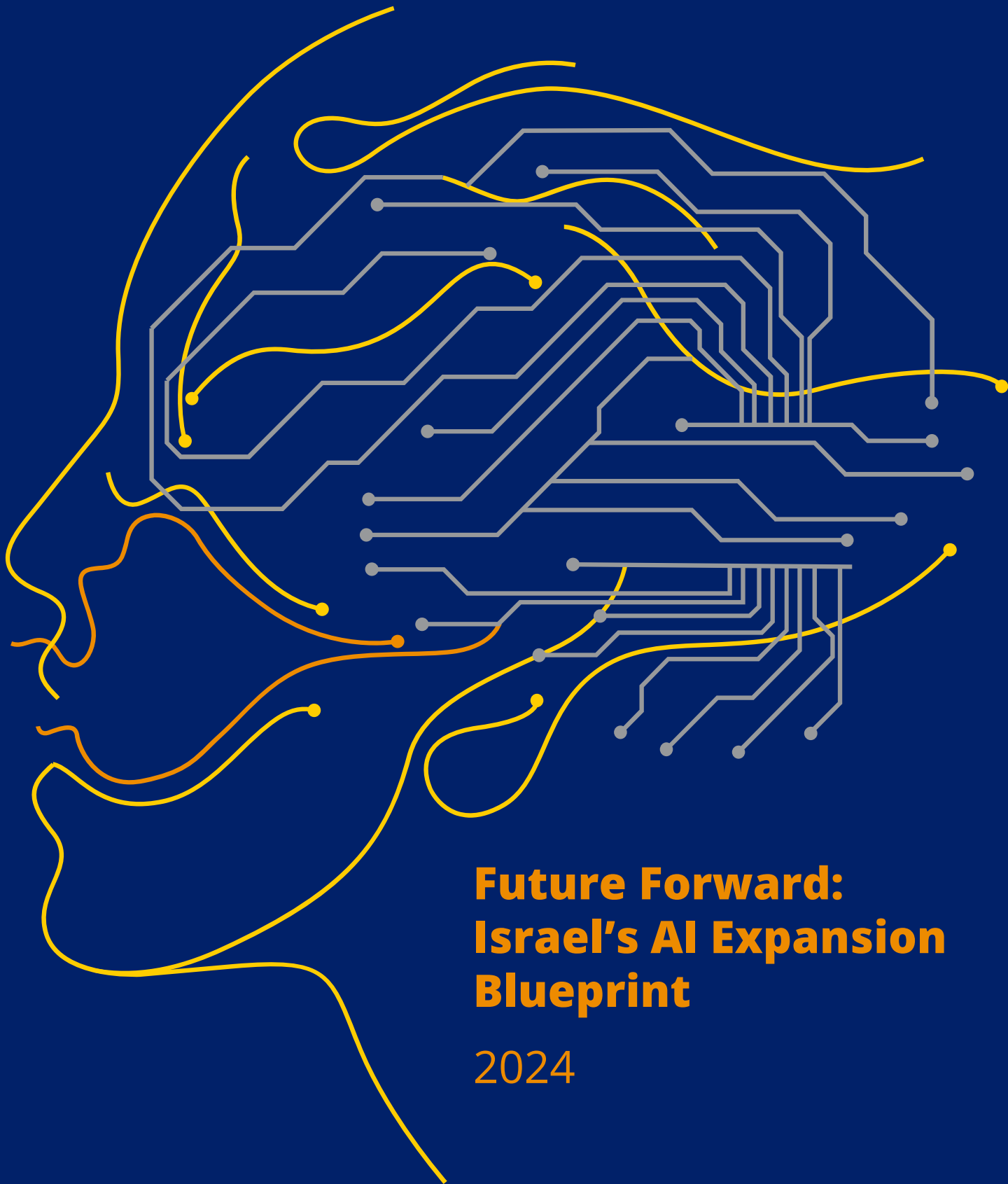
Deloitte
CATALYST

F2

Google Cloud



Future Forward: Israel's AI Expansion Blueprint

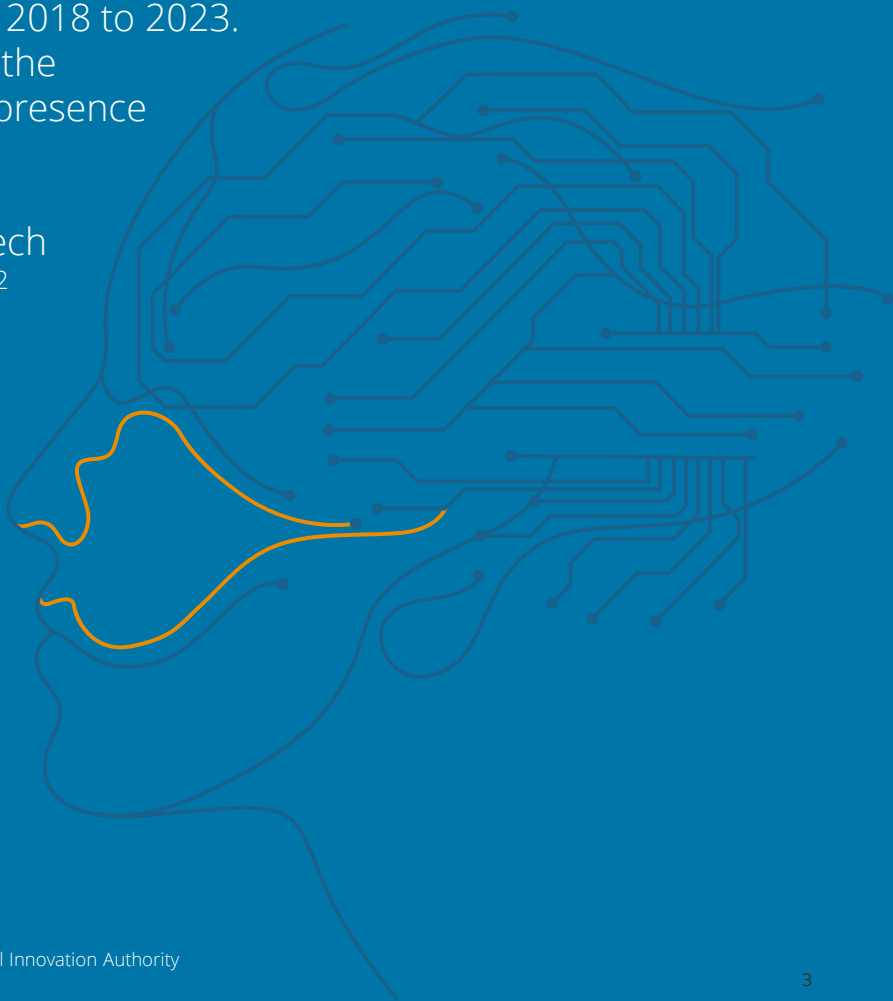
2024

Table of Contents

Executive Summary

Recent years have seen Artificial Intelligence (AI) evolve rapidly, becoming a cornerstone of what so many are calling the 5th Industrial Revolution - where intelligent technologies are fundamentally transforming how we live, work and interact with the world. From transformative Large "X" Models (LXMs) that extend beyond traditional language models to industry-specific AI solutions, the AI landscape has seen rapid growth in both capabilities and funding, reflecting the increasing application and impact of AI across various sectors.

Israel is at a pivotal moment in its journey to becoming a global AI leader. As the backbone of the nation's economy, the tech sector contributed roughly 20% of Israel's GDP in 2023 and accounted for approx. 40% of its GDP growth from 2018 to 2023. This reliance on tech makes the development of a strong AI presence vital for maintaining Israel's economic momentum and solidifying its position as a tech leader on the global stage.[1] [2]



(1) Deloitte analysis
(2) 2024 Annual Report – The State of the High-Tech, Israel Innovation Authority

Report's Objectives

This report provides a comprehensive overview of Israel's AI market landscape, shedding light on areas where Israeli companies can rise as global leaders. By analyzing active Israeli companies and gathering data from leading venture capital firms, entrepreneurs and other key stakeholders, a suggested segmentation of the Israeli AI market landscape was created.

In this segmentation key opportunities were identified where Israel has the greatest potential to establish itself as a major global hub in AI innovation. The report also pinpoints sectors that require more focus and those with lower potential, enabling strategic planning and investment for key industry stakeholders. It is important to note that areas designated as having moderate to low potential, while unlikely to attract the bulk of investments or become major hubs, can still provide opportunities for successful companies to emerge from Israel.

The report synthesizes insights from an extensive series of interviews with industry leaders, including VC investors, entrepreneurs and other key stakeholders, alongside a thorough analysis of external resources, reports and databases.[3] The data and insights in this report reflects trends up until August 2024.

The report is a collaborative initiative by Deloitte Israel and F2 Venture Capital and is supported by Google Cloud Israel.

How We Define an 'AI Company'

For this report, we classify AI-driven companies according to 3 distinct groups: companies that develop core technologies and foundational infrastructure crucial for the development and deployment of AI, produce infrastructural and multipurpose foundational models or operate as application companies whose value proposition is heavily reliant on integrated AI. In contrast, companies that use AI as a supplementary tool to enhance their operations do not meet this definition and are not included in our analysis.

(3) For further overview on the interview list and methodology used for the database, see the appendix

Key Takeaways

1. As of mid-2024, Israel's AI ecosystem includes **over 2,150** active companies, representing ~30% of the local tech industry**.**
2. Startups leveraging AI attracted over **60% of all capital raised by Israeli startups in 2023.**
3. Israel is ranked as the **3rd-4th largest AI VC ecosystem globally** over the past decade**,** demonstrating sustained international interest in its AI capabilities.
4. Nearly **half of all new Israeli startups (49%) in 2023 are companies leveraging AI,** a significant increase from 27% in 2017.
5. Israel's global AI ranking **shifted from 5th in 2020 to 7th in 2023,** reflecting increased global competition and rapid advancements in other regions.
6. Around **50% of AI investments** in Israel between 2022 **–** mid-2024 have gone to **vertical applications,** totaling ~$6.9B in funding directed toward industry-specific AI solutions.
    - Life Sciences & Healthcare (LSHC): Secured ~$2.9B, accounting for ~42% of overall vertical AI funding in Israel.
    - Banking, Financial Services, and Insurance (BFSI): Received ~$1.6B, representing ~24% of vertical AI funding.
7. **Cybersecurity leads the Autonomous Enterprise (Horizontal AI) category** in Israel, capturing ~56% of its funding, totaling ~$2.6B.
8. **The Foundation layer** of the AI tech stack - which includes foundational models (LXMs), hardware and infrastructure, AI & Data Ops and Model Security - **has received roughly 13% of total AI funding in Israel.** Despite this modest share, it has maintained balanced investments across sub-segments and significantly outperformed other segments in M&A activity relative to its share of private funding.
9. **Over 100 multinational corporations are driving Israel's AI growth:** These companies play a key role in AI R&D and have significantly boosted M&A activity. In H1 2024, M&As made up ~53% of all AI investments, totaling ~$2.3B – surpassing the annual totals for 2021 and 2022.

$13.5B
in private funding invested in AI startups since 2022

2,150+
startups leverage AI in their core offering

53%
of all M&A deals ($2.3B) in H1 2024 involved AI startups

60%
of all capital raised by startups in 2023 went to those leveraging AI

~50%
of AI investments ($6.6B) went to vertical applications since 2023

Key Takeaways:

Based on quantitative and qualitative data, **we mapped out segments within the AI market landscape according to their potential for Israel to establish itself as a leading global AI hub.** This is what we found:

Areas With High Potential:

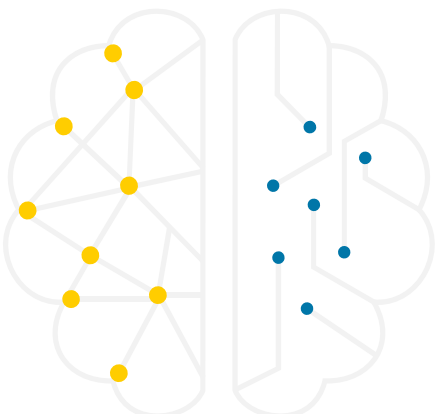
- **AI & Data Ops:** Israel's strong local ecosystem and skilled talent make this a key area for growth.
- **Vertical AI (Industry-Focused):** With nearly half of all AI funding in Israel going into Vertical AI in recent years, this is a particularly high potential area. Israel is uniquely positioned to excel in industry-specific AI applications, especially in sectors where it has deep expertise and a global reputation.
- **Autonomous Enterprise (Horizontal AI):** Currently, Israel excels in cybersecurity with its strong talent pool and track record of launching global-scale companies. As AI agents evolve other Autonomous Enterprise segments could be expected to rise. In addition, the Israeli startup ecosystem is developed around functions that considered to be the first adopters of AI solutions like marketing.

Areas With Moderate Potential:

- **Hardware, Infrastructure & Cloud:** The presence of multinational companies and past successful M&As create solid opportunities for further expansion.
- **Model Security:** While Israel's strong reputation in Cybersecurity is advantageous, the market for Model Security remains relatively niche, presenting limitations for growth in this specific AI segment.

Areas With Low Potential:

- **Foundation Models (LXMs):** This category faces substantial barriers to entry, requiring massive investments and access to extensive datasets, making it challenging for Israel to compete.
- **Quantum:** This capital-intensive field is dominated by multinationals with vast resources, and it reflects a very long-term investment horizon with a delayed time-to-market.
- **Consumer AI:** Israel has a very limited presence in this category, lacks strong competitive advantages, and is distant from key target end-consumers, reducing its potential impact.

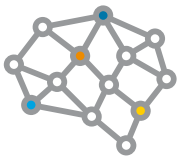


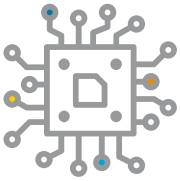
Introduction

AI is steering the Fifth Industrial Revolution with unprecedented momentum, rooted in several transformative developments. AI's journey, from theoretical frameworks in the mid-20th century to practical applications seen today, has spanned decades. However, its recent surge in impact and integration can be attributed to specific, converging factors that have collectively unlocked its transformative potential, with the advent of Generative AI (Gen AI) as a game-changer.

Gen AI's ability to innovate semi-autonomously is a key driver for its rapid adoption across industries, making AI not just a tool for optimization but also a source of creation. The capacity of Gen AI to generate content, design products and even assist in complex problem-solving processes has opened new avenues for innovation, making it highly valuable in fields ranging from entertainment and marketing to healthcare and engineering. Additionally, the exponential increase in data availability, combined with more affordable and powerful computational resources, has allowed AI to evolve from experimental to foundational.

AI's integration into various sectors has been accelerated by the growing recognition of its potential to drive efficiency and innovation. In healthcare, AI is revolutionizing diagnostics, personalized medicine and patient care management. In financial services, AI algorithms are enhancing fraud detection, risk management and customer service. The manufacturing sector is leveraging AI for predictive maintenance, quality control and supply chain optimization. These applications demonstrate AI's versatility and its ability to transform traditional processes, leading to significant cost savings and performance improvements.



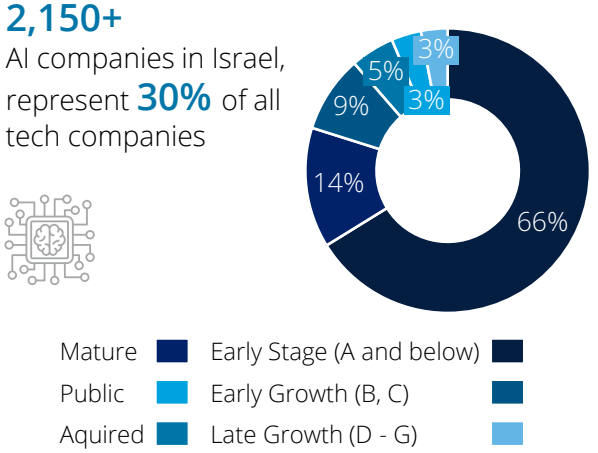


The Israeli AI Market Landscape

The Israeli AI Ecosystem is robust, with more than 2,150 active companies,[4] representing ~30% of the local tech sector. In 2023, these companies attracted over 60% of all capital raised by Israeli startups. Newly established AI companies[5] now represent ~36% of all new startups, up from ~27% in 2017. Among these, approximately 140 companies specialize in Gen AI, reflecting their share of private funding in the AI sector.

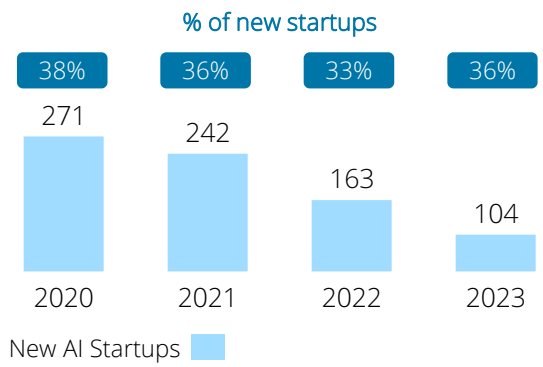
Since 2020, AI startups have constituted over 33% of new startups. According to Startup Nation Central Finder data, out of 290 startups founded in 2023, over 100 have AI as their core technology. This indicates a return to pre-correction levels[6] and highlights an increasing proportion of AI startups relative to the overall startup population. The sustained ratio of AI startups, despite economic fluctuations, underscores the pivotal role of AI innovation within Israel's entrepreneurial landscape.

Figure 1: The Israeli AI Ecosystem in Numbers



Source: Startup Nation Central Finder

Figure 2: No. of New Israeli Startups & Their Share of Total New Startups
2020-2023



Source: Start Up Nation Central's Finder data

Investment Trends in Israel's AI Sector

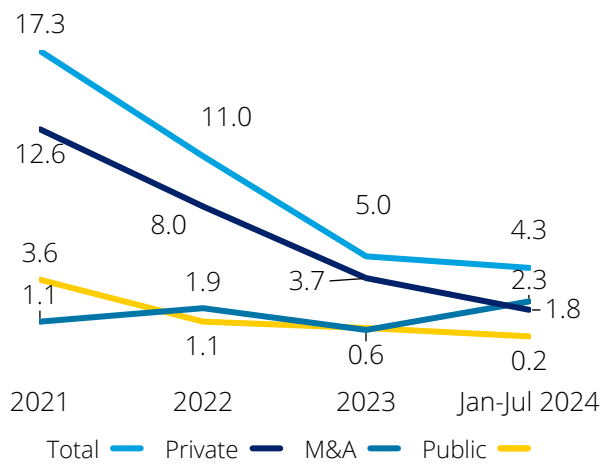
Investment in Israel's AI sector totaled ~$5B in 2023, down from a peak of ~$17.3B in 2021, and approximately half the level of 2020. Overall, AI investments have been hit harder by market downturns since 2022 compared to general investments in Israel. From 2021 to 2023, the overall market saw an average annual decline of ~35%, while AI investments dropped more sharply by ~46%.

(4) The data includes all active companies of varying sizes, maturity levels and funding rounds, as long as they are legally registered as active entities
(5) Refers to companies that were established within the same calendar year
(6) Refers to the post-2021 period

Funding Distribution

Public funding, which has always been a small and inconsistent part of total investment, has not yet returned to pre-correction levels and has dropped to 5% this year. Meanwhile, private funding, which has been the main source of investment for the past few years and makes up nearly three-quarters of all investments, has also decreased. However, during the same period, from January to July of 2024, M&A activity surged, accounting for more than half of all AI-related transactions in Israel. According to Stanford's analysis (based on Quid's data),[7] Israel ranked 4th in private AI investments by geographic area between 2013 and 2023. Specifically in Gen AI, Israel has the 3rd largest VC ecosystem globally based on fundings between 2021-2023.[8]

Figure 3: Funding in Israeli AI Companies
2021-Jul 2024 By source in $ Billions



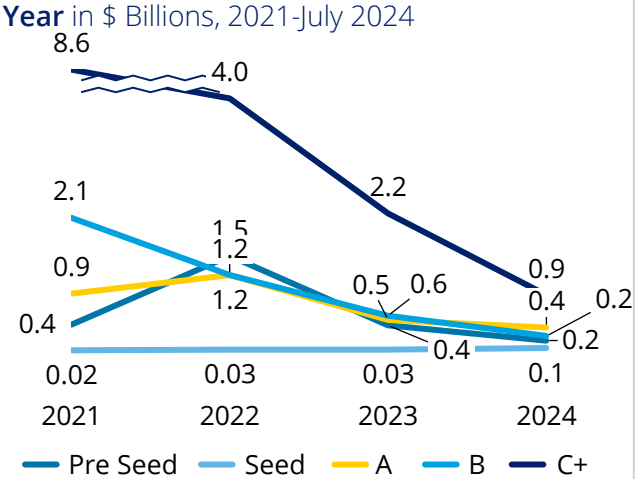
Source: Start Up Nation Central's Finder data

Since 2022, ~$13.6B has been invested in AI startups through private funding. Unlike the overall investment trends in the AI sector, private investments in AI have mirrored trends in the broader technology market. More than 50% of recent private investments have been in mega rounds, similar to trends in leading global markets. Despite a general decline in the absolute value of investments in the Israeli market over the past few years, the AI sector has demonstrated notable resilience. In 2023, AI investments increased their share from approximately 40% in 2020 to 50%, underscoring the growing importance and strength of this segment within the Israeli ecosystem. This trend suggests that while overall investment levels have decreased, the AI sector has maintained a positive trajectory, highlighting its key role and potential for future growth.

Private AI Investments by Round

Series C and beyond investments have experienced a significant decline, dropping from approximately $8.6B in 2021 to around $2.2B in 2023. Series B investments are witnessing a more moderate decline, consistent with overall market trends. In contrast, Pre-seed and seed funding levels have remained relatively stable, with their proportional shares increasing. Meanwhile, the relative share of Series A funding is also gradually increasing, indicating a shift from the heavy late-stage funding observed in 2021-2022 to a more evenly distributed investment landscape across various funding rounds in 2023-2024.

Figure 4: Private Investment by Round by Year in $ Billions, 2021-July 2024



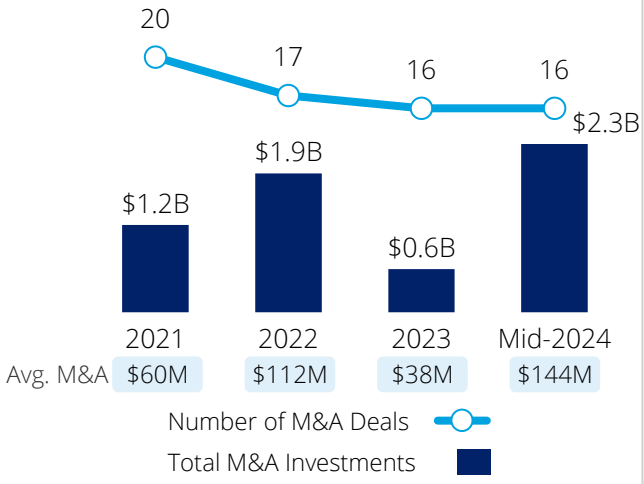
Source: Start Up Nation Central's Finder data

(7) Stanford's AI Index Report 2024, Source: Quid
(8) Israel Innovation Authority and Deloitte Research

Local AI M&A Activity in Recent Years

Israel's AI ecosystem has experienced significant M&A activity, with approximately $6B in deals from 2021 to mid-2024. Notably, multinational companies have been at the forefront of these activities, enhancing their presence in Israel and underscoring the global interest in Israeli technology and innovation.

Figure 5: AI M&A Deals in Israel
2021-07/2024, in $ Billions

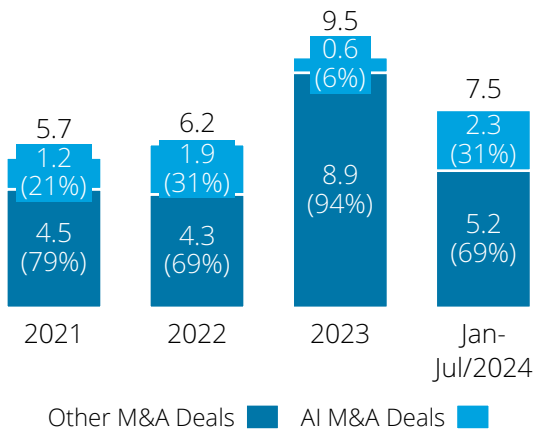


Source: Start Up Nation Central's Finder data

M&A activities highlight the valuable contributions of Israeli startups to the global AI landscape. Large tech powerhouses have strategically bolstered their AI capabilities through acquisitions of Israeli infrastructure companies, such as Intel's $2B acquisition of Habana Labs in December 2019 and Nvidia's $6.9B purchase of Mellanox in April 2020.[9] These strategic moves not only expanded their technological assets but also enhanced their capabilities in the AI sector.

Recent M&A activity shows strong momentum, with AI investments in H1 2024 exceeding the total M&A investments for each year from 2021 to 2023. This trend indicates that the Israeli AI landscape continues to be attractive for M&A activity in the post-correction period.

Figure 6: AI M&As Out of Total M&A Activity in Israel
2021-07/2024, in $ Billions



Source: Start Up Nation Central's Finder data

(9) Startup Nation Central Finder

The Role of Multinational Corporations in Israel's AI Ecosystem

Multinational companies are a key component of Israel's AI tech ecosystem. As of April 2024, over 100 multinational corporations, including Amazon, Google, Intel, Microsoft and Nvidia, are engaged in AI R&D activities in Israel.

These multinationals play an important role in advancing Israel's AI ecosystem. By establishing operations in Israel, they bring cutting-edge technologies, innovative practices, and valuable expertise. This knowledge transfer enhances the skills of local professionals and stimulates the broader business environment. Exposure to international standards and developments enables Israeli talent to apply these insights within local startups, accelerating the growth of Israel's high-tech sector and reinforcing its status as a global innovation hub.

The investment of multinationals in Israel reflects their confidence in the country's strong talent pool. A notable example is OpenAI co-founder Ilya Sutskever's decision to establish 'Safe Superintelligence' in Tel Aviv, which focuses on developing safe and ethical AI technologies, further solidifying Tel Aviv's reputation as a leading center for AI research and development.

Israel's AI Ecosystem Amidst Global Competition

Israel's AI technology ecosystem is dynamic and well-established amongst global players. Ranking 3rd globally in private AI investments, Israel trails only the US and China, with over $45B invested from 2013 to 2023, potentially surpassing the UK. However, global competition in AI is intensifying.

In the Tortoise Global AI Index,[10] Israel shifted from 5th place (2020-2023) to 7th in 2024, while countries like Singapore, with strong national AI strategies, have risen rapidly. Cities such as San Francisco, Montréal, Toronto,[11] and Boston are emerging as significant AI hubs, supported by top academic institutions, significant tech investments and thriving startup ecosystems. In the Middle East, Abu Dhabi and Dubai[12] are advancing their AI ambitions through strategic government initiatives, with other cities like London and Paris also becoming large AI centers.

Israel's AI investments are growing, though at a slower pace compared to global leaders. According to the RISE Institute, investments in Gen AI-based Israeli startups increased by roughly 85% between 2020 and 2023, while the U.S. saw a ~900% rise and Europe experienced a ~300% increase. Other AI sectors in Israel also saw slower growth: NLP investments grew by ~24%, compared to ~183% in the U.S. and ~53% in Europe, with a slight decline in Computer Vision investments.

Israel is a key player in the global AI landscape but faces challenges in fully leveraging its position. There is ongoing debate about whether Israel is maintaining its edge against international competition. Despite impressive statistics, industry experts are divided on Israel's competitive advantage, and discussions about the country's AI standing continue. Contributing factors include an insufficient number of researchers, limited academic research, lack of funding and an outdated academic employment model. Additionally, AI education needs to be expanded, starting from a young age, to build a stronger foundation for future talent.

(10) The Global AI Index, Tortois
(11) The Rise of the Toronto Region as a Global AI Hub, Toronto Global, July 2023
(12) Genius Group Launches Abu Dhabi and Dubai Genius Cities, AI Hubs at Abu Dhabi University, Genius Group, June 2024

Government Support and Regulatory Challenges

Government support for AI in Israel is limited, with the country ranking 47th globally for a comprehensive government AI strategy. The national AI program has faced significant budget cuts, now reduced by 80% to NIS 1B — a move criticized as 'too little, too slow.'[13] Regulatory barriers also hinder cross-industry collaborations and the establishment of essential data training sandboxes. However, the government's limited role in tech and innovation may mitigate the impact of these challenges. The government is the smallest contributor to AI model development and should focus on setting clear guardrails and orderly rules of conduct to facilitate AI advancement.

Talent Competition and Cultural Gaps

Though Israel has the highest AI talent concentration globally, with a 1.13% figure in 2023,[14] the competition for AI talent remains a challenge, with high demand for AI experts and a shortage of C-level AI executives. Additionally, a cultural gap between younger AI entrepreneurs and older academic experts presents further challenges. Addressing these issues is crucial for Israel to maintain and enhance its competitive edge in the global AI landscape.

(13) CTECH by Calcalist, January 2024
(14) Stanford's AI Index Report 2024, Source: Quid

The AI Market Landscape

The Dual-Layered Structure of the Emerging AI Market Landscape

The global AI market is a complex and multifaceted landscape that can be broadly divided into two main layers: the Foundation Layer and the Application Layer. Each layer plays a crucial role in the development, deployment and utilization of AI technologies, as illustrated in Figure 7.

Foundation Layer

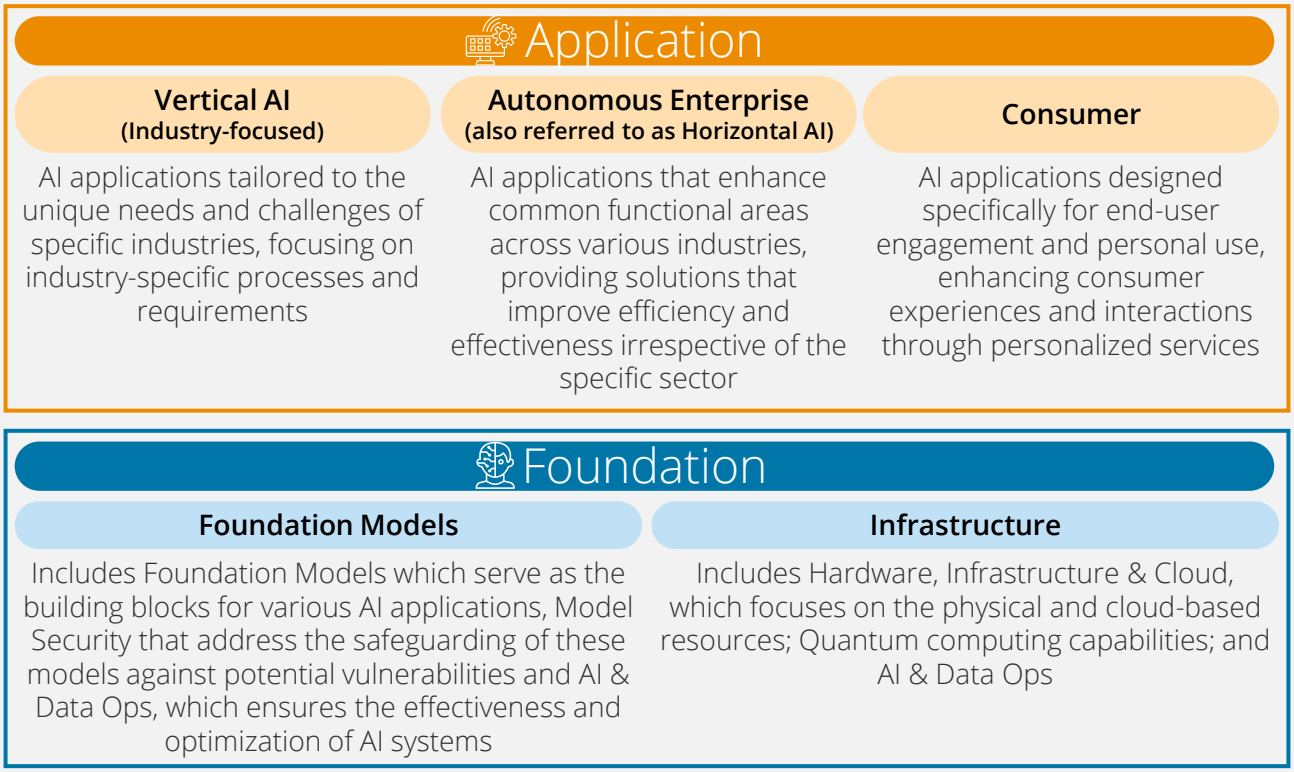
The Foundation Layer provides the essential infrastructure required for the development and utilization of AI technologies. This layer includes the core components and continuous advancements that support the entire AI ecosystem and is divided into two distinct areas:

1. Foundation Models:

Foundation Models (LXMs): Large-scale, pre-trained models such as Gemini, GPT-4 and other transformer-based architectures that serve as the backbone for various AI applications. These models are trained on vast datasets and can be fine-tuned for specific tasks, providing a robust starting point for AI development. While most companies in this category currently focus on Large Language Models (LLMs), the scope definition includes any large "X" model that could be developed on different varieties of databases, including Large Vision Models (LVMs) and Large Graph Models (LGMs) for instance.

Model Security: Measures to ensure the security and integrity of AI models, including techniques for protecting against adversarial attacks, ensuring data privacy, and maintaining compliance with regulatory standards. This also involves monitoring models for biases and ensuring ethical AI practices.

Figure 7: The Emerging AI Market Landscape

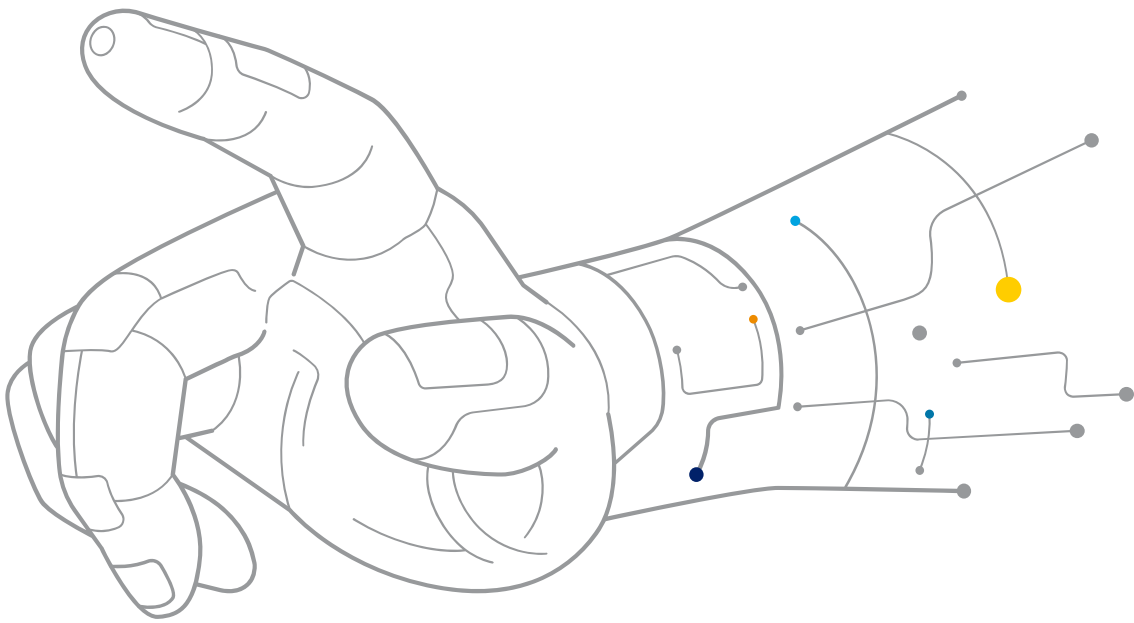


2. Infrastructure:

Hardware, Infrastructure & Cloud: High-performance computing systems, including GPUs, TPUs, specialized AI chips, and connectivity infrastructure that provide the processing power needed for training and running AI models. This also includes data centers, cloud services, and networking infrastructure that support scalable AI operations.

Quantum: The application of quantum computing principles to enhance AI algorithms and processes, allowing to solve complex problems more efficiently by leveraging quantum mechanics. Quantum AI holds the potential to significantly advance domains such as machine learning, optimization and data analysis.

AI & Data Ops:[15] Tools and platforms for managing the lifecycle of AI models, including data collection, preprocessing, model training, deployment, monitoring, and maintenance. This encompasses Machine Learning Operations practices that ensure efficient and reliable AI workflows.



(15) AI & Data Ops is a shared category across the two different layers

Application Layer

The Application Layer leverages the technologies established in the Foundation Layer to create practical solutions that address real-world challenges across various industries, business functions, and consumer needs. Companies building these applications may leverage large-scale pre-trained models (LXMs) or develop proprietary models to optimize the technology for their unique requirements. This layer is divided into three distinct categories:

1. **Vertical Applications:**

   Industry-Specific Solutions: Tailored AI applications designed to meet the unique needs of specific industries such as healthcare, finance, manufacturing, and retail. These tailored solutions directly address the distinct aspects of each sector, enhancing operational efficiencies, and solving industry-specific issues. Vertical AI applications are crucial as they empower industries to effectively utilize AI technologies in ways that are most relevant and beneficial to their operations.

   Examples: AI-driven diagnostics in healthcare, fraud detection in finance, predictive maintenance in manufacturing, and personalized shopping experiences in retail.

2. **Autonomous Enterprise (Horizontal Applications):**

   Cross-Industry Solutions: AI applications that can be applied across multiple industries to improve enterprise functions such as operations, customer service, and human resources. By integrating AI into these enterprise functions, organizations can enhance decision-making, increase efficiency, and reduce manual labor. The focus is on creating systems that can operate independently and adapt over time, making business operations more dynamic and responsive to changes.

   Examples: Robotic Process Automation (RPA) for streamlining business processes, AI-powered chatbots for customer service, predictive analytics for workforce management and end-to-end enterprise cross-industry cyber solutions.

3. **Consumer Applications:**

   End-User Solutions: AI applications designed to enhance the daily lives of consumers, offering convenience, personalization, and improved experiences.

   Examples: Virtual assistants, personalized content recommendations on streaming platforms and AI-driven home automation systems.

Within the two main layers outlined above, further sub-segments exist. In the Vertical segment, applications are categorized by industry, while in the Autonomous Enterprise segment, they are organized by function. The Autonomous Enterprise category is also divided into two distinct sub-groups: the 'Backend' category, which includes back-office and support functions, and the 'Frontend' category, which encompasses client-facing processes and corporate operations.

By understanding the structure of the AI ecosystem, we can better appreciate the interplay between the foundational infrastructure and the diverse applications that leverage these technologies.

The Emerging AI Market Landscape

Application

Vertical AI (Industry-focused)

- BFSI[16]
- LSHC[17]
- AgTech
- Manufacturing
- Retail & E-commerce Enablement
- Mobility
- Defense
- Gaming
- Professional Services[18]
- Media
- PropTech

Autonomous Enterprise (Horizontal AI)

Backend

- Supply Chain & Ops
- Finance & Accounting
- IT
- Human Resources
- Security
- AI Robotics

Frontend

- Support & Customer Service
- Marketing & Sales

Consumer

Foundation

Foundation Models

- Foundation Models (LXMs)
- Model Security

AI & Data Ops

- AI Operations
- Data Operations

Infrastructure

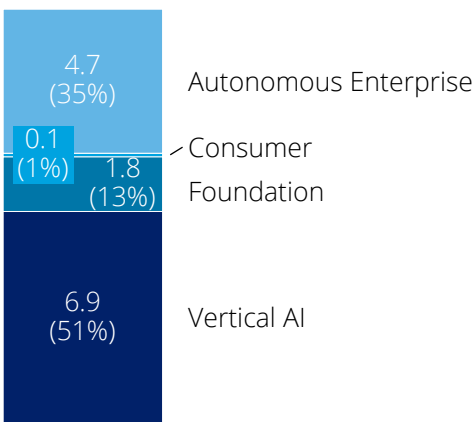
- Hardware, Infrastructure & Cloud
- Quantum

(16) Banking, Financial Services and Insurance
(17) Life Sciences & Healthcare, including Biotechnology
(18) Legal, Accounting and other services

Mapping Future Opportunities for the Israeli AI Ecosystem

Through an in-depth analysis of interviews and external sources, we have highlighted categories that leverage Israel's inherent strengths, positioning the country to establish 'significant AI hubs' in the near future. A 'significant AI hub' refers to a segment expected to draw substantial future investments while supporting the sustained growth of Israeli companies in the long term. The highlighted Israeli startups in each category represent active companies that have raised more than $5M in the last 5 years. Analysis also includes the sum of all investments in the different categories since 2022. This time horizon represents the post-correction period and allows for a better view and understanding of the local ecosystem and current dynamics.

Figure 8: Private Investments in Israeli AI Startups by Segment in in $ Billions and % of total, 2022-July 2024



Source: Deloitte's data analysis

While this analysis acknowledges the possibility of successful companies emerging in other areas, it focuses on identifying the segments most likely to become significant hubs — those that will strategically position Israel to attract a large share of investments and support a thriving AI ecosystem.

An analysis of Israel's AI market landscape reveals that since 2022, Vertical AI has attracted roughly 50% of private funding, while the Autonomous Enterprise segment has received ~35%. The Foundation Layer, in contrast, has garnered around 13% of total funding, indicating a strategic focus on practical AI applications across various sectors. While the Infrastructure sub-segment has seen considerable M&A activity, it is less prominent when considering private funding alone.

Charting the Future – Mapping Israel's AI Hub Potential by Sector

High Potential for Creating a Significant Hub	Moderate Potential for Creating a Significant Hub	Low Potential for Creating a Significant Hub
AI & Data Ops Reflects the ongoing relative strengths of the local ecosystem and the Israeli talent pool	**Hardware, Infrastructure & Cloud** Solid presence of MNCs and historically substantial M&As create spillover opportunities for driving this category further	**Foundation Models (LXMs)** Substantial barriers-to-entry, requires massive investments and access to extensive datasets
Autonomous Enterprise The development of AI Agents and the Enterprises' AI driven transformation will drive the demand for innovative solutions mainly in core expertise	**Model Security** Opportunity lies in the know-how and expertise of the local ecosystem, although Model Security is generally regarded as a niche market	**Quantum** A capital-intensive domain led by multinationals with extensive resources; very long-term investment horizon and time-to-market
Vertical AI (Industry-Focused) Positioned to thrive in verticals where Israeli expertise excels, such as Defense, LSHC, and BFSI		**Consumer** Limited presence of Israeli companies, lack of competitive advantage, and distance from end consumers pose significant challenges

Segments with High Potential for Emerging Israeli Hubs

Vertical AI

Global Perspective: Substantial initial investments in infrastructure will drive advancements in vertical AI, as these investments create a spillover effect, enabling industry-specific applications to benefit from increasingly sophisticated foundation models. This groundwork ensures that startups have the necessary systems and data management capabilities to leverage AI for industry-specific challenges. According to Gartner, by 2027, over 50% of the Gen AI models used by enterprises will be domain-specific—either for a particular industry or business function—up from just 1% in 2023.

The focus is also shifting towards developing Small X Models (SXMs) trained on industry-specific datasets. These models are designed to address unique challenges within an industry, offering more targeted and effective solutions. By concentrating on specific problems, SXMs can enhance operational efficiency and drive innovation, often providing more customized and impactful solutions than larger, generalized models.

However, breaking into vertical AI is complex and requires deep industry expertise. To develop AI solutions that effectively address industry-specific issues, a thorough understanding of the industry, its regulations, and challenges is essential. While the technical infrastructure for AI may be in place, success depends largely on having the industry knowledge necessary to ensure that AI applications deliver real value in solving specific pain points.

Total Investments
(2022 – mid-2024)

~$6.9B

Annual Investments Growth Rate
(2020 – mid-2024)

3%

Vertical AI – Israeli Startups

Vertical AI (Cont.)

Local Funding: Since 2022, roughly 50% of private funding for AI companies in Israel has focused on Vertical AI applications. Within this vertical focus, the Life Sciences and Healthcare sector dominates, claiming ~42% of vertical investments and around 21% of overall funding in 2022. This substantial investment solidifies Israel's status as an emerging Biotech hub, well-positioned to drive Industry 5.0 advancements. The Banking, Financial Services, and Insurance sector follows, securing ~24% of vertical funding – further cementing Israel's reputation as a fintech powerhouse.

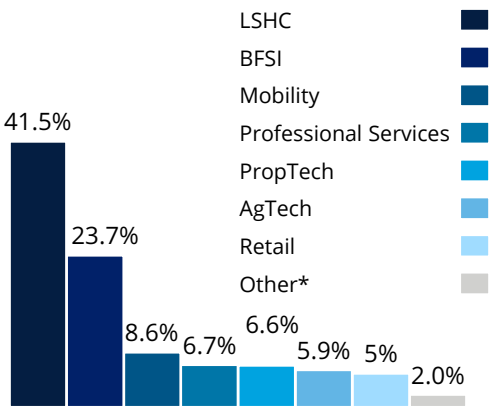
Israel's Potential: Israel's competitive advantage in vertical AI lies in industries where it has strong domain expertise, particularly in sectors like Defense, where AI has been effectively deployed on the battlefield. Other promising sectors include Life Sciences and Healthcare and Banking, Financial Services and Insurance, where the Israeli ecosystem has established a solid foundation through significant private investments.

Israel does face challenges, such as geographical distance from end customers and limited spillover from foundation model companies due to a smaller local share of companies within that segment. However, Israel can overcome these hurdles by leveraging the deep knowledge and experience of its entrepreneurs and tapping into the resources of the many multinationals operating in Israel.

Looking ahead, Israel is well-positioned to strengthen its leadership in Vertical AI, using its expertise to drive global innovation. The future likely holds the emergence of a class of large, influential Israeli companies that will lead in key verticals.

Figure 9: Vertical AI Investments in Israel

2022-07/2024, in $ Billions



* Includes Gaming, Manufacturing, Media and Defense

Source: Deloitte's analysis and database, utilizing data from Startup Nation Central Finder and IVC Data & Insights

Autonomous Enterprise (Horizontal AI)

Global Perspective The development of multi-modal, end-to-end solutions in Horizontal AI has significant potential for cross-industry functions by integrating text, image, and video. Initially, these solutions can be integrated through APIs with enterprise tools to enhance corporate functions. As the technology matures, these processes could become fully automated, revolutionizing business operations by increasing efficiency and reducing manual intervention across various sectors globally.

The advancement of AI agents using Small X Models (SXMs) is particularly promising for transforming complex corporate processes into seamless enterprise use cases. These AI agents have the potential to manage entire business processes, offering a transformative approach to enterprise management. This development not only streamlines operations but also fosters innovation, positioning global enterprises to achieve new levels of efficiency and effectiveness.

For instance, an AI marketing agent could revolutionize marketing by automating personalized content creation and distribution across multiple channels, significantly boosting customer engagement. By analyzing customer data to uncover patterns and preferences, this agent could deliver precisely tailored marketing messages, dramatically enhancing conversion rates. Additionally, it could dynamically optimize marketing budgets, allocating resources to the most effective campaigns to maximize ROI.

SXMs have further applications in enhancing enterprise functions through automation and predictive analytics. In customer service, SXM-powered chatbots can handle routine queries, improving response times and freeing human agents to focus on complex issues. In supply chain management, SXMs can utilize predictive analytics to anticipate product demands and optimize supply strategies, reducing overstock and stockouts.[19]

Total Investments
(2022 – mid-2024)

~$4.7B

Annual Investments Growth Rate
(2020 – mid-2024)

~ -0.2%

Horizontal AI – Israeli Startups

xtend ai, mentee robotics, Unlimited Robotics, INTUITIVE, IIIROBOTICS, Indoor Robotics, TENYX, datarails, black ore, MESH, Ledge, april, Statement., NAKAI, panax, PayEm, TaTiO, unit, Torii, DreamTeam, SPIRITT, gloat, perfect, papaya global, TRULLION, BigPanda, HiBob, swimm, swish.ai, Lightrun, qodo, retrain.ai, komodor, anodot, BlinqIO, KUBIYA, robusta, oligo, tabnine, CYCLOPS, guidde., grip, AIM, env0, ARMO, ReasonLabs, CYERA, SILVERFORT, Clarity, aqua, DREAM, oxsecurity, blink, Astrix, PERCEPTION POINT, CARDINALOPS, CHEQ, satori, BigID, ZERO Networks, cynomi, nilus, SALT, sweet., PERCEPTO, RGo Robotics, Ginzi, BREEZE

(19) Enterprise Operations in the Age of AI, Deloitte

Autonomous Enterprise (Horizontal AI) (Cont.)

Additionally, AI robotics are becoming increasingly sophisticated, enabling them to perform complex enterprise tasks across various functions. Market projections suggest that the humanoid robotics industry could grow to approx. $38B by 2035—more than six times earlier estimates.[20]

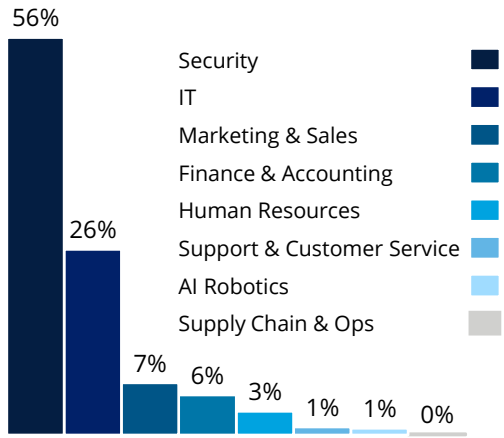
Local Funding: The Autonomous Enterprise segment has received the second-highest share of funding since 2022, at 35%. Within this segment, Cybersecurity dominates, capturing 56% of the funding, reflecting Israel's recognized expertise in cybersecurity, partly due to the advanced technological capabilities of its military units. The IT sector also plays a significant role, driven by high AI adoption and utilization, emphasizing the focus on enhancing autonomous operations through advanced AI applications.

Israel's Potential: To promote the adoption of autonomous enterprise solutions, Israeli startups could focus on establishing strong relationships with leading global enterprises and effectively demonstrating successful POCs. This forward-looking strategy is important for building trust and credibility in the market. Partnering with global tech multinationals that already follow strict privacy and internal regulatory requirements of large global enterprises offers Israeli startups a streamlined path to gain trust and access into larger markets with significant horizontal potential to be explored.

In addition, the shift from a standard, one-size-fits-all AI model to more specialized and adaptable AI models opens significant opportunities for the local ecosystem. This change is particularly important in areas where there is a need for AI models that use less resources and computing power. Israeli tech companies, known for their quick and efficient execution, are in a good position to develop and offer applications while avoiding the heavy resource and computing demands of larger models.

As a key example, Israel's strong reputation in cybersecurity can be further leveraged by deploying AI methodologies. With cybersecurity a top priority across industries, developing advanced AI-driven security solutions can address critical risks and enhance enterprise system safety. In contrast, other Horizontal AI segments pose greater challenges for Israeli startups due to their resource-intensive nature and overall investment slowdown in recent years.

Figure 10: Autonomous Enterprise AI Investments in Israel
2022-07/2024, in $ Billions



Source: Deloitte's analysis and database, utilizing data from Startup Nation Central Finder and IVC Data & Insights

(20) The Global Market for Humanoid Robots Could Reach $38B by 2025, Goldman Sachs, February 2024

AI & Data Ops

Global perspective: As digital transformation becomes increasingly critical, AI & Data Ops are pivotal in managing sophisticated data systems and enhancing operational efficiency. The shift towards cloud based AI Ops platforms is a key trend, providing scalable solutions for extensive data handling across industries. Moreover, the integration of AI with traditional IT operations is accelerating, facilitating automated system maintenance and efficient data processing.

Similar to how the expansion of the Internet had sparked a new wave of supporting infrastructures, the shift towards an LXM-based industry is likely to catalyze the development of new supporting infrastructures. This shift is expected to improve AI & Data Ops by using the sophisticated analytics and decision-making features of LXMs. Building platforms and tools that can handle LXM tasks will be crucial, marking the start of a new wave of innovation in how data is processed and used across various industries.

The rise in this category is also reflected by numbers, with a significant growth in investments in recent years. In 2017, global investments in Data Management & Processing stood at approximately $464M. By 2023, this figure had risen to around $4.9B. Although this is lower than the peak investment of roughly $6.5B in 2021, it still demonstrates significant long-term exponential growth and is the 3rd biggest AI category globally in terms of total investments.[21]

Local Funding: AI & Data Ops stands as the largest sub-category within the AI Foundation layer, comprising roughly 45% of the Foundation layer and approximately 6% of all private AI funding in Israel since 2022.

Total Investments
(2022 – mid-2024)

~$800M

Annual Investments Growth Rate
(2020 – mid-2024)

~58%

AI & Data Ops – Israeli Startups

Rivery, Dragonfly, SQREAM, dataloop, Coralogix, illumex, mona, deepchecks, HYPERSPACE, run:ai, Flexor, CLEAR ML, Pinecone, VAST, Pecan, Redis

(21) Stanford's AI Index Report 2024

AI & Data Os (continued)

Israel's Potential: Israel's role in AI & Data Ops presents distinct opportunities that align with global trends, focusing particularly on enhancing existing infrastructures. This strategic direction capitalizes on Israel's established strengths in technological innovation and system optimization, areas where it is already recognized globally. The potential in Israel lies in supporting and refining complex tech environments, ensuring they are robust, efficient, and easier to manage. This is also highlighted by Israel's role in AI & Data Ops that offers unique opportunities that align with global trends, particularly in enhancing existing infrastructures. This strategic focus leverages Israel's recognized strengths in technological innovation and system optimization. Israel's potential lies in supporting and refining complex tech environments, making them more robust, efficient, and manageable. Notably, the majority of recent acquisitions in the AI foundational layer have been in the AI & Data Ops category.

Israel's expertise, heavily influenced by skills developed within the military, is well-suited to addressing infrastructural challenges rather than solely application-centric issues. This is vital, as effective AI & Data Ops require strong infrastructure capable of handling extensive data processing and complex computations. The Israeli ecosystem excels in developing and maintaining these systems, prioritizing performance optimization.

As companies worldwide seek to enhance operational efficiencies, Israeli innovations could provide essential solutions that integrate seamlessly with existing platforms, enhancing their capabilities without requiring full-scale overhauls. This positions Israeli startups as potential key players in the global AI & Data Ops landscape, driving the development of more sophisticated and reliable AI systems.

Segments With Moderate Potential for Emerging Israeli Hubs

Hardware, Infrastructure & Cloud

Global perspective: The landscape for AI hardware and infrastructure is undergoing a transformative phase, driven by the increasing demands for more powerful and efficient computing solutions. As AI applications become more sophisticated, the need for specialized hardware capable of supporting intensive tasks is expanding. Leading companies such as AMD, Intel and Nvidia are at the forefront of developing AI-specific chips, which are critical for the effective training and deployment of AI models.

According to a forecast by Deloitte, sales of chips and servers designed for Gen AI will surpass $50B by the end of 2024. As AI becomes more mainstream, special-purpose silicon for AI and AR/VR is among the top three technology trends driving business transformation in the semiconductor industry. In a Deloitte survey, 31% of respondents identified this as a leading business transformation trend. Companies poised to emerge as frontrunners are those capable of producing chips tailored specifically for AI systems.

Local Funding: Hardware and Infrastructure stands as the second-largest sub-category among companies operating within the Foundation layer of the AI market landscape. It accounts for about 25% of the Foundation layer and over 3% of all private AI funding since 2022.

Israel's Potential: The Israeli tech industry has a well-developed semiconductor ecosystem, highlighted by the presence of major global companies like Intel. This environment fosters talent spillover, which supports the growth of new hardware and infrastructure startups. The strength of Israel's ecosystem is further demonstrated by global interest in Israeli AI-based hardware companies, exemplified by the notable acquisitions such as those of Habana Labs and Mellanox by Intel and Nvidia, respectively. The expansion of multinational corporations through acquisitions of Israeli hardware companies enhances local AI capabilities and creates a supportive environment for advanced AI initiatives.

Total Investments
(2022 – mid-2024)

~$440M

Annual Investments Growth Rate
(2020 – mid-2024)

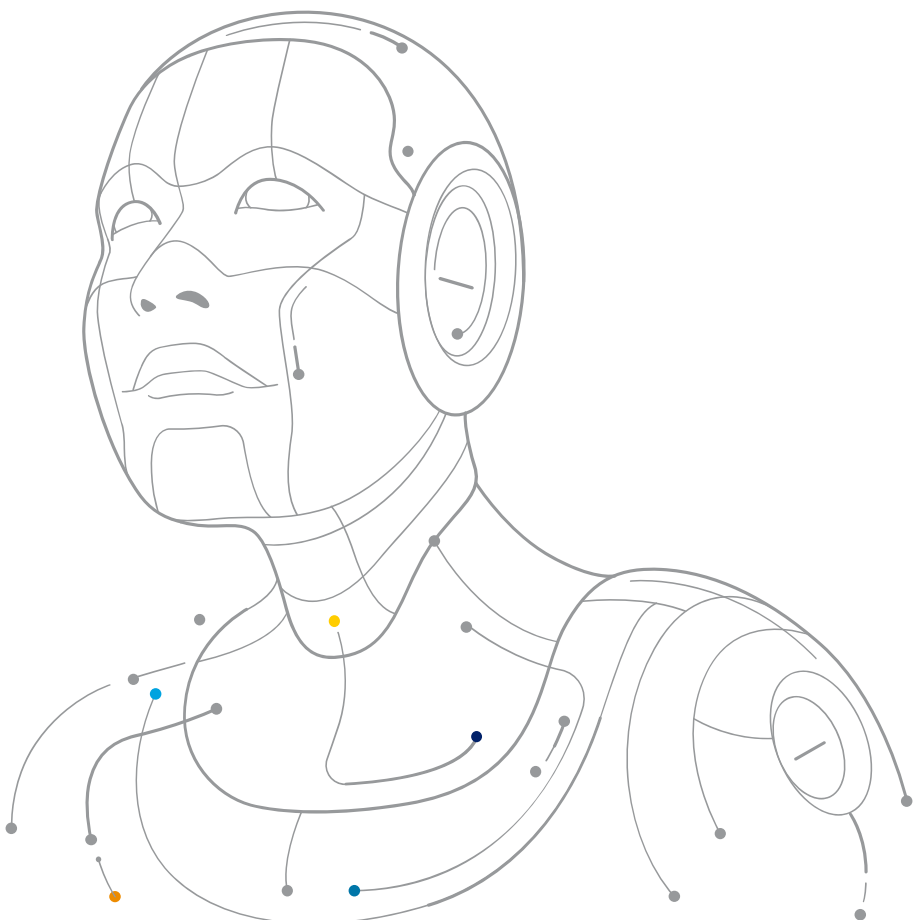
~28%

Hardware, Infrastructure & Cloud – Israeli Startups

NEXTSILICON
HAILO
INGONYAMA
SPEEDATA
NeuroBlade
Xsight
PLiOPS
EXTREME DATA PROCESSOR

Hardware, Infrastructure & Cloud (Cont.)

This transfer of expertise is crucial for improving the skills of the local workforce and boosting Israeli AI proficiency. A significant benefit of this trend is the potential migration of AI talent from large companies to local startups focusing on hardware and infrastructure. This movement can invigorate the local ecosystem as experienced professionals bring their knowledge, innovative ideas and industry contacts to new entrepreneurial ventures.



Model Security

Global perspective: Model Security is becoming an integral part of AI as companies globally recognize the importance of safeguarding their AI-driven systems. As AI technologies become more integrated into core business processes, the potential vulnerabilities that could be exploited by malicious actors or through inadvertent errors are also on the rise. This has led to a growing focus on developing robust security measures that protect the integrity and confidentiality of AI models, ensuring they operate as intended without compromise.

Companies are looking for solutions that can preemptively secure AI models from potential threats like data poisoning, model theft or adversarial attacks. This demand creates a burgeoning market for innovations that can provide comprehensive security frameworks for AI infrastructures. These solutions are crucial for maintaining trust in AI applications, supporting compliance with increasing regulatory requirements, and ultimately, enhancing the overall reliability and usability of these technologies globally.

Though experiencing a steady increase in recent years, the Model Security category is still a niche market. In 2023, global investments in Model Security reached approx. $800M, marking a substantial rise from under $300M in 2017. Despite this growth, this sub-segment remains a niche market and is expected to remain so in the foreseeable future.[22]

Local Funding: Model Security received the smallest share of funding within the Foundation Layer category, representing 9% of investments in that layer in Israel and approximately 1% of all private AI funding since 2022.

Israel's Potential: Israel's strong foundation in cybersecurity gives local companies a competitive edge in creating advanced solutions specifically designed for the unique challenges of AI security. This presents a moderate opportunity for Israeli startups to lead in a niche segment of the cybersecurity market. While they can leverage their expertise to provide high-value, specialized security solutions essential for the safe deployment of AI technologies, the market for these solutions remains relatively small.

Total Investments
(2022 – mid-2024)

~$170M

Model Security – Israeli Startups

Prompt:
AIM
Lasso Security
KNOSTIC
APEX
aporia
Deepkeep AI-Native Security
pillar

(22) Stanford's AI Index Report 2024

Segments with Low Potential for Emerging Israeli Hubs

Foundation Models

Global Perspective: AI foundation models are set for significant advancements, promising transformative impacts across various industries. As these models evolve, they will become more efficient and capable of understanding and generating complex data in diverse formats, leading to more personalized and predictive applications that enhance decision-making across sectors.

The emergence of Large "X" Models (LXMs) marks a pivotal shift in the field, expanding beyond the traditionally dominant Large Language Models (LLMs). This evolution addresses the growing need for AI systems that can process and understand data beyond just text.

Large Vision Models (LVMs) are a key example of LXMs, designed to interpret and analyze visual data at an unprecedented scale and depth. LVMs are enhancing applications in autonomous vehicles, security systems, and healthcare, where they are used to analyze medical imagery with greater accuracy, enabling earlier disease diagnosis.

Large Graph Models (LGMs) represent another frontier for LXMs, analyzing data structured in graphs to uncover complex relationships and patterns. LGMs are revolutionizing fields like social network analysis, where they map and analyze human interactions at scale, and bioinformatics, where they aid in drug discovery and genetic research.

The shift toward specialized LXMs is driven by the need for AI systems that interact with the world in more human-like ways. By integrating and applying diverse types of data to specific tasks, LXMs are expected to deliver higher efficiency and accuracy. This broadens AI's applicability across industries and opens the door to innovations previously unattainable with LLMs alone.

This diversification into LXMs also addresses the limitations of LLMs, particularly their relevance to non-language tasks.

As AI continues to evolve, LXMs will play a significant role in shaping the next generation of AI applications, making them more versatile and better adapted to a wider range of human activities and needs.

The future of foundation AI models will evolve to include both multi-modality and open-source contributions. Multi-modality enhances AI versatility by integrating text, images and audio, while open-source models promote collaboration and transparency. This evolution is also expected to drive significant advancements in AI technology.

Total Investments
(2022 – mid-2024)

~$375M

Foundation Models – Israeli Startups

AI21labs

BRIA

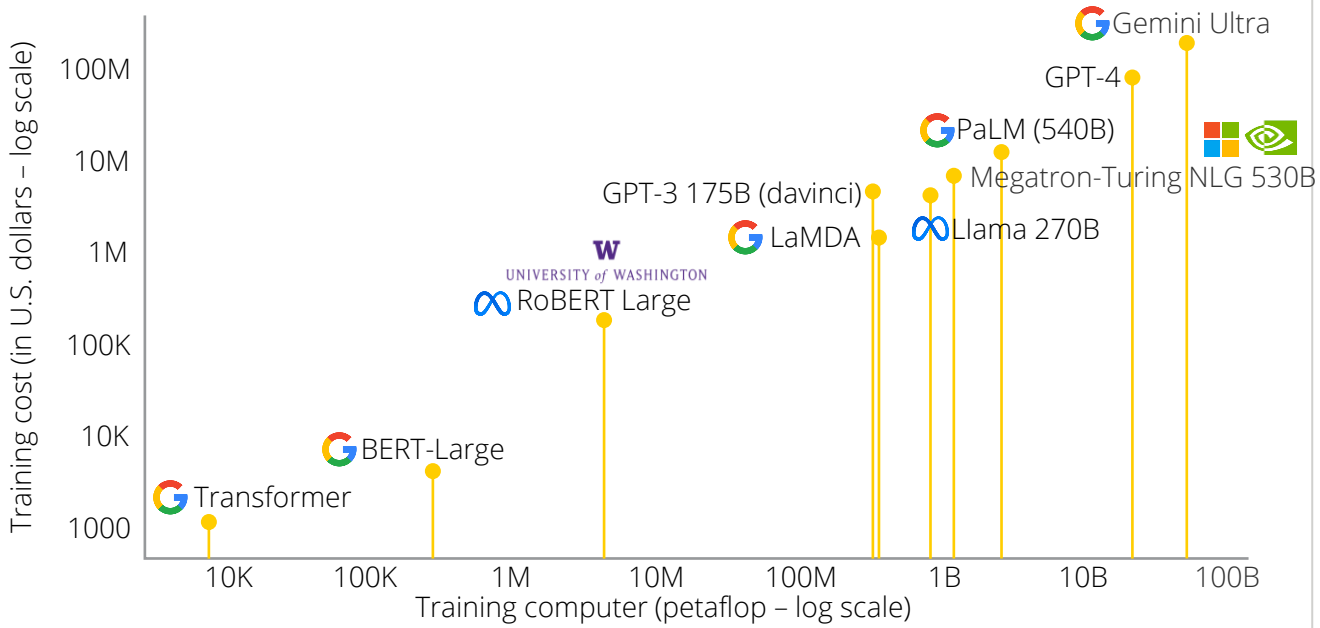
Foundation Models (Cont.)

Local Funding: Foundation models constitute the second smallest sub-category in Israel within the Foundation layer, nearly matching Hardware & Infrastructure in size. Foundation models have accounted for approximately 21% of funding within the Foundation layer – about 3% of all AI private funding in Israel since 2022.

Israel's Potential: While Israel has potential for successful LXM companies, becoming a major hub for foundation models presents significant challenges. The barriers to entry in this field are steep and likely to remain so. Developing these models demands massive investments and access to extensive datasets. Additionally, as model sizes grow faster than hardware capabilities, more processors are needed, further driving up costs. Projections estimate that training the next generation of LLMs could exceed $1B the coming years. Overall, the high capital requirements of this environment do not align well with the financial structure of the Israeli ecosystem.

While Israel may not hold a strategic position in the development of LXMs, it could seize a significant opportunity by advancing edge computing models. Edge AI refers to the deployment of AI algorithms locally, on hardware devices at or near the data source, rather than relying on centralized servers. This approach can significantly reduce the costs associated with data transmission and processing. Leveraging edge AI technologies could provide cost efficiencies that can positively affect the local ecosystem's ability to bypass some of the scalability and funding challenges currently faced by building foundation LLMs or LXMs.

Figure 11: Estimated Training Cost and Compute of Select AI Models



Source: Epoch, 2023 | Chart: 2024 AI index report

Consumer

Global perspective: The potential for AI in consumer applications is vast, with foundation models enabling both direct interactions on AI platforms and serving as bases for startups to create customized solutions. The vast range of AI use cases is rapidly transforming consumer experiences across multiple industries, with examples such as AI-powered home assistants, personalized travel agents, and adaptive learning platforms illustrating the potential of these technologies.

These diverse AI applications are not only enhancing existing products and services but also creating entirely new consumer experiences. As AI technologies continue to advance, we can expect even more innovative and transformative applications, reshaping how we interact with technology in our daily lives.

Local Funding: Consumer AI accounts for the smallest share among Israeli AI companies, representing approximately 1% of all private AI funding in Israel since 2022.

Israel's Potential: While Israel has not traditionally been a major hub for consumer applications, the country could leverage its strengths in AI-driven sectors like gaming. However, significant expansion in consumer-focused categories within the Israeli ecosystem is likely to remain modest. This is primarily due to the Israeli tech ecosystem's long-standing focus on B2B enterprise solutions and deep technologies.

Total Investments
(2022 – mid-2024)

~$115M

Consumer – Israeli Startups

Leora · Lightricks · RIVERSIDE · elementor · nagish

Quantum

Global perspective: Quantum computing has the potential to revolutionize AI by offering unprecedented processing power and speed, which can significantly enhance AI capabilities. Quantum algorithms could allow AI to solve complex problems more efficiently, particularly in optimization, material sciences, and pharmaceuticals.

Globally, countries and enterprises recognize the transformative impact of combining quantum computing with AI, which could lead to breakthroughs in sectors like healthcare, accelerating drug discovery and protein folding.

Investing in quantum AI technologies offers a strategic advantage for nations and businesses looking to lead the next wave of innovation. Advancing research, development, and collaboration in this area is essential for maintaining a competitive edge in the rapidly evolving digital landscape.

While quantum computing holds immense promise, the technology is still in its early stages, and practical applications may take years to develop as the field matures.

Israel's Potential: There are two main challenges that impact Israel's potential to lead the quantum revolution: firstly, the dominance of multinationals with extensive resources in a capital-intensive tech domain, and secondly, the extended timeline required to develop practical applications, as it will take years before reaching practical, ready-to-use applications. These factors together create a challenging environment for Israel, as its smaller ecosystem may struggle to match the sustained investment and long-term development efforts that are characteristic of leading players globally.

On the other hand, although the number remains relatively low at around a couple of dozen companies, the number of Quantum companies in the local ecosystem has tripled since 2018, indicating increasing traction in this sector.[23]

(23) Finder Spotlight: Israeli Quantum Computing Tech, Startup Nation Central

Summary and Conclusions

As AI technology evolves rapidly, a critical question has emerged in Israel: Can the country sustain its position in the global AI race amidst intensifying competition? The rapid expansion and diversification of Israel's AI ecosystem underscore a strong foundation, bolstered by significant funding and a high concentration of AI talent.

This report identified key opportunities within Israel's AI landscape, pinpointing segments where the country is uniquely positioned to excel. In particular, Vertical AI, AI and Data Ops, and Autonomous Enterprise stand out as areas where Israel's strengths are most pronounced. These segments not only align with Israel's existing capabilities but also offer the greatest potential for developing into global AI hubs. However, to fully capitalize on these opportunities, Israel must also tackle some key challenges to maintain its competitive edge.

First, talent retention and growth are crucial. In the coming years, Israel must develop strategies to keep top AI professionals within the country while also fostering the next generation of talent through robust educational infrastructure.

Second, although current funding levels are strong, Israel must work to sustain this momentum as the global market matures and competition intensifies. The insights from our mapping of Israel's AI market landscape highlight where founders and investors can focus to maximize impact and growth potential, ensuring that Israel leverages its strengths to remain at the forefront of AI innovation.

The coming years will be pivotal for Israel's AI sector. By leveraging its advantages and addressing challenges directly, Israel has the potential to not only maintain but enhance its position as a global AI leader. The talent is here. The capital is here. With a focused strategy, Israel is poised to emerge as a key player in the era of AI, giving rise to several leading global AI hubs and impactful companies across critical sectors.

F2 Venture Capital: Balancing AI's Bubble Risks With Its Potential

By Maor Fridman

General Partner, F2 Venture Capital

AI is quickly becoming one of the most impactful technologies of our time, and Israel is already playing a key role in shaping the future of this technology. As global investment in AI accelerates and the technology evolves, investors are sharpening their focus on the sustainability of these investments and how startups can get their foot in the game amongst the big tech players. As an early-stage investor in Israel, I've recently been exploring two key questions: Are we in an AI bubble, and where can Israeli startups take the lead in the AI era? Below I'll lay out some of my thoughts on these topics.

Are We in an AI Bubble?

The debate over whether AI investments are leading into a bubble has intensified recently. We've witnessed a rapid influx of capital into AI, especially in foundational models, driving valuations to unprecedented levels. Although this surge in investment has driven significant technological advancements, it has also sparked concerns about whether these investments can produce the revenue needed to justify them.

Since the rise of Gen AI and Foundation Models, Nvidia's earnings reports have set the tone on market sentiment. Their Q2 2024 earnings report underscored the rising expectations of AI investments, where even strong performance did not fully settle investor skepticism regarding the sustainability of AI-driven growth.

Recently, Meta's Mark Zuckerberg and Google's Sundar Pichai acknowledged Meta and Google were likely overspending on AI, but both emphasized that the risk of underinvesting could put them at a greater disadvantage. As Sundar Pichai put it, while companies might be heavily investing in AI, the bigger danger lies in falling behind by not investing enough.

There's no denying that the early phase of venture capital and big tech AI investments in model builders has been characterized by a frenzy—massive funding rounds, soaring valuations, and ambitious promises. Big tech companies like Google, Meta, Microsoft and others have been investing billions in AI infrastructure.

In the short term, it's challenging to justify the immense capital being funneled into AI infrastructure based on the current foreseen revenue. However, in the long run, we may be vastly underestimating the transformative potential and returns that AI could deliver.

As Foundation Models advance, their ability to handle increasingly complex tasks will grow significantly. Currently, models can manage tasks that take humans minutes to hours. However, as they progress over the next decade, they could potentially complete tasks that would take humans months or even years. This advancement will greatly enhance their economic value.

Startups stand to be significant beneficiaries of the fierce competition among tech giants. This intense competition is resulting in rapidly evolving models capable of handling more complex tasks at increasingly lower costs. As competition intensifies in the infrastructure layer, the application layer will continue to thrive, reaping substantial rewards from these advancements.

Where Can Israeli Startups Lead in the Era of AI?

For Israeli startups, this potential is particularly compelling in two key areas: specialized applications built on foundational AI models and the hardware and infrastructure that support AI development. As foundational models continue to improve, and the development subsidized by model providers, startups will leverage these advancements to enhance their products and services, focusing on niches that big players tend to avoid. The funding here will gravitate towards founders that can show a clear vision for valid business applications. Equally important is the growing demand for advanced computing power and specialized hardware, which are critical for supporting these complex AI models.

Israel is uniquely positioned to lead in the AI era, thanks to two key strengths: a mature tech ecosystem filled with founders who have the deep industry-specific knowledge needed to develop successful vertical applications, and a dense population of engineering talent capable of developing the hardware and infrastructure needed to support the advancement of AI technology at scale.

Vertical applications offer a significant opportunity for Israeli founders, and it's an area I've focused on for years—reflected in the fact that 70% of F2's portfolio is made up of vertical AI startups. Companies like Darrow, which uses AI to identify legal violations for potential class action lawsuits, and 4M Analytics, which applies AI to map underground surfaces, are great examples. These startups are led by teams with deep industry knowledge, driving real change and creating tangible value. I believe we're on the cusp of seeing more Israeli startups emerge as leaders in vertical AI across various industries.

As AI models become increasingly complex, they demand exponentially more computing power and robust infrastructure to ensure seamless deployment, scalability, distribution, and performance. The foundation of AI lies in computing capabilities, and Israeli engineering talent has continuously been at the forefront of developing and enhancing cutting-edge Application-Specific Integrated Circuits (ASICs). With the increasing demand for specialized AI hardware and infrastructure, Israel is already in a good position to generate several pillar backbones that will be instrumental in the future of AI.

What Lies Ahead?

The future of AI in Israel holds incredible promise, but it requires a thoughtful and strategic approach. In this post-correction period, capital efficiency is more critical than ever for founders building out new companies and for founders trying to keep up with the pace of AI technology. The potential for Gen AI to unlock new and unexpected markets is vast, giving Israeli founders a unique opportunity to take the lead in several key areas.

While the development of foundational models may be dominated by global tech giants, Israeli founders have a distinct advantage in vertical AI and the infrastructure layers of the AI tech stack. By harnessing local talent and deep industry expertise, Israeli founders have the opportunity to bring innovative solutions to market that address real-world challenges and deliver lasting value.

As we've seen with previous technological shifts, a new wave of Israeli companies is set to emerge as category leaders, with the potential to become some of the most successful stories in Israel's tech history. Now is the time to seize on this opportunity for founders and investors alike.

About The Author

Maor Fridman is a General Partner at F2 Venture Capital where he leads deep tech investments. With a strong technical background and an instinct for spotting groundbreaking innovations, Maor has earned a reputation as a trusted partner for founders with bold technological ambitions.

Prior to F2, Maor served for more than five years as a Senior Software and Hardware Engineer at Intel and Amazon (AWS). Maor holds an MBA from Tel Aviv University and Wharton Business School and a BSc in Electrical Engineering from Tel Aviv University.

About F2 Venture Capital

F2 is an early-stage VC firm that typically invests the first check into the most promising technology startups in cloud infrastructure and applied AI out of Israel. The partners have been investors, operators, and engineers in startups and multinational giants that have delivered outlier returns over the last 20 years. With $500 million assets under management, F2 has developed a systematic method for sourcing and backing exceptional founders before others are ready. For more information, visit www.f2vc.com.

Deloitte
CATALYST

The Rise of the Autonomous Enterprise

By Rotem Dolev and Yair Laron

Partners, Deloitte Israel

The Dawn of the AI Revolution

The advent of AI technologies, particularly since the rise of ChatGPT in 2023, has signaled the beginning of a transformative era. AI is no longer a futuristic concept; it is already happening. Organizations across various industries are adopting AI tools to enhance their operations, improve customer experiences, and drive innovation. However, despite the rapid advancements, AI adoption is still in its infancy. The journey towards fully autonomous enterprises is just beginning.

The initial wave of AI adoption has been characterized by the integration of AI into specific functions and processes. For instance, AI-powered chatbots are now commonplace in customer service, and predictive analytics are being used to optimize supply chains. These early applications demonstrate the potential of AI to revolutionize business operations. However, the full potential of AI is far from being realized.

As AI technologies continue to evolve and become more sophisticated, the scope of their applications will expand. The adoption of AI will increase, driven by the growing recognition of its benefits and the development of more advanced technological solutions. This progression will bring us closer to the era of Autonomous Enterprises, where AI will perform the work of entire organizations, transforming the way businesses operate.

These Autonomous Enterprises will be defined by a set of high-impact conversions, or new traits, that will enable them to operate autonomously. Becoming an Autonomous Enterprise will be inevitable in the future competitive landscape. It will enable companies to increase their sales while reducing costs, operating more efficiently, and fostering innovation.

The Traits of Autonomous Enterprises

Autonomous Enterprises could be characterized by a set of ten high-impact traits that will enable them to achieve near-full autonomy. These traits will redefine how organizations operate, interact with their environments, and create value.

1. Cognitive Automation: These organizations will employ advanced AI to enhance decision-making processes, with control flows being decided by large language models (LLMs). This will ensure more accurate and efficient decision-making, freeing up human employees to focus on strategic and creative tasks.

2. Augmented Tasking: Autonomous Enterprises will facilitate seamless interaction and cooperation through human-machine collaboration. This will enhance productivity and innovation, as humans and machines work together to achieve common goals.

3. AI Orchestration: These organizations will be highly interconnected, interacting openly and seamlessly with AI agents. This will remove departmental silos, fostering a more collaborative and efficient work environment.

4. Enhanced Predictability: By leveraging advanced predictive analytics and machine learning algorithms, Autonomous Enterprises will proactively anticipate future needs and initiate actions to meet objectives without external prompts. This will allow them to stay ahead of the curve and make informed decisions.

Deloitte
CATALYST

5. Self-Optimizing: The ability to rapidly adapt strategies and operations through continuous learning in response to internal and external changes will be a defining trait of Autonomous Enterprises. This will ensure sustained competitiveness and growth.

6. Advanced Simulating: Autonomous Enterprises will utilize advanced software and programs to simulate, compare, and project complex systems. This will enable them to optimize their processes, identify potential issues before they arise, and scale new capabilities.

7. Tech-First Landscape: Future enterprises will self-develop solutions, simplifying research and development with AI-driven tech capabilities. This will accelerate innovation and reduce time-to-market for new products and services.

8. Dynamic Work-Models: Autonomous Enterprises will hire cross-dimensional employees via new work models as experts, which will be easier to achieve. This will create a more flexible and dynamic workforce.

9. Digital Workers: The workforce of Autonomous Enterprises will be a hybrid of humans and digital humans (avatars) interacting and manifested through AI agents. This will enhance collaboration and productivity, leading to superior outcomes.

10. High Personalization: Tailor products and services narrowly to meet specific client needs, leveraging AI for customization. This will ensure that offerings are highly relevant and valuable to individual clients, enhancing customer satisfaction and loyalty.

The Israeli Startup Ecosystem: A Catalyst for the AI Revolution

Israel's technological landscape has long been recognized for its innovation and entrepreneurial spirit, particularly in the realm of B2B solutions and enterprise software. Over the past 25 years, Israeli tech companies have established themselves as leaders in developing enterprise software and solutions, earning a reputation as the crown jewels of the nation's tech ecosystem.

This deep-rooted focus on business solutions, coupled with substantial investments in enterprise software companies, positions Israel uniquely to spearhead the AI-driven transformation of enterprises into autonomous entities.

The Israeli ecosystem is making significant strides in advancing AI across key horizontal domains such as marketing, IT, and product development. These domains are poised to experience the most profound and rapid impact from advanced AI capabilities. From 2022 to mid-2024, these fields have accounted for over 35% of total private funding, underscoring the strategic importance and potential of AI in these areas. In the IT sector, AI is driving improvements in system optimization, enhancing efficiency and performance. Marketing functions are benefiting from AI through advanced data analytics and personalized strategies, enabling more targeted and effective campaigns. In product development, AI-driven code and validation tools are accelerating innovation and reducing time-to-market.

Moreover, the unique characteristics and current activities within the Israeli ecosystem are paving the way for dominance in AI Robotics and AI Agents development. These technologies are critical components in building autonomous enterprise capabilities. Numerous Israeli companies are leveraging these technological approaches to develop innovative product offerings in key categories within the Autonomous Enterprise domain.

Deloitte
CATALYST

This focus on AI Robotics and AI Agents is not just about technological advancement; it is about creating solutions that can fundamentally transform enterprise operations, making them more efficient, adaptive, and intelligent.

All these advancements collectively potentially position Israel in a strong position to lead the transformation to become Autonomous Enterprise. The country's emphasis on business solutions ensures that the AI technologies being developed are well-suited to drive the vision of autonomous enterprises. This vision includes cognitive automation, augmented tasking, AI orchestration, enhanced predictability, self-optimizing systems, advanced simulation capabilities, a tech-first landscape, dynamic work models, digital workers, and high personalization. These traits will enable organizations to achieve near-full autonomy, representing the next generation of business entities. With substantial investments and a robust ecosystem, Israel is well-positioned to enable global companies on their journey towards autonomy. Leveraging advanced technologies and innovative solutions, Israeli companies are at the forefront of enhancing enterprise functions and driving industry-wide changes. The rationale behind this leadership is clear: Israel's combination of strengths in B2B solutions, enterprise software, and a highly skilled talent pool creates a fertile ground for pioneering AI technologies that will shape the future of autonomous enterprises.

About The Authors

Rotem Dolev is a Partner at Monitor Deloitte. With over 10 years of experience in Deloitte Israel's strategy practice, she has worked with leading Technology, Media and Telecom companies. Rotem has led numerous engagements with software and hardware companies, supporting their core business decisions around growth strategies, business model transformations, demand analysis and opportunity assessments. She holds a B.Sc. in Industrial Engineering and an MBA from Tel Aviv University.

Yair Laron is a Partner at Deloitte Catalyst, leading Deloitte's Offering and Services for Startups and Emerging Growth Companies. For over 10 years, Yair has primarily served Israeli Startups in their growth journey and US Expansion. Yair Leads Deloitte Launchpad, a Program that is focused on helping Israeli Startups to scale to the US Market. Yair holds a BA in Accounting and an LLB in Law from Tel Aviv University.

About Deloitte Israel

Deloitte is the world's leading consulting and accounting firm and provides audit, tax, risk management, economic-financial consulting and management consulting services in the fields of strategy, operations, technology and human capital to clients in Israel and across the world. With our people in more than 150 countries around the world, we work according to international methods and standards that enable our customers to enjoy an extensive network, standardized work methods, and comprehensive knowledge bases.

Deloitte Catalyst helps enterprises, governments, and startups – from early stage to high growth – to innovate, scale and deliver transformative value faster. We take the isolation out of innovation by connecting you – and co-developing solutions – with a worldwide community of catalysts that accelerate how innovation transforms your business to lead how our world is changing. With presence in Israel, the United States, and expanding geographies, we have the leading network, relationships and capabilities that help make a global ecosystem of technologies and innovators locally accessible to deliver the unmet needs of your business and its customers.

Google Cloud

The Human-AI Partnership: A New Era of Innovation

By Will Grannis

Chief Technology Officer , Google Cloud

In 2024, the AI excitement of 2023 evolved into AI-enabled business results that matter. The reasons include advances in AI capabilities across the computing stack that allow organizations in any industry, geography, or phase of growth to access potential normally reserved for the few. With a lot of people working with these new capabilities, expect a lot of innovation and results.

Families of models like Google's Gemini are the strongest expressions yet of Gen AI's initial breakthrough, enabling people and devices to interact in natural human language. Computers guided by human prompting synthesize unimaginable amounts of data to digest information, make predictions, assist with tasks, or create novel content, from text-to-images to new computer code. Gemini takes things further than ever as the world's first native multi-modal model.

Before, you needed separate models to make sense of text, audio, code, images, mathematics, or video. Gemini can handle all of these all at once, much like the way humans simultaneously read, speak, and observe the world around them as they collaborate.

Many enterprises face the question, "What does Gen AI mean for our business, and what does it cost?" Will Grannis, Google Cloud's VP and CTO, is put in a position to understand where the technology is going (the convergence of AI assistants, platforms, and infrastructure), and how some of the world's preeminent organizations are already leveraging it. Broadly, Will sees three key pillars that will impact how companies understand, deploy and use Gen AI in 2024: Economics and energy; ubiquity and access; and trust and security.

Economics and energy

The viability of Gen AI in an enterprise often centers on key costs, in both financial and increasingly in environmental terms. Disciplined execution satisfies both the financial life of the business and the growing importance of adhering to regulation and corporate citizenship.

Gen AI uses immense computation, with cost and social challenges around energy use. Customers will require knowledge of how energy is managed for data centers and the flexibility to optimize production using the cleanest possible regions and zones. It will likely affect the practice of writing software and may employ carbon budgeting as part of the developer practice. Our customers want us to continue our significant sustainability efforts, and it's a safe bet that sustainable Gen AI will rise in demand and importance in 2024.

Google Cloud

The large language models, or LLMs, that power Gen AI require efficient training, fine tuning, inference, and life cycle management. Cost curves, identifying adequate models for the respective tasks and principled execution as projects scale up and when new models demonstrate their best fit. That's one reason why we've built an optimized AI infrastructure to power Vertex, our flagship AI platform.

Google incorporated AI into search in 2015. Experiencing this AI scale-out challenge first-hand — and knowing that historically, 50% or more of software costs are maintenance, including refinement — made efficiency an early priority for us. So we developed Tensor Processing Units (TPUs), which are specialized chips that handle AI workloads, including Gen AI, at a sharply lower cost and better energy use. Being great stewards of scarce customer investment dollars and a finite global energy supply are non-negotiable priorities for all modern organizations.

Ubiquity and Access

For many, the first experience with Gen AI will be in products like a tool for transforming old databases into new and more powerful products, an assistant to help manage your working life, or a bot offering high-quality answers to medical questions. These all rest on a new computing paradigm that uses more data, from more sources, in more flexible ways. The information in hospital billing, for example, might be aggregated to spot national health trends or repurposed to track how long it takes to deliver services in different locations, spotting nursing shortages.

This kind of thing will be possible using the right foundation models and tools, even in organizations with limited staff and resources. As it becomes ambient and ubiquitous, Gen AI won't mean a model, it will mean a helpful, possibly magical, experience.

There is also the issue of making sure Gen AI is accessible and useful to everyone in the marketplace, not just a few giants. Tools and platforms need to allow anyone to get started with AI, efficiently and responsibly, and these should be easy to find and surface. Some lines will blur, including moving more seamlessly between web-based experimentation environments to robust, platform-enabled environments with comprehensive security and assurances.

Additionally, Gen AI will have the effect of turning much software from a generic product into a product personalized to each corporate need and culture, even adapting to individual workers and customers. Grounding and tuning LLMs with proprietary corporate data allows the context and knowledge resident in a company to sharpen the performance of a model. The introduction of "parameter efficient fine tuning" techniques will make this tailoring much more realistic for a wider range of organizations.

Google Cloud

We'll see rapid advances in distillation, ensembles and federation (all emerging ways to better sharpen model outputs) as well as new creator tools that will open development to a wider set of workers. Organizations in highly regulated industries, like finance and healthcare, are likely to take a more restrained approach than businesses like gaming and media.

Trust and Security

Underpinning all of the Gen AI disruption will be the fundamental human and organizational need for trust in responsible providers. The healthcare example above is an exciting idea, but it reinforces the need for pervasive data encryption and AI-enhanced security to access data across several locations at once, including different clouds and on-premise systems, and effective cost monitoring.

Our latest Gemini-based advances in productivity, threat detection, and response take Gen AI to the forefront of enterprise security. If anything, this underlines the reality that threats are not going away and will probably acquire their own AI-powered capabilities. Security needs its own Gen AI tools as well, capable of spotting and explaining threats in a whole new way. Our domain-specific language model, SecLM, is trained on a strong range of security use cases, capable of instantly recognizing potentially malicious scripts and alerting teams to active threats.

Just as an individual decides whether to trust what they see, hear, and read based on a comparison to what they've experienced before, so will organizations start to index what they know. They can then make knowledge and data more accessible and useful in the creation of experiences, efficiencies, and differentiation that acts as a trusted extension of their hard-won credibility.

Evolving in 2024 and Beyond

We are now at an extraordinary new level of human-computer interaction. It is getting stronger even as it gets easier to use, both for individual developers and corporations. Far from ending jobs, we believe it will place new demands on human creativity, collaboration, and invention commensurate with the kind of challenges the world faces today.

Over the coming year and beyond, we'll see Gen AI become more useful, with greater transparency around how things work, what they cost, and how best to deploy them to create breakthrough experiences. In this way, hype will give way to genuine value and delight.

Google Cloud

About The Author

Will Grannis is the Chief Technology Officer at Google Cloud, where he leads a global team of technology executives and senior engineers who work hand-in-hand with Google's largest customers to enable industry and category-defining transformations while also catalyzing Google's approach to emergent imperatives like Gen AI, Web3, Digital Sovereignty and Sustainability. He joined Google in March 2015 as the first product success lead for Google for Work (now Google Cloud).

About Google Cloud

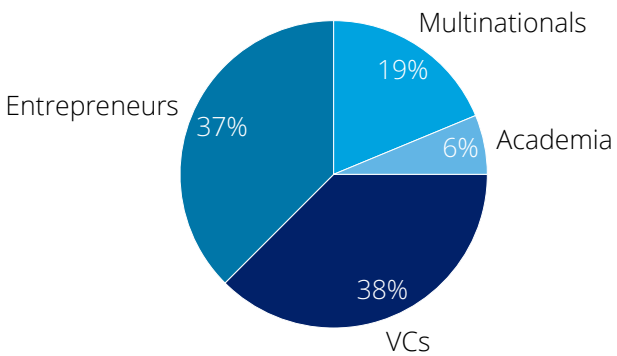
Google Cloud is the new way to the cloud, providing AI, infrastructure, developer, data, security, and collaboration tools built for today and tomorrow. Google Cloud offers a powerful, fully integrated and optimized AI stack with its own planet-scale infrastructure, custom-built chips, Gen AI models and development platform, as well as AI-powered applications, to help organizations transform. Customers in more than 200 countries and territories turn to Google Cloud as their trusted technology partner.

Appendix

Interviews

The insights in the report draw not only from external resources but also from numerous interviews with prominent industry stakeholders who shared their distinctive viewpoints on the AI tech ecosystem. Specifically, the insights in the final section, which maps out potential opportunities for the local ecosystem based on the proposed segmentation, are grounded in these discussions. These insights have been synthesized from a comprehensive analysis of the interviews, aiming to represent the consensus views that were expressed.

Figure 14: Interviews Reflect Diverse Stakeholders



Database Methodology

Upon finalizing the segmentation of the AI market landscape into large categories, we embarked on constructing the database from which we derived insights. Noting that major databases like PitchBook, IVC Data and Insights and Startup Nation Central Finder categorize a broad range of Israeli tech companies (approx. 1500-2000 active companies) where AI is a core technology, we adopted a bottom-up approach. To ensure the data's relevance, our focus was narrowed to Israeli AI companies that have secured VC funding over two and a half years, starting from 2022 up until July 2024. This includes tracking M&As involving these companies during the same examined period.

The database was methodically built by closely examining companies within the portfolios of the top 40 VCs in Israel, ranked by investment volume. We included only those companies whose primary technology is AI. This process was supported by using the databases of Startup Nation Central Finder, IVC Data and Insights as well as VC websites to ensure picking the relevant companies only and not missing any important companies.

After initially setting up the database and incorporating the most pertinent companies for our analysis, we customized the classifications to align with the AI categories we had previously defined in our segmentation. This required modifying the standard classification methods from the utilized databases to fit our suggested segmentation. Subsequent to these adjustments, we performed a quality assurance review of the database, sampling different companies to verify data integrity and refining data where needed. We also conducted a comparison of the figures in our database with those reported in various publications concerning the AI tech ecosystem in Israel and its overall investment trends.

Report Contributors

Deloitte

Rotem Dolev | Partner

Yair Laron | Partner

Hezi Katzav | Senior Consultant

Yarden Bar Tal | Consultant

Rona Fromchenko | Head of Marketing Catalyst, TMT sector

F2

Maor Fridman| General Partner

Karen Avidar | Content and Editorial

Roi Elad| Associate

Hila Yarom Roytman | Head of Marketing and Investor Relations

Google Cloud

Will Grannis| Chief Technology Officer

Orna Berry | Technical Director, Office of the CTO

Naama Yanko| Head of VC & Startup Business Development