רשות החדשנות
Israel Innovation
Authority

A Year Since October 7, 2023:

A Situation Report of the Israeli High-Tech Sector

September 2024

Introduction

A year after the beginning of the 'Swords of Iron' War on October 7, 2023, the Innovation Authority is publishing a situation report aimed at examining the war's ramifications on Israeli high-tech. As a sector that is based predominately on foreign players, high-tech is currently contending with a sensitive situation where the risk and uncertainty surrounding investing in and managing Israeli businesses are on the rise. Considering high-tech's importance to the Israeli economy as its primary growth engine, and ahead of upcoming budget discussions, we decided to examine several prominent metrics related to the sector.

Throughout the past year, the Israeli economy has been contending with a growing deficit and the need to finance the cumulative costs of the war. As we showed in the Innovation Authority's annual report and in the report on the high-tech sector's contribution to state revenues (published in conjunction with the Chief Economist in the Ministry of Finance), the high-tech sector accounts for more than half of Israeli exports, a fifth of GDP, and is responsible for about a quarter of total state revenues from salaried employee's income tax and corporate taxation.

Summary

A year after the events of October 7, Israeli high-tech is contending with a complex situation. From a positive perspective, Israeli high-tech has shown strength expressed in a stable level of total investments and continued global leadership in this metric and in high-tech employment stability. On the other hand, high-tech has undergone several significant crises over the past three years: the global economic downturn that began with the outbreak of the Russia-Ukraine war; an increase in local instability as the result of the political crisis; and the onset of the "Iron Swords" war following the terror attack of October 7. These crises have led to a situation whereby, after a decade of growth in high-tech, **there has been no growth in the sector's central metrics for over two years**.

Since the second half of 2022, the total number of employees in high-tech has remained almost unchanged and stands at approx. 400,000. Accordingly, high-tech employees' relative share of the total number of employees in the Israeli economy has remained steady at 11%. Because high-tech employees contribute significantly to state revenues from income tax, this stagnation may affect state revenues in the years to come – this, during a period in which the state budget is already contending with a deepening deficit, raising the need for growth-stimulating measures.

In 2023, the last year for which data is available that enables an international comparison, the number of high-tech employees in Europe grew by 5%, in the US by 2.8%, and in Israel by 2.6%, close to the population's natural growth rate. At the same time, it is important to discern the internal

Summary

trends that characterize the high-tech sector: employment in R&D jobs in high-tech continued to increase in recent years, whereas product and business jobs saw a decline in employment numbers over the same period.

Looking ahead, an examination of the high-tech services companies' expectations regarding the hiring of employees over the coming year reveals that, as of July 2024, approximately 9 months since the onset of the war, **almost a quarter (23%) of the companies expect an increase in their hiring of employees over the coming year. These figures reflect a less pessimistic atmosphere among high-tech services companies in 2024 than that observed in July 2023 when only 10% of the companies expected an increase in the hiring of new employees**.

In terms of investment, the total capital raised by technology companies in Israel between October 7 and mid-August 2024 – the period of the war – stands at nearly 9 billion dollars. This sum is similar to the sums raised during parallel periods in recent years, except for the record years of 2020-2022.

A comparison of the total investments in Israeli startups during the war period reveals that **the total investments was the world's third largest. Specifically, total investments in Israel were higher than hubs such as Paris, London and Boston and lower only than those of Silicone Valley and New York. Examining the change in total investments over this period in relation to the parallel period last year reveals that it is similar to the average change in the group of the leading global hubs.**

Furthermore, analysis of the data reveals **no significant change in the number of venture capital funds active in Israel over the war period,** and primarily in the number of foreign funds that constitute two thirds of the active VC funds in Israel.

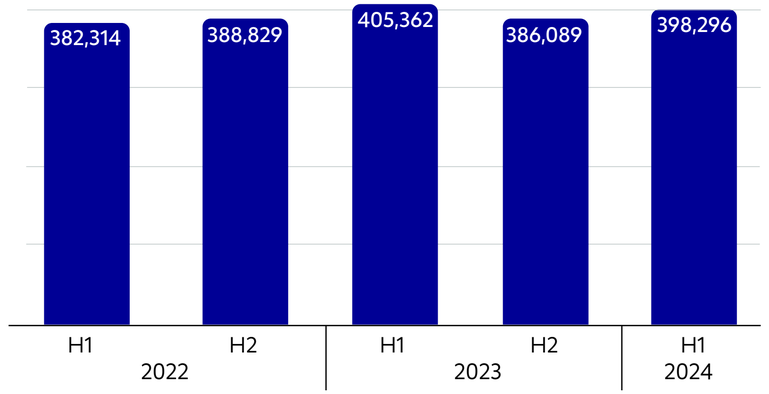
Main Points Employment Data

The number of high-tech employees almost doubled over approximately a decade, since 2012, and reached a level close to **400,000**

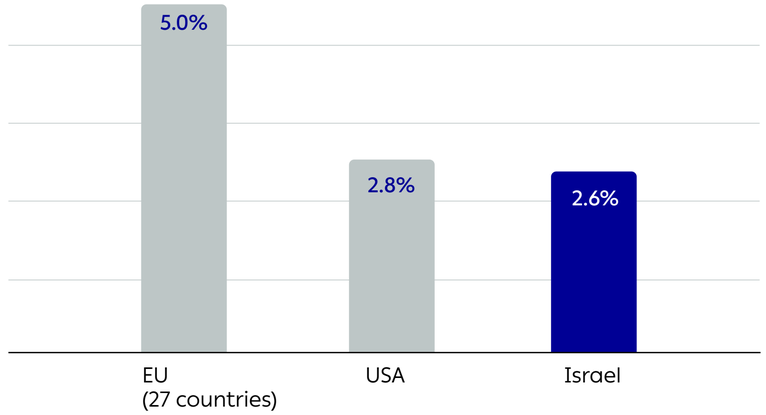
Since the second half of 2022, there has been almost no change in the number of high-tech employees. In practice, the number of the sector's employees increased by a rate of **2% per year** over this period, similar to the growth rate of the general population

Compared to other global innovation hubs, the growth rate of high-tech employment in Israel in 2023 is similar to that in the US but lower than that in Europe

No. of employees in the high-tech sector, ages 25-64



Changes in the no. of employees in the high-tech sector in 2023, by location



Source: Innovation Authority and Aaron Institute adaptations of CBS, Eurostat, and American BLS data

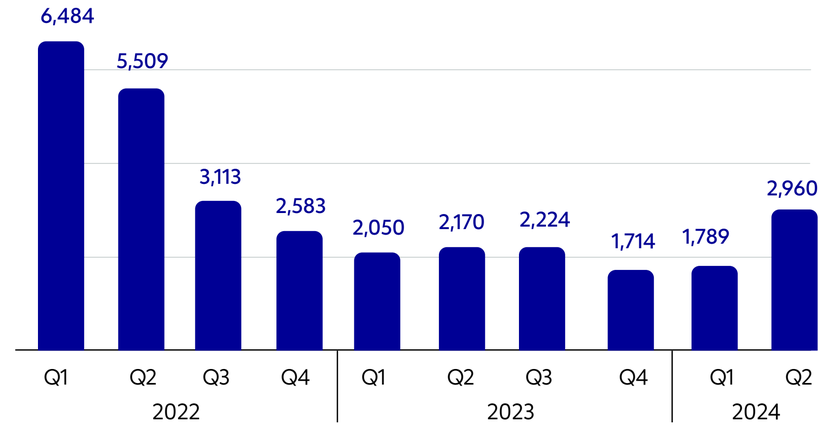
Main Points Investments in High-Tech

Since 2022, total investments have declined and stabilized a**t 2 billion dollars** per quarter – a level similar to that of 2018-2019, before the record levels of investment of 2021

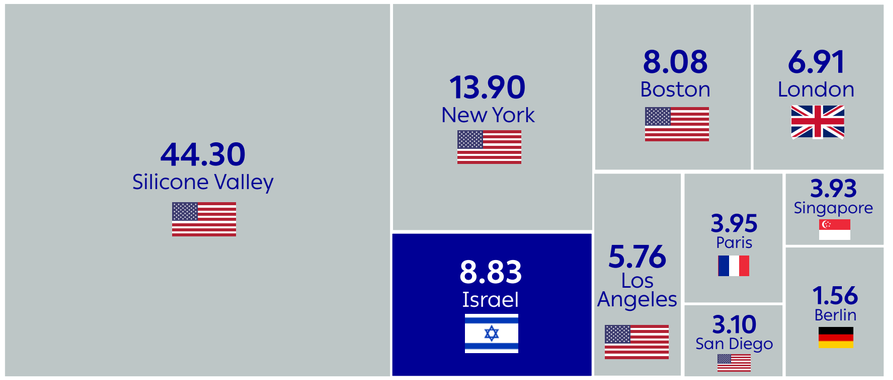
In a global comparison, the total funds raised in Israel since October 7 stands at **8.8 billion dollars,** lower only than the sums raised in San Francisco and New York

The change in total investments in Israeli technology companies since October 7, compared to the same period last year, is similar to the average change in the group of leading global hubs

Capital raised by tech companies in Israel per quarter (billions of dollars)



Capital raised by tech companies in global hubs in 2023 (billions of dollars)



Source: Innovation Authority adaptations of CrunchBase and IVC data

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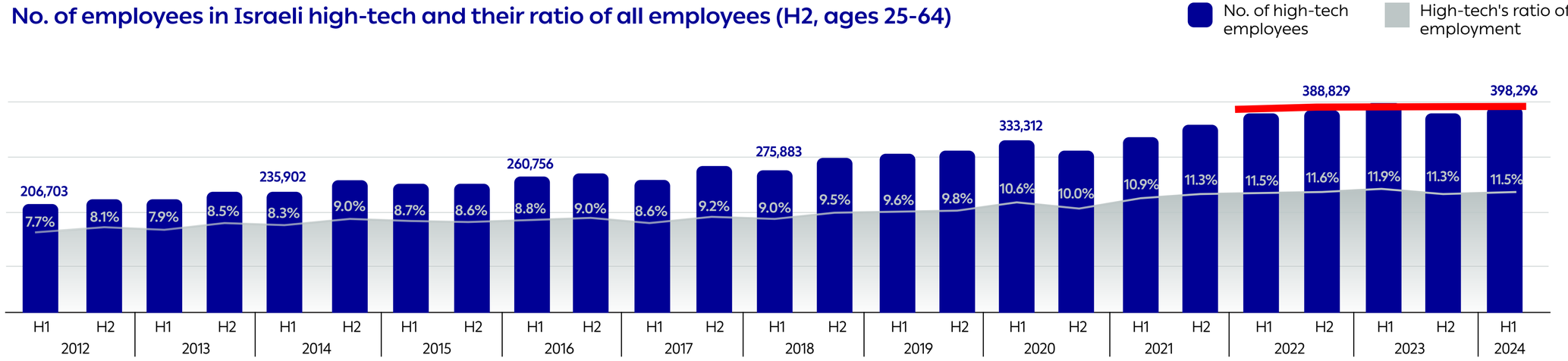
High-Tech Employment Data

Employees: Stagnation in High-Tech Employment Over the Past Two Years

In terms of the Israeli economy, high-tech's significant contribution to the economy depends on employment in the sector. The changes related to this metric are therefore fundamental for the future of the economy. Between 2012-2022, high-tech doubled in size in terms of employees whose numbers reached approximately 400,000. In other words, the long-term trend was one of growth in high-tech employment. **Since 2022, however, there has been almost no change in the number of high-tech employees.**

The stagnation in the number of high-tech employees over the past two and a half years has also led to a **curbing in the growth of high-tech's relative share of employment in Israel that has remained almost steady at 11% since the second half of 2021**. This comes after a decade when high-tech's relative share rose from less than 8% to over 11%.

No. of employees in Israeli high-tech and their ratio of all employees (H2, ages 25-64)



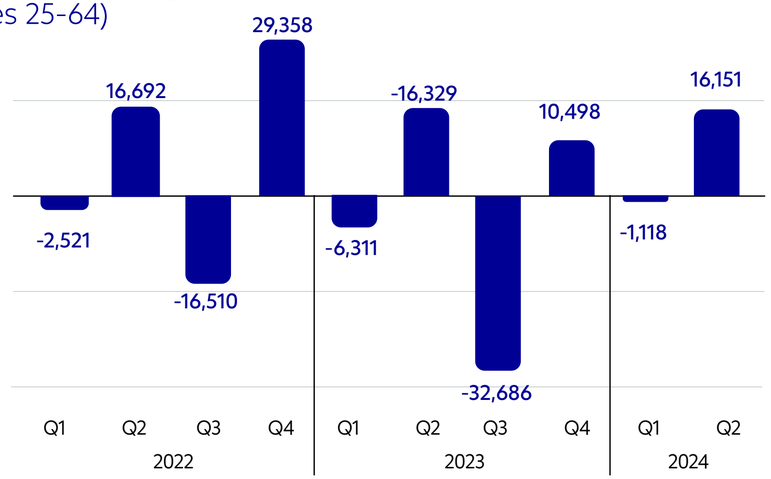
Source: Innovation Authority and Aaron Institute adaptations of CBS data

The Number of High-Tech Employees Has Grown Since the Beginning of the War

An examination of the rate of change in the number of high-tech employees from the fourth quarter of 2023 to the end of mid-2024 i.e., the period of the war, reveals that the number of high-tech employees increased by about 25,000, an increase of 3.8% compared to the same period last year. In contrast, examining the war's influence on employment in the economy's **other sectors** during this period reveals an increase of 1.1%. Nevertheless, it is important to emphasize that this increase comes after a significant decline in high-tech employment during the third quarter of 2023, so that over the past year, the number of high-tech employees has actually declined. The reasons for the decline in the third quarter of 2023 are being analyzed.

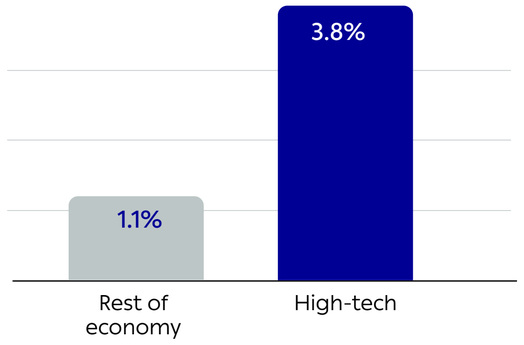
It should be noted that, as of now, the data does not indicate a growth in employment in the defense technology companies in Israel, despite Israel's increased defense and security needs during this period.

Quarterly change in no. of high-tech employees
(ages 25-64)



Source: Innovation Authority and Aaron Institute adaptations of CBS data

Change in no. of employees between Q4 2023 and Q2 2024, compared to same period last year (ages 25-64)



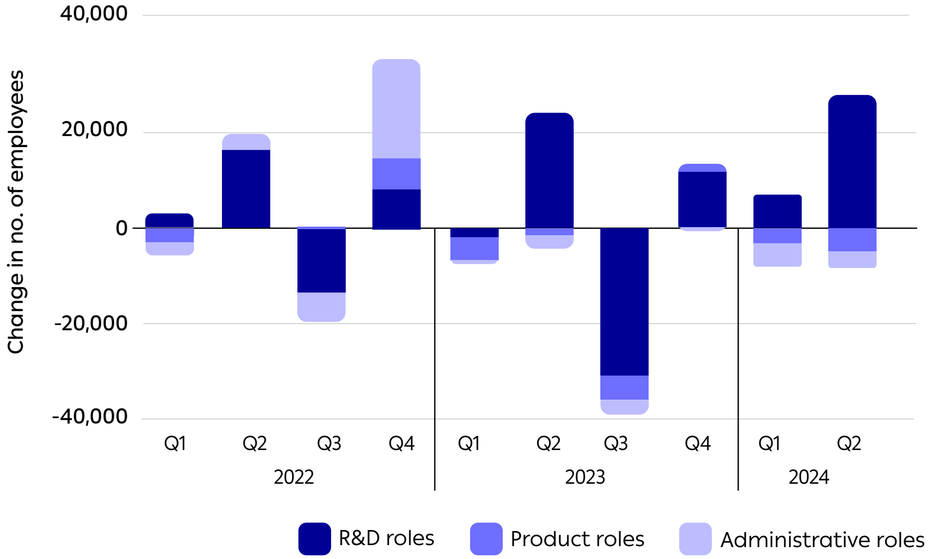
Source: Innovation Authority and Aaron Institute adaptations of CBS data

The Growth in the High-Tech Sector Since October 7: Only in R&D Jobs

A more in-depth examination of the composition of high-tech employees according to the different fields reveals that for nearly **six consecutive quarters, there was a decline in the number of employees in product and administrative jobs in the high-tech sector**. In other words, the field of employment continuing to demonstrate growth in high-tech is almost exclusively in R&D (research and development) jobs. This reality necessitates continued monitoring to clarify the reasons for the decline – a reduction in the number of jobs for cost reduction purposes, jobs leaving Israel, technological changes, or other reasons.

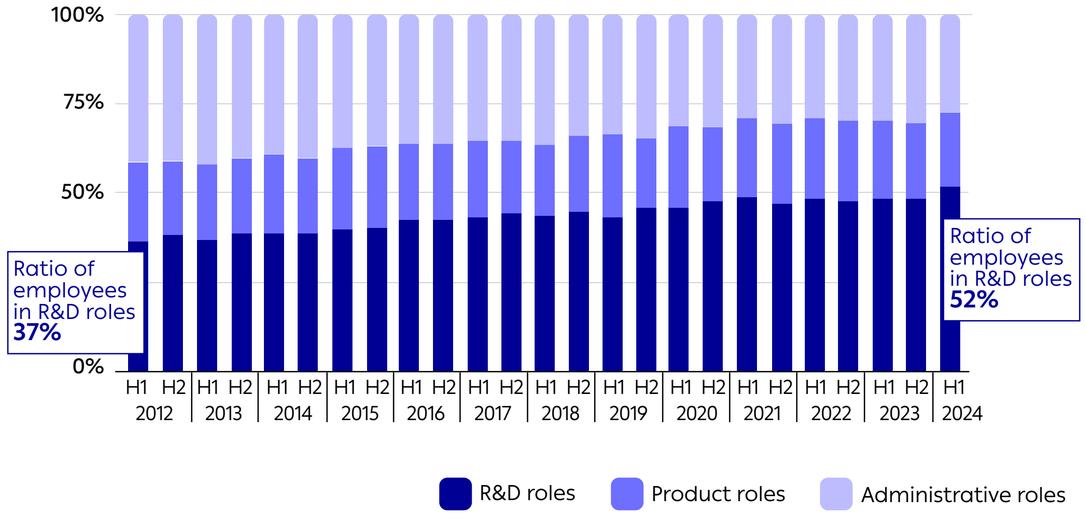
Consequently, **in the first half of 2024, the ratio of R&D employees exceeded more than half the total number of high-tech employees**. In other words, high-tech is increasingly focusing on development roles while the other jobs – some of which have lower entry barriers because they do not require technology training – are gradually declining.

Changes in no. of high-tech employees by role
(quarterly, ages 25-64)



Source: Innovation Authority and Aaron Institute adaptations of CBS data

Distribution of high-tech employees by role
(H2, ages 25-64)



Source: Innovation Authority and Aaron Institute adaptations of CBS data

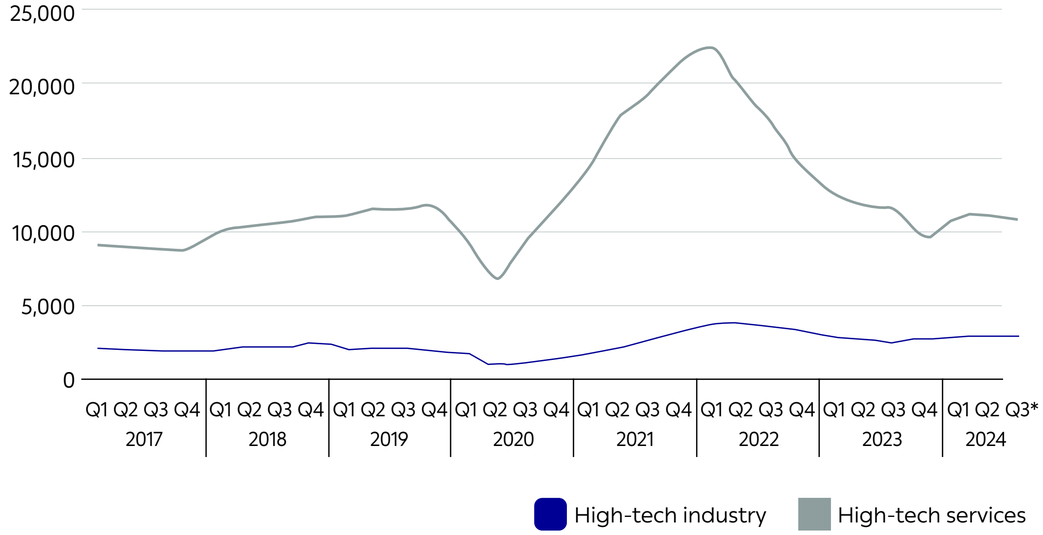
The Demand for High-Tech Employees Has Been Almost Unaffected by the War

The number of available jobs in the high-tech sector is a metric that reflects the jobs opened and advertised by the companies and the demand for employees. When examining this metric today, it is obvious that a certain downturn occurred with the outbreak of the war and that the number of available jobs in high-tech declined, especially in high-tech services (software). However, **the first quarter of 2024 recorded a recovery and the number of available jobs in high-tech services companies increased once again to pre-war levels**. The war did not therefore have an influence on available jobs except in the quarter in which it began.

Following a sharp increase in the number of available jobs in services companies that began in 2020 and reached its peak at the end of 2021, since the beginning of 2023, the number of available jobs has been cut by half and settled on 10,000-11,000 available jobs per quarter, similar to the figure that characterized the sector in 2018, as presented in the Innovation Authority's annual report.

Despite media reports of an increase in demands of defense technology companies, thus far, there has been no obvious change in the number of available jobs in the high-tech sector (including defense industry companies), and it appears less volatile and sensitive to market changes, and characterized by stagnation.

No. of available jobs per quarter by subsector



* The data for Q3, 2024 is for July only.

Source: Innovation Authority adaptations of CBS data

High-tech Salaries Continue to Increase

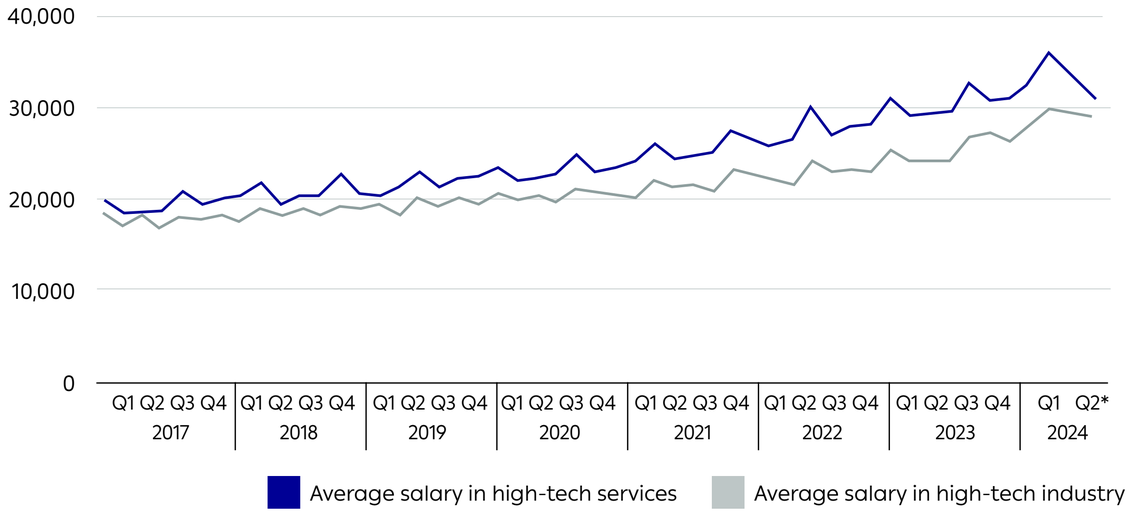
While the growth in high-tech employment has been curbed since 2022, salaries in the sector have continued to rise, even during the period of the war. During the second quarter of 2024, the average high-tech salary stood at 31,500 shekels. This, while the economy's average salary stood at 11,300 shekels. Since the beginning of the war, high-tech salaries have increased by an average of 5.5% whereas salaries in the rest of the economy rose by only 2%. As a result, the gap between salaries in the high-tech sector and the rest of the economy continued to grow and the ratio between them stood at 2.8 times higher in the last quarter.

Nevertheless, the rate of salary growth within the high-tech sector varied between different fields. While **salaries in the high-tech industries subsector registered an increase of 11% in relation to salaries in the quarter preceding the war** and reached 29,500 shekels, **salaries in the high-tech services subsector i.e., software, increased by only 3.6%** to 32,200 shekels.

Looking forward at the high-tech companies' expectations regarding salary increases in the sector, according to the CBS survey of business managers' expectations conducted in July 2024, **56% of the high-tech industries companies expect a salary increase in the coming year. This contrasts with 33% of the high-tech services companies.** The figure for the high-tech services companies is the lowest observed since the survey began in its current form in July 2022.

Another characteristic of salaries in the high-tech sector worthy of mention is its' seasonality. As can be seen in the diagram, in the first quarter of the year, high-tech salaries tend to increase markedly and decline again in the following quarters. This phenomenon can be explained primarily by the payment of yearly bonuses typical of the sector.

Average monthly salary in high-tech, by sub-sector (quarterly figures)



* The data for Q2, 2024 is for April and May only.

Source: Innovation Authority adaptations of CBS data

High-Tech Companies are More Optimistic About Hiring Employees

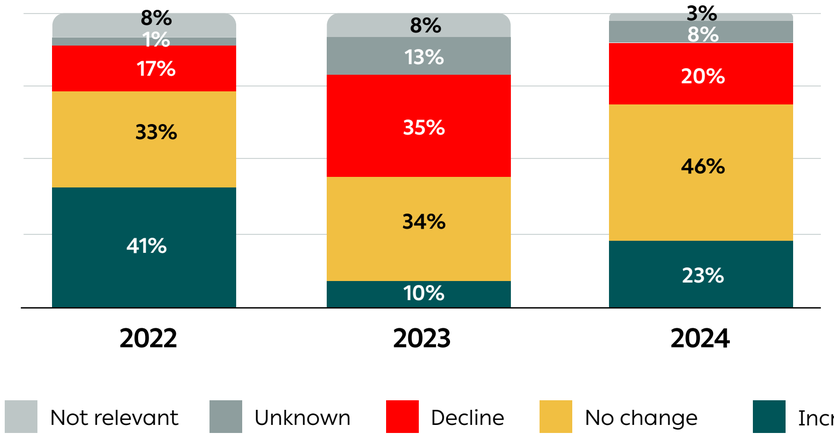
An examination of high-tech services companies' expectations about hiring employees in the coming year reveals that as of July 2024, about nine months since the outbreak of the war, almost one-quarter (23%) of the companies reported in the CBS survey of business managers' expectations conducted in July 2024 that they expect an increase in their companies' hiring of employees in the coming year.

In contrast, 20% of the companies expected a decline and 46% of the companies expected no change in the hiring of new employees. These figures reflect that **in 2024 there is a less pessimistic atmosphere in the high-tech services companies than that recorded in the survey of July 2023.** A year ago, only 10% of the high-tech services companies expected an increase in the hiring of employees, whereas 35% expected a decline. In other words, in 2024, there was an increase in expectations regarding the hiring of new employees and a decline in the expectation of reduced hiring of employees compared to expectations in 2023.

Furthermore, the optimism in the high-tech companies is greater than that in the services companies in the economy's other sectors, where only 10% expect an increase in the hiring of employees.

These figures do not relate to the location of the employees hired – Israel or overseas – and it is important to continue monitoring this factor, which will influence the sector's development. Moreover, this survey did not check the different jobs to which employees are expected to be hired, and the past year's employment data reveals a decline in the hiring of employees for non-technology jobs.

Expected change in high-tech services companies' hiring of employees in coming year compared top previous year by sector and change



Source: Innovation Authority adaptations of CBS data, business managers' expectations survey

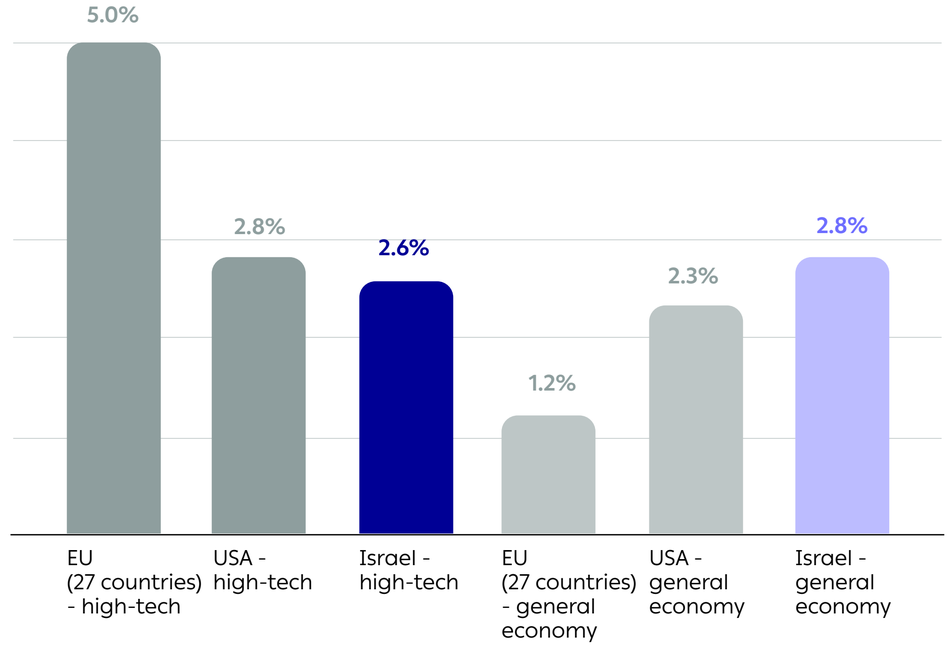
Growth in High-Tech Employment in 2023 Was Similar to the US and Lower than Europe

As a sector influenced by global economic trends, it is important to compare the Israeli high-tech metrics to those in other global innovation hubs which are impacted by the same trends and are also contending with a crisis since 2022. Over the past two years, local events have also occurred in Israel that influence the economy and the high-tech sector. A comparison was therefore made of the change in high-tech employment in Israel and in other global hubs, and also of the change in high-tech employment in Israel in relation to the other sectors of the Israeli economy.

The comparison reveals that in 2023 (the last year for which there is available data for enabling a global comparison), the first signs of recovery and emergence from the crisis were registered in the EU, where high-tech employment increased 5%. In other words, in the countries of the EU, the high-tech sector increased its centrality to the local economy. **In the US, high-tech employment grew by 2.8% in 2023 – a level similar to that in Israel (2.6%).** With the publication of data for 2024 in the international databases, it will be possible to check the influences of the war on employment in the Israeli high-tech sector in global terms.

In general, the rate of growth in high-tech employment is higher than that in the economy's other sectors. As evidence, the employment growth rate in the general EU economy in 2023 was 1.2% and in the US 2.3% i.e., lower than the growth in high-tech in both locations. In contrast, in Israel, employment in the general economy grew by a slightly higher rate than in high-tech (2.8%).

Change in no. of employees in 2023 by sector and location



Source: Innovation Authority adaptations of CBS, Eurostat, and American BLS data
The data for Israel refers to employees aged 25-64
The EU data refers to employees aged 15-74
The US data refers to employees aged 16 and over
The US high-tech definition includes sectors with similar definitions to that of Israeli high-tech

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High-Tech Investments Data

No Significant Change in Startups' Fundraising During the War

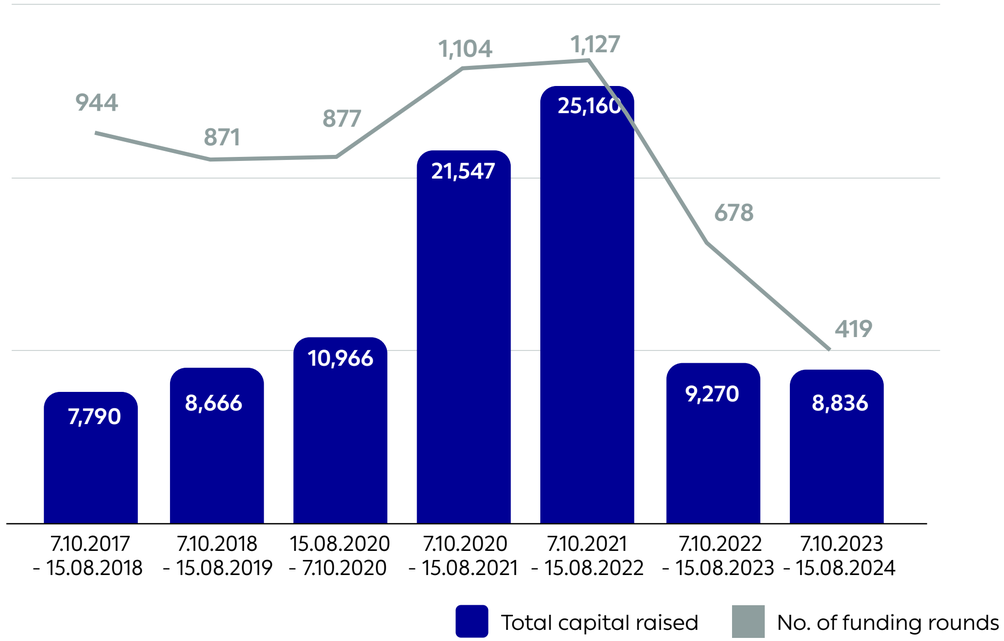
A further metric that reflects the state of the high-tech sector is the capital raised by startups – capital that is used to hire new employees and to expand the business activity of the companies' future generations.

The total capital raised by technology companies in Israel during the war, in the period between 7.10.2023-15.8.2024, was close to 9 billion dollars. This sum is similar to that raised by Israeli technology companies during the same period every year since 2017, except during the record fundraising periods of 2020-2022. **In other words, the war has not slowed the total capital raised by Israeli startups** and the long-term trend would appear to be continuing. We will also see below that Israel is still one of the leading global hubs in venture capital investments.

It is important to emphasize that there is a delay in identifying the number of funding rounds, primarily those attributed to the early stages, and we expect this number to increase over time.

Nevertheless, as will be detailed below, there were changes in the composition of investments in Israeli startups during this period in terms of the companies' life-stage and their fields of activity. It is important to continue monitoring these trends.

No. of funding rounds and total capital raised by tech companies in Israel per year between 7.10-15.8 the following year (millions of dollars)



Source: Innovation Authority adaptations of IVC data

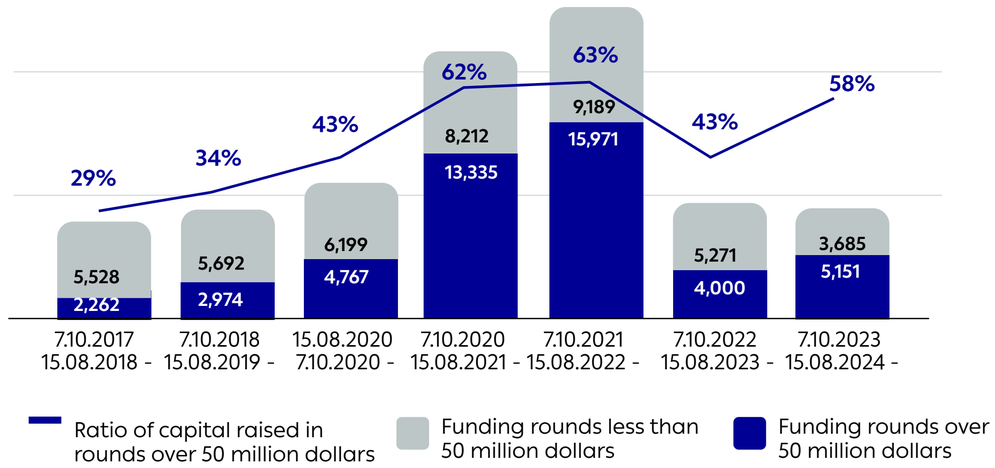
Investments During the War: Primarily in Mature Startups

Even though total investments in technology companies in Israel were similar to previous periods, a change can be identified in the composition of investments in terms of the life-stages of the companies in which capital was invested: close to 60% of the total capital raised by Israeli technology companies since October 7 – approximately 5 billion dollars – was in funding rounds larger than 50 million dollars i.e., in mature companies. Consequently, **the composition of investments during this period tends towards investment in mature and established companies.**

The high ratio of investments in large funding rounds since the onset of the war is similar to that observed at the peak of the investments period between 2020-2022. Nevertheless, it can be assumed that this ratio will update and decline slightly as more data is revealed about early-stage transactions.*

A global comparison reveals that the trend observed in Israel is not unusual in comparison to other central hubs such as Paris, London, and New York and that the high ratio of advanced-stage investments may indicate the maturation of companies and the maturity of the local ecosystem. At the same time, **it is important to monitor early-stage investments as a metric of the sector's future and of the growth of young startups and their transformation into mature companies.**

Total capital raised by tech companies in Israel per year between 7.10-15.8 the following year, by size of funding round (millions of dollars and %)



Source: Innovation Authority adaptations of IVC data

* See the IVC Methodology Report

An Increase in Investments in Cyber Companies

During the first two quarters of the war (the fourth quarter of 2023 and the first quarter of 2024), it would seem there was a slight decline in total investments. In the second quarter of 2024, on the other hand, there was an increase in total investments, which were similar to the last two quarters of 2022 (after the significant decline compared to the period of record investments).

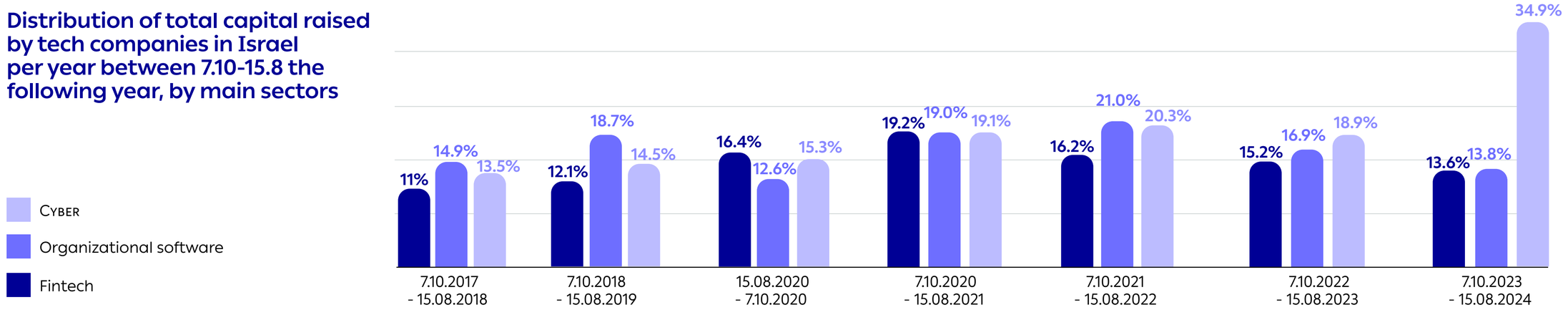
The factor explaining the increase in fundraising in the second quarter of 2024 is the number of very large funding rounds of high-tech companies in the cyber field – a field that has become more dominant since the beginning of the war.

About 35% of the total capital raised since the beginning of the war was by cyber companies. This is a significant increase when in parallel periods in previous years, cyber companies constituted only 13%-20% of capital raised.

Since the beginning of the war, there has been a change in the composition of investments in Israeli startups. In recent years, three fields constituted approximately two-thirds of total investments in startups: organizational software, cyber, and fintech. As can be seen in the diagram, in most periods, the investments in each of them were similar in scope, whereas since the beginning of the war, cyber has more than doubled its size compared to the other two fields.

The Innovation Authority referred to the diversity of investments in Israeli startups in its annual report and will continue to monitor this trend.

Distribution of total capital raised by tech companies in Israel per year between 7.10-15.8 the following year, by main sectors



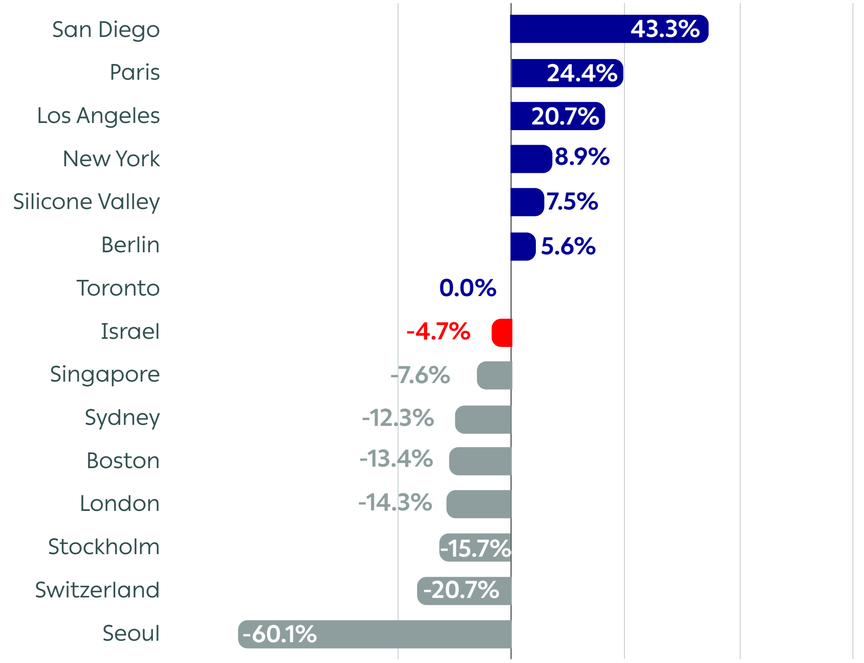
Source: Innovation Authority adaptations of IVC data

Israeli Startups' Fundraising is Third in the World – But Recovery is Slow and Competition is Growing

The sum raised by Israeli technology companies since the onset of the war – 8.8 billion dollars – positions **the Israeli innovation hub in third place in terms of fundraising,* a sum lower only than that raised in San Francisco and New York.**

Alongside the positive news for Israeli high-tech, it is important to pay attention to **the rate of recovery of investments in some of the world's leading hubs which is faster than that observed in Israel.** The total investments in technology companies in Israel since October 7 are 4.7% lower than in the parallel period last year. In San Diego, Paris, Los Angeles, and Berlin – hubs that have raised lower sums than Israel since October 7 – the growth rate was higher, as it was in New York and Silicon Valley, the global leaders.

Rate of change in total investments between 7.10.23 - 15.8.2024 compared to parallel period last year in different global hubs



Source: Innovation Authority adaptations of CrunchBase and IVC data

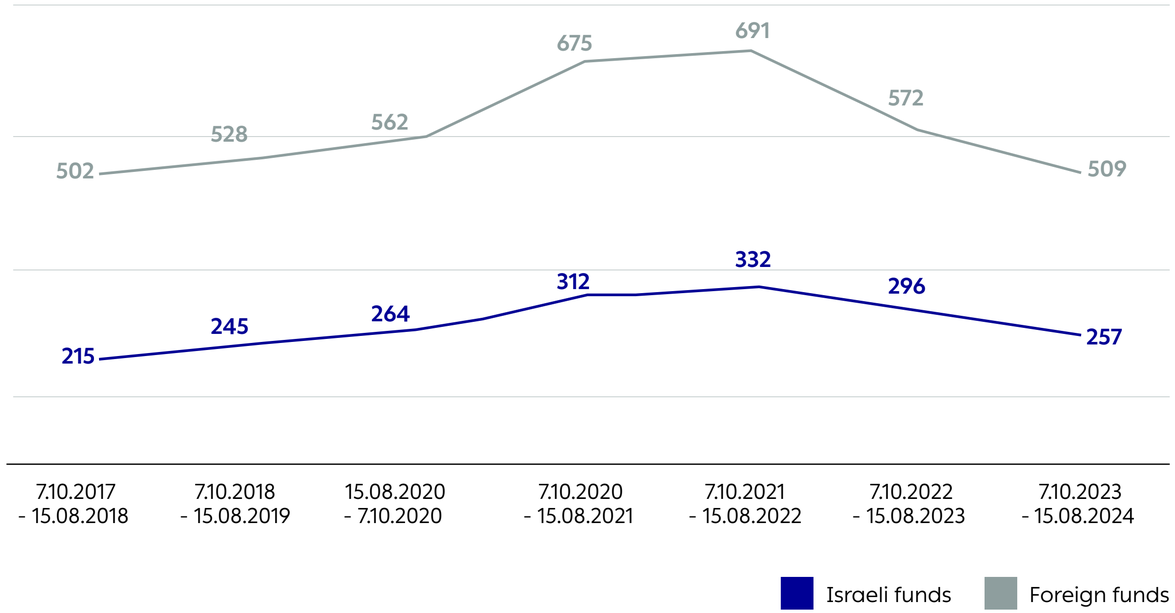
* The calculation combines data from the CrunchBase international database and the Israeli IVC database. This combination may result in inconsistency regarding the way in which different companies are attributed to different territories.

The Foreign Venture Capital Funds are Maintaining their Presence in Israel

An examination of the venture capital funds active in Israel (funds that have made at least one investment in Israel since October 7), reveals no significant decline in their number.

Despite the increased risk in the State of Israel at this time, **the number of foreign venture capital funds active in Israel remained at a similar level to that of the past five years**. Even during this turbulent period, more foreign venture capital funds have been active in Israel than Israeli funds.

No. of funds that participated in at least one investment during this period, by fund type



Source: Innovation Authority adaptation of IVC data

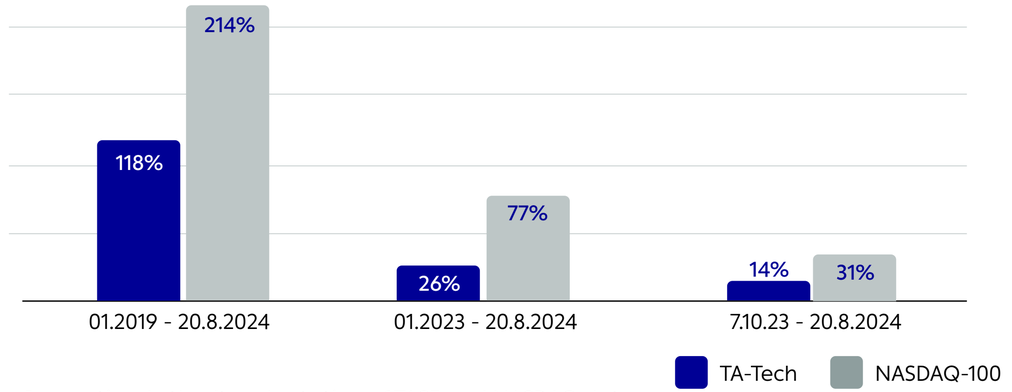
The Disparity in Yields Between NASDAQ and Tel Aviv Continues to Grow

After several years during which the Tel Aviv Technology Index and the NASDAQ returned similar yields, a disparity in their yields began to appear in early 2023. On the eve of October 7, the NASDAQ Index had returned a yield of 37% since the beginning of the year whereas the TA-Tech Index had returned a yield of only 10%. **This disparity is steadily growing, the longer the war continues.** Although the yield of the technology companies traded on the Tel Aviv Stock Exchange stands at 14% since the onset of the war, this figure pales in comparison to the 31% yield of **the NASDAQ 100 Index i.e., the NASDAQ's yield has been more than double that of Israel since the beginning of the war.**

Overall, when examining the disparity in yields since the beginning of 2023, the technology companies in Tel Aviv have yielded 25% compared to the NASDAQ which has yielded 76% - three times more.

This disparity, combined with the lowering of Israel's credit rating, illustrates the global erosion of Israel's reputation.

Yields of TA-Tech and NASDAQ-100 indices over different periods



Source: Innovation Authority adaptation of TASE and NASDAQ data

Yields of TA-tech and NASDAQ-100 indices over time

Source: Innovation Authority adaptation of TASE and NASDAQ data

Conclusion and Recommendations

A year after October 7, 2023, it is clear that despite the difficult year experienced by the entire Israeli economy, the high-tech sector has demonstrated resilience. The sector's strength is expressed by the fact that it was the third largest global hub in terms of capital raised since the onset of the war. At the same time, employment in the Israeli high-tech sector over the past two years has been characterized by stagnation and was similar to the growth rate of the general population. Looking forward, the jump in the technology stock indices on the US stock exchanges, together with expectations for a lowering of interest rates by the central banks in the US and Europe in 2025, may contribute to the continued recovery of the technology sector in the different global hubs. We therefore offer the following recommendations aimed at helping Israel maintain its global standing as a leading innovation hub:

Recommendation 1:

To continuously monitor central metrics that indicate the state

In this report, we have surveyed the Israeli high-tech sector based on a variety of metrics that reflect its state in terms of fundraising and employment. The Innovation Authority will continue to monitor these metrics on an ongoing basis. At the same time, it is also important to continue monitoring the composition of the sector's employees in development and other jobs, and the number of employees that Israeli companies employ overseas. A further metric that may reflect the faith of entrepreneurs and investors in Israel is the place that new technology companies are registered in. Furthermore, there is a need to continue examining the distribution of startups' fundraising according to the companies' life-stage, the fields of their activity, and the prevalent mood in the sector. This is necessary in order to ensure available capital for investments in a variety of fields, both for young startups and for growth companies.

Conclusion and Recommendations

Recommendation 2:

To reduce the local uncertainty in the business environment

According to the Ministry of Finance, since the beginning of the war, the State of Israel's GDP has been impaired by over 4%. In contrast, state expenditure has increased over this period by more than 20%. This is an unsustainable situation in the long-term, and to contend with the growing financing needs of the war, a need therefore exists for growth engines. Considering the significant size of the high-tech sector, that comprised over 24% of the business GDP of the Israeli economy in 2023, it is expected to play a central role in returning the Israeli economy to a growth trend. To do so, there is a need to employ counter-cyclical measures to increase government investment in the sector, in order to ensure its continued future prosperity. Government investment in the sector must provide a response to the needs of Israeli technology companies in a diversity of life-stages and fields of activity and must continue encouraging investment entities to increase their investments in Israeli technology companies and venture capital funds. Increasing state investment in the sector during this period will also constitute a positive signal for investors and will assist in reducing uncertainty, a signal that is significant in a high-tech sector that relies on foreign players – investors, clients and suppliers – that are sensitive to the local instigators of risk and instability in the business environment.

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