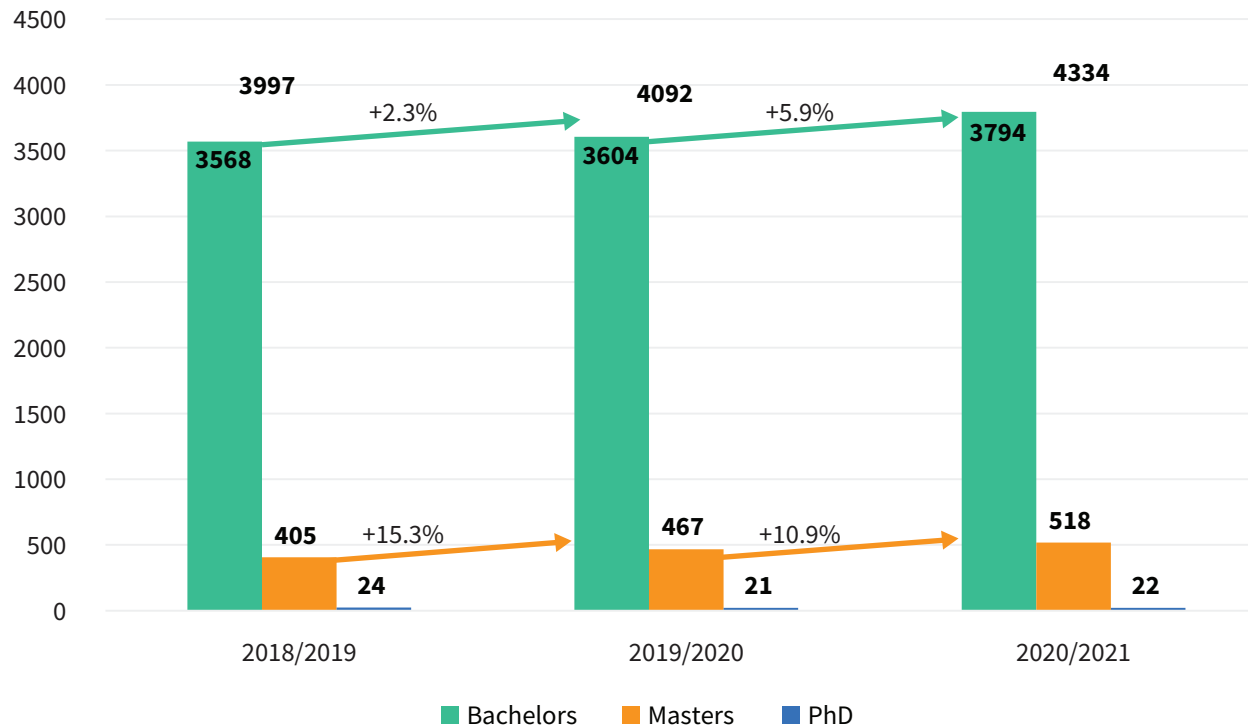
- Number of students in first degree jumped between 2019/2020 and 2020/2021 by 5.2%, compared to 1% increase the previous year. This could be attributed to a general increase in demand for higher education during the Coronavirus pandemic.

- The number of 2nd degree students jumped even ore dramatically: a growth of 15.3% and 10.9% in 2019/20 and 2020/2021 (respectively).

- The small (and relatively steady) numbers of 3rd degree Ethiopian Israeli students does not allow for statistical analysis.

Ethiopian Israelis Higher Education
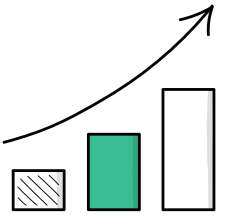
Ethiopian Israeli Students in High-tech Disciplines, 2017/2018-2019/2020
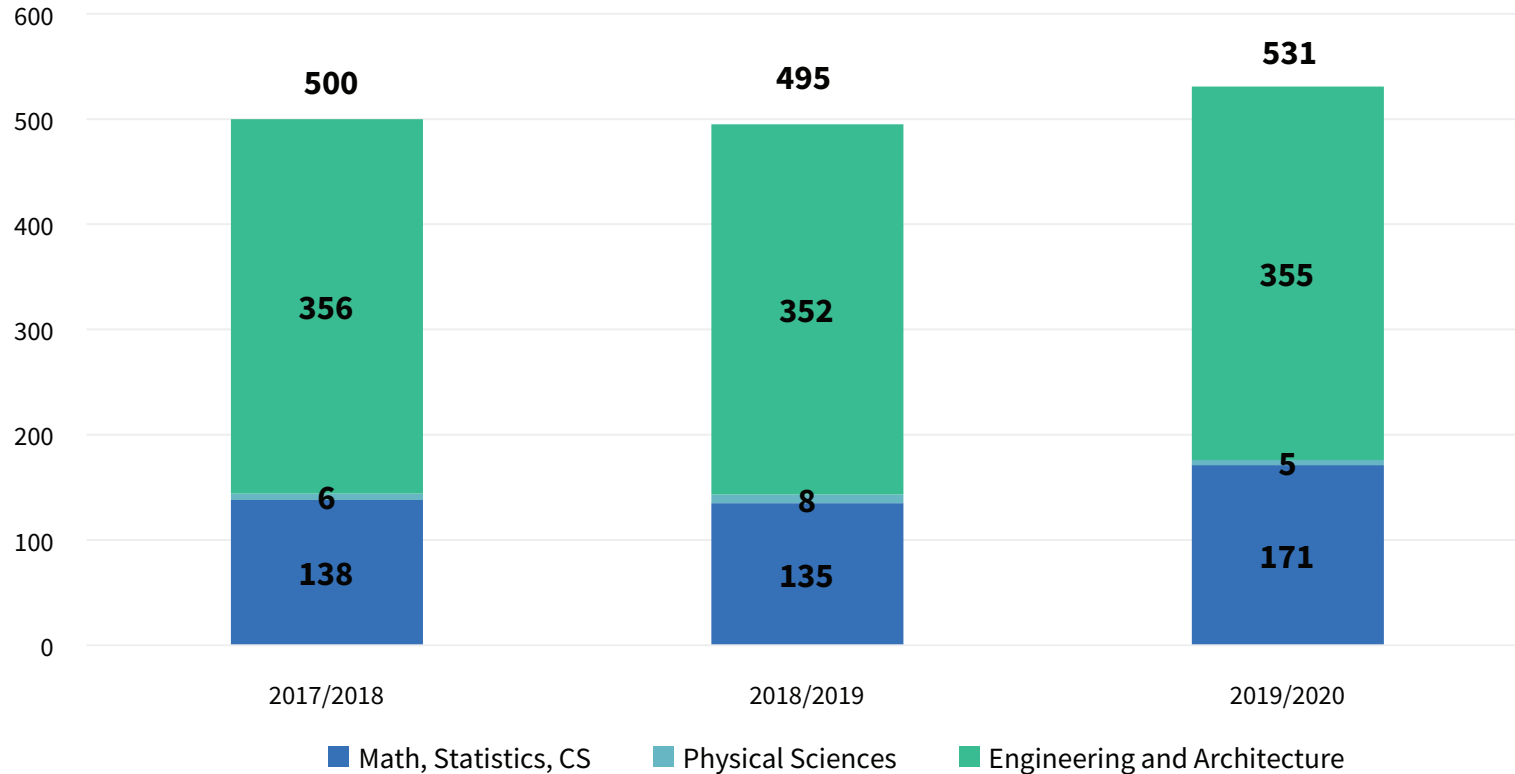
These numbers show the growth in potential for high-tech integration, although engineering numbers are mixed with architecture studies (by the Council for Higher Education reports).

Legend: Math, Statistics, CS | Physical Sciences | Engineering and Architecture

2017/2018: 138, 6, 356 (Total 500)
2018/2019: 135, 8, 352 (Total 495)
2019/2020: 171, 5, 355 (Total 531)

CROWN FAMILY PHILANTHROPIES

Ethiopian Israelis Employment
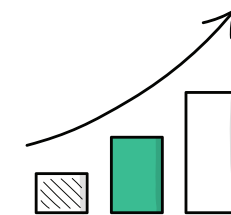
Average Salary – Ethiopian Israelis Compared to Non-Ethiopian Jewish Israelis, by Gender

4,347 nis (Average Salary - Women, Ethiopian Israelis)
5,083 nis (Average Salary - Women, Non-Ethiopian Jews)
6,291 nis (Average Salary - Men, Ethiopian Israelis)
6,708 nis (Average Salary - Men, Non-Ethiopian Jews)

Average Salary - Women   Average Salary - Men

■ Ethiopian Israelis   ■ Non-Ethiopian Jews

22% Non-professional Workers

Compared with **3%** among non-Ethiopian Jews
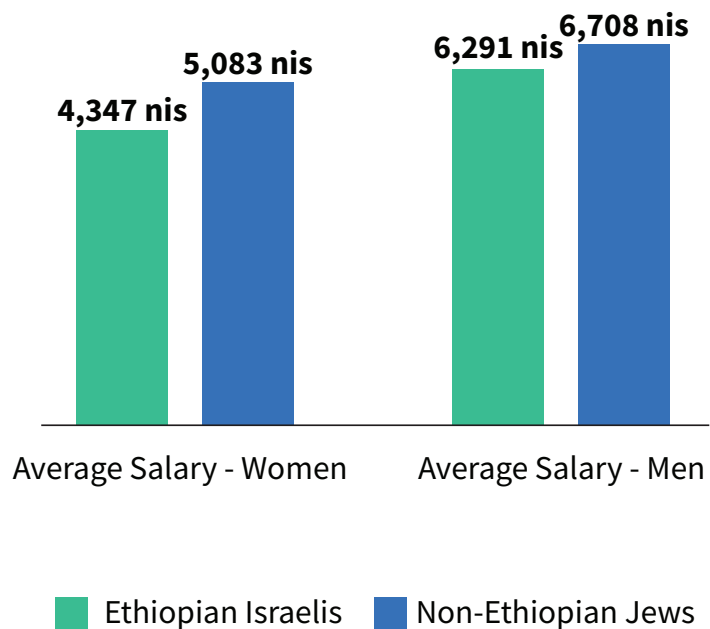
Many Ethiopian Israelis are employed in low-income professions, with little prospect for professional growth.

The average salary of an Ethiopian Israeli family in 2015 (most recent data) was ILS 11,496, compared with ILS 18,329 in the general population, a 37% gap.

Source: La Merchak Program Brief: Promoting Quality employment for Ethiopian Israelis, La Merchak, Ministry of Economy, JDC-TEVET.

NAS
Research & Consulting

CROWN FAMILY PHILANTHROPIES

Chapter 3
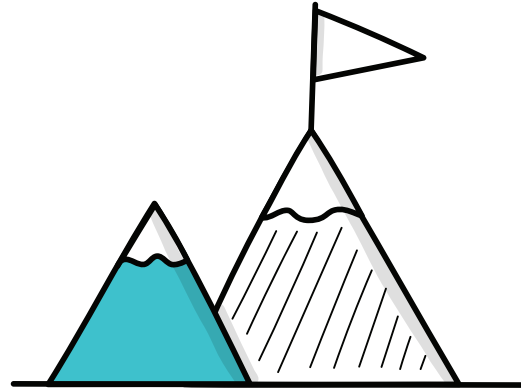
Government Policies and Budgets

Summary of Relevant Government Policies
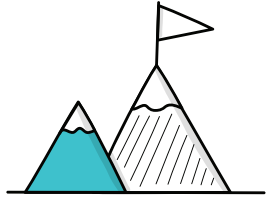
01

Over the past several years, seven Government Resolutions stressed the national importance of including Arab/Ethiopian Israelis in the high-tech industry.*

*Summary of relevant resolutions can be found in Annex A.

02

The Resolutions created policies and work teams, and provided budgets for training by operating organizations and for subsidies for employers.

03

Several bootcamps and training programs were advanced through different governmental tracks (sometimes overlapping) to integrate minority populations into high-tech.

CROWN FAMILY PHILANTHROPIES

Summary of Relevant Government Policies
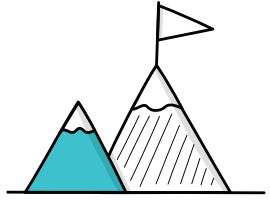
04

Several government offices have taken on the responsibility to lead these initiatives – sometimes collaboratively, and sometimes independently. Some of these offices have expertise in the field of high-tech training and some do not. The two major government bodies involved in technological bootcamps are the Ministry of Economy and the Israel Innovation Authority.

05

As a result, there is no single regulator that is overseeing and monitoring the field to ensure that macro-level objectives are being defined and achieved, while developing a unified lexicon. This encumbers evaluation and data collection efforts.

06

Following government budget allocations, a number of philanthropic players have entered the field.

CROWN FAMILY PHILANTHROPIES

Major Government Budgets

The following tables outlines the major government programs and budgets over the last five years.
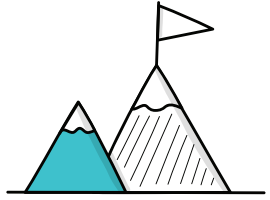
Office	Program	Year Founded	Target Population	Discipline	Number of Participants
Israel Innovation Authority	Track 34 - Coding Bootcamps	2018	Mixed – some focus on Arabs	R&D professions	1,984 (no breakdown re: subgroups)
	Track 44 - Human Capital Fund	2020	Emphasis on the periphery and under-represented groups	R&D professions	2,415 (2020 RFP) 13,622 (2021 RFP) (no breakdown re: subgroups)
	Track 45 - Emergency fast-track for industry training and placement	2020	Mixed Groups	R&D professions and support professions	6,381 (no breakdown re: subgroups)

Major Government Tools and Budgets

Office	Program	Year Founded	Target Population	Discipline	Number of Participants
Ministry of Economy	LaMerchak	2014	Ethiopian Israelis	R&D professions and support professions	Around 45 graduates participated in bootcamps (out of around 4,400 of total program participants, as of 11/2021).
	Forsatech	2015	Arab society-students and graduates from high-tech fields	R&D professions and management	Over 900 (between 8/2018 and 4/2020)
	Digital Talent - Joint Initiative with JDC -Tevet	2016	Mixed Groups	R&D professions and support professions	180 as of 12/2018 (no breakdown re: subgroups)
	New Path Joint Initiative - Quality Professional Trainings (Tech Career)	2017	Ethiopian Israelis	R&D professions and support (QA & CCNP)	22 participants

Major Government Tools and Budgets

Office	Program	Year Founded	Target Population	Discipline	Number of Participants
Ministry of Economy	Coding Bootcamps – Joint initiative with JDC-Tevet	2018	Mixed groups	R&D professions and support professions	Data Unavailable
	Mahat	Data Unavailable	Mixed groups, practical engineers	R&D professions and support professions	Data Unavailable
	Class at Work - Job trainings in high-tech companies	2021	Mixed groups, designated groups for Arabs and Ethiopian Israelis	R&D professions and support professions	Data Unavailable
	Open Track	2021	Mixed groups	R&D professions and support professions	Data Unavailable
	Green Track	2021	Mixed groups	R&D professions and support professions	Data Unavailable
	Switch - Joint initiative with JDC-Tevet	2021	Arab society (primarily women)	R&D professions and support professions	25 participants
	8 Innovation grants	2022-2024	Underrepresented populations	1 grant to Tech Career for Ethiopian Israelis. 1 grant to Eretz Ir for training Bedouin women in website design	1,600 Ethiopian Israelis with no prior technological education, 50 Bedouin women.

CROWN FAMILY PHILANTHROPIES

Major Government Tools and Budgets

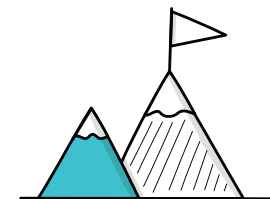| Office	Program	Year Founded	Target Population	Discipline	Number of Participants
Ministry for the Development of the Periphery, the Negev and the Galilee	Joint Initiative for the advancement of special populations	2018	Ethiopian Israelis Arab society; Haredi society in the periphery		Data Unavailable
	Tender – Promoting Economic Initiatives, Diversity and Human Capital Development	2019	Ethiopian Israelis; Arab society; Haredi society Mixed groups in the periphery	R&D professions	Data Unavailable
Ministry of Welfare and Social Affairs	Joint Initiative – SELA Career (Appleseeds)	2019	Arab-Bedouin society	R&D professions and support professions	140 Bedouin participants in advanced trainings; of them 20 in programming Bootcamp (2019 contract). Data unavailable re 2021 contract.
	Siraj	2019	Arab-Bedouin society	R&D professions and support professions	20 participants from Bedouin society
Ministry of Aliyah and Integration	Olim l'High-Tech	2021	Ethiopian immigrants	R&D professions and support professions	300 participants (25 Ethiopian Israeli immigrants)
Ministry of Social Equality	Track 44 Under GR-550	2022	Mixed groups, Arab Society	R&D professions and support professions	Data Unavailable
JDC-Tevet (joint initiatives with government)	LaMerchak	2014	Ethiopian Israelis	R&D support professions	See details under Ministry of Economy
	Digital Talent	2017	Mixed groups	R&D support professions	See details under Ministry of Economy
	Coding Bootcamps	2018		R&D professions	See details under Ministry of Economy
	Switch	2021		R&D professions	See details under Ministry of Economy

Trends in Government Investments and Insights by Government Players
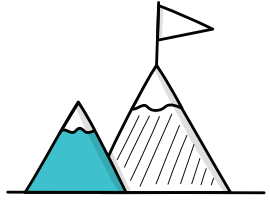
01

Transition from strict to flexible models
governmental tenders today have less conditions and requirements (e.g., re bootcamp model, number of hours, placement rates), instead allowing the market to develop creative solutions to meet complex needs.

02

Widening the definition of "bootcamp"
while initially bootcamp tenders focused on a few technological spheres (mostly R&D), today government policies are more flexible, allowing for greater diversity of training, to answer market needs.

03

Professionalization
some ministries (e.g., Ministry of Welfare) have realized that tenders relating to bootcamps should be transferred to the Ministry of Economy and the Innovation Authority that have greater expertise.

Trends in Government Investments and Insights by Government Players
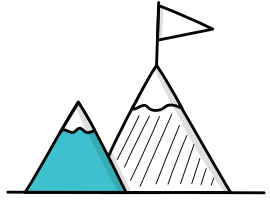
04
Strengthening cross-sector cooperation
governmental bodies are increasingly strengthening their dialogue and collaboration with high-tech companies, seeing this as a strategic relationship. Some ministries are demanding employers be part of any training program, at times also offering subsidies to employers (e.g., subsidizing training costs – conditional on placements).

05
Emphasis shifting from training to placement
governmental bodies are increasingly realizing the goal is placement rather than training. Programs that lacked such focus ceased operation.

06
Incentivizing integration of underrepresented populations
growing realization re the necessity of government incentivization for employers and program operators to increase the representation of minority populations.

07
Ensuring geographic correlation
ensuring there is a geographic correlation between training to placement, and that training bodies have strong business relationships in the area where they operate.

Chapter 4
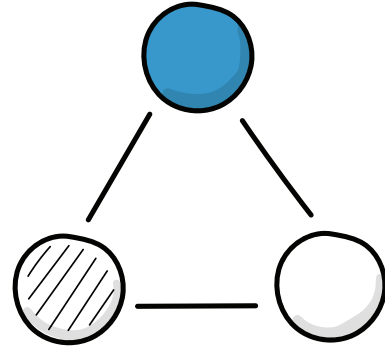
Players and Programs in the Field

"Prototype Bootcamp": Content
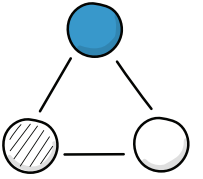
Framework

An intensive, non-academic technological course that preps participants to enter the high-tech field, typically in collaboration with tech companies to meet market needs. The course includes technological content, soft skill development, and applied ("hands-on") experience. Ideally, the course also includes assistance in job search, placement, and integration into the job market.

Length: 3-8 months, 4-5 days/week, 8 hours/day

Learning medium: Frontal, Virtual, Hybrid

Number of participants: 20-25

Tech Content

Software development and tech support for development: Full Stack, DevOps, Cyber, QA, IT, Data, etc.

Hands-on Experience

Applied projects during the course provide experience & teach industry-relevant tools and methodologies: teamwork, goal orientation, time management, etc.

Workforce Integration Skills

Familiarize with industry and recruitment process, LinkedIn, CV, interview prep (tech and HR), site visits, etc. Assistance with placement and integration.

Soft Skills

Personal empowerment, presentation skills, how to ask for help and give feedback

Supportive envelope

Bootcamp prep course, language proficiency (Hebrew, English), scholarship and support (financial aid, housing), cultural training for employers, volunteers as mentors and guest lecturers.

"Prototype Bootcamp": Organizational Structure
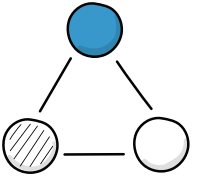
NGO

- Ideological motivation and familiarity with target population's strengths, barriers, cultural sensitivities.
- Know-how to recruit target population.
- Intercultural work between applicants and employers.
- Access to government funding, philanthropic support, and volunteers.
- Responsible for recruitment, selection, workforce integration and soft skills, assistance with job placement.

Training Institute

- Familiarity with market needs and up-to-date technology.
- Expertise in training candidates for technological positions.
- May assist with connection with industry and workforce integration.

High-tech Company

Varied levels of involvement:

- "Internal bootcamp": company initiates according to its needs, with/without work with NGO.
- **Substantial partnership:** company defines shared needs, involved in course, training, selection, mentoring, interview prep, and job placement.
- **Partial partnership:** varied involvement on some of the components.
- **Use of company logo** with no further partnership

Bootcamp for Underrepresented Populations

- Most bootcamps are run by 2-3 partners – NGO, training institute, high-tech company.
- An NGO may work with different companies and/or training institutes.
- Some government tenders require full partnership between NGO and company.

"Prototype Bootcamp": Funding Structure
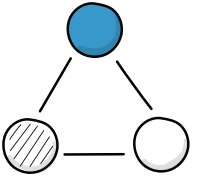
Self Funding/Company Funding (Private Business)	Government Funding	Philanthropic Support, Varied Models:
• High-tech company initiate and funds bootcamp to meet its needs ("internal bootcamp"). • An NGO or training institute partner with private company. The company adds in-kind support (e.g., advisors, mentors, programs, equipment).	• Accessible to NGOs, training institutes and companies. • Funding through tenders and RFPs. • Funding through joint initiatives – matching programs. • Subsidies for training/placement of underrepresented populations.	• Accessible to NGOs. • Full philanthropic support for bootcamp. • Partial philanthropic funding, supplementing funding from company and/or government.

Bootcamp for Underrepresented Populations

Models Mapped – Major Characteristics

Number of Hours in Bootcamp

751+

Enter
31 | 0
Bedouin

Siraj
27 | 0
Bedouin

Tech Career
32-40 | 2000
Ethiopian-Israelis

351-750

Elevation + Atidna
18 | 0 *
Arab

*Participants commit to 60-80 of volunteering with Atidna

Appleseeds
26 | 4000
Mixed (General + Arab)

Alfanar + Galil Software
27 | 1500
Arab

Lotus
27-36 | 5000
Druze Women

Tsofen
14 | 1000
Arab

Young Business Leadership (Beyond Dev)
16 | 4500
Arab

Ness
14 | 0
Mixed (General + Arab)

0-350

itworks
7 | 0
Arab

Kav Mashve
22 | 3000
Arab

Fursa
8 | 2500
Arab

LaMerchak + Qualitest
9 | 5000
Mixed (General + Ethiopian)

Moona
9 | 0
Arab

Legend

- Academic degree in high-tech disciplines
- Students in high-tech displines
- Practical engineering diploma
- Non-high-tech STEM higher education
- Non-STEM higher education
- No higher education

- Non profit
- Company
- Training company
- Governmental program

- Duration in weeks
- Participation fee

*John Bryce does not appear in this matrix since it has numerous partnerships and offers various training models to different clients, including companies and non-profits, some of which are mapped here.

NAS   CROWN FAMILY PHILANTHROPIES

Mapped Bootcamps by Education of Target Population
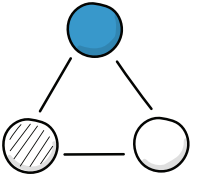
- A significant distinction in target populations of bootcamps is the education/career path that the participant is on, namely: is the participant on track to a career in high-tech or not?

- Some bootcamps that train underrepresented populations, focus on those who <u>are on track</u> to a career in high-tech (i.e., have either graduated or are acquiring a degree/diploma in a high-tech relevant discipline).

- Rationale: giving participants a "leg up" due to the Juniors Problem and their inherent weaknesses as disadvantaged populations.

- Some bootcamps train participants with no relevant education, attempting to redirect them to a high-tech career path, which they were not initially on, or provide formal training to self-taught members of these communities.

Education

High-tech irrelevant education
- No higher education
- Non-STEM higher education
- Non-high-tech STEM higher education

High-tech relevant education
- Practical engineering diploma
- Students in high-tech disciplines
- Academic degree in high-tech disciplines

CROWN FAMILY PHILANTHROPIES

Mapped Bootcamps by Education of Target Population

Education

High-tech irrelevant education

High-tech relevant education

No higher education	Non-STEM higher education	Non-high-tech STEM higher education	Practical engineering diploma	Students in high-tech disciplines	Academic degree in high-tech disciplines

Tech Career
Appleseeds
Lotus
Enter
LaMerchak/Qualitest

Tech Career
Appleseeds
Lotus
Young Business Leadership
Enter

Tech Career
Appleseeds
Lotus
Moona
itworks
Enter
Young Business Leadership
Alfanar/Galil

Tech Career
Appleseeds
Lotus
Ness
Moona
Atidna/Elevation
Enter
Tsofen

itworks
Tsofen
Moona
Kav Mashve

Lotus
Moona
Atidna/Elevation
Tsofen
Kav Mashve

itworks
Fursa
Enter
Siraj
Appleseeds

Redirect participants into high-tech

Give a **leg up** to participants on their way to high-tech

CROWN FAMILY PHILANTHROPIES

Mapped Bootcamps by Rationale

Mapping shows two major rationales. Most programs are a mixture with different weights given to each rationale.

Under-represented Populations

Focus on target employment employer needs, predefined positions

◉ Targeting employment seekers with maximal potential
◉ Tough selection, setting a high bar
◉ Most dropout during selection process
◉ Smaller groups, very high placement rates

Focus on target population participants' needs and barriers, positions that fit each participant

◉ Targeting under-represented segments of society
◉ Casting a wider net, providing more support
◉ Less rigid pre-conditions, more dropout during training
◉ Larger overall numbers, lower placement rates

High-tech Employment

Mapped Bootcamps Unique Solutions to Barriers

Below are examples of unique solutions developed by field organizations to respond to social needs and barriers of their target audiences, via structured bootcamps.

	Lotus	**Fursa**
Program		
Problem	Traditional Druze women with STEM education unable to leave their village	Barriers to integration in top positions for Arab university graduates
Solution	Female-only hub in Dalyat El Carmel	High-bar selection process, intensive work on placement, utilizing unique employer-relations
Result	Traditional women train and work long-distance, breaking boundaries while respecting tradition	Close to 100% placement in high-level positions

Mapped Bootcamps Unique Solutions to Barriers

	Tech Career	Siraj
Program	**Tech Career**	**Siraj**
Problem	Participants from weak Ethiopian communities, not on track to high-tech	Bedouin community very weak, significant barriers to integration, no role models
Solution	Long, intensive bootcamp including sleeping arrangements	Company and NGO combination, bootcamp supplemented by on-the-job training (OJT) and work with wider community to change discourse
Result	Intensive learning environment disconnected from daily hardships; participants diverted and accompanied into industry	More than 30% increase in Bedouin high-tech employment

CROWN FAMILY PHILANTHROPIES

Mapped Bootcamps Unique Solutions to Barriers

	Tsofen/itworks	**Alfanar – Galil Software**
Program		
Problem	Significant gap in the ability of Arab graduates of technological degrees to integrate into high-tech in first position	Galil Software requires manpower in specific fields; Alfanar tasked with workforce integration
Solution	Building tailor-made training components for students and young graduates including hands-on experience and accompaniment	Trilateral cooperation: Alfanar providing infrastructure, recruitment and government funding, John Bryce a training body with expertise on content, Galil Software as future employer defining the need, providing location and absorbing graduates
Result	Closing gaps for Arab juniors in their first position – arrive better prepared and accompanied into the industry	Targeted training based on specific need, most graduates immediately absorbed in the recruiting company
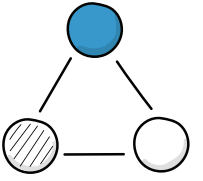
Voices from the Field
Focus Groups with Arab Bootcamp Alumni*

Three in-depth focus groups were held with Arab alumni from Fursa, itworks, and Kav Mashve. Following are major insights and quotes:

01

Arab candidates feel frustrated from lack of response after sending CV, and the need to work harder than Jewish peers.

"As an Arab, I invested everything I have to integrate, gain experience, and get to the point where I don't need connections to find my opportunity. I am against someone needing to participate in a bootcamp just to find work. Why do I need a placement firm to integrate?"

"The problem is when companies don't respond – that's the hardest part. I have no idea why they aren't getting back to me."

"I feel I am in a never-ending cycle – I study, send my CV and don't receive response. So I study more, and they still don't respond."

"I am working for a company where I am the first Arab employee. Maybe they hired me so that they can claim they have a diverse workforce. But the issue is not with me – after I completed the interview process and was accepted, I realized that many of the other employees here don't even have academic degrees."

NAS

CROWN FAMILY PHILANTHROPIES

*Some finished the respective bootcamp recently, while others are a year or two after

Voices from the Field
Focus Groups with Arab Bootcamp Alumni

02
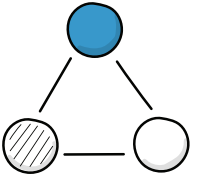
Insights about the Bootcamps – added value, important elements:

→ **Gain experience, career change**

"The issue is that they always want experience…they don't require theoretical knowledge that we learn in University. They always demand [practical] experience. [Before the bootcamp] I submitted my CV – no one got back to me."

"I [first] learned programming languages independently and sent my CV out with a blank 'Education' section. I needed to study [in this formal framework] so that employers would respond to me."

"[I came here because] I submitted my CV, went to interviews, and even advanced to later stages a few times, but in the end they always said 'we chose to take people with experience.'"

"I come from an entirely different field. I decided to study programming languages at home, so I signed up for the bootcamp. I really connected with the subject, and a month and a half after finishing the course, I found work."

"I didn't complete an academic degree, I studied independently. … I needed a course that would give me tools, and graduates of this course told me this is the right place."

Voices from the Field
Focus Groups with Arab Bootcamp Alumni
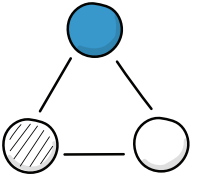
→ **Arabic-language bootcamps make it easier for Arab candidates, especially from East Jerusalem**

→ **Tuition assistance is necessary for some candidates**

→ **Atmosphere, personal guidance, mentoring**

"In the beginning I expected the course to be in English or Hebrew, it was comfortable that it was in Arabic."

"The fact that the cost of the course was symbolic really helped me, other courses cost more."

"The mentors are excellent. After we finished the course, they continued to help and support us. The HR team was accessible – they always helped with CVs and interview prep."

"There was consistent professional guidance throughout the course. The mentors gave 200% and the support was incredible."

"There was a positive competitive environment, everyone worked hard."

"The most positive element in the course was that it had a positive motivating and encouraging atmosphere."

Voices from the Field
Focus Groups with Arab Bootcamp Alumni
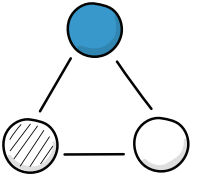
→ **Simulating real-world high-tech work – intensity, content, teamwork**

"The course really helped me from a technological perspective. My work today is based on what I learned in the course."

"The fact that the course was in English was helpful, both in terms of industry jargon and the [terms of the] technological stack you work in."

"The bootcamp gives you practical experience of both technical and soft skills, including teamwork. The course was right on target in providing a good picture of what happens in the field."

"Other courses give you theoretical material and are less applied, this was the opposite, we immediately applied our knowledge through projects."

"One thing that really helped me is that each week we worked with different people. This diverse experience gave me practical tools for future employment. I didn't know who will be on my team each time and how they work."

"A strength of this course is that you need to learn…and fast. In my cohort…we worked in pairs, and it helped us learn how to go out of our comfort zone, to divide tasks and manage time."

"There's no doubt that one reason I'm in high-tech today is that the course design forced me to invest myself and study…Alone, I wouldn't have invested in this way."

"This framework delivers a lot of information in a relatively intensive manner, emphasizing independent study… Meeting new people and forming connections with program alumni helps. We see … that this is possible [even] if you don't come with background in the field."

Voices from the Field
Focus Groups with Arab Bootcamp Alumni

→ **Assistance with job placement**

"If I submit my resume with the name of the bootcamp on it, employers still don't respond, but when [the bootcamp organizer] submits my CV and pursues employers, then they contact me for an interview. That's the difference."

"The reason I got an interview is because [the bootcamp organizer] contacted the company. They don't give up – they keep contacting the companies until you are accepted. Also, before going into an interview they conduct a simulation and give clear instructions."

"The interview simulation we did in the course was very similar to my real-life interview. So during my work interview, I felt comfortable, it went smoothly, and I was accepted."

"As a result of advice I received in the course, I updated my LinkedIn profile, and that's when I started to receive job opportunities. I started to realize that there are a lot of companies out there, and I can choose."
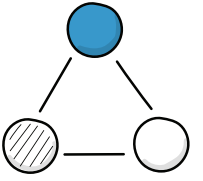
Voices from the Field
Focus Group with Ethiopian Israeli Bootcamp Alumni

One in-depth focus group was held with Ethiopian Israeli alumni from Tech Career. Following are the major insights and quotes:

01

Insights about entering the high-tech field

→ **Alumni view the course and entering high-tech as activism: a way to make change in their community; be a role model and improve the economic status of Ethiopian Israelis**

"There was this line that the CEO would say, and I think it's true – 'without economic equality there is no social equality.' We don't have a lot of influence in this country – it's because those with money are the ones with influence. So, if we are simply Ethiopians in high-tech – I feel proud."

"It made me feel good to be in a class with people [like me], and that we were activists doing something to change the field. This should not be taken for granted – one time we visited monday.com [high-tech company] in Tel Aviv and it was crazy to see that even the cleaning lady wasn't Ethiopian. As if Black people do not exist – not that they were racist or anything – it is just absent from their realm of possibilities."

"When I know that those before and after me will do something to change the field, I feel good. I even say to my friends [...] 'do the minimum – earn matriculation, then you can get into a course and earn a respectable income.'"

Voices from the Field
Focus Group with Ethiopian Israeli Bootcamp Alumni
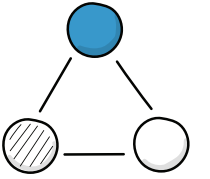
→ The scarcity of Ethiopian Israelis creates barriers related to prejudice and lack of networking

"People don't know from my name that I am Ethiopian. It's not written in my CV – so people contact me. It's only when I get to the interview that they know. I'm sure that if my name was more identifiable, it would definitely have a negative impact on the process."

"Tech Career gets me a lot of interviews and that has a great effect. If I were to apply alone it would be really hard – especially in comparison to applicants who have connections in the field – [this is] because the industry is representative of a particular group of people."

"In my company, I was the third Ethiopian hired. The company employs 2,500 people internationally, most of whom are in Israel. We now recruited two more Ethiopians who were in Tech Career's courses. There is something about the comradery – there is someone from DevOps who started 5 months before me, he is also an alum of Tech Career. He was the first person I had coffee with at the office after he sent me congratulations on LinkedIn."

Voices from the Field
Focus Group with Ethiopian Israeli Bootcamp Alumni
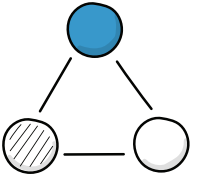
→ **Alumni from Cyber Security course say it's easier to find placement (compared to graduates of other courses)**

"Data Security and Cyber is not like writing code. It's a field that's developed over the last 6-7 years – so there are companies that are just now starting to employ data security managers. This allows for easier integration into the industry."

"I think it's a bit easier for us in Data Security than in DevOps. The placement rates are really high in our field. In DevOps it's much more difficult – there are alumni who still have not made it in – because the companies are looking for geniuses or people with experience."

Voices from the Field
Focus Group with Ethiopian Israeli Bootcamp Alumni
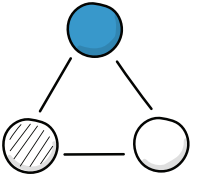
02 Insights about the bootcamp

→ The course provides a path for those who don't feel they are well-suited or have access to academic studies.

"I began to study Computer Science at IDC. I received a full scholarship under the condition that I would pass all my courses. I had a high GPA but I failed two courses at the end of my first year and therefore could not continue. The coordinators in the department recommended that I try a bootcamp. I decided to enter the industry and make some money so I could support myself while earning a degree."

"There is no other place that trains this many Ethiopian Israelis and grants them opportunity. Getting into an academic program in this field [is hard, as] our matriculation rates are not that high. Tech Career provides access for young people who no one encouraged to study 5 units of matriculation."

CROWN FAMILY PHILANTHROPIES

Voices from the Field
Focus Group with Ethiopian Israeli Bootcamp Alumni
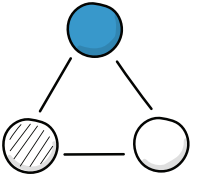
→ **Dormitory framework fosters a serious learning environment and contributes to the students' ability to complete the course successfully.**

"The dormitory setting really made it easier for me. If I was studying at home, I don't think I would have been able to achieve the same level of focus, knowledge, and understanding. There are distractions at home. Also, the fact that I knew I wasn't working – and that there was nothing else [I had to do]. I was just studying, and so I invested in it. From 9 to 5 we were with our lecturer and then we continued to study until 10 PM."

"It is definitely a successful framework. It's intensive, 5 days/wk, labs open all the time. It's not like other places. I knew I could start my day at 8 AM and finish at 10 PM by choice - if I want to sit and study, I have the opportunity to do so."

Voices from the Field
Focus Group with Ethiopian Israeli Bootcamp Alumni
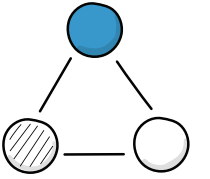
→ The organization's connections provide access to positions and interviews.

"The added value of working with the organization is networking. They have a ton of connections, which helps us land interviews. If you don't have friends in the industry, it's hard to have your CV get to the interviewers. Given that we, as a community, come from closed neighborhoods and have less exposure to the wider population, it's really hard to get into the industry without these connections."

"There is a lot of assistance and support from the organization. They send our CVs and we get interviews. There is an Alumni Team that helps us until we find work. There is a coordinator who knows me personally and refers me to interviews. From there – it's on us."

"The organization knows I'm working, but not in my field. They know I'm still looking – so they keep checking in and sending me job opportunities."

"When the organization's coordinator refers you to an interview, the likelihood is that they'll get back to you. If I try to submit my CV on my own, it's likely that I won't even receive a negative answer. I lack the knowledge of how to do it on my own – I would have liked them to give me the 'fishing rod' during the course and teach me how to do it myself, so that I would not be dependent on them after the course ."

CROWN FAMILY PHILANTHROPIES

Voices from the Field
Focus Group with Ethiopian Israeli Bootcamp Alumni
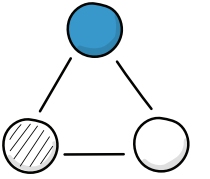
→ Soft skills, applied project

"The classes on identity were fascinating."

"Tech Career gives you more in that they teach you how to present and lecture - also [I benefited from] the workforce prep workshops."

"[It was] a rich experience. I am not so talkative and the bootcamp enabled me to present and lecture. I developed personally, not only professionally."

Chapter 5
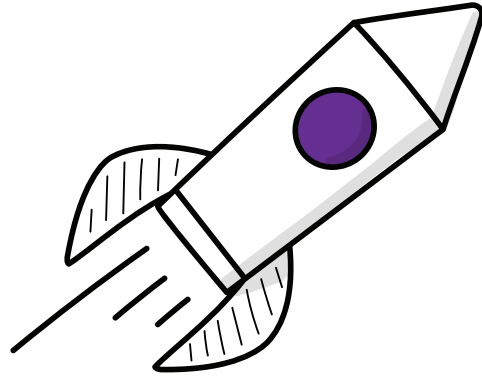
Main Insights and Recommendations

Main Insights
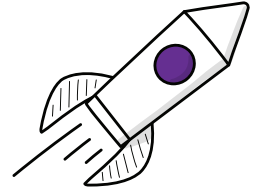
1 The goal of this research was to **describe a system, map working models and collect data** regarding bootcamps for underrepresented populations. The mapping showed that there is no unified system, no coherent, stable models for the most part, and the data, where exists, is often inaccessible, unsegmented and/or skewed.

+ Many players are active in this field.

+ The players vary across sectors: NGOs, business companies, governmental bodies.

+ Government budgets from several sources alongside investment and interest from companies and philanthropy.

+ Lack of centralization and fluidity of the field means potential to influence.

− Absence of a central body charged with overseeing the different programs and initiatives.

− Duplication and redundancy.

− Lack of consistent measurement and evaluation processes assessing and comparing the efficiency of different programs.

CROWN FAMILY PHILANTHROPIES

Main Insights
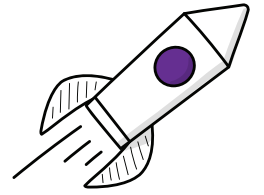
2 ▶ Successfully integrating underrepresented populations into quality employment in tech fields **requires a comprehensive process**. This process includes responses and programs prior to the bootcamp, during the bootcamp and following the bootcamp into employment and career.

Widening the "base of the pyramid"

Pretraining phase

- Early support and closing gaps in the education system
- Tech and STEM
- Gap year programs
- Access to higher education and bootcamps

Critical bootcamp components

Bootcamp phase

- Technological training relevant to market needs
- Workforce integration skills (CV, interview, LinkedIn)
- Soft skills, empowerment
- Scholarships* and subsidies
- In-built cooperation with future employers

Alumni and employers' support

Placement and beyond

- Placement assistance
- Subsidies for employers
- Mentoring for employees
- Supporting employees and employers in managing diversity
- Supporting career development

*A Ministry of Economy and Democracy of Institute study from 2021, found that scholarships for participants were important for course completion and successful integration into employment.

CROWN FAMILY PHILANTHROPIES

Main Insights
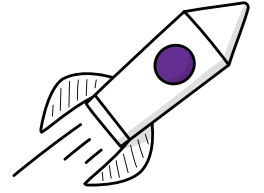
3

Governmental policies and budgets are increasingly directed to meet the market where it is

In the past		Currently/ideally
Focus on training	»»»	Focus on placement in employment
Rigid bootcamp frameworks	»»»	More flexible models that respond to market needs
Market-relevant content	»»»	Relevant content developed hand-in-hand with recruiting companies
Investment mostly in candidates	»»»	Investment also to incentivize employers/ensure close cooperation

However:

▶ Governmental players are often bureaucratic and un-coordinated.

▶ Government often does not measure outcomes consistently, nor effectively measures subgroups in the population.

▶ Tenders often force implementers to compromise on content and quality-envelope for lower prices.

NAS
Research & Consulting

CROWN FAMILY PHILANTHROPIES

Main Insights
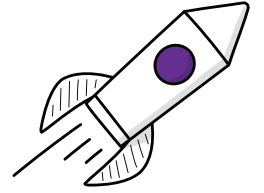
4

While no formal effectivity studies exist, mapping showed **a few elements that are critical to a bootcamp's success**:

◼ **The level of training (content, trainers) and its relevance to the industry's changing needs**
What are relevant positions? New opportunities? Sought-after skills?

◼ **The level and abilities of target audiences**
Compatibility between level of knowledge, education and economic abilities, with length, scope and content of bootcamp.

◼ **Active engagement and commitment of high-tech companies – future employers:**
• In the planning phase – re content, visibility, commitment.
• During training – practicum, participation of company staff as trainers, acquaintance of company with trainees.
• Support in placement, diversity management and career building.
• A-priori agreement to hire graduates ("internal bootcamps") and subsidies for employers are effective models.

CROWN FAMILY PHILANTHROPIES

Recommendations

Philanthropy can play an important role, complementing government, initiating new models, supporting scaling-up efforts, and professionalizing the field.
It is recommended to:

1 Speak with the two main policy makers – Ministry of Economy and Innovation Authority re policies, focus areas, joint ventures.

2 The field is ripe with opportunities - NGOs have the most stable models and highest motivation, businesses have the most impact. A combination between them can be very powerful and is a recommended model.

3 Map the industry's changing needs – new positions and spheres where competition is not yet tough.

4 Support the entire continuum as listed above - preparation prior to the bootcamp; in-built employer involvement; for support trainees during the bootcamp (soft skills, scholarships, per diem, level of trainers); accompaniment into successful, long-term employment.

5 Ensure measurement and evaluation, to develop body of knowledge in the field.
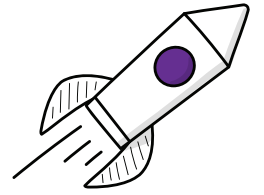
Annex A

Major Government Decisions
and Policies:
Integration of Diverse
Populations into High-tech
Industry

Government Decisions Pertaining to Bootcamps for **Both Arab Society and Ethiopian Israelis:**

01

GR-2292 (January 2017): "National Program for Growth of Skilled-Workforce in the High-tech Industry" -

- Focused on enhancing skilled manpower for the high-tech industry.
- Advanced programs to grow the number of students in high-tech fields.
- Advanced non-academic trainings.
- Included programs promoting the integration of underrepresented populations, with emphasis on women, ultra-orthodox, and minorities.

02

GR-2594 (April 2017): "Determining Outcomes and Measurements for Employment Programs" -

- Created a team led by the Ministry of Labor and Welfare and the Ministry for the Development of the Periphery, the Negev and the Galilee.
- The team was tasked with creating measurements to examine the integration of underrepresented populations in various workforce-enhancement programs.

Government Decision that Pertains Only to Arab Society:

03

GR-922 (December 2015): "Economic Development in Minority Populations, 2016-2020"
- Included meaningful changes in the allocation of resources to Arab society, but no focus on high-tech.
- Included relatively small budgets for integration of Arab engineers into high-tech (via a tender operated by Tsofen and itworks); support for Arab entrepreneurs (via the Innovation Authority); and subsidies for employers (via the Ministry of Economy).

04

GR-2397 (February 2017): "Socio-Economic Development Program for Bedouin Society in the Negev 2017-2021"
- Pertained to human capital development within Bedouin society and integration into the workforce with some references to high-tech and advanced industry.

05

GR-550 (October 2021): "Economic Program to Bridge the Gaps in Arab Society 2022-2026"
- New 5-year plan emphasizes for the first time integration of Arab citizens into high-tech.
- Created an inter-ministerial team for the implementation of the sections that deal with technological innovation, high-tech, and improving employment rates.
- Includes unprecedented investment of ILS 600 million for Arab high-tech integration.

06

GR-1279 (March 2022) : "Program for Economic Development in Bedouin Society in the Negev 2022-2026"
- A 5-year plan that aims to bridge gaps and advance integration of Bedouin society through integration in the workforce and economy. High-tech is mentioned peripherally.

Government Decisions that Only Pertain to Ethiopian Israelis:

07

GR-4624 (May 2012): "Improving the Absorption of Ethiopian Israelis"

○ Called to build Employment Counselling Centers with the goal of supporting the integration of Ethiopian Israelis into quality employment.

Annex B

Profiles of Organizations Mapped

Organizational profiles include bootcamps mapped within this research – most organizations conduct additional training models and/or further activities beyond the scope of this mapping.

Implementing Organization

Kav Mashve
NGO

Character and Rationale of the Organization

Founded in 2007, Kav Mashve's goal is to advance Arabs with higher education and increase their representation in all employment sectors in Israel.

Bootcamp Target Population

Arab Society

Students and new graduates of Computer Science, relevant engineers and exact sciences.

Structure of Bootcamp

Position: DevOps, AWS, Full stack
Scope: approx. 250 hours, 5 months, 2 days/wk, 4 hrs/day + homework
Participation fee: ILS 3,000

Contents of Bootcamp

Practical component: Approx. 6 weeks of hands-on practice: an internal project in teams, in addition to a project in collaboration with industry companies; participants present final products to the company.
Workforce integration and soft skills: Interview preparation, CV, LinkedIn, presentations, personal mentors, connections to employers, contract negotiation support.

Uniqueness

Intensive prep course upon entrance – 100 hours of self-prep, after which there is entrance exam and interview. Those who pass know that they can program professionally.

Partnerships – Employers, Government, Philanthropy

Full philanthropic funding.
Partnership with multiple companies around final, applied project.

Insights, conclusions, tips

The bootcamp was developed following insights from a previous bootcamp model (executed in 2018-2020 under Innovation Authority, Track 34).
1. The intensive previous model (5 full days a week) did not work for participants. Therefore current model is lighter and allows more flexibility (e.g. to work in parallel).
2. Previously worked with graduates from non high-tech spheres, but they were harder to place. Now work on "filling the gap" for graduates of computer science and tech-related programs via short course with practical experience.

Implementing Organization

Tsofen
NGO

Character and Rationale of the Organization

Founded in 2008, Tsofen is an Arab-Jewish organization that strives for fair representation of Arab society in high-tech - as an engine of economic growth and to foster shared society. Integrates Arab professionals into the high-tech field, assists high-tech companies open offices in Arab towns and works on policy change in this sphere.

Bootcamp Target Population

Arab Society

Students in their last year, or graduates of university/college high-tech programs (First degree in Engineering, Computer Science, Information Systems, Electrical Engineering, Math, and Statistics, high-tech relevant practical engineers).

Structure of Bootcamp

Position: Full stack
Scope: 380 hours, 3 months, 4 days/wk, 8 hrs/day
Participation fee: ILS 1,000, part of governemnt tender

Contents of Bootcamp

Practical component: Approx. 80 hours of hands-on project, ideally with an industry company. Work in teams, periodical presentations of products to simulate industry practices.

Workforce integration and soft skills: 20-30 hours of workshops and one-on-one work: CV, LinkedIn, HR and tech interview preparation, self intro, English, email writing, site tours, meetings with role models and mentors from the industry, connect to employers.

Uniqueness

Nearly 15 years' experience; work in close partnership with governmental bodies; flexibility of course informed by the needs in the field (e.g., courses offered at University of Haifa and ORT College).

Partnerships –
Employers, Government, Philanthropy

Ministry of Economy - Forsatech, 5 courses each year.
Israel Innovation Authority -Track 45.
Ministry for the Development of the Periphery, the Negev and the Galilee - 7 courses.
Additional support from philanthropy.

Insights, conclusions, tips

Programs run in full collaboration with the Israel Innovation Authority together with one employer (e.g., Philips) are more successful. It is a model that focuses first on workforce integration, as companies are incentivized to offer and guide the course to meet the company's needs.

Implementing Organizations

Young Business Leadership
NGO

in partnership with
Portland Trust Foundation

Character and Rationale of the Organization

Founded in 2000 for the professional advancement of residents of the social and geographic peripheries. Much of the work focuses on Haredi society. In partnership with Portland Trust operates the BeyondDev bootcamp. First cohort opened in May 2022.

Bootcamp Target Population

Arab Society

Arab graduates of higher education
Cohort 1 – Automatic QA – graduates of STEM tracks.
Cohort 2 – Manual QA – graduates of non-STEM tracks.
Goal: Women are at least 50% of program alumni.

Structure of Bootcamp

Position: Manual and Automatic QA
Scope: 500 hours, 16 weeks, 5 days/wk, 8 hrs/day
Participation fee: ILS 4,500

Contents of Bootcamp

Practical component: Approx. 100 hours of hands-on project.
Workforce integration and soft skills: 80 hours of workshops: time management, team work, self intro, intro to high-tech, LinkedIn. Mentors from the industry will accompany participants into employment.

Uniqueness

Determined that QA is the most relevant field. When accepted to bootcamp participants know they will be placed, but not with which employer or in what position.

Partnerships – Employers, Government, Philanthropy

Partnership between Israel Innovation Authority (Track 44), Portland Trust, and Sharon Municipal Cluster.
Courses built in close collaboration with employers to meet their needs.

Insights, conclusions, tips

First cohort still in progress.

Implementing Organization

Fursa
NGO

Character and Rationale of the Organization

Initiated by Portland Trust in October 2020 to ensure talented, outstanding Arab engineers and STEM graduates are properly trained, hired and integrated within the Israeli high-tech Industry.

Bootcamp Target Population

Arab Society

First degree graduates from high-tech disciplines in leading universities and colleges.

Structure of Bootcamp

Position: DevOps
Scope: 320 hours, 8 weeks, 5 days/wk (4 technological, 1 professional training), 8 hrs/day
Participation fee: ILS 2,500

Contents of Bootcamp

Practical component: Approx. 100 hours of hands-on work on project, integrating all tech components.
Workforce integration and soft skills: 60 hours of workshops: preparation for the high-tech industry, cultural orientation, preparation for interviews, CV, presentations. Guest lecturers from industry companies.

Uniqueness

Due to rigorous selection process, those who are accepted to the course are almost guaranteed a job. Cultural gaps are bridged by working with employers and candidates on cultural differences. Ongoing contact via WhatsApp groups with both employees and employers after the course ends.

Partnerships – Employers, Government, Philanthropy

Companies define needs and recruitment objectives in advance of the course. The course is fully funded by Portland Trust.

Insights, conclusions, tips

1. Programming training requires extensive practical experience.
2. Bootcamps require continual accompaniment and oversight by a professional who understands the technology that is being taught.
3. Accompanying alumni as they accept a position and integrate into a company is essential.

Implementing Organization

Appleseeds
NGO

Character and Rationale of the Organization

Founded in 2000, Appleseeds works to bridge societal gaps in employment and education, to narrow digital gaps.

Bootcamp Target Population

All populations in socio-geographic periphery – mixed bootcamp (50% Jewish, 50% Arab)

Candidates with degrees in a non-high-tech fields or no degree at all.
Israel Innovation Authority criteria: 50% without academic degrees, up to 50% with degrees out of which only 25% can have advanced degrees.

Structure of Bootcamp

Position: Full stack, AWS practitioner
Scope: approx. 600 hours, Full stack – 750 hours, 26 weeks, 5 days/wk, 8 hrs/day
Participation fee: ILS 4,000, discount and subsidies an option

Contents of Bootcamp

Practical component: Approx. 2 months long - hands-on projects in teams with industry companies, ideally in company sites.
Workforce integration and soft skills: Focused workshops such as: praparation for interviews, presentations, CV, LinkedIn; in addition workshops about identity and diversity: dealing with cultural barriers and issues of working in a mixed environment.

Uniqueness

Arab-Jewish mixed course in geographic, social, and digital periphery. Trying to reach candidates who have not intergated into other frameworks and walk them through the process. Sometimes operate a prep course or teach laguages prior to bootcamp.

Partnerships –
Employers, Government, Philanthropy

Israel Innovation Authority – Track 34 & 44.
Collaboration with employers for final applied project (last two months of course). Some alumni are accepted into positions in these companies.

Insights, conclusions, tips

1. The more exposure to companies/potential employers, the better the placement prospects.
2. Early exposure to diversity and learning how to cope with difference and complexity is critical.
3. The Arab-Jewish framework is better for Arab participants as it prepares them to work with Jewish peers.

Implementing Organization

itworks
NGO

Character and Rationale of the Organization

Founded in 2006 to close social gaps in employment and foster diversity in the high-tech workforce in Israel through professional training.

Bootcamp Target Population

Arab Society

Students (second year and above) or graduates in STEM disciplines, with no relevant work experience.

Structure of Bootcamp

Position: DevOps
Scope: 200-250 hours, 7 weeks, 5 days/wk, 8 hrs/day
Participation fee: Usually, free. In case of government tenders that requires placement, costs ILS 1,000, which is returned if graduates are placed

Contents of Bootcamp

Practical component: 20 hours of work on a hands-on personal final project. When there is a collaboration with a company, the project is based on a need defined by a company. Participants present to company.
Workforce integration and soft skills: 30 hours of workshops: job search processes, CV, LinkedIn, self intro, presentation, HR interview preparation, mentorship by itworks staff.

Uniqueness

Focus on diversity and inclusion.

Partnerships – Employers, Government, Philanthropy

100% government funding. Ministry of Economy – Open Track for training and placement
In contact with several companies, but no full partnership.

Insights, conclusions, tips

Government tender defines target population as those who are unemployed for at least two months from professional positions, which is limiting for the organization.

Implementing Organization

Tech-Career
NGO

Character and Rationale of the Organization

Founded in 2002 to provide young Ethiopian Israelis the opportunity to enter high-tech as a means towards socioeconomic mobility.

Bootcamp Target Population

Ethiopian Israelis

Ethiopian Israelis after army or national service. No academic requirement, but people with academic background are also accepted.

Structure of Bootcamp

Position: Full stack, CCNA, CCNP Core, DevNet, QA Engineer, Automation Developers
Scope: approx. 2,000 hours, 8-10 months, 5 days/wk, 8 hrs/day – includes dormitory
Participation fee: ILS 2,000

Contents of Bootcamp

Practical component: Hands-on projects that are ideally constructed in collaboration with industry companies and mentored by company staff. Hackathon.
Workforce integration and soft skills: Half a day a week is dedicated to skills: CV, interview simulations, financial workshops, social networks, tours, lectures, workshops. One-on-one mentoring, connection with employers, guidance during interview process.

Uniqueness

Dorm setting fosters intensive and focused learning environment. The program helps students overcome financial constraints by registering them with Israeli Employment Services as job seekers, so they recieve unemployment payments.

Partnerships – Employers, Government, Philanthropy

Government funding ranges from 30-80% depending on track. Philanthropy primarily supports housing, and general administrative expenses.
Government Funding: Ministry of Economy, Ministry of Defense, Israel Innovation Authority.
Jewish Agency, JDC-Tevet.

Insights, conclusions, tips

Added value: dormitory environment and close group dynamics. Diverting participants after intense training and creating solidarity.

Implementing Organization

Ness
Private Company

Character and Rationale of the Organization

Founded in 1999, a leading information technology service provider that employs over 4,000 professionals in Israel. Ness is committed to diversity and inclusion and places special emphasis on Arab employees

Bootcamp Target Population

General population. Goal: 30% of training participants - Arabs.

Mostly practical engineers.

Structure of Bootcamp

Position: Depending on company needs
Scope: approx. 500 hours, 3-3.5 months, 5 days/wk, 9 hrs/day
Participation fee: No fee. Participants commit to work at Ness or one of its clients for two years at ILS 12,000 per month. If they break this contract, they must pay course cost of ILS 18,000.

Contents of Bootcamp

Practical component: Numerous projects that practice independant and team work.
Workforce integration and soft skills: Approx. 10% of course hours are dedicated to skills: CV, LinkedIn, interview simulations, presentations. Anyone accepted to Ness receives mentorship.

Uniqueness

Bootcamp based on needs of Ness and its clients, therefore placement is high – 80%. Selection process prior to bootcamp.

Partnerships – Employers, Government, Philanthropy

Israel Innovation Authority – Track 44 & 45.
Government subsidies for salary based on placement success.
Participants placed with Ness or its clients.

Insights, conclusions, tips

1. The most effective approach is incentivizing employers since they will accept minority populations only for economic incentivization.
2. Academic-degree holders will always be at an advantage to those who just completed a bootcamp. However, bootcamps can help integrate employees into specific jobs that the employer needs.

Implementing Organizations

Elevation
training institute

in partnership with

Atidna
NGO

Character and Rationale of the Organization

Founded in 2014, Elevation is a leading high-tech training institute, working on behalf of several companies to train candidates in data, product, development, marketing, sales, and recruitment. The company's Employment Accelerator recruits candidates with no high-tech background, trains them and connects with potential employers. Atidna was founded in 2018 to advance shared-society and mutual respect among Israel's citizens. It works to foster a strong Arab community that is proud of its culture and heritage and is integrated into Israeli society.

Bootcamp Target Population

Arab society

Practical engineers and graduates of first-degree programs in Computer Science, Software & Electrical Engineering, Information Systems, and Math – who do not currently have a full-time job.

Structure of Bootcamp

Position: Full stack
Scope: 700 hours, 4 months, 5 days/wk, 9 hrs/day
Participation fee: No fee – participants must volunteer 60-80 hours with Atidna

Contents of Bootcamp

Practical component: Hands-on project, mid- and end of course hackathons that last several days in which the participants complete a full development cycle.
Workforce integration and soft skills: 180 hours of "Power Skills": CV, interview preparation and simulations. Atidna offers workshops on identity issues. Connect to recruitment companies and accompany in job search process.

Uniqueness

Collaboration between technological training institute and Arab-led NGO. Training institute responsible for candidate recruitment, syllabus, applied projects, connection with employers, and job placement. Mandating volunteerism in the community is a unique component.

Partnerships – Employers, Government, Philanthropy

Usually 100% philanthropy, sometimes support from local municipalities. Do not participate in government tenders.

Insights, conclusions, tips

1. Adapt selection process and course to target populations needs.
2. Don't compromise for the students – the goal is placement.
3. Find companies that are diversity and inclusion focused, and who have hired Elevation alumni. Primarily large, open-minded, American companies.
4. A lot of one-on-one work with students, mentoring and role modeling.

Implementing Organization

Lotus
NGO

Character and Rationale of the Organization

Founded in 2019 with the goal of providing employment opportunities for young, religious, Druze women in Israel's periphery. The organization provides high-tech training and assists particpants to integrate into the field while remaining in their town.

Bootcamp Target Population

Druze women

Priority for candidates with no experience or graduates of degrees from different fields. Recently, both engineers and practical engineers have also been accepted.

Structure of Bootcamp
Position: Full stack
Scope: 400-600 hours, 6-8 months, 4-5 days/wk, 6 hrs/day
Participation fee: ILS 5,000, flexibility around timing of payment, and assist those in need.

Contents of Bootcamp

Practical component: Participants experience a full development cycle of a personal hands-on project, ongoing throughout the bootcamp.
Workforce integration and soft skills: Over 100 hours of skills, group coordinator meets the group every two weeks. Includes basic employment preparation and personal and group processes, as well as high-tech specific tools: CV, LinkedIn, interview preparation. Continue to accompany participants after they enter a position, by communicating with their managers.

Uniqueness

Hub that allows religious women to train and then work while staying inside their village, helps overcome cultural hurtles.

Partnerships – Employers, Government, Philanthropy

Ministry of Economy – Alfanar/Riyan. Philanthropy – Portland Trust and others.

Insights, conclusions, tips

1. To succeed you really need to understand each participant – who is she? You need to get to know her and understand her dreams and motivations.
2. Key for successful placement – characterize candidate:
Character profile of programmer – solution-oriented, advanced logic, energetic, gets bored easily.
Character profile of QA – birds-eye view, sees solutions, knows how to search, critical thinker who likes consistency and doesn't get bored easily.

Implementing Organizations

Siraj
NGO

in partnership with

Siraj Technologies
social impact
high-tech company

Character and Rationale of the Organization

Founded in 2017, Siraj integrates Negev Bedouin into the high-tech industry by generating positions (company), and training employees from Bedouin society to fill them (NGO). Siraj NGO is 60% owner of Siraj Technologies, whose business is IT products and services. Both are located in the Gav Yam Tech Park in Beer Sheva.

Bootcamp Target Population

Bedouins in the Negev

College and university graduates of Computer Science or Software Engineering (mostly Sami Shamoon College of Engineering in Beer Sheva). Those with a degree in Electrical or Mechanical Engineering take prep courses prior to entering bootcamp.

Structure of Bootcamp

Position: Based on needs of Siraj Technologies
Scope: 1000 hours, including practical experience, 6 months, 5 days/wk, 8 hrs/day
Participation fee: No fee, participants receive a scholarship of ILS 8,000 per month.

Contents of Bootcamp

Practical component: During the first half of the bootcamp participants work on two projects; in the second half, the method is OJT (on-the-job-training), during which the participants integrate into Siraj Technologies' teams and particiapte in work hands-on.

Workforce integration and soft skills: The OJT component continually simulates work in the industry: morning and weekly meetings, updates, utilizing industry project management tools. In addition, workshops for different skills: LinkedIn, interview preparation, teamwork practices. Most alumni begin work at Siraj Technologies.

Uniqueness

Target audience – Negev Bedouin; company owned by NGO, profits go towards training and scholarships; students receive economic support; 3 months of OJT.

Partnerships – Employers, Government, Philanthropy

50% government funding through Israel Innovation Authority – was Track 45, now through Track 44.
Developing partnership with Ministry for the Development of the Periphery Negev and Galilee, and the Ministry of Welfare and Social Affairs.
Remaining 50% of funds from philanthropy.

Insights, conclusions, tips

1. Job placement is first and foremost, then training.
2. Essential to have a company involved that understands the industry and technology.
3. Unique challenges in Bedouin society result from low quality education, poverty, and lack of physical infrastructure (electricity, cellular service, internet). It is a long journey to help young Bedouin reach a competitive position in the industry.

Implementing Organizations

Enter
an initiative of
several entrepreneurs
in cooperation with
Appleseeds
NGO
and
TalenTeam
headhunting
company

Character and Rationale of the Organization

Individuals connected to Bedouin society and high-tech came together to operate a bootcamp to assist Bedouin integrate into the industry. Second cohort is currently in planning stages.

Bootcamp Target Population

Bedouins in the Negev

Graduates of tech-related academic programs, with strong technological orientation.

Structure of Bootcamp
Position:
Development
Scope: 1,100 hrs, 7 months, 5 days/wk, 8 hrs/day
Participation fee: No fee

Contents of Bootcamp

Practical component: After the technical training part, participants were supposed to intern in companies that collaborated in the bootcamp, and work on projects on site. Due to Covid-19 closures, the participants worked individually.
Workforce integration and soft skills: In addition to job and interview preparation workshops, high-tech exposure activities in the collaborating companies were held for participants and their families.

Uniqueness

The bootcamp was built in full collaboration with high-tech companies with offices in Beer Sheva - including course design, recruitment, training, applied projects, and funding assistance. Extensive work was done to address significant cultural gaps.

Partnerships – Employers, Government, Philanthropy

Partial funding from Ministry of Agriculture (then-responsible for Socioeconomic Development in Bedouin society), part from philanthropy and close collaboration with Nokia, Mellanox, Dell, DBMotion, Wix, Cadence, Invidia with in-kind support.

Insights, conclusions, tips

1. Important to preliminary map and work with relevant high-tech companies.
2. Invest in exposing both employers and participants to new cultural norms.

Implementing Organizations

Alfanar
NGO

in partnership with

Galil Software
high-tech company

Character and Rationale of the Organization

Alfanar focuses on economic and social empowerment in Arab society, specifically, integration into the workforce. Established to increase employment rates and length of employment in Arab society, particularly among women and 60+. Alfanar operates Riyan Employment Centers in the North.
Galil Software is an onshore provider of R&D software services located in Nazareth, specializes in QA Automation and DevOps solutions.

Bootcamp Target Population

Arab Society

STEM teachers who are graduates of academic programs.

Structure of Bootcamp

Position: Full stack
Scope: 500 hours, 150 independent study, 6 months, 2-3 times/wk
Participation fee: ILS 1,500

Contents of Bootcamp

Practical component: 120 hours of hands-on tasks and projects given by Galil Software staff, who also guide the participants and give feedback.
Workforce integration and soft skills: 30-40 hours of workshops: meeting with role models, CV, interview preparation, practical English, social networks. Intention that Galil Software will recruit many of the graduates.

Uniqueness

Model of collaborative arose from Galil Software's need for full stack professionals. Alfanar is responsible for managing the project.

Partnerships – Employers, Government, Philanthropy
Funding comes from Riyan's government budget for employment training (Ministry of Welfare and Social Affairs), with additional subsidies for course tuition from the Israel Innovation Authority.

Insights, conclusions, tips

1. Collaboration needs to emerge from companies needs. The training allows for in-depth learning, and company gets first pick of graduates.
2. The company's involvement and guidance in building the syllabus, delivering lectures, and funding must be balanced with what the company gains from the collaboration.

Implementing Organization

Moona
NGO

Character and Rationale of the Organization

Founded in 2013 in Majd al-Krum, Moona aims to address the rifts and socioeconomic gaps in Israeli society by providing innovation space for technological training, bringing together various populations and cultures throughout the region.

Bootcamp Target Population

Arab Society
Mixed Jewish-Arab courses

Graduates of higher education or high school graduates with advanced matriculation in STEM subjects. Participants are primarily engineers, practical engineers, technicians, and STEM teachers.

Structure of Bootcamp

Position: Practical Engineering
Scope: approx. 350 hrs, 2 months, 5 days/wk, 8 hrs/day
Participation fee: No fee

Contents of Bootcamp

Practical component: Moona's concept of training is project-based learning, so practical exercises are integrated throughout the bootcamp. In addition, there is a hands-on project that is submitted at the end of the training, which the participants implement end-to-end.

Workforce integration and soft skills: "Critical Skills" are focused on: CV, interview simulations, conflict management, presentations. In additions, Moona connects with employees, offers individual guidance from organizational psychologist and through job placement.

Uniqueness

Emphasis on physical workspace that is technological, and engineering focused. Moona specializes in PBL (Project Based Learning). Trainings combine programming and materials, teaching participants how to approach process from start to finish.

Partnerships – Employers, Government, Philanthropy

Israel Innovation Authority – Track 44 & 45. Ministry of Economy – all tracks, Employment Services, Riyan.

Insights, conclusions, tips

Importance of training that combines programming and materials - practical experience for engineers who want to integrate into advanced segments of industry.

Implementing Organizations

LaMerchak
governmental program (under municipalities)

in partnership with
Qualitest
high-tech company

Character and Rationale of the Organization

LaMerchak was established in 2014 as a pilot of the Ministry of Labor and JDC to promote quality employment among Ethiopian-Israelis. The program operates through municipalities, serving welfare populations and the general population, with an emphasis on ages 20-44. Counseling is provided for academic and professional studies, guidance and preparation for employment, and professional training.
Qualitest is a leading international QA and testing company that provides solutions to a large number and variety of organizations in Israel.

Bootcamp Target Population

Ethiopian Israelis

No threshold requirement for education. Basic level of English is required.

Structure of Bootcamp
Position: QA
Scope: 200 hrs, 16 wks, 3 days/wk, 4 hrs/day
Participation fee: ILS 5,000. Subsidy for participants through LaMerchak, youth centers, municiplaities.

Contents of Bootcamp
Practical component: Hands-on practice and work on projects.
Workforce integration and soft skills: LaMerchak gives the particiapants individual preperation for the employement market: CV, LinkedIn, interview preparation. Qualitest recruits graduates to the company and its clients, prepares for interviews.

Uniqueness

Collaboration between a high-tech company and a government program that serves Ethiopian Israelis. LaMerchak advertises, holds exposure days, recruits and conducts initial screening for candidates, who then go through the Qualitest's screening. In each Qualitest training cycle, at least five places are allocated to candidates who come from LaMerchak. The bootcamp is short and enables participants a quick entry into high-tech as software testers.

Partnerships – Employers, Government, Philanthropy

LaMerchak is a program that operates under a special government budget. In addition it provides funding to subsidize cost to participants through "training vouchers" from the Ministry of Economy.

Insights, conclusions, tips

The collaboration enables each body to contribute to the partnership its expertise and meet its respective need, thus bringing about a relatively massive integration of Ethiopian-Israelis into the high-tech industry.

Annex C

List of Interviewees, Field Organizations (by alphabetical order)

1. Adar Shoval, Director of Employment, Beyond Dev
2. Ayelet Cohen, Projects Director, itworks
3. Billy Cohen, Research and Development Manager, Appleseeds
4. Dror Gonen, CEO, Galil Software
5. Fadi Elobra, Co-Founder & Partners Relations Manager, Enter
6. Fadi Hashem, Beit Hakerem Director, Moona
7. Fahima Atawna, CEO, Siraj
8. Gal Koll, General Manager-Israel, Elevation
9. Maisa Halaby-Elshiekh, Founder & CEO, Lotus
10. Malek Hilf, Director of Vocational Training, Al Fanar
11. Morit Drori, Ex-COO, Tech Career
12. Noa Shimshoni, Head of Training and Recruitment, Tsofen
13. Omer Dror, V-Ness Business Division Manager, Ness
14. Sagy Galor, Chief Technology Office, Fursa
15. Shireen Zoaby, Technological Training Project Manager, Kav Mashve
16. Sobhi Sgier, Cooperation Director, Moona
17. Walaa Ibrahim, Director of Human Capital Development, Tsofen
18. Ziv Mandl, CEO, Matrix R&D Services and Offshore- Matrix, John Bryce

Annex D

List of Interviewees, Government Bodies (by alphabetical order)

1. Asher Nevo, High-tech Human Capital Training, Business Development, Innovation Authority
2. Aviya Asher, Program Manager, Innovation Authority
3. Awake Mengisto, Director, Ethiopian Young Adults, Ministry of Economy
4. Beny Tzarfati, Director of Economic and Employment Planning, Socio-Economic Development Department, Ministry of Welfare and Social Security
5. Carmit Polak-Cohen, Director of Training Ministry of Economy
6. Chen Keati, Director, Business Development, Professional Training and Manpower Development, Ministry of Economy
7. Gal Yaakobi, Director, Arab Israeli Employment Unit, Ministry of Economy
8. Loui Jaber, Director, Arab Society Department, Ministry of Economy
9. Moussa Sliman, Ministry of Social Equality
10. Naram abu Harfa Samara, Director, Arab Society Department, JDC-TEVET
11. Roi Levanon, Head of Innovation, Research and High-Tech Employment, Labor Division, Ministry of Economy
12. Sami Lahyani, Director of economic Development Department, Ministry of Social Equality
13. Yael Harmatz, Director, Knowledge Development, JDC-TEVET