

# Media Release

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## Survey of Knowledge Commercialization Companies in Israel 2018-2019 Reports on Inventions, Patents, License Agreements, Income and Startup Companies Revenues in 2018 decreased by approximately 22% compared with 2017

- In 2019, approximately 820 **invention disclosure reports** were submitted by the researchers of the various universities and R&D institutions for examination by the commercialization companies; a decrease of 19% compared with the previous year. About 549 of the reports were submitted to companies associated with the universities, a decrease of 13% compared with 2018.
- Commercialization companies filed **661 original patent applications** in 2019, compared with 644 in 2018, an increase of 3%.
- In 2019, 666 **original patent applications were approved**, compared with 467 in 2018, an increase of 43%.
- In 2019, commercialization companies were involved in the establishment of **79 startup companies**; 54% of them were established by companies associated with the universities.
- The **revenue from sales of intellectual property and gross royalties** amounted to NIS 1.556 billion in 2018, compared to NIS 2.007 billion in 2017, a decrease of 22%; 91% of the revenue were from the companies associated with universities.
- A standardized international comparison for 2017 shows that the standardized figure for intellectual property revenue in Israel is higher than in Australia.

### Definitions

The survey of commercialization companies in Israel for 2019 included companies associated with research universities (eight companies for the eight universities), companies associated with hospitals (six companies) and with research institutions and academic colleges (four companies). This is the ninth survey conducted by the CBS on commercialization companies.

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This survey was initiated and supported by the Israel National Council for Research and Development of the Ministry of Science, Technology and Space. The questionnaire dealt with the following topics: expenditure and personnel in the field of managing IP (intellectual property), IP and its protection (inventions, patents, etc.), revenue from IP and startup companies.

## **The Activity of Commercialization Companies**

- The role of commercialization companies is to search out, develop, and market the knowhow accumulated in the institutions mentioned above, to turn a patent into a commercial product, and help in creating startup companies. Commercialization companies with these activities contribute substantially to the growth of the economy concomitant with increasing the income of the institutions they represent.
- Commercialization companies deal with the management of intellectual property (IP). IP is a generic term referring to rights associated with intangible resources that were a person's intellectual creations, such as patents, copyrights, and trademarks. These property rights enable the holder to form a monopoly on the use of the item for a certain period and in certain countries.
- There are different types of intellectual property: inventions, computer programs, databases, educational means, other means, industrial designs, un-registered trademarks (™) or registered trademarks (®), new varieties of plants, etc.
- The commercialization process in these companies usually takes this form: Initially the companies approach the academic staff at the university, hospital or research institution to receive the ideas, innovations and new inventions. Commercialization companies then examine whether the ideas, innovations or inventions can be legally protected and whether they have commercial potential that justifies a patent application. They decide to continue the process with selected ideas and reject others.
- In the continuation of the process, the companies submit patent applications to the appropriate authorities in Israel and abroad, and attempt to market the patent rights to companies in Israel and abroad. The companies may sell exclusive or non-exclusive rights on the use of the patent but usually do not sell their ownership of the patent.

## Invention Disclosure Reports

In 2019, commercialization companies received 820 invention disclosure reports, 549 of them were received by commercialization companies associated with universities.

In 2019, there was a decrease of 19% in total invention disclosure reports in all institutions, compared with 2018. In the companies associated with universities, there was a decrease of 13%, compared with 2018. A significant decrease was noticed in reports to companies associated with research institutions and colleges.

**Table A - Invention Disclosure Reports**

-	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
<b>Total</b>	820	1,009	1,070	1,328
<b>Companies associated with universities</b>	549	634	553	605
<b>Companies associated with hospitals</b>	195	193	242	185
<b>Companies associated with research institutions and colleges</b>	76	182	275	538

## Patent Applications

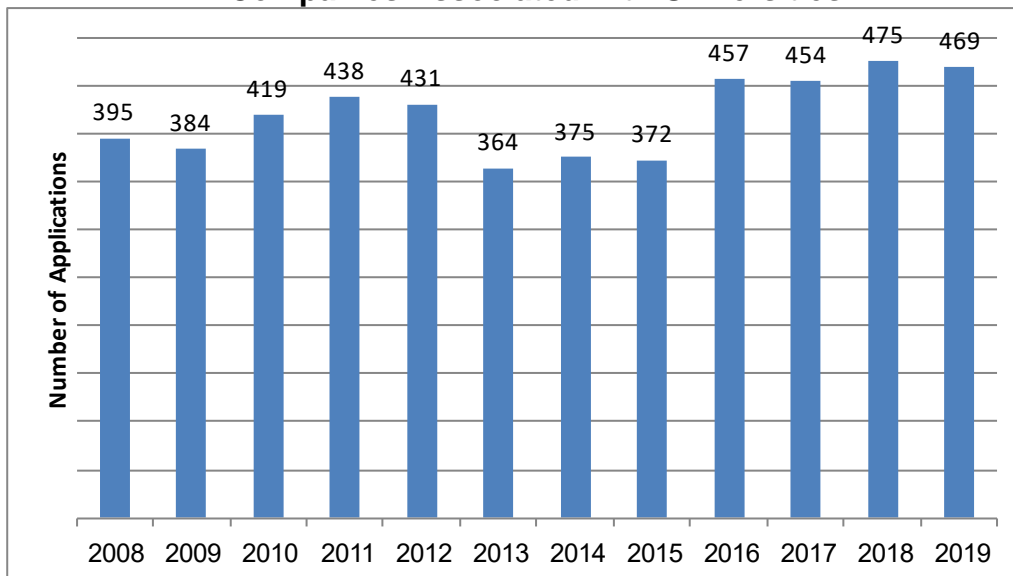
In 2019, 661 new original patent applications were filed, and in 2018, 644 were filed, an increase of 3%. In companies associated with universities there was an increase of 1%; in companies associated with hospitals there was an increase of 10% and in companies associated with research institutions and colleges there was an increase of 18%. Most of the applications were filed by companies associated with universities: approximately 71% in 2019 and 74% in 2018.

**Table B - Original Patent Applications in Israel and Abroad**

-	<b>2019</b>	<b>2018</b>
<b>Total</b>	661	644
<b>Companies associated with universities</b>	469	475
<b>Companies associated with hospitals</b>	106	96
<b>Companies associated with research institutions and colleges</b>	86	73

The number of **approved** applications (regardless of submission year) in 2019, increased by 43%, compared with those approved in 2018.

**Diagram 1 - Original Patent Applications in Israel and Abroad in Companies Associated with Universities**



The number of **approved** applications (regardless of submission year) in 2019, increase by 43%, compared to those approved in 2018.

**Table C - Number of Original Approved Patent Applications in Israel and Abroad**

-	2019	2018
<b>Total</b>	666	467
<b>Companies associated with universities</b>	528	327
<b>Companies associated with hospitals</b>	82	50
<b>Companies associated with research institutions and colleges</b>	56	90

## Patent Families

During the years in which the commercialization companies were active under the auspices of the institutions included in the survey, the companies accumulated a large inventory of current patents that were marketed or yet remain to be marketed. The inventions inventory of the companies is presented in Table D.

**Table D - Patent Families in the Active Portfolio**

-	<b>2019</b>	<b>2018</b>
<b>Total</b>	4,026	4,527
<b>Companies associated with universities</b>	3,009	3,512
<b>Companies associated with hospitals</b>	515	562
<b>Companies associated with research institutions and colleges</b>	502	450

\*Active portfolio - meaning at least one patent out of the family patent is operative.

The number of patent families in 2019 decreased by 11%, compared with 2018. The decrease was in companies associated with research universities (14%) and in in companies associated with hospitals (8%). The patent families in commercialization companies associated with universities were 75% out of the total.

## License Agreements

The role of commercialization companies is to market and deliver the knowledge generated in universities, hospitals, research institutions and colleges. This is normally accomplished with license agreements.

The number of new license agreements with external companies was 458 in 2019, compared with 339 in 2018, an increase of 35%. Most of the agreements were signed with local companies: 77% in 2019, compared with 76% in 2018. Most of the agreements were signed with companies associated with universities: 60% in 2019 and 62% in 2018.

**Table E - New License Agreements with External Companies**

	2019			2018		
	Total	Israel	Abroad	Total	Israel	Abroad
-						
<b>Total</b>	458	354	104	339	257	82
<b>Companies associated with universities</b>	272	<b>204</b>	<b>68</b>	209	<b>151</b>	<b>58</b>
<b>Companies associated with hospitals</b>	137	<b>114</b>	<b>23</b>	94	<b>81</b>	<b>13</b>
<b>Companies associated with research institutions and colleges</b>	49	<b>36</b>	<b>13</b>	36	<b>25</b>	<b>11</b>

## Revenues of the Commercialization Companies

It should be noted that the income data series is a volatile series, which may be affected by trends of individual companies.

Total company's revenues includes: **revenues from selling IP**, which include sales of patents, royalties, options, license fees options, income from ownership of startup companies (dividends, profits from the sale of startups etc). In addition, the company's revenues include **revenues from other activities of commercialization knowledge companies**. Total company's revenues amounted to NIS 1.556 billion in 2018. Most of the revenues came from the companies associated with universities (91%). The revenues at companies associated with universities in 2018 (NIS 1.414 billion) decreased by 22%, compared with 2017. Revenues from other activities of the company were 45% of total revenues.

**Table F - Revenues of Commercialization Companies, by Type of Revenue, 2018**

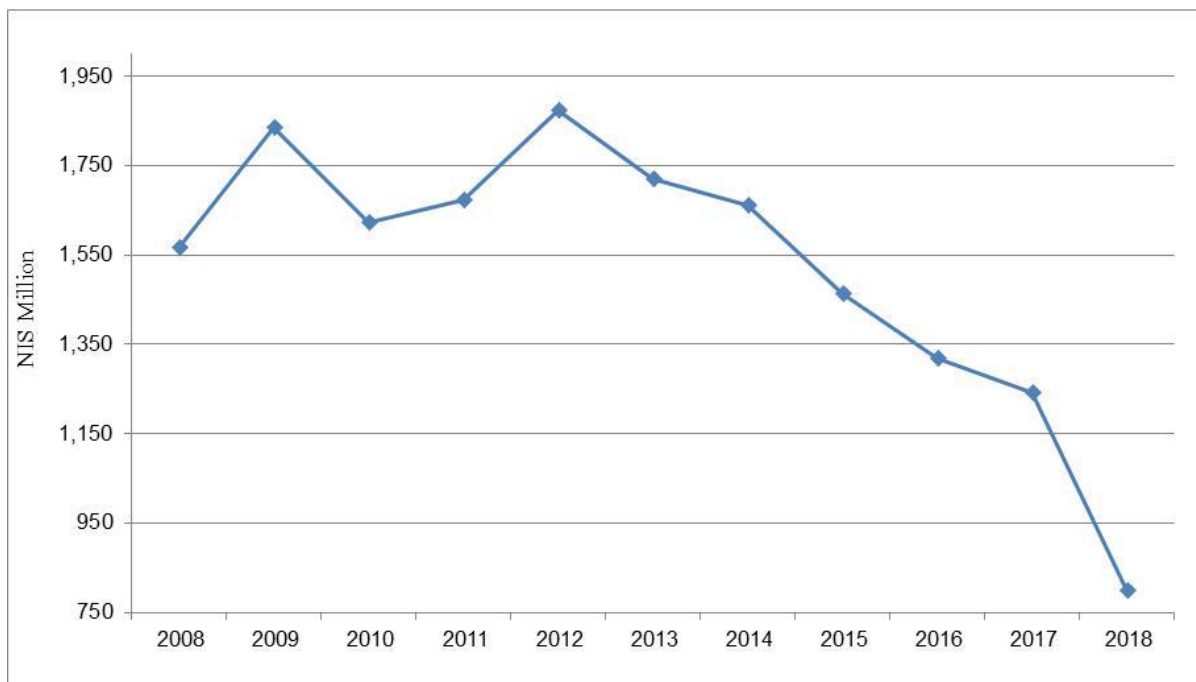
NIS million

	Total	Income from other activities of the company (2)	Revenues from selling IP (1)
-			
<b>Total</b>	1,556	854	702
<b>Companies associated with universities</b>	1,414	<b>800</b>	<b>614</b>
<b>Companies associated with hospitals</b>	61	<b>19</b>	<b>42</b>
<b>Companies associated with research institutions and colleges</b>	80	<b>35</b>	<b>45</b>

- (1) Revenue from selling IP includes: sales of patents, royalties, license fees, options, income from ownership of startup companies (dividends, profits from the sale of startups, etc.) and other income from IP.
- (2) Income from other activities includes: contracts and research grants, external studies, usage of labs, income from Israel Innovation Authority, refunds for issuing licenses, etc.

The revenues of **companies associated with the universities**, were especially high in 2012.

**Diagram 2 - Revenue from Selling IP, by Companies Associated with Universities**



### **Involvement in Establishing Startup Companies in Israel and Abroad**

A **startup company** is a company founded with the aim of developing an innovative product or service, usually in the field of high tech. It ceases to be considered a startup company after it is sold to an established company or after it becomes established itself (i.e., the company begins to sell its products or services).

Startup companies are usually financed by venture capital funds, technological incubators or private investors (angels). The initial capital serves for establishing the company, recruiting staff, developing products or services and selling them. Table G presents startup companies that were established based on the technology developed by researchers in the aforementioned institutions, even if the commercialization company had no share in the ownership.

In 2019, there was an increase of 36% in the number of startup companies that were established. In that year, 54% of the startup companies were established by commercialization companies associated with the universities.

**Table G - Involvement in Establishment of Startup Companies**

-	2019	2018
<b>Total - Israel and Abroad</b>	76	56
<b>Companies associated with universities</b>	41	35
<b>Companies associated with hospitals</b>	35	18
<b>Companies associated with research institutions and colleges</b>	0	3

In 2019, there was an increase of 36% in the number of established startup companies. In that year, 54% of the startup companies were established by commercialization companies associated with the universities.

### **Expenditures and Personnel in Commercialization Companies**

In 2019, the number of professional employees (dealing with IP) in commercialization companies was 167, compared with 143 in 2018, an increase of 17%. The number of full time jobs of professional employees was 144 in 2019, compared with 101 in 2018, an increase of 43%.

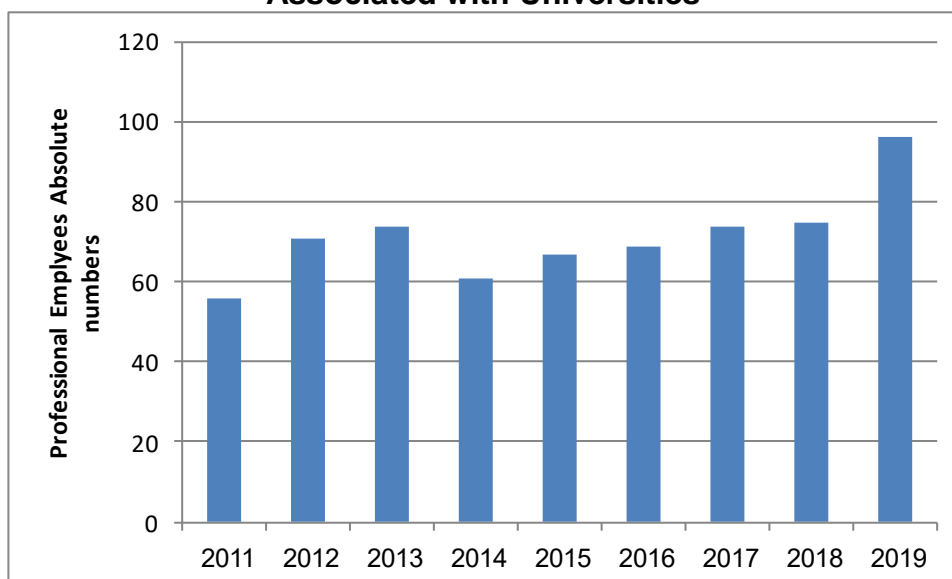
**Table H - Professional Employees (Dealing with IP) at Commercialization Companies**

-	2019 Number of full-time jobs of professional employees	2019 Number of professional employees	2018 Number of full-time jobs of professional employees	2018 Number of professional employees
<b>Total</b>	<b>167</b>	<b>144</b>	<b>143</b>	<b>101</b>
<b>Companies associated with universities</b>	96	91	75	60
<b>Companies associated with hospitals</b>	53	38	43	27
<b>Companies associated with research institutions and colleges</b>	18	15	25	14



The number of professional employees in commercialization companies associated with universities increased significantly over the years; from 56 in 2011 to 96 in 2019.

**Diagram 3 - Professional Employees at Commercialization Companies Associated with Universities**



In 2019, total expenditure<sup>1</sup> on the management of intellectual property in Israel was NIS 88.041 million, compared with NIS 86.121 million in 2018, an increase of 2%. Of this expenditure, payments to external factors amounted to NIS 30.204 million, compared to NIS 45.849 million in 2018, a decrease of 34%.

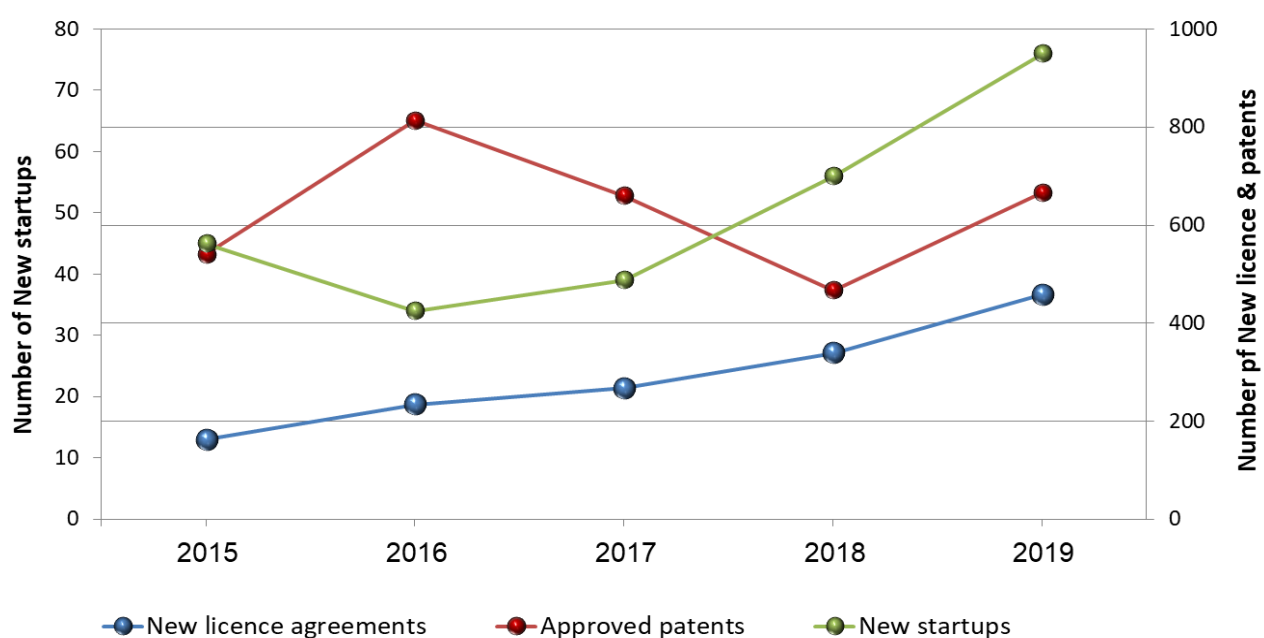
Table I presents parameters that represent the knowledge commercialization activity for the years 2015-2018. In 2018 there was an increase in the number of new license agreements, new startups and other revenues. In contrast, there was a decline in the number of approved patents and intellectual property income.

<sup>1</sup> The total expenditure includes salaries, fees for patents and licenses, and various other expenditures.

**Table I - Knowledge Commercialization Activity Indices: 2015-2018**

-	2018	2017	2016	2015
<b>Number of new license agreements</b>	339	267	234	162
<b>Number of patents approved</b>	467	660	813	540
<b>Number of new startups</b>	56	39	34	45
<b>Income from intellectual property (in NIS million)</b>	854	1,329	1,360	1,507
<b>Other income (in NIS million)</b>	702	679	716	623

**Diagram 4 - Knowledge commercialization activity indices for the years 2015-2019**



## International Comparison<sup>2</sup> - Israel, Australia and New Zealand, 2017

The data presented is for all commercialization companies. All the indices are standardized by the total R&D expenditure in each country, in accordance with the international comparison published by Australia.

(1) The standardized international comparison shows that the standardized figure of revenue from intellectual property (IP) in Israel was higher than Australia. In addition, the number of discoveries for inventions in Israel is slightly lower than that of New Zealand, but higher than in Australia.

**Table J - Indices of International Comparison, 2017**

Indices	Israel	Australia	New Zealand
Invention disclosures	6.7	5.6	6.9
Number of license agreements	1.7	2.6	-
Number of startup companies	0.2	0.2	0.2
Revenue from IP(1) as a percentage of the total R&D expenditure in the country	2.2	1.8	-

(2) One must be careful in interpreting the data of revenues from IP, since in some of the countries royalties only are included, and in some countries the definition is broader.

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<sup>2</sup> Source for international comparison: [Australia Knowledge Commercialization](#).

In previous years, data were published for additional countries. In 2017 data were published only for Australia and New Zealand, so a comparison is only shown with these countries.

## Definitions

**Intellectual property (IP)** - IP is a generic term referring to rights associated with intangible resources that were a person's intellectual creations such as patents, copyrights and trademarks. These property rights enable the holder to form a monopoly on the use of the item for a certain period and in certain countries. The legal proceedings begin with a court decision that determines the owner in each branch of the IP, the conditions of protection, and the scope of the rights.

A **patent** is an exclusive right of use granted by the state to the owners of the invention to prevent illegal use of their invention by others.

**Original patent** – this refers to the first request for protecting a new invention with a patent, submitted to the appropriate authority in Israel or abroad (such as the Patent Office, Designs and Trade Marks of Israel, USPTO, EPO, etc.), on a national or international track (PCT), including provisional patents. A particularly important role of commercialization companies is protecting an invention by submitting patent applications.

A patent is an exclusive right of use granted by the state to the owner of the invention for a limited time, whether it is a product or a process in a technical field. To receive a patent on an invention one must submit an application to the appropriate authority in that country – a patent is valid only in the countries where it is registered.

An application for a patent may be submitted in several countries, and therefore a patent is often registered in more than one country in order to obtain maximum protection for the idea or innovation.

A **patent family** includes the original patent granted in a certain country and the rest of the patents granted in its wake, for that same invention, idea, or piece of knowledge, in other countries with an affirmation of the precedent of the initial patent. That is, all the patents directly originating from the original patent (by priority date).

**Commercialization of knowledge** is searching out, developing, and marketing the knowledge accumulated in research universities, hospitals, research institutions and academic colleges, to turn a patent into a commercial product, and help in creating startup companies.

A **license agreement** is a signed contract between the commercialization company and a company or institution for developing a product according to new know-how or a patent. By means of this contract the commercialization company transfers the rights to use IP in their possession to the licencing company.

A **startup company** is a company which is the outcome of technological entrepreneurship based on research and development in order to create a new for profit business, and its resources are aimed to develop an idea, a product or service. This business has not yet earned profits or become a mature business (a business where the only aim is marketing and sales of a product or a service to the markets, even if it is going through processes of improvement). A startup company develops through the following stages:

1. Examining the feasibility of the idea and preliminary research.
2. Developing the product, corrections and the transition to production.
3. A completed product and increasing the rate of sales.

It ceases to be considered a startup company after it is sold to an established company or after it becomes established itself (i.e., the company begins to sell its products or services).

Startup companies are usually financed by venture capital funds, technological incubators or private investors (angels). The initial capital serves to establishing the company, recruiting staff, developing products or services and selling them.

**PPP (Purchasing Power Parity)** - is a special exchange rate which can be used to deduct the differences in price levels between countries. With the amount of money that was replaced using Purchasing Power Parity (PPP), it is possible to buy an identical basket of goods and services in all countries. In this way we can estimate the purchasing power of different currencies on a uniform basis.