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2022

IATI Israel's Life Science Annual Industry Report

Connecting Israel's Tech Ecosystem

IATI Members Bring Their Personal Take on the Israeli Life Science Industry

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IATI is the umbrella organization of Israel's tech ecosystem with the mission of generating impact across all value chains of the Israeli economy and society



 **Connecting Israel's tech ecosystem**

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Executive summary

IATI Israel's Life Science Annual Industry Report provides the broadest, deepest view of this thriving industry. The continuity, the annual comparison and the long-term view, all make the Report the most comprehensive take on the Israeli Life Science Industry. As the Israel's Umbrella Organization of the High-Tech & Life Science industries, IATI continuously acts to connect and promote the country's massive resources of academic and technological prowess towards creating a fertile ecosystem which will nourish growth in the coming years as well.

The Israeli life science industry kept growing in 2021 despite the COVID-19 pandemic. Continuance increase in the number of companies, stable maturity levels and innovation in new and developing sectors, all contribute to the industry's success and its significant role in the Israeli economy. 2021 was a record year in capital raising from VCs, public offerings and other investors with a challenging H1 of 2022 in these aspects.

After putting a spotlight on the industry's rising sub-sectors in our prior report, we focus this time on some new promising sub-sectors and following up on those we have identified in the past. This is in addition to the traditional sub-sectors discussed in our prior reports. The spotlight is put on those sectors not only because they are fast populated by new companies and attract more investments, but mainly as being leaders in innovation and multidisciplinary abilities, demonstrating the industry's ability to take advantage of the excellence in academic research, deep government support and the innovative ecosystem in Israel.

The healthtech industry has been experiencing dramatic changes due to the COVID-19 pandemic. From unique collaborations with players coming outside of the life sciences industry through fast paced adoption of digital health and remote health solutions, the pandemic had a huge impact on the industry. This also led to a record year when it comes to funding, as aforementioned.

The healthcare landscape is continuing to shift towards a more integrated ecosystem, converging biopharma, medtech, digital health and healthcare into a single bioconvergent industry. This emerging bio-convergent healthtech space holds great potential to make a transformative impact on health and healthcare practices. When it comes to holding a leading position in this emerging bio-convergent field, Israel has substantial strengths and capabilities. The new shifts and trends in the Israeli Health Tech space were all demonstrated for the first time in a conference driven by IATI by the industry and for the industry in continuation of the legacy of the MIXIII conference.

A broader discussion on Israel's value proposition in the bio-convergence sphere can be found in the "Bio-Convergence Revolution" chapter of this report.

The healthcare system is confronting skyrocketing costs, while the biopharma industry is coming up against aggressive pricing pressures. In an effort to meet these challenges, the healthtech industry is seeking new innovation growth engines.

Israeli life science companies can play, and in many ways already are playing, a leading role in facing the coming challenges. Fostering digital health innovation to address actual needs and not perceived ones, for example, can lead to significant improvements in integrating technological solutions, even from sources outside of traditional healthcare. We invite you to read insights from the field in the "How Can the Israeli Health-Tech Industry Reduce the Cost Burden" chapter and throughout the report.

We would like to warmly thank Omer Gavish, Partner, Pharmaceuticals & Life Sciences Leader at PwC Israel, for all the support in preparing this Report; Dr. Ami Appelbaum Chairman and Dror Bin, CEO of The Israeli Innovation Authority for supporting our Report and for partnering with us on promoting the industry throughout the year; Prof. Yossi Matias, Vice President, Engineering & Research, Google; Dr. Yair Schindel, Co-Founder & Managing Partner and the team of aMoon Fund; Oded Har-Even, Co-Managing Partner, Sullivan & Worcester Tel-Aviv; and Dr. Ruth Dagan, Partner, Head of Environment & Climate Change, Herzog Fox & Neeman.

Here's to another year of Israeli Health- Tech pride!

Karin Mayer Rubinstein

CEO & President

IATI

Yaacov Michlin

Chairman

MIXiii Health-Tech.IL

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IATI Members Bring Their Personal Take on the Israeli Life Science Industry

Dr. Amiram Appelbaum, Chairman of Israel Innovation Authority

There is no doubt that life sciences are one of the next growth engines for the Israeli economy.

With the coronavirus pandemic highlighting Israel's enormous economic potential and its top position in global industry, the life sciences sector (Bioconvergence) offers an opportunity not to be missed.

The National Bioconvergence Initiative, led by Israel Innovation Authority, will invest in and support all aspects of Bioconvergence, from science to technological infrastructure to talent and the private sector.

A key objective of the initiative is to build on Israel's strengths: (1) Talent - bringing Hi-Tech experience to recruitment and funding in order to establish bioconvergence's companies in Israel. (2) Multidisciplinary - combining engineering and biological research and development methods. (3) Integration - the combination of biology with technologies that Israel has a competitive advantage in, such as AI, software development, and data mining, with engineering technologies such as chip development, and novel materials.

Amir London, CEO at Kamada

The main strengths of the Israeli life science industry are the strong scientific foundation in Israel, the close ties between the academia, the medical community, and leading entrepreneurs, and the innovative "out of the box" startup mindset of so many Israelis.

The past year has been tough for many of the Israeli biopharma companies, mainly the publicly-traded firms who rely on the stock markets for their funding. Companies should not be discouraged during this challenging times but use the opportunity to focus their resources on their main assets, strategize their business model, look for partnering opportunities and streamline their operations. This is a time to reflect on Winston Churchill's famous statement: "Never let a good crisis go to waste!"

Anat Cohen-Dayag, President & CEO, Compugen

Scientific excellence and an entrepreneurial spirit are two of the major strengths of the Israeli life sciences industry, and what make Israel an attractive innovation center. With this infrastructure we now need to build life science product development capabilities to facilitate the transition from early-stage product opportunities to a more advanced product development industry, leading toward a sustainable biotech model.

Arie Melamed Yekel, General Manager, ALYN PARC Research Center & ALYNnovation at ALYN Hospital

The strength and power of civil society is measured by the way it addresses the weakest part of it. I believe that it is our moral obligation as the leaders of the Israeli life science industry, to ensure that technologies that addresses the needs of people with disabilities will get ample priority and resources. Many of these technologies will eventually become a mainstream solution as happened to the e-mail, the multi-touch and the word-prediction that are now used by all of us. I believe that in the coming years we will see many more health-tech companies that are also measured by their social impact.

Avi Wener, Country Director, Thermo Fisher Scientific Israel

The main strengths of the Israeli life science industry are the strong scientific foundation in Israel, the close ties between the academia, the medical community, and leading entrepreneurs, and the innovative "out of the box" startup mindset of so many Israelis.

Dan Shwarzman, CEO, Mindup

We are excited about and investing in bioconvergence innovations on the cusp of data and biology to create new biomarkers for diagnostics and personalized therapy, data-driven precision medicine, and faster and more efficient lab testing methods. We also are very pleased to see an uptick in interest in Israeli healthcare innovation from the UK, Europe and the Nordic countries, expanding the potential for collaboration and commercialization.

Daphna Murvitz, Co Founder & CEO, 8400 The Health Network

The strength of the Israeli HealthTech industry lies not only in the high quality translational research and inventive technology that fuel innovative cures, but also in the collaborative nature of our HealthTech ecosystem, which unlocks industry opportunities and healthcare solutions. The cross-disciplinary 8400 Health Network amplifies industry growth by fueling talent and capabilities, national infrastructure, and ecosystem innovation, locally and globally.

David ABraham, Managing Director, Robert Bosch Technologies Israel Ltd

The unique coupling of prominent academic strength – 5 of Israel's 12 Nobel prizes are in Chemistry, related to Life Sciences (Technion & WIS) – and an innovation-driven culture. Amalgamated with a seasoned pharmaceutical industry, intensive operational experience of hospitals and HMOs, and with the entrepreneurial skills of the technology ecosystem, it leads to a vibrant and well-diversified cluster, on a global scale, that is focused on Pharma, Medical Devices, Biotech and Digital Health. In numbers the life science sector is responsible for 15% of export, 20% of VC capital, 30% of IIA budget, and 50% of Academic IP. While we engineers like to think of Israel as an ICT country, it is no less a (Pro) Life Science country.

Didier Toubia, Co-Founder & CEO at Aleph Farms

Over the years, Israel gained a global leadership position in Life-Sciences innovation thanks to noteworthy contributions to groundbreaking discoveries with everlasting impact on people and the planet. Many companies, including Aleph Farms, established their technological competitive advantage in Israel thanks to the fruitful collaboration between the industry, the government, and the academy. The local well-structured ecosystem enables us and our peers to stay ahead of the curve and lead an ever-greater positive impact on both the people health and planet health.

Dror Bin, CEO, Israel Innovation Authority

Israel is well-positioned to lead the bio-convergence revolution! With hundreds of life sciences companies, unparalleled expertise in fields from AI to digital health to nanotechnology, and some of the world's leading universities, research institutes, and medical centers, the Start-Up Nation is incubating some of the most promising developments in bio-convergence and health-tech in general. It is our strong belief that using the local ecosystem relative advantages to diversify into a myriad of technology domains will help sustain Israel's leading position as a global innovation hub and ensure the high-tech's growth engine continue to benefit the local economy as a whole.

Prof. Dror Harats, CEO at vbl therapeutics

Our biotech ecosystem is mirroring Israel's unique mentality – highly educated people looking for innovative ideas by thinking outside the box, who are able to translate potential and vision into reality through commitment and perseverance spiced with some chutzpa.

Elad Maron, Country President, Novartis Israel

The Israeli life science industry is a strong driver of innovation. I strongly believe that via collaboration between all the relevant stakeholders – payers, technology companies, ,pharma companies & the patients themselves we can maximize the impact on patient lives.

Elka Nir, CEO , Carmel Ltd. and Carmel Innovations Ltd. (Haifa University)

The strength of the Israeli life science industry lies in the unique combination of leading innovative technologies (some of which are transformed from other fields), strong ecosystem (academy, hospitals, investors, large multinational companies) and most importantly talented and experienced people who are committed to advance game changing ideas in a very lean, entrepreneurial, and must-win spirit.

Dr. Eran Eden, Co-Founder & CEO at MeMed

The Israeli HealthTech industry benefits from a continuous influx of early stage life science innovation, generated by its leading academic and research institutes. Adding the Israeli cultural tolerance for risk taking and the healthy disregard of conventions into the mix, creates a fertile ground for early stage innovation and startups that have the potential to grow into meaningful sustainable companies.

Eyal Lifshitz, Co-Founder & General Managing Partner at Peregrine Ventures

Israel has long been recognized as a hub of ideation that creates ground-breaking technologies, especially in the world of healthcare. While global industry leaders acknowledge the country's innovative contributions through investments in Israeli companies, the establishment of local R&D centers and the purchase of Israeli technologies based on the quality of the product, speaks volumes. Over the last 30 years, almost all important new medical technologies that have entered the market have an Israeli connection. Israel should be proud of its unparalleled global life science contributions.

Prof. Eyal Zimilchman, Chief Transformation Officer and Chief Innovation Officer, Sheba Medical Center, Director and Founder of ARC

The strength of the life science industry in Israel lies on three causes: a strong research base stemming from leading Universities and Academic Medical Centers, an out-of-the-box thinking mentality that allows to overcome obstacles in development, and finally, high motivation to succeed and a "whatever it takes" mentality.

Frida Grynspan, Head of Lonza Collaborative Innovation Center, Israel

The major strengths of the Israeli Life Science Industry lie in: Tight ecosystem of academic researchers, entrepreneurs, start-up companies, investors and multinational biotech and pharma companies that encourage cross talk and fruition of ideas; A growing drive of academic scientists to apply basic research and innovative solutions to industrial and commercial challenges, leading to translational research and technology transfer; Unique funding structures and collaborative frameworks, of the Israeli Innovation Authority, which encourage and promote high risk projects and out of the box solutions to industry challenges including in the manufacturing of complex biologics.

Dr. Guy Ezekiel, MD-Co Founder & CEO- Zorro

Human capital is what makes the Israeli healthcare industry flourish. Researchers, engineers, clinicians and entrepreneurs – driven with a focused mission of changing the practice of medicine, creating groundbreaking inventions and companies.

Israel Makov, Chairman of BioLight Life Sciences Ltd., Chairman of Nextage Therapeutics and Chairman of QuantalX NeuroScience

The true potential of the Israeli life science industry lies in developing the competences needed to build start-ups into large and robust bio-pharma companies. These will become the industry pillars of sustainable growth and provide an ecosystem supporting the entire life cycle of innovation from bench to market.

Ittai Ben Zeev, CEO, Tel Aviv Stock Exchange

Israel is a key player in life sciences and technological innovation. This is reflected in the number of companies listed in TASE's Life Sciences Sector, which currently comprises 55 companies with a total market cap of NIS 47 billion. Over the past two years, 15 new biomed companies joined TASE, including 4 biomed R&D partnerships, raising a total of NIS 1 billion. It is only natural that the life sciences expertise and innovation offered by the Israeli companies is reflected at TASE, which is the natural venue for bringing together the Israeli public and Israeli life-sciences and high-tech companies. TASE is a significant milestone in the development of those companies in Israel, and it is the responsibility of the State of Israel to ensure that Israeli companies grow in Israel, growth that will enable both the State and the Israeli public to enjoy the fruits of success of the Israeli economy. TASE's outperformance of the world's leading exchanges, especially in these times of volatility in the global capital markets, highlights the advantages of listing on TASE and the protective blanket that TASE can offer to the listed companies

Dr. Itzik Goldwaser, President & CEO at Yissum Technology Transfer Company of the Hebrew University

Israel's life science industry remains at the forefront of impactful innovation with the support of academia. The world's greatest challenges are being investigated in Israel's top academic labs, where curiosity drives solutions. Here at The Hebrew University, our unique multidisciplinary research centers are at the core of disruptive science that influences the marketplace, with cutting-edge technologies, know-how and our diverse portfolio of startup companies, changing the world for the better.

Jonathan Berger, Passionate about creating FoodTech ventures, love to connect people and to build companies

Despite the challenges the financial markets are facing, it is clear that the food industry will need to go through a major change to enhance affordability, sustainability and to provide healthier products. Food security and stable supply chain of commodities, also provide vast opportunities to improve.

FoodTech has been playing a major role in addressing these needs and #FoodTechIL, the Israeli ecosystem, is well known by relevant partners around the world.

Keren Primor Cohen, CEO Ramot at Tel-Aviv University Ltd.

Academic research is the pillar of innovation in life sciences and the breeding ground for innovative ideas that disrupt the industry and the people who feed it. Keeping this foundation strong and fostering the relationship between academia and industry is critical, all players in the ecosystem must keep up their efforts toward this goal. Ramot will continue to support Tel Aviv University's ingenious and accomplished researchers by promoting their groundbreaking technologies.

Mati Gil, CEO, AION Labs

The bio-convergence revolution has fostered the ability to reimagine the way drugs are discovered and developed, utilizing advances in big data and advanced machine learning to push the boundaries of health innovation in a way not seen before. With investment, capital, talented scientists and great academic life-science research centers, Israel has all the necessary ingredients to become a world leader in developing the future of the bio-convergence space.

Michal Gindi, Head of Ventures & Innovation

These are special times. The post covid social changes as well as the Ukrainian war, brought work force dynamics and financial challenges to the entire world. On such circumstances Rise, the innovation arm of Assuta Medical Centers, is playing a key role in promoting collaborative work of health care providers ,academia ,technology industry and government helping to sustain the Innovative fostering environment ensuring that our future as a startup nation is kept

Dr. Miki Halberthal, Chief Executive Officer at Rambam Health Care Campus

Israel's life science industry is recognized worldwide for its impact on medical research and innovation. Core to its success is diversity and cross disciplinary collaboration, similar to those pursued at Rambam Health Care Campus. People are our, and Israel's, greatest resource. When every branch of the sciences works together for a common goal, great things can be achieved. In considering the needs of humanity with regard to healthcare, we have every right to have high expectations from the life science industry in Israel, because our ultimate goal is to develop timely answers to pressing clinical needs for all of humankind.

Miriam Shtilman Lavovski, Partner, Tal Ventures

Israel's flourishing life science industry enjoys a nourishing ecosystem of academic research and STEM education, teaching hospitals, a complementing software industry, multinational biotech companies and well-established governmental support programs.

This strong supportive and diverse ecosystem will allow Israeli biotech companies to overcome the challenges of the current economic climate.

Dr. Nadav Shimoni, Managing Director, Arkin Digital Health

2022 seems like a pivotal year for digital health, where the need for truly differentiated and scalable solutions who can help different stakeholders in the healthcare industry thrive is enormous. Per the massive tech talent in the Israeli industry, it can be a fruitful launch pad for such solutions as long as they will be developed for a clear business need.

Prof. Ofer Merin, Director General, Shaare Zedek Medical Center, Jerusalem

The strength of the Life Sciences field in Israel is in large part predicated upon the deep roots originating from our country's record of excellence in combining academic research with clinical medicine. Motivated by professionalism and innovation, we have succeeded in creating a globally-renowned climate for facilitating many groundbreaking research achievements. Leveraging an environment that promotes innovation, creativity and forward-minded thinking, we are witness to discoveries that are now benefiting people all around the world. So much of that success can be attributed to this close collaboration between healthcare and commercial industry, and in particular the more recent development of scientific incubators within our hospitals. These partnerships serve as a critical launch pad for further accomplishments that we know will benefit medical practice and research advancement for generations to come.

Omer Gavish, Partner, Pharmaceuticals & Life Sciences Leader, PwC Israel

The strength of the Israeli life science industry lies in the highly skilled entrepreneurs who bring unique and innovative solutions to unmet needs. Together with a mindset of flexibility and the ability to think outside the box, that is the basis for the success and continuance growth of the Israeli life science industry.

Dr. Osnat Luxenburg, Head of medical technology, health information and reaserch directorate, ministry of health

The past year has been characterized by a trend of recovery from the Covid-19 turmoil, which has brought forth many changes in our everyday life, from how we communicate to how we prioritize.

It has also made an impact on the Israeli health-tech ecosystem in general, and the Israeli health-tech regulator specifically.

We, at the Medical Technology, Health Information, Innovation and Research Directorate, have utilized this impact to enhance and promote our connections to the local ecosystem, allowing for a more direct and streamlined dialogue, but also understanding the need for a global presence – have generated and increased our global regulatory connections and partnerships. Joining more multinational work groups and international regulatory platforms, laying the foundation for information sharing and the exchange of best practices with world leading regulatory agencies, all the while using our local health-tech ecosystem as an example for the rapid evolvement of cutting-edge technologies.

We believe these partnerships with the local and international ecosystems will be one of the dominant driving forces behind positioning Israel as a world-leader in the health-tech sector

Prof. Ronni Gamzu, Director of the Tel Aviv Sourasky Medical Center

Post Corona the whole world face both a challenge and a threat as well as opportunity. To sink into recession or to 'tech-celerate' and achieve growth again. Israel should seize the moment with its knowledge and scholarship and the dynamic spirit of innovation and entrepreneurship.

All along conjoint with a startup ecosystem and proper public and private capital backbone. This is a propelling force for the Israeli economy and we must continue to put efforts to flourish it further.

Sagiv Lustig, Israel Open Innovation Manager, L'Oréal

Besides its scientific excellence, main pillar of Israel's high-tech leadership position, life science included, is its unique open culture specificities. Being diverse and nonhierarchical society, challenging and non-conformist ready to challenge conventions, grant autonomy, demonstrating permissive approach to risk and tolerance to failure; networking as a prime driver in general, with the Army's central role in particular.

Tsvika Ben Porat, CEO, BIRAD - Research & Development Company Ltd. Bar-Ilan University

The growth in big data and AI tools and innovations in the high-tech industrial sector, and their application in recent years in Biotech is a blessed process. Israel academic, industrial and governmental arenas have the right human resources, entrepreneurial spirit and innovative capacity to be a major partner in this process together with global colleagues sharing the same vision for healthcare improvement.

Yaacov Michlin, CEO, BioLight Life Sciences Ltd

The excellent academic research in the biotech field in Israel, together with superb engineering capabilities and its interplay with

Israel's entrepreneurial spirit are tremendous sources of potential in the Health Tech and Biomed fields in Israel. Over the years these factors have been supported

by government policy and private and public investments with a record year in 2021. The global trend of products and companies combining biology and engineering increase the attractiveness of Israel as one of the main global sources in these areas in various fields from cardiology to ophthalmology and others. The relatively lower cost and very efficient R&D in Israel combined with top level manpower in these areas will hopefully continue to attract global players to source products and technologies in Israel.

Yaky Yanay, CEO and President at Pluri

The Israeli life science industry thrives on a powerful combination of science, technology and innovation.

This combination, fueled by human dedication, can promote global wellbeing and sustainability, solving some of today's greatest challenges.

We are proud to take part in this inspiring process, leading our world towards a better tomorrow.

Yechezkel Barenholz, Head of Membrane and Liposome Research Lab, Hebrew University Hadassah Medical School

The advantages of the Israeli life science Industry lie in its strong qualities of innovation and entrepreneurship. But its biggest challenge is the lack of knowledge and personnel needed for companies to ripen from the stage of a start-up to a pharma company that get drugs approved by the FDA or EMA. This crucial shift involves turning from developing a prototype or reaching the start-up phase, to being a pharma / biomed company with strong abilities in regulation, patents and reimbursement. This traditional gap has to be closed in order for the Industry to grow up, and this can be done through business education of Israeli biomedical entrepreneurs.

Zohar Gendler, Managing Partner & CEO, NGT Healthcare II

The prediction of the trends of the world economy during 2022-2023 is challenging. The Israeli life-science industry needs to continue to build the companies, to create value but to be very careful and to keep low burn-rate.



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