

The Higher Education System Celebrates the 60th Anniversary of the Council for Higher Education and 70 Years of Academic Excellence

The Major Accomplishments of the Israeli Higher Education System:

- **OECD Ranking** - Israel ranks second in the world in tertiary attainment among 25-64-year-olds
- From a multiyear perspective** - The number of students enrolled in an institution of higher education in Israel has become increasingly stable
- From a multiyear perspective** - The number of students enrolled in a graduate program has increased
- **The national plan to boost hi-tech programs:**
 - A. Engineering is now the largest program of study in Israel for the first time.
 - B. One of every four students enrolled in a program of higher education in Israel studies engineering or computer science.
- **Making higher education more accessible to the socioeconomic periphery** - More than 45,000 bachelor's degree students (27%) come from towns located in low socioeconomic clusters (Clusters 1-4), which is significantly higher than the overall percentage of the population living in these towns (19.6%)
- **The revolution in making higher education accessible to the Arab sector** - The designated goal was achieved three years earlier than originally planned
- **The vision of the new campus** - A transition to active and digital learning
- **More powerful research** - Budgets, academic publications, and procuring research grants

- A. Significant increase in research grant budget - investment of approximately NIS 1.5 billion a year
- B. Multiyear plan for the establishment and upgrade of research infrastructure
- C. Boosting of flagship research programs - placing Israel at the frontier of international expertise
- D. Procuring research grants and putting out academic publications - significant increases from a multiyear view

Budgeting and Planning Committee Chairwoman Professor Yaffa Zilbershats: "The Israeli higher education system has been making tremendous strides forward. The OECD ranked Israel second in the world in academic education among 25-64-year-olds along with impressive achievements in the spheres of hi-tech and in making academia more accessible to the Arab sector. There has been a significant increase in investments in research and in the number of academic publications. In addition, we will launch the vision of 'the new campus' this year, which will create a new and improved academic experience through digital and active learning while also facilitating collaboration between academia and industry."

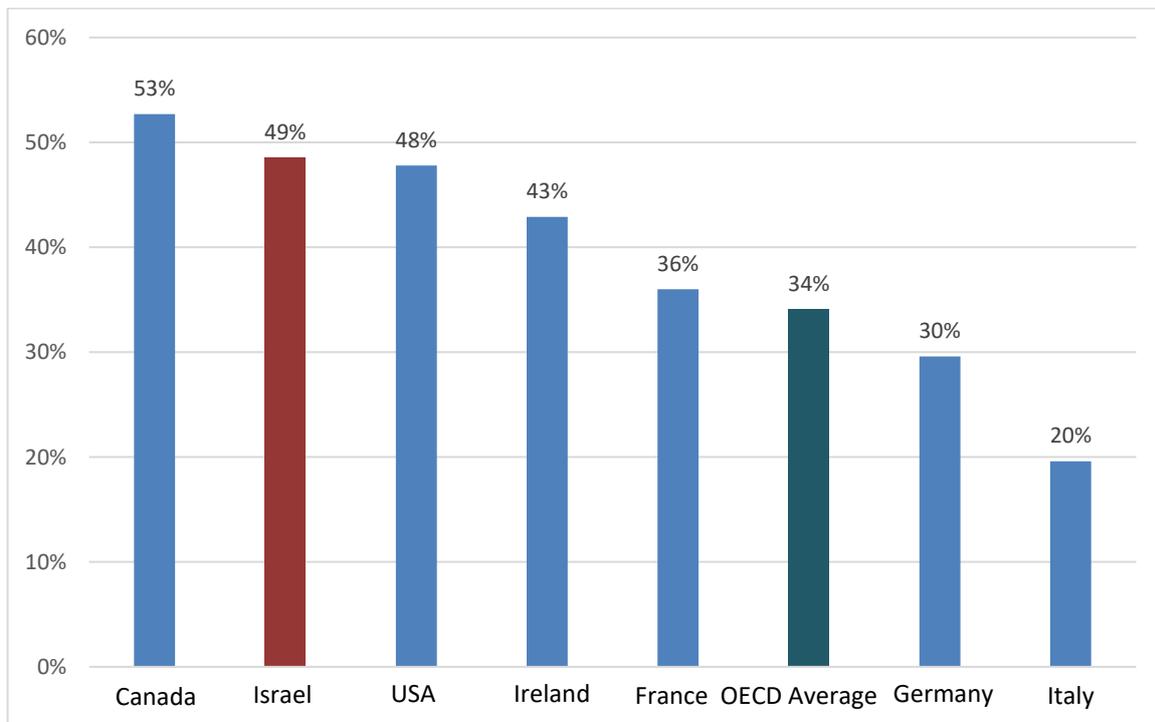
Council for Higher Education Deputy Chairman Professor Ido Perlman: "The Israeli higher education system is characterized by academic excellence in research and instruction along with the accessibility of academia to broad swaths of society while providing support and assistance to students. Academia is the engine of Israeli society. As such, it will continue to lead the State of Israel in the years to come to impressive achievements in the sciences and will work to integrate all strata of society into the fields of industry and research, with an emphasis on gender, the socioeconomic periphery, and special populations."

The 2018-2019 school year will mark the 60th anniversary of the Council for Higher Education and 70 years of Israeli academic excellence. In 1948, there were about 1,600 university students in Israel in three universities: The Technion, Hebrew University, and the Weizmann Institute. Since then, over the past 70 years, the Israeli academic system has grown significantly and now includes 62 institutions of higher education: 8 research universities, the Open University, 20 publicly funded colleges, 12 private colleges, and 21 teachers' colleges. The higher education budget is NIS 11.5 billion, the highest budget allocation since the establishment of the state.

1. OECD Ranking: Israel ranks second in the world in terms of the number of academics with post-secondary education among 25-64-year-olds.

The most recently published OECD report ¹ (September 2018) ranked Israel in second place in the world (after Canada) in the percentage of native citizens ages 25-64 who have post-secondary and academic education (48.5%).

➤ The OECD Report: The Percentage of Academicians with Post-Secondary and Higher Education Among 25-64-Year-Olds



¹ EDUCATION AT A GLANCE, 2018

➤ **Multiyear Perspective - The Number of Students Enrolled in a Higher Education**

Program in Israel: The number of students enrolled per year in a higher education program has become stable though there has been a slight decline in the number of undergraduate students. This is primarily for demographic reasons as the growth rate of the relevant age bracket has decelerated.

Estimates expect 306,600 students to be enrolled in institutions of higher education in Israel in 2018-2019, including: 230,800 undergraduate students, 63,400 secondary-degree students, 11,400 doctoral students, and 1,000 certificate (associate degree) students². Over the years, the growing demand for higher education has brought about far-reaching changes in the structure of the Israeli higher education system, which has seen a more than 300% increase in the number of students enrolled in undergraduate studies since the early of the 1990s (when many new colleges were founded in Israel). However, after experiencing growth in the number of students enrolled in a higher education program each year over a long period of time, the numbers have stabilized and decelerated over the last few years (with about 300,000 students now enrolled across the board for all degrees). This phenomenon can be explained by the maturation of the system, which has relied overall on a steady number of eligible individuals taking the matriculation exams and in particular on those among said group meeting the universities' admission requirements, and by the demographic changes shown by the growth rate of the age bracket encompassing those most likely to enroll in institutions of higher education³.

➤ **Multiyear Perspective - An Increase in the Number of Students Enrolled in a Graduate Program**

The increase in the number of advanced degree students also continued in the 2017-2018 school year: An analysis of the data shows that since the start of the 21st century, the number of secondary-degree students has nearly doubled. Data shows that in the 2017-2018 school year, 60,355 students were enrolled in a secondary-degree program versus just 30,915 in 2000. The trend was similar for doctoral degree programs, as 11,350 students were enrolled in such programs in the 2017-2018 school year versus just 6,650 in the year 2000.

² The numbers forecasted include those enrolled at the Open University.

³ The student data appearing in this report was taken from the Israeli Central Bureau of Statistics in cooperation with and under the guidance of the Council for Higher Education's Planning and Budgeting Committee.

➤ **Multiyear Perspective - Students by Degree**

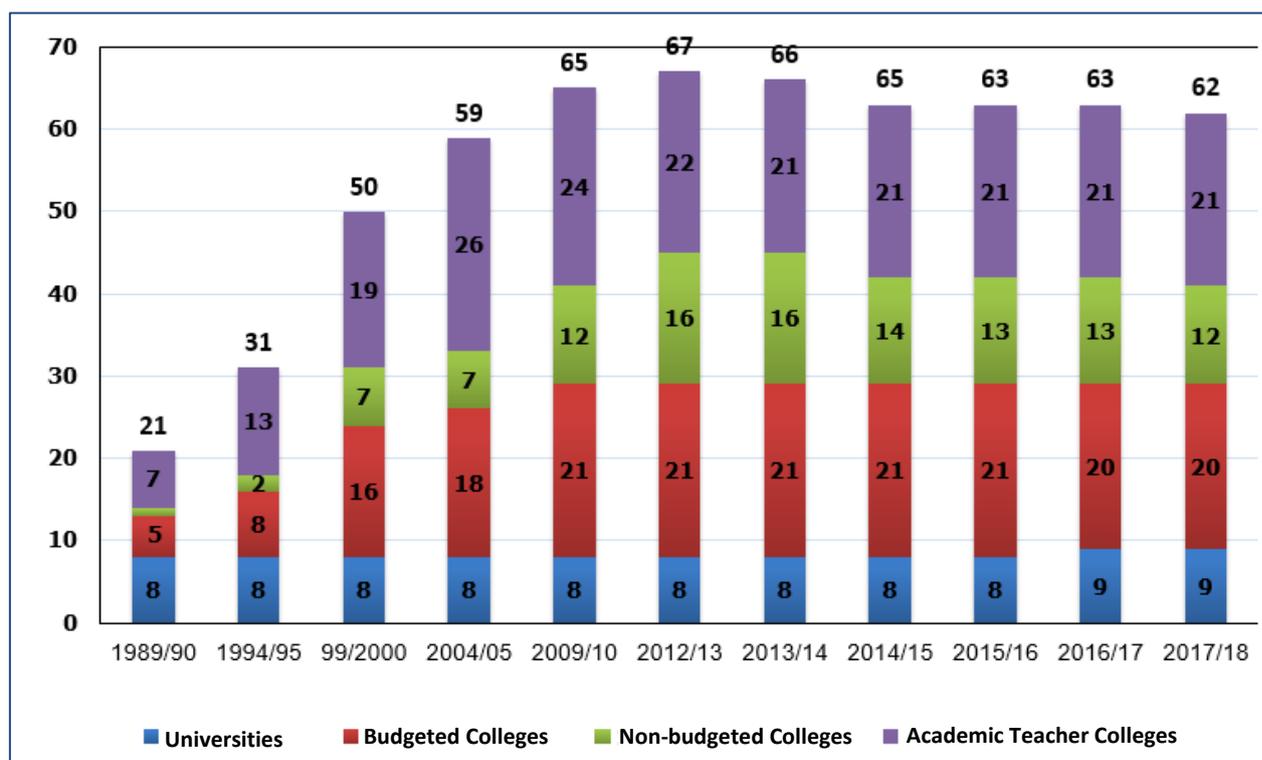
	1947- 1948	1979- 1980	1989- 1990	1999- 2000	2009- 2010	2016- 2017	2017- 2018	Forecast for 2018- 2019
Total	1,600	67,155	88,495	204,040	289,940	307,780	306,440	306,600
Bachelor's Degree	-	53,350	67,810	164,360	227,900	232,510	230,895	230,800
Master's Degree	-	9,960	16,155	31,340	50,270	62,960	63,155	63,400
Doctoral Degree	-	2,905	3,765	6,650	10,570	11,000	11,350	11,400
Certificate/Associate Degree	-	940	765	1,690	1,200	1,310	1,040	1,000

A review of the ratio of undergraduate students to educational institutions shows that until the beginning of the 1990s, most students enrolled in a higher education program (85%) studied at a university. Since then, there have been significant changes in the structure of the higher education system and by the start of the 21st century, only about half of undergraduate students studied at a university. Over the course of the last decade, parallel to the growth of colleges, the Council for Higher Education and the Planning and Budgeting Committee encouraged a policy of transferring academic tracks in budgeted universities from being the academic responsibility of the universities to complete independence on the part of the colleges, a process that naturally increased the percentage of students in budgeted colleges.

➤ **A Multiyear Perspective - Undergraduate Students According to Institution Type**

	Total - Absolute Numbers	Total - Percentages	Universities – Main Campus	Academic Tracks for which Universities are Responsible	Colleges Budgeted Academies	Non-Budgeted Academic Colleges	Academic Teacher Colleges
1989-1990	55,250	100.0	85.0	-	3.4	3.0	8.6
1994-1995	86,320	100.0	72.8	4.5	5.0	5.9	11.7
1999-2000	126,800	100.0	52.7	5.7	13.8	12.5	15.2
2004-2005	155,900	100.0	44.8	5.5	21.6	13.7	14.4
2009-2010	178,400	100.0	37.2	4.8	28.2	18.5	11.3
2014-2015	191,690	100.0	33.8	3.2	30.8	19.4	12.8
2015-2016	191,615	100.0	38.8	2.2	26.9	19.0	13.1
2016-2017	191,240	100.0	38.9	1.2	28.4	18.1	13.4
2017-2018	189,845	100.0	39.1	0.3	29.4	18.0	13.2

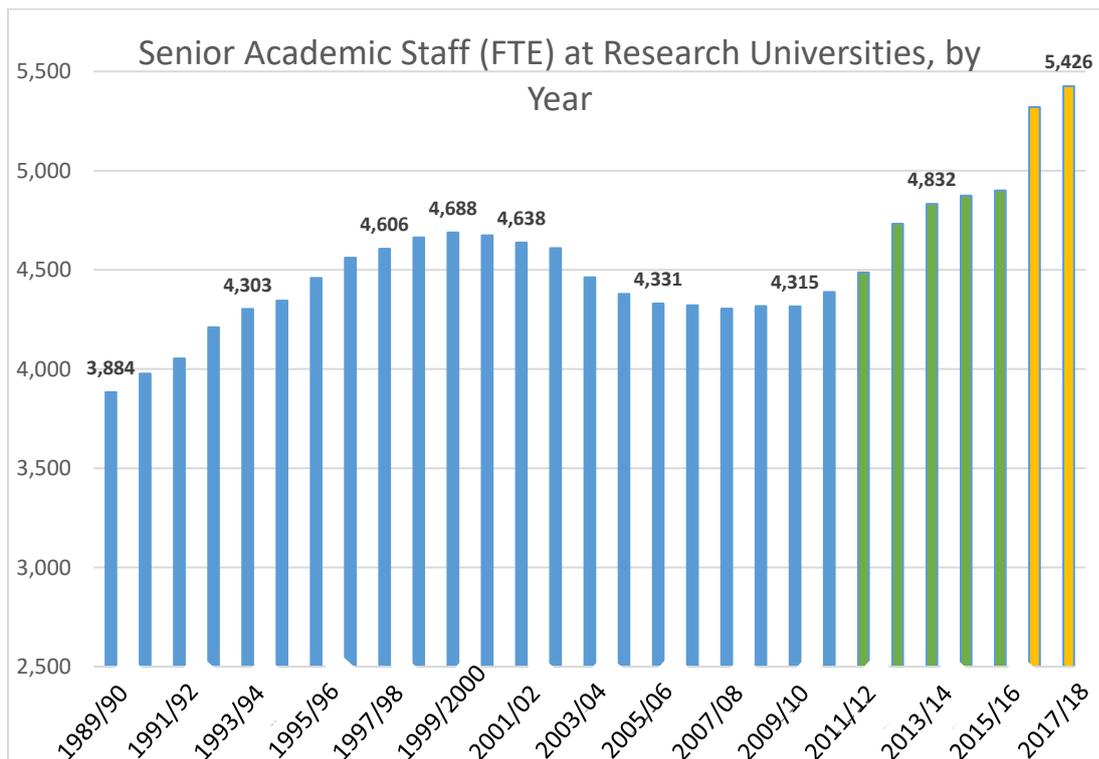
➤ **Multiyear View – Development of Institutions of Higher Education***



* As of 2016/17, Ariel is now included among universities and has been removed from the budgeted colleges

➤ Multiyear View – An Increase in Senior Staff at Universities

The number of senior academic staff members in universities has increased by approximately 40% since the 1989-1990 academic year, from approximately 3900 staff members (FTE)⁴ to approximately 5400 during the 2017-2018 academic year. Nevertheless, in the decade between the 1999-2000 academic year and the 2009-2010 academic year, there has been a significant decrease in the number of staff members, parallel to the significant increase in the number of students in the educational system. As part of the Planning and Budgeting Committee's multiyear plan for the 2010-2011 through 2015-2016 academic years, emphasis was placed on recruiting a young and excelling academic staff, and the number of staff members has again begun to increase, albeit relatively slowly. As of the 2016-2017 academic year, Ariel University is included in the university staff statistics.



Source: Until the 2014-2015 academic year, human resources reports according to budgetary unit. As of the 2016-2017 academic year, the January mean salaries report.

Comments: 1. Ordinary budget staff data at full time equivalent (FTE) include staff on sabbatical in Israel and on a research track, and without pension.

⁴Full Time Equivalent.

2. As of the 2016-2017 academic year, the data includes Ariel University (approximately 365 positions in 2016-2017 and approximately 391 positions in 2017-2018).

➤ **Women Constitute Approximately 60% of Students in Academia**

Women made up about 59% of the student body in 2017-2018 after a significant increase in female enrollment, primarily during the 1990s. Women make up the majority of students pursuing each of the following degrees: Bachelor's degrees - 58%, master's degrees - 63%, and doctoral degrees - 53%. The percentage of women among those pursuing a bachelor's degree has continued to rise over the last few years from about 55% in 2009-2010, primarily as a result of the increase in the percentage of women's enrollment at colleges (from 49% in 2009-2010 to 57% in 2017-2018). The percentage of women in universities decreased from 55% in 2009-2010 to 53% in 2017-2018.

There has been an impressive increase in women's enrollment in advanced degree programs over the years. The percentage of women among those pursuing a master's degree crossed the 50% mark and reached 63% in 2017-2018. The increase in women's enrollment stems from the fact that colleges have begun to offer master's degree programs in which the number of women enrolled has increased to a point that is higher than their percentage of enrollment at universities, which has stabilized over the last few years. In 2017-2018, the percentages were 65% and 58%, respectively. The percentage of women among students pursuing a doctoral degree crossed the 50% mark for the first time at the end of the 1990s and has stabilized at 53% over the last few years.

➤ **Multiyear Perspective** - An increase in the percentage of women in academia

	1989-1990	1999-2000	2009-2010	2015-2016	2016-2017	2017-2018
Bachelor's Degree	53.6	57.4	54.8	57.5	57.9	58.1
Master's Degree	50.3	57.8	58.4	61.9	62.5	62.7
Doctoral Degree	41.3	51.1	52.7	52.6	52.6	52.8

➤ **Women Are the Minority in STEM (Science, Technology, Engineering, and Mathematics)**

At the same time, the integration of women in bachelor's degree and consequently in advanced degree programs in the STEM disciplines has been insufficient. Council for Higher Education figures show that although half those taking the highest level of matriculation exams in math are women; the percentage of women pursuing degrees in the fields relevant to the hi-tech world is lower and stood at 25% in 2016-2017. Consequently, women make up just 26% of those employed in the hi-tech industry.

As a result, the Planning and Budgeting Committee approved a series of incentives meant to encourage the admission of women to programs in these disciplines in the next academic year, 2018-2019.

➤ **From a Multiyear Perspective** - The percentage of women enrolled by discipline and degree for the 2017-2018 academic year

	Bachelor's Degree	Master's Degree	Doctoral Degree
Total	58.1	62.7	52.8
Paramedical Studies	82.2	87.0	81.7
Educational and Instructional Training	79.6	82.7	79.5
Social Sciences	69.1	70.6	62.4
Biological Sciences	68.7	66.6	60.0
Architecture	67.5	57.0	57.0
Humanities	63.3	58.8	53.2
Medicine	60.1	54.6	-
Business Administration and Management	59.8	54.2	53.7
Law	52.5	56.1	49.4
Agriculture	51.7	57.4	47.4
Physical Science	38.5	35.2	37.4
Mathematics, Statistics, and Computer Science	33.0	26.7	24.2
Engineering	28.5	26.2	31.0

*Students pursuing a doctoral degree in medicine have been included in biological sciences.

➤ **The gender equality plan to increase women's representation among faculty:**

While taking steps to encourage women to pursue disciplines of study in the field of hi-tech, the Planning and Budgeting Committee and the Council for Higher Education have also been working to increase the representation of women among faculty at institutions of higher education and have made a series of decisions to move the issue forward in accordance with the recommendations of the teams led by Professor Rivka Carmi, the president of Ben-Gurion University since 2011, and by Professor Ruth Arnon, the president of the Israel Academy of Sciences since 2013. The plan for "gender equality" represents the principles laid out by the Council for Higher Education to advance women to senior faculty positions and is based on the recommendations of the Arnon Committee, which focused on raising awareness about gender equality at institutions of higher education and on the recruitment and advancement of women to serve as academic faculty, particularly in disciplines that have a low percentage of female representation, such as the sciences and the various fields of engineering.

- ✓ Scholarships for women who excel in post-doctoral studies in the sum of up to US \$80,000 (for two years)
- ✓ Scholarships for women pursuing a doctorate in hi-tech disciplines in the sum of NIS 150,000 (for three years) and scholarships for women pursuing master's degrees in hi-tech disciplines in the sum of NIS 80,000 (for two years)
- ✓ Prizes in the sum of NIS 1 million a year for institutions that excel in the advancement and implementation of gender equality
- ✓ A budget allocated specifically for work done by advisors to the president of the gender equality committee at institutions of higher education

2. The hi-tech studies revolution - Engineering is the largest academic program in Israel for the first time ever

- **There are more engineering students (34,660) than social sciences students (34,030) for the first time**
- **There has been a dramatic increase in math and computer science students**
- **There are more than 50,000 students, one of every four students, enrolled in engineering or computer science programs in Israel**

Impressive achievement in the implementation of the national program to boost the fields of engineering and hi-tech: Data from the 2017-2018 academic year shows that engineering is the most popular discipline pursued by bachelor's degree students in Israel (34,660 students, comprising 18.3%).

Engineering has surpassed social sciences in popularity (34,030 students, comprising 17.9%), which was considered the most popular field of study in Israel. There has also been a dramatic increase of about 50% in the study of math and computer science with 15,553 students in 2017-2018 versus 10,434 students in 2011-2012. This means that one of every four students in Israel studied engineering or computer science in the past year (50,214 students of a total of 189,845 undergraduate students).

Concurrently, **there has been a sharp decrease in enrollment in the fields of law and business administration**, which were in very high demand at the start of the decade. Data shows that enrollment in the study of law decreased from 16,446 students in 2011-2012 to 13,168 students in 2017-2018. Enrollment in the study of business administration decreased from 22,654 students in 2011-2012 to 18,401 students in 2017-2018.

➤ **Hundreds of millions of shekels in incentives for hi-tech**

We would like to emphasize that due to the multiyear plan to boost the fields of hi-tech and in light of a government resolution on the matter, the Planning and Budgeting Committee allocated hundreds of millions of shekels in incentives for academic institutions toward student admission, faculty members, and the construction and upgrade of research and educational infrastructure.

The Council for Higher Education believes that the trend will continue to grow in upcoming years as well, with many students now being admitted to hi-tech programs who had previously been denied due to restrictions on the number of students allowed in to these programs even though they were otherwise eligible.

➤ **Multiyear Perspective - An analysis of bachelor's degree students by discipline**

	2006- 2007	2014- 2015	2015- 2016	2016- 2017	2017- 2018
Total - Percentages	100.0	100.0	100.0	100.0	100.0
Engineering	16.6	17.0	17.4	18.1	18.3
Mathematics, Statistics, and Computer Science	4.7	6.5	6.7	7.3	8.2
Humanities	9.5	6.9	6.2	5.8	5.9
Teaching and Instructional Training	14.4	15.5	16.1	17.0	17.0
Art and Design	2.8	2.9	3.1	3.1	3.1
Social Sciences	21.9	19.6	19.2	18.6	17.9
Business Administration and Management	8.8	10.9	9.9	9.8	9.7
Law	9.4	8.3	8.5	7.2	6.9
Medicine	0.9	1.0	1.1	1.1	1.1
Paramedical Studies	4.7	6.0	6.5	6.5	6.5
Physical Science	1.8	1.3	1.4	1.4	1.4
Biological Sciences	3.2	2.6	2.6	2.6	2.5
Agriculture	0.5	0.6	0.6	0.6	0.5
Architecture	0.9	0.9	0.9	1.0	1.0

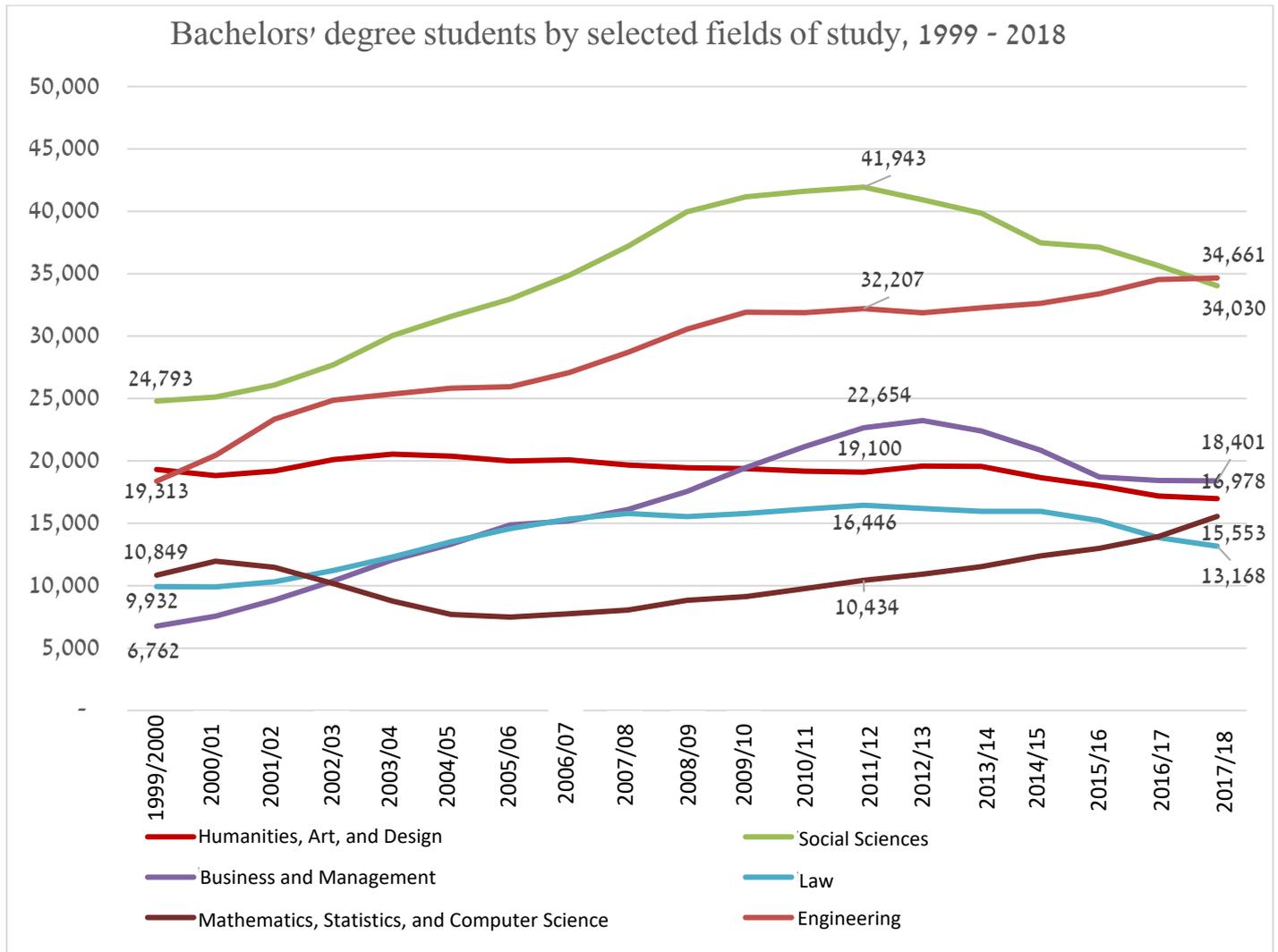
Comments:

- A. The data does not include those studying at The Open University.
 B. Engineering includes the following disciplines: electrical engineering, computer engineering and programming, information systems engineering, civil engineering, mechanical engineering, chemical engineering, industrial engineering, and other forms of engineering.

➤ **Comprehensive multiyear plan to boost the humanities at scope of NIS 100 million**

Meanwhile, the decrease in the those enrolled in study of the humanities continues. In the next few months, the Council for Higher Education is expected to decide on a comprehensive multiyear plan to boost the humanities at universities with a budget allocation of about NIS 100 million. The purpose of these budget allocations includes the encouragement of research, the development of new academic programs, and the promotion of programs that combine the humanities with other disciplines.

The program, which will soon be submitted for approval to the Council for Higher Education, includes financial incentives given to universities encouraging students to enroll in programs that combine the humanities with other academic tracks, including hi-tech, life sciences, and social sciences.



3. Making higher education more accessible to the socioeconomic periphery - more than 45,000 students came from towns comprising lower socioeconomic clusters (Clusters 1-4).

The sharp increase in the number of students over the last few decades is also manifest in significant achievements in the expansion of accessibility to higher education among those who live in the socioeconomic periphery and among weaker segments of the population. The Central Bureau of Statistics conducted a special analysis for us of the socioeconomic status of the student's town when the student was in 12th grade.

Data showed that in 2017-2018, more than 45,000 students, 28.2% of all bachelor's degree students, came from towns consisting of lower socioeconomic clusters (clusters 1-4) and that this percentage was significantly higher than the segment of the population living in these towns, which was 19.6%. The percentage of this category of bachelor's degree students at colleges funded by the Budgetary and Planning Committee was even higher, standing at 33.4%.

➤ Bachelor's degree students by type of institution and socioeconomic cluster of 12th-grade students' town, 2017-2018

	Total - Number of Decided Students ⁵	Total - Percent ages ⁶	1-2	3-4	5-6	7-8	9-10
Total Bachelor's Degree Students	164,870	100.0%	7.5%	20.7%	25.5%	40.7%	2.7%
Universities - Main Campuses	74,145	100.0%	7.0%	19.8%	22.0%	45.0%	3.4%
Colleges Budgeted by the Committee for Budgeting and Planning	56,530	100.0%	9.7%	23.7%	30.8%	31.3%	1.9%
Non-Budgeted Colleges	34,195	100.0%	7.2%	19.6%	22.7%	43.6%	2.5%

⁵Chart does not include those enrolled at The Open University and at teachers' colleges.

⁶Also includes unknown

➤ **The development of the college system brought about a significant increase in the number of students enrolled in academic institutions in Israel's north and south.**

In 2017-2018, about 24% of bachelor's degree students were enrolled at academic institutions in Israel's northern and southern regions (9.8% in the north and 14.5% in the south) versus just 9% enrolled in the south in 1999-2000. The number of students enrolled in the north grew nearly threefold as compared with the beginning of the previous decade, primarily due to the expansion of existing programs at the colleges in the north and the opening of new academic programs. This significant change in the map of higher education in Israel, which took place over the last two decades, would not have been possible without the necessary budgetary resources being allocated to these two periphery regions.

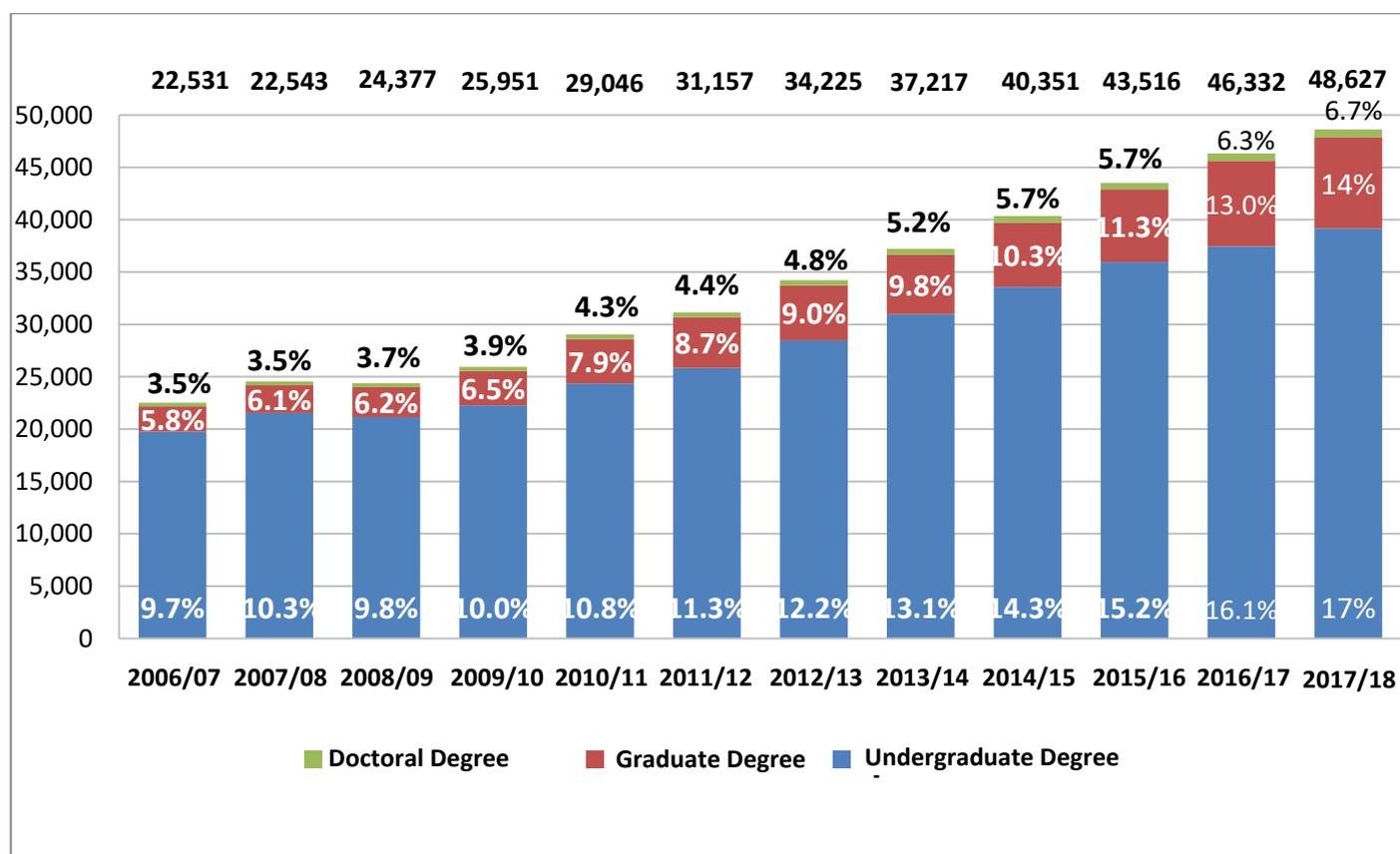
➤ **Multiyear Perspective** - Bachelor's degree students by institution's regional location

	1989- 1990	1999- 2000	2009- 2010	2016- 2017	2017- 2018
Total - Absolute Numbers	55,250	126,900	178,415	191,915	189,845
Total - Percentages	100.0	100.0	100.0	100.0	100.0
Jerusalem	22.7	15.5	13.4	13.7	13.7
North	..	5.3	9.2	9.7	9.8
Haifa	21.7	17.9	13.9	13.4	12.4
Center	4.1	15.9	17.4	17.6	17.8
Tel Aviv	42.8	31.5	30.8	31.2	31.8
South	8.7	13.9	15.3	14.3	14.5

4. Making higher education accessible to special populations:

A. The revolution in making higher education accessible to the Arab sector - The number of students was doubled, and the target was achieved three years ahead of schedule.

- **Within a decade, the number of Arab students doubled from 22,543 (2007-2008) to 48,627 (2017-2018)**
- **Bachelor's degree** - An increase of 82% in the number of students
- **Master's degree** - An increase of 228% in the number of students
- **Doctoral students** - An increase of 114% in the number of students
- **From a multiyear perspective** - Integration of Arab students in the higher education system



Note: The percentage is that of the ratio of Arab students of those studying for the same type of degree.

Impressive achievement for the higher education system overall and for the Arab sector in particular -

The new multiyear plan for 2017 through 2022 set goals for expanding the Arab sector's representation in higher education for the 2022 academic year. The goal was set in accordance with their percentage of the population.

- ✓ **Bachelor's degree** - The goal was 17% (goal achieved)
- ✓ **Master's degree** - The goal was 12% (actual percentage was 14% - surpassing the goal)
- ✓ **Doctoral degree** - The goal was 7% (close to the actual goal at 6.7%)

Data showed that 22,543 Arab students were enrolled in all academic tracks in 2007. Thanks to the support given to the students, the number of those enrolled doubled within a decade so that there were 48,627 Arab students in Israel in 2017-2018. The sharp increases helped the Council for Higher Education meet most of its goals for making higher education more accessible to the Arab sector this year, which was three years earlier than originally planned.

Data from 2007 shows that just 21,534 Arab students had been pursuing a bachelor's degree and that they constituted a mere 10% of all bachelor's degree students in Israel. A total of 39,160 Arab students were enrolled in bachelor's degree programs ten years later in 2017, making up 17% of all bachelor's degree students - **goal achieved.**

There was an increase of 228% in the number of Arab master's degree students over the last decade. There were only 2,654 Arab students in Israel in 2007, making up a mere 6% of all master's degree students. The number of master's students grew to 8,708 in 2017, making up 14% of all master's degree students in Israel - **goal achieved.**

There was also significant increase of about 115% over these years among doctoral students so that 759 Arab students in 2017 versus just 349 students in 2007 - **goal close to being achieved.**

➤ **Multiyear Perspective - An analysis of Arab students by degree**

	Bachelor's Degree	Master's Degree	Doctoral Degree	Total
2006-2007	19,761	2,421	349	22,531
2007-2008	21,534	2,654	355	24,543
2008-2009	21,142	2,855	380	24,377
2009-2010	22,268	3,270	413	25,951
2010-2011	24,346	4,243	457	29,046
2011-2012	25,843	4,847	467	31,157
2012-2013	28,481	5,233	511	34,225
2013-2014	30,969	5,692	556	37,217
2014-2015	33,571	6,165	615	40,351
2015-2016	35,963	6,929	624	43,516
2016-2017	37,441	8,197	694	46,332
2017-2018	39,160	8,708	759	48,627

- **The increase in the integration of Arab students is the result of a comprehensive holistic program implemented by the Planning and Budgeting Committee for students from high school through advanced degrees.**

The Rowad Program has been implemented at high schools in approximately 45 town clusters and helps students discover academia as well as receive information, advice, and direction in addition to help with relevant courses (such as psychometric exam prep), tours of academic institutions, and a higher education fair in which various institutions located in towns participated. Furthermore, preparatory programs include support programs specifically helping the Arab sector that have language tutoring (Hebrew and English) as well as academic, financial, and social tutoring.

Career centers geared toward the Arab sector were established at academic institutions and 800 students in every class receive the Iretka scholarship. The scholars are selected on the basis of socioeconomic status and preferred fields of study. The scholarship is good for their entire course of degree studies.

The Planning and Budgeting Committee also encourages academic excellence and grants merit scholarships to Arab students for advanced degrees, including master's degrees, doctoral degrees, and post-doctoral degrees as well as support for the hiring of excellent faculty members from the Arab sector.

➤ **Maof scholarships and hiring of excellent faculty members from the Arab sector**

The Planning and Budgeting Committee has granted about 51 scholarships worth approximately NIS 48 million to excellent faculty members from the Arab sector from 2010 to 2018. These are scholarships for young, exceptional Arab scientists who are citizens of the State of Israel. The purpose of the scholarship is to enable those who receive it to become a part of the higher education system - universities and colleges - funded by the Planning and Budgeting Committee. The institutions commit to hiring the scholars as full time faculty members upon completion of the scholarship term.

➤ **Gateway to the Academy program to make higher education more accessible to Bedouin students from the Negev**

The Gateway to the Academy program ran at Sapir College as a pilot program for three years and due to its success was expanded in the 2018-2019 school year to another four academic institutions in the Negev: Ben-Gurion University, The Open University, Achva Academic College, and Ashkelon Academic College. A total of NIS 200 million was allocated for three classes with most of the money coming from the Planning and Budgeting Committee and the rest from the Finance Ministry, the Agriculture Ministry, and the Education Ministry.

The Gateway to the Academy program provides a holistic solution to the unique needs of Bedouin students through a separate preparatory year that gives the students practical academic experience and extensive support so that they make as smooth a transition as possible into bachelor's degree studies in a range of preferred academic tracks. The support is gradually decreased as students progress toward the completion of their degree and includes linguistic, academic, personal, social, cultural, and financial support in order to make it easier for them to become a part of the academic sphere and to help them successfully complete their programs of study. A goal of having an 75% increase in the number of first-year bachelor's degree Bedouin students was set so that there will be at least 1,500 Bedouin students by 2022 (versus 854 first-year students in 2016).

➤ **Making higher education accessible to Arabs from East Jerusalem**

In accordance with government resolutions on the matter, the Planning and Budgeting Committee set a goal of doubling the number of new students over the next five years from East Jerusalem beginning their first-year of study for a bachelor's degree from 300 students in 2017-2018 to 600 students by 2022-2023. In addition, an increase of about 75% is expected in the number of students in preparatory programs, from 400 students in 2016-2017 to 700 students in 2022-2023. Most students from East Jerusalem have been studying to become teachers and the goal is to open up more tracks of study to them, including in STEM. The multiyear budget approved for the program's implementation is estimated to be about NIS 260 million, of which NIS 170 million will come from the Planning and Budgeting Committee and NIS 90 million will come from the Finance Ministry.

➤ **The number of Druze students has doubled over the last decade**

The number of Druze students has more than doubled over the last decade and has reached 4,865 students in 2017-2018 versus approximately 2,300 in 2007-2008. A total of 3,806 pursued a bachelor's degree, 963 pursued a master's degree, 66 pursued a doctorate, and 30 pursued a certificate (associate degree). About 42% of Druze students studied at universities, 43% at colleges, and 14% at teachers' colleges. Women made up two thirds of Druze students in 2017-2018 as compared with 60% of the overall population.

B. Encouragement and cultivation of academic excellence of students from the Ethiopian community

The multiyear plan set a goal of increasing the number of bachelor's degree students who come from the Ethiopian community so that they make up about 1.7% of the student body, similar to their percentage of Israel's overall population. That would mean that there would be an increase of 40% in the number of students from the Ethiopian community pursuing a bachelor's degree, from some 2,500 to about 3,500 within five years.

The program will provide support to students from the Ethiopian community in preparatory tracks and students pursuing a bachelor's degree by helping them with tutoring, admission test prep, paying for room and board, transportation, etc. The number of Hesegim program coordinators will be increased so that higher education can be made more accessible to the ten towns with the highest concentrations of people from the Ethiopian

community. The coordinators' job will be to find the right young people, direct them toward academia, and help them choose a field of study.

In addition, a central element of the program being pushed by the steering committee is the encouragement of excellence and leadership in all tracks of study, from bachelor's degrees to master's degrees, doctorates, and to academics from the Ethiopian community being hired as faculty at institutions of higher education. The program will allow the Ethiopian community to be highlighted from a point of excellence and to allow for the realization of the students' academic and social potential.

C. From a multiyear perspective - Making higher education more accessible to the Haredi community

The Council for Higher Education and the Planning and Budgeting Committee have been dedicating much effort and many resources in order to make higher education more accessible to the **Haredi (ultra-Orthodox) community** and to incorporate it into the professional world in Israel and into Israeli society. These efforts rely on two guiding principles: 1. Recognition of the unique aspects of the Haredi community; 2. Integrating into academia those Haredim who wish to do so while respecting their way of life and properly accommodating their needs and aspirations.

The Macharim program to expand the accessibility of higher education to the Haredi community was established in 2011. A total of 15 academic frameworks geared toward the Haredi community were established across the country in a wide range of academic tracks.

The Council for Higher Education/the Planning and Budgeting Committee worked between 2015-2017 to put together a multiyear plan for 2016-2017 - 2021-2022 to expand the Haredi community's accessibility to higher education and the plan was approved by the Council for Higher Education in May 2017. The new program continued the development of the existing Macharim programs while making integration at regular campuses possible either through separate classes or in the regular classes. The first pilot program for reviewing these tracks began about a year ago at a number of academic institutions. Emphasis was also placed on a program for disciplines in high demand overall and for the Haredi community in particular, including hi-tech and training teachers for Haredi society, with a focus on core disciplines (math, English, science).

The total number of Haredi students enrolled at institutions of higher education in 2017-2018 stood at more than 13,000 students: about 10,000 bachelor's degree students, about 1,200 master's students, and about 2,000 in preparatory programs versus a total of 6,000 Haredi students who had been enrolled in 2010-2011 across

the board. The goal for 2022 is 19,000 students. The total budget allocation for the multiyear plan (six years) stands at approximately NIS 1.2 billion.

5. The new campus vision - A transition to digital and active learning

The campuses at institutions of higher education are the center at research begets knowledge that is passed on to the students. The internet revolution that allows easy access to sources of knowledge and for knowledge to be passed on to others requires the academic system to deal with it in some way and for changes to be made to research and instruction in the new era. The vision of the "new campus" would include changes in a number of areas with the objective of creating a new and upgraded academic experience in the near future through digital, active learning while allowing academia to become part of industry and to make a change to the library model.

A. Digital learning - Tools for accessibility and improving the quality of education

The era of the internet has allowed for access to many areas of knowledge through digital means that are not necessarily a formal classroom. In order to prepare for the changes stemming from this reality, digital courses have become an effective way of improving the quality of education and the educational experience as well as a way of making education more accessible.

In order to become a part of this global revolution, a connection was forged between the edX Project, backed by Harvard, MIT, and the State of Israel through a national initiative called Digital Israel at the Ministry for Social Equality. The connection permits academic institutions in Israel to place courses appearing under the caption IsraelX on the international edX platform. Additionally, edX assisted in establishing an Israeli platform – Campus – on which courses at Israeli academic institutions may also be made accessible.

The Planning and Budgeting Committee/ Council for Higher Education have worked as partners in these processes through a series of calls for proposals to provide monetary support for the production of digital courses in accordance with the stringent and advanced global edX norms.

Two calls for proposals for the funding of 19 courses for the international platform and two calls for proposals for the funding of 60 courses for the national platform have gone out so far. Meanwhile, the Council for Higher Education has been working to find the right balance between digital and formal learning over the next few years.

B. Active Learning - The establishment of centers for entrepreneurship and innovation on campuses

The "new campus" is intended to allow students to take part in active learning while turning the academic institution into a place where breakthrough pioneering ideas could be realized. In order to do so, centers for entrepreneurship and innovation will be established on campuses at which students from various disciplines can receive entrepreneurship training and can work together with lecturers and researchers along with the assistance of professional mentors to move forward important projects of significance to society, the economy, health, and more. The entrepreneurship centers will utilize the campus to create an innovative ecosystem that encourages creativity, that brings down barriers, and connects academia to industry.

To promote that, the Planning and Budgeting Committee has put out a call to action to academic institutions to establish entrepreneurship centers. The names of the winning institutions will be announced at the Higher Education Conference that will be held in November 2018.

C. Turning libraries into social and knowledge centers

The unique environment of academic libraries, like all of academia, brings up challenges that must be met in order to make it appropriate for the new campus. The transition from books, catalogs, and periodicals to knowledge that is primarily based in digital media and the transition from private, individualized study in a quiet space during the hours that the library is open to an ecosystem of collaborative study in teams throughout all hours of the day requires a change in academic libraries.

The academic libraries on the new campus will serve as incubators of creativity by making quality information (analog and digital) accessible, by their ability to be a physical center for people to meet (librarians/information scientists, students, lecturers, and researchers from a range of disciplines), and by instilling advanced digital scholarship. The academic library must be contemporary and relevant in its services and content, must operate as a digital information center and as a group learning center, and must be serve as a center for social and cultural activity. It is in this way that an academic experience different from the individualistic experience that had been customary at the "classic" academic library will be created, an experience based on a pleasant work environment that invites people to enter the library and spend time there.

6. More powerful research - Budgets, academic publications, and procuring research grants

➤ Significant increase in research grant budgets and upgrading and development of research infrastructure - investment of approximately NIS 1.5 billion in the 2018-2019 academic year

➤ Research Funds

The research funds provided by the Planning and Budgeting Committee are the backbone of basic competitive research in the State of Israel. In the multiyear plan for the 2016-2017 through 2021-2022 academic years, there is a significantly increased Planning and Budgeting Committee budget whose purpose is to permit institutions in general and researchers in particular to focus on delving into their research and attaining significant academic achievements while maintaining and promoting Israel's scientific standing around the world. In this context, we emphasize that **according to the Shanghai Ranking (2018), the Hebrew University and the Technion are ranked in the list of the 100 best universities in the world.**

➤ A Multiyear View – the Planning and Budgeting Committee's Participation in Research Funds, in Millions of New Israel Shekels

2015-2016	2016-2017	2017-2018	2018-2019
772	897	988	1,233

➤ A gradual increase of 40% in the Israel Science Foundation budget

The multiyear plan to boost research infrastructure includes a gradual increase of 40% in the Israel Science Foundation budget. The foundation's core budget will come to approximately NIS 570 million a shekel a year by 2021-2022 at the conclusion of the multiyear plan. These budgetary additions have been allocated toward objectives that include an increase in the number of grants issued, an increase in research grants, and greater incentivization for projects such as studies conducted with international partners.

➤ **An increase in the NSF-BSF program budget**

The NSF-BSF program began in 2013 with the goal of encouraging joint US-Israeli collaborative scientific research programs. This is a prestigious program that issues grants to a series of fields of study, including STEM (science, technology, engineering, and mathematics), natural and life sciences, earth and environmental science, economics, psychology, and more.

A gradual increase of about 60% in the NSF-BSF program is expected over the next few years so that the multiyear plan (2021-2022) will come to a tune of NIS 38 million. The increase in the program's budget will allow for a significant increase in the number of research grants funded by the foundation, an expansion in the range of fields covered by the program, and a boost in US-Israeli collaboration in the sciences.

➤ **An increase in the Horizon 2020 budget**

The EU's Horizon 2020 program began in 2014 and will continue until 2020. The program is expected to have a budget of EUR 77 billion for a period of seven years beginning in 2014. Israel's part of the European research and development plan was determined by Israel's GDP in relation to the European GDP (which includes Israel) and is funded as such: Planning and Budgeting Committee - 50%; Economy Ministry - 35%; Science Ministry - 10%; other relevant ministries - 5%.

There has been an increase in Israel's GDP relative to the total European GDP. The scope of the European program was also expanded. As a result, the state has been asked to significantly increase its funding of the program, which means that the number of bodies funding the program will also increase. Therefore, the Planning and Budgeting Committee's part in the funding of the program has grown from about NIS 330 million in 2016 (implementation) to about NIS 520 million in 2019 (budget).

➤ **The multiyear plan for the formation and upgrade of research infrastructure with about NIS 870 million in total investment**

The importance of research infrastructure to the ability to conduct quality research that is at the forefront of global science is not in question. The current multiyear plan for 2017-2022 has highlighted the matter as one of its main objectives and has allocated additional resources specifically toward it. The total investment in the formation and upgrade of research infrastructure in the multiyear plan has reached a total of NIS 870 million as follows:

1. The multiyear plan includes budgetary allocations for **the establishment and upgrading of research infrastructures** at research universities in the scope of about NIS 460 million, which includes:
 - **Grants for equipment for new researchers** who have not yet spent three years at the university.
 - **Grants for equipment for mid-career researchers** who have spent 10-20 years in the system. The program will help exceptional researchers with this kind of experience to refurbish their labs and to fully maximize their scientific potential.
 - **Institutional equipment grants** - expensive equipment that will serve the research needs of a large group of users managed by the institution.
 - Grants for **the recruitment and employment of professional human resources to handle institutional research infrastructure**
 - Research grants issued to make infrastructure centers more accessible to researchers and defray the costs of using them, which are too high for Israeli grants to accommodate
2. A plan to upgrade teaching and research infrastructure at institutions of higher education at a tune of NIS 410 million: the universities' part in this budget is estimated to be NIS 230 million and the colleges' part is estimated to be NIS 180 million.

➤ **Boosting flagship research programs: Placing Israel at the forefront**

The current multiyear plan includes special research infrastructure systems that are at the top of the agenda of global research and are of very great importance at a national level. These are flagship programs that include personal medical care, quantal science and technology, data science, and the humanities. The Planning and Budgeting Committee's multiyear budget allocation for these programs stands at NIS 500 million.

➤ **Personalized Medicine**

The research program for personalized medicine (PM) will permit Israeli researchers to promote broad studies based on in-depth analyses of the medical and genetic data of thousands of volunteers. Research in the field will promote an in-depth understanding of human biology and the mechanisms involved in human diseases, will assist in accelerating the rate of discovery and potential implementation of new treatment modalities, and

will establish Israel as a groundbreaker located at the forefront of global science in the field of personalized medicine.

➤ **Quantum Science and Technology**

A significant and consistent investment of the national level in developing the field of quantum science and technology, particularly in developing research infrastructures and increasing the number of researchers – research staff and students – engaging in this field, is expected to result in a significant leap in Israeli research abilities and Israel's global status at the forefront of global knowledge in the field.

The development of quantum science and technology relies on an understanding of the interaction between individual degrees of freedom of the system (for example, individual atoms and photons) and the development of the required technology to control them. These abilities will permit and in part, already permit, establishing stronger computing systems than exist today, unbreakable encrypted communications, simulating complex systems which cannot be computed using existing means, sensors with far higher sensitivity than common methods, development of materials with unique characteristics, and more.

➤ **Data Science**

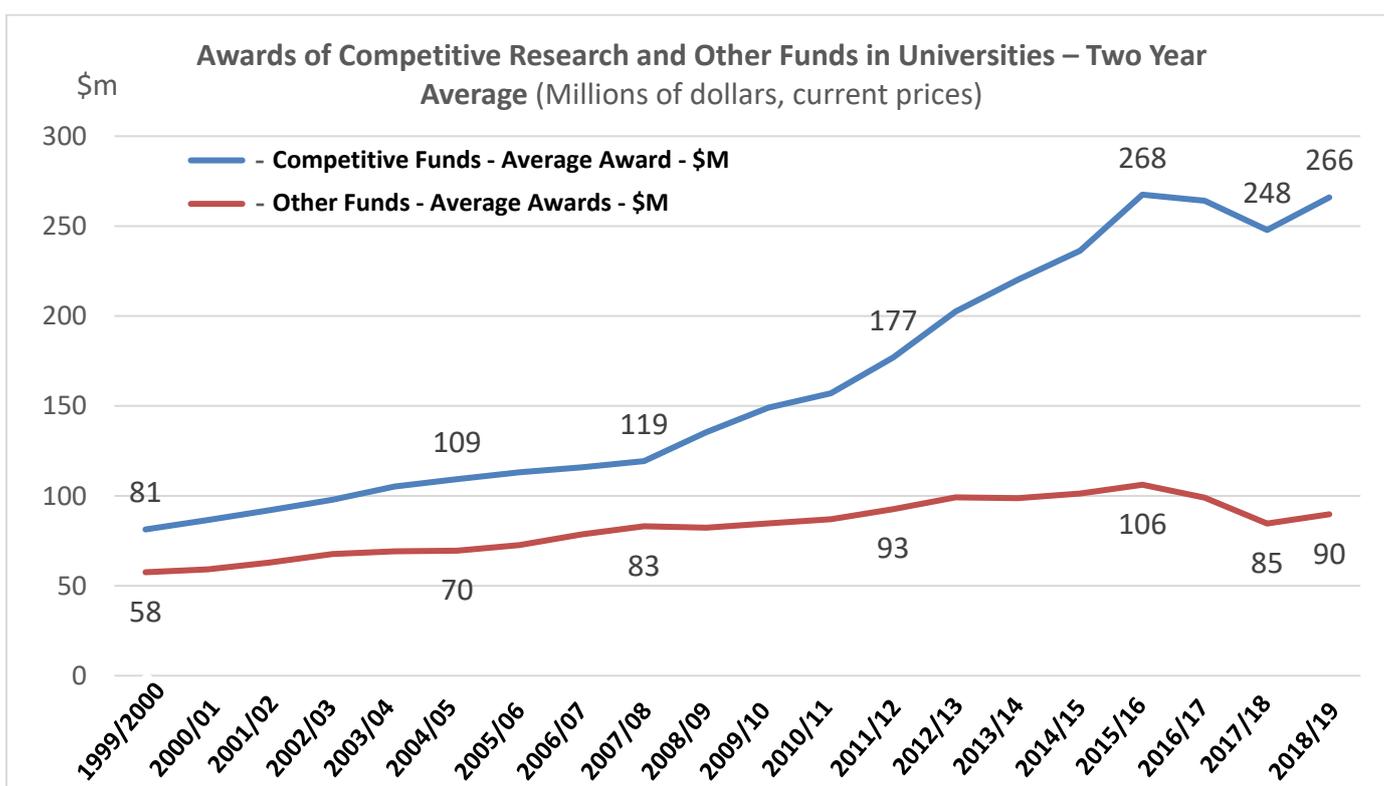
The field of data science refers to the collection, management, processing, analysis, and visualization of data associated with a wide range of academic disciplines and commercial applications. The last few years, the field has undergone increased and accelerated growth with commensurate financial investment both from industry as well as universities and private research institutions. The reasons for the development of this field are the significant growth in the quantity and availability of data generated around the world (to the point of utilizing the term "big data"), in the continued development of methods, algorithms, and technologies which are available to analyze data, and developments in dedicated data communications, storage, and processing hardware.

Data science touches upon almost all fields of the academic world and have inherent potential for innovation and breakthroughs not just in the exact sciences but rather social sciences and the humanities as well. There is no doubt that advancing the field will result in a leap in academic ranking in terms of teaching and research in a large number of disciplines and will contribute to the State of Israel's national resilience in terms of economy and security.

7. A Multiyear View – A significant increase in procuring research grants and putting out academic publications

➤ Increased procurement of research grants

In the last decade, one sees a sharp increase of approximately 125% in the total awarding of competitive research grants, the decided majority of which (approximately 80%) are awards of grants by the Israel Science Foundation and the European R&D foundation. This, as compared to only a slight increase in the awarding of research grants from other sources. The highest total of awards is in the fields of medicine and life sciences and has been maintained over time. However, the most significant increase in percentages is in the fields of engineering, mathematics, and computer science, where the total awards have increased by a factor of 3.5 since 2004.

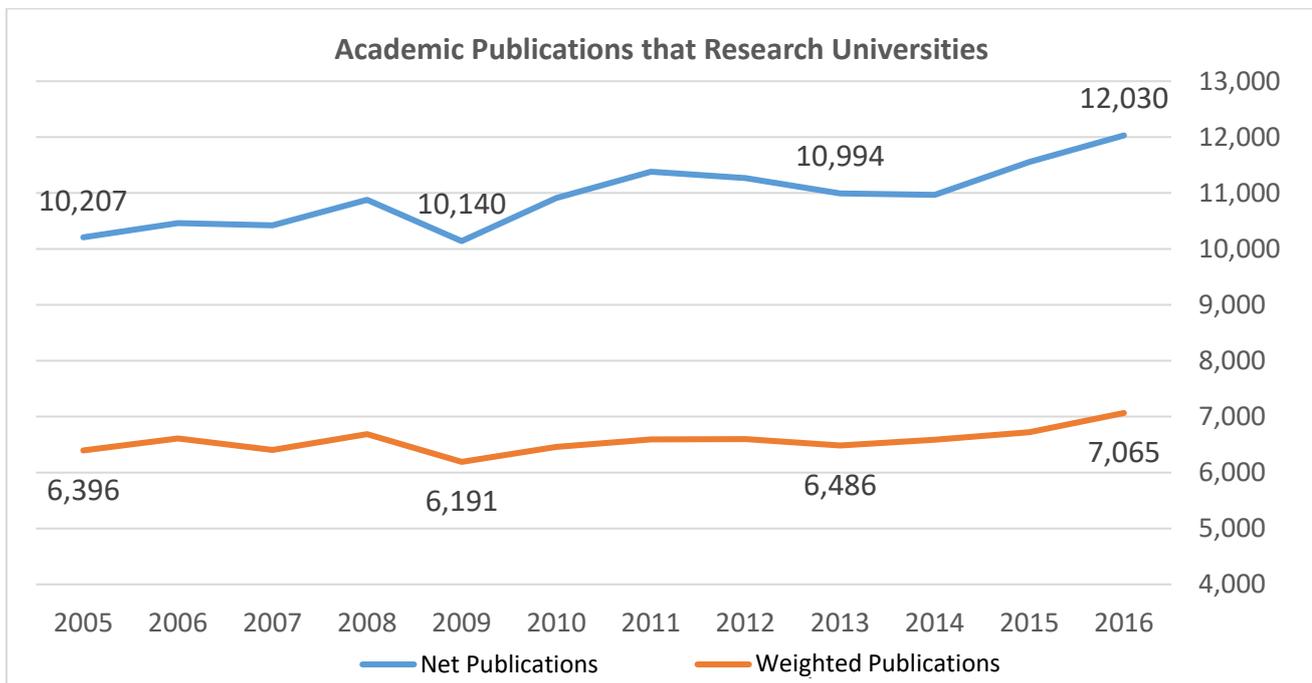


Comment: In 2016-2017, there was a change in the manner in which research funds were awarded, because of which there was a mostly technical decrease in the total awards.

Source: Processing by the Planning and Policy Division of institutions' reports of awards of competitive and other research grants.

➤ Increased Academic Publications

The number of academic publications by researchers at research universities increased by approximately 18% during the last decade where, after a number of years in which there was a decrease in the number of publications, we now see a reversal of this trend and an accelerated increase in publications in the last several years. The number of "weighted" publications, meaning, the relative weight of the researcher in writing the article out of the total participating in its writing demonstrates collaboration between researchers from different departments and different institutions, has also increased, if to a lesser degree. On average, approximately one quarter of the academic publications by Israeli researchers are in collaboration with other researchers from abroad. This trend has been more or less fixed during the last 5 years.



Source: The Szold Institute