



2024 Annual Report **The State of High-Tech**

Preface

Israeli high-tech is at a crossroads where, among other things, both its resilience and robustness are being tested. The high-tech industry entered 2023 following a significant decline in investments as part of global trends, and its companies and entrepreneurs were compelled to make adjustments to the new situation. However, no one could predict the two crisis events that shook Israel and the high-tech industry - the legal reform and the "Iron Swords" war. All of this occurs in an even broader context of an intense technological arms race between the West and the axis of non-democratic countries, a race leading to huge investments in the global technology industry and fierce competition among technology hubs worldwide.

This report reflects the state of the Israeli high-tech sector for 2024. Analysis of the data reveals a complex picture - on the one hand, the macroeconomic data reflecting the high-tech sector's contribution to the Israeli economy continued to rise in 2023. On the other hand, however, declines were observed in a series of indices.

When reading the report, it is impossible to overlook high-tech's tremendous importance to the Israeli economy. According to our analysis, from 2018-2023, the high-tech sector was responsible for over 40% of Israel's GDP growth - an incredible figure that demonstrates the degree to which Israel's economic growth depends on the success and strength of the high-tech sector.

An examination of other main macroeconomic figures also attests to the high-tech sector's resilience - approximately 9,000 tech companies operate in Israel, of which more than 500 are centers of multinational companies; nearly 400,000 people are employed in high-tech; the sector accounts for 53% of Israel's exports and a fifth of its GDP.

That's the good news, however, an analysis of all the macro indices reveals that some have returned to the levels of 2018 or even before. These indices include the total funding raised by startups and Israeli venture capital funds, the number of available jobs in the high-tech sector, the number of IPOs each year, and the number of new development centers opened in Israel by multinational companies. A continuation of this trend in the years to come may be reflected in the sector's reduced contribution to the general economy.

Another challenge that needs addressing is the limited demographic diversity among high-tech employees, with many populations in Israel being significantly under-represented. The high-tech sector still consists primarily of Jewish men with a significant gender gap, while Ultra-Orthodox and Arab men and women combined comprise less than 5% of high-tech employees. A lack of diversity can also be seen in the thematic distribution of investments in high-tech, with 60% of them concentrated in organizational software, cyber, and fintech.

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What then does the future hold for Israeli high-tech? Surveys we conducted among startups and venture capital firms show that the war has affected success in meeting goals and created delays in development, changed plans and, in some cases, even led to job dismissals and cost reductions. In general, the sentiment revealed in the surveys about the future is not a positive one – whether this is expressed by concern over future fundraising difficulties or by the respondents' forecasts regarding a downturn in business activity.

In the face of these challenges and considering high-tech's importance to the Israeli economy, it is paramount to ensure that the course of growth is maintained. In the short-term, economic policy is intended to manage market expectations and create certainty, especially in light of the sector's reliance on foreign investments. One possible way to increase certainty is by creating a multi-year government plan for investment in high-tech that will reduce uncertainty and constitute an anchor for the industry and investors. Moreover, to continue the high-tech sector's growth in the long-term, it is important to invest in quality education for all groups of the population throughout the country and at various stages along the educational and professional timeline.

Over the past year, the Innovation Authority has responded quickly to the changing reality and implemented several programs to support the sector, including the "Fast Track" for companies with a short runway, the launch of the Startup Fund for Early Stage investments in deep-tech fields, and the 'Yozma 2.0' Fund to incentivize Israeli institutions to invest in Israeli venture capital funds.

Immediately after October 7, we participated in a campaign with a main message which was that "Israeli tech delivers no matter what!". In the spirit of that message, all of us – government and industry alike – must ensure that high-tech remains strong and continues to grow in the future as a central engine of the Israeli economy.

Dr. Alon Stopel
Chairman,
Israel Innovation Authority

Dror Bin
CEO,
Israel Innovation Authority

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Introduction and Main Points: Israeli High-Tech at a Crossroads

The Innovation Authority's 2024 annual report reflects the crossroads Israeli high-tech is currently facing. Over the past decade, and specifically since 2018, there has been a boom in investments in startups and new employees joining the high-tech sector.

During this period, high-tech has become established as the growth engine of the Israeli economy – a factor that explains, on average, 40% of the Israeli economy's growth since 2018 – and as its shock absorber. Furthermore, it also drove the growth in GDP during years of crisis in which the Israeli economy stagnated. High-tech's primary contribution to the Israeli economy stems mainly from the growth in high-tech employment that is characterized by high salaries – in turn, contributing to tax payments, to growth in the sector's output, improvement in the national balance of payments via increasing exports, and more.

Nevertheless, against the backdrop of global macro-economic trends, high-tech's growth has suffered a downturn since 2022. While global trends also impacted other global innovation hubs, this phenomenon was compounded in Israel by local circumstances that are still affecting the high-tech sector today.

The crossroads of Israeli high-tech relates to the path the sector will take from this point onwards: looking forward, will high-tech return to a growth trend, stagnate (as happened in the decade following the dot.com bubble) or will it move towards a process of retrenchment?

In some leading macro-economic indices, primarily the increase in high-tech output and the sector's exports, the growth continued in 2023. At the same time, a series of significant indices declined. First, **the growth in high-tech employment diminished to just 2.6% in 2023 i.e., a rate slightly higher than the natural growth rate of Israel's population.** This is an important index because high-tech employment has a significant impact on state revenues from taxation, GDP etc. Many indices linked to business activity in high-tech returned to the levels that characterized them in 2018 or previously, including fundraising for startups and Israeli venture capital funds. **Startups' fundraising in 2023 declined by 55% - a sharper decline than that observed in US hubs and in some of the European hubs.**

A series of surveys among high-tech companies and venture capital funds conducted by the Innovation Authority in recent months reflects the concerns in the high-tech industry that have arisen in the wake of the October 7 events. Among others, over a third of the startups currently engaged in fundraising estimate that they will raise capital at a significantly lower value than their current value (Down Round).

In addition to the influence of the situation in Israel on the mood in the sector, it also impacts the companies' business activity. According to reports of some of the companies, since October 7 they are primarily affected by a slowdown in their business activity, delays in product development, or a failure to meet goals.

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Furthermore, during the months of the war, Israeli startups have reported that they downscaled their plans to hire employees during the coming year, with most of this reduction expected in the hiring of employees in Israel.

High-tech's centrality to the Israeli economy is exceptional by global comparison. The sector's share in the Israeli economy is similar to the share of natural resources in countries where the economy relies on commodities such as oil or gas. Human capital in high-tech therefore constitutes "Israel's natural resource". From this perspective, high-tech employment directly influences economic activity and growth, both of the sector itself and of the entire Israeli economy. **As long as the growth in high-tech employment continues at a higher rate than the growth of the population, the sector will continue to exert a positive influence on the economy.**

High-tech's importance to the Israeli economy is especially heightened during a period when the state's funding needs – both military and civilian – have increased. Because the flow of tax payments from the high-tech sector is so important at this time, it is vital to preserve the sector's significant levels of economic activity. In this context, later this year, the Innovation Authority and the Chief Economist in the Ministry of Finance expect to publish a report on the high-tech sector's contribution to state revenues from taxation. The report will present the contribution of high-tech employees and commercial companies to state revenues.

Alongside the importance of high-tech to the economy at this time, the challenges are also increasing. **Israeli high-tech is characterized by a high degree of dependence on multinational factors that influence the sector's prosperity:** startup investors, multinational companies that are significant employers and buyers of startups, clients of Israeli companies, international academic and industrial research affiliations, supply chains of raw materials, including for the defense industries, and more.

Consequently, **damage to Israel's reputation against the backdrop of the current situation**, that may result in a decline in a variety of activity indices noted above, **presents a risk for the short-term future of Israeli high-tech and even beyond.** The act of lowering Israel's credit rating in recent months is an expression of this damage and of foreign investors' concerns for the future of the Israeli economy.

In light of high-tech's importance and its current challenges, alongside increasing global competition in fields of innovation, there is a need for a state policy that will guarantee the sector avoids regression to a negative trend that will negatively affect the entire Israeli economy, as happened at the beginning of the century. **The sector's success in the past is no guarantee of its future success and the assets it relies on, including capital and reputation may dwindle.**

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Currently, despite high-tech's centrality to the Israeli economy, state investment in it is lower than the investment in prominent global hubs such as the US, the UK, and South Korea. In the current reality of limited state investment and extremely high dependence – in global terms – on foreign investments, without a significant local safety net, the sector may have difficulty in successfully negotiating crisis periods.

In the short-term, the role of state policy is to manage market expectations and to create certainty in order to restore Israel's reputation as an attractive investment destination for high-tech investors. Furthermore, for long-term high-tech growth, it is important to invest in quality education for all groups of the population, throughout the country, and at different stages of the educational and professional timeline.

In order to mitigate some of these challenges, last year the Innovation Authority presented several programs aimed at supporting the sector. The main ones are the "Fast Track" program for companies with a short runway and the launch of the Startup and "Yozma 2.0" funds. The Innovation Authority is constantly striving to present additional solutions to meet the needs of Israeli high-tech.

In summary, considering the importance of the high-tech sector to the Israeli economy, especially now when it finds itself at a crossroads, it becomes more essential for the government to prioritize a policy that ensures this sector will not shrink, thus dragging the entire economy with it, as it did in the early 2000s.

Thanks:

The Innovation Authority wishes to thank Dr. Sergei Somkin from the Aaron Institute for the extensive assistance in processing and analyzing employment data and for the joint work and thought. The Innovation Authority also thanks the Israel Advanced Technology Industries Association (IATI) that partnered us in conducting the venture capital funds survey. Finally, the Authority thanks Yair Ben Netanel from the Central Bureau of Statistics who assisted in locating data for this report.

Credits:

Compilation and Editing: Innovation Authority – Economy and Research Division

Advisor and content editor: Inbal Orpaz

Linguistic and graphic editing: Calltext

This report is divided into two main sections. In the first section of the report, we present the an update situation report of Israeli high-tech.

The main findings are:

60% growth 

in the number of high-tech employees between 2014-2023 - an increase of 150,000 people. Most of this growth was in software companies.

Approx **40%**

of the 2018-2023 GDP growth stems from high-tech which comprises about one-fifth of Israel's GDP.

55% decline 

in startups' fundraising in 2023 compared to 2022, similar to Europe but a sharper decline than in the US.

Israeli startups expect a decline in the hiring of new employees in the coming year, mainly in Israel.

70% decline 

in venture capital raised for Israeli funds in 2023, in relation to the average for 2018-2022. This compares to a decline of 30%-40% in other global hubs.

36%

of the startups that raise funds in Israel estimate that their next funding round will be significantly lower than their current value (Down Round).



In the second section of the report, we discuss of four core issues related to the future of Israeli high-tech

1



High-Techs' Centrality to the Economy and the Impact of Changes in the Sector on the Economy

3



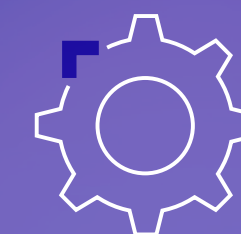
Competition with Other Global Innovation Hubs

2



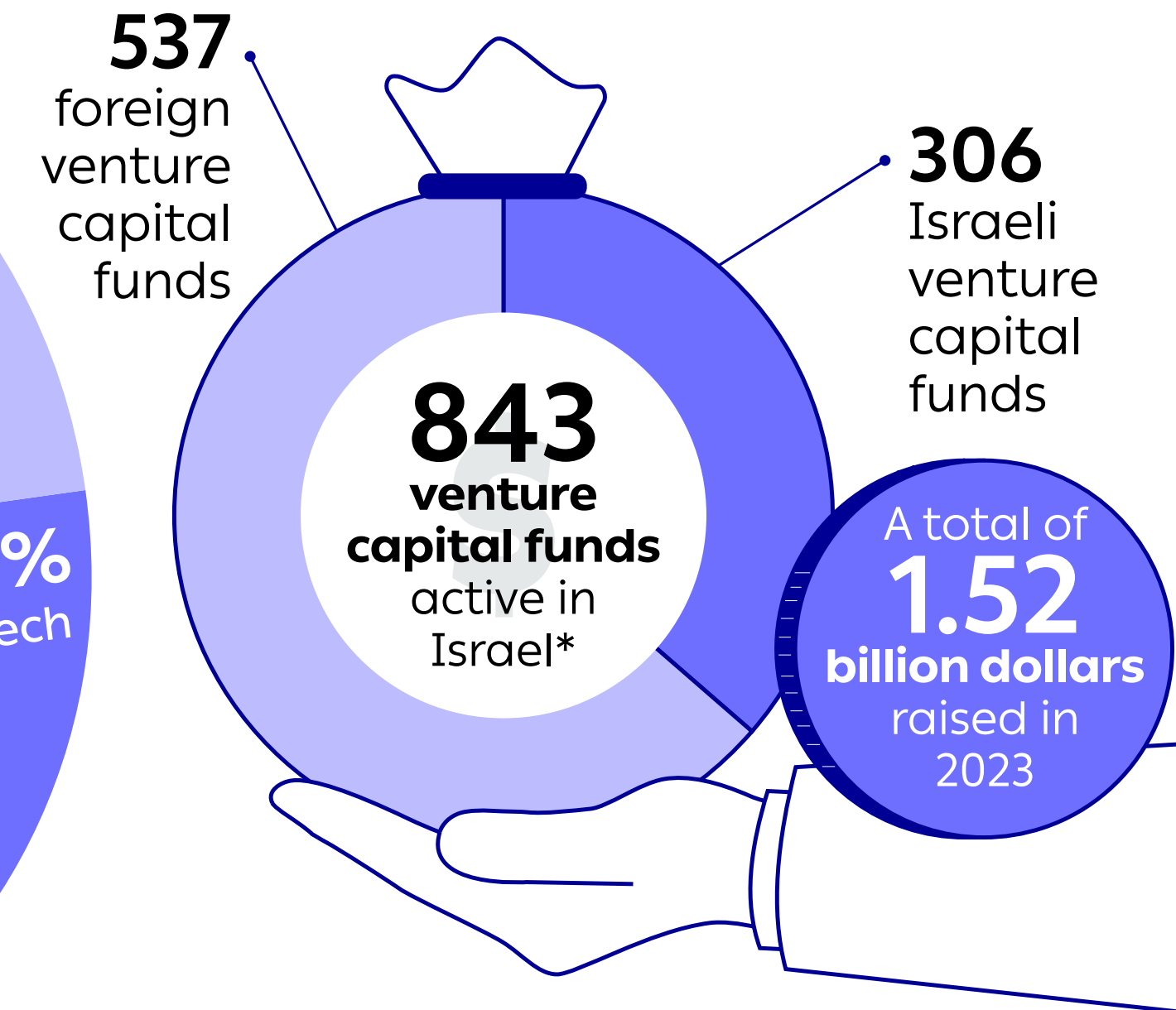
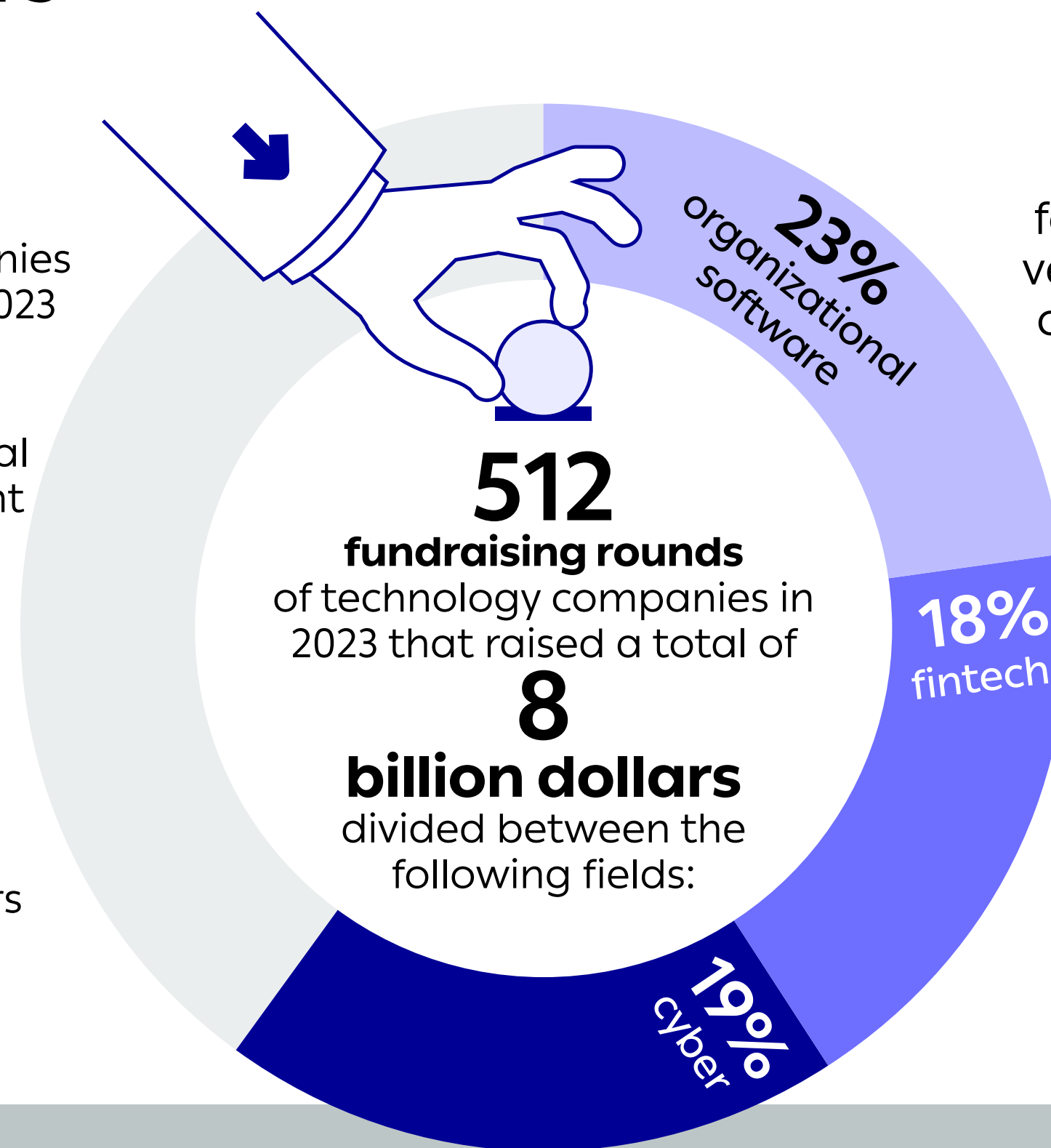
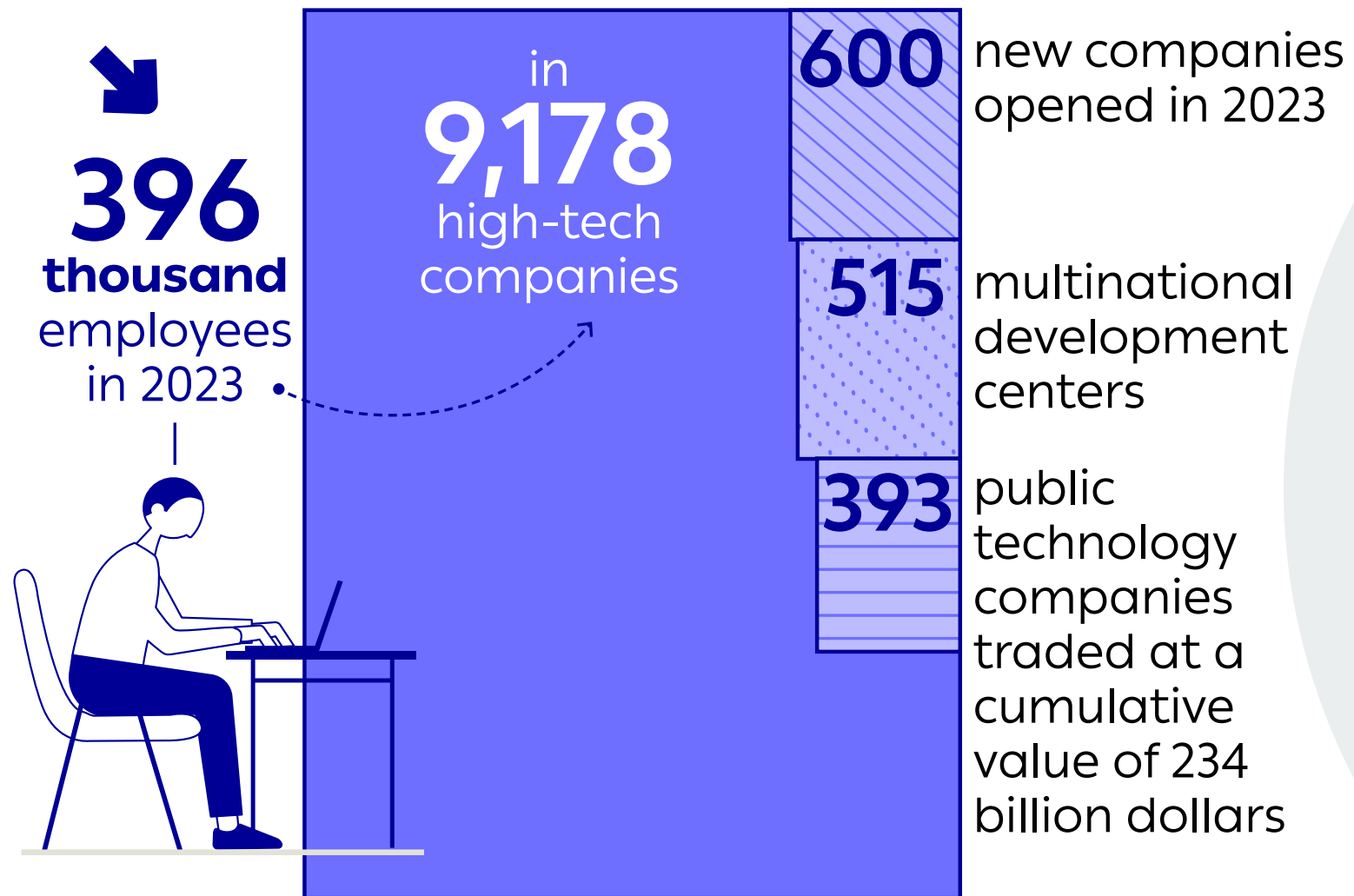
Creating Inclusive Growth by Expanding the Circles of Technology Employment

4



Next Growth Engines of Israeli High-Tech

Israeli High-Tech in Numbers



Israel's ranking according to the **Global Innovation Index in 2023**

14 ↑ Up two places from 2022

Tel Aviv's ranking according to the **Startup Genome Index in 2023**

5 ↑ Up two places from 2022

* No. of funds (without duplication of several funds under the same managing company) that made at least one investment between January 2022-March 2024.

Source: Innovation Authority adaptations of CBS, TASE, Startup Genome, WIPO, IVC and PitchBook data

Part 1: A Situation Report of Israeli High-Tech, 2024

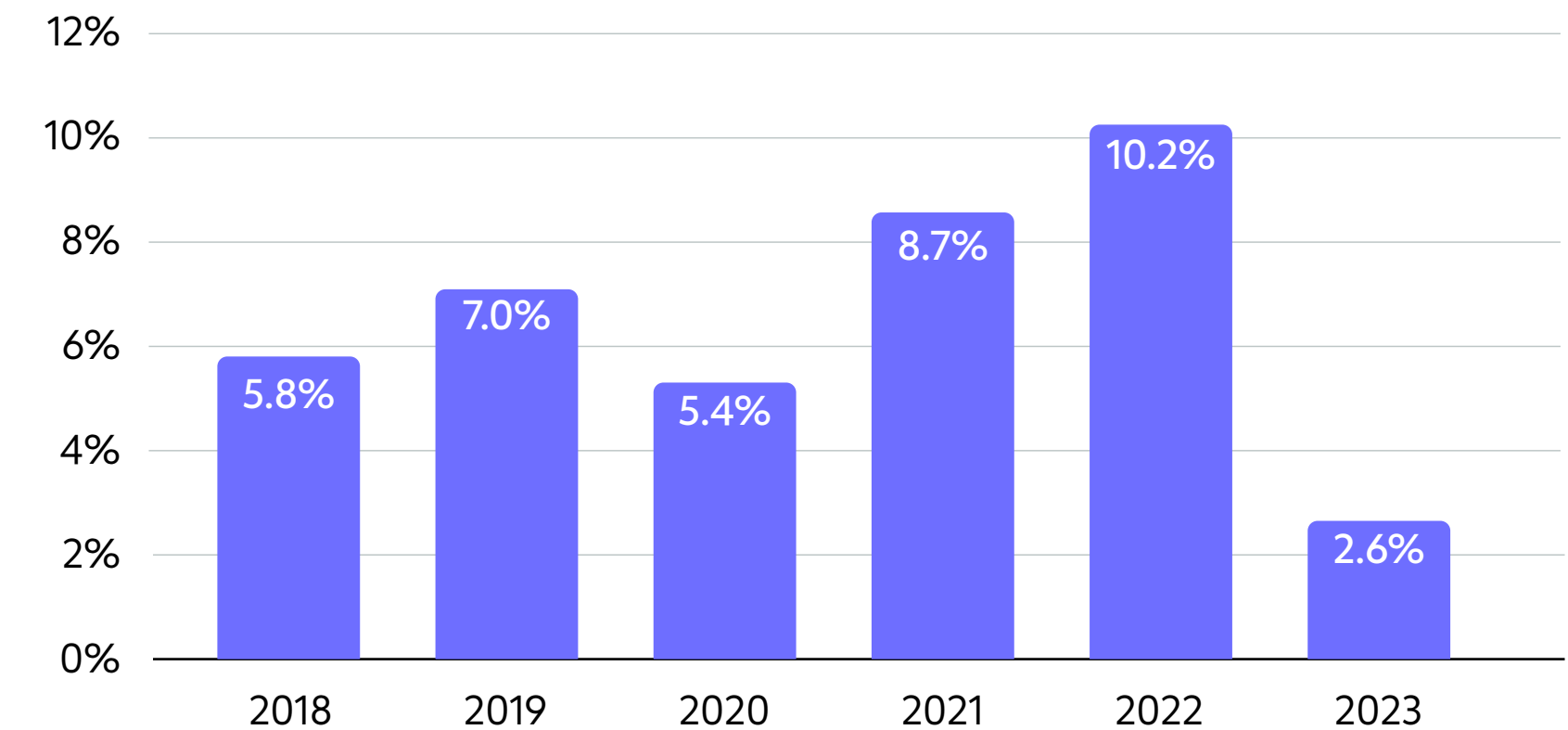
Macro Indices Show a Moderate Increase – Investments Continued to Decline

Against the backdrop of the geo-political and security upheavals in 2023, **most of the macro indices in Israeli high-tech registered a moderate increase, primarily – a growth in the sector's output and exports. The number of high-tech employees also increased**, however at a lower rate compared to previous years.

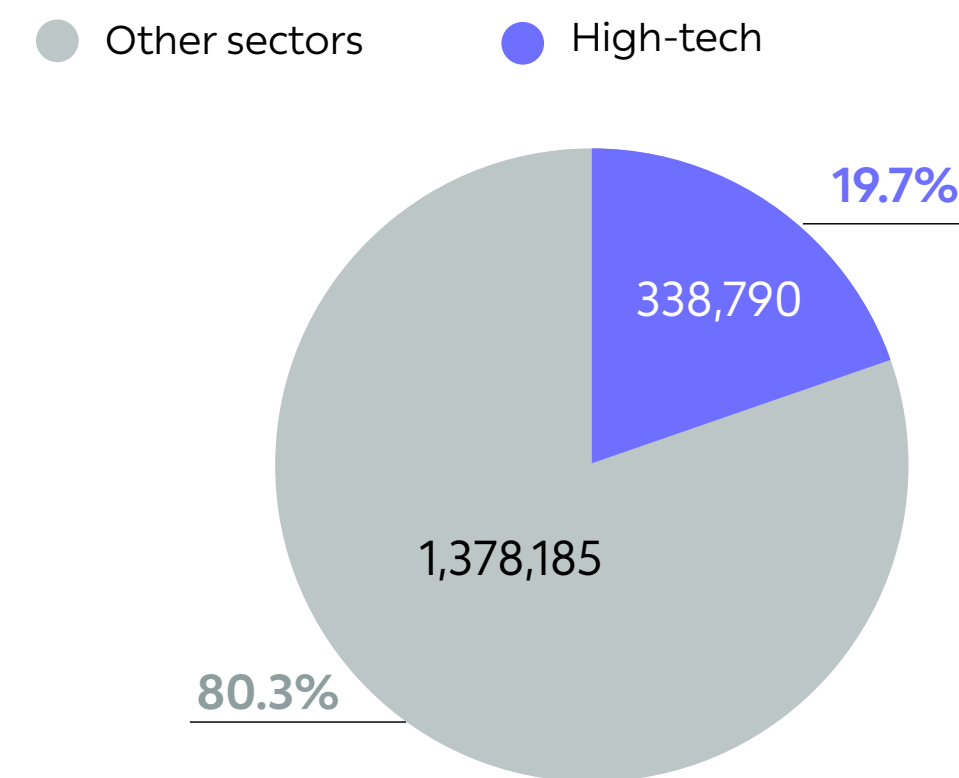
One of the central high-tech indices to show a decline, was the investments in Israeli startups, thereby continuing the trend that began in early 2022. Fundraising by Israeli startups declined by approximately 55% in 2023, with most of this decline occurring in advanced funding rounds **however, early rounds also showed a decline.**

High-tech continued to reinforce its position as significant and central to the Israeli economy in 2023. High-tech was responsible for 53% of Israeli exports (73.5 billion dollars). High-tech's share of Israeli GDP reached one fifth of the total GDP (19.7%) and was valued at 338.8 billion shekels.

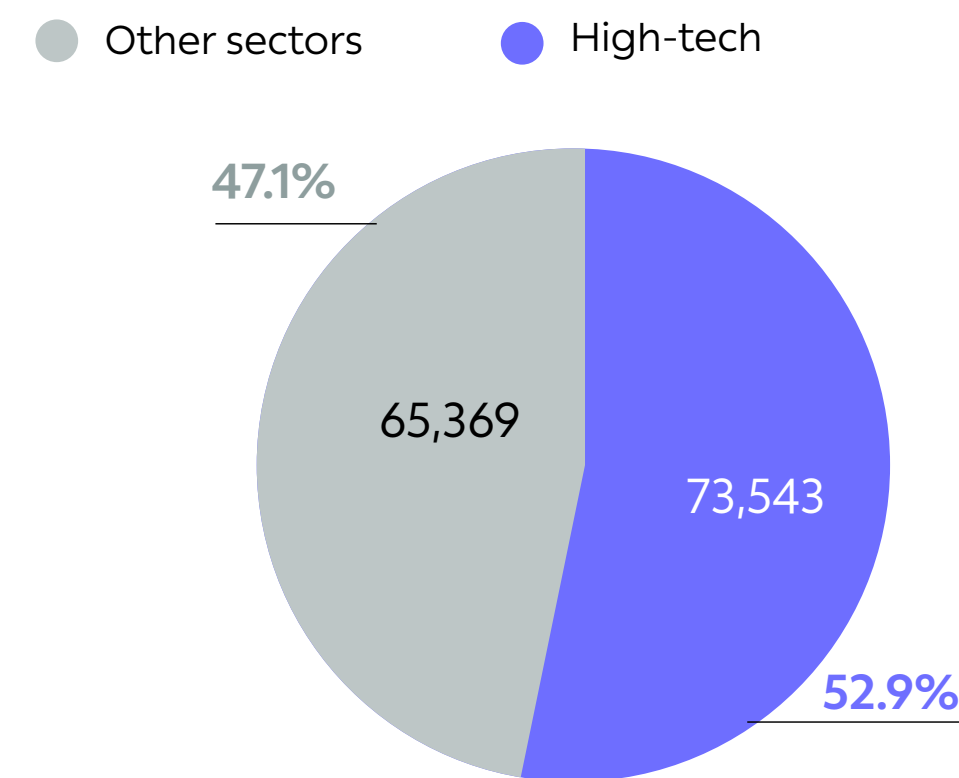
Annual Change in Number of High-tech Employees, in %



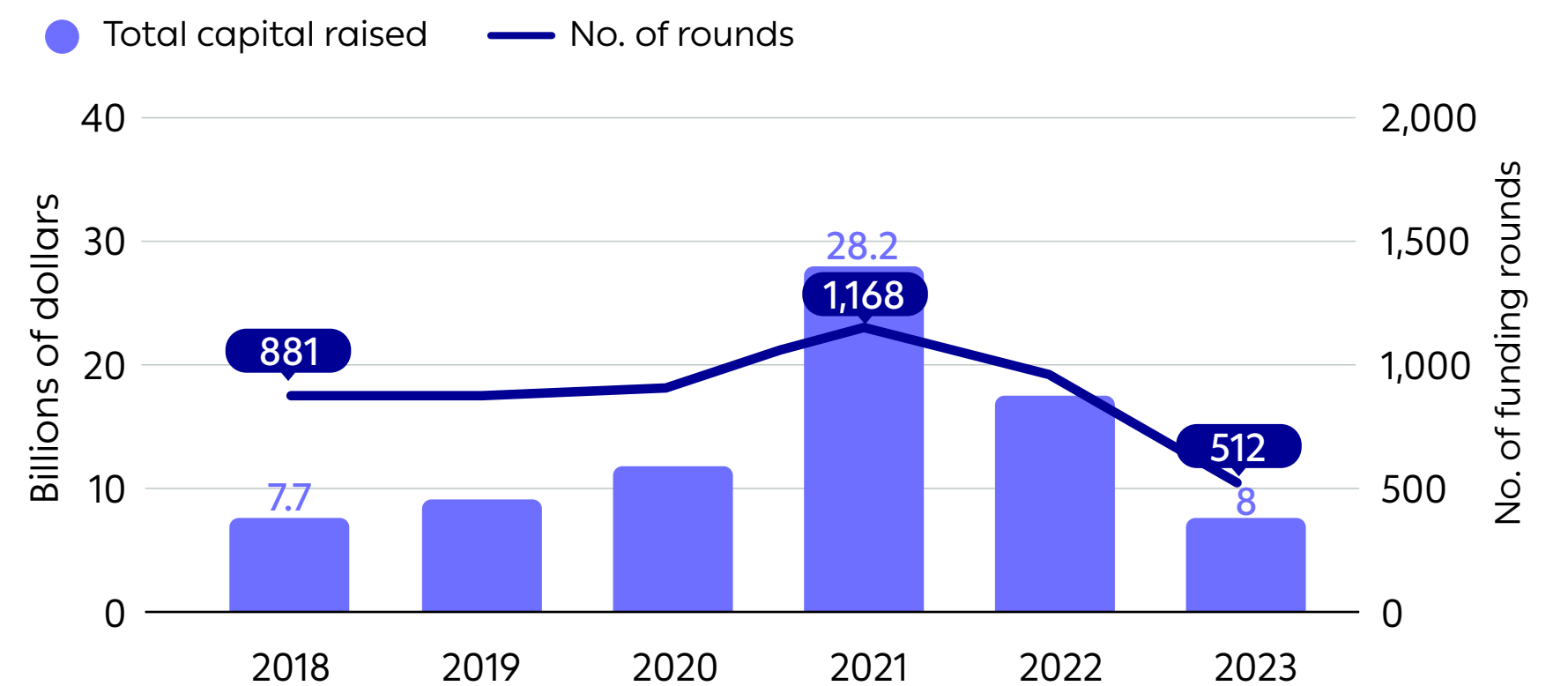
Distribution of Product in Israel by Sector
(in millions of shekels, base prices and %, 2023)



Distribution of Exports from Israel by Sector
(in millions of dollars and %, 2023)



Total Capital Raised by Israeli Technology Companies and No. of Funding Rounds per Year
(in Billions of dollars and no. of rounds)



Source: Innovation Authority and Aaron Institute adaptations of IVC and CBS data.

The TASE Still Lags Behind the NASDAQ but Investors in Israeli Technology Companies are Unconcerned about the War

From the period between the outbreak of the Covid pandemic in 2020 until the proclamation of the planned legal reform in January 2023, the performance of the technology companies' shares traded on the **TA-Technology Index** was almost identical to the fluctuations on NASDAQ.

In contrast, the TA-35 Index that represents companies from all sectors of the Israeli economy, underperformed during this period in comparison to the technology companies in Israel and overseas. With the outbreak of the Russia-Ukraine war in early 2022, the gaps between the NASDAQ and the TA-35 narrowed considerably.

In early 2023, with the proclamation of the planned legal reform, a process of separation began between the indices in Tel Aviv – both the technology and the TA-35 indices – and the NASDAQ Index with an ever-growing gap between them. While the NASDAQ Index enjoyed a positive trend, the companies in Israel stalled.

The TA-Tech and the TA-35 indices on the Tel Aviv Stock Exchange declined after October 7. The international shock at the events in Israel also influenced the performance of the NASDAQ in the immediate aftermath, with the index declining. However, while there was a correction in the technology indices on both the TASE and the NASDAQ with a sharp increase of 15% in their value compared to October 7 (as of preparation of this report in April 2024), the TA-35 increased by a modest 3%.

In other words, both the TA-Tech and NASDAQ indices returned to the typical levels of fluctuation registered prior to the proclamation of the planned legal reform. Nevertheless, a disparity still exists between them that stems from the underperformance of the TA-Tech during the period between the proclamation of the legal reform in early 2023 and the outbreak of the war. Furthermore, investors in the Israeli capital market seem to be unconcerned by the current war's influence on Israeli technology stocks.

Technology Stocks in Israel and on the NASDAQ Have Similar Returns Since October 7

Development of TA-Tech, TA-35 and NASDAQ indices



Source: Innovation Authority adaptations of Bank of Israel data

High-Tech Output Reached One-Fifth of Israeli GDP for the First Time

The high-tech sector has grown significantly since the 1990s until, in 2023, it constituted one fifth of GDP, becoming one of the central sectors of the Israeli economy.

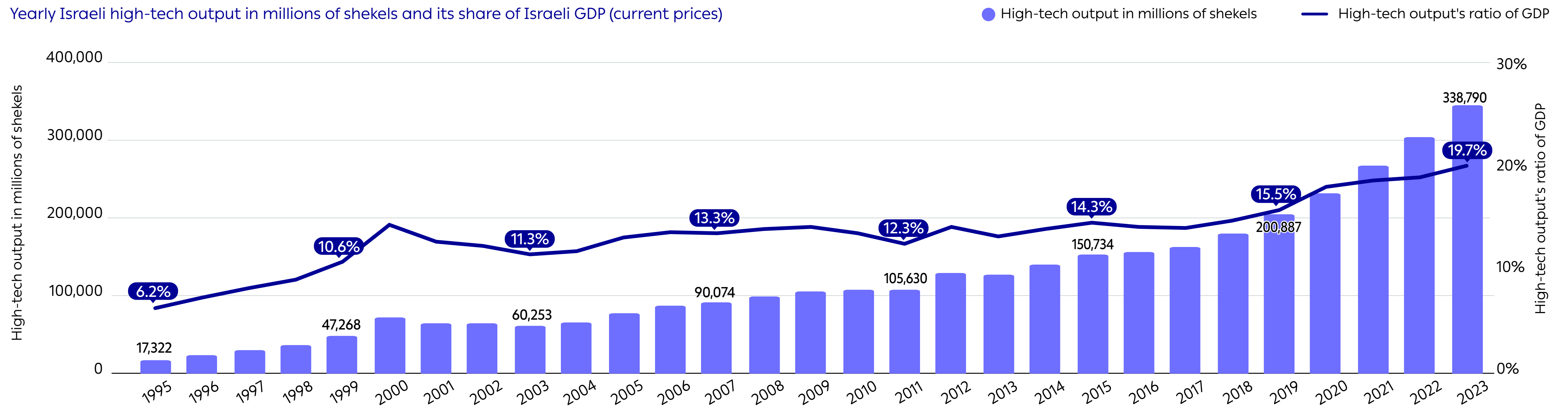
High-tech's share of GDP has increased significantly since the sector began growing and strengthening in Israel: In 1995, high-tech's share of GDP stood at just 6.2% and has since tripled. In real terms, high-tech's output grew more than nine¹-fold during this period while Israel's GDP increased three-fold in real terms, reaching

1.7 trillion shekels in 2023². In other words, the growth rate of high-tech output is higher than that of GDP.

The increase in high-tech output over the years was not uniform. A significant portion of the growth occurred between 1995-2000 (the dot.com bubble), and from 2018 until today. Between these two periods, for a decade and a half, high-tech's share of GDP remained steady without any significant change.

The Value of High-tech Output Grew More than Nine-fold in Three Decades

Yearly Israeli high-tech output in millions of shekels and its share of Israeli GDP (current prices)



Source: Innovation Authority adaptations of CBS data.

1 The figure refers to the greater weight given to inflation so that in nominal terms, the increase is even greater.

2 According to CBS recommendations, GDP is referred to in base prices (total added value to economy).

Israeli High-Tech: The Shock Absorber of the Israeli Economy

Analysis of the data reveals that, since 2018, during times of crisis, the high-tech sector has strengthened its position as the shock absorber of the Israeli economy (e.g., Covid in 2020 and the geo-political upheaval in 2023) and as its growth engine. During these periods, high-tech contributed significantly to the growth in GDP. Since 2018, high-tech has been responsible for at least 24% of GDP growth as experienced by the Israeli economy on a year to year basis. As we will see below, since 2018, there has been a marked increase in high-tech employment that corresponds with the growth in high-tech output.

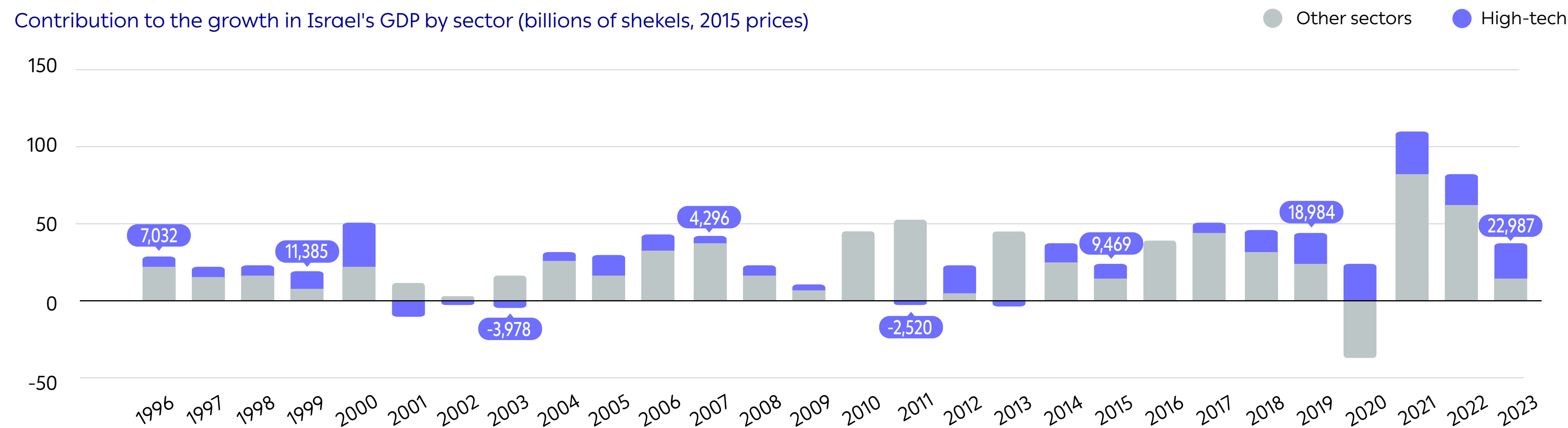
Specifically, during the Covid year (2020), Israel's GDP declined while high-tech outputs grew by 12% during the same period compared to the previous year. In other words, **without the growth in high-tech in 2020, the damage to Israeli GDP during that year would have been even more severe.**

As stated, in recent years high-tech has been responsible for at least a quarter of the growth in GDP measured each year. An overall examination of the entire period **between 2018-2023 reveals that, cumulatively, high-tech is responsible for over 40% of the growth in Israeli GDP.**

High-tech had a relatively large contribution to the growth in Israeli GDP already in the year 2000 – the growth in high-tech accounted for more than half of that year's increase in Israeli GDP. In subsequent years, however, high-tech output declined and drove Israeli GDP downwards. In practice, high-tech experienced a "lost decade" from the collapse of the dot.com bubble in 2001. In most of the years since 2004, high-tech once again contributed to Israel's GDP, albeit moderately, until the growth that began in 2018.

Since 2018, High-Tech Accounts for Over 40% of the Growth in Israel's GDP

Contribution to the growth in Israel's GDP by sector (billions of shekels, 2015 prices)



Source: Innovation Authority adaptations of CBS data.

High-Tech Exports: 53% of Israeli Exports, Derived Primarily from Software Companies

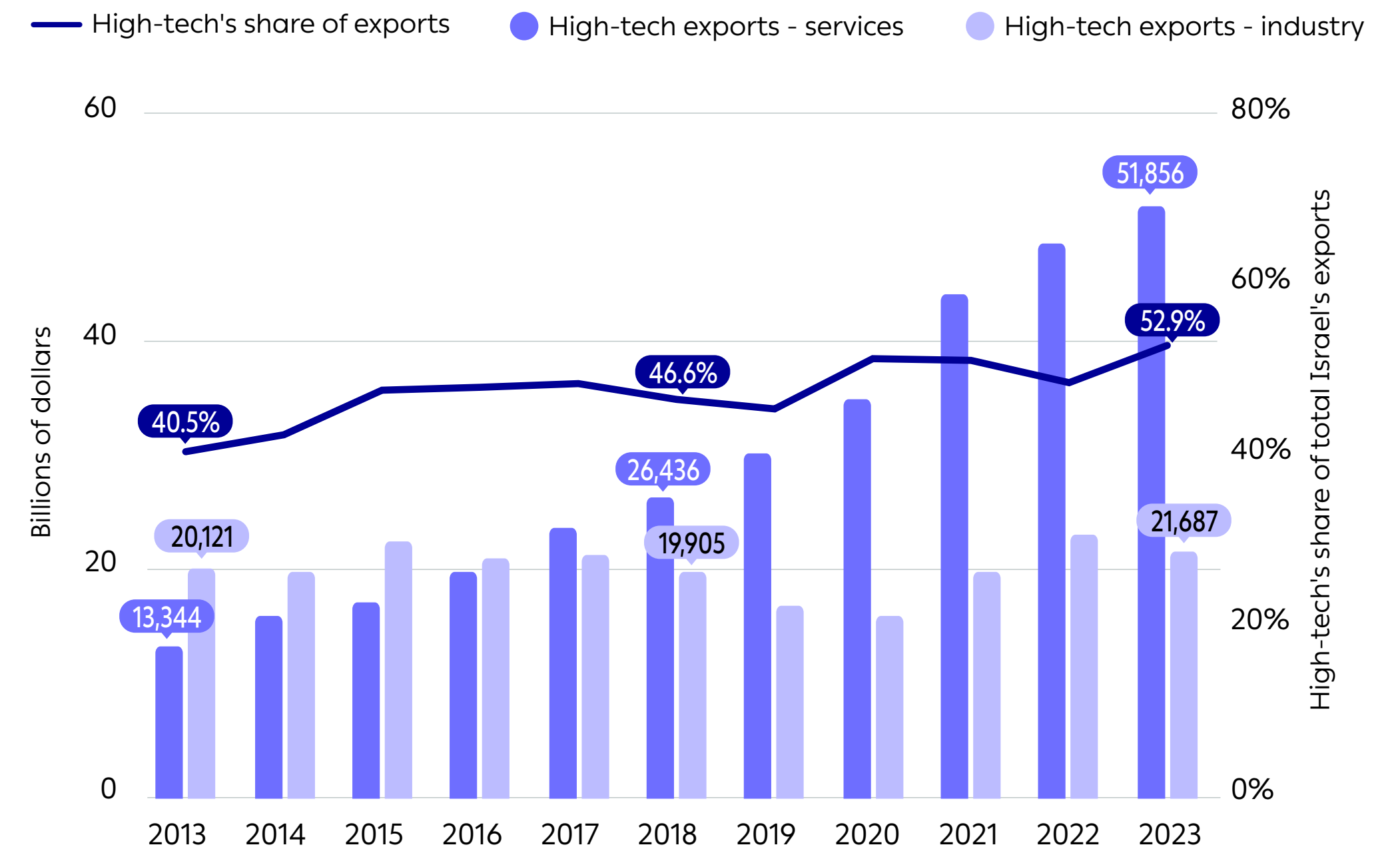
High-tech exports in 2023 accounted for 53% of Israel's total exports. This ratio has remained constant in recent years: **in three of the four years since 2020, high-tech exports accounted for over 50% of all Israel's exports.**

Over the past decade, the growth of the Israeli high-tech sector's exports stems primarily from the significant growth in high-tech services exports. **The high-tech services sector includes, among others, software companies, and its share of total high-tech exports increased from 40% in 2013 to 71% in 2023.** In nominal terms, the value of high-tech services' exports almost quadrupled over this period and reached 52 billion dollars in 2023.

Over the past decade, high-tech industry's exports, that included hardware and pharma companies, maintained their relative share. Companies from the high-tech's industrial sectors exported an average of 20 billion dollars a year over the past decade. Although there was a decline in the exports of high-tech industrial companies between 2019-2020, these have subsequently recovered, and exports have returned to their average levels.

High-Tech Has Consistently Comprised Half of Israeli Exports in Recent Years

High-tech exports by sector, in billions of dollars, and its share of all Israeli exports



Source: Innovation Authority adaptations of CBS data

High-Tech's Growth Engine: Employment

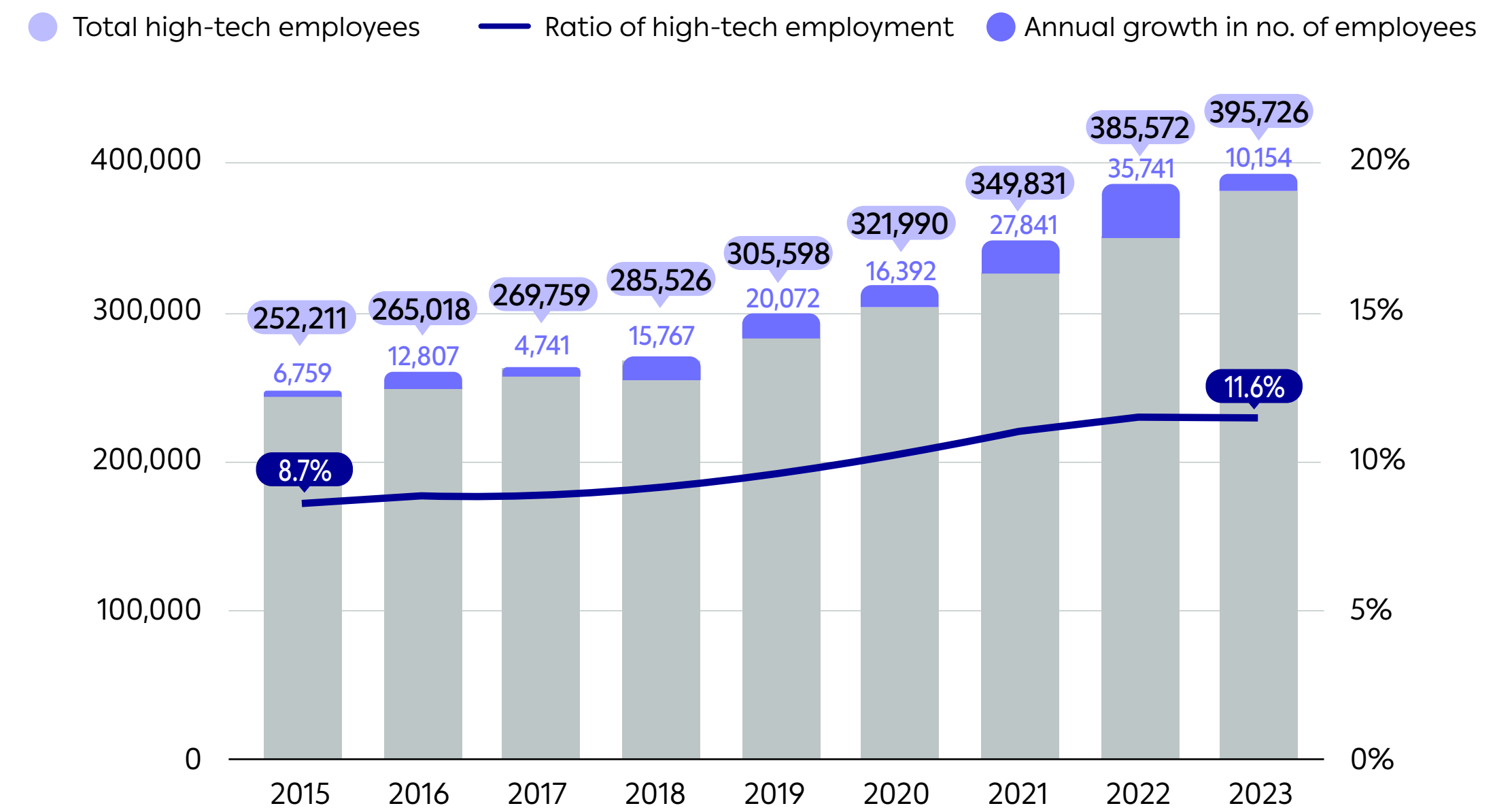
Approximately 396,000 people were employed in the high-tech sector in 2023, an increase of 10,000 compared to the previous year.³

Between 2014-2023, the number of employees in the sector grew by approximately 150,000 – a 60% increase. Most of this growth has occurred since 2018 with an increase of at least tens of thousands of workers since then.

High-tech's contribution to GDP has also increased during this same period, as have the tax payments of high-tech employees and companies. This increase stems from an accelerated growth in the number of high-tech employees and an increase in the sector's average salary, as will be presented below. This means that continued growth of the sector's output will be directly influenced by the number of high-tech employees and that any significant change in high-tech employment will impact the entire Israeli economy.

Slower Growth: A Decline in the Growth Rate of High-Tech Employment in 2023

No. of high-tech employees, their ratio of all employees, and the annual growth in the sector's no. of employees



Source: Innovation Authority and Aaron Institute adaptations of CBS data.

³ Unless stated otherwise, the reference to employees in the high-tech sector throughout this report is based on the recommendations of the Committee for Increasing the Human Capital in High-Tech ("The Perlmutter Committee") i.e., employees aged 25-64 in the high-tech sector, according to the CBS definition, excluding the communications sector.

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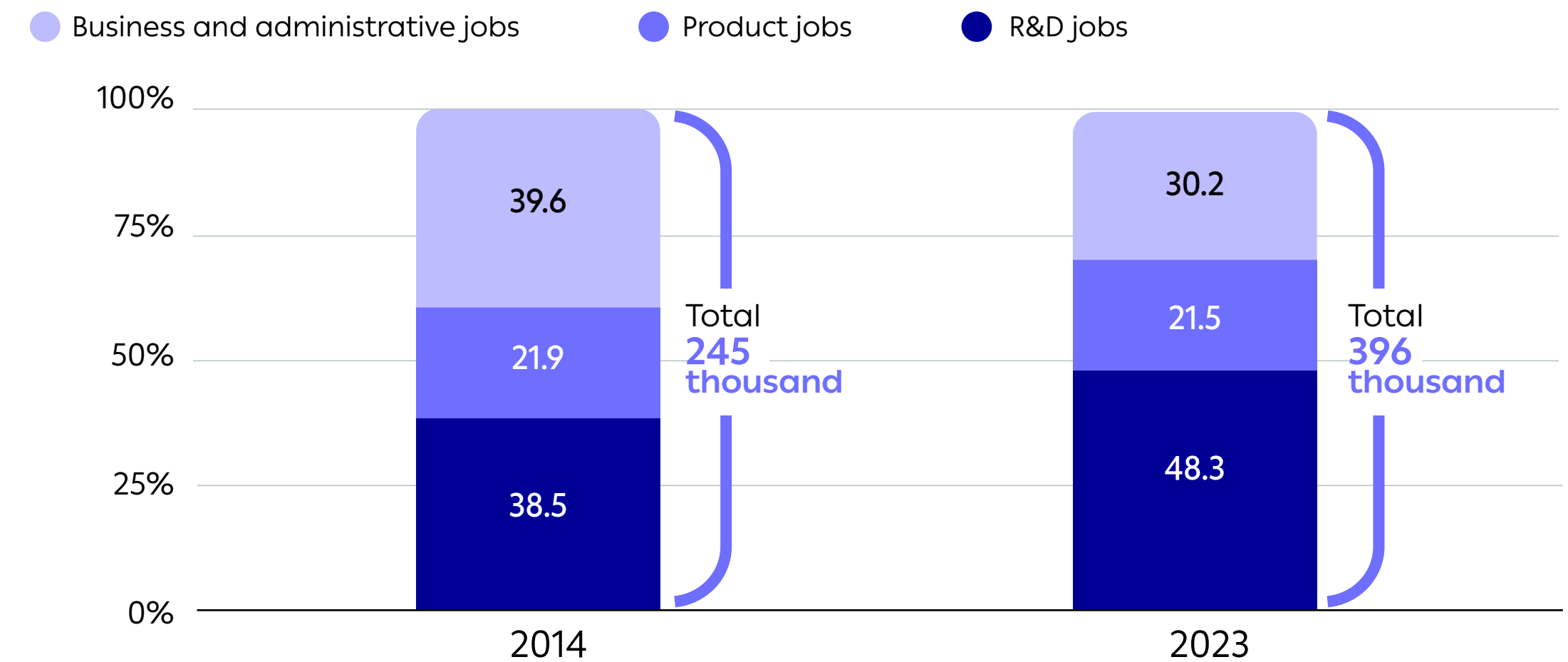
The composition of the roles in which high-tech employees work has changed over the past decade. In 2014, approximately 94,000 people worked in R&D jobs in high-tech. By 2023, this number had more than doubled and the ratio of all high-tech employees rose from 38.5% to 48.3% - an increase of 10 percentage points.

The ratio of workers in product jobs remained steady while the ratio of workers in business and administrative jobs declined during the same period, this despite the fact that the total number of employees in each job type has increased over the past decade.

In other words, despite the establishment of large Israeli companies with sales revenues of tens and hundreds of millions of dollars a year, **most of the growth in high-tech employment in Israel still stems from R&D professions, the entry criteria to which are very high.**

A Large Majority of the Rise in High-Tech Employment Over the Past Decade is in R&D Jobs

Distribution of No. of High-Tech Employees by Job Type (%)



Source: Innovation Authority and Aaron Institute adaptations of CBS data.

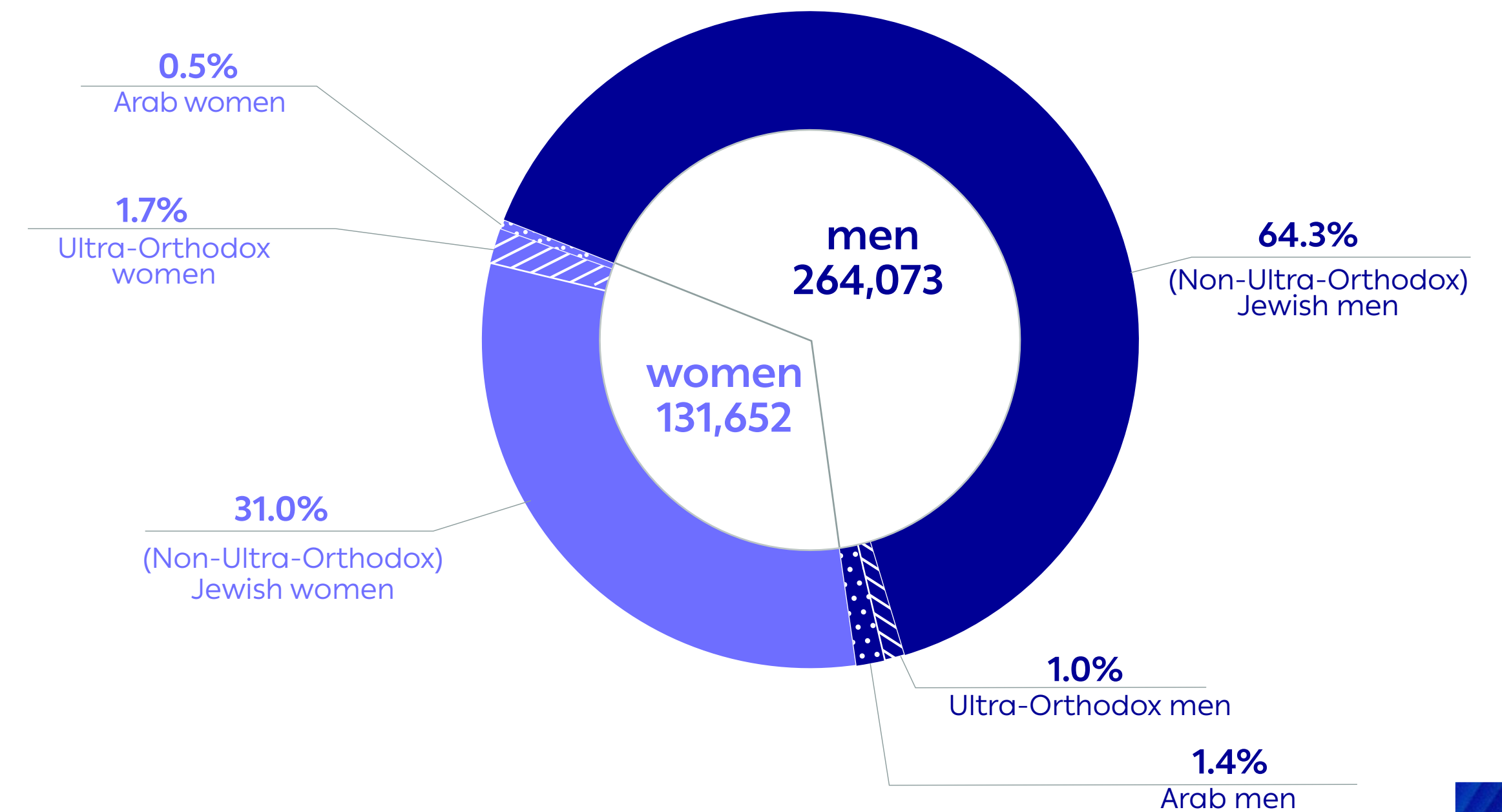
Lack of Demographic Diversity in Israeli High-Tech

There was no significant change in the high-tech sector's demographic diversity in 2023. **About 65% of the sector's employees (254,400) are (non-Ultra-Orthodox) Jewish men.** In effect, nearly 20% of the (non-Ultra-Orthodox) Jewish men currently employed work in high-tech. In 2014, this ratio stood at 13.7%, reflecting a significant increase over the past decade in the recruitment of Jewish men to this sector.

The second largest group in Israeli high-tech is (non-Ultra-Orthodox) Jewish women who comprise 31% of the sector's employees - a total of 122,700 women. Of all the (non-Ultra-Orthodox) Jewish women employed in Israel, 3.9% are employed in the high-tech sector.

Women Comprise Only One-Third of Israeli High-Tech Employees

Distribution of high-tech employees by gender and population (ages 25-64, 2023)



Source: Innovation Authority adaptations of CBS data

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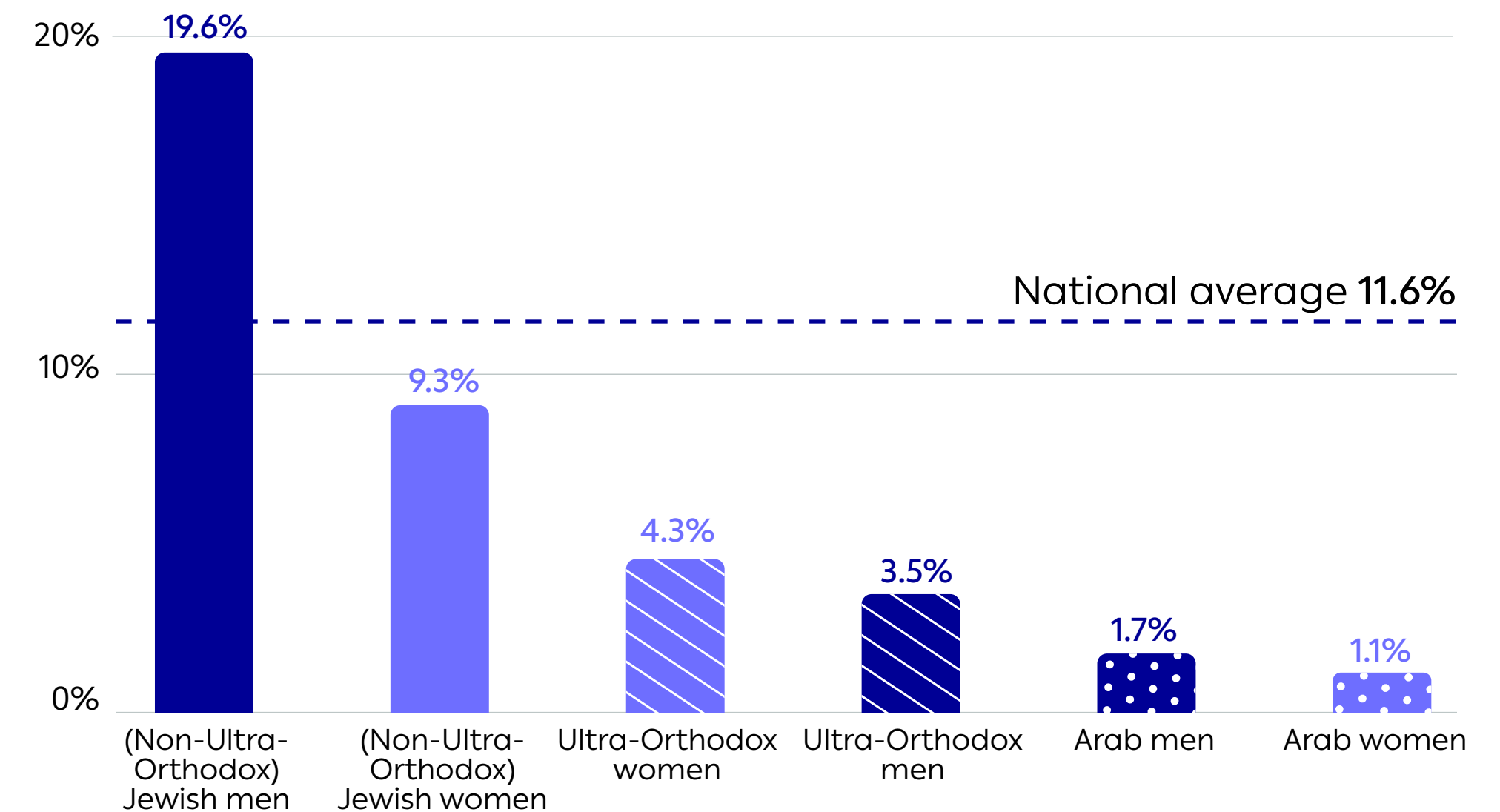


The Arab and Ultra-Orthodox-Jewish sectors continue to be under-represented in high-tech. Ultra-Orthodox-Jewish men comprise 1% of high-tech employees and Ultra-Orthodox-Jewish women make up 1.7% of the sector's employees. Arab men make up 1.5% of high-tech employees in Israel while Arab women comprise just 0.5% of high-tech employees.

The low level of participation in the workforce of Ultra-Orthodox Jewish men and Arab women means that when examining the number of Ultra-Orthodox Jewish men employed in the Israeli economy, only 3.5% are employed in high-tech. Similarly, the ratio of Arab women employed in high-tech is just 1.1% of the total number of Arab women employed in Israel. In other words, one of every hundred Arab women in the workforce is employed in high-tech.

One of Every Five Jewish Men Work in High-Tech

Ratio of high-tech employees out of total employees in each population and gender group, 2023 (%)



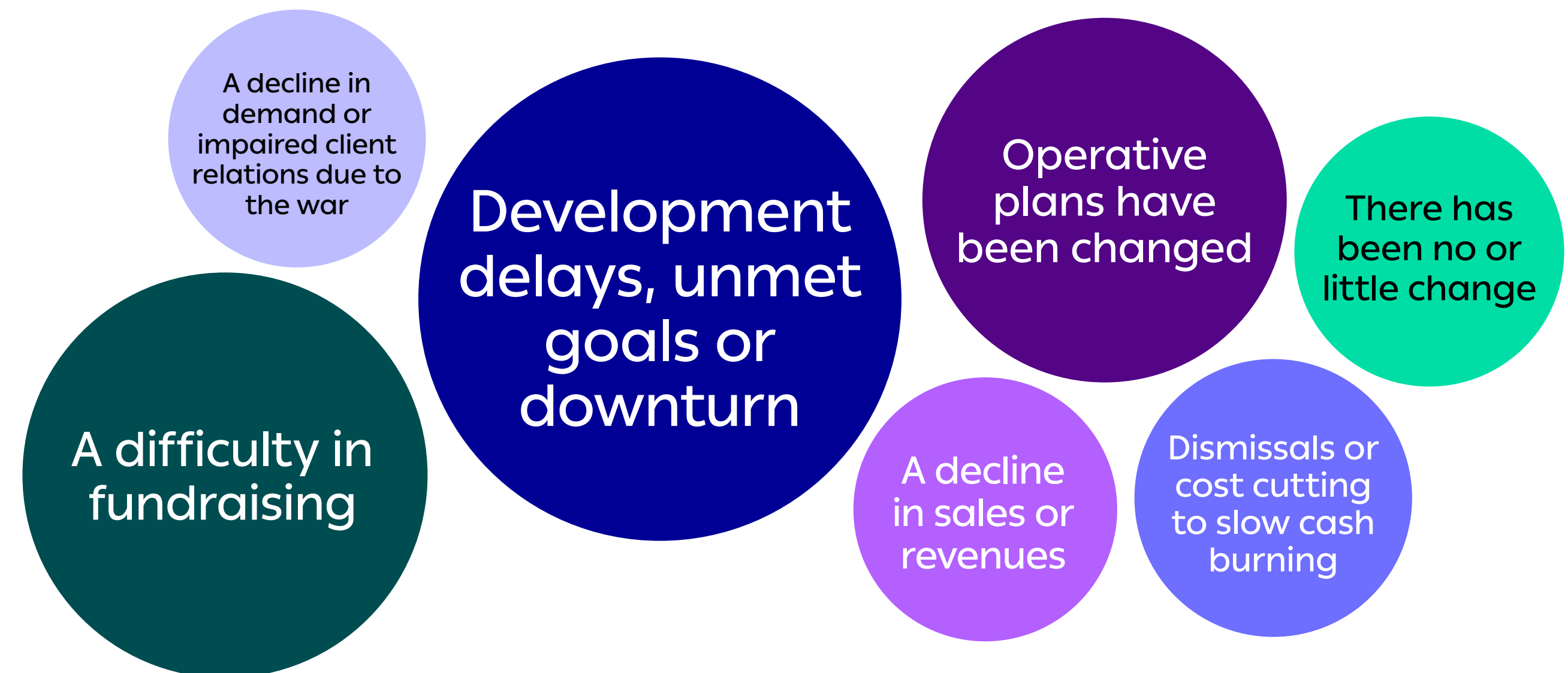
Source: Innovation Authority adaptations of CBS data



The Impact of October 7 on High-Tech: A Downturn in Business Activity and Difficulty in Fundraising

One of the most influential events on high-tech during the past year was the outbreak of the war on October 7. In a survey conducted by the Innovation Authority in March and April 2024, 500 senior executives in Israeli high-tech companies were asked to describe how the war had impacted their company's plans for 2024.⁴

A summary of answers received in the Innovation Authority survey to the open question **How have the company's plans changed in 2024 due to the events on October 7?**



Other changes that arose from an analysis of the answers to the survey, by subject:

Delays or difficulties related to reserve duty or the war | Transfer of all or part of activity out of Israel | Creation of new opportunities or expansion of activity in Israel | A change in target market out of Israel or focusing on overseas markets | "Survival mode", existential fear | Complete closure of the company or a risk to its future | Delay or reduction or suspension in recruiting employees in Israel

⁴ For more details on the way in which the survey was conducted, see Appendix 1.

Source: Innovation Authority High-Tech Companies Survey, March-April 2024. The number of respondents to some of the open questions on business activity: 200.

Continued >



CEO of a food-tech company: "Instead of completing technological developments and raising capital from the market, we raised funds from existing shareholders, gave up on several areas of development, and focused on achieving sales at any price".

CFO of a software company: "The first quarter results were affected, and the company met only 30% of its quarterly sales goals".

CEO, EdTech: "We accelerated the initiation of activity overseas whereas we had previously been focused on Israel. We prepared a plan for introducing a strategic investor and are currently in negotiations. This is a dramatic change".

The Main Insights Arising from the Survey

The primary influence mentioned by the Israeli technology companies relates to the damage caused to the company's business activity. This was manifested in a downturn in activity, in delays in product development, or in failure to meet the company's goals. In some cases, the damage to business activity was caused by the absence of employees for reasons related to the war – reserve duty, being evacuated from their homes, etc. Furthermore, the survey reveals that in **more than half the high-tech companies, the reserve duty of company employees or their spouses had a moderate to severe impact on meeting the company's goals.** As expected, a higher ratio of employees called up to reserve duty corresponded to a greater influence on the company.

Another prominent difficulty mentioned by the companies relates to fundraising. This challenge is always significant for startups but some of the respondents noted that funding rounds that were already underway during this period had been canceled or suspended due to the war. They claimed that some investors are refraining from investing in Israel at this time. Consequently, **some of the companies were compelled to cut costs and, sometimes, slow the rate at which they "burn" cash.** Furthermore, some of the companies reported a decline in demand for their products or partners who changed plans related to the company due to the war, leading to ramifications that were expressed in a decline in the company's revenue or sales.

From an Innovation Authority survey of high-tech companies,
March-April 2024

Continued 



CTO of a cyber company: "We were forced to significantly postpone our roadmap. Employees have been coming and going for six months already, and don't really succeed in re-integrating. As soon as they do so, they are called up for reserve duty again".

CFO, advanced manufacturing company: "Visits of clients who were supposed to come and see the company's products ahead of placing orders were canceled".

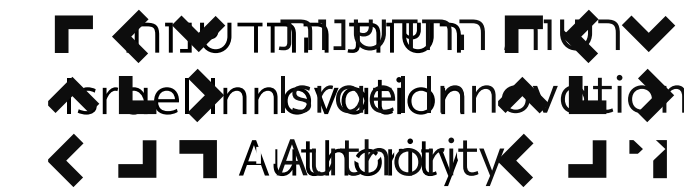
CEO, medical devices company: "We cut personnel by 20% but after the shareholders' fears lessened somewhat, we rehired for most of the positions".

CEO, content and media company: "The sale of the company to a large international company was stopped due to their decision not to buy companies in Israel during the war".

From an Innovation Authority survey of high-tech companies, March-April 2024

As a result of the situation, a smaller group of companies reported transferring part or all of their activity out of Israel, hiring employees overseas, and focusing the company's business activity on markets outside Israel i.e., reducing the company's exposure to the impact of the war in Israel. Some companies referred to the difficulty of operating in an environment characterized by high levels of uncertainty. In some cases, the war led to the closure of the company or to a real threat to its continued activity. Some companies mentioned that the company had moved to "survival mode".

It is important to note that **some companies' activity remains unaffected by the war and that others - for example, in the fields of defense or mental health - have benefitted from new opportunities created by the war** (e.g., increased demand in Israel, adaptation of products to local needs, etc.).



The Impact of October 7 on High-Tech Employment: More Job Seekers, Less Stability

CEO, content and media company:

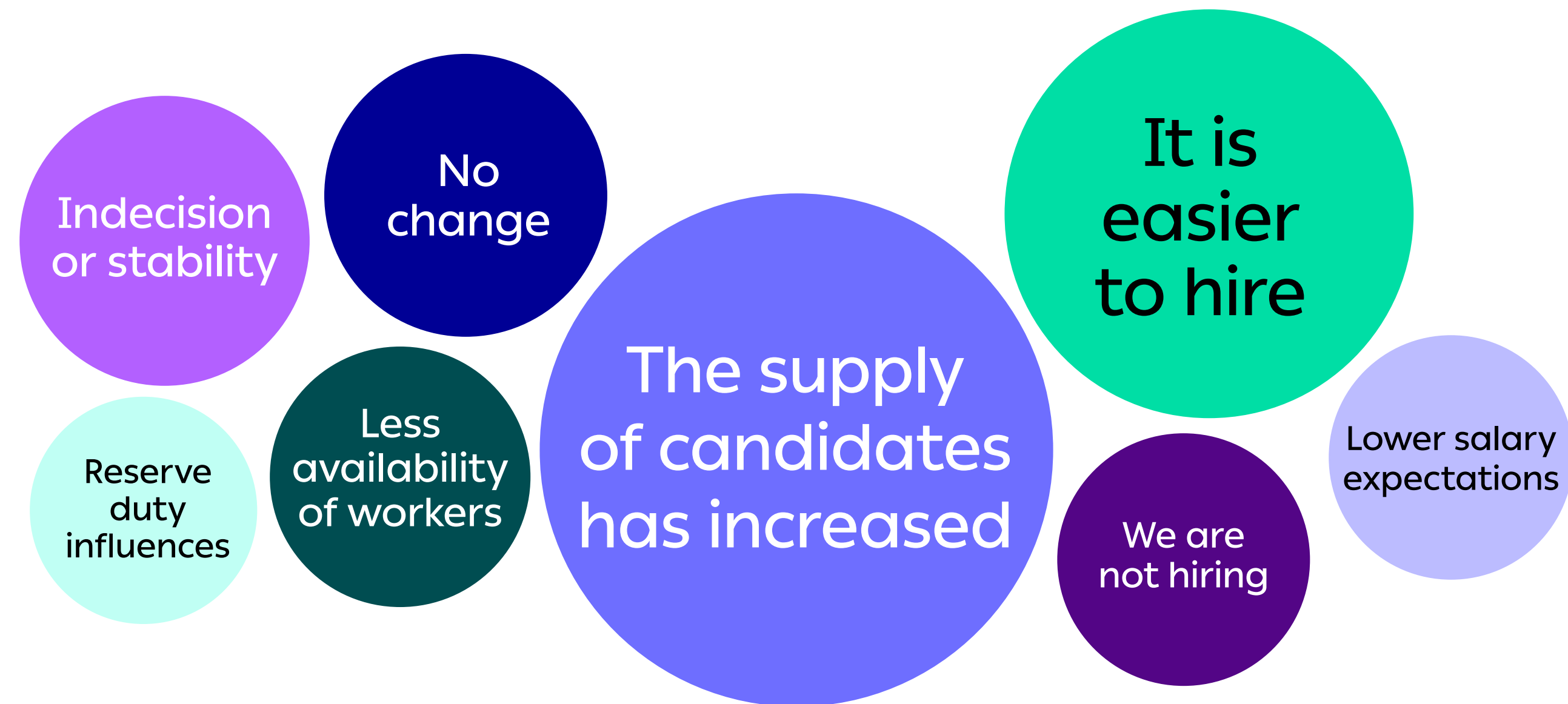
"There has been almost no change in the hiring of highly qualified and experienced technology personnel. It was and still is difficult".

CEO, agri-tech company: "It is easier to recruit employees, but people aren't as focused as they were in the past".

CFO, smart transportation company:

"The uncertainty causes workers to maintain employment stability more than in the past so there is less demand to move to a new job".

A summary of answers received in the Innovation Authority survey to the open question **What is the main change in the process of hiring high-tech employees due to the events on October 7?**



Other changes that arose from an analysis of the answers to the survey, by subject:

Uncertainty | Few available jobs | Negative mood | Difficulty in hiring experienced workers | Others

Source: Innovation Authority High-Tech Companies Survey, March-April 2024. The number of respondents to some of the open questions on employment: 174.

From an Innovation Authority survey of high-tech companies, March-April 2024

Continued >



CEO, e-commerce company: "There are far more high-quality workers available for work at a lower cost relative to that of a year ago".

CEO, medical devices company: "We had difficulty in hiring workers during the war because many people were simply unavailable. We eventually hired a subcontractor".

From an Innovation Authority survey of high-tech companies,
March-April 2024

The Main Insights Arising from the Survey

The present point in time constitutes a unique situation for the Israeli high-tech industry that differs from that of recent years: following several years of significant growth in the hiring of workers, this rate slowed during 2022. Consequently, the market has moved from being an "employees' market" in which there is significant competition for each candidate to an "employers' market". In other words, the power seems to have moved to the hands of the employers as a result of fewer available jobs and more job seekers.

As part of a survey conducted by the Innovation Authority in March-April 2024, senior executives in early-stage high-tech companies were asked to describe the main changes that had occurred in the hiring of high-tech employees since October 7. The responses revealed that **the most common change mentioned was the increase in supply of job candidates**. The second most common change mentioned was that it is now easier to recruit personnel. These changes are not necessarily connected to the war. Some respondents relate to the connection between the state of fundraising by startups during this period – against the backdrop of the war and the global crisis – and the hiring of employees. The survey further reveals that **for 76% of the companies it took less than three months to fill technology jobs** and for 87% of the companies it took the same time to fill a non-technology job.

Furthermore, some of the respondents mentioned that despite the increase in supply of jobseekers, the competition for experienced technology personnel remains fierce, whereas there is greater availability of non-technology workers. Some of the respondents mentioned the problems related to the availability of workers in the current environment, among others because of reserve duty, civilian evacuations, etc.

Continued ➤



Founder, organizational software company: "In the past, many people wanted to enter the high-tech sector and grow with it. Today, this possibility is viewed as more high-risk".

Chief Scientist, pharma company: "There are a lot of people without jobs and no jobs for them".

A unique characteristic of this period was expressed in the answers relating to the phenomenon whereby, against the uncertainty typical of the current period, **high-tech workers prefer job stability and therefore tend less to change jobs.** Moreover, the responses also included references to the more negative mood characterizing the current period which also influences job recruitment processes.

The market's transition to an "employees' market" is also expressed in the fact that **salary expectations are now lower than previously.** Nevertheless, the average salary figures in the high-tech sector in 2023 showed that salaries continued to rise. It should be noted that market sentiment may precede the actual data and that most of the respondents represent relatively small startups and not the entire sector.

It is also important to note that some of the companies reported that there had been no changes in the hiring of employees since October 7.

From an Innovation Authority survey of high-tech companies,
March-April 2024

High-Tech Mobilization: Almost 30,000 High-Tech Employees Serve in Reserve Duty

The widespread mobilization order of reservists issued when the war broke out on October 7 is the most significant factor to impact Israeli high-tech during the final quarter of 2023 and continues to influence the beginning of 2024.

An analysis of the CBS human capital survey reveals that **7% of the high-tech sector's employees - 28,000 workers - were absent from their workplace during the fourth quarter of 2023 due to reserve duty.** On average, during a normal quarter, this figure stands at several hundred employees.

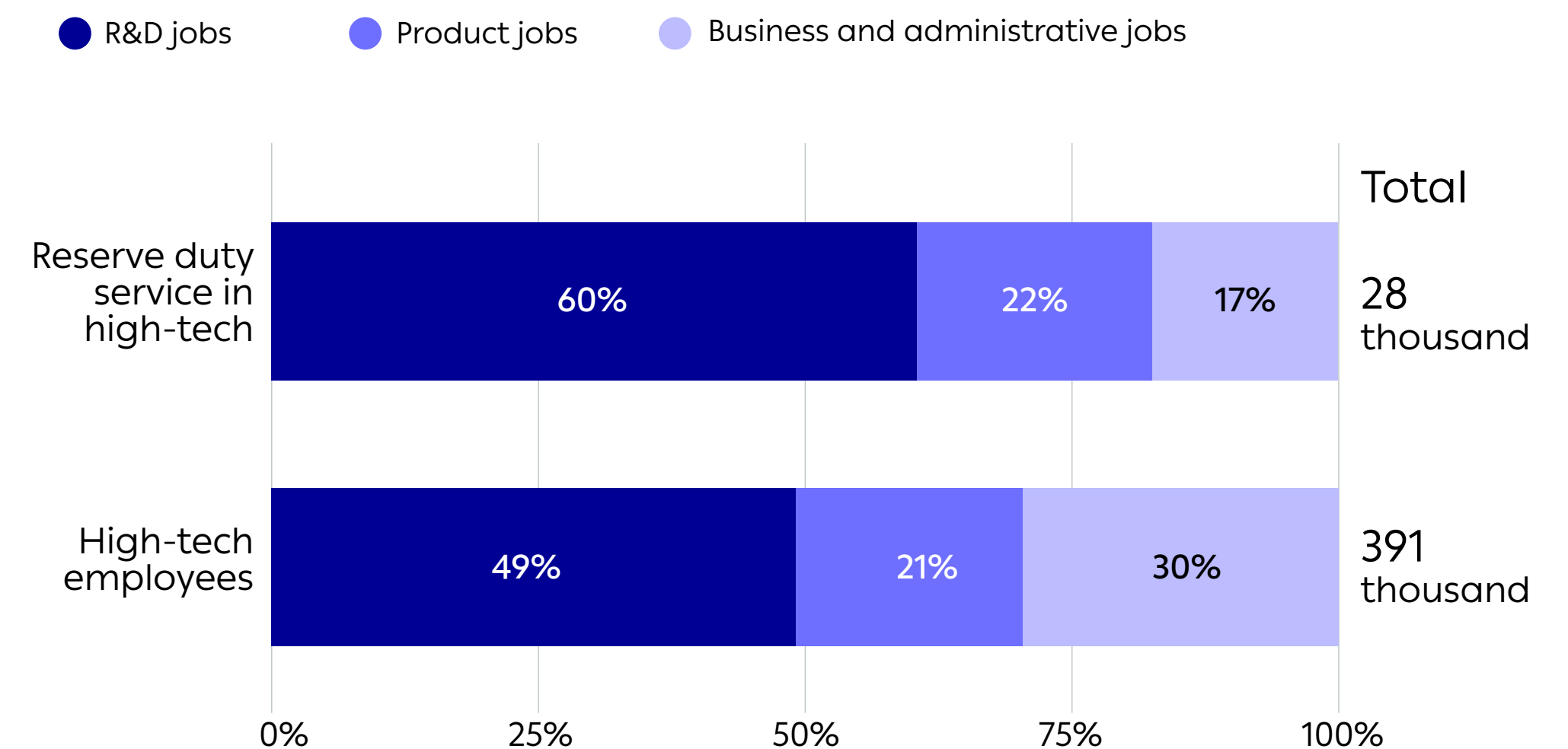
60% of the high-tech reserve duty soldiers (16,900) are employed in R&D jobs and work in developing the technology core of the companies in which they work. This represents a ratio higher than the share of those working in R&D out of all high-tech employees (49%). In other words, almost one of every ten R&D employees in the fourth quarter served in reserve duty.

Women comprise less than 6% of the high-tech employees serving in reserve duty. This is lower than the general ratio of all women serving in reserve duty in Israel during the war which stood at 2.19%.⁵ Of all the women employed in the high-tech sector, the ratio of those serving in reserve duty in the fourth quarter of 2023 was 1.8%.

During January-February 2024, the number of high-tech employees serving in reserve duty dropped to less than 12,000, approximately 3% of all high-tech employees.

60% of all High-tech Employees Serving in Reserve Duty - Work in R&D

Distribution of employees and those serving in reserve duty in high-tech by job type (Q4, 2023)



Source: Innovation Authority and Aaron Institute adaptations of CBS data

⁵ According to INSS [data](#).

A Cautious Recovery in New Jobs in the Second Quarter of the War

A significant increase was registered from the beginning of 2020 in the number of available jobs in technology companies,⁶ primarily those from the high-tech services sector.

Previous analyses reveal a correlation in recent years between the total funds raised by startups and the rate of new job openings in the high-tech sector in subsequent quarters. For example, after investments in startups reached a peak in the final quarter of 2021, the number of available jobs also reached record levels in the first quarter of 2022, primarily in software companies (the high-tech services sector). From that point onwards, there was a sharp decline in investments that led to the number of available jobs on the eve of the war to be identical to that prior to the large increase of 2021-2022. **The significance of this is that high-tech has returned to the growth trend that characterized it before the accelerated growth witnessed at the beginning of the decade.**

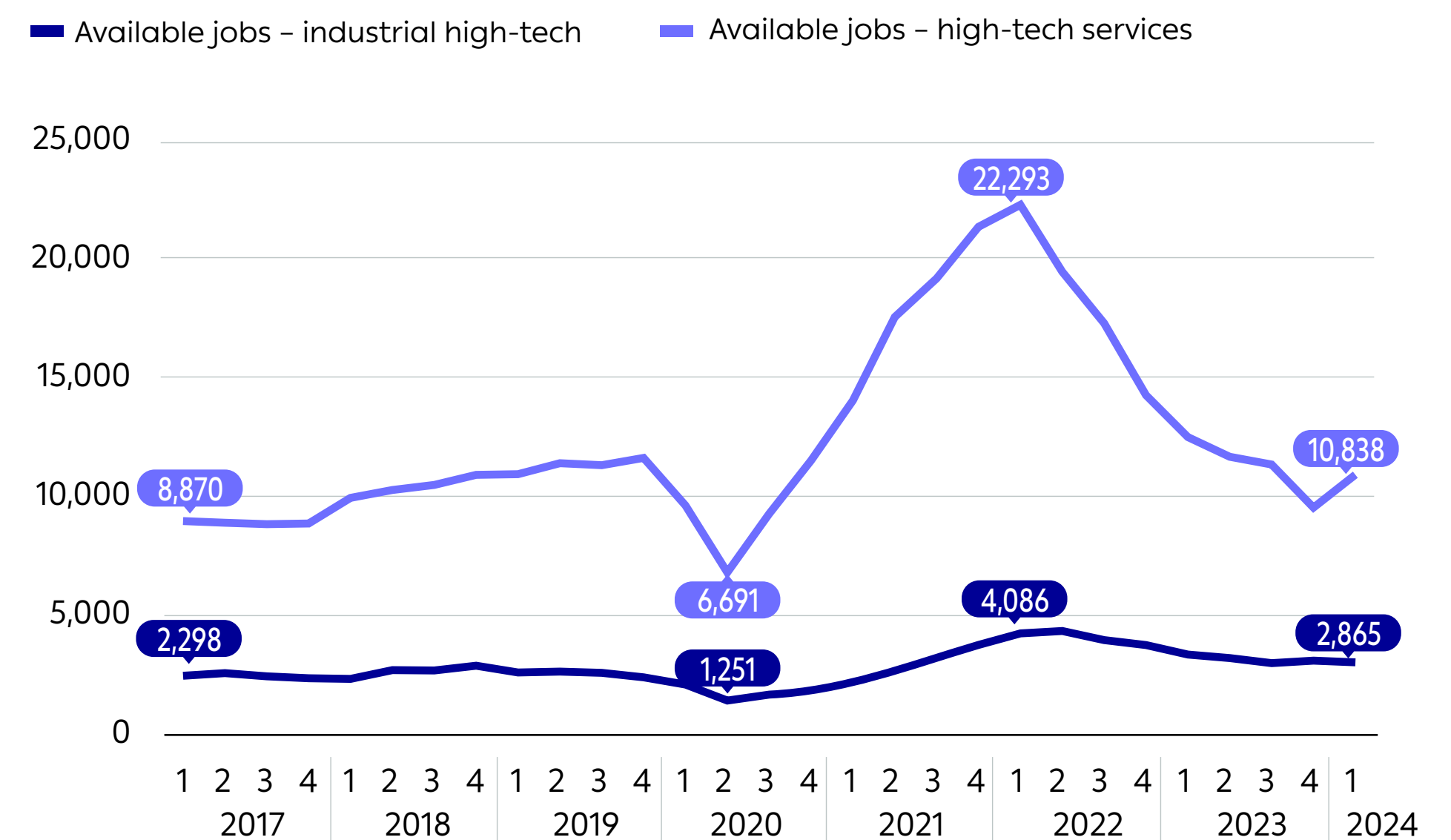
There was a further decline in the number of available jobs in the third quarter of 2023, primarily in the Tel Aviv and central regions. However, a recovery to pre-war levels was already registered by the first quarter of 2024.

High-tech on unpaid leave? While other sectors saw large numbers of workers being sent on unpaid leave at the beginning of the war, this phenomenon was relatively minor in high-tech. In the fourth quarter of 2023, only 1% of the workers (approx. 4,000 people) were sent on unpaid leave. This compares to some 100 employees in the previous quarter (0.03% of high-tech employees). It seems that in contrast to Covid when 19,000 (mainly inexperienced) high-tech employees (5.7%) were sent on unpaid leave, the current war has not caused high-tech companies to react in a similar manner.

⁶ An unstaffed job ,new job or a job about to be vacated for which the company is actively searching for a replacement employee.

Number of Available Jobs in High-tech Has Returned to Pre-Covid Levels

No. of available jobs in high-tech per quarter by sub-sectors



Source: Innovation Authority adaptations of CBS data.



Expectations for Hiring Workers in Startups: Mainly Overseas

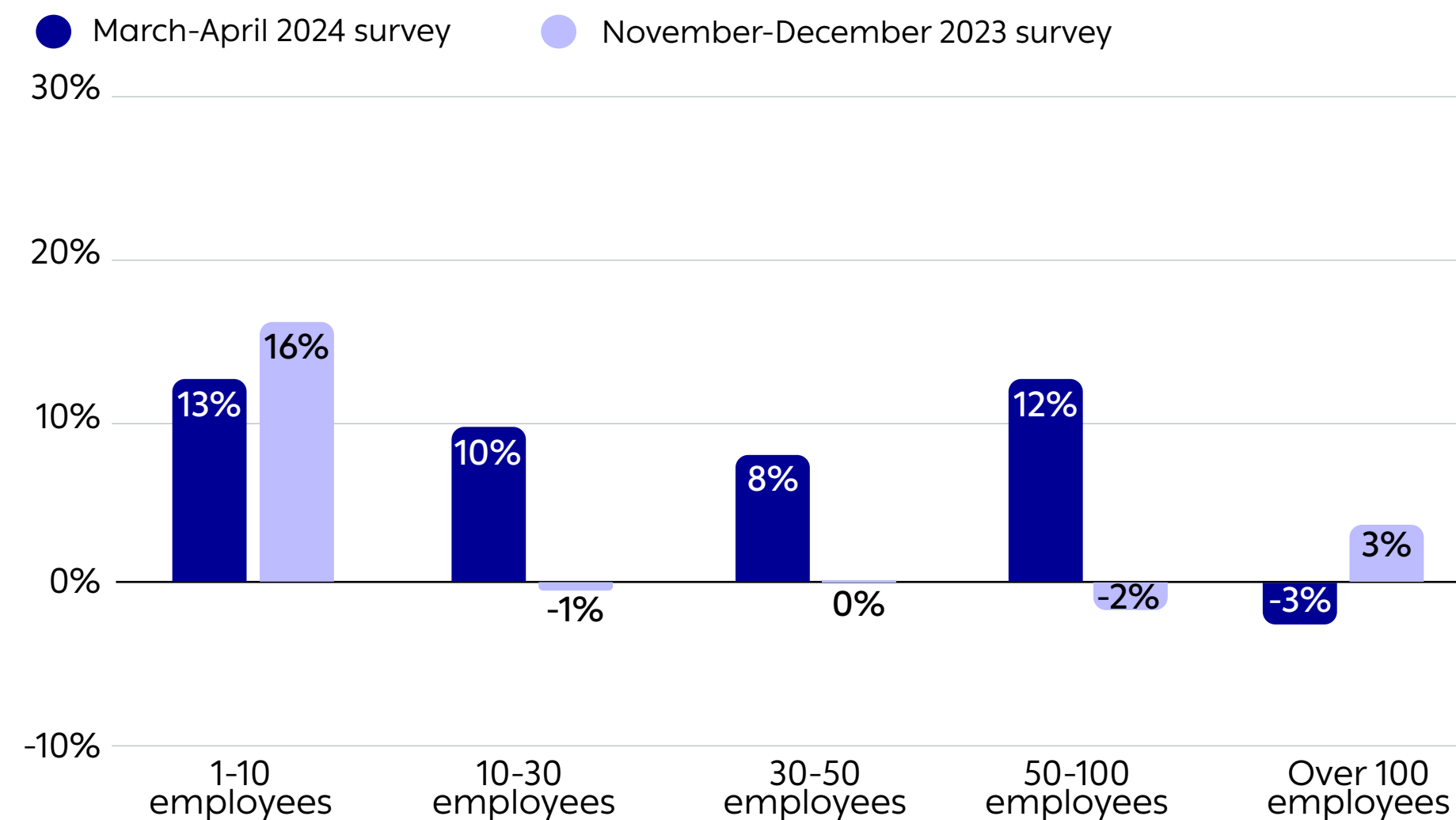
The Innovation Authority survey asked technology companies about their plans to hire workers in Israel and overseas during the coming year. This was to obtain a preliminary indication as to the growth plans of the companies in Israel during the upcoming period and of how they view the current situation and business environment in Israel. An analysis of the two occasions on which the survey was conducted – the first in November-December 2023 and the second in March-April 2024 **reveals that the companies expect a decline in their hiring of personnel following the events of October 7, both in Israel and overseas.**

Furthermore, it appears **that startups in Israel are experiencing a larger down-**

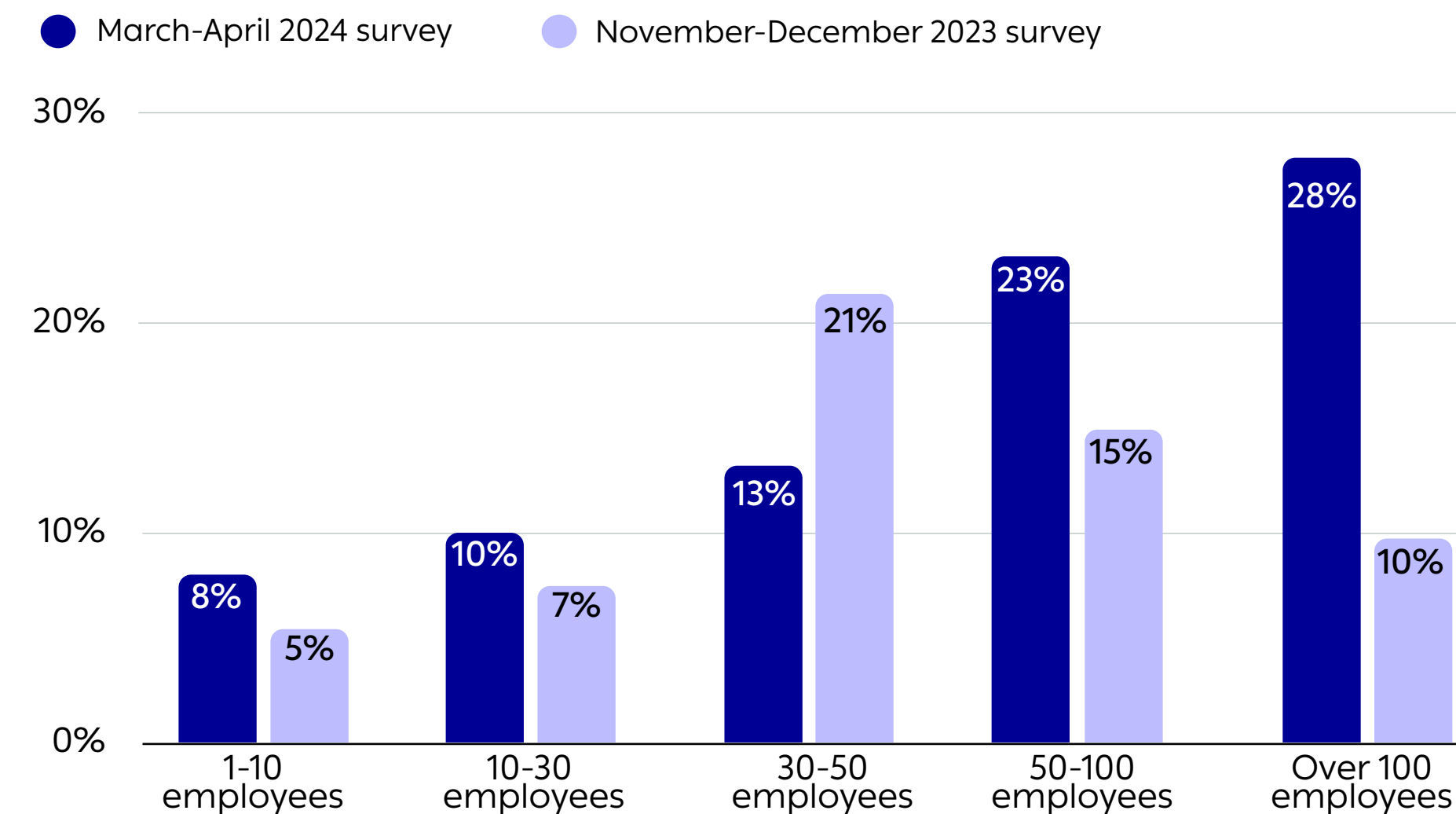
scaling of their plans to hire workers in Israel than overseas. For example, companies that employ 10-30 workers estimated in November-December that they would increase their workforce in Israel by 10% over the coming year whereas they later estimated that they would reduce employment in Israel. A similar situation can be seen with regard to companies that employ between 30-100 workers, where the expected growth in Israel declined to a negligible level. Plans to hire workers overseas shared a similar trend although these remained positive in March-April. The responses to the survey may testify to the companies adjusting their plans due to the ongoing war and to the difficulty to raise capital.

The Companies Reduced Their Plans to Hire Employees During the War

Expected rate of change in no. of employees in Israel in coming year, by company size



Expected rate of change in no. of employees overseas in coming year, by company size



* In the survey, the companies were asked about expected changes in the hiring of employees in Israel and overseas with responses given in percentage terms. The figures presented incorporate a range of the expected degree of change and the number of companies responding in each range (taking the average of each range's end-points).

A Decline in Investments in Startups During the First Two Quarters of the War

After a decade of growth in most of the indices related to investments in startups in Israel, the second quarter of 2022 marked a change in this trend and the beginning of a decline in investments.

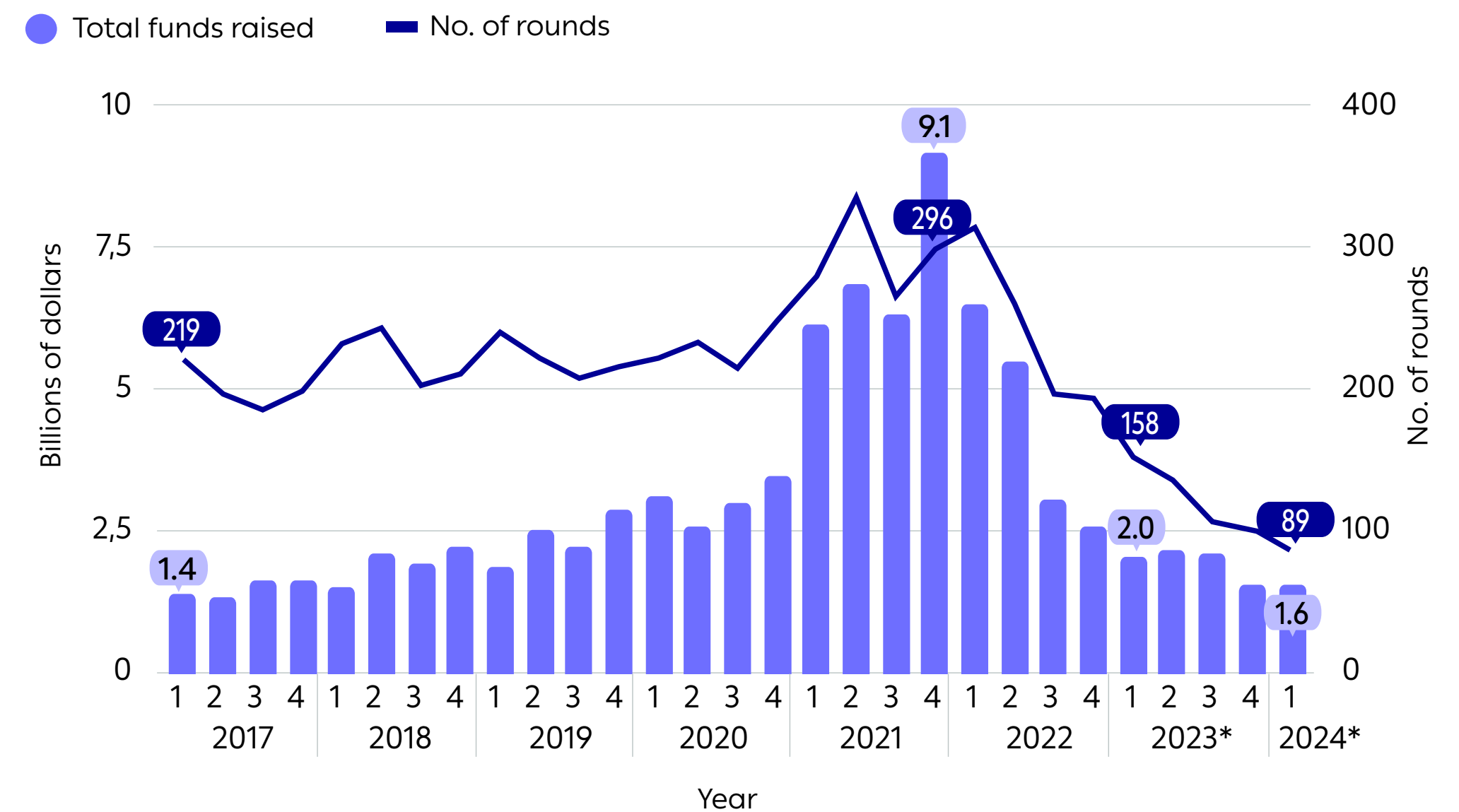
It seemed as if the negative trend in startups' fundraising had been curbed during 2023: the total capital raised stood at a quarterly average of 2 billion dollars throughout the year. Moreover, this level is similar to the quarterly levels of startups' fundraising between 2018-2019.

The total funds raised in the first quarter of 2024 also reached a similar level. Furthermore, it is worth noting the mega-deal completed by Wiz in May 2024 where the company raised approximately 1 billion dollars. This deal is expected to have a positive influence on the figures for the second quarter of 2024 which, as of the writing of this report, already exceed 2 billion dollars.

The decline in the number of quarterly funding rounds continued during 2023 and into the first quarter of 2024. It should be noted that these figures are expected to be slightly adjusted upwards in the coming months but it can be estimated with a high degree of certainty that the number of rounds in 2023 and early 2024 was the lowest since 2017.

Has the Drop in Investments Stopped? Stability in Startups' Quarterly Fundraising After the Large Decline

No. of rounds and total funds raised by Israeli technology companies, in billions of dollars per quarter



These figures are expected to update in the coming months.

Source: Innovation Authority adaptations of IVC data.

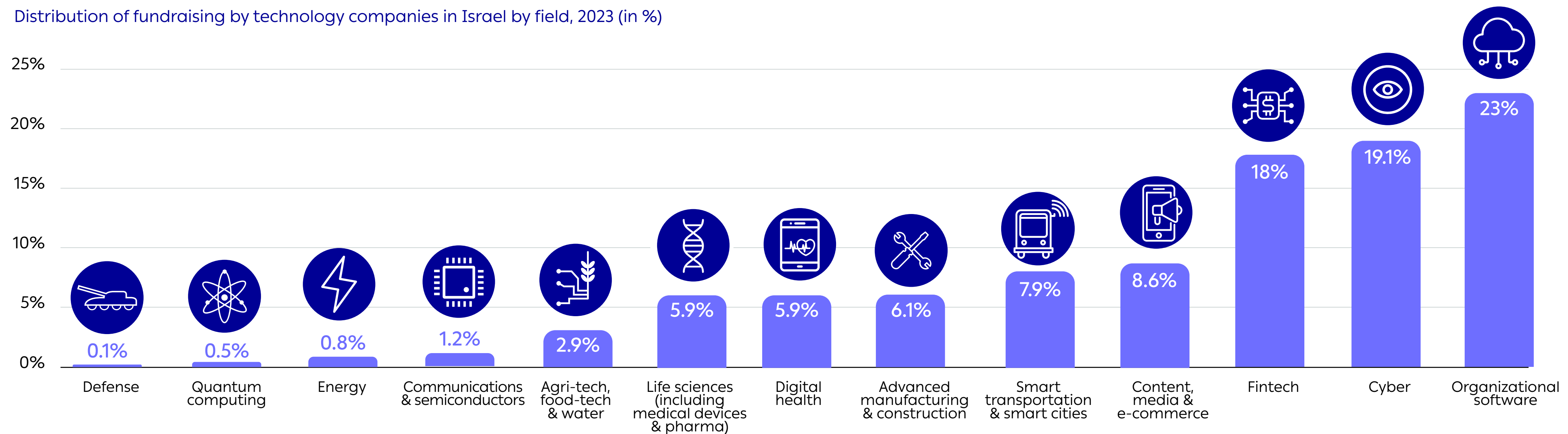
Fundraising: Distribution of Investments in Startups According to Field of Activity

An examination of the distribution of investments in technology companies in 2023 reveals that, like the trend in previous years, **most of these investments were concentrated in startups operating in the fields of organizational software, cyber and fintech. These three fields accounted for 60% of the capital raised by technology companies last year.** This figure represents an increase in the centrality of these three fields compared to 2022 when their share of investments stood at 53%.

Alongside this increase, there was a decline in the ratio of investments in the fields of communications, life sciences, advanced manufacturing, agri-tech, food-tech, and water. Moreover, in light of the growth in the ratio of investments in quantum computing and considering its future strategic importance, this field was included in the survey for the first time this year.

Growing: Organizational Software, Cyber and Fintech Comprise 60% of Investments in High-Tech

Distribution of fundraising by technology companies in Israel by field, 2023 (in %)



* Figures only refer to investments that can be classified by field. Certain investments can be classified into more than one field.

Source: Innovation Authority adaptations of IVC data.

Similar to Europe: A Sharp Decline in Investments in Israeli Startups over the Last Two Years

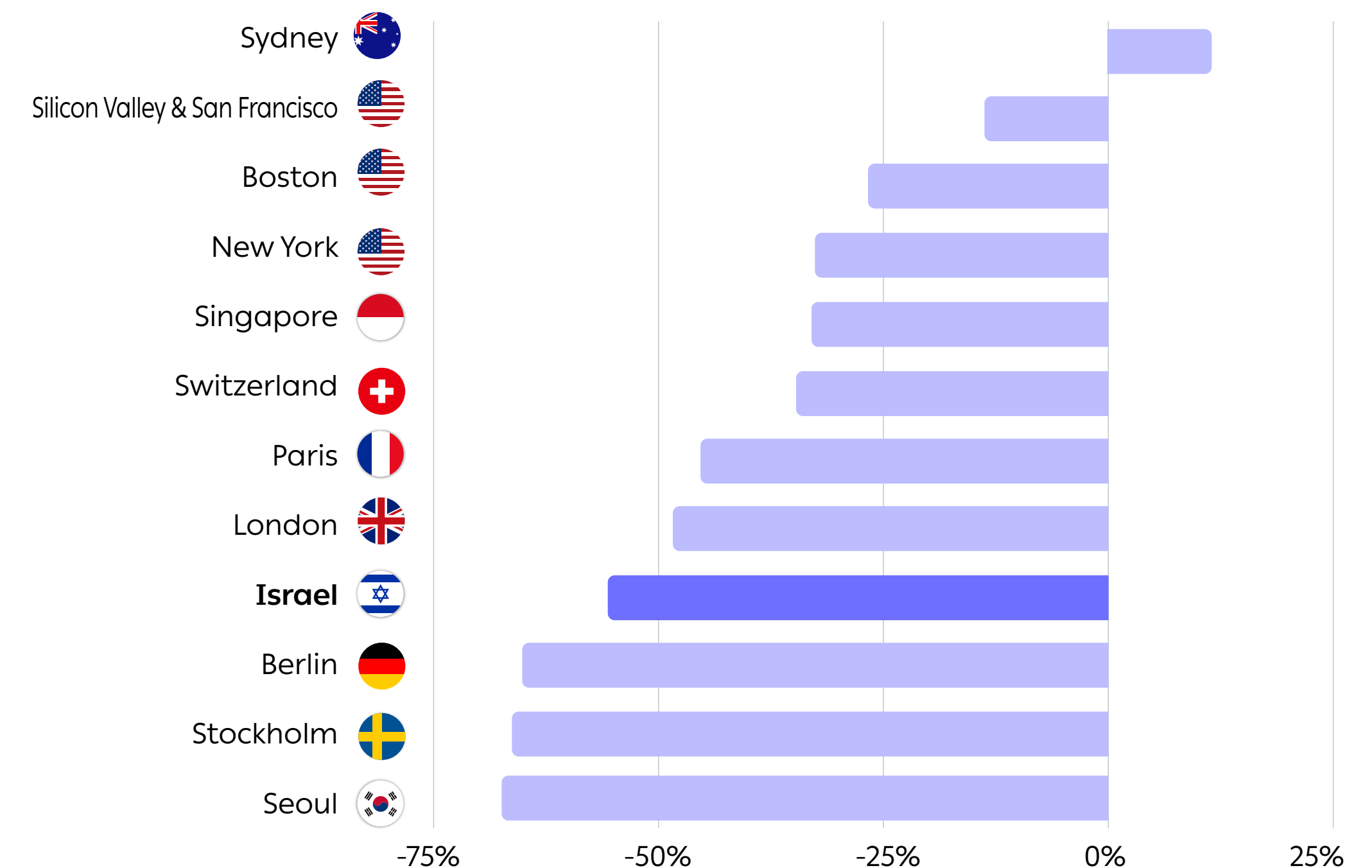
In 2023, Israeli startups raised a total of 8 billion dollars. This represents a decline of 54% in investments in startups compared to 2022 during which there was also a decline of 38% in investments in startups compared to the record levels of 2021.

The decline in investments in Israeli startups is part of a global trend and Israel seems to be in a similar situation to that of Europe. On average, the investments in European hubs declined by 45%. Specifically, investments in Berlin declined by 65%, in Stockholm by 67%, in Paris by 45%, and in London by 49%.

Nevertheless, after the decline in investments in 2022, this trend slowed in the US in 2023. In most of the large hubs in the US, the declines in investment were moderate compared to those recorded the previous year. In New York, the capital raised by startups in 2023 declined by 33%, in San Francisco by 14%, and in Boston by 27%.

Investments in Startups in Israel Declined More in 2023 Than in the US and Similar European Hubs

Annual rate of change in total funds raised by technology companies in the different hubs in 2023 compared to the previous year



Source: Innovation Authority adaptations of IVC and CrunchBase data

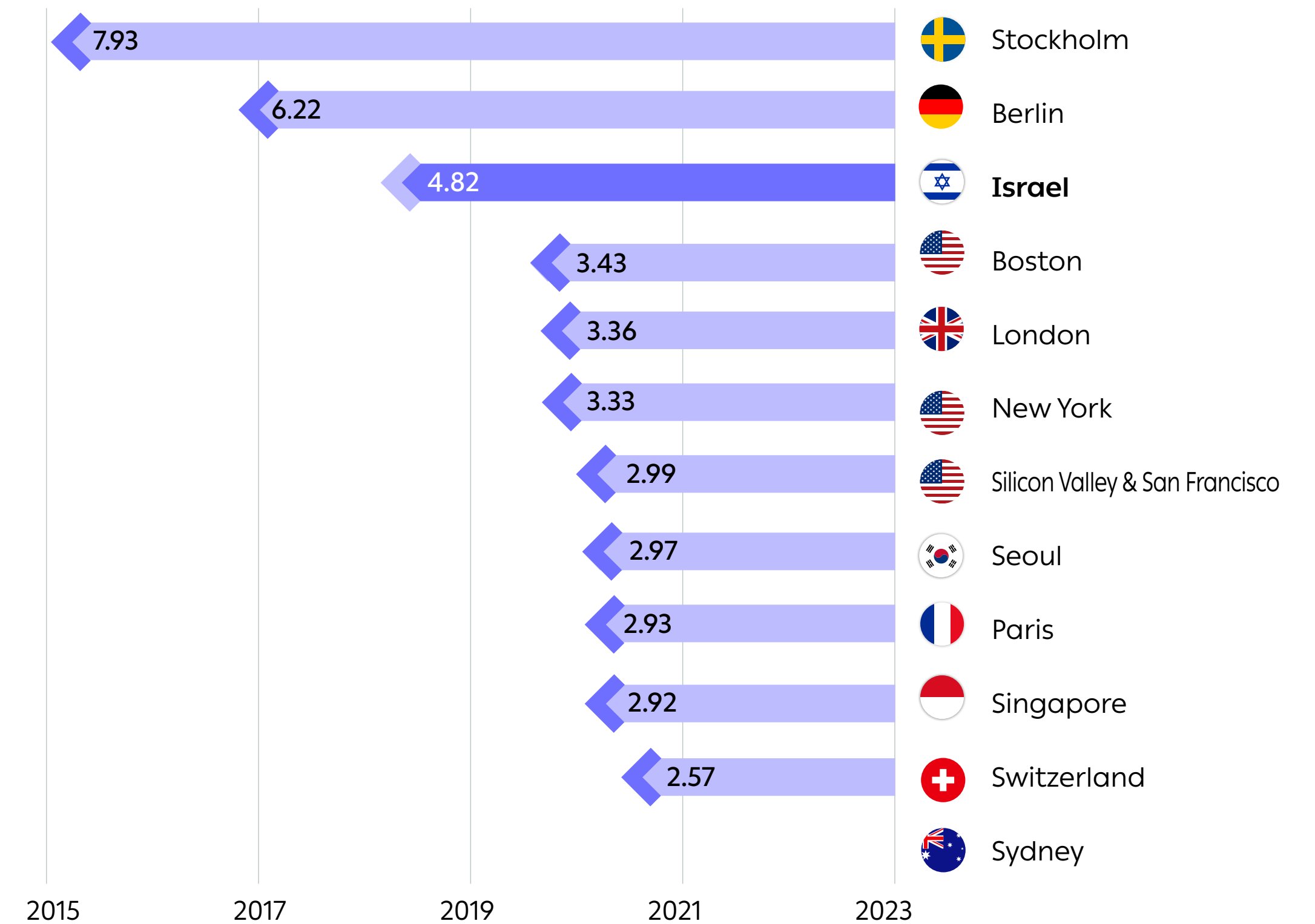
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The decline in investments takes Israel back to the level of total investments in startups registered in 2018 – five years ago. As stated, most of the world's main startup hubs have registered a decline in investment. A study aimed at examining how many years each hub "went backwards" in terms of investment – i.e., to which year's total investment it went back, in relation to the capital it raised in previous years – reveals that most of the hubs lost 2.5-3.5 years. Stockholm and Berlin, two European hubs that compete with Israel, lost eight and six years, respectively.

Israel Has Gone Backwards 5 Years in Terms of Investments in Startups – More than Most Innovation Hubs

No. of years since startups raised a similar sum to that raised by a hub in 2023



Source: Innovation Authority adaptations of IVC and CrunchBase data.

Part 2: Issues Related to the Future of Israeli High-Tech

Israeli High-Tech: Where is it Headed and How Will it Affect the Israeli Economy?

As shown above, Israeli high-tech has grown significantly over the past decade. The sector has established itself as the economy's shock absorber, especially during crisis periods, and has accounted for high proportions of the growth in Israeli GDP. Furthermore, it is clear that high-tech's contribution to GDP and the economy stems primarily from the sector's employees.

Investments in startups reached a peak in 2022. Since then, they have been in a downward trend which appears, as of now, to have been curbed. A similar negative trend characterized the indices relating to the number of available jobs in the

sector. In other words, the heights of 2021-2022 were the exceptions and Israeli high-tech appears to have returned to the long-term trends that characterized it during the years that preceded this growth.

This situation touches on a series of issues relating to the trends that will characterize Israeli high-tech in the coming years, and how these trends will impact the growth of the Israeli economy in general. These issues will be discussed in this section of the report.

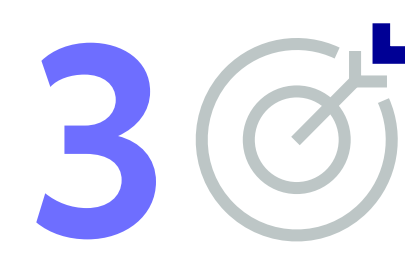
The central issues concerning Israeli high-tech:



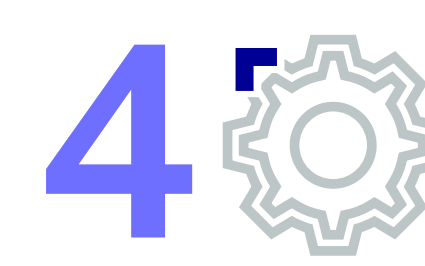
High-tech's centrality to the economy and the impact of changes in the sector on the economy



Creating inclusive growth by expanding the circles of technology employment



Competition with other global innovation hubs



The next growth engines of Israeli high-tech



High-Tech's Centrality to the Economy and the Impact of Changes in the Sector on the Economy

As presented in the first section of this report, Israeli high-tech constitutes a central factor in the Israeli economy, and its share in the various economic indices has been gradually increasing in recent years.

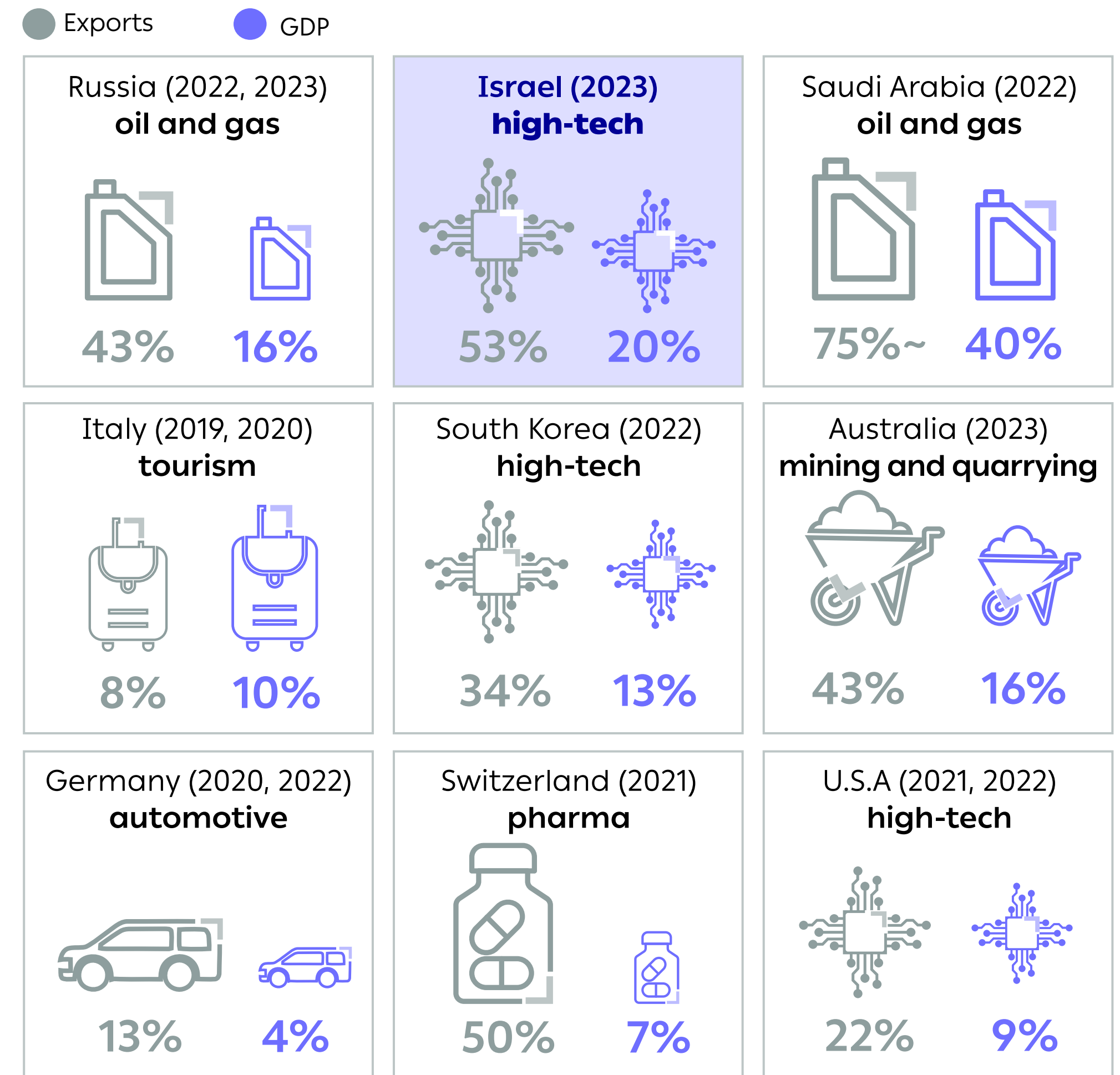
Moreover, the human resource is the primary reason for the sector's growth in Israel. In other words, **in economic terms, the high-tech sector's human capital is Israel's "natural resource"**.

From a global perspective, high-tech's centrality in the Israeli economy is a unique phenomenon. Its share of Israeli GDP – approx. 20% - is similar to that of natural minerals such as oil and gas in the economies of those countries that rely on them. High-tech's share of Israel's exports is also high and stands at more than 50% in recent years. In South Korea, for example, a country in which, like Israel, the investment in R&D as a ratio of GDP is extremely high, the high-tech sector accounts for 13% of GDP and a third of total exports. In the US, the home of the world's leading technology hubs, the high-tech sector contributed less than 9% of GDP in 2022 and less than a quarter of total exports in 2021.

Considering the centrality of high-tech, changes in the sector may influence the entire economy. Like other countries where a specific sector is of strategic importance, Israel should also have an organized long-term policy for the sector that incorporates relevant risk management.

Global Comparisons Stress High-Tech's Importance to the Israeli Economy

Prominent sectors in countries, by its share of GDP and exports



Source: Innovation Authority adaptations of CBS, Statista, InvestKorea, Reserve Bank of Australia, Switzerland Federal Council, Kiel Institute, IMF, OECD, World Bank data.

The State's Role in Accelerating High-Tech

The transformation of high-tech into a significant sector of the Israeli economy – in terms of its share of GDP, exports, employees, and tax payments – highlights the possibility that changes in this sector can affect the entire Israeli economy. This raises the question of how the State of Israel should support the sector on the one hand while managing the risk that may arise in the event of major changes affecting it.

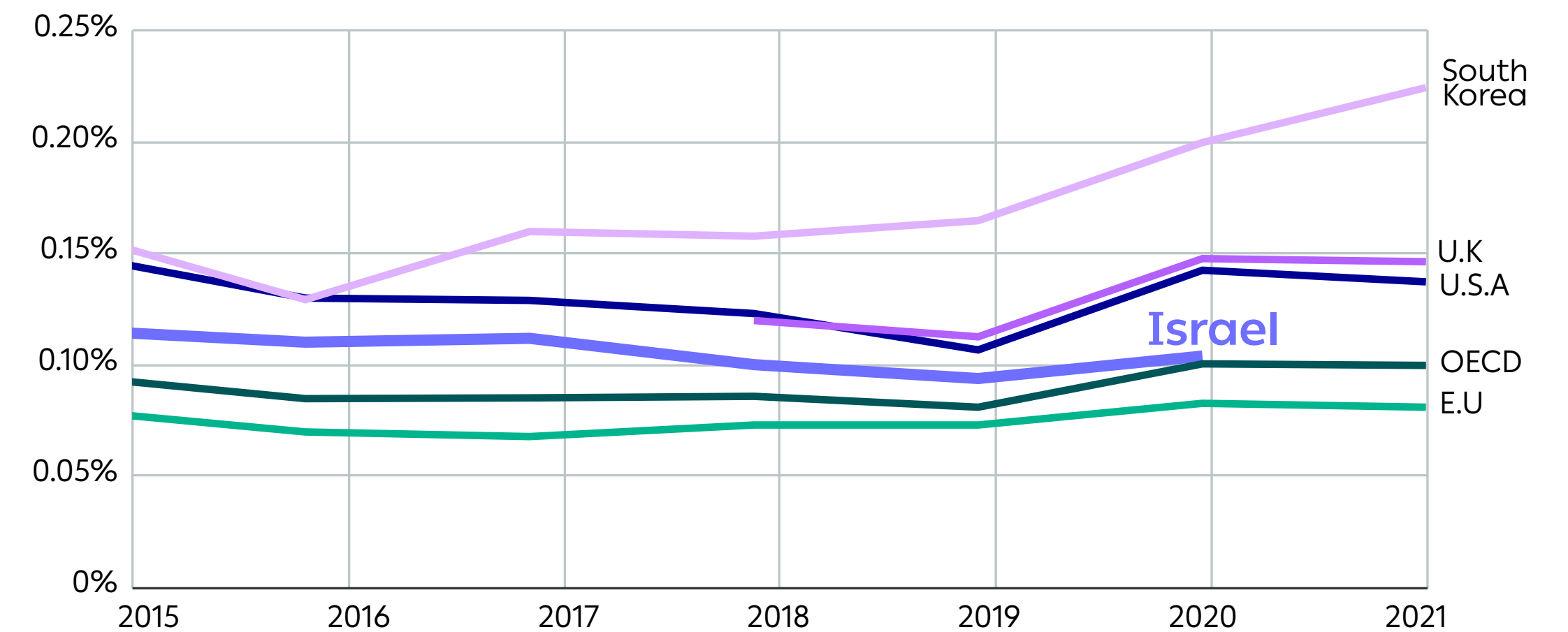
As of today, implementation of state policy regarding the high-tech sector has been expressed via direct financing of companies, primarily by the Innovation Authority and the DDR&D; funding the establishment of R&D infrastructures; tax benefits for investors and companies, and attempts to accelerate the increase in personnel with the skills necessary to work in high-tech, mainly through multi-year programs of the PBC-CHE and as part of implementing the Perlmutter Committee's recommendations.

An international comparison shows that **in Israel, the state's share of funding R&D activity in the business sector in terms of a percentage of GDP, is similar to the OECD average but significantly lower than countries considered to be global innovation leaders such as the US, Korea and the UK.**

The State of Israel, as a years-long world leader in terms of investment in R&D as a percentage of GDP (over 6% of GDP), cannot afford to be satisfied merely with a level similar to the OECD average in a sector of such strategic national economic importance.

State Investment in R&D in the Business Sector in Israel Has Eroded and is Low in Global Terms

Global comparison of state expenditure on funding business sector R&D as a % of GDP



Source: Innovation Authority adaptations of OECD data.

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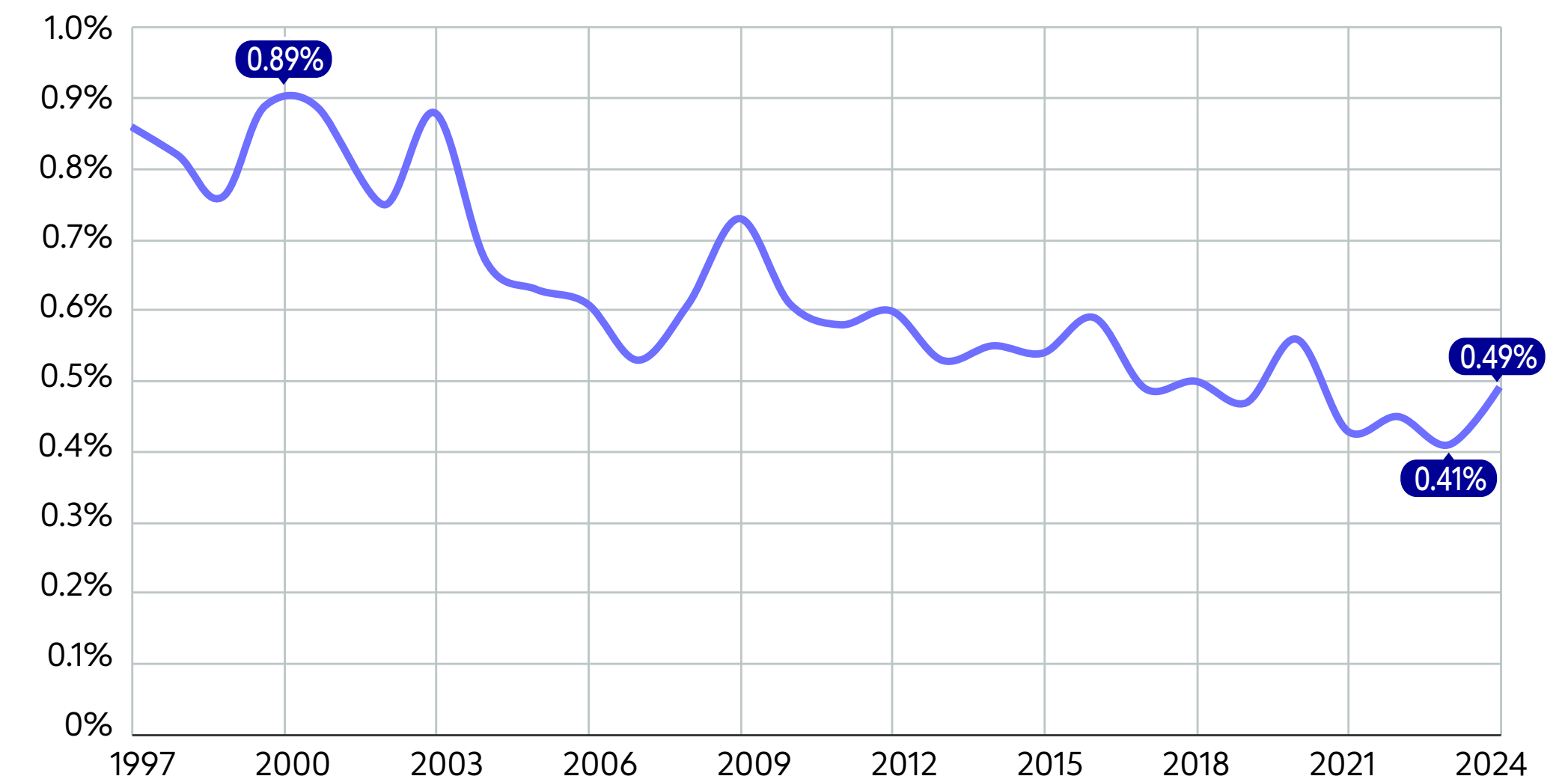
Furthermore, it is customary to relate to the state budget as an expression of national economic and social priorities. **An examination of the Innovation Authority, the state entity responsible for advancing the Israeli high-tech industry, shows that the share of its budget out of the total state budget has consistently eroded over the past twenty years.** The Authority's budget has declined by half from approximately 0.9% of the total state budget in 2000 to only 0.41% in 2023. Over a period of more than twenty years, the Authority's budget grew from 1.6 billion shekels to just 2 billion shekels in 2023, with the entire growth being explained by an increase in state expenditure in lieu of participation in the European R&D Horizon Europe Program. At the same time, the total state budget increased from 180 billion shekels to almost half a trillion shekels.

In 2024, the Innovation Authority's budget was increased by nearly 1 billion shekels in relation to 2023 with the aim of providing a response to the turmoil experienced by Israeli high-tech.⁷ **In light of the high-tech sector's size, this issue should possibly be given greater weight on a permanent basis when determining state priorities.**

The Innovation Authority believes that the government should strive to increase certainty for all the multinational entities involved in Israeli high-tech. **One of the ways to increase certainty is by creating a multi-year plan for state investment in high-tech.** Considering the expected influences of the war on the Israeli economy, and the expected need to tighten the belt on government expenditure, the creation of government commitment to the success of Israeli high-tech may send a positive signal to the market.

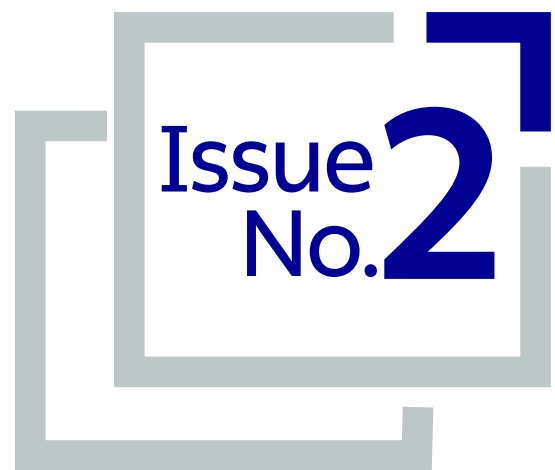
State Investment in R&D in the Business Sector in Israel Has Eroded

Annual ratio of Innovation Authority's budget out of total state budget



Source: Innovation Authority adaptations of Authority data and state budget figures (the data includes expenditure for the European R&D Program. Between 2020-2023, the data also includes the special expenditures for Covid and the "Swords of Iron" War).

⁷ Details of the various programs operated by the Authority during 2023 and 2024 in response to the war are presented at the end of this report.



Creating Inclusive Growth by Expanding the Circles of Technology Employment

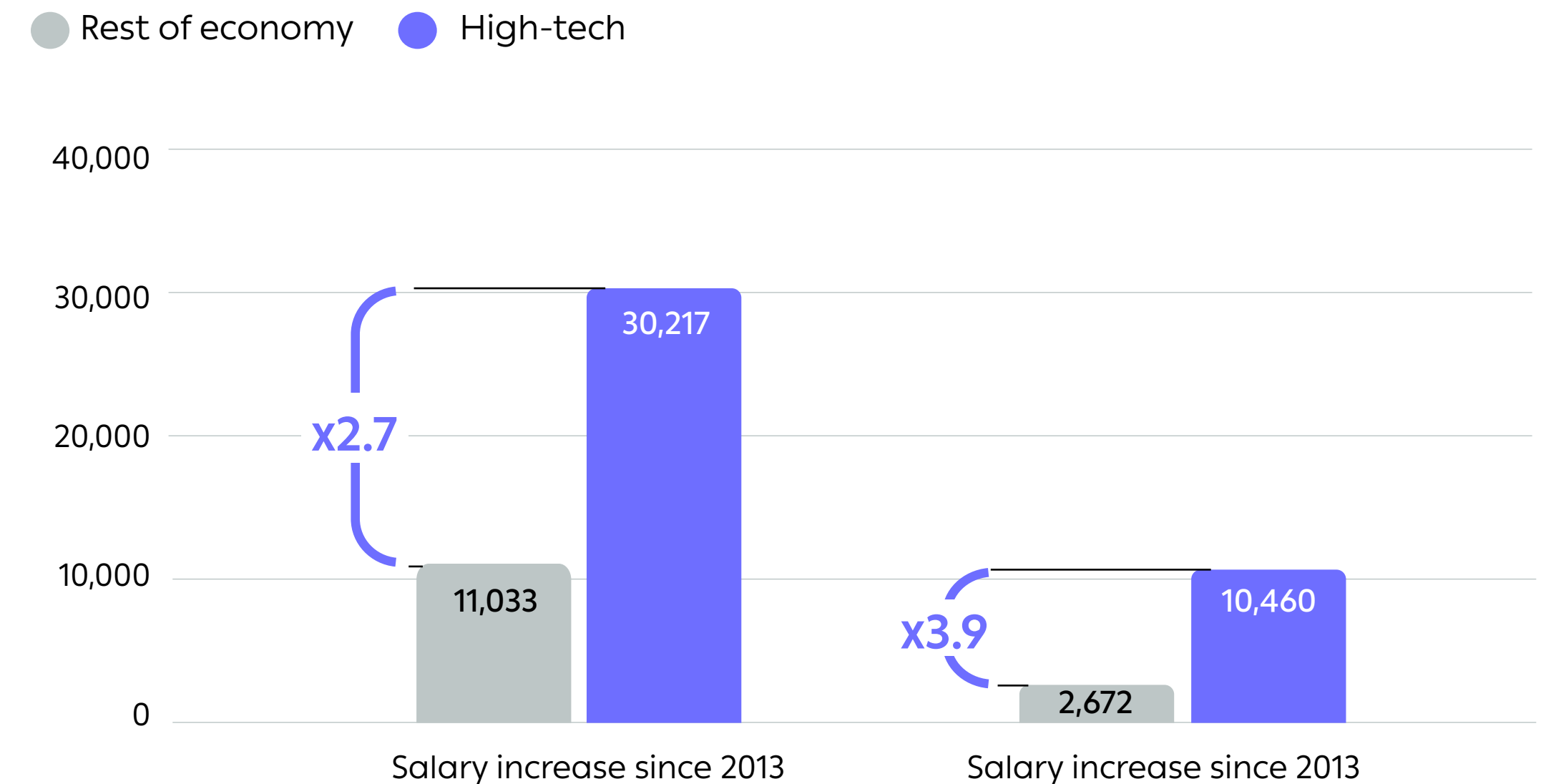
One of the central questions facing Israel is how to expand high-tech's success to the other sectors of the economy and create inclusive growth. Currently, a gap exists between high-tech and other sectors, expressed among others in the high salaries and productivity that characterize high-tech compared to the other sectors.

In the meantime, **the gap between the average salary in high-tech and the rest of the economy continues to grow as can be seen in recent decades. The average monthly salary in high-tech in 2023 was 2.74 times higher on average than the rest of the economy and stood at 30,217 shekels.** In January-February 2024, the average monthly salary in high-tech rose to 32,691 shekels. This figure may be updated as it includes bonuses that are generally awarded at the beginning of the year.

Even in 2023, that was characterized as a slower year in a range of indices, high-tech salaries continued to increase and rose by almost 2,000 shekels a month – an increase of 7%. In the rest of the economy, the average monthly salary rose by 600 shekels in 2023, an increase of 6%.

High-Tech Salaries are 2.7 Times Higher than the Economy's Average Salary

Average monthly salary in high-tech salary (excluding communications) and rest of economy in 2023, in shekels, and salary increase between 2013-2023



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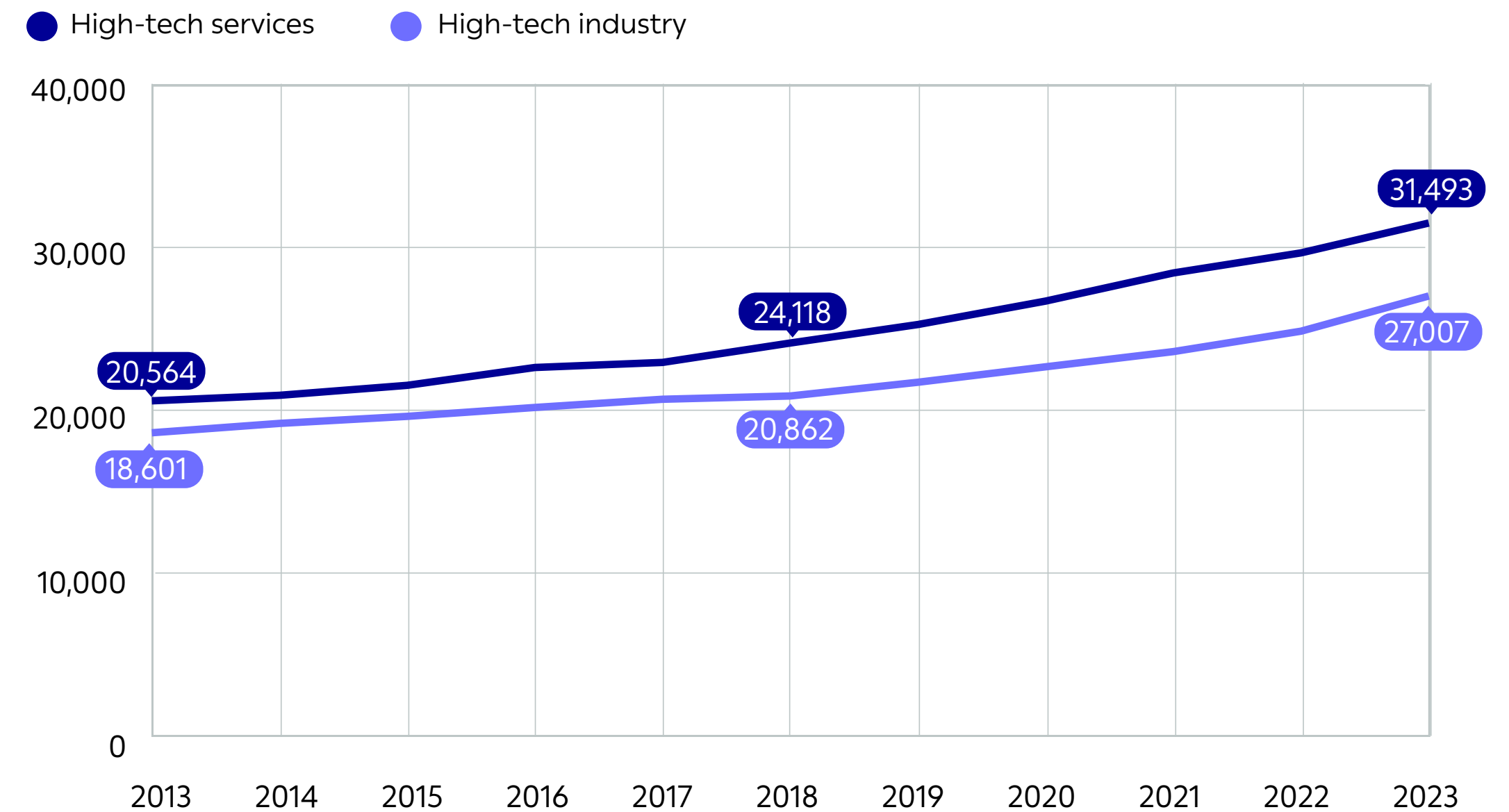


Broadly speaking, **between 2013-2023, the average monthly salary in high-tech rose by 10,460 shekels, an increase of 53%. In the rest of the economy, the average monthly salary rose by 2,672 shekels during the same period, an increase of 32%.**

It should be noted that there are salary disparities within the high-tech sector. The average monthly salary in the high-tech services field (software) stood at 31,493 in 2023, compared to 27,007 shekels in the fields of high-tech industry (hardware and pharma). This disparity has grown steadily over the past decade from less than 2,000 shekels a month in 2013 to over 4,000 shekels in 2023.

High-Tech Salary Disparities: Higher Salaries in Software Fields Than in Hardware and Pharma

Average monthly high-tech salary by sub-sector, in shekels



Source: Innovation Authority adaptations of CBS data.

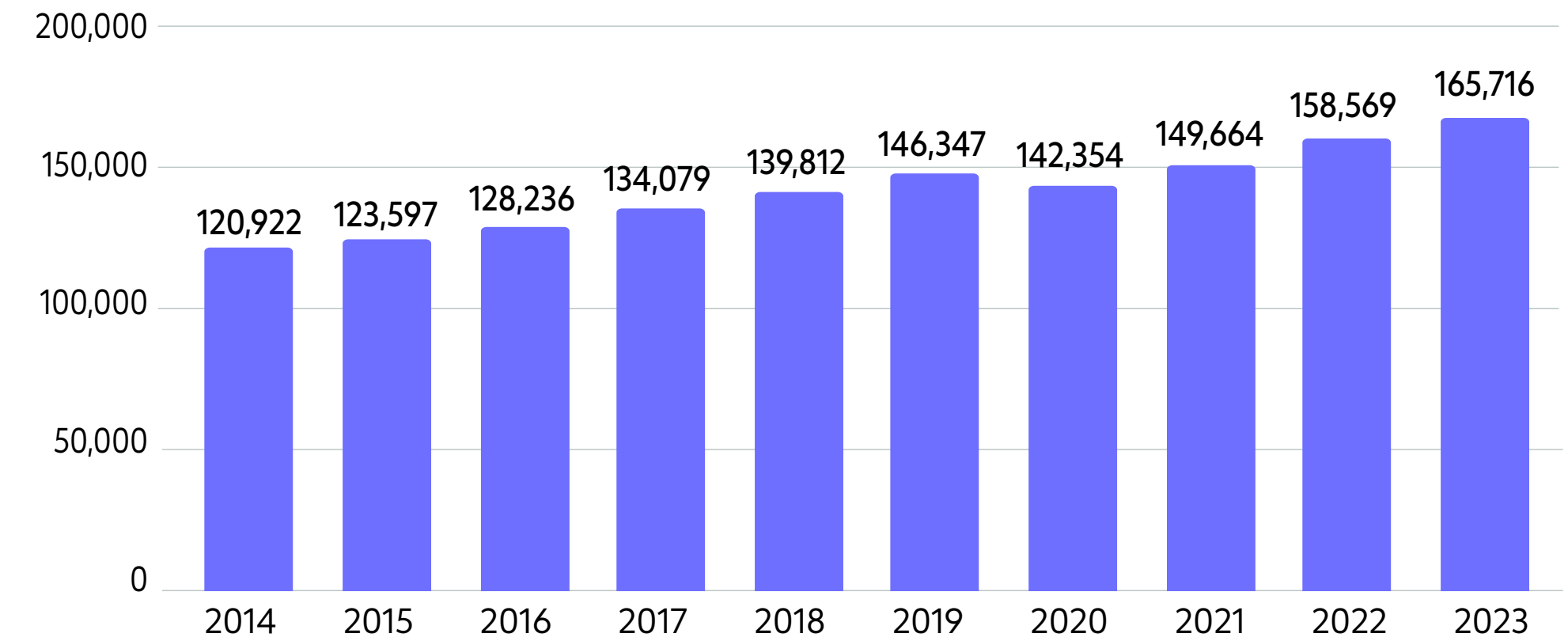
Introducing Innovation to Other Sectors

One significant way to expand high-tech's success and reduce disparities in the economy is the integration of technological professionals in non-high-tech sectors ("tech jobs" as defined by the Perlmutter Committee). **The number of workers in technology roles in non-high-tech sectors reflects, among others, the digital transformation they have undergone, the assimilation of innovation, improved productivity, their competitiveness vis-à-vis other companies in the sector, and the introduction of data-based decision-making processes.**

165,700 people were employed in tech jobs outside the high-tech sector in 2023. Over the period of a decade, the number of employees in tech jobs rose by 45,000 jobs. During the same period, the number of employees in technology jobs in the high-tech sector doubled, rising by more than 96,000 employees. In other words, **in the non-high-tech sectors, the number of employees in technology jobs grew at a slower rate than that of the high-tech sector.** Moreover, the Covid crisis (in 2020) clearly reduced the hiring of workers in technology jobs throughout the rest of the economy and their number declined, while the high-tech sector grew significantly.

Technology Professionals are Slow to Join Non-High-Tech Sectors

No. of employees in tech jobs in rest of economy (excluding high-tech)



Source: Innovation Authority and Aaron Institute adaptations of CBS data.

Continued ➔



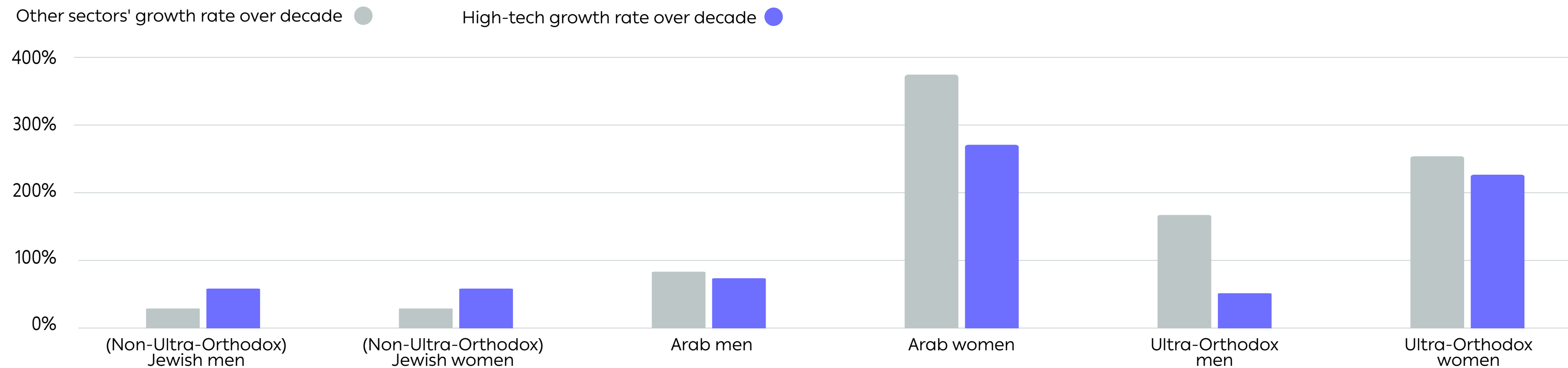
When examining the increase in the number of employees in technology jobs in high-tech and in the rest of the economy by population, it would seem that **the technology jobs in the rest of the economy are opportunities for workers from populations under-represented in high-tech to enter high-quality employment and for the creation of inclusive growth.** Over the past decade, the growth rates of Arab women, Ultra-Orthodox men, and, to a lesser degree, Ultra-Orthodox women were high in relation to their rate of joining the high-tech sector in the same period.

To reduce the disparities, increase well-being, and enhance the general standard of living in Israel, the state should facilitate and encourage a transition of under-represented populations to tech jobs in the rest of the economy and to the high-tech sector.

We wish to re-emphasize the importance of implementing the recommendations of the Perlmutter Committee to increase the human capital in high-tech and, specifically, **the recommendation to invest in high-quality education for all population groups throughout the country** with the aim of guaranteeing the long-term prosperity of the high-tech sector and the entire Israeli economy.

Higher Growth in Tech Jobs Among the Ultra-Orthodox and Arab Populations in Non-High-Tech Sectors

Growth rate in no. of employees in high-tech and in tech jobs outside high-tech in past decade, by population and gender, in %



Source: Innovation Authority and Aaron Institute adaptations of CBS data.

Issue No. 3

Competition with Other Global Innovation Hubs

The Israeli innovation industry, that is based on high-quality human capital, young startup professionals, and knowledge in unique fields, competes with other hubs of innovation around the world in a variety of areas:

human capital and entrepreneurship, funding for investments in startups, and the presence of global technology companies and local mature technology companies. These hubs include "traditional" hubs such as Silicon Valley in the US, but also those that have grown in recent years and established themselves as large and significant hubs such as London. This section will present a picture of Israel's standing in global comparisons in these fields.

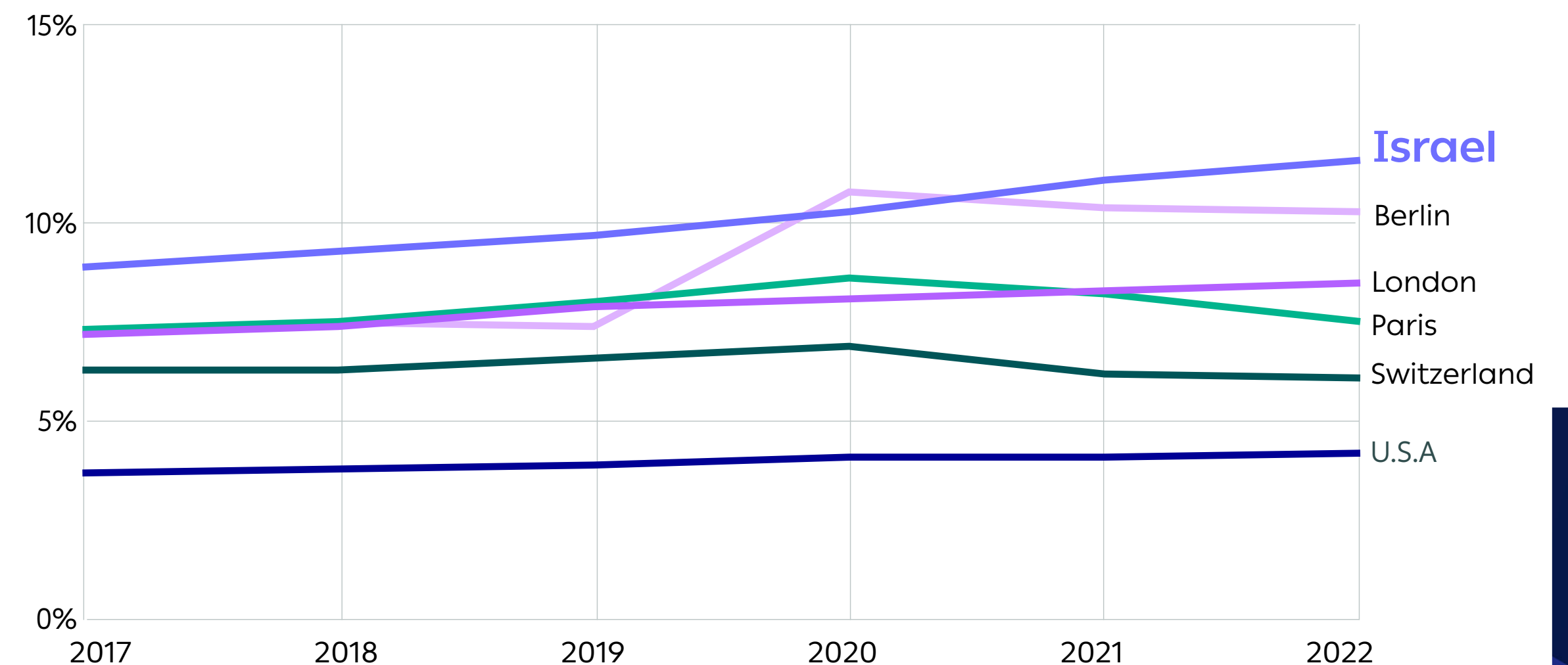
The hubs' evolvement into innovation leaders is also expressed in terms of employment in professions related to the high-tech sector. In 2023, nearly 12% of the economy's employees were employed in high-tech – an identical figure to that registered in 2022. **In all the hubs examined, the level of employees in high-tech in 2022 was higher than that of 2017. In other words, in all of them, the high-tech sector is growing at a faster rate than the general economy.** This testifies to the increasing weight of high-tech in these hubs.

As the ecosystem in these hubs improves and strengthens, so too Israel's competition in recruiting global resources will increase, primarily in capital and the presence of significant foreign players.

Consequently, increasing high-quality personnel in high-tech is a challenge of national importance. On the one hand, investment and support should be given to quality technology-literate human capital, in accordance with the recommendations of the Perlmutter Committee. At the same time, it is important to prevent the loss of quality personnel to other global innovation hubs, by safeguarding Israel's standing as an attractive location.

Israel is a World Leader in High-Tech Employment - Which is also Increasing in Other Countries

Ratio of employees in high-tech in global hubs out of total employees ⁸



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

⁸ Due to a data limitation, the graph presents U.S.A data and not data of the specific hubs such as San Francisco and New York in which the level of high-tech employment was probably higher.

The Competition for Capital: Venture Capital Investments

The competition between the different hubs is also manifested in the competition for investments in startups, whether direct investments in technology companies or in funds that invest in them. As shown, over the past two years, Israeli startups is experiencing a sharp decline in investments – a sharper decline than in most of the hubs examined.

In 2023, Israel was the fifth largest hub in terms of capital raised among the leading innovation and entrepreneurship hubs examined worldwide. The

leading hubs are San Francisco, New York, Boston, and London. The funds raised in Israel were similar to Los Angeles.

One of the prominent trends over the past decade is the significant growth of London as an innovation hub. Over the past two years, London has overtaken Israel in terms of investments in startups and is now ranked as one of the world's five leading hubs.

The Israeli Innovation Hub is the Fifth Largest in Terms of Investments in Startups But Competition is Fierce

Investments in technology companies in prominent hubs in 2023 (billions of dollars)



Source: Innovation Authority adaptations of IVC and CrunchBase data

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Fundraising by the local venture capital funds reflects the attractiveness of the hub for investors, especially in early-stage startups.

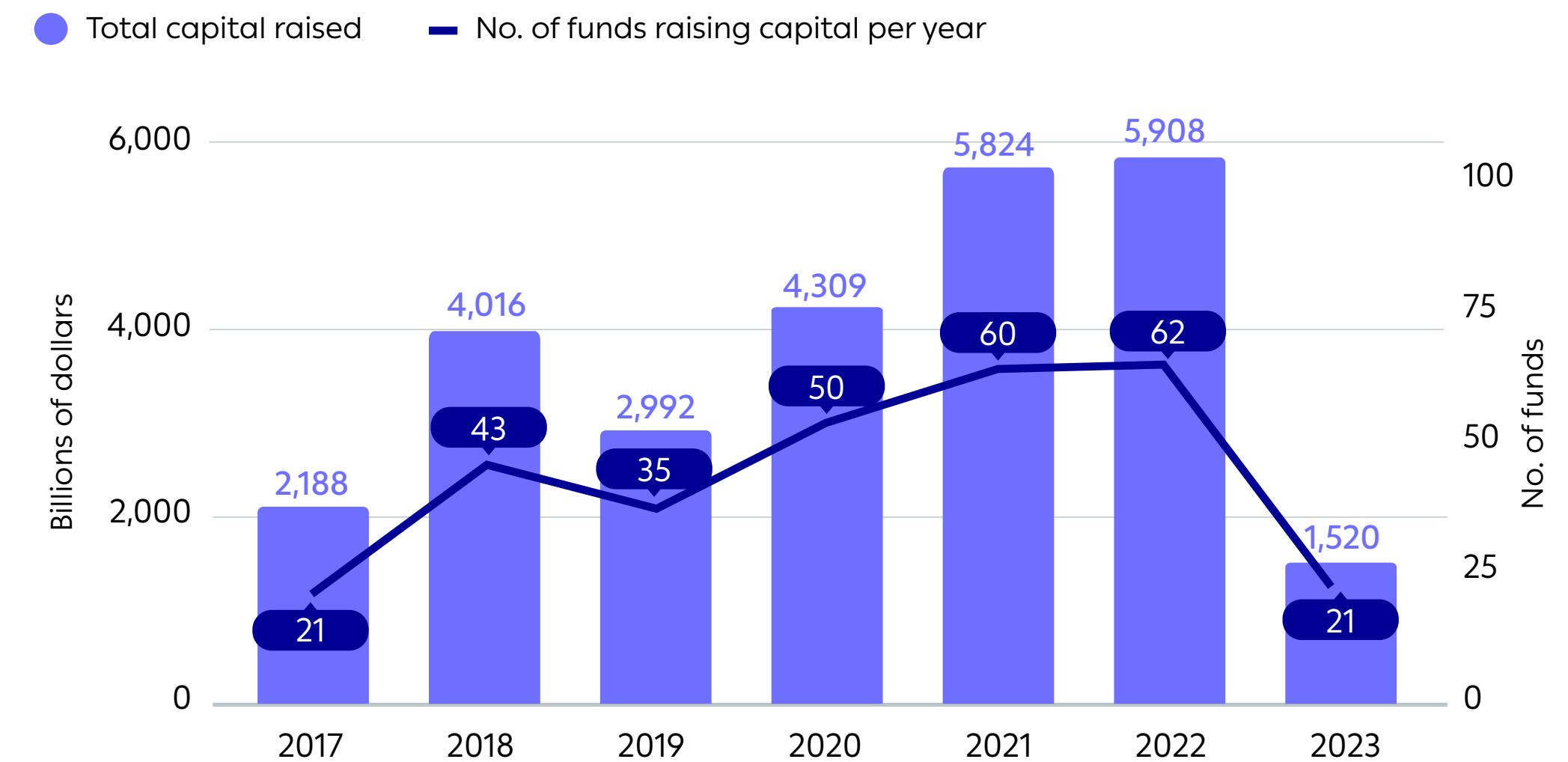
The investments in startups in Israel are distributed between the local Israeli and foreign venture capital funds. Whereas the mandate of the Israeli funds is to invest primarily in Israel, the investments of the foreign funds are generally split between diverse locations. The capital invested in the Israeli venture capital funds is also largely foreign so, in practice, most of the capital invested in Israeli startups originates from outside the country.

The capital flow to Israel expresses investors' belief in the local industry. At the same time, **the significant reliance of Israeli high-tech on foreign capital compared to other hubs, combined with the distance from the investors, increases the risk that the sources of funding for Israeli high-tech may dry up during times of crisis** when investors behave conservatively.

In 2023, the total sum raised by venture capital funds in Israel declined by 75% compared to 2022 and by 67% compared to the average raised in the period between 2018-2022.

Fundraising of the Israeli VC Funds is Impacted by the Situation: A Decline of 70%

Total capital raised and no. of Israeli VC funds raising capital per year (billions of dollars)



Source: Innovation Authority adaptations of IVC data.

Continued >



On a global level, most of the capital worldwide is raised for funds in Silicon Valley and, in general, in the American hubs. In 2023, after years during which the total capital raised for the funds increased, fundraising declined. Unlike the decline in startups' fundraising that began already in 2022, venture capital funds' fundraising increased that year.

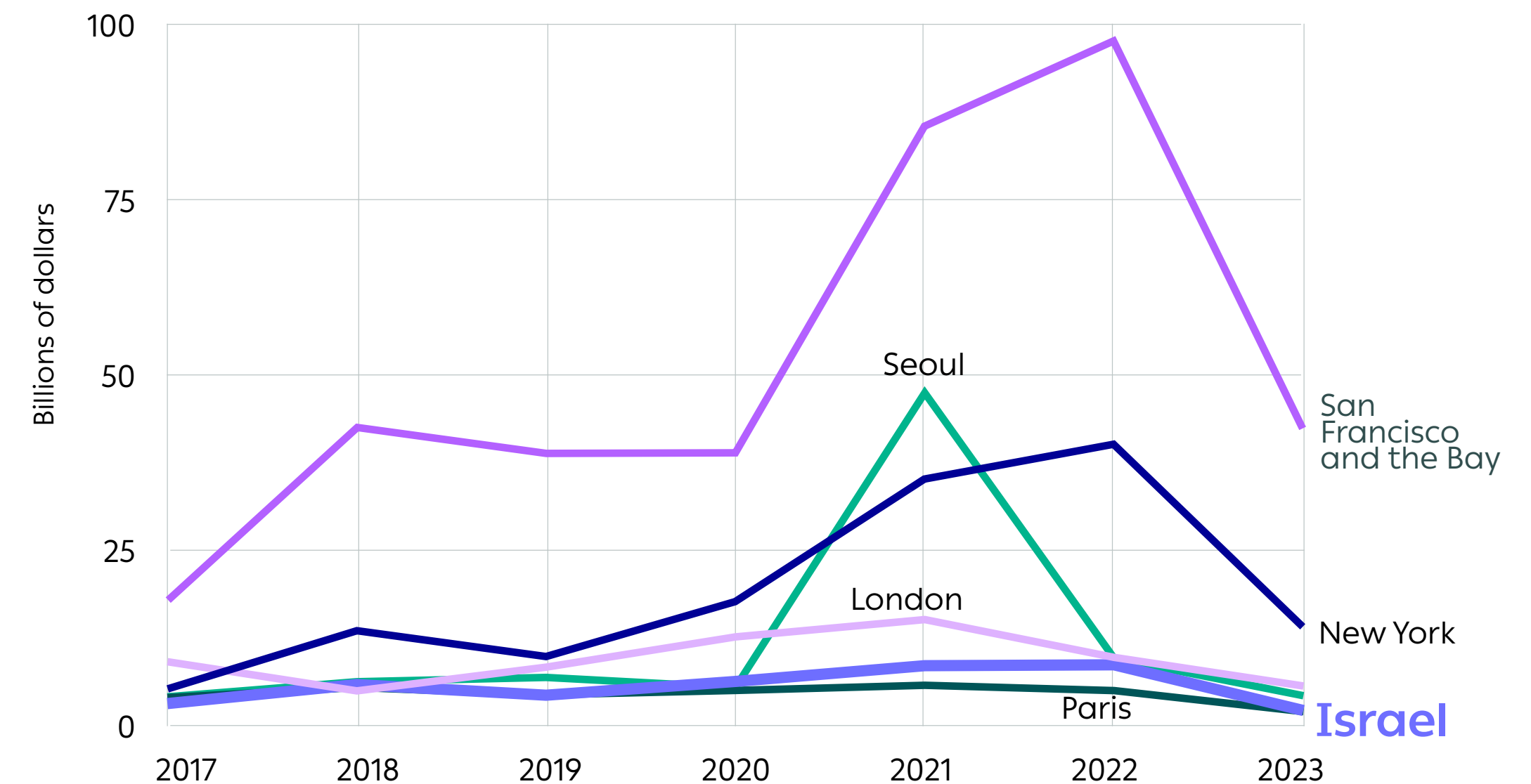
London is an example of Israel's growing competition. As noted, the total capital raised for technology companies in that hub overtook that in Israel. London also overtook Israel in the venture capital funds segment. Between 2017-2023, a total of 27 billion dollars was raised for Israeli venture capital funds while in London this figure stood at 58 billion dollars.

The decline in the capital raised by venture capital funds in Israel in 2023 was sharper than in other hubs examined. **In 2023, the total capital raised by venture capital funds in Israel declined by nearly 70% compared to the average raised between 2018-2022. This compared to a decline of 30%-40% in the other hubs examined.** In practice, the capital raised by venture capital funds in Israel declined to a level lower than that of 2015.

The 2008 crisis also had a significant impact on the Israeli funds which failed to raise capital during the subsequent year. This phenomenon was one of the reasons for the launch of the Yozma 2.0 Fund following the events of October 7, in an attempt to prevent a possible shortage of funding for Israeli venture capital funds.

San Francisco and New York Lead Capital Raised by VC Funds

Total capital raised by VC funds in the various hubs (billions of dollars)



Source: Innovation Authority adaptations of IVC and PitchBook data.

Competition for The Multi-National Companies

A further competitiveness index of the Israeli ecosystem, and in general of global innovation hubs, is the ability to attract multinational companies to host the operation of significant centers of activity and development. Over time, Israel has been the first place outside the US where a variety of companies have developed a center of activity. As of 2024, there are 515 multinational companies operating in Israel. Together with the growth of other global innovation hubs, competition is also increasing in this arena.

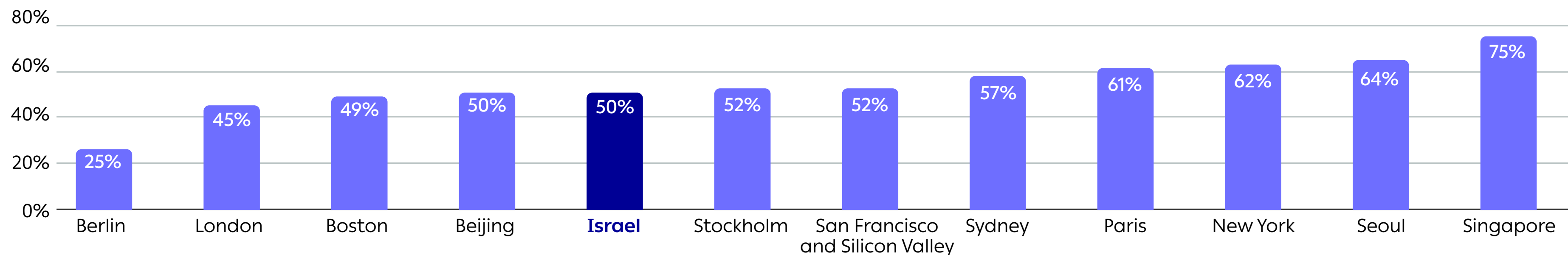
A study conducted by the Innovation Authority aimed to compare different hubs according to the presence of the large global technology companies operating there. To do so, it identified the 56 companies with the highest market value on the NASDAQ that operate in technology fields, as of January 2024. The importance of these companies' presence in an innovation hub is expressed in several ways. **First, their presence is a quality mark for the local hub. Second, these companies are generally stable and significant employers that pay high**

salaries. Third, work in these companies frequently exposes their employees to the forefront of technology. Next, the study checked in which hubs the listed companies operate in, thereby enabling a comparison between the hubs with a relatively high concentration of large and significant technology companies.

The study reveals that the places with the highest concentration of the largest multinational companies via R&D and business activity centers are not necessarily the largest hubs either in terms of investments in startups or local venture capital funds. The leading hubs in terms of large technology companies' concentration are Singapore, New York, and Seoul. Furthermore, the study shows that the large technology companies' level of presence in Israel is similar to that in Boston and Silicon Valley. Further discussion of the subject of competition for the presence of multinational companies in innovation hubs appears below in Issue no. 4.

The Hubs with the Highest Concentration of Large Technology Companies: Singapore, New York and Seoul

The large technology companies' level of global presence via centers of R&D and business activity, in the various hubs



Source: Innovation Authority adaptations of NASDAQ and companies' websites data

The Mature Technology Companies: Hubs' IPOs

Another index of business activity in startups and innovation hubs is **IPO activity that expresses the maturation of growth companies and their transformation into public companies**. In overall economic terms, the consolidation of these companies in a hub is of great importance: these are **large independent companies that usually employ a relatively large number of people in a variety of roles. They are surrounded by an ecosystem of service providers and they contribute to state revenues via tax payments** (of both the employees and the companies themselves).

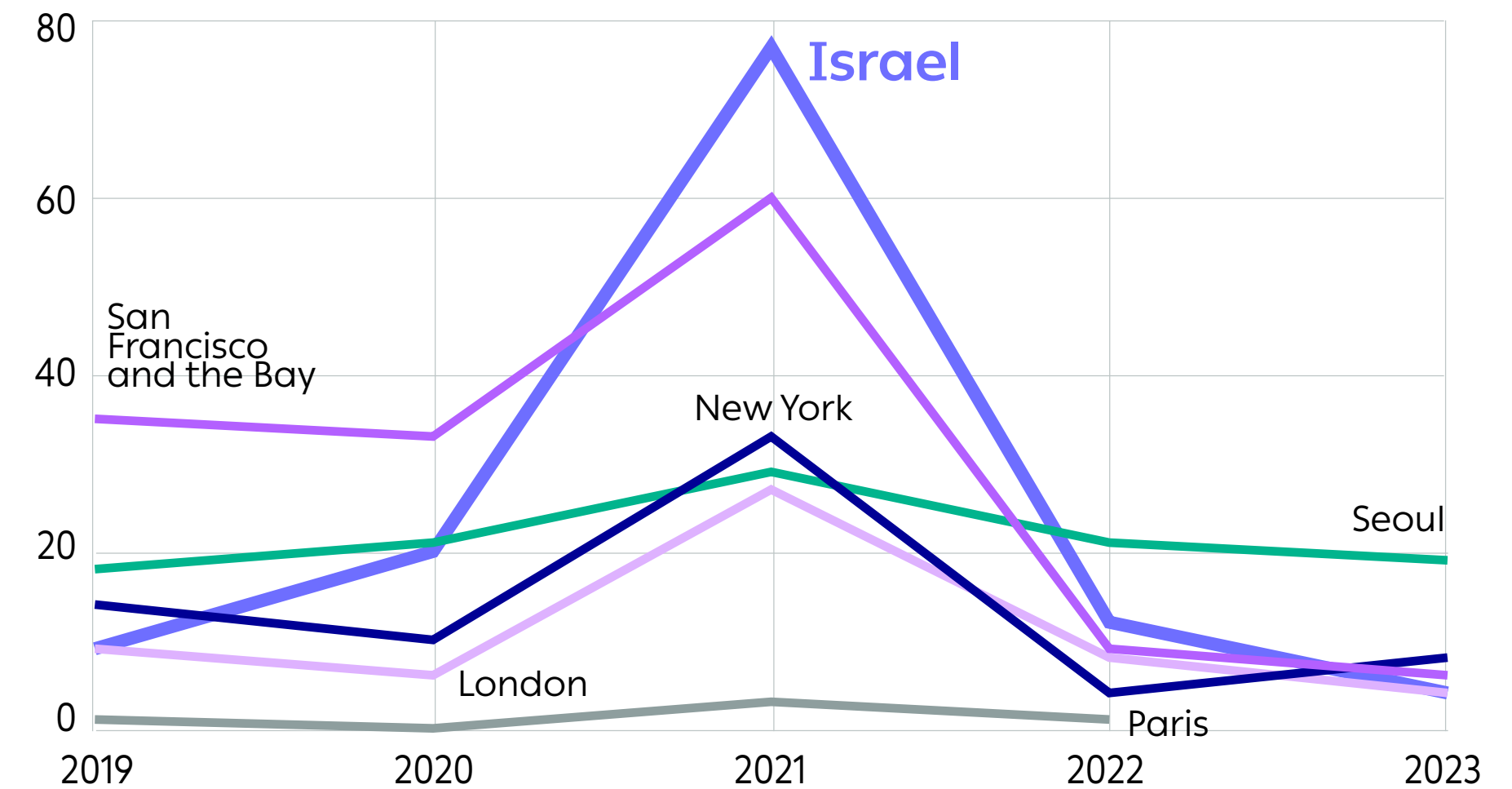
In 2021, the most recent wave of IPOs reached its peak. An examination of technology companies' IPOs in prominent hubs reveals that over 70 Israeli companies took the opportunity to go public (via SPAC or IPO). This led to Israel overtaking Silicon Valley and New York in terms of IPOs that year. In 2022, the IPO window closed although the number of IPOs in Israel was still second only to Seoul. In 2023, the negative trend continued in most of the hubs (except New York where there was a slight recovery and in Seoul which maintained a similar level throughout this period).

There are signs indicating that the global IPO window for technology companies has re-opened in 2024, one which is characterized by better compatibility of stock valuation and market expectations. The question arises as to whether Israeli technology companies are ready to utilize the window of opportunity. To this end, **effort must be made to ensure that government policy creates a business environment that supports Israeli technology companies for the duration of their operation, both before and after going public.**

⁹ Including IPO and SPAC deals.

Israeli Companies Utilized the Previous IPO Window - Will They Ride the Next Wave?

No. of technology companies IPOs per year in selected hubs⁹



Source: Innovation Authority adaptations of IVC and PitchBook data.

Issue
No. 4

The Next Growth Engines of Israeli High-Tech

Considering high-tech's importance and growing centrality to the Israeli economy, a question exists about the sector's continued growth in the coming years. When trying to identify the next growth engines of Israeli high-tech, it is already possible to detect several long-term processes and trends that are influencing the directions in which Israeli high-tech may develop.

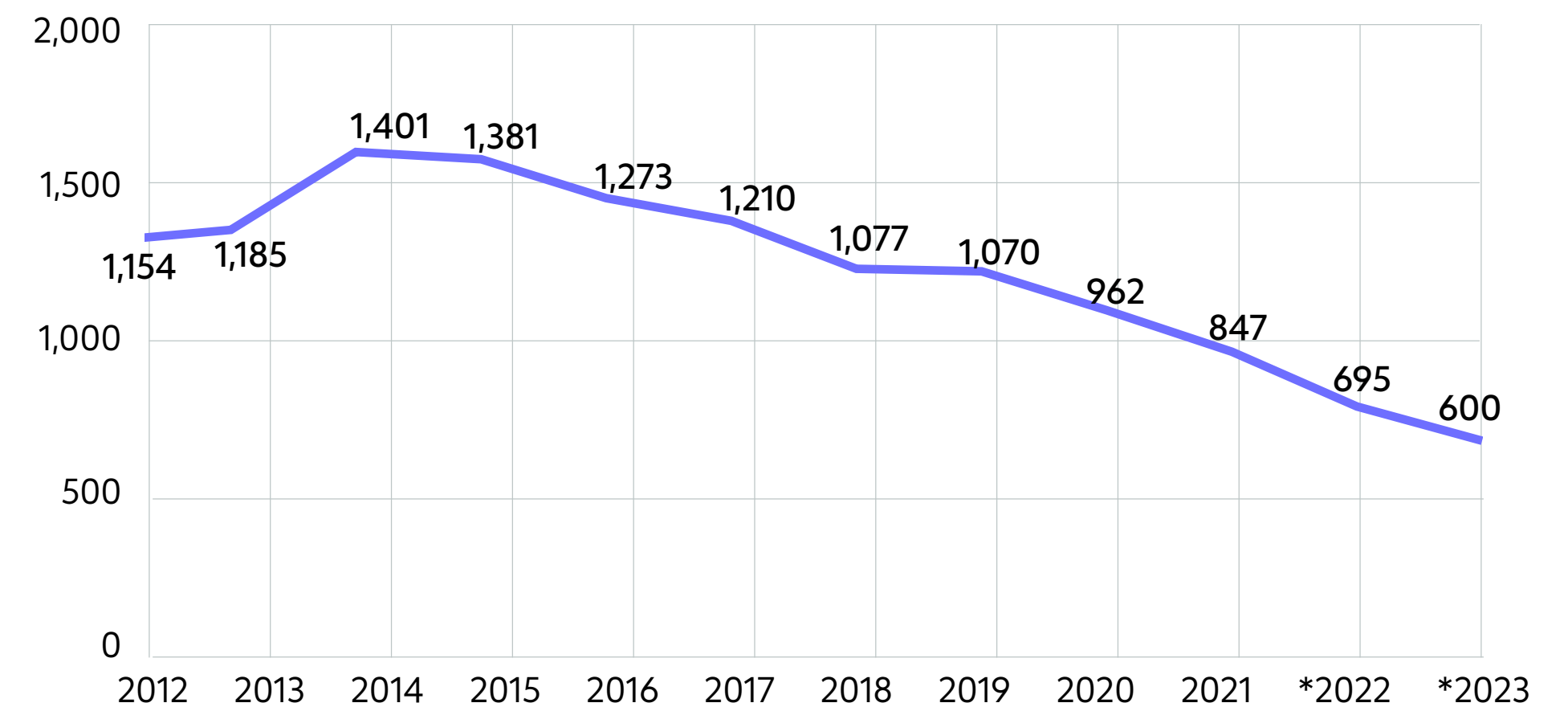
The first of these relates to technological entrepreneurship. Since its inception, Israeli high-tech has relied on groundbreaking innovation via young companies that engage in the development of high-risk technologies. **One issue that will influence the sector's future is related to the "crop" of Israeli startups. Since 2015, there has been a negative trend in the number of new startups established every year.** The question arising in this context is if "enough" new technology companies are established each year or whether there is a threat to the future of the "startup nation". **According to a preliminary estimation, only 600 companies were established in 2023, a figure that constitutes a warning sign.**¹⁰

Another significant variable, presented in detail below, relates to the funding of companies at different stages, especially early-stage companies – funding that will enable the companies to continue their growth and development until they reach maturity. Additional factors that will impact the hub's growth direction are also connected to technological diversity, and to the establishment of companies in growing sectors that enjoy global demand, such as Artificial Intelligence.

Additional factors that influence the growth engines of Israeli high-tech will be presented later in this section. These include venture capital funds' investments in certain fields, multinational companies' activity, and mature technology companies that are listed and traded on capital markets. Proposals for policy steps that support the growth engines will be presented in relevant cases.

A Low Point in the No. of New Technology Companies: 600 New Startups in 2023

No. of new technology companies opened in Israel per year



Source: Innovation Authority adaptations of IVC data.

* The figures for 2022 and 2023 are estimates.

¹⁰ For further details, see the Authority's publication on this subject in conjunction with the RISE Institute (formerly SNPI)

Investments in Startups: A Decline in Investments That Takes Israel Back to 2018

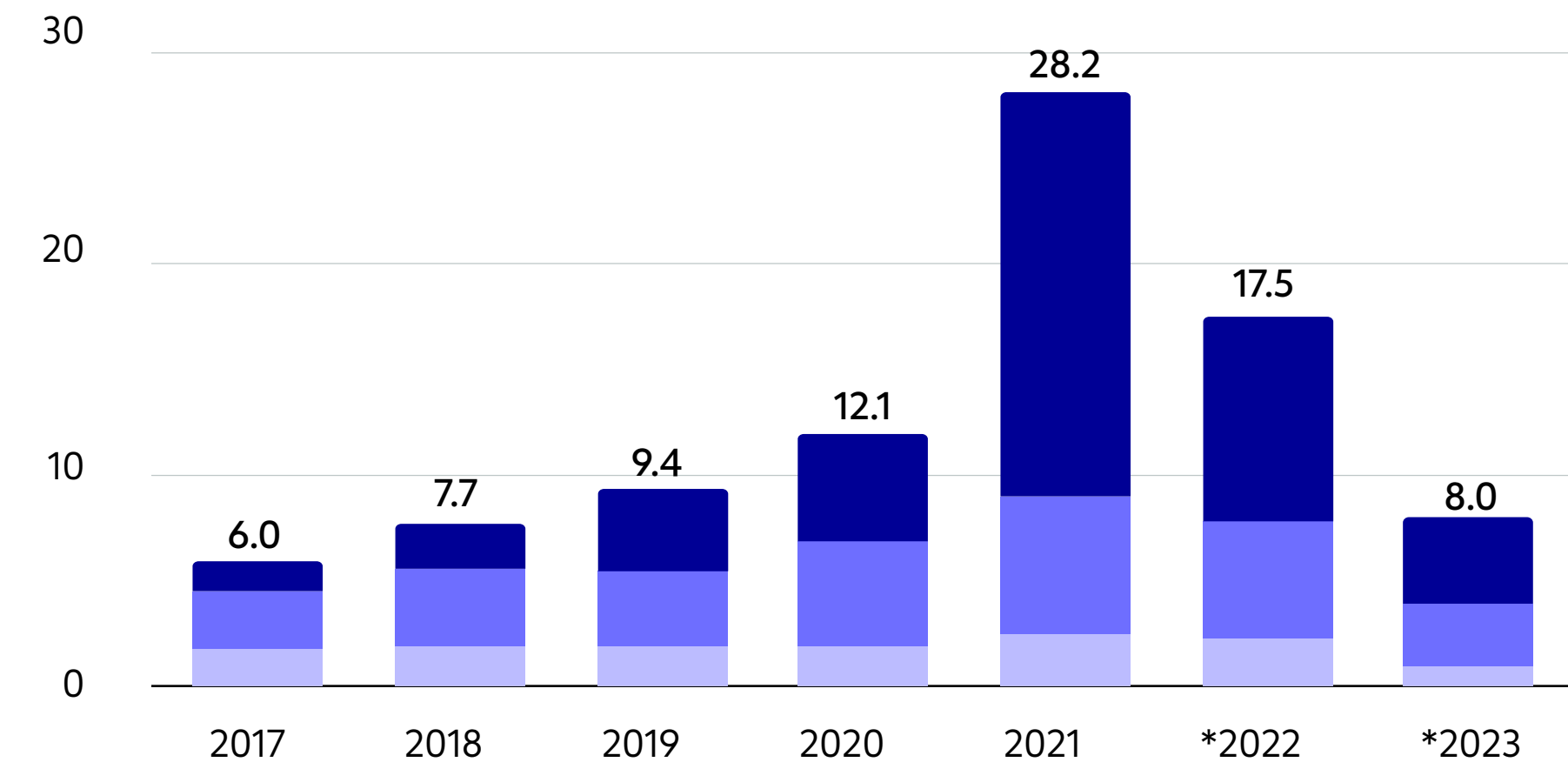
As shown above, since 2011, there has been a negative trend in investments in Israeli startups. Most of this decline was in investments in large funding rounds of over 50 million dollars. These funding rounds fueled the growth of independent and mature Israeli technology companies.

At the same time, **there was also a significant decline in early-stage funding rounds.** 30% of the total capital raised by Israeli startups in 2017 was raised via investments of less than 10 million dollars. This figure declined to 13% in 2023. **The capital invested in the early funding rounds is small, not just in relative terms but also in absolute terms: in 2017, it stood at 1.8 billion dollars and in 2023, less than 1 billion dollars.**

Most of the Decline in Fundraising by Israeli Startups: in Investments Over 50 Million Dollars

Total fundraising to Israeli technology companies, by size of investment round (millions of dollars)

● Up to 10 million dollars ● 10-50 million dollars ● Over 50 million dollars



Source: Innovation Authority adaptations of IVC data.

*The figures for 2022 and 2023 are estimations and may change in the coming months

Investments in Startups: A Significant Decline in Fundraising by Young Startups

The data reveals that **the significant increase in investments in startups between 2021-2022 did not lead to an increase in early-stage investments**, where there was a moderate rise in the capital invested. **In other words, the early-stage companies did not benefit from the upturn in investments.**

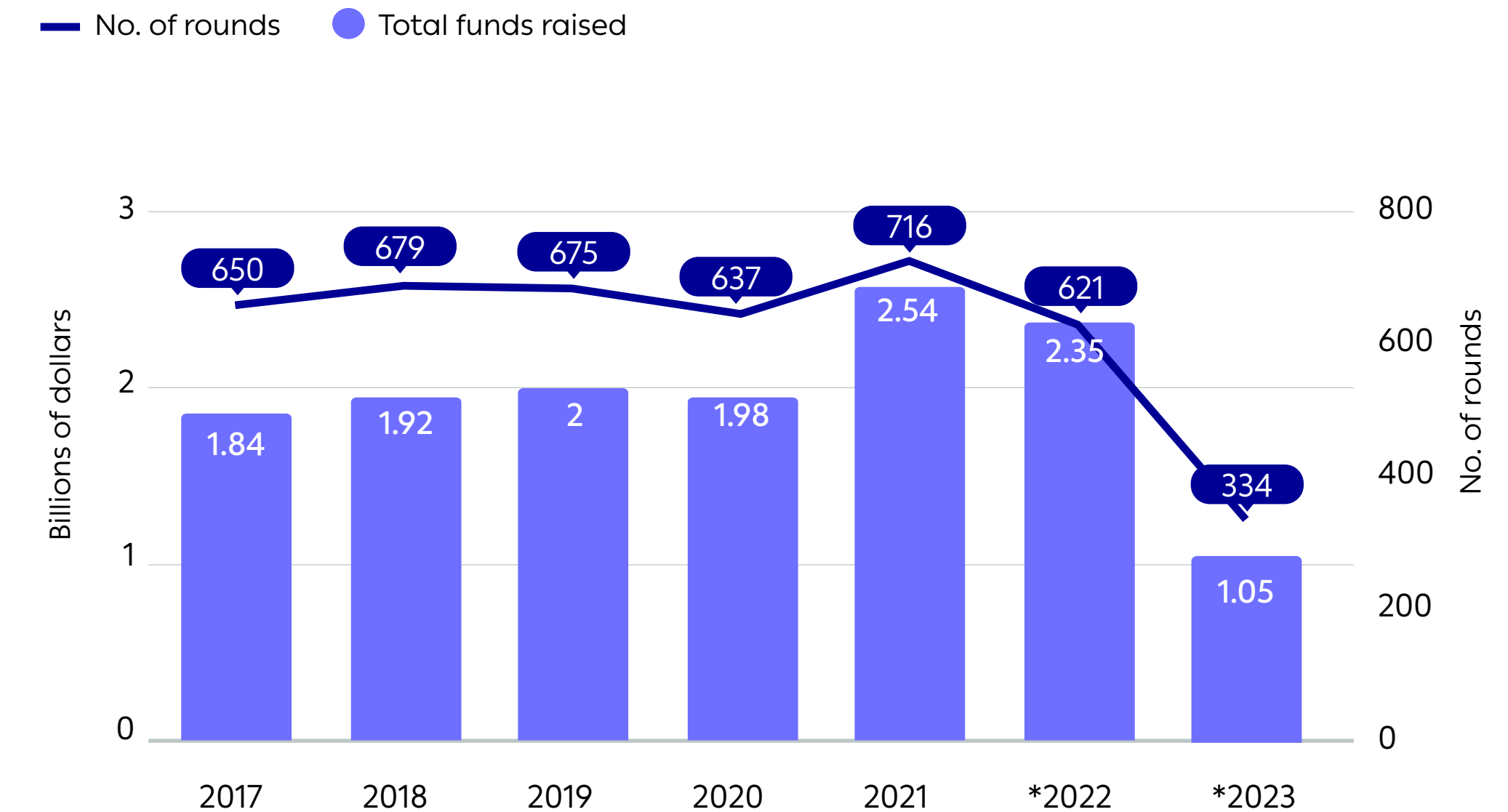
There was also no significant change in the average size of the funding rounds of less than 10 million dollars which increased from 2.8 million dollars in 2017 to 3.1 million dollars in 2023. At the same time, the number of investment rounds in early-stage companies declined in 2023 to half the number registered in 2022.

This means that early-stage startups had less capital at their disposal, thereby possibly making it difficult for startups to reach more advanced stages. **Because young startups are the foundation for growing the mature companies of the future decades, a drop in the number of new startups combined with a decline in funding of early stages may lead to a decline in the future growth rate of Israeli high-tech.**

In light of this understanding regarding Israeli high-tech and given the long-term importance of startups to the Israeli ecosystem, in 2023 the Innovation Authority offered tools aimed at supporting early-stage companies. Further details on these tools are presented on pages 63-64.

Fewer Young Startups Are Raising Less Money

Total funds raised and no. of funding rounds for Israeli technology companies in rounds of up to 10 million dollars (billions of dollars)



Source: Innovation Authority adaptations of IVC data.

* The figures for 2022 and 2023 are estimations and may change in the coming months.

Investments in Startups: Most of the Decline in Investments is in the Large Funding Rounds

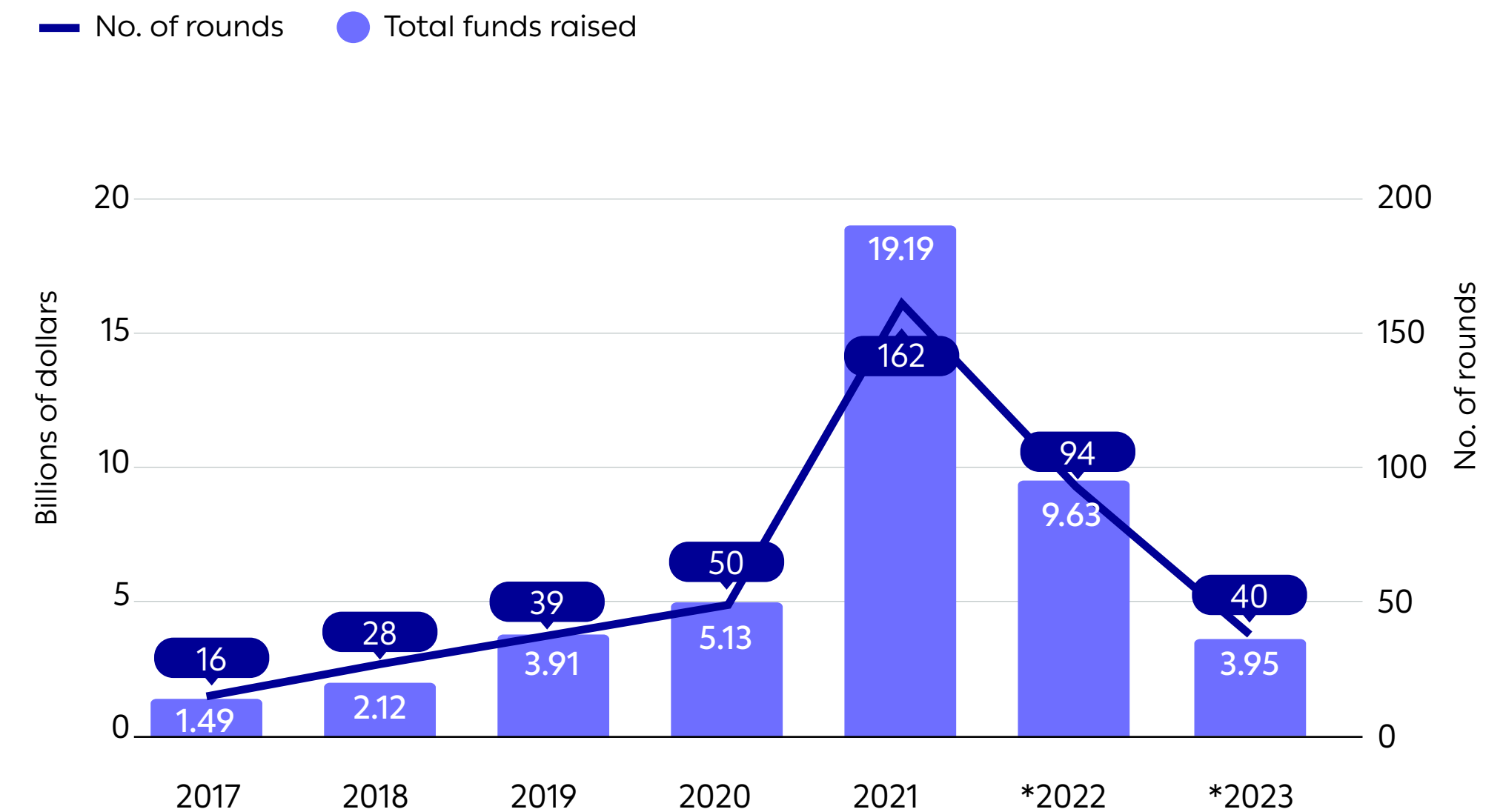
The past decade was characterized by high volatility of the large investments rounds of Israeli startups. In 2017, approximately 25% of the capital raised that year was in rounds of over 50 million dollars. Four years later, this ratio increased to 70% and, after two years of decline, stood at 50% in 2023. This decline explains most of the drop in investments in Israeli technology companies over the past year.

The average size of funding rounds over 50 million dollars in 2023 was similar to that recorded in previous years and stood at 98 million dollars. 2021 was an exceptional year in which the average size of the funding rounds over 50 million dollars stood at 118 million dollars. In other words, the decline was in the scope of deals in these stages, with the number of large funding rounds declining to a level similar to that of 2019.

Advanced-stage Israeli technology companies that have raised large sums in recent years, and which will be required in coming years to find a source of funding to continue their activity, may encounter difficulty in raising capital in large funding rounds given the decline in available capital for these stages. Consequently, they will need to increase revenues and make the transition to profitability in order to finance their activity or to engage in liquidity events (M&A), assume debt, or go public (IPO). Furthermore, **some of the companies participating in funding rounds may be required to do so according to a lower value (down round).**

The No. of Investments Over 50 Million Dollars Declined Significantly

Total funds raised and no. of funding rounds to Israeli technology companies in rounds of over 50 million dollars, (billions of dollars)



Source: Innovation Authority adaptations of IVC data.

* The figures for 2022 and 2023 are estimations and may change in the coming months.

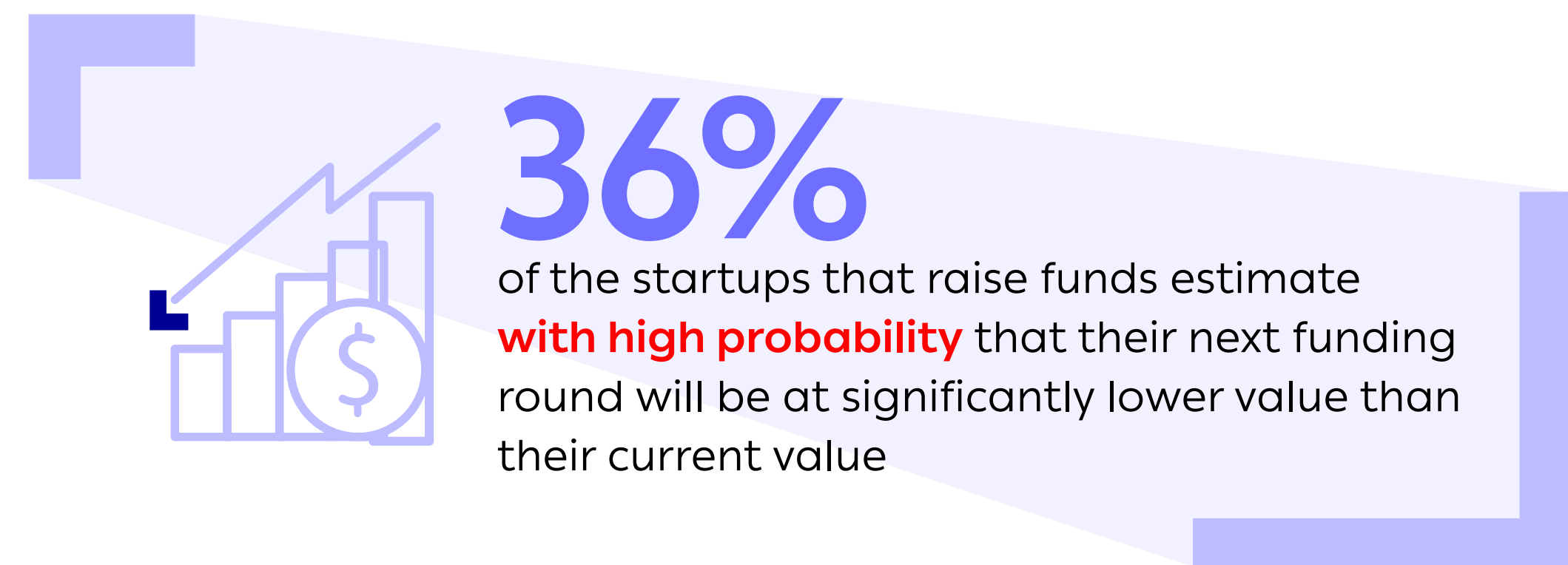
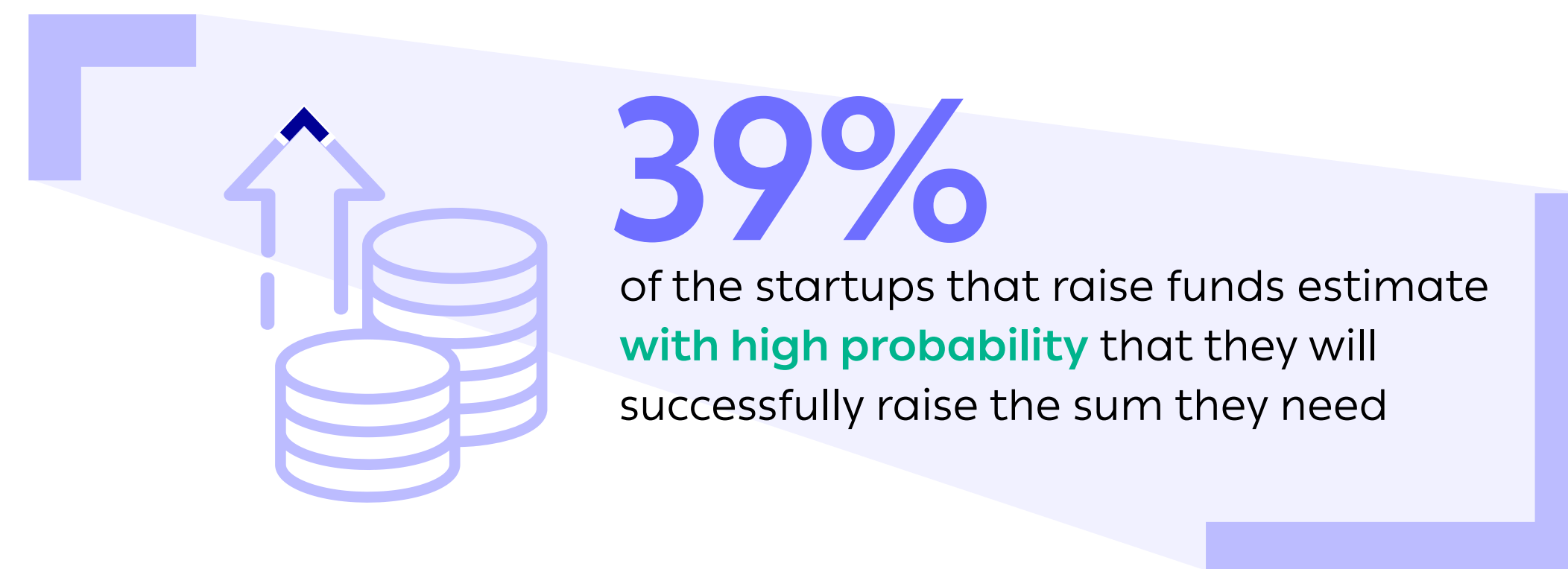
Startups' Expectations: Raising Capital and Down Rounds

The current period, with its security-related events and more, is affecting the general atmosphere in the sector as well as the high-tech companies that are in contact with overseas clients and investors.

One of the questions asked at this time, both in Israel and other global technology hubs, relates to companies that will be required to raise capital at values lower than their previous funding round when the markets were buoyant (a phenomenon known as "Down Round"). To examine the mood among investors, the Innovation Authority asked them in March-April 2024 about their fundraising expectations for the coming year.

The survey reveals that during March-April, **61% of the companies engaged in fundraising estimated that there was a low probability of being able to successfully raise the capital they need**, whereas 39% of the companies engaged in fundraising estimated that there was a high probability of being able to do so in the next funding round. In a survey conducted in November-December 2023, closer to October 7, this figure stood at 34%.

Furthermore, **36% of the companies raising funds estimated in March-April 2024 that there was a high probability that their next funding round would be completed at a significantly lower value than their present value**. This figure represented no significant change from that recorded in November 2023 when it stood at 39%.



Source: Innovation Authority's High-tech companies survey, March-April 2024.

Startups' Main Challenges: Securing Funding and Global Uncertainty

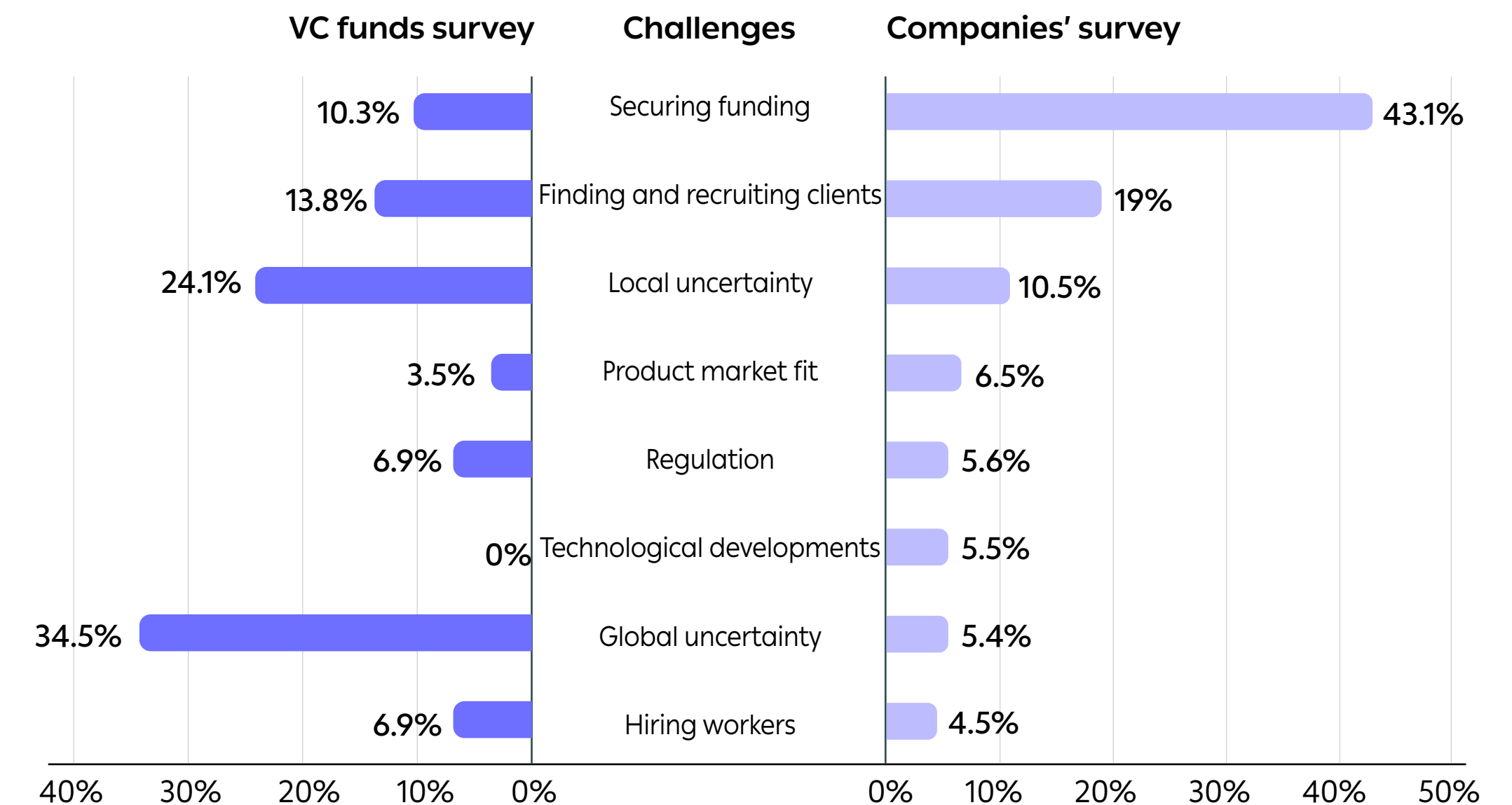
In general, the challenges facing Israeli startups during this period seem no different from those during routine. **The central issue occupying 43% of the respondents to the companies' survey is securing funding. The second challenge, indicated by 19% of the respondents, is finding and recruiting clients.**

The survey reveals that between the surveys' two rounds – November-December 2023 and March-April 2024 – there was a decline in the ratio of respondents who rated securing funding as their main challenge. In contrast, **the ratio of respondents who identified the local uncertainty as their main challenge increased.**

It is interesting to note the differences in the perceptions of investors and startups. Parallel to the companies' survey conducted by the Innovation Authority in March-April, the Authority and IATI surveyed venture capital funds operating in Israel.⁹ **When the investors were asked to rate the main challenges facing Israeli startups, 34.5% of them chose global uncertainty while 24% chose local uncertainty.** Only 10% indicated securing funding as their main challenge even though this was rated first by the companies themselves. 14% chose the finding and recruitment of clients which was rated second by the companies. In other words, **there is no correlation between the challenges as perceived by the companies and by the investors**, with each group evaluating the current period's main challenges differently.

Startups are Concerned About Obtaining Funding, Investors are Worried How Global Uncertainty Will Affect Startups

Ratio of respondents choosing what they viewed as Israeli startups' main challenge, March-April 2024



Source: Innovation Authority's High-tech companies survey, March-April 2024 and VC funds survey of Innovation Authority and IATI, March-April 2024.

⁹ For details regarding the survey's methodology, see Appendix 1

The Next Sectors: What will the Funds Invest in Next?

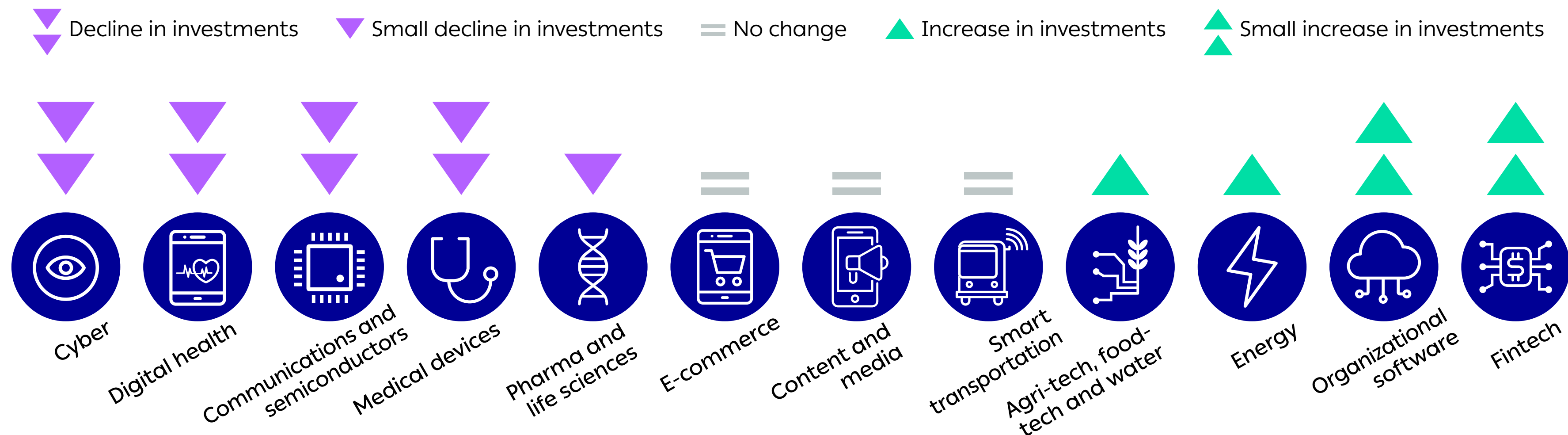
In recent years, investments in Israeli startups have been concentrated in three main fields: organizational software, cyber and fintech. To identify possible changes in the composition of investments in startups, our survey asked the venture capital funds about their expected main fields of investment in the next three years compared to the composition of their current investments.

The survey reveals that the funds estimate that **over the next three years, the importance of fintech and organizational software in their investment**

portfolios will continue to increase. They also expect an increase in in fields related to climate-tech technology, including energy, agri-tech, food-tech and water. In contrast, the funds expected a decline in investments in cyber and in life sciences fields. There are several fields in which they expect no significant change in the scope of investment including smart transportation, content and media, and e-commerce.

The Funds Expect Continued Growth in Investments in Organizational Software and Fintech

Grading the expected changes in VC's investment fields in Israel in the next 3 years

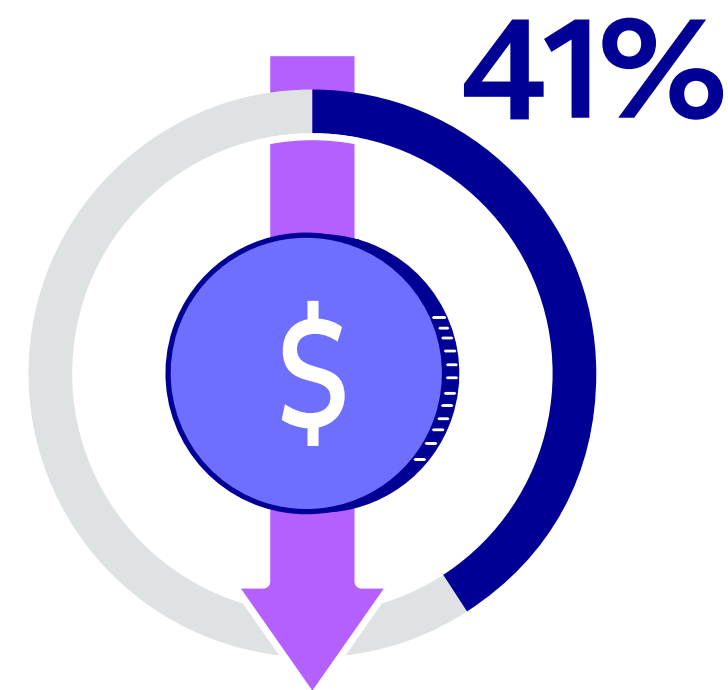


Source: VC funds survey of the Innovation Authority and IATI (March-April 2024).

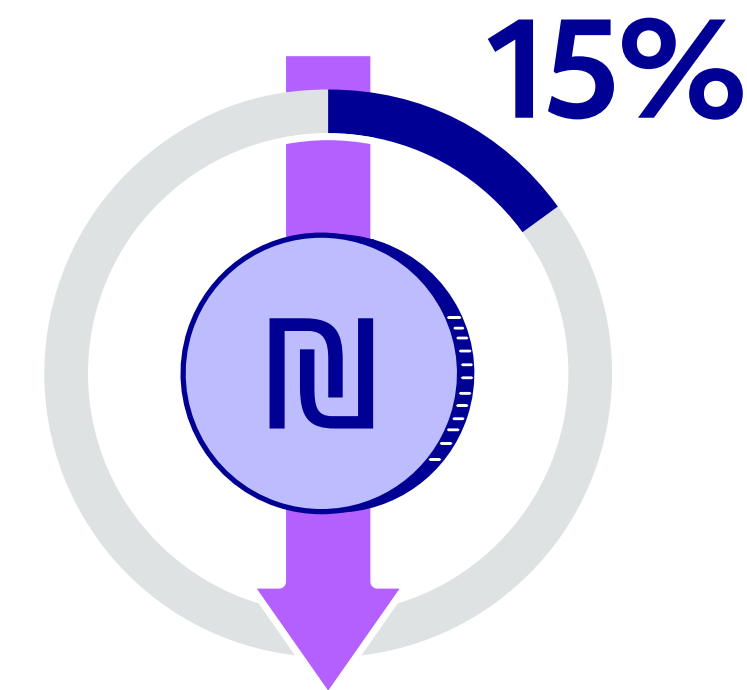
The Funds' Expectations: Fundraising and Transfer of Startups' Activity Overseas

One of the significant factors that will influence the development of startups in the coming years, in terms of the resources at their disposal and their future technological and business directions, is the venture capital funds operating in Israel. As noted, these funds – both local and foreign – invest in startups in various fields and stages.¹² The venture capital funds operating in Israel were asked in the survey about their expectations as to the investment activity of funds in Israel and about the business activity of their portfolio companies. The survey's results indicate several trends:

The Survey's Respondents Expect Foreign Funds to Reduce Their Investments in Israeli Startups More Than Israeli Funds in the Coming Year

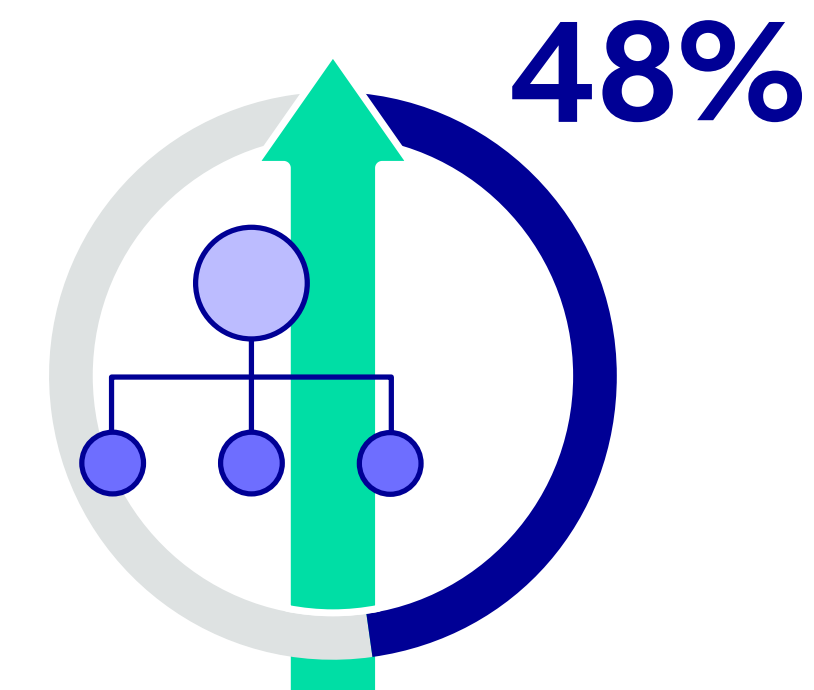


estimate that the **foreign funds' investments** in Israeli startups will **decline** during the coming year compared to 2023.



estimate that the **Israeli funds' investments** in Israeli startups will **decline** during the coming year compared to 2023.

The Survey's Respondents Expect Israeli VC Funds to Focus on Investments in their Portfolio's Existing Companies in the Coming Year



estimate that the **level of Israeli VC funds follow-up investments** in their portfolio companies will **increase** during the coming year compared to 2023.

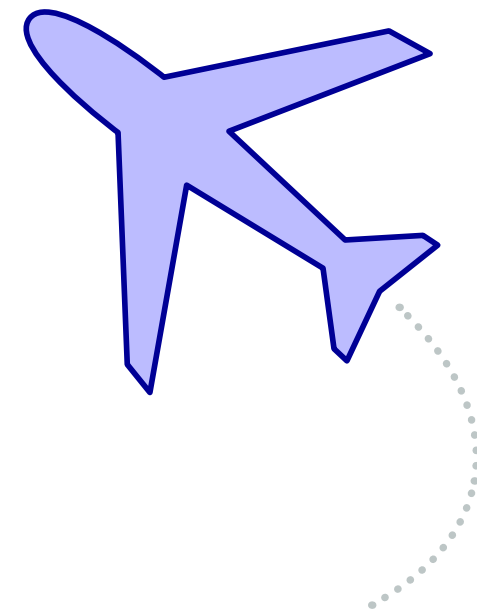
Source: Innovation Authority and IATI survey of VC funds, March-April 2024.

¹² For more details on the activity of venture capital funds in Israel, see [the Innovation Authority's publication on this subject in conjunction with KPMG ,IVC and the Gornitzky & Co legal firm.](#)

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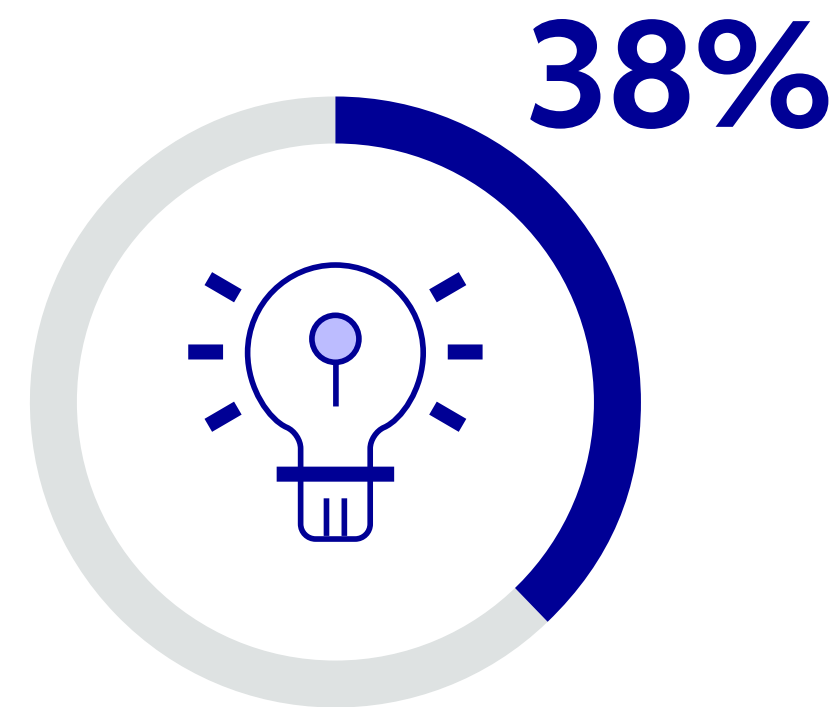


The VC funds that invest in Israel estimate that the local instability is negatively affecting the way Israeli startups are viewed and has already led to transfer of activity and intellectual property overseas. According to the funds, these trends are expected to intensify in the coming year



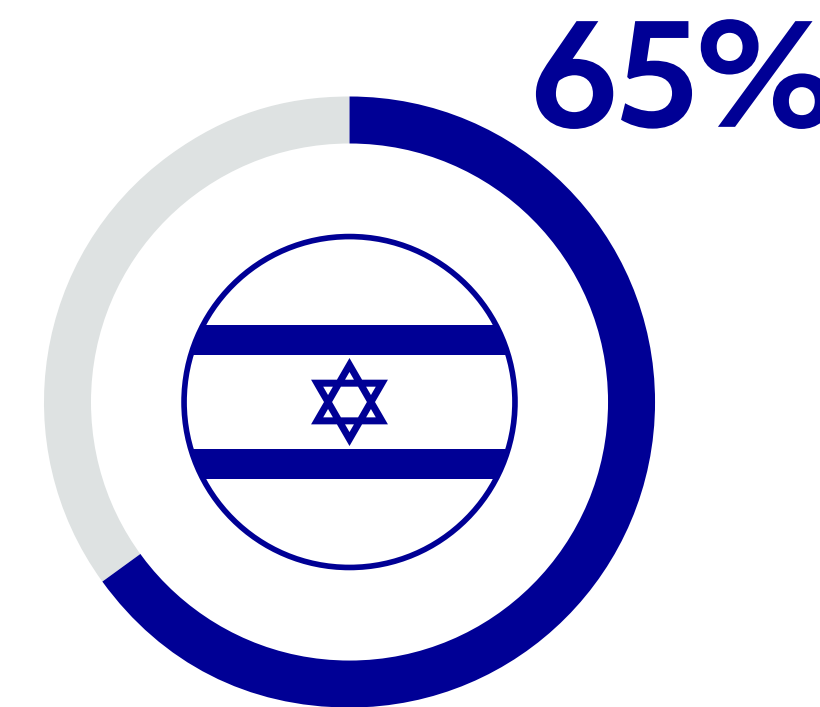
Almost a quarter

of the funds estimated that **at least 30% of their portfolio companies will transfer** or have already transferred **significant activity overseas for reasons other than organic growth** since the start of 2023 and during the coming year.



reported that **at least one** of their portfolio companies **has transferred intellectual property** overseas from **the start of 2023 until March 2024** due to local instability.

The funds also expect that **the number of their portfolio companies transferring intellectual property** overseas **will increase in the coming year.**



reported **difficulties** experienced by their portfolio companies **due to being identified as Israeli.**

For the funds, local uncertainty stems largely from the political instability

The causes of local uncertainty for VC funds*

71%
political instability

*The data refers to the ratio of funds who rated local instability as startups' main challenge. When examining the three main challenges indicated by each fund, the weight of the ongoing war as a challenge for startups increases.

29%
the ongoing war

Source: Innovation Authority and IATI survey of VC funds, March-April 2024.

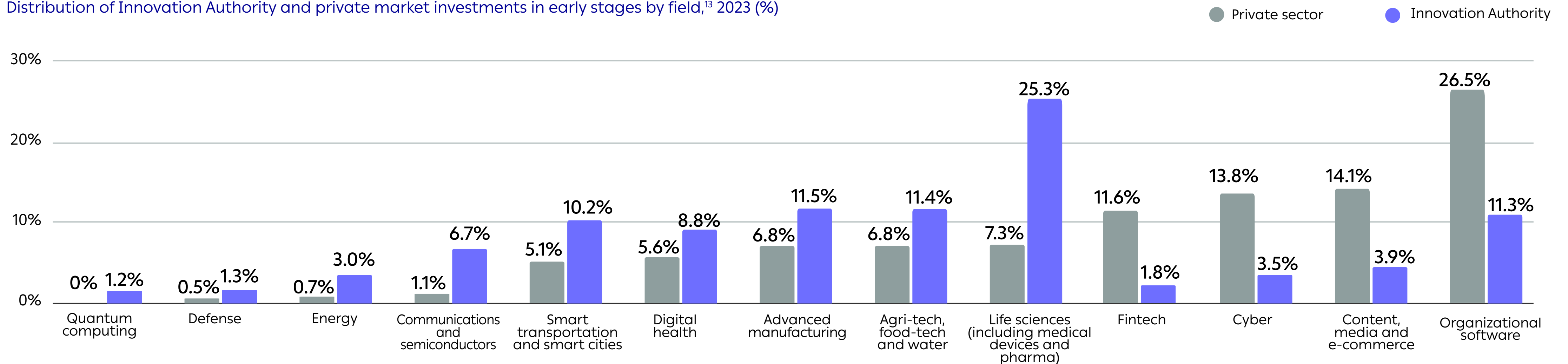
The Next Generation: The Early-Stage Startups' Fields of Activity

A significant factor that will influence the development of Israeli high-tech in the coming years is the future fields of activity of the local high-tech companies. The local ecosystem currently has a competitive advantage in fields that have accumulated knowledge and expertise such as organizational software and cyber, fields related to knowledge originating in IDF technology units. Furthermore, it is necessary to identify the fields that will become pivotal to the future global economy, such as solutions in the field of climate-tech. An analysis of the investments in startups funding rounds of up to 10 million

dollars reveals that most of the early-stage investments in the private market are in the fields of software (26.5% of the investments up to 10 million dollars are in the field of organizational software). In contrast, state investments in high-tech, implemented by the Innovation Authority, are primarily in the fields of life sciences and climate-tech. **An examination of the distribution of the Innovation Authority's investments vis-à-vis the private market's investments in 2023 reveals that the Innovation Authority invests in fields in which the private market only invests to a small degree.**

The Innovation Authority Invests in Early Stages in Life Sciences and Climate-Tech - The Private Market in Software, Cyber and Fintech

Distribution of Innovation Authority and private market investments in early stages by field,¹³ 2023 (%)



Source: Innovation Authority adaptations of Authority and IVC data.

¹³ The data refers only to investments that can be ascribed to these fields. A specific investment may be ascribed to more than one field. Private market investments refer to investments of up to 10 million dollars.

Over 500 Multinational Companies in Israel

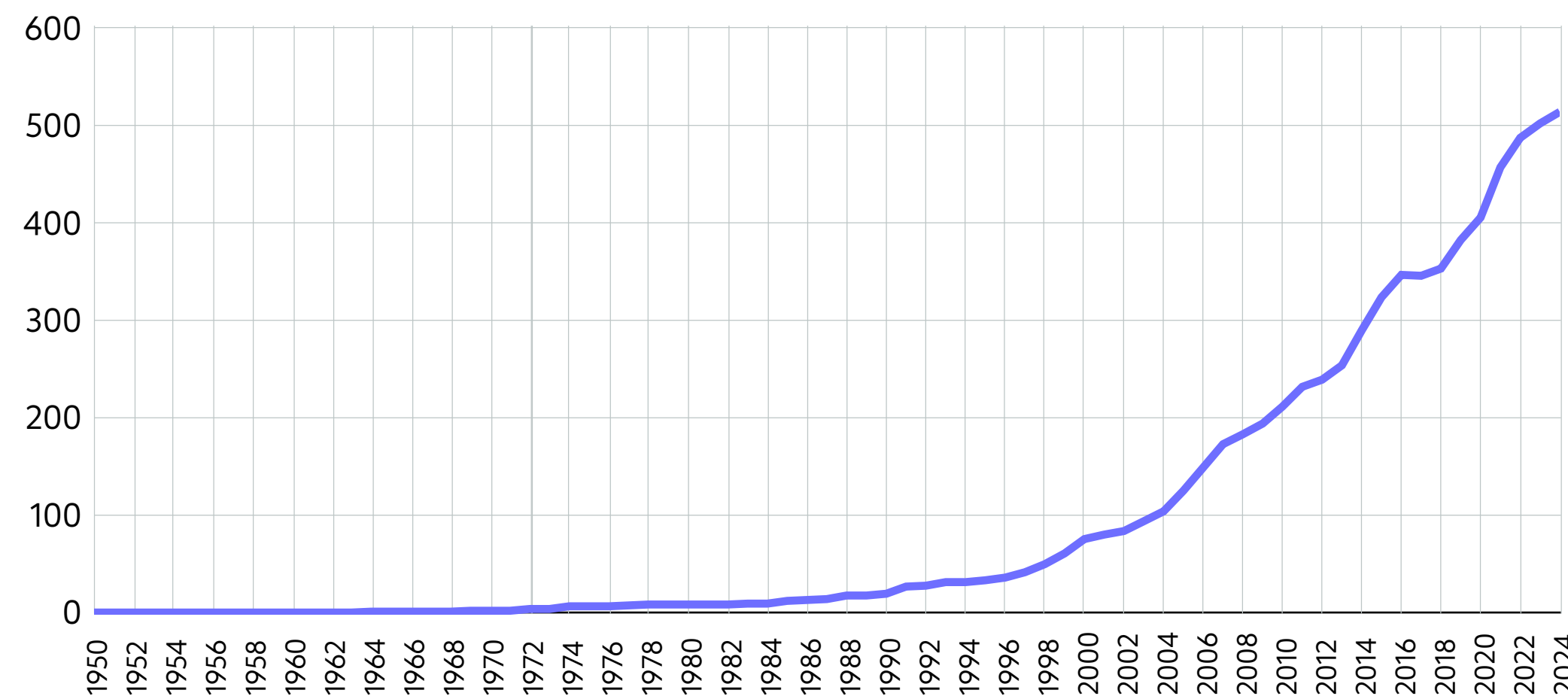
Yet another factor that will impact Israeli high-tech in coming years is the presence of multinational companies, the importance of which was presented in the previous section of this report.

As of 2024, 515 multinational companies are operating in Israel, employing a total of nearly 90,000 people. The multinational companies in Israel currently operate

in two main fields: software and semiconductors which account for 72% of the multinational companies' employees. The field of life sciences comprises 10% of the multinational companies' employees while 8% are employed in companies in the field of communications.

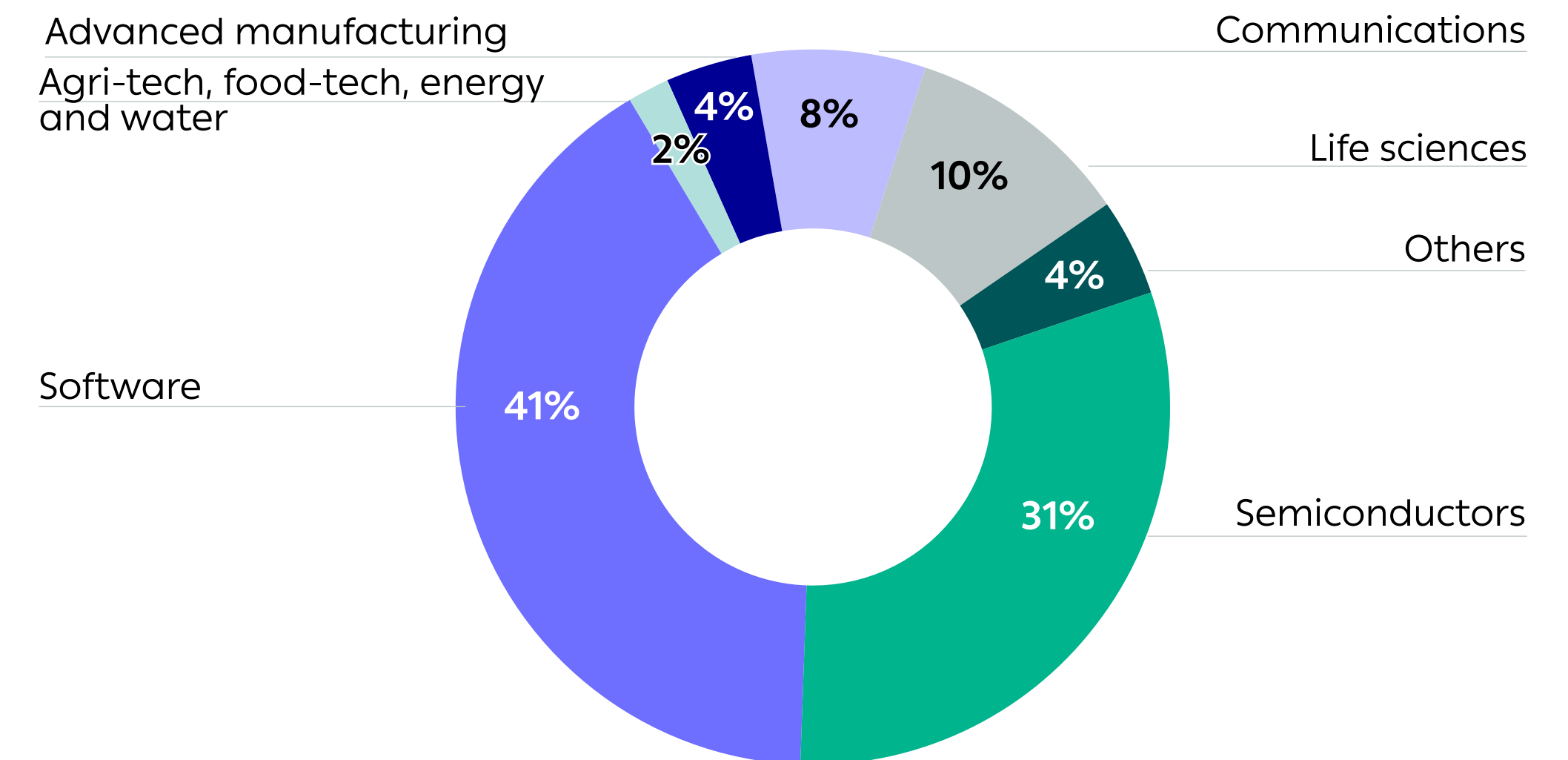
Over 70% of the Employees in Multinational Companies - in the Software and Semiconductors Fields.

No. of multinational companies active in Israel



Source: Innovation Authority adaptations of IVC data.

Distribution of employment in multinational companies by company's area of activity, 2024 (%)



Continued ➔



Most of the multinational companies began operating in Israel after the year 2000. In recent years, the number of new centers of activity established each year by multinational companies in Israel has steadily increased. **Between 2019-2023, an average of 33 new centers of operation were established each year.** In 2023, the number of new centers declined and stood at only 28.

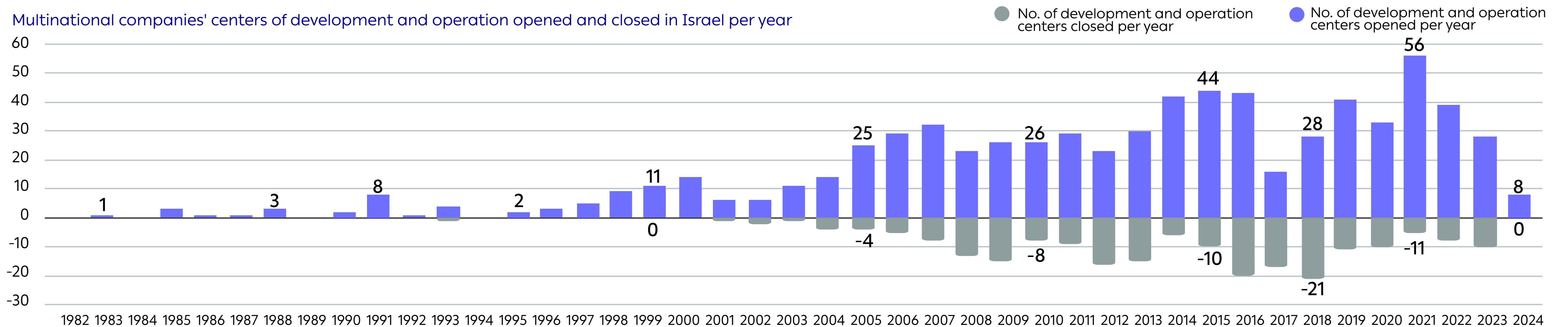
Over time, 220 such centers have closed in Israel. Despite the downturn in the opening of new centers of operation in 2023, there was not a significant change in the number of centers closing during that year. When examining the future of high-tech and its growth engines, and considering the importance of employment in high-tech for the continued growth and prosperity of the Israeli economy, the question arises of whether the government needs to actively implement a policy that supports the increase of multinational companies in Israel.

One of the characteristics of multinational companies is that their employment multiplier is lower than that of other companies in the high-tech sector and is, in effect, the lowest in the entire sector except for young startups.¹⁴ For each multinational company employee in a technology role, there is just half an employee in a non-technology role.

Consequently, despite the multinational companies' great importance to the Israeli ecosystem, there are seemingly no grounds at present for creating a policy to proactively increase their number. Nevertheless, there are grounds for examining any existing obstacles to the activity of significant multinational companies yet to initiate operations in Israel, if they have a potential noteworthy contribution in this country.

Multinational Companies Also Increased Their Presence in Israel in 2023

Multinational companies' centers of development and operation opened and closed in Israel per year



Source: Innovation Authority adaptations of IVC data.

¹⁴ For details, see [Innovation Authority's State of High-Tech Report, 2023](#)

Realizing the Growth Potential of the Public Technology Companies in Israel

Israeli public technology companies are a significant mainstay of Israeli high-tech. Some of them are important employers, both in technology and non-technology roles, they employ diverse service providers in the Israeli market, operate for an extended period and, unlike startups, sometimes achieve profitability and pay corporate taxes. In general, public technology companies portray the consolidation and maturation of Israeli startups. As a result, in this section we will present the situation report of these companies and discuss the ability to create additional such companies that contribute significantly to the Israeli economy.

393 Israeli public technology companies are traded on global stock markets. Their cumulative market value, as of April 2024, is 234 billion dollars and they employ 320,000 employees worldwide. An analysis of the public companies according to the number of their employees reveals that **already today, there are nearly 50 large Israeli public technology companies with over 1,000 employees which together employ a total of 275,000 people worldwide.** The market value of these companies amounted to 184 billion dollars as of April 2024, approximately 79% of the total cumulative market value of all the Israeli public technology companies.

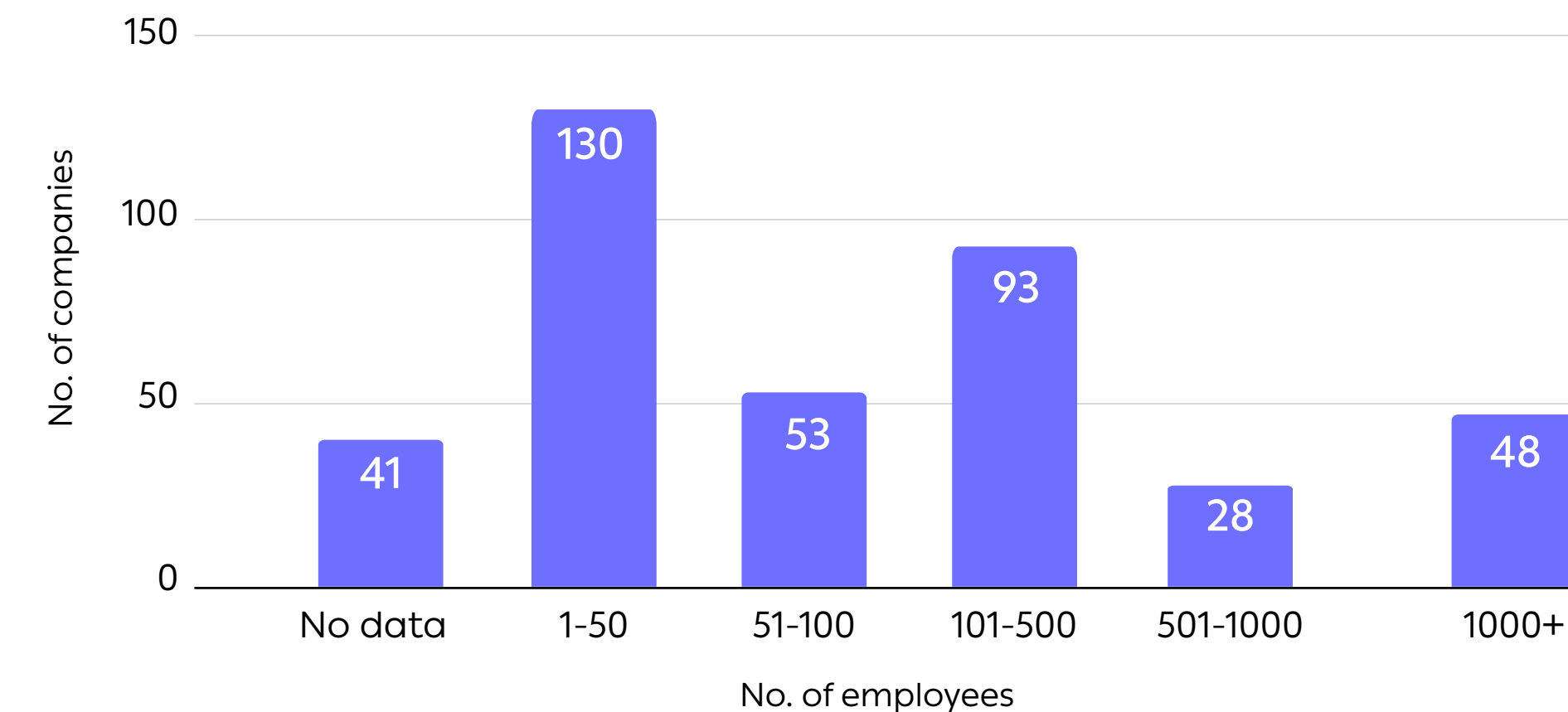
In the next group in terms of size, there are 28 companies with 500-1,000 employees which together employ a total of 20,000 workers. 93 companies have between 50-100 employees and also employ a total of 20,000. The rest of the companies are smaller and have less than 7,000 employees collectively.

¹⁵ Data relating to the number of Israeli unicorns was taken from the [Tech-Aviv website](#).

There are between 30-40 public companies in Israel with employees that, together with 90 Israeli unicorns, constitute the main potential for growth and the creation of companies that will become significant employers in the high-tech sector.¹⁵

Approx. 50 Israeli Public Technology Companies Employ Over 1,000 People Each - And a Total of 275,000 Worldwide

Distribution of Israeli public technology companies by no. of their employees, 2024



Source: Innovation Authority adaptations of PitchBook, IVC and TASE data.

Continued ➔

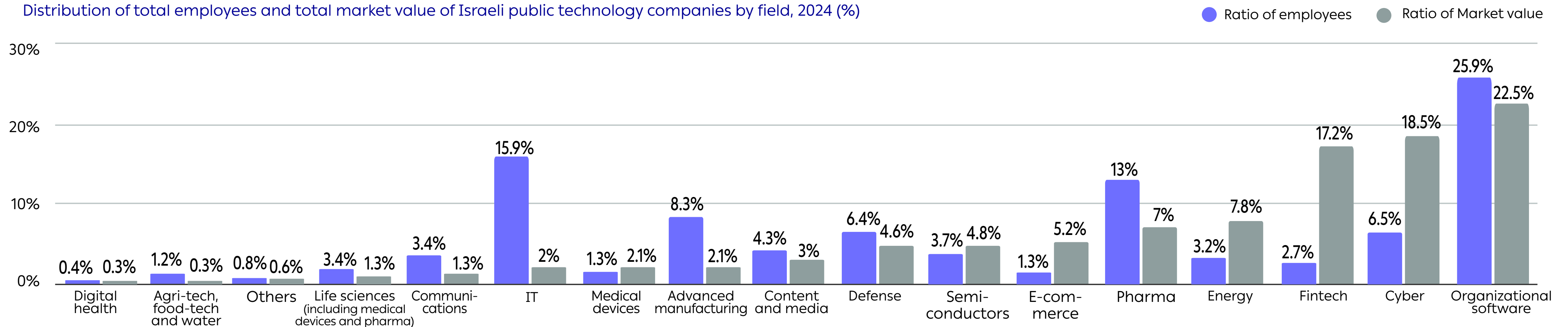


The value of public technology companies is primarily concentrated in three fields: organizational software, fintech, and cyber. Together, these three fields comprise 58% of the market value of Israeli public technology companies. Nevertheless, analysis of the distribution of the employees in the public companies according to fields of activity reveals a slightly different picture to that revealed in an analysis of market value. **Although the field of organizational software is the field employing the most employees – approx. 83,000 employees worldwide – the next biggest fields in terms of the number of employees are IT companies that employ 51,000, pharma (42,000), and advanced manufacturing (26,000).** In other words, this analysis reveals that there is no correlation between the companies' market value and their number of employees.

The main contribution of public technology companies to the economy stems from their employees and from the creation of circles of employment as a result of the companies' local business activity. **To encourage the growth of Israeli public high-tech companies, the state must encourage the companies to base as many of their organizational functions as possible in Israel.** The diagrams below show that organizational software companies lead both in terms of market value and number of employees, in contrast to cyber and fintech companies which display a high market value but employ a relatively low number of workers. **The formulation of government policy relating to high-tech investment must consider the employment potential of different fields, with an emphasis on employment in a variety of roles in Israel.**

Organizational Software Companies Have the Highest Market Value and are the Largest Employers of all Public High-Tech Companies

Distribution of total employees and total market value of Israeli public technology companies by field, 2024 (%)



Source: Innovation Authority adaptations of Pitchbook, IVC and TASE data.

The Innovation Authority's Response to Current High-Tech Challenges

The past year has been tumultuous for the State of Israel, the Israeli economy, and especially for Israeli high-tech. The year has created challenges that have been presented in detail in this report. To contend with them and assist Israeli high-tech to emerge stronger from the current crisis, the Innovation Authority has operated several new programs over recent months:

1. Fast-track Grants for Companies with a Short Runway

Three weeks after the events of October 7, the Innovation Authority and the Ministry of Finance decided to establish the "fast track" that aims to protect early -stage startups that were in the middle of a funding round at the outbreak of the war, that have technological and business assets and which have a short runway of survival of fewer than six months. Companies that submitted requests to the fast track received a response within less than four weeks instead of 11. During the first three months of the fast track's activity, 247 requests were approved (38% of the total requests submitted), with a total investment of over 1.25 billion shekels. A third of the capital was a direct investment by the Innovation Authority and the remainder by the private market. This program is intended for activation during times of emergency and was also used during the Covid pandemic.

2. Startup Fund for Financing Early-Stage Companies

After providing an immediate response at the beginning of the war via the "Fast Track" program, the Innovation Authority launched the Startup Fund. The fund is aimed at assisting the establishment and financing of early-stage deep-tech companies at various funding rounds while synchronizing with the market. The fund directs its activity at high-risk R&D-oriented fields that have low availability to private capital. The Startup Fund is expected to increase the state's investment in fields that receive only low private market investment. The Startup Fund had a budget of half a billion shekels in 2024 and is expected to grow in the years to come.

Continued >



3. Yozma 2.0 Fund for Increasing Israeli Institutional Investment in High-tech

On the eve of Passover 2024, the Innovation Authority launched the Yozma 2.0 Fund that incentivizes investments of institutional entities in Israeli high-tech via investment in Israeli venture capital funds. Like the mechanism activated by the "Yozma" Program in the 1990s, the Innovation Authority will provide an added yield to institutional entities that invest as part of the program. The scope of the incentive will be determined by the technological depth of each fund in which the institutions invest. Investments by the Innovation Authority and the institutional investors as part of the Yozma 2.0 Fund are expected to inject 700 million dollars into Israeli venture capital funds between 2024-2026 – about half the sum that was raised by the funds in 2023. Approximately a quarter of the sum (23%) will be invested by the state via the Innovation Authority.

Encouraging Israeli institutional investors to invest in Israeli high-tech is intended to achieve several objectives. First, to increase the short-term availability of capital for Israeli startups, especially during the current period which, as noted in this report, is characterized by a decline in private market investments in Israeli startups; second, to reduce the medium- and long-term dependence of Israeli high-tech on foreign capital, thereby bolstering the stability of the local venture capital market in the face of global upheavals and macro-economic volatility; finally, to encourage the creation of venture capital funds that specialize in the worlds of deep-tech by providing an additional incentive to funds that invest in these technologies

4. Angels' Clubs Program for Deep Tech

As part of the efforts to increase the capital available for startups during the current period, the Innovation Authority launched the Angels Club program in early 2024. This program aims to increase the number of private investors at the pre-seed and seed stages. The Angels Club enables an aggregate investment of several investors in a company, thereby increasing its chances of success. For the investors, the club enables exposure to a larger number of companies from different sectors and creates a diverse investment portfolio. The Innovation Authority is expected to announce the winners in June 2024. Each club selected is expected to receive 2.7 million shekels for a three-year period.

5. Venture Creation Incubators Program for the Creation of Fledgling Deep-tech Companies

The Innovation Authority's Technological Incubators program is directed at forming new venture creation-based investment entities via new operational models. These will aim to encourage the establishment of new companies via the integration of leading global players, with an emphasis on deepening industry's collaboration with academia. In April 2024, the Innovation Authority published a call for proposals for the establishment of three new entities with an investment grant of up to 40 million shekels each for a period of five years. It is important to emphasize that an Innovation Authority investment grant as part of this program is not intended for direct investment in companies but rather, for the operational costs and expenses involved in creating infrastructures to be used by the companies established therein. The program is aimed at creating companies in R&D-oriented fields and also incentivizes the establishment of investment entities that specialize in the worlds of deep-tech.

Appendices



Appendix 1 - Methodology for the Innovation Authority Surveys

Surveys' Objective

Following the challenges faced by the Israeli high-tech sector in 2023 and ahead of the launch of the 'Yozma 2.0' Fund, the Innovation Authority conducted several surveys among Israeli high-tech companies and Israeli venture capital funds. The objective was to obtain an updated situation report on the Israeli economy in order to plan its investment policy. In the future, these surveys are expected to be conducted by the Innovation Authority with the aim of monitoring market expectations.

The High-Tech Companies Survey

The "State of High-Tech Companies in Israel" survey has been conducted twice so far and targeted Israeli high-tech companies at various stages. The first round of the survey was conducted from November to mid-December 2023 while the second round was conducted from late March to late April 2024. The surveys were sent to all the CEOs and CFOs found to have a valid email in the IVC database and data was collected by self-reply email. Because response to the survey was voluntary, there may be a bias due to the nature of the respondents.

The first round exclusively targeted young startups and included active companies that were founded in the years 2021-2023 or raised capital in funding rounds defined as Pre-Seed, Seed, First Round, and Second Round during this period, according to IVC data. The survey's population in the first round numbered about 2,900 companies. The second round targeted all the high-tech companies active in Israel that existed in the database – a total of approximately 8,500 companies. The

level of participation in the first round was 18% (522 companies) and in the second round 6% (489 companies).

In each round, the population was divided into layers according to the company's sector of activity and its funding stage. After gathering the data, a correction was made to account for non-respondents whereby the results of those who responded were weighted for each layer by calculating the number of companies in that layer divided by its number of respondents.

Venture Capital Funds Survey

The "Venture Capital Funds in Israel" survey was conducted in conjunction with the IATI (Israel Advanced Technology Industries) Association. The survey targeted venture capital funds that are members of the IATI. The survey's population includes Israeli venture capital funds, private investment funds and global venture capital funds with a presence in Israel. 31 funds responded to the survey. An examination of the data reveals that the Israeli funds that responded to the survey represent about a third of the assets under management (AUM) of active Israeli funds.

Distribution of the survey to the various funds began in January 2024 and some of them (7 funds) responded immediately, however, most of the respondents (24 funds) completed the survey in April 2024. Most of the respondents were Israeli funds (27 respondents) but there were also a few international funds (4 funds). The funds responding to the survey represent a diverse variety of sizes and areas of activity. No correction or inflation of the results was made to account for non-respondents and the survey solely represents the respondents.

Appendix 2 - Innovation Authority Activity in 2023

The Israel Innovation Authority endeavors to provide a solution to the different challenges facing the Israeli innovation hub via three operational units called "divisions". Each division is mission-oriented and offers a unique toolbox that is adapted to the various challenges in the technological lifecycle.

The Innovation Authority's divisions undertook a variety of initiatives during 2023 with the aim of advancing the growth of the Israeli innovation hub. The table below details the different divisions' activity last year, according to the programs they operate:¹

| Division | Area of Activity | Program / Track | No. of Requests Submitted in 2023 ² | No. of Approvals Given in 2023 ² | No. of New Companies Approved ³ | Total Grants Approved (millions of shekels) |
|----------|------------------------------|-----------------------------------|--|---|--|---|
| Growth | High-tech Industry | R&D Fund | 507 | 241 | 67 | 491.77 |
| | | Fast-Track Grants | 510 | 91 | 17 | 144.83 |
| | | Pilots | 157 | 54 | 19 | 62.00 |
| | | Disruptive Initiatives | 6 | 2 | 0 | 8.41 |
| | | International Collaboration | 121 | 39 | 9 | 28.80 |
| | | TOTAL | 1,301 | 427 | | 735.81 |
| | Production Oriented Industry | MOFET (R&D in Industry) | 111 | 77 | 15 | 72.92 |
| | | From Development to Manufacturing | 59 | 27 | 5 | 53.28 |
| | | R&D Preparatory Program | 72 | 68 | 46 | 4.83 |
| | | TOTAL | 242 | 172 | | 131.03 |

1 Descriptions of the different tracks and programs appear on the Innovation Authority website and in previous reports published by the Authority.

2 8-12 weeks elapse in most requests between the time a request is submitted and the time it is brought to the committee for approval. Accordingly, the figures for 2023 approvals also include requests submitted at the end of 2022, and some of the submissions for 2023 (those submitted at the end of the year) which were only discussed by committees in 2024. Specifically, in the Bilateral Funds, over 40 of the submissions during 2023 were only discussed in 2024.

3 The requests and approvals are presented according to files submitted. Some companies have several submissions and even several approvals in the same program or in several programs. Accordingly, companies that first received grants from the Authority in 2023 and which received more than one grant in the same program, are counted once under the definition "new companies in the same program". Companies that first received grants from the Authority in 2023 in two different programs, are counted in each of the programs as "new companies". Accordingly, a total of 383 new companies were approved in 2023.

Appendix 2 - Innovation Authority Activity in 2023

| Division | Area of Activity | Program / Track | No. of Requests Submitted in 2023 ² | No. of Approvals Given in 2023 ² | No. of New Companies Approved ³ | Total Grants Approved (millions of shekels) |
|--------------|--------------------|---|--|---|--|---|
| Startup | High-tech Industry | Incubators | 94 | 81 | 41 | 136.98 |
| | | Seed | 25 | 14 | 11 | 26.90 |
| | | Technological Innovation Labs | 15 | 14 | 10 | 15.58 |
| | | Encouraging High-tech Ideation and Entrepreneurship | 44 | 15 | 9 | 32.90 |
| | | Haifa Entrepreneurship ⁴ | 1 | 1 | 0 | 5.00 |
| | | Beer Sheva Entrepreneurship ⁴ | 1 | 1 | 0 | 7.50 |
| | | Tenufa | 341 | 113 | 86 | 12.86 |
| | | Cultivation and Guidance of Entrepreneurs | 23 | 14 | 8 | 8.24 |
| | | Platforms Connecting Employers and Employees | 22 | 4 | 3 | 1.86 |
| | | Advancing Growth Engines ⁴ | 1 | 1 | 0 | 4.45 |
| | | Young Entrepreneurship ⁴ | 1 | 1 | 0 | 3.00 |
| | TOTAL | 568 | 259 | | 255 | |
| | Human Capital | Human Capital for High-tech Fund | 105 | 39 | 11 | 45.27 |
| TOTAL | | 105 | 39 | | 45.27 | |

⁴ The Haifa Entrepreneurship, Beer Sheva Entrepreneurship, Advancing Growth Engines, and Young Entrepreneurship programs in the Startup Division are initiatives in which a franchisee is chosen to run the initiative for several years. During each year of the franchise, the franchisee is required to submit a yearly work plan before approval of the grant.

Appendix 2 - Innovation Authority Activity in 2023

| Division | Area of Activity | Program / Track | No. of Requests Submitted in 2023 ² | No. of Approvals Given in 2023 ² | No. of New Companies Approved ³ | Total Grants Approved (NIS millions) |
|--|--|--|--|---|--|--------------------------------------|
| Innovation Infrastructures | Research | Applied Research in Academia | 285 | 138 | 5 | 92.89 |
| | | Knowledge Commercialization | 151 | 92 | 5 | 55.39 |
| | | Consortiums within the Framework of the Europe Horizon Program (KDT) | 5 | 5 | 0 | 13.02 |
| | | MAGNET Consortiums | 125 | 111 | 1 ⁵ | 106.41 |
| | | Applied Research in Industry | 38 | 30 | 0 | 74.47 |
| | | Dual R&D | 83 | 38 | 9 | 44.04 |
| | | TOTAL | 687 | 414 | | 386.22 |
| | Infrastructures | Infrastructures and Equipment for R&D | 53 | 23 | 6 | 59.48 |
| | | TOTAL | 53 | 23 | | 59.48 |
| | Inter-national | | Bilateral Funds ² | 92 | 11 | 0 |
| Europe Horizon Assistance Fund | | | 37 | 38 | 18 | 1.23 |
| TOTAL | | | 129 | 49 | | 31.66 |
| TOTAL - Direct Authority Funding | | | 3,085 | 1,383 | | 1,644.74 |
| Horizon Europe – The R&D Program of the EU | The Authority's share of the annual payment to the EU, that is allocated to funding the local industry. ⁶ | | | | | 604.68 |
| TOTAL - Including the R&D Program of the EU | | | | | | 2,249.42 |

⁵ In the Innovations Infrastructures Division, the grants in the Applied Research in Academia and Knowledge Commercialization Programs as well as some of the grants in the MAGNET Consortiums are awarded to researchers in academia. The number of submissions and approvals in these programs relates to all those submitting requests, however the number of new companies approved relates exclusively to companies (and does not include researchers).

⁶ The Authority pools resources from the participating government entities – The Committee for Budget and Planning, The Ministry of Innovation, Science and Technology, and the Innovation Authority – and transfers the annual participation payment to the EU. The total participation payment in 2023 was 1,512 million shekels – approximately EUR 378 million.

Appendix 3 - Work Plans in 2023

| Division / Program | Goal / Achievement | Met (Fully / Partially / Not Met) |
|--------------------------|--|-----------------------------------|
| Startup Division | Formulation of a methodology for identifying new ecosystems and obstacles to their growth | Fully met ● |
| | Successful operation of entrepreneurial programs for women and Arab society | Partially met ● |
| | Approval of programs for the new startup fund | Fully met ● |
| Growth Division | Approval of programs for the new startup fund | Fully met ● |
| | Raising the number of submissions in the international collaboration fund for development of pilots | Fully met ● |
| | Formulation of a methodology for identifying mature ecosystems | Not met ● |
| | Update of the MOFET Program | Partially met ● |
| | Mapping the value chain of complete Israeli companies and formulation of recommendations for increasing their influence | Fully met ● |
| Infrastructures Division | Identification and incentivization of emerging technologies | Fully met ● |
| | Approval of plan to enhance effectiveness of the programs for incentivizing and commercializing applied research in academia | Fully met ● |
| | Mapping of knowledge gaps in the Israeli innovation hub and approval of a program to import relevant knowledge from overseas | Partially met ● |

Appendix 3 - Work Plans in 2023

| Division / Program | Goal / Achievement | Met (Fully / Partially / Not Met) |
|---------------------------------|---|-----------------------------------|
| Strategic Division | Formulation of methodology for assessing the standing of the Israeli innovation hub in global terms | Fully met ● |
| | Launch of at least three disruptive initiatives | Partially met ● |
| | Formulation of a sectorial risk model for investors and for funding according to technology and market fields | Fully met ● |
| | Presentation of insights from three studies (internal and external, together with academia) for measuring effectiveness of the Authority's activity | Fully met ● |
| Technology Division | Completion of selection, hiring, and training of new expert evaluators and a refresher program for veteran evaluators | Fully met ● |
| | Assimilation of unstructured data analysis capability in historical expert opinions | Fully met ● |
| International Division | Enhanced effectiveness and relevance of bilateral funds | Fully met ● |
| | Approval of multi-year plans of action from the steering committee of the Horizon Program for optimal utilization | Partially met ● |
| | Formulation of strategic plan of action with the US, with an emphasis on the field of semiconductors | Partially met ● |
| Artificial Intelligence Program | Implementation of first phase | Fully met ● |
| | Definition of the second phase out of agreement with all partners in the TELEM Forum | Partially met ● |
| | Incentivization of three initiatives via Authority tools | Fully met ● |

Appendix 3 - Work Plans in 2023

| Division / Program | Goal / Achievement | Met (Fully / Partially / Not Met) |
|-------------------------------------|---|-----------------------------------|
| Bio-convergence Program | Approval of the program's full outline in the TELEM Forum | Fully met ● |
| | Publishing of a tender to establish bio-devices infrastructures | Fully met ● |
| | Incentivization of three initiatives via Authority tools | Fully met ● |
| Climate Program | Definition of climate-tech clusters with an advantage to Israel and mapping of relevant obstacles | Fully met ● |
| | An increase of at least 15% in direct submissions of climate companies in all Authority programs | Fully met ● |
| Operational Division | Compliance with the Authority's SLA (submission until response; response until operation; reporting until payment; final report until final accounting; request for changes until decision) | Partially met ● |
| | Meeting the goal of collecting royalties | Fully met ● |
| Organizational Development Division | Upload of four improved versions to the organizational computer system | Fully met ● |
| | Formulation and approval of a data strategy for the Authority | Partially met ● |
| | Formulation of multi-year carbon footprint plan | Partially met ● |
| | Achieving Grade 4 (out of 5) in client satisfaction survey | Fully met ● |

Appendix 4 – Work Plans in 2024

| Division / Program | Goal / Achievement |
|-------------------------|--|
| Startup Division | Launch of startup fund, pre-seed program |
| | Validation and activation of the new incubators model |
| | Accompaniment of the innovation centers' first year of operation |
| | Operation of programs to increase entrepreneurial demographic diversity |
| | Operation of at least three Authority tools to rehabilitate and develop the Tekuma (Rebirth) region |
| Growth Division | Launch of startup fund, Seed and "Round A" programs |
| | Launch of the 'Yozma 2.0' Fund |
| | Improvement in the effectiveness of the pilots' programs in Israel and overseas, including coordinated initiatives |
| | Update of the MOFET Program |
| | Operation of five coordinated initiatives |

Appendix 4 – Work Plans in 2024

| Division / Program | Goal / Achievement |
|---------------------------------|---|
| Infrastructures Division | Identification and incentivization of emerging technologies |
| | Increase in the influence and competitiveness of research in academia and industry programs |
| | A growth in transfer of knowledge from overseas academia to industry in Israel |
| | Encouraging the use of R&D infrastructures established and monitoring their performance |
| Strategic Division | Economic-financial-research accompaniment of the startup fund |
| | Formulation of an outline for the 'Yozma 2.0' Fund |
| | Launch of the innovation hub competitiveness index |
| | Presentation of study results in conjunction with academia in a professional seminar |
| Technology Division | Preparation of a team of expert evaluators for launch of the startup fund |
| | Formulation and operation of a feedback model for evaluators |
| | Execution of a pilot for an AI-based system to support the expert evaluation process |

Appendix 4 – Work Plans in 2024

| Division / Program | Goal / Achievement |
|--|--|
| International Division | Improvement of the Horizon Program's utilization – an increase of 5% in the number of Israeli submissions |
| | Increase in the chances of success when participating in consortiums by joining leading institutes in Europe |
| | Implementation of global business development |
| Artificial Intelligence Program | Completion of first stage – infrastructures for training models and scientific calculation, accelerated execution of the human capital chapter and language model activity |
| | Initiation of at least three activities as part of the second stage |
| Bio-convergence Program | Initiation of at least three activities as part of the national program |
| | Incentivization of research, germination, growth, and international activity of the Authority that integrates bio-convergence |
| Climate Program | Incentivization of research, germination, and growth activity of the Authority in climate fields |
| | Removal of three growth obstacles in the nine clusters of activity identified last year |
| Organizational Development Division | Completion of plan for the authority's business continuity after physical, cyber damage etc. |
| | Completion and approval of the Authority's data strategy |
| | Assimilation of the Authority's new values |
| | Achieving Grade 4 (out of 5) in client satisfaction survey |
| | Building a training program |



Thank you