



התנועה לאיכות ואריכות חיים (ע"ר)
Seniority-The Movement for
Longevity and Quality of Life



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Longevity Industry Ecosystem in Israel, 2023

*Science, Technology,
Medicine, Investment, Policy*

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Introduction

Aging Analytics Agency has released an analytical report "**Longevity Industry Ecosystem in Israel 2023**" in partnership with the **Biogerontology Research Foundation** and **Vetek (Seniority) Association**. This report is an extended and updated version of previous reports focusing on the Longevity Industry Ecosystem in Israel.

The report provides a comprehensive Longevity Industry Ecosystem Framework that helps to cover the full landscape of companies, investors, and research and development activities in Israel. The purpose of the report is to provide insight into the Longevity Industry Ecosystem in Israel, which includes companies and organizations working on technologies and treatments to extend human lifespan and improve the quality of life for the elderly.

By offering a comprehensive overview of the industry landscape in Israel, the report aims to inform and guide investors, entrepreneurs, and policymakers in the field.

In addition to the annual report, the Aging Analytics Agency has also developed a dedicated **IT Platform** that aggregates materials on the Longevity ecosystem in Israel. This platform serves as a hub for resources and information related to the Longevity Industry Ecosystem in Israel. The development of this platform reflects the Aging Analytics Agency's commitment to advancing the Longevity Industry Ecosystem in Israel and globally.

"**Longevity Industry Ecosystem in Israel, 2023**" report gives a comprehensive overview of the market of advanced medicine and innovative biomedical novelties in Israel.

All the technologies described in the analytical case study are already in use, available and ready for further research.

This report includes a detailed **quantitative analysis** of the market trends over the **last few decades** to identify the prevailing opportunities. The local market is segmented and analysed according to **product type, material, and application**. Market estimations are based on a comprehensive analysis of the key developments in the industry. An in-depth analysis based on **geography** helps to understand the regional market to assist in strategic business planning.

Against this background, a separate chapter provides an overview of several advanced scientific and technological **convergences between ageing and organ healing**, as well as how the **specific therapeutic approaches are used to protect and preserve the health and functionality of human body** intersect with Practical Healthy Human Longevity. As an overall product, this analytical case study offers a one-stop expert evaluation of a novel and dynamic industry with high growth potential.

Executive Summary

Israel is one of the leading nations in technology innovation in the world today, with one of the highest venture capital investment on a per capita basis. Its high-tech ecosystem attracts billions of dollars in funding every year. Multinational corporations, such as Microsoft, IBM, Intel, Samsung, Cisco, Siemens, and SAP, have invested in research centres and companies in Israel, with Tel Aviv ranking amongst the top tech innovation clusters worldwide. So what are the reasons behind Israel's success as a tech innovation nation?

This report is expanded version of **“Longevity Industry in Israel, Landscape Overview 2019”** and provides the reader with an entry point to answer this question.

We also examine the potential obstacles to the growth of the Longevity Industry Ecosystem in Israel. There are plenty of signs that the healthcare sector will be able to overcome these challenges and grow stronger than ever before.

Main Features of the Analytical Case Study

Robust Market Players Database

Overview of Clinical Trials in all Phases

Comprehensive Analyses of the R&D Sector

In-Depth Study of Biopharmaceutical Market Players

Unique Advanced Clinics Services Examination

Innovative Digital Health Solutions Representation

Approach to the Report

Database

1,000
Companies

680
Investors

40
R&D Centres

The database was formed by:

- **identifying the healthcare companies, institutes, clinics, diagnostic centres, biopharma companies, and CRO** in Israel;
- **distinguishing the investors** who contributed money to these companies.

Applied Research and Analytics Methods

Descriptive Analysis

Mixed Data Research

Data Triangulation

Comparative Analysis

Qualitative Data Collection

Data Filtering

Data Sources

Media Overview
(Articles, Press Releases)

Industry-Specialised Databases

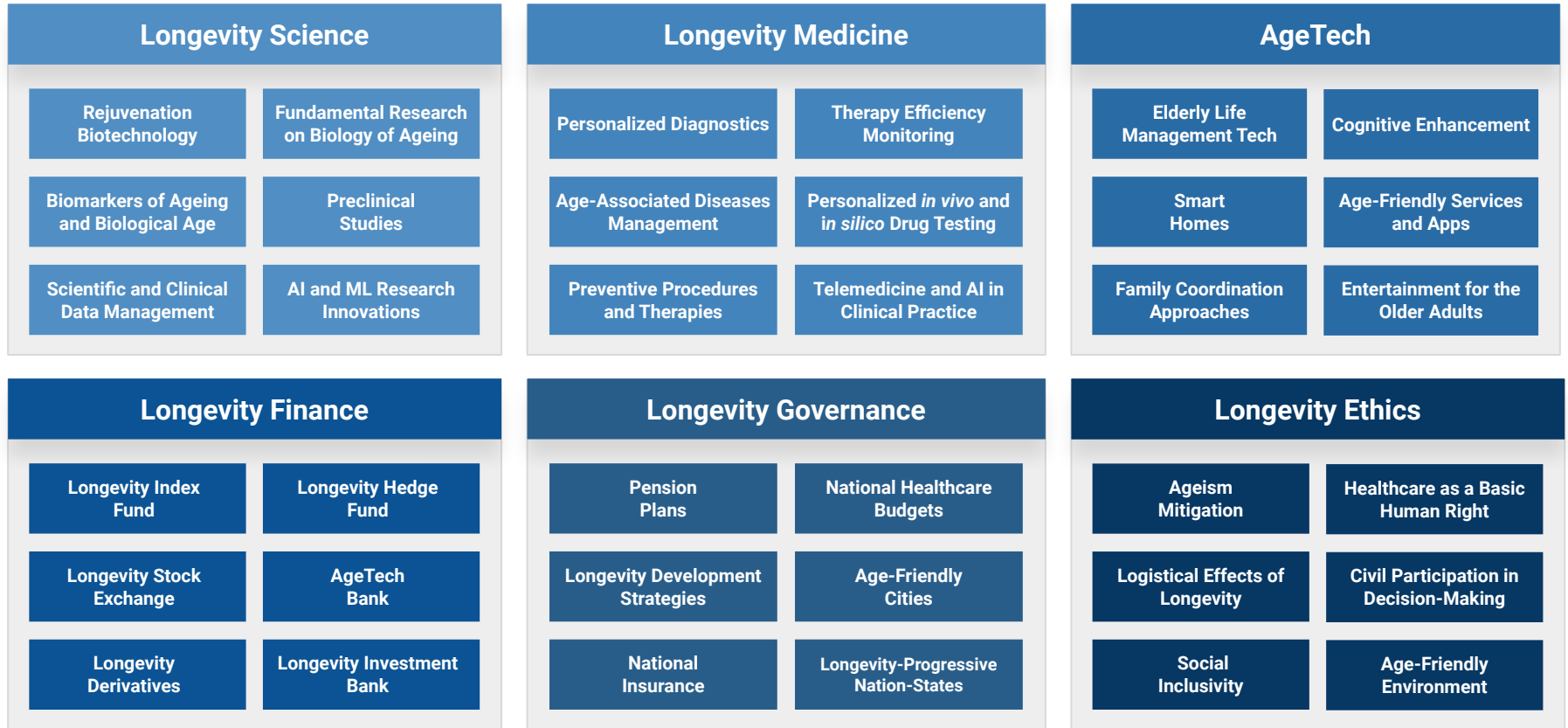
Patent Analysis

Publicly Available Sources
(Websites)

Industry Reports and Reviews

By utilizing various research methodologies and analytical techniques, the analytical report provides a comprehensive overview of the healthcare industry in Israel. However, it should be noted that this approach does have limitations, particularly when relying on publicly available data sources and conducting secondary research. While Ageing Analytics Agency cannot guarantee the quality of the secondary data presented in the report, we have taken measures to mitigate the associated risks by using different analytical techniques and cross-checking data. We want to clarify that our analysis did not intentionally exclude certain companies, nor were they excluded as a result of the data-filtering method or any encountered difficulties. The primary reason for their exclusion was due to incomplete or missing information in the available sources. Longevity-focused companies are identified as not only those that directly head their efforts and activities into the extension of healthy life-span or struggle with aging but as those that have the potential of becoming longevity-focused entities in the near future which is associated with the general high pace of industry development.

Longevity Industry Ecosystem Framework



Collection of Longevity and BioTech Frameworks

By Market Player	By Industry		
	R&D	Advanced Cosmetics	Longevity Biomarkers
BioTech	Age Tech	Longevity Gene Therapy	Space Medicine
Manufacturer	AI for Longevity	NeuroTech	Telemedicine
AI Developer	FemTech	P4 Medicine	Wellness & Fitness
Healthcare	Geroscience	PharmTech	Clinical Data Management
B2B Service	By Technology		
	Small Molecules	Wireless	Diagnostic Panel
	Biologics	Drug Delivery	Online Platform
	Cell Therapy	Formulations	Mobile App
	Gene Therapy	Medical Devices	Service
	Vaccines	Organ Engineering	

By Industry	
<p>P4 Medicine</p> <p>P4 Medicine aims to integrate various information (genetics, lifestyle, and environmental factors) to develop personalised prevention and treatment strategies that are tailored to an individual's unique genetic and environmental makeup.</p>	<p>Space Medicine</p> <p>Space medicine studies the effects of space travel on the human body and develops countermeasures to mitigate those effects during space missions.</p>
<p>PharmTech</p> <p>PharmTech is an interdisciplinary field that applies advanced technology and processes in the development of new drugs, delivery systems, and dosage forms, as well as in ensuring the quality and safety of existing drugs.</p>	<p>Telemedicine</p> <p>Provision of healthcare services using telecommunication and information technologies, such as video conferencing, remote monitoring, and mobile health applications, makes healthcare more accessible and convenient for patients and providers.</p>
<p>Regenerative Medicine</p> <p>Regenerative medicine aims to replace or regenerate damaged, diseased, or missing tissues or organs by using advanced technologies, such as stem cells, tissue engineering, gene therapy, and other cellular therapies.</p>	<p>Wellness and Fitness</p> <p>Wellness and Fitness technologies, such as fitness trackers and smartwatches, as well as mobile apps, online platforms, and other digital tools, help people achieve and maintain optimal health and fitness.</p>
<p>Clinical Data Management</p> <p>Different software tools and systems are used to collect, process, manage, and analyse clinical data to ensure data accuracy, completeness, consistency, and quality.</p>	

By Technology	
<p>Small Molecules</p> <p>Small-molecule drugs are low molecular weight organic compounds that can enter cells easily and interact with specific biological targets to produce a therapeutic effect. They are typically less than 500 Daltons in size and are often synthesised chemically.</p>	<p>Gene Therapy</p> <p>Gene therapy involves altering or manipulating the genes within a person's cells to treat or prevent a disease. The aim of viral and non-viral gene therapy is to address the root cause of a disease at the genetic level rather than simply treat its symptoms.</p>
<p>Medical Devices</p> <p>Medical devices, such as instruments, machines, and implants, are used in the diagnosis, treatment, or prevention of diseases. They range from simple tools like blood pressure cuffs to more complex equipment such as MRI machines and artificial organs.</p>	<p>Vaccines</p> <p>Vaccines are a critical tool in preventing the spread of infectious diseases and protecting public health. Vaccines are biological products that stimulate the immune system to produce an immune response against specific infectious diseases.</p>
<p>Cell Therapy</p> <p>Cell therapy involves the use of cells (stem cells, NK cells, CAR) either from the patient's own body or from a donor, to repair or replace diseased cells or tissues. Cell therapy has the potential to treat cancer and autoimmune disorders.</p>	<p>Wireless</p> <p>Wireless medical technologies use wireless communication to monitor, diagnose, and treat medical conditions. Examples include wearable health monitors, remote patient monitoring systems, wireless medical implants, and telemedicine platforms.</p>
<p>Drug Delivery</p> <p>Drug delivery technologies include various approaches, such as nanoparticles, liposomes, viral capsids, microspheers, implants, and patches that are designed to improve drug efficacy, reduce side effects, and increase patient compliance.</p>	

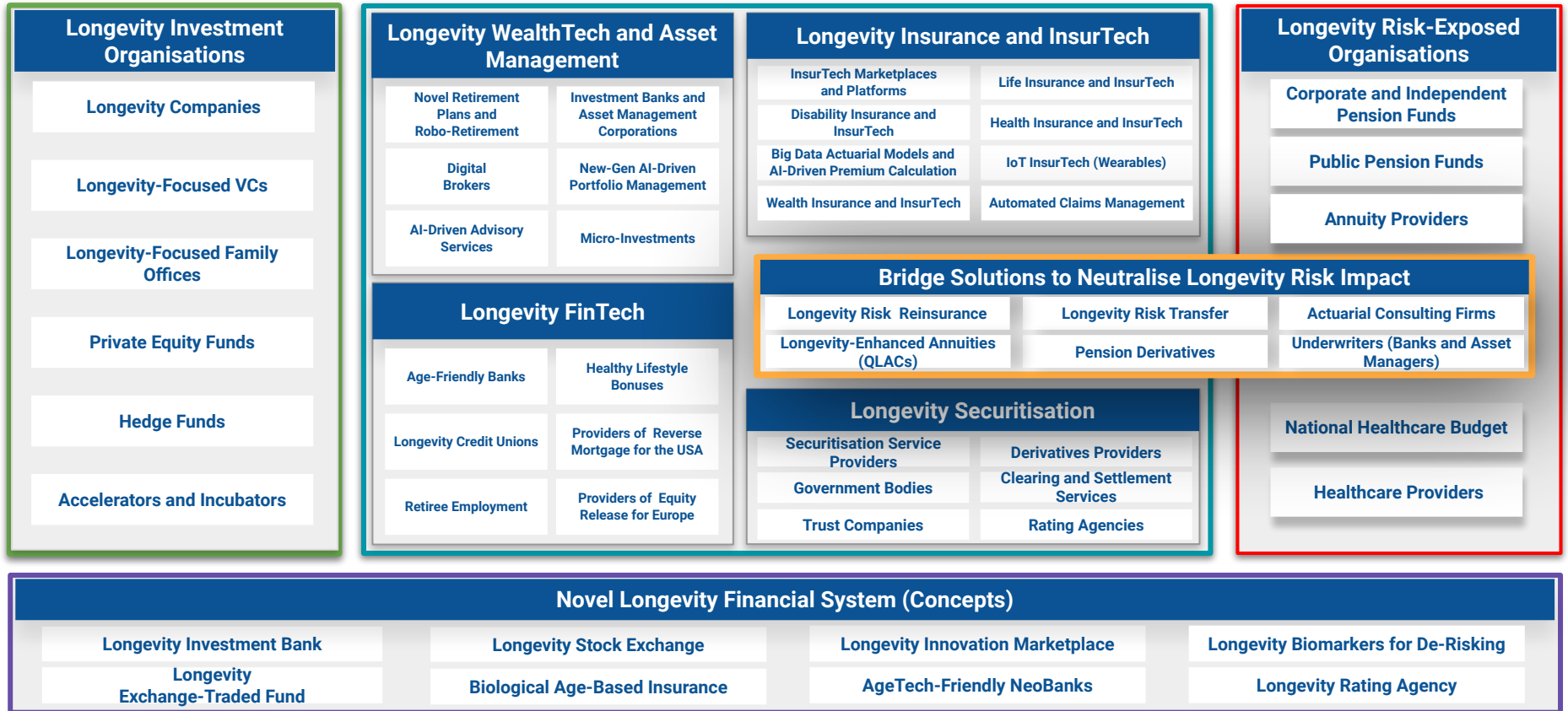
By Technology	
<p>Formulations</p> <p>New drug formulations (polymeric nanoparticles, nanospheres, liposomes, phytosomes, etc.) aim to enhance the therapeutic benefit of drugs while minimising side effects and improving patient compliance.</p>	<p>Diagnostic Panel</p> <p>Diagnostic panels measure the levels of various parameters in a patient's sample to help diagnose or monitor various medical conditions. They can include whole genome sequencing, multi-omic, epigenomic, and biochemical biomarker panels.</p>
<p>Biologics</p> <p>Biologics are typically large, complex molecules, such as proteins, antibodies, or nucleic acids, used to treat or prevent a variety of diseases. They are produced through biotechnological processes, such as gene cloning, recombinant DNA technology, or cell culture.</p>	<p>Online Platform</p> <p>Medical software products provide medical advice, consultation, and/or treatment to patients. These platforms may offer services such as telemedicine, e-prescriptions, health monitoring, doctor consultations, appointment scheduling, and medical education.</p>
<p>Organ Engineering</p> <p>Organ engineering involves designing and creating functional tissues and organs (3D-printed scaffolds, organ buds, engineered tissues, xenografts, artificial organs, etc.) in the laboratory to replace or repair damaged or diseased organs.</p>	<p>Mobile Apps</p> <p>Mobile apps can promote or support health and wellness-related activities. Examples of health mobile apps include fitness tracking apps, medication reminder apps, mental health apps, and nutrition apps.</p>
<p>Service</p> <p>Numerous services need to work together to provide individuals with the resources they need to achieve and maintain good health, prevent illness, and manage chronic conditions. This can include primary care, surgery, diagnostics, medication management, etc.</p>	

By Industry	
<p>Advanced Cosmetics</p> <p>Advanced cosmetics refers to cosmetic products and procedures that use innovative technologies and scientific methods to provide improved personalised results.</p>	<p>Geroscience</p> <p>Geroscience aims to understand the biological mechanisms of aging and age-related disease with the goal of developing interventions to extend lifespan and lifespan.</p>
<p>Age Tech</p> <p>Technology products and services designed for use by older adults to help them maintain their independence, health, and quality of life. These can include wearable devices, health monitoring systems, and communication tools.</p>	<p>Longevity Biomarkers</p> <p>Longevity Biomarkers are biological measures or indicators (e.g. levels of certain hormones or proteins) that can predict an individual's risk of developing age-related diseases and their overall lifespan.</p>
<p>AI for Longevity</p> <p>AI technologies help to understand the biological processes of ageing to create personalised approaches to disease prevention and treatment, and to optimise healthy ageing.</p>	<p>Longevity Gene Therapy</p> <p>Targeting specific genes associated with ageing and modifying them to enhance their function or reduce their harmful effects have the potential to significantly improve human health and longevity in the future.</p>
<p>FemTech</p> <p>FemTech describes technology products and services that specifically cater to women's health and wellness needs, including reproductive health, fertility, pregnancy, maternal care, and general healthcare.</p>	<p>NeuroTech</p> <p>Neurotechnologies, such as brain-computer interfaces, neural implants, neuroimaging, and neurostimulation, advance our understanding of the brain and help to develop new treatments for neurological and psychiatric disorders.</p>

By Market Player	
<p>R&D</p> <p>R&D institutions play a critical part in advancing Longevity. They are involved in the study of the fundamental background, developing new approaches for treatment of chronic disease, medical devices, AI, and human Longevity improvement.</p>	<p>AI Developer</p> <p>A growing number of companies leverage AI technologies to design technology solutions for drug discovery and improve quality of care and clinical efficiencies.</p>
<p>BioTech</p> <p>Commercial biopharma companies provide research in preclinical and clinical stages and develop therapies and devices focused on allowing people to live longer and healthier lives.</p>	<p>Healthcare</p> <p>Medical care and support services offered by clinics, hospitals, and diagnostic labs are aimed at promoting health, preventing disease and treating age-related conditions in older adults with the goal of extending healthy lifespan.</p>
<p>Manufacturer</p> <p>Manufacturing companies make a wide range of products – from artificial joints to imaging and surgical equipment – and play a crucial role in developing new medical technologies that can improve the ability to diagnose and treat illnesses.</p>	<p>B2B Service</p> <p>B2B services involve providing technological or manufacturing solutions to other organisations. They are typically offered by contract research/manufacturing organisations, suppliers of raw materials, chemicals, biological products, or equipment.</p>

www.frameworks.technology/longevity-and-biotech-industries

Longevity Financial Industry Framework



Longevity Industry in Israel 2023

Longevity Finance

PharmTech

Longevity Biomarkers

Companies - 1000
Investors - 680
R&D Centres - 40
Medical Centres - 40
Non-Profits - 12

Wellness & Fitness

NeuroTech

AgeTech

Regenerative Medicine

Science and Medicine

Clinical Data Magement

Advanced Cosmetics

FemTech

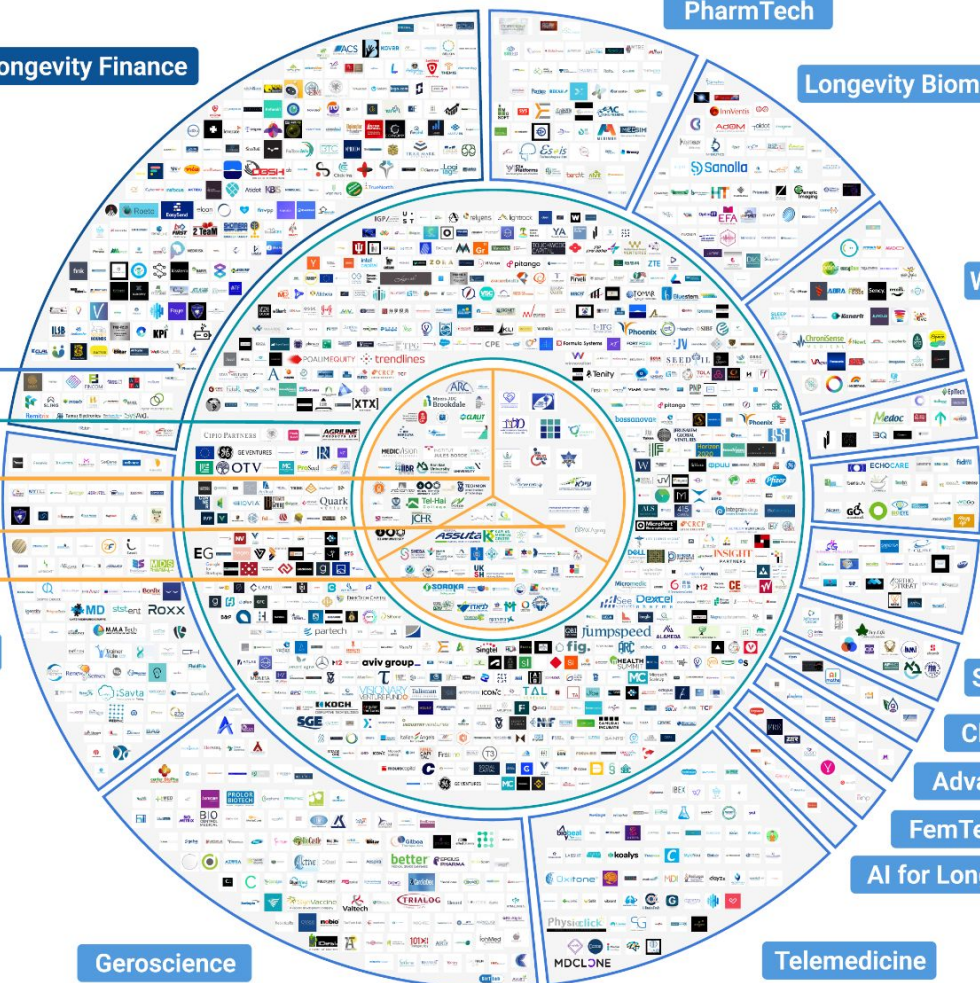
AI for Longevity

Telemedicine

Geroscience

- Companies
- Investors
- R&D Centres
- Non-Profits
- Medical Centers

P4 Medicine



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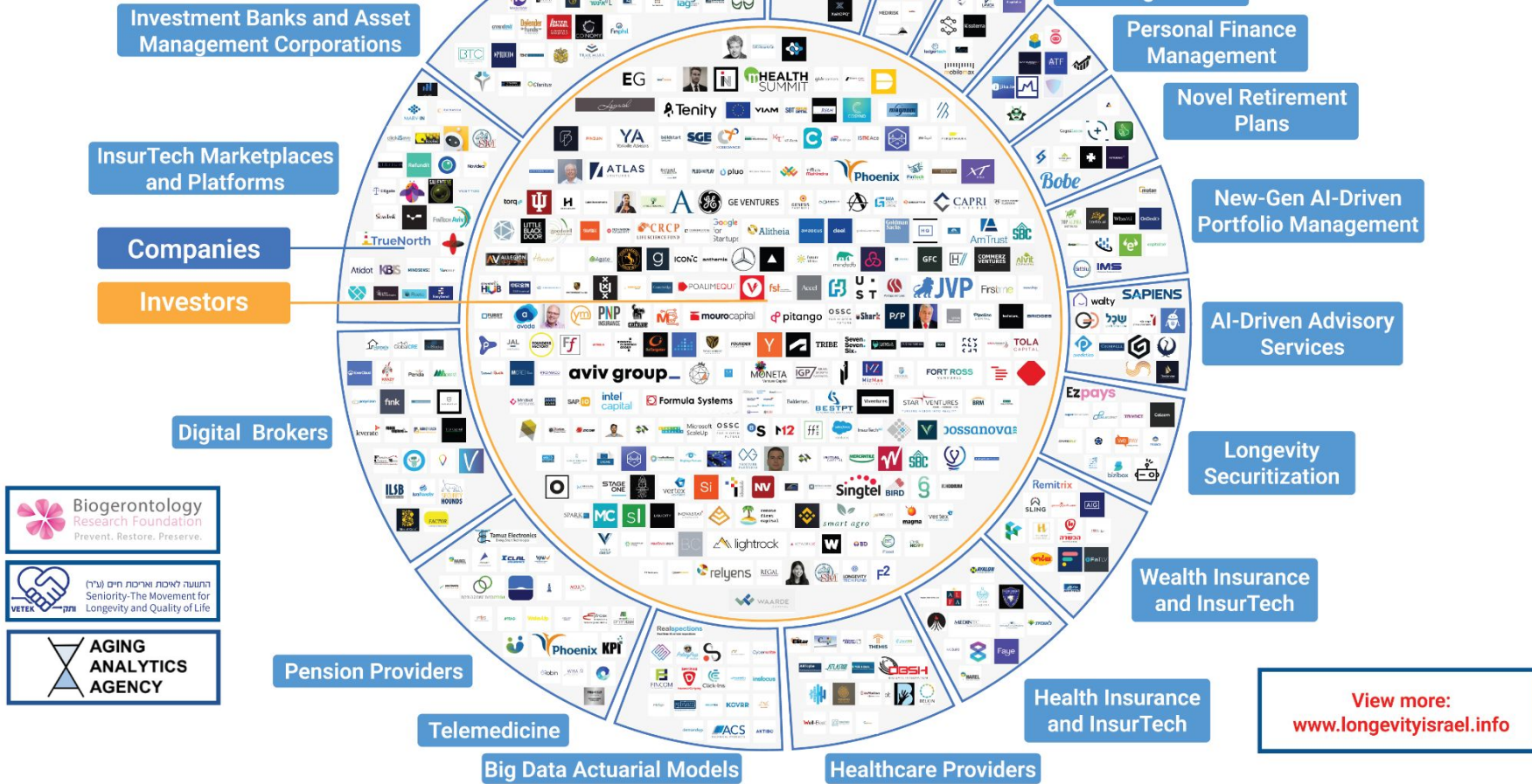
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Longevity Financial Industry in Israel 2023

Companies - 250
Investors - 260



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Top-200 Longevity Industry Companies in Israel 2023



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Drug Development

Progressive Wellness

Gene Therapies

AgeTech

Neurotech

Others

Progressive R&D

Implant & Prosthetics

Cell therapy

Diagnostic

The State of Longevity Companies In Israel, 2023

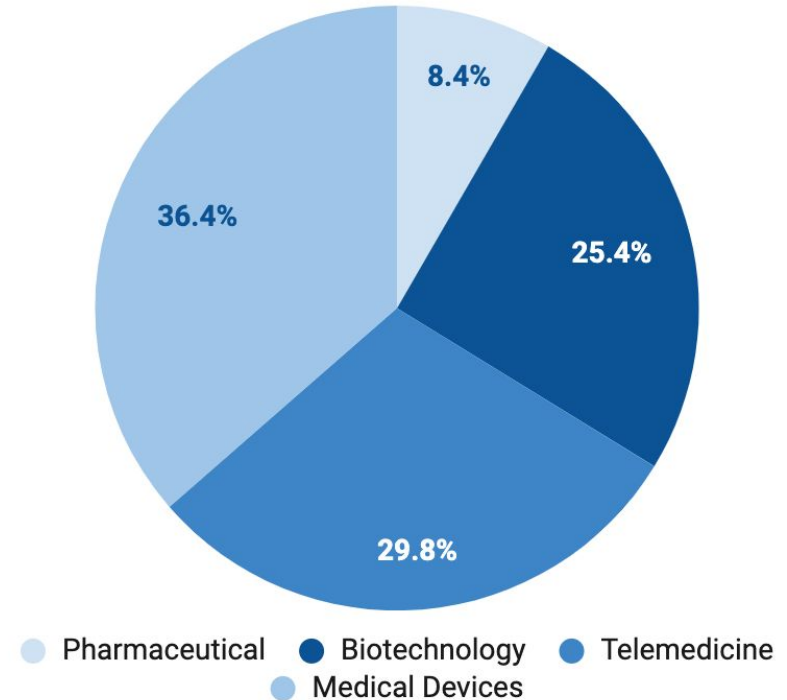
The Israeli life sciences industry is comprised of four main divisions: **Telemedicine**, **Medical Devices**, **Biotechnology**, and **Pharmaceutical therapeutics**.

In the past and even today, the **Medical Devices** sector is dominant, accounting for **about 36%** of Longevity R&D companies in 2021 although there was a 4% decrease from 2020.

Telemedicine, the second largest subsector, has a **30% representation** in the life science companies, which saw a 3% increase from 2020, making it the fastest growing subsector in 2020 and 2021.

Meanwhile, the number of companies in **Biotechnology** and **Pharmaceuticals** has remained consistent with the 2020 levels. In the first 9 months of 2022, the distribution of the subsectors has remained unchanged from 2021.

Israel's Longevity Industry Subsectors, 2023



Criteria for Selection of Companies

Source for Selection of Companies & Clinics

The clinics were selected from amongst medical institutions, hospitals and clinics, information about which can be obtained from open sources, verified databases of government and public organisations, and international and country ratings of clinics. We select the best certified clinics that meet international standards, employ highly qualified personnel, use modern technologies and research methods, utilise cutting-edge equipment and have a well-developed infrastructure.

Categorisation

The criteria used for selecting clinics can be attributed to the following main groups:

- Specialisation (target of treatment);
- Diagnostic methods (personalised diagnostics);
- Technologies and treatment methods;
- Equipment;
- Medical staff (composition);
- Each of these groups can be broken down into subgroups.

Inclusion Parameters for Companies & Clinics

The list of Longevity Companies and Clinics selection criteria is being constantly updated. New criteria identified in open sources (e.g. publications, databases, the Internet, expert opinion, etc.) are being constantly added to it. Below are the examples of groups of criteria, each of which can be applied to Longevity and Precision Medicine Clinics: (1) Age-related diseases; (2) Systemic inflammation; (3) Aesthetic medicine; (4) Regenerative medicine; (5) Cell technologies; (6) Gene Therapy.

Exclusion Parameters for Companies & Clinics

In list of Longevity Companies and Clinics we did not include clinics that do not ones that are specialise in the prevention and treatment of aging manifestations (e.g. surgical, or pediatric ones), as well as clinics practicing traditional and alternative medicine) are excluded from consideration. We also exclude companies that produce food, provide catering service, technologies for smart homes, security and personal safety, medicine and beauty product retailers (pharmacies, e-commerce, etc.)



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Longevity Science in Israel 2023



Key R&D in Israel, 2023

Biotechnology



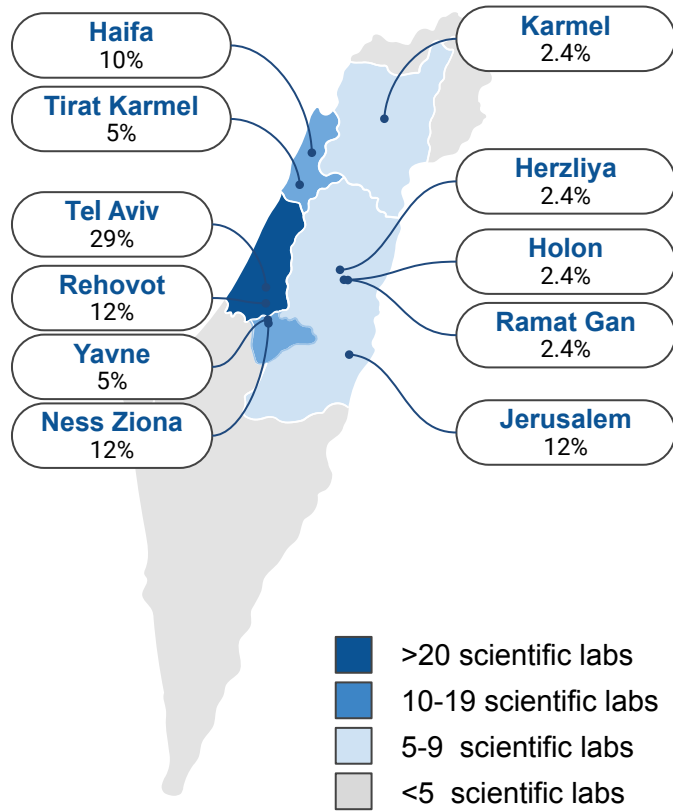
Biobanks & Cell Therapy



Medicine



Geography of R&D and Scientific Labs in Israel, 2023



These percentages represent the geographic distribution of R&D centres in Israel. The city of Tel Aviv has the largest concentration of R&D centres, accounting for 29% of the total. Jerusalem, Ness Ziona, and Rehovot each have 12% of the R&D centres while Haifa has 9.8%. Tirat Carmel and Yavné each have 5% of the R&D centres.

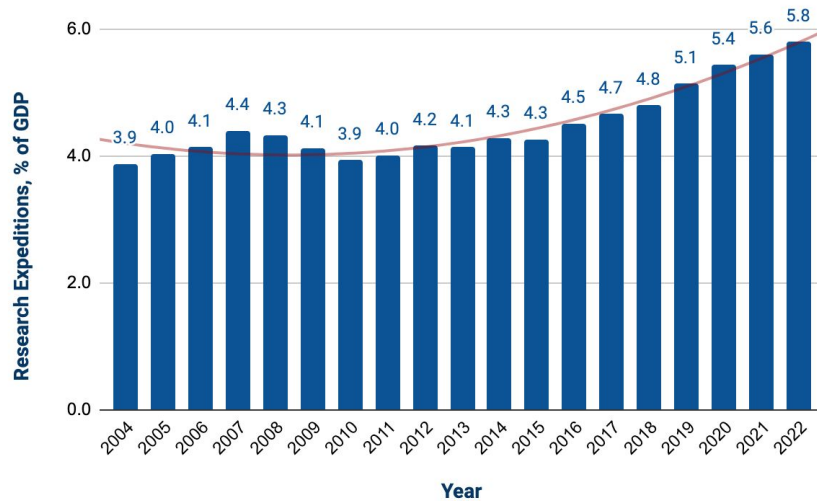
The biggest Longevity research centre is Shaare Zedek Medical Centre, Rabin Medical Centre, Rambam Healthcare Campus, and The Chaim Sheba Medical Centre.

There are also commercial research labs and BioTech companies, such as Neotx Therapeutics, Metabomed, MediWound, etc.

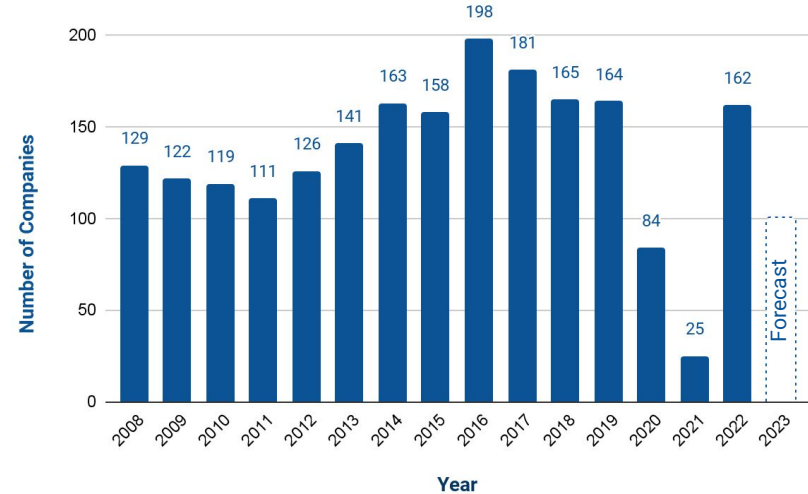
IT companies play an important role in the Israeli R&D market development. They create digital products for diagnostics and telemedicine: Healthy.io (deep diagnostics), Cordio Medical (vocal biomarkers), Protai (AI for proteomics), Memed (AI for proteomics), and Neuralight (ocular metrics).

Expenditures for Research and Science

Total Expenditure for Scientific Activities



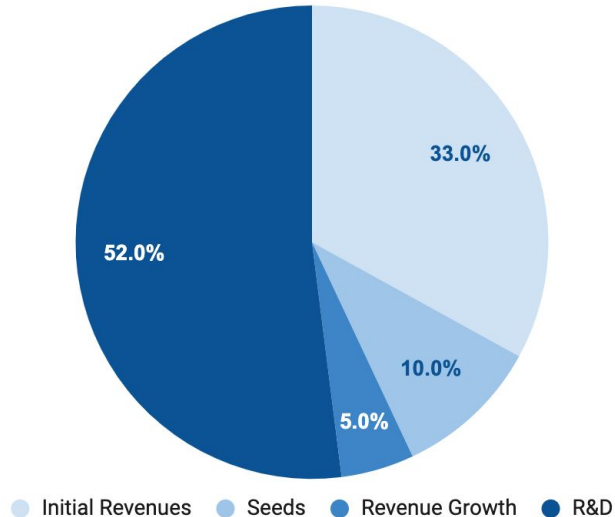
Number of Longevity companies in Israel, 2008-2023



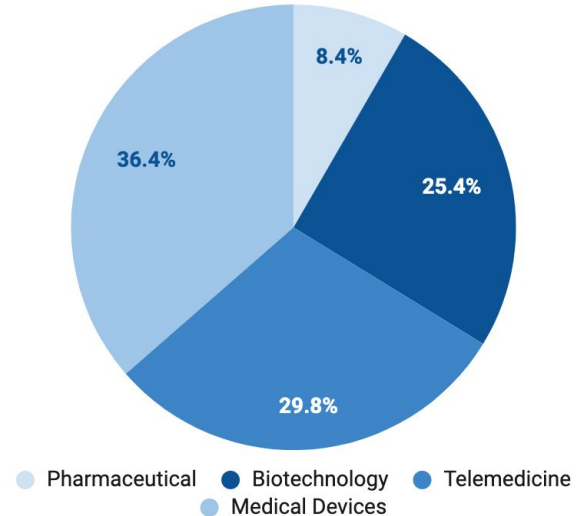
Israel boasts a sophisticated and established National Science and Innovation System. The private sector plays a crucial role in the decision-making process of research policy at various stages. Due to the scarcity of national resources, Israel positions itself as a "brain" and knowledge-exporting economy, with a strong international orientation both in its scientific community and its economic activities. National expenditure on civilian R&D in 2021 amounted to NIS 87.7 billion – 5.6% of the GDP (5.8% in 2020). The national expenditure on civilian R&D per capita in Israel, in 2021, amounted to \$2,469.3 (at current prices, in PPP terms of GDP). Approximately 1,800 life sciences companies are active now in Israel, employing more than 83,000 people all across the country.

The Maturity Stage of Longevity R&D Companies, 2023

Number of Active Israeli Life Science Companies by Stage



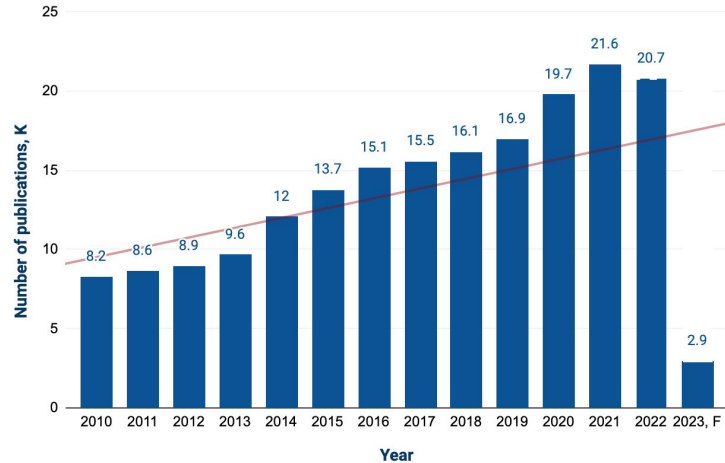
Israeli Longevity Industry Subsectors, 2023



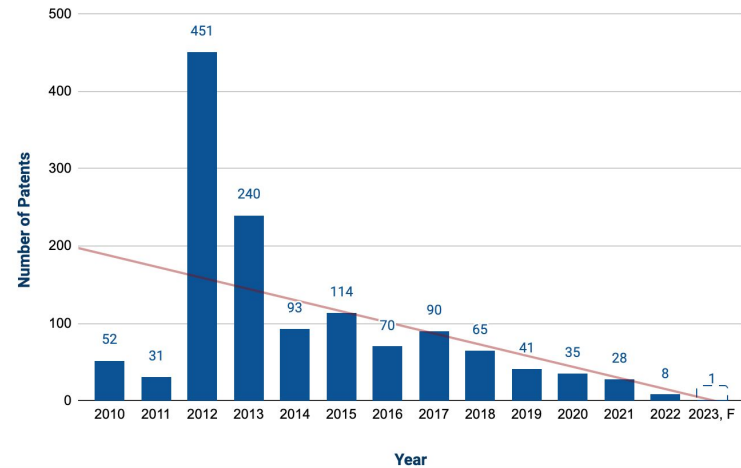
The maturity stage of Longevity R&D companies did not change much over the last few years. Some 38% of the total active Longevity R&D is in advanced stages. This percentage is stable over the last few years, as well as the percentage of companies in initial revenue and revenue growth stages (included in the advanced stages), with 33% and 5%, respectively. The remaining of the companies are mainly in R&D stage, representing 52% of the total active life science companies.

Dynamic of Patents and Scientific Publication Number, 2010-2022

Number of Scientific Publications, 2010-2023

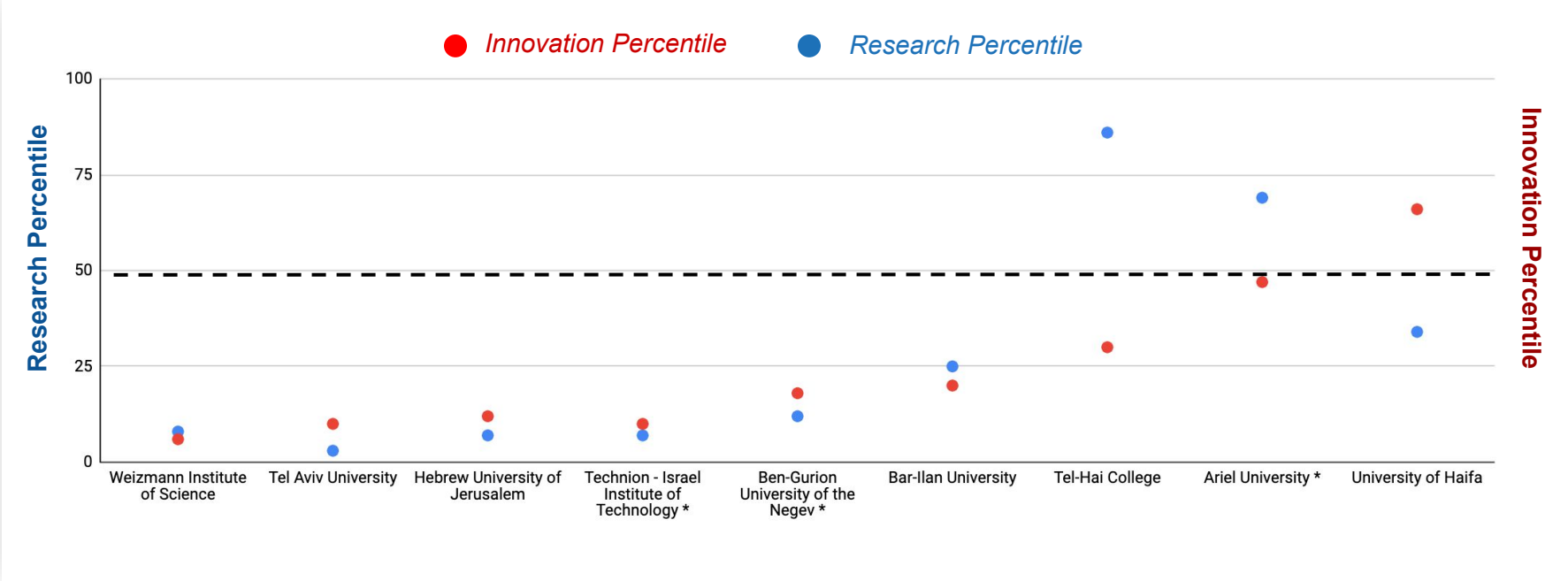


Number of Anti-Ageing Patents, 2010-2023



In Israel, the number of scientific publications related to Longevity has grown significantly in recent years. In 2016, a total of 107 scientific papers were published related to ageing and Longevity, compared to just 16 in 2010. This research is being conducted in a variety of fields, including genetics, biochemistry, neuroscience, and social sciences. In addition, numerous clinical trials are underway to evaluate the efficacy of various interventions related to Longevity. As the research continues to advance, so does the prospect of finding new ways to extend human life. Israel is on the sixth place in the world ranking by the number of patented anti-ageing technologies. Since 2010 year, more than 1,300 patents were submitted. Unfortunately, common trend shows a negative dynamic of the patents' publication.

Research and Innovation Ranking of Top 10 Universities



The SCImago Institutions Rankings (SIR) is a classification of academic and research-related institutions ranked by a composite indicator that combines three different sets of indicators based on research performance, innovation outputs, and societal impact measured by their web visibility. For comparative purposes, the value of the composite indicator has been set on a scale of 0 to 100.

Clinical Trials at a Glance, 2010-2023

~150

clinical trials ongoing in Israel annually

>1,750

clinical trials are on the active stage in 2023

>250

of well-equipped public medical facilities with experience in running international trials

40

countries collaborate with Israel clinical sites that provide research of new therapies

5.3

clinical research were conducted in Israel per 100,000 people

>70

local sponsors with 330 active trials ongoing in Israel

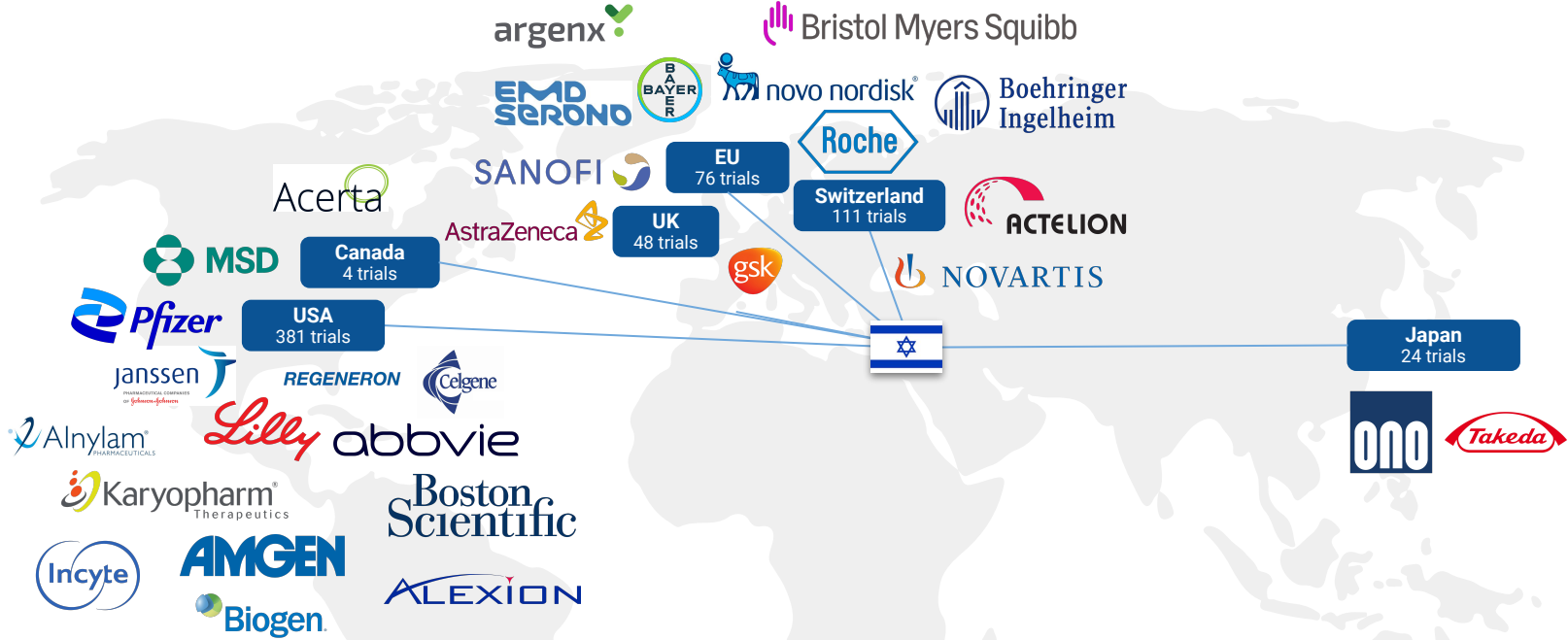
Dynamics of Clinical Trials in Israel, 2001-2023

Number of Active Clinical Trials in Israel



Since 2000, ClinicalTrials.gov listed more than **1,766 trials** with sites in **Israel**. The country has attracted pharmaceutical companies from around the globe that want to conduct clinical trials of their products. The **average level** of clinical studies until 2022 was pretty stable, **around 300 trials per year**. However, as a result of the COVID-19 restriction, the clinical research has been temporarily reduced by 30% in 2021. From the **beginning of 2022**, **278 new trials** are registered, and 16 of them continue recruiting. In 2023, the number of clinical trial will stay at the same level.

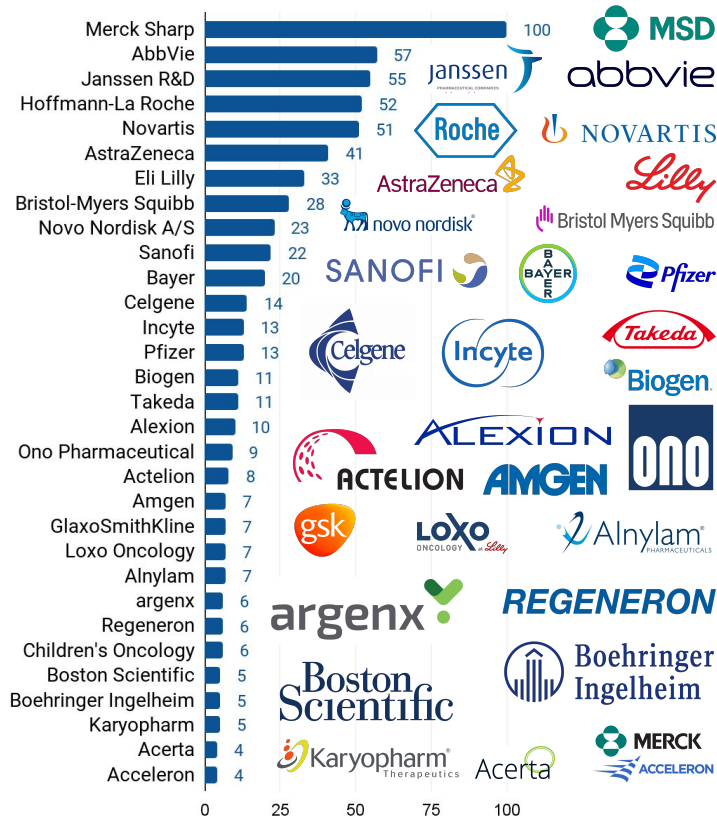
Geography of Collaboration for Ongoing Clinical Trials, 2023



Some 1,766 active clinical trials are ongoing in Israel medical sites. There are over 220 ongoing collaborations from 40 countries around the world. Israel has the most robust cooperation with the USA (43% of trials), the European Union (21%), Switzerland (11%), the United Kingdom (6%), and Japan (4%).

Top International Companies Conducting Clinical Trials in Israel, 2023

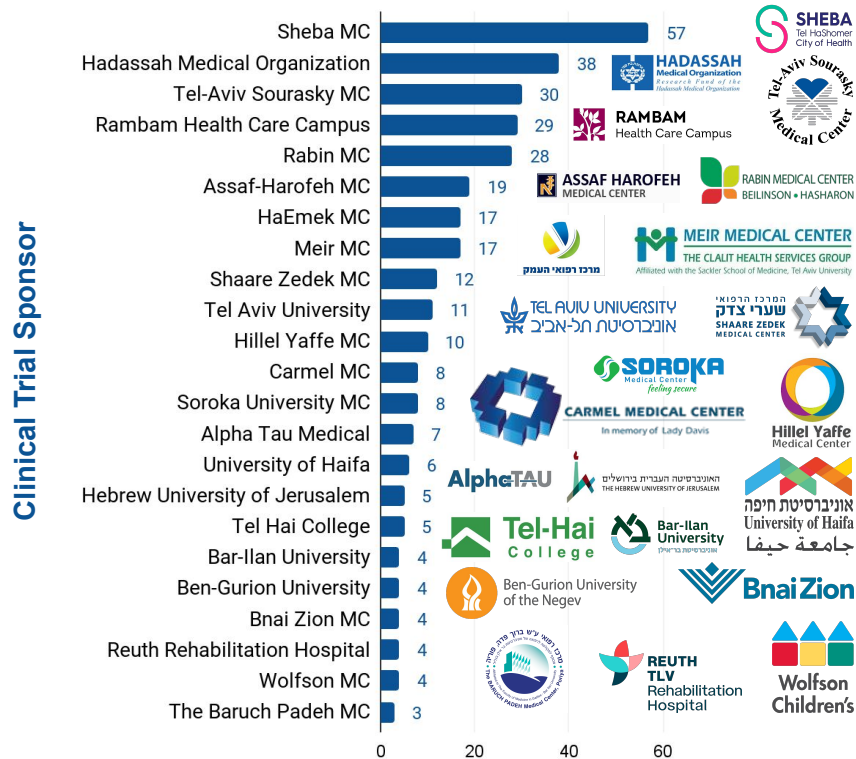
Companies by Number of Active Clinical Trials in Israel



Israel is a major hub in the Middle East region for pharmaceutical companies to conduct clinical trials. Most companies have one-three active trials in Israel, as of 2023. Among them, we found lead international companies that have **over 10 simultaneously ongoing trials**. Merck, AbbVie, Janssen R&D, and others provide their clinical research in Israeli locations for **cancer, heart failure, kidney disorders**, and other **chronic diseases in Phase II-III**, which is towards the end of the process where safety and effectiveness are measured against existing standard treatments. Five of the pharmaceutical companies with the most clinical trials in Israel – Merck, AbbVie, Janssen, Roche, and Novartis – have about 50-100 clinical trials underway there. Roche alone has 33 trials underway in Israel, accounting for 1.5% of the active trial population across its global studies.

Top Israel Companies That Conducting Clinical Trials, 2023

Domestic Sponsors by Number of Active Clinical Trials in Israel



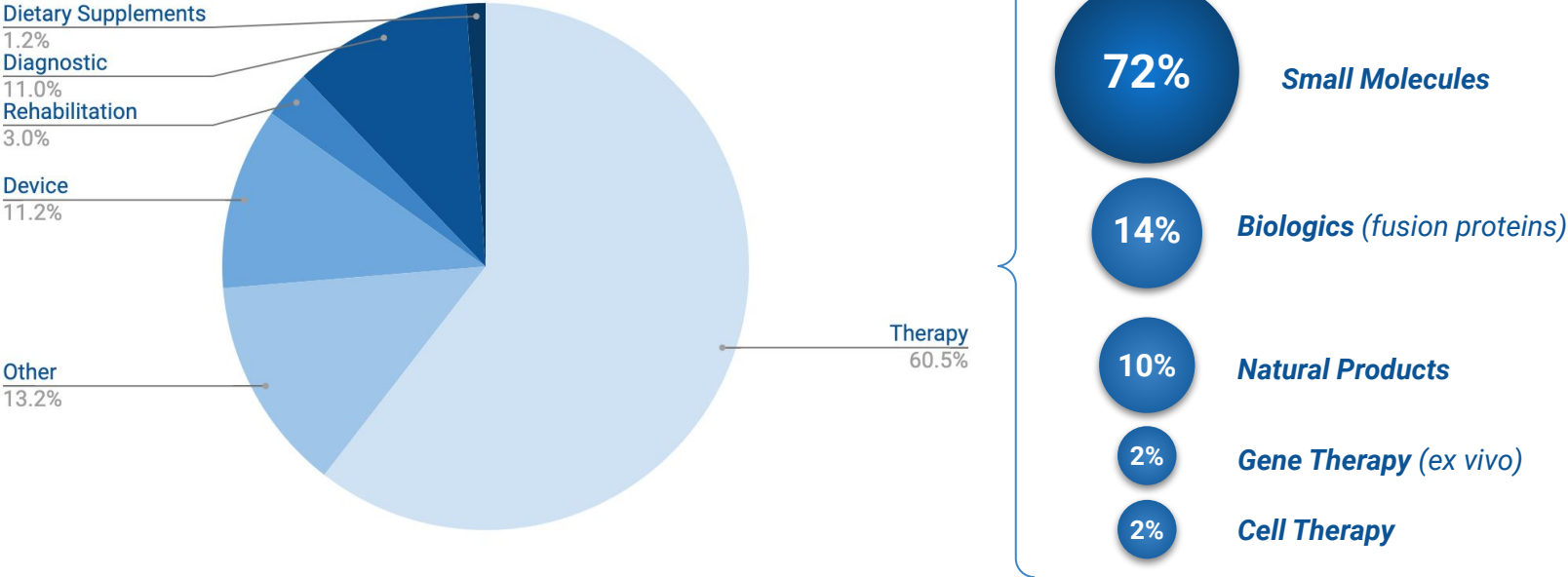
Among **1,766 clinical trials** that have been undergoing in Israel from 2010 to 2022, only **330 trials** are sponsored by US organisations. On Clinicaltrials.gov are listed **70 Israeli sponsors** with **domestic trials**. They develop their own innovative technologies for treatment and diagnostics of systemic disorders.

Among medical institutions of Israel, the **Sheba Medical Centre** was the first Israeli hospital to earn the Joint Commission International (JCI) Gold Seal as an academic and clinical medical centre.

Hadassah Medical Organisation is the second hub for clinical research. This centre operates two hospitals and is at the forefront of medical research in Israel. With a team of approximately **300 doctors and researchers**, Hadassah is involved in all levels of medical research: basic, translational, and clinical. The research laboratories at Hadassah are fully integrated into its medical departments, and the organisation also hosts several interdepartmental research centres. These include the Institute of **Genetic Therapy**, the **Centre for Embryonic Stem Cell Research**, the **Experimental Surgery Unit**, and the **Cyclotron Unit** for New Imaging Materials, among others.

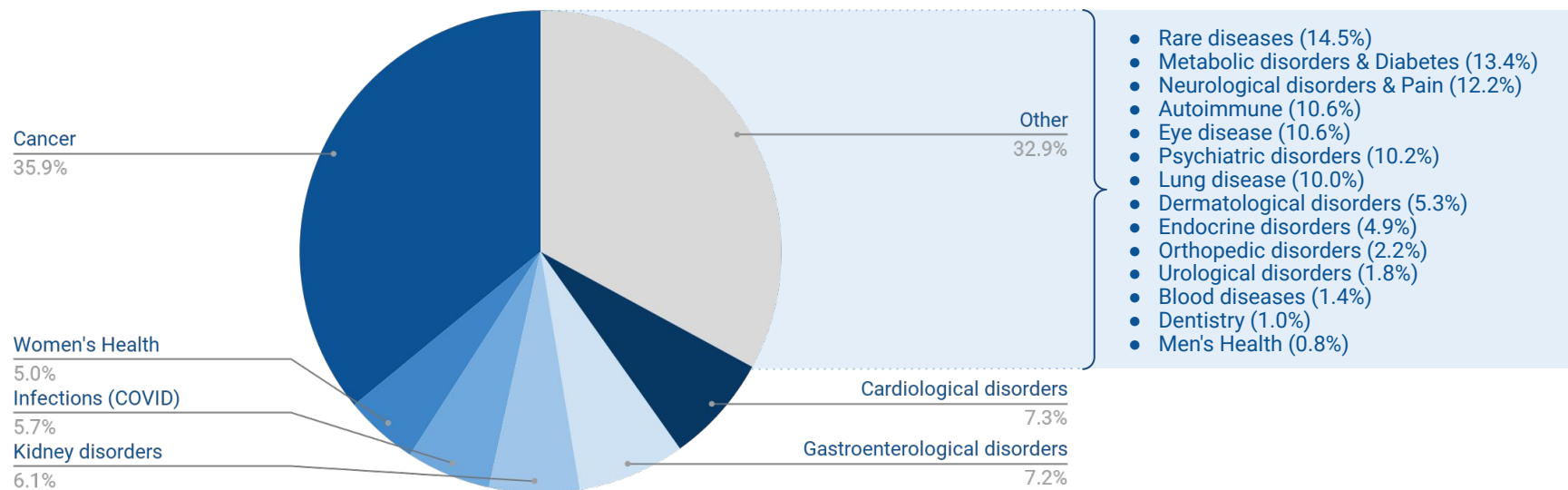
Clinical Trials Structure, 2023

Proportion of Clinical Trials by Approach



Nearly half of all domestic trials sponsored by Israel involve the exploration of novel therapeutic methods, with small molecules being the subject of over 70% of these trials while the remaining 30% focus on other approaches, such as cell therapy, gene therapy, and natural products.

Proportion of Clinical Trials in Israel by Indication, Q2 2022



In Israel, the ongoing clinical trials cover various medical conditions, with **cancer** having the largest number of trials (over 650), followed by **cardiological disorders** (over 132), **gastroenterological disorders** (over 130), and **kidney disorders** (110). More than 100 clinical trials are focused on the treatment of **infectious diseases**, with approximately 30% of them **specifically studying COVID-19**. **Women's health** is also an important area of clinical research, with around 90 trials exploring issues such as infertility, labour, and preeclampsia during pregnancy.

Geroscience Case Studies

Renewal Bio is a biotechnology company that specializes in developing transformative therapies for aging-related diseases. The company uses cutting-edge technology to identify and target key pathways in aging, with the aim of developing new treatments for conditions such as Alzheimer's disease, heart failure, and cancer. Renewal Bio's mission is to extend the healthy lifespan of individuals and improve their quality of life as they age.

The logo for RenewalBio, featuring the word "Renewal" in a bold, black, sans-serif font and "Bio" in a lighter, grey, sans-serif font, both in uppercase.

Minovia Therapeutics is a clinical stage company that focuses on developing gene therapies for rare genetic disorders. The company's platform technology allows for the precise editing of genes, with the goal of correcting genetic mutations and restoring normal function. Minovia Therapeutics is committed to advancing gene therapy as a viable treatment option for patients with rare genetic diseases.

The logo for Minovia, featuring the word "minovia" in a bold, blue, lowercase, sans-serif font.

Pluri Biotech is a biotechnology company focused on developing cutting-edge stem cell technologies for research and clinical applications. Their mission is to revolutionize regenerative medicine by providing innovative tools and services to accelerate the discovery and development of new therapies. Pluri Biotech offers a range of products and services including stem cell culture media, differentiation kits, and contract research services to support the needs of the stem cell research community.

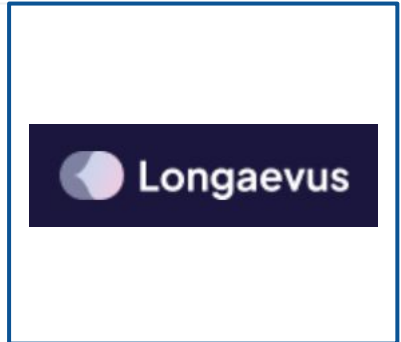
The logo for Pluri Biotech, featuring the word "pluri" in a bold, orange, lowercase, sans-serif font with a curved orange line above it, and the text "CELL-BASED TECHNOLOGY PLATFORMS" in a smaller, black, uppercase, sans-serif font to the right.

Geroscience Case Studies

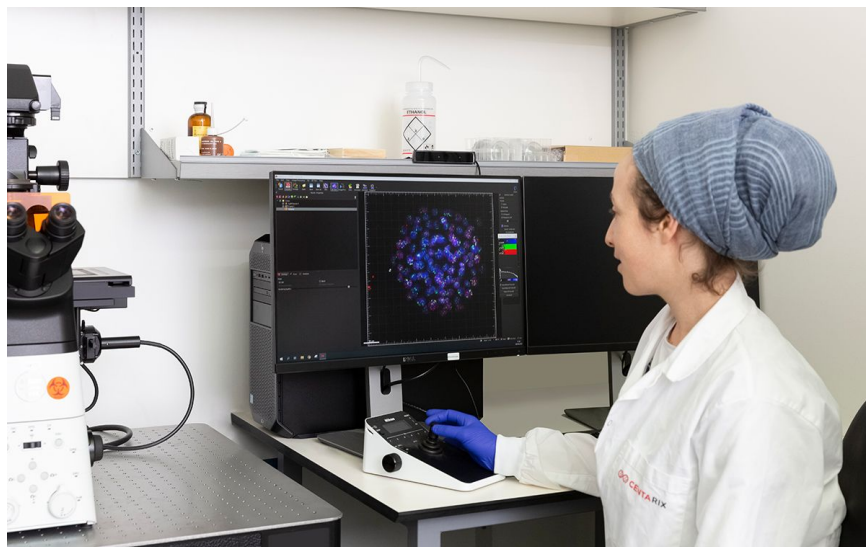
SirTLab is a biotechnology company that focuses on developing innovative therapeutics to extend human lifespan and improve overall health. They specialize in the research and development of small molecule drugs that target the aging process and age-related diseases. The company's mission is to translate scientific discoveries into practical treatments that can benefit people worldwide. SirTLab's team of experts includes experienced researchers and executives from leading academic institutions and biotechnology companies. They have a strong commitment to ethical and responsible research, and aim to contribute to the field of aging research by advancing the development of safe and effective anti-aging drugs.



Longaevus is a private research organisation focused on developing cutting-edge therapies to combat age-related diseases and extend human lifespan. Their research is centered around the use of advanced technologies such as artificial intelligence, machine learning, and genomics to identify novel therapeutic targets. The company's mission is to provide innovative solutions that address the root causes of age-related decline and help people live healthier, longer lives. Longaevus is led by a team of experienced scientists and entrepreneurs with a track record of success in the biotech industry. They are committed to advancing the field of anti-aging research and bringing their discoveries to market to benefit people worldwide.



Centarix is a developer of longevity-technology designed to extend human healthspan and improve the quality of life through science and technology. The company is developing the ability to evaluate a wide panel of molecular and cellular biomarkers of aging, and new technologies to increase the accuracy and lower the cost of measuring biomarkers of aging. Centarix was founded with the purpose of developing longevity-technologies to extend human health span and maximize quality of life.



The Science

Aging is the ultimate challenge for modern medicine. The aging process has a devastating effect on human life quality, and eventually leads to the onset of age-related diseases which are the main killers in developed countries. In recent years, major breakthroughs in the science of aging have shown that it is possible to intervene in multiple ways with the aging process to slow it down and even reverse some of its aspects. Such interventions were shown to significantly increase healthspan and lifespan in animal models.

Centarix' strategy is two-fold

Biomarkers of aging

Centarix is developing the ability to evaluate a wide panel of molecular and cellular biomarkers of aging, and new technologies to increase the accuracy and lower the cost of measuring biomarkers of aging.

Rejuvenation therapies

Centarix R&D team is focusing on developing groundbreaking technology to rejuvenate cells and tissues by targeting promising molecular hallmarks of aging, with an emphasis on epigenetic rejuvenation.

Case Examples of Geroscience: Vitalunga



VITALUNGA

Vitalunga, an Israeli Biomedical startup led by Prof. Shmuel (Muli) Ben-Sasson and Prof. Einav Gross, The Hebrew University's Faculty of Medicine, has developed a family of novel small-molecule drugs that precisely enhances autophagy and mitophagy. This platform technology opens the way for the treatment and prevention of multiple aging-associated diseases such as Alzheimer's and Parkinson's diseases, congestive heart failure, sarcopenia, AMD etc., utilizing a single oral agent.



Founding partners of Vitalunga, Professors Einav Gross and Shmuel Ben-Sasson

2018

Vitalunga is founded and led by Professors Einav Gross and Shmuel Ben-Sasson.

2021

Vitalunga develops a novel oral drug that aims to treat and prevent aging-related diseases such as Alzheimer's and Parkinson's.

2022

Yissum, the technology transfer company of the Hebrew University, announces the drug's potential and Vitalunga begins raising funds for pre-clinical studies.

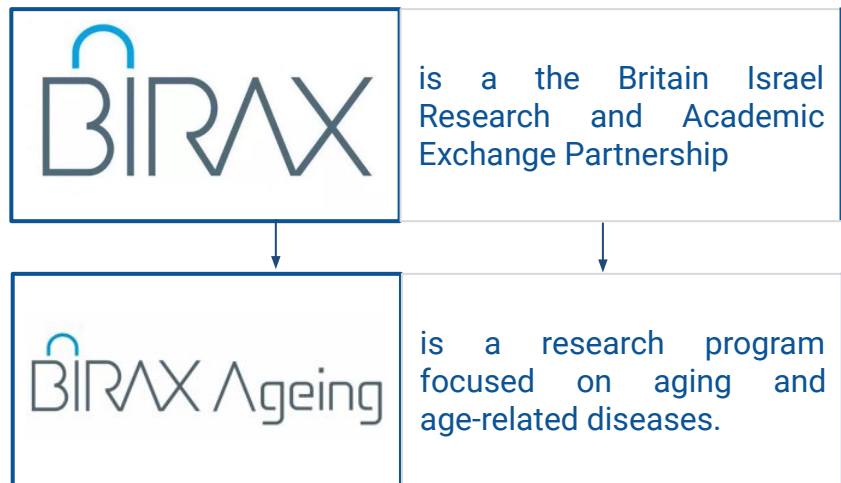
2023

The biological features of the first generation of the novel compounds are published online in "**Autophagy**," a leading journal in the field.

Future

Vitalunga's drug-responsive, unified target for the prevention and treatment of multiple aging-related diseases could transform the healthcare industry and improve outcomes for patients.

Case Examples of Geroscience: BIRAX



BIRAX Ageing is expected to play a significant role in addressing the global challenges of ageing. **Launched in 2018**, it brings together the UK and Israel's world-class and complementary scientific capabilities for research into, and promotion of, healthy ageing. BIRAX Ageing will **fund research projects, increase collaboration and through scientific conferences, researcher mobility opportunities** and cultivation of a new bilateral researcher community. It will also raise public awareness through media and public activities.

Why is ageing research so crucial?

Ageing, and its medical, social and economic implications, are an increasingly urgent global challenge. Ageing is the cause of most chronic diseases and causes the largest portion of disability and mortality. In the UK, the population of people aged over 75 is expected to double over the next 30 years, while in Israel, the 2015 elderly population of 833,000 is expected to double by 2035.

BIRAX Ageing priorities

How the Ageing Process Impacts on the Progression of Type 1 and Type 2 Diabetes

Age-related Frailty and Other Geriatric Syndromes

Ageing and Immunity

Age-related Multimorbidity

Cardiovascular Disease

Ageing Well with Diabetes

Neurodegenerative Disease



התנועה לאיכות ואריכות חיים (ע"ר)
Seniority-The Movement for
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Biogerontology
Research Foundation
Prevent. Restore. Preserve.



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Longevity Technology in Israel 2023



Economy of the PharmTech Industry, 2023

~85%

of PharmTech companies produce devices for drug delivery

>30%

of PharmTech companies have domestic origin

\$24 M

export revenue from medical products in 2022

Israel is positioning itself as a leader in the Longevity market through its strong emphasis on research and innovation in medical and health technologies. With companies like Resperate, Medi-Tech, and ReWalk leading the way, Israel is developing cutting-edge products that extend life expectancy and improve quality of life.

The Israeli government is also backing the Longevity market by providing public funding for research and development, as well as incentives for companies to invest in the field. Additionally, the growing public awareness of the potential for longer and healthier lives through technology is driving demand for Longevity-related products and services. The rapid growth of the Longevity market in Israel has the potential to make a significant impact on many people's lives and solidify Israel's position as a global leader in this field.

Key Market Players in Israel, 2023

Medicines



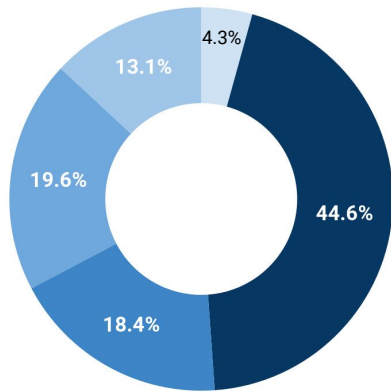
Medical Devices



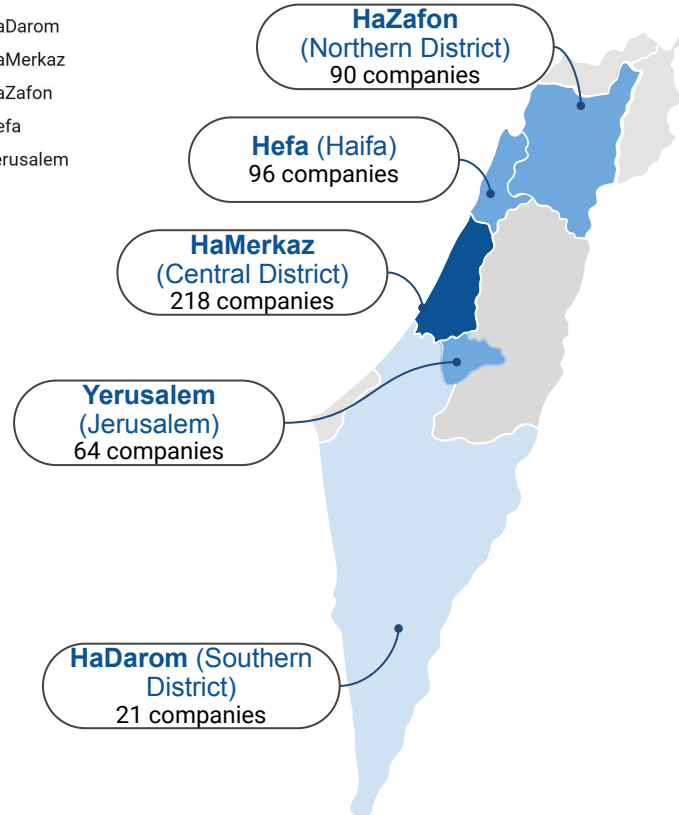
Cosmetics



Geography of PharmTech Companies in Israel, 2023



- HaDarom
- HaMerkaz
- HaZafon
- Hefa
- Jerusalem



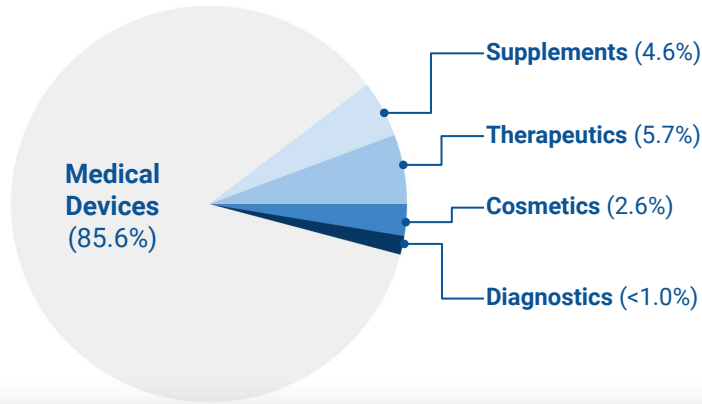
- >200 companies
- 100-200 companies
- 50-100 companies
- 10-50 companies
- <10 companies

Since the early 2000s, the pharmaceutical industry has witnessed growth. Distribution created a new business development model – vertical integration of the wholesale operator and the pharmacy chain. Currently, **Tel Aviv, Jerusalem, and Haifa** are the **major centres** of biopharmaceutical production and drug development in Israel. Geographic distribution of companies is based on localisation of **industrial chemical complexes** and **logistic hubs**. The biopharmaceutical market in Israel is an important and rapidly growing sector of the country's economy.

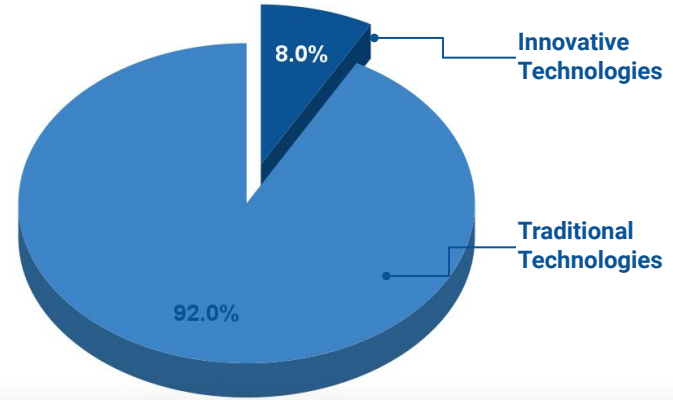
In addition, the country's highly skilled workforce, advanced infrastructure, and strong intellectual property protection have helped to make it an attractive location for biopharmaceutical companies.

Israel's PharmTech Market Structure, 2023

Proportion of Israel PharmTech Companies by Type, %



The Innovativeness of the Pharmaceutical Market, %

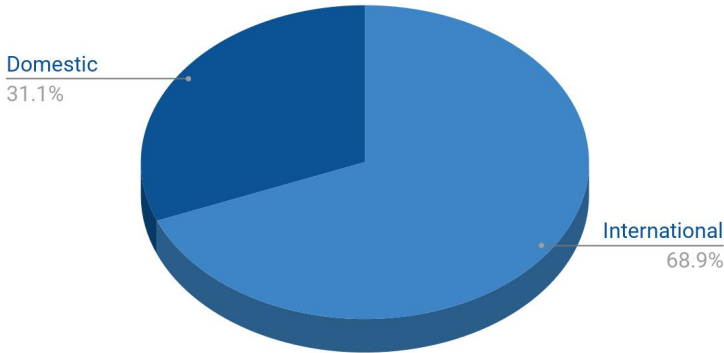


Israel's **Longevity market** is a **significant player in the Middle East**, with a particular focus on health technology, research and development, and improving medical infrastructure. In 2022, the country's pharmaceutical market was valued at \$3.2 billion at a CAGR of 3.4%. The major part of the PharmTech market is a **Medical Devices sector (85% of companies)**. In 2022, the Medical Devices market in Israel was valued at **\$1.5 billion**. The market is projected to grow at a **CAGR of 2.7%** and **reach \$1.8 billion by 2028**. The majority of the medical devices market (65%) is **import-driven**, with the top imports being **surgical instruments, medical electronics, lab reagents, diagnostic equipment, and catheters**.

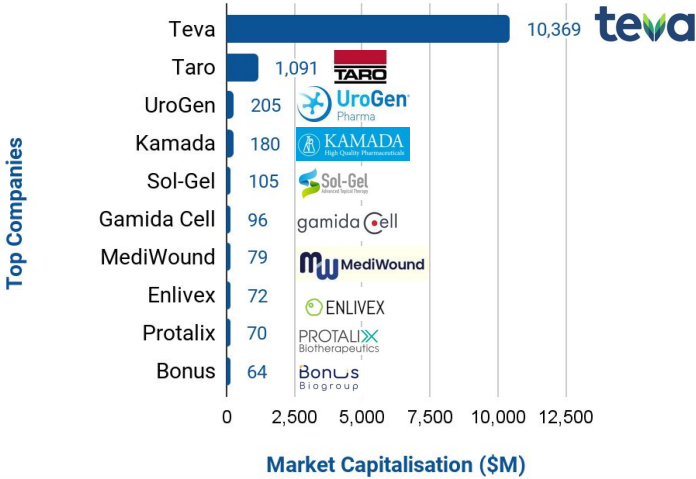
Israel has a thriving **PharmTech ecosystem**, which is one of the most innovative and dynamic in the world. It has a large number of companies and established companies that are involved in the development of novel BioTech products and services. Some of the key factors that have contributed to the growth of the BioTech industry in Israel include the **availability of venture capital, a highly educated and skilled workforce, strong academic and research institutions, and a supportive government**.

Development of Domestic Companies in Israel, 2023

Proportion of Local vs. International PharmTech Companies



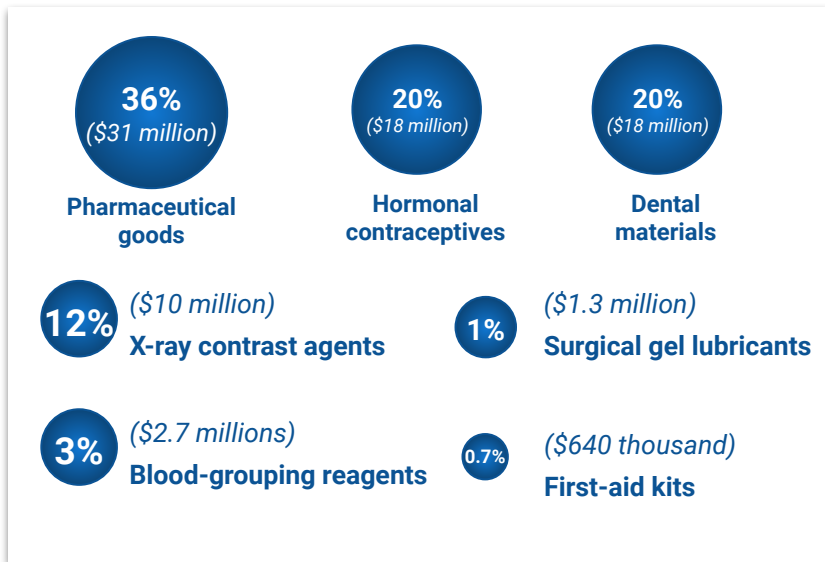
Top PharmTech Companies on the Israeli Market



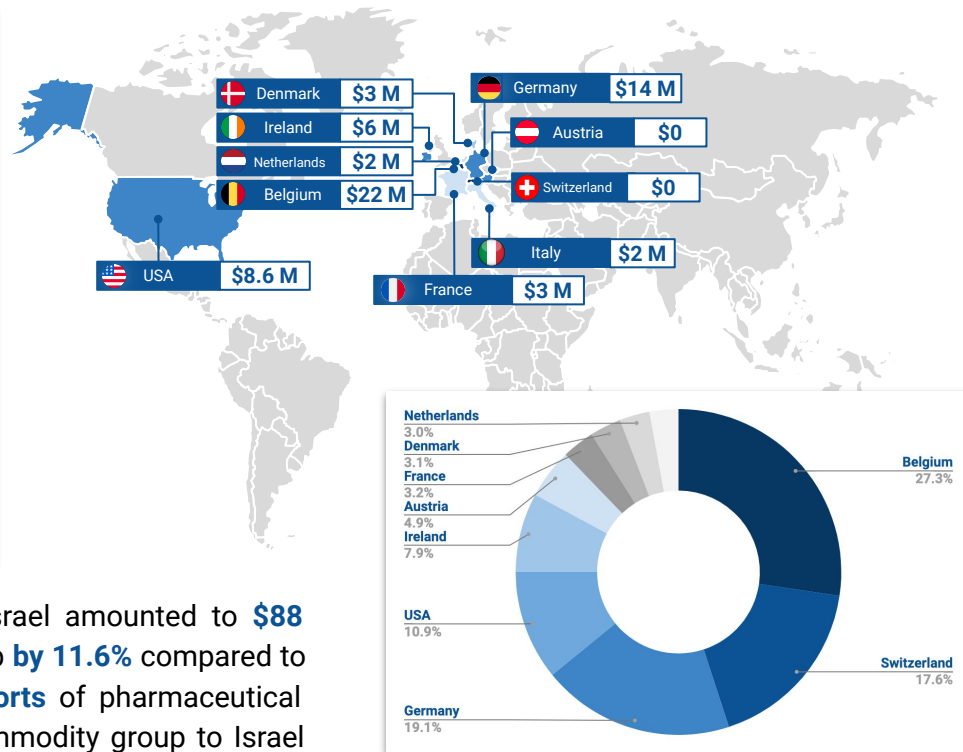
Teva Pharmaceutical Industries Ltd, Taro Pharmaceutical Industries Ltd, Kamada Pharmaceuticals, Compugen Ltd, UroGen Pharma Ltd, and Gamida Cell Ltd were the top five pharma companies in Israel in 2021 by market capitalisation (as of September 30, 2022). Cumulatively, the top 10 pharma companies in Israel had a market capitalisation of \$10,668 million (as of September 30, 2022), where Teva Pharmaceutical Industries Ltd (\$8,651 million) stood the highest, followed by Taro Pharmaceutical Industries Ltd (\$1,127 million) and Kamada Pharmaceuticals (\$198 million), while BioLineRx Ltd stood lowest (\$59 million).

Pharmaceutical Import in Israel

Structure of Medicines Import, % of Total Value



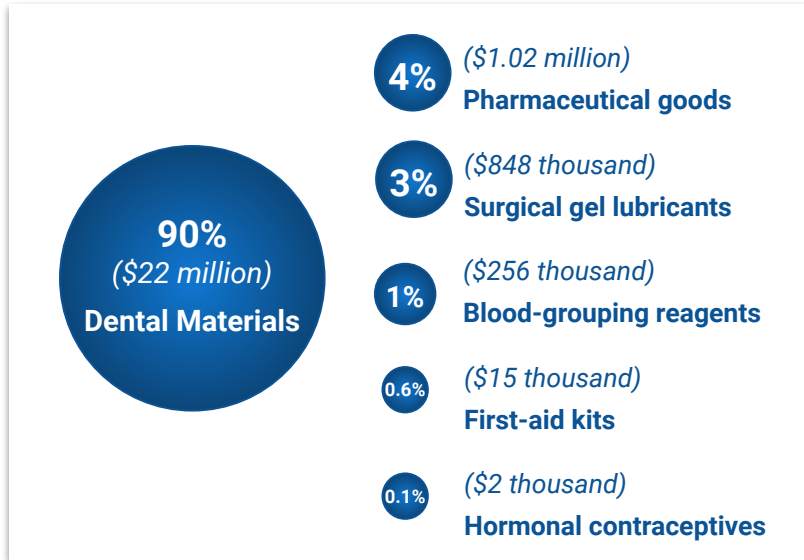
Main Import Directions of Israeli Pharmaceutical Goods



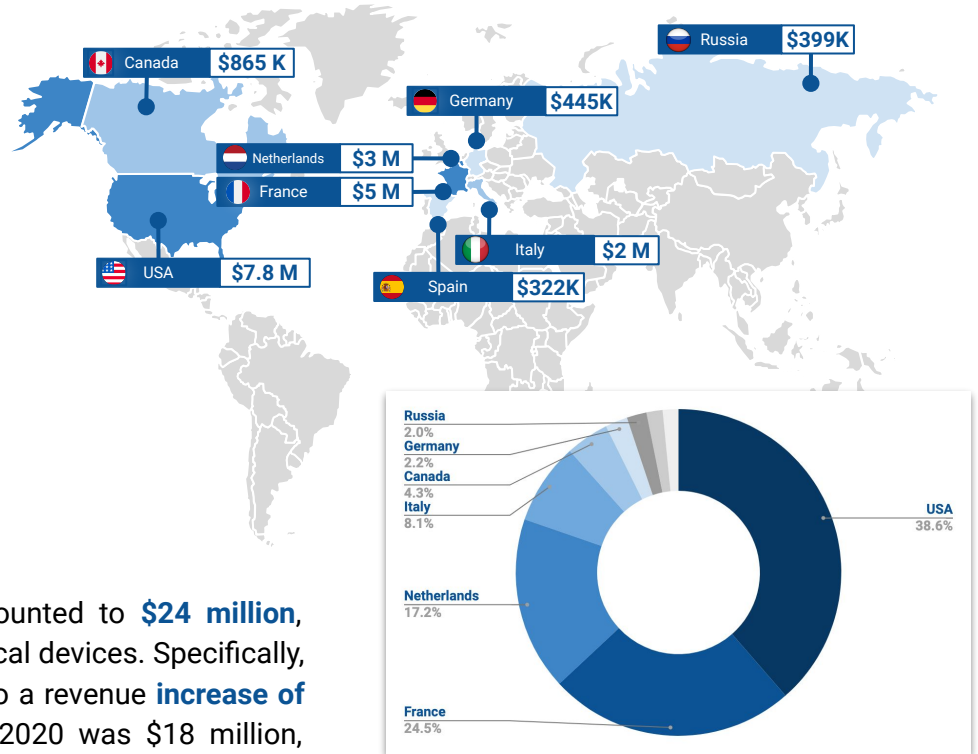
In 2021, the total value of **medical products** imported by Israel amounted to **\$88 million**, indicating an **increase in sales** of this commodity group **by 11.6%** compared to the previous year. Specifically, there was an **increase in imports** of pharmaceutical goods **by \$9.18 million** while the value of imports of this commodity group to Israel was \$78 million in 2020.

Pharmaceutical Export in Israel

Structure of Medicines Export, % of Total Value



Main Export Directions of Israeli Pharmaceutical Goods



In 2022, Israel's **export revenue** from medical products amounted to **\$24 million**, reflecting a significant increase in sales of medicines and medical devices. Specifically, compared to 2020, these exports **rose by 35%**, an equivalent to a revenue **increase of \$6.42 million**. The total export revenue from this sector in 2020 was \$18 million, making the growth in 2021 particularly impressive.

Case Example of AgeTech: Avia Home



Headquarters location: Tel Aviv, Israel

Mission: Elderly Care

Website: <https://www.aviahome.co.il>

Services provided

- Day-to-day assistance: house cleaning, food delivery, medicine, accompanying doctor, legal advice and more
- Support at home and outside (Repair service, help with arrangements at home, help with operation of deliveries, home visits)
- An available concierge for daily operation
- Personal contact with a manager
- Belonging to a local community, participating in events
- 24/7 response in non-medical emergencies

Avia Home is a new venture in the Elderly Care | Aging In Place | Sector. The company offers an all-encompassing solution including healthcare, day-to-day assistance, and community to empower the seniors to enjoy a higher quality of life and care while remaining at home, thereby eliminating the emotional and the financial tolls on the seniors and their families associated with leaving one's home and moving into an assisted living facility. Avia Home presents an innovative and scalable model with the potential to disrupt the assisted living industry.

Avia Home was founded as a family business in late 2019 to provide a holistic “aging in place” solution for the seniors and their families, as a result of an unanswered personal need of one of the co-founders, Tal Harel. Yuval Ziv (current CEO of Asia, a company that employs over 120 doctors) joined Avia Home in April 2020 and now leads the company together with the co-founders, Tal Harel and Yoel Feldman.

Avia Home currently employs more than 20 professionals, aged 30 to 92, who are passionate about empowering seniors to live fulfilling lives in their homes and neighbourhoods.

Case Example of AgeTech: Mediterranean Towers Ventures



Services provided

- offering a structured incubation program for selected startups and guidance from industry experts and experienced mentors
- providing financial support to promising startups in the longevity sector
- fostering long-term relationships with portfolio companies
- go-to-market strategies and commercialization
- encouraging cross-disciplinary collaborations to drive innovation

Headquarters location: Ganei Tikva, Israel

Mission: Angel Investment

Website: <https://ventures.migdalei.co.il/>

Mediterranean Towers Ventures (MTV) is an Israel-based investment firm and incubator specializing in longevity and aging-related technologies. Established in 2017, the company focuses on nurturing early-stage startups in various domains such as digital health, biotechnology, medical devices, and pharmaceuticals.

Mediterranean Towers Ventures has emerged as a key player in Israel's longevity technology and AgeTech sectors. By providing early-stage investments and incubation support, MTV has helped launch numerous startups focusing on cutting-edge solutions for aging populations. Their portfolio companies cover various domains, including digital health, biotechnology, and medical devices. Through strategic partnerships with research institutions and industry stakeholders, MTV fosters a collaborative ecosystem that accelerates innovation in longevity technologies. MTV's impact on the industry has attracted international investments, bolstered Israel's reputation as a global leader in AgeTech, and ultimately improved the lives of seniors worldwide.

MTV's mission is to identify, invest in, and support innovative startups that develop cutting-edge solutions for addressing the challenges and opportunities associated with the aging population.



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ATLAS

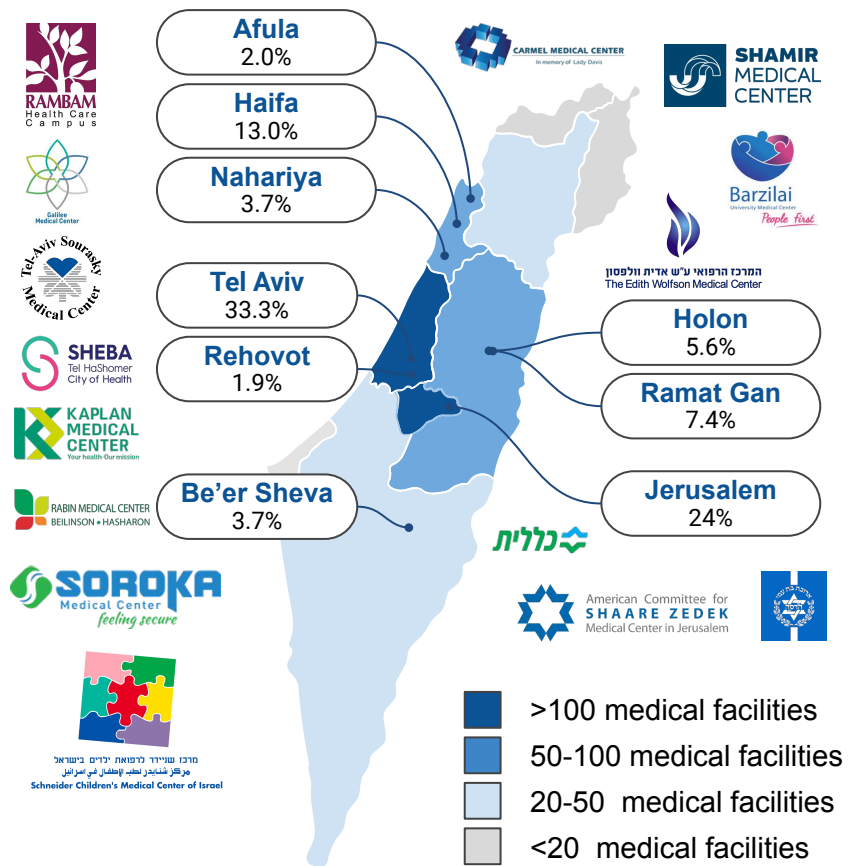


LONGEVITY
INTERNATIONAL

Longevity Medicine in Israel 2023



Longevity Clinics and Hospitals by Region, 2023



Currently, in Israel has more than **500** active **clinical sites** where trials on new medicines, devices, biomarkers, or treatment approaches are conducted. The biggest hubs are **Tel Aviv** (110 clinical sites), **Jerusalem** (93 clinical sites), **Haifa** (56 clinical sites), **Ramat Gan** (26 clinical sites), and **Holon** (20 clinical sites).

The most significant places are **Tel Aviv Sourasky Medical Centre** (Tel Aviv), **the Chaim Sheba Medical Centre** (Tel Aviv), **Kaplan Medical Centre** (Rehovot), **the Edmond and Lily Safra Children's Hospital** (Ramat Gan), **Sheba Medical Centre** (Ramat Gan), **Schneider Children's Medical Centre of Israel** (Petah Tikva), **Rabin Medical Centre** (Petah Tikva), **Galilee Medical Centre** (Petah Tikva), **Shaare Zedek Medical Centre** (Jerusalem), **Lev Talpiot Clinic** (Jerusalem), **Wolfson Medical Centre** (Holon), **Rambam Medical Centre** (Haifa), and **Lady Davis Carmel Medical Centre** (Haifa).

AI for Healthcare in One Sight, 2010-2023

~140

Israeli AI companies in the market segment

\$845 M

raised cumulative funding for Israel AI companies

~70

Israeli AI healthcare companies have raised one or more funding rounds

~20%

of the total group are presented by medical imaging subsector







































~\$100 M

the biggest acquisition deals (Nutrino by Medtronic)

~\$106 M

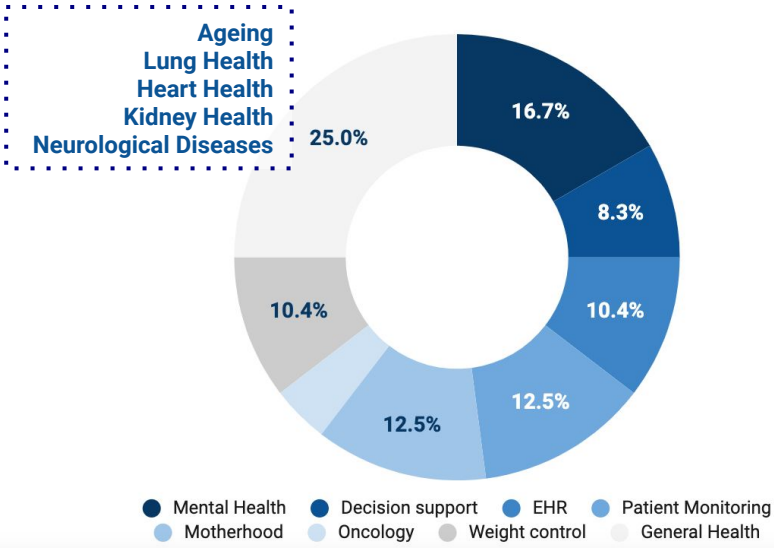
of total funds for EarlySense companies

Digital Health Companies Categories

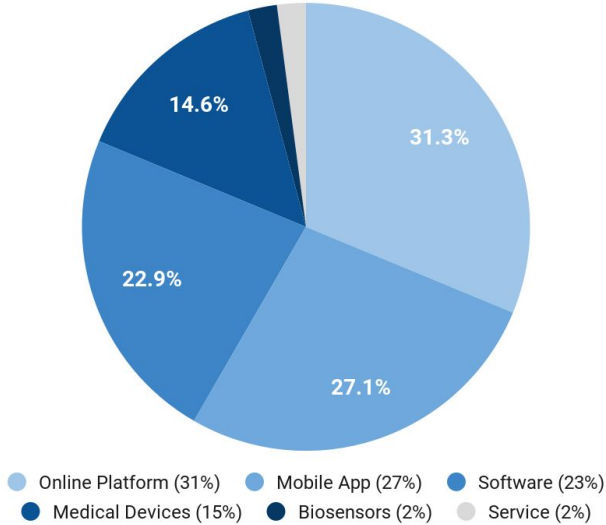
>\$600M		No companies	No companies	No companies	No companies	No companies
\$100M-\$600M	 	  <small>The Future of Clinical Intelligence</small>		No companies	No companies	
\$10M-\$100M	   	  <small>Artificial Pharmacology Intelligence</small> 	  <small>Realtime Renal Diagnostics</small>	 	 	
\$1M-\$10K	   	  <small>powered by you</small>	 <small>AI Personalized Medicine</small> 		 <small>Medical Smartmonitoring</small>	
\$1M<	  <small>Active Life Solutions</small>		 Derma Detect	No companies	No companies	 
	Medical Devices	Telehealth	At-Home Diagnostics	Software	Wearables	Wellness

Proportion of Digital Health Companies in Israel by Product Type

Proportion of Digital Products by Health Areas

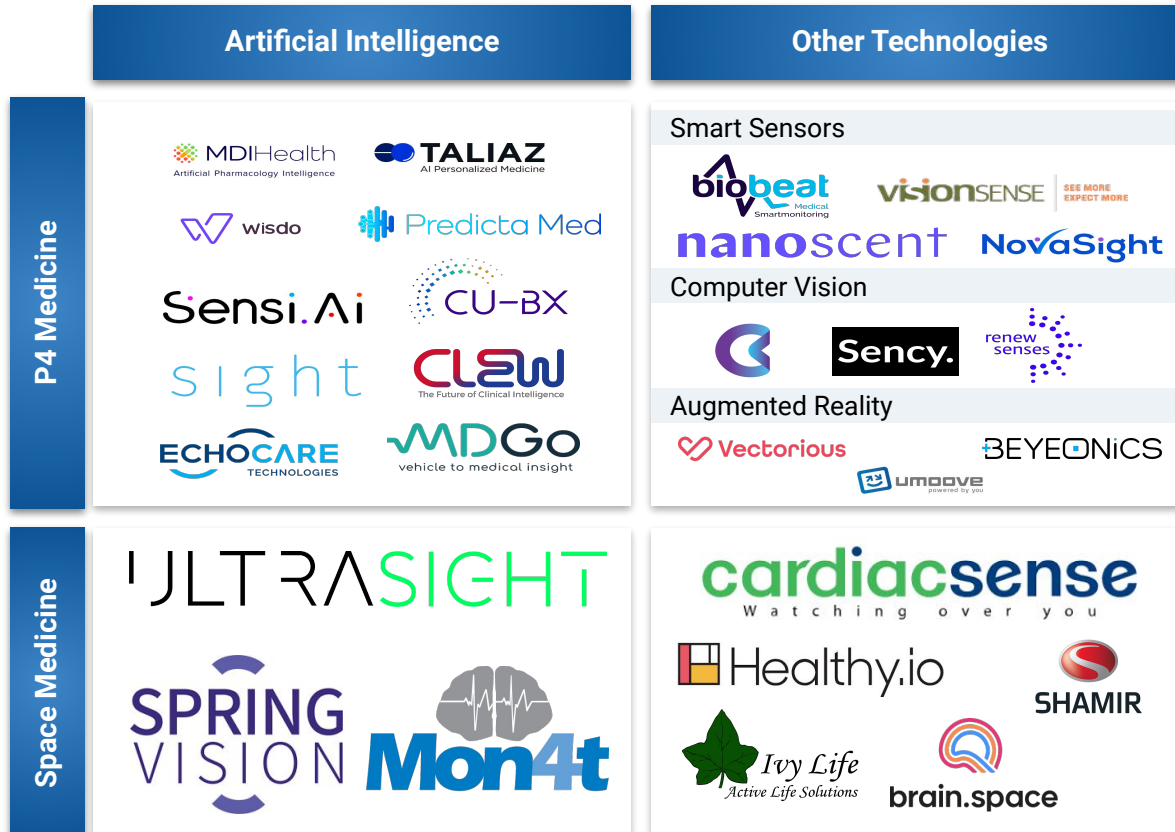


Proportion of Digital Products by Health Areas



Among all selected digital health companies in Israel, most of them offer mental health solutions, which are mostly telehealth options. The second place takes general health solutions, which are not only patient-centric as most companies in the list, but some are also clinics-centric (e.g. Ademrius). The even percentage of digital health companies in Israel provide diagnostics, cardiology, and rehabilitation services. They are medical devices, software, mobile apps, and online platforms. Other health areas covered by digital health companies are obesity management, orthopedics, diabetes, and addiction management, accounting for less than 10% of the market each.

Digital Health in Israel: Technology



Digital health companies in Israel are at the forefront of the technological development of the sector. AI implementation in the healthcare sector is one of the main directions of the future progress on the market. Thus, a significant share of digital health companies use AI for their products (e.g. **Biobeat**, **Noom**, **Cardiomo**). Smart sensors are widely used for medical devices to complement the AI technology in the products (e.g. **Misu**, **Cardiomo**, **Caretech Human**).

Some AI-developed products are now testing to protect astronauts' health: vision loss diagnostic (**UltraSight**, **Spring Vision**, **Shamir**), remote cardio (**CardiaSense**, **Ivy Life**) and brain health (**Brain.Space**, **Mon4t**) monitoring.

Digital Health in Israel: Top companies

The logo for Noom, featuring the word "noom" in a lowercase, rounded font where each letter is composed of a grid of orange dots.

Headquarters location: New York, USA

Founders: Artem Petakov (Israel), Saeju Jeong (South Korea)

Founded Year: 2008 (app launch: 2016)

Funding Status: Late Stage Venture

Number of employees: 1,001-5,000

The logo for Racoon World, featuring the word "racoon" in a lowercase, rounded font with two green house-like shapes above the 'o's, followed by the word "WORLD" in a white, uppercase, sans-serif font inside a dark grey rounded rectangle.

Headquarters location: New York, USA

Founders: Alex Radovichenko (Israel), Svitlana Malovana (Israel)

Founded Year: 2017

Funding Status: Seed

Number of employees: 1-10

The logo for ComeBack Mobility, featuring the words "ComeBack" and "Mobility" in a bold, sans-serif font. The "e" in "ComeBack" has a small black triangle above it.

Headquarters location: New York, USA

Founders: Ilya Popov (Israel)

Founded Year: 2020

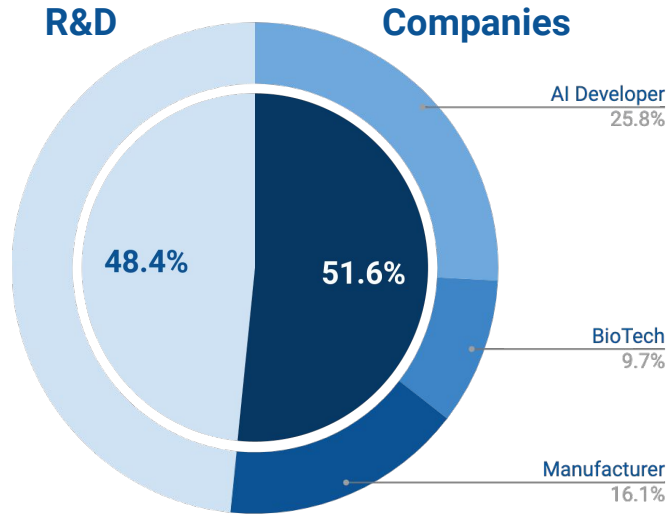
Funding Status: Seed

Number of employees: 11-50

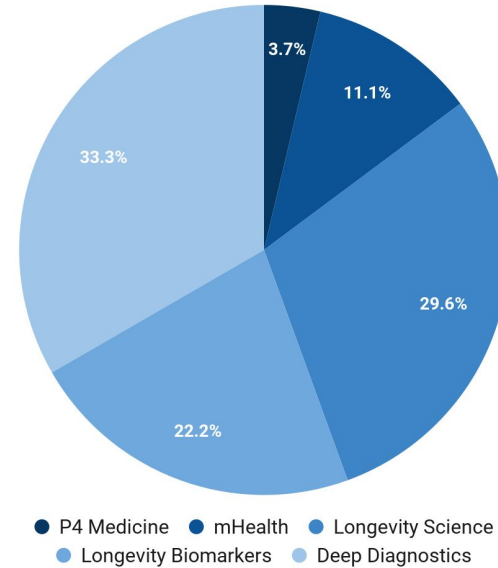
Top companies in the digital health sector in Israel are Noom, Racoon, ComeBack Mobility. Noom is a famous start-up of the Israel entrepreneur, which offers an app for weight management and uses AI to offer personalised service. Racoon and ComeBack Mobility are young companies with a small team (fewer than 50 employees), both at the start of their development. Both of them offer rehabilitation solutions: Racoon provides telehealth service in the app along with specialised exercises, and ComeBack Mobility developed unique device to facilitate recovery of the patient after leg injury.

Space Medicine in Israel, 2023

Proportion of Space Medicine Market Players



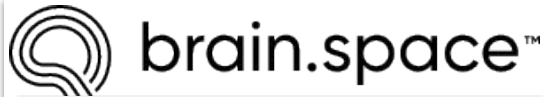
Proportion of Space Medicine Companies by Type



Israeli Space Medicine market includes almost equal amount of R&D and companies (15 vs. 16 respectively). AI Developers represent ~25% of companies. It is the biggest sector of industry. They produced products for P4 Medicine, mHealth, Deep Diagnostics, Longevity Biomarkers and Longevity Science (Drug Discovery).

Space Medicine in Israel: Top companies

Space medicine and longevity are interconnected through their focus on human health and well-being. By studying the effects of space travel on human physiology and health, researchers can gain valuable insights into the mechanisms of aging and the development of age-related diseases. This knowledge can then be used to develop new technologies and treatments that can improve human health and extend lifespan.



Headquarters: Tel Aviv, Israel
Founders: Yair Levy (Israel), Prof. Efrati Shai (Israel), Amir Hadanny (Israel), Israel Deutsch (Israel)
Founded Year: 2018
Funding Status: n/a
Number of employees: 11-50



Headquarters: Rehovot, HaMerkaz, Israel
Founders: Itay Kezurer (Israel)
Founded Year: 2018
Funding Status: Series B
Number of employees: 11-50



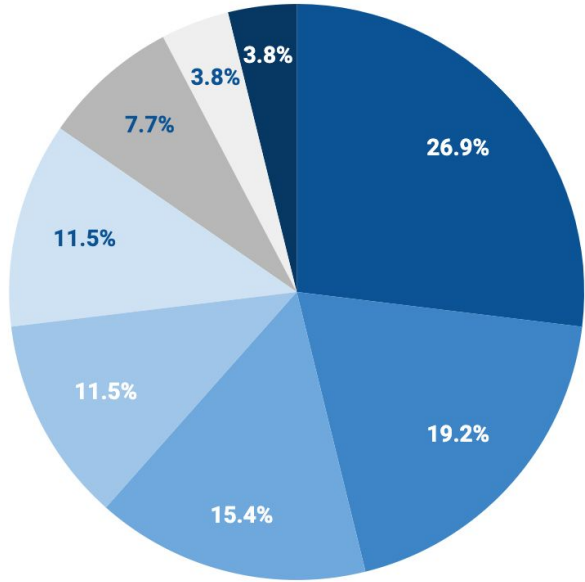
Headquarters: Caesarea, Hefa, Israel
Founders: Eldad Shemesh (Israel)
Founded Year: 2009
Funding Status: Series A
Number of employees: 11-50

In 2022 year, Israel has sent a Rakia mission into space, with astronaut Eitan Stibbe set to take an unprecedented 35 different experiments to the International Space Station. The mission brings together entrepreneurs, academics, government officials, local and global space industry representatives, and investors. It aims to provide local entrepreneurs, startups, and space ventures a support platform for knowledge-sharing, networking, and collaboration. Brain.Space, UltraSight and CardiacSense are the most bright Israeli space startups.

Space Medicine by Area of Application, 2023

Proportion of Space Medicine Companies by Area of Treatment

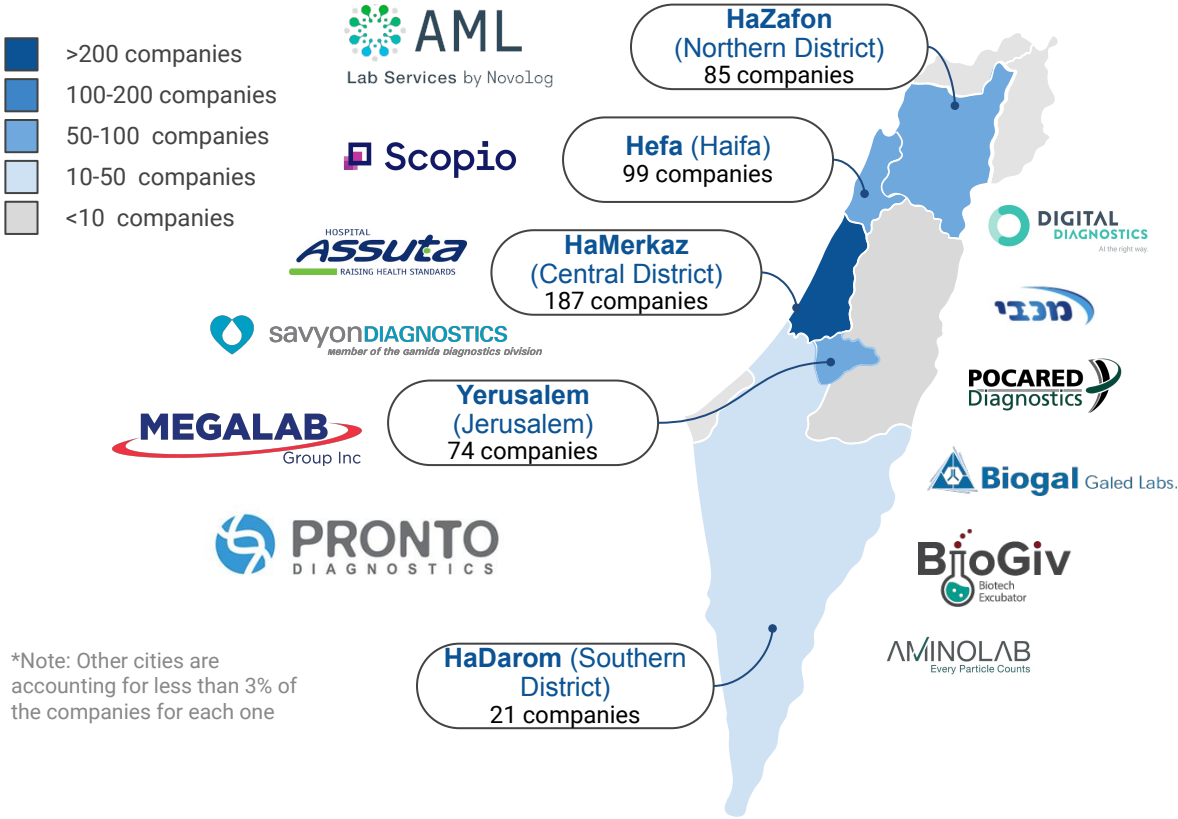
- Vision Loss (26.9%)
- Infectious (19.2%)
- Brain Aging (15.4%)
- Oncology (11.5%)
- Heart Health (11.5%)
- Bone & Muscles (7.7%)
- Gut Health (3.8%)
- First Aid (3.8%)



Space Medicine companies develop product for diagnostics and treatment age-related disease in astronauts. Their aim is prevention of diseases related with long-term and short-term space flights as wells as preparation to intraplantar living during exploration of other planets.

In this case, human health is a big focus. There is medical screenings on urine while in space using technology developed by [Healthy.io](#), an Israeli company with an FDA-approved smartphone app that enables at-home urinalysis. Other tests measure anatomical and functional changes of astronauts' eyes in space; how microgravity can change the structure of the heart, and the size of its cavities; how space affects aging of the immune system, and the progression of dementia, including Alzheimer's disease; and how microgravity affects, under different conditions, nano ghosts, which are super tiny cells extracted from mesenchymal stem cell membranes that help repair human organs.

Geography of Diagnostic Laboratories in Israel, 2023



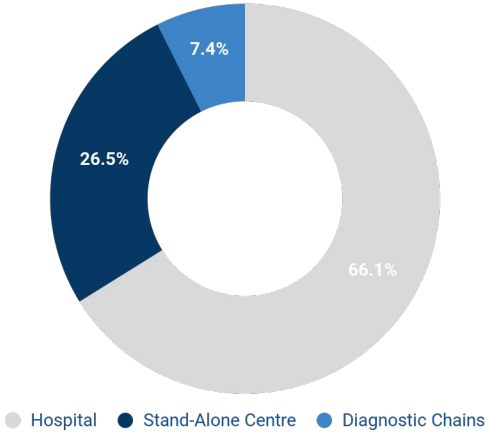
*Note: Other cities are accounting for less than 3% of the companies for each one

Since the early 2000s, the diagnostic market has witnessed growth. Distribution created a new business development model – vertical integration of the stand-alone laboratories and diagnostic chain operators. Nowadays, **Tel Aviv, Jerusalem, and Haifa** are the **major centres** of diagnostic hubs in Israel. Geographic distribution of companies is based on localisation of **large medical centres** and **hospitals**. The diagnostic market in Israel is an important and rapidly growing sector of the country's economy.

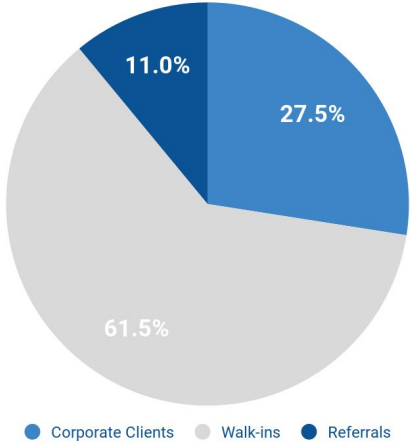
Additionally, the country's international investments in this sector, advanced infrastructure, and high activity in clinical research and medical tourism development improve the share diagnostic market in the country economy.

Number of Companies in Diagnostic Subsector

Diagnostic Labs Market by Provider Type



Diagnostic Labs Market by End User



The Israeli market for diagnostic labs is projected to experience a steady growth rate throughout the forecast period, spanning 2023-2027. This growth is likely to result from multiple factors, including a rise in the number of patients afflicted by various illnesses and an increased understanding among patients of the advantages of early detection. In addition, there is expected to be an upsurge in demand for the Israeli diagnostic labs market due to the pressing need for rapid diagnosis during emergency situations and considerable investments in healthcare infrastructure. The prevalence of chronic diseases, including stroke, cancer, cardiovascular disease, obesity, diabetes, and arthritis, has resulted in an increase in the number of tests performed to identify the presence of such ailments. Lifestyle factors, unhealthy eating habits, and communicable diseases are the primary drivers behind the high number of patients in Israel.

Sheba Longevity Centre



Focus Areas of the Center

- Introducing proactive medicine concept
- Increasing healthspan of the world's population by providing medical assistance to patients over 40 years old
- Focusing on longevity-related health aspects: sleep issues, cognitive functioning, frailty and menopause
- Providing patients with a multidisciplinary expertise and a recommended course of action to enjoy longevity

Headquarters location: Israel
Mission: Disease-free longevity prioritization
Website: shebaonline.org

Sheba Medical Center is one of the world's top 10 hospitals leading in medical innovations and personalised medicine. Sheba's Health Longevity Center project has recently been launched thanks to Prof. Tzipi Strauss, Director of Neonatology and pediatric physician at Sheba Hospital. Health Longevity Center opening is expected in September 2023.

Sheba Longevity Centre main aim is to increase the healthspan of the world's population. While the average lifespan keeps increasing thanks to medical and technological progress, healthspan does not follow such growth. The main goal of the center is to fight chronic diseases that often affect older population with a focus on sleep issues, cognitive functioning, frailty and menopause. Sheba's Health Longevity Center introduces a new concept: proactive medicine, as opposed to traditional reactive and preventive medicine concepts.

Longevity Clinic: Shmuel Harofe Geriatric Hospital



Location: Be'er Ya'akov, Israel

Founded: 1961

Affiliation: Sackler School of Medicine,
Tel Aviv University

Type: General hospital with 900 beds

Comprehensive medical care across multiple specialties including:

Obstetrics and Gynecology

Internal Medicine

Pediatrics

Surgery

Cardiology

Oncology

Neurology

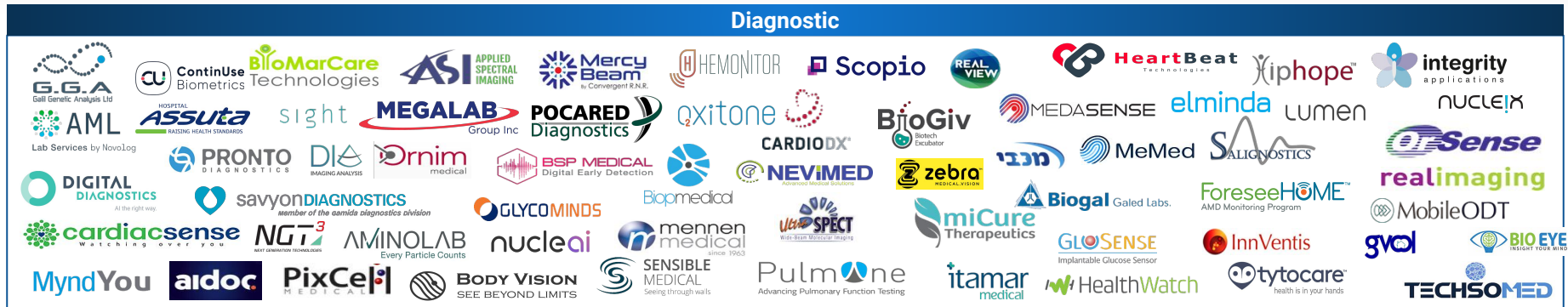
The Shmuel Harofeh Geriatric Medical Center houses the Geriatric Clinic for Healthy Longevity, which is designed to provide diverse medical services to the elderly population, from the age of 65 onwards. The medical services in the geriatric clinic include the expert advice by physicians who specialize in geriatrics regarding the range of medical and mental problems that affect the older persons (over the age of 65). The specially designated purpose of the Hospital is to provide quality medical, nursing-care and paramedical services, of a high professional standard and with a personal approach, for the elderly in the area of the coastal plain and the central district, both as a matter of routine and in times of emergency.



Top Diagnostic Laboratories in Israel

Among Top 10 Israel diagnostic laboratories all of them offer **classic genetics tests** for various conditions, including **prenatal diagnostics**. Although, only three laboratories in Israel provide advanced genetic testing, i.e. **Next-Generation Sequencing**. Beside genetics, Israeli diagnostic laboratories provide a wide range of **blood and other liquids analysis**. A lot of laboratories, including a few from the top list, possess also a medical centre that offers **instrumental diagnostics** (Ultrasound, ECG, MRI, etc.). It is worth noting that few laboratories provide **microbiome analysis**, which is a rare offer among regular diagnostic laboratories in Israel.

G.G.A. Genetic Center (Galil Genetic Analysis Ltd.) deserves special attention as a leading genetic centre and laboratory certified by the Ministry of Health in Israel that performs advanced genetic, medical, and clinical tests, genetic counseling, and genetic research services since 2009. G.G.A. is a significant player in the process of implementation and **transition to genomic medicine** and **Personalized Medicine** through an advanced genetic centre which routinely provides advanced genetic testing services, on the one hand, and **constantly develops new tests and participates in leading research in these fields**, on the other.





התנועה לאיכות ואריכות חיים (ע"ר)
Seniority-The Movement for
Longevity and Quality of Life



Biogerontology
Research Foundation
Prevent. Restore. Preserve.



DEEP
KNOWLEDGE
GROUP



ATLAS

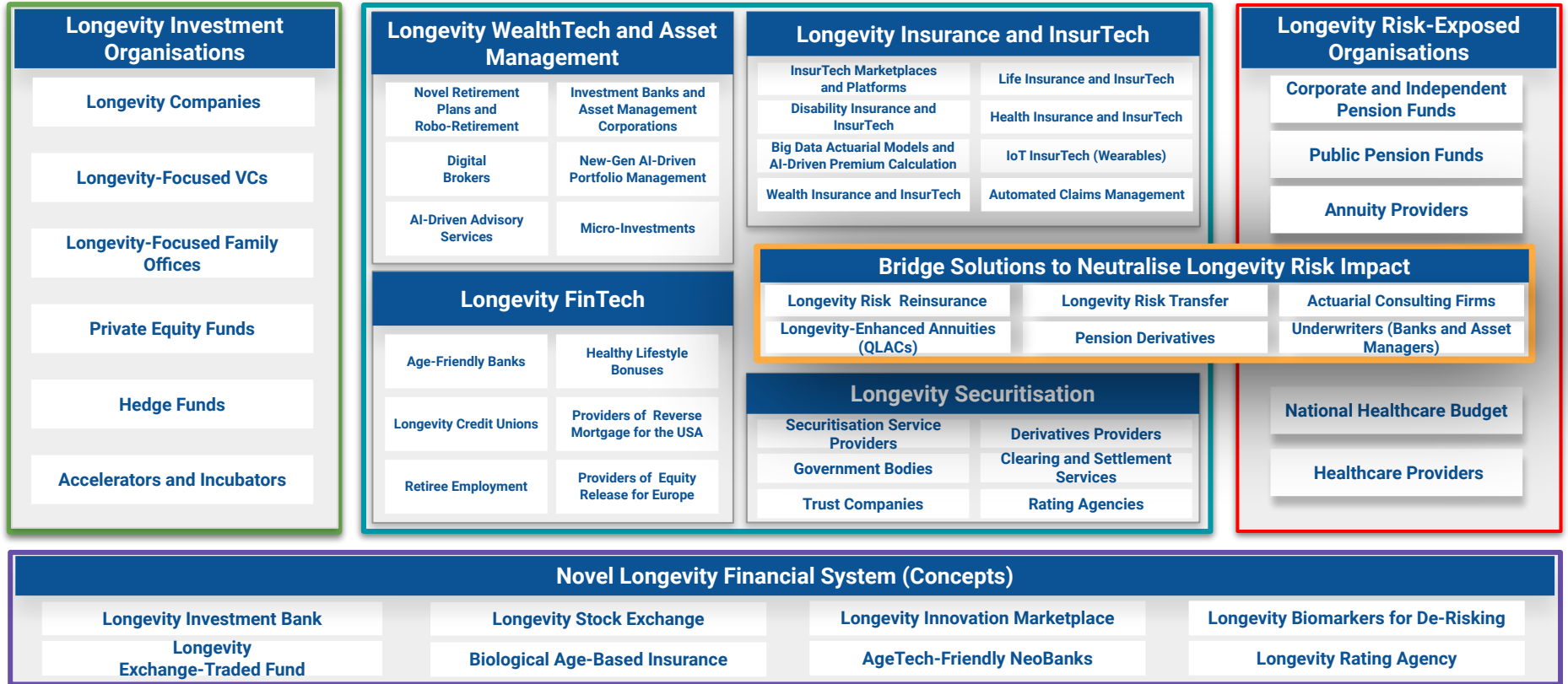


LONGEVITY
INTERNATIONAL

Longevity Finance Industry in Israel 2023

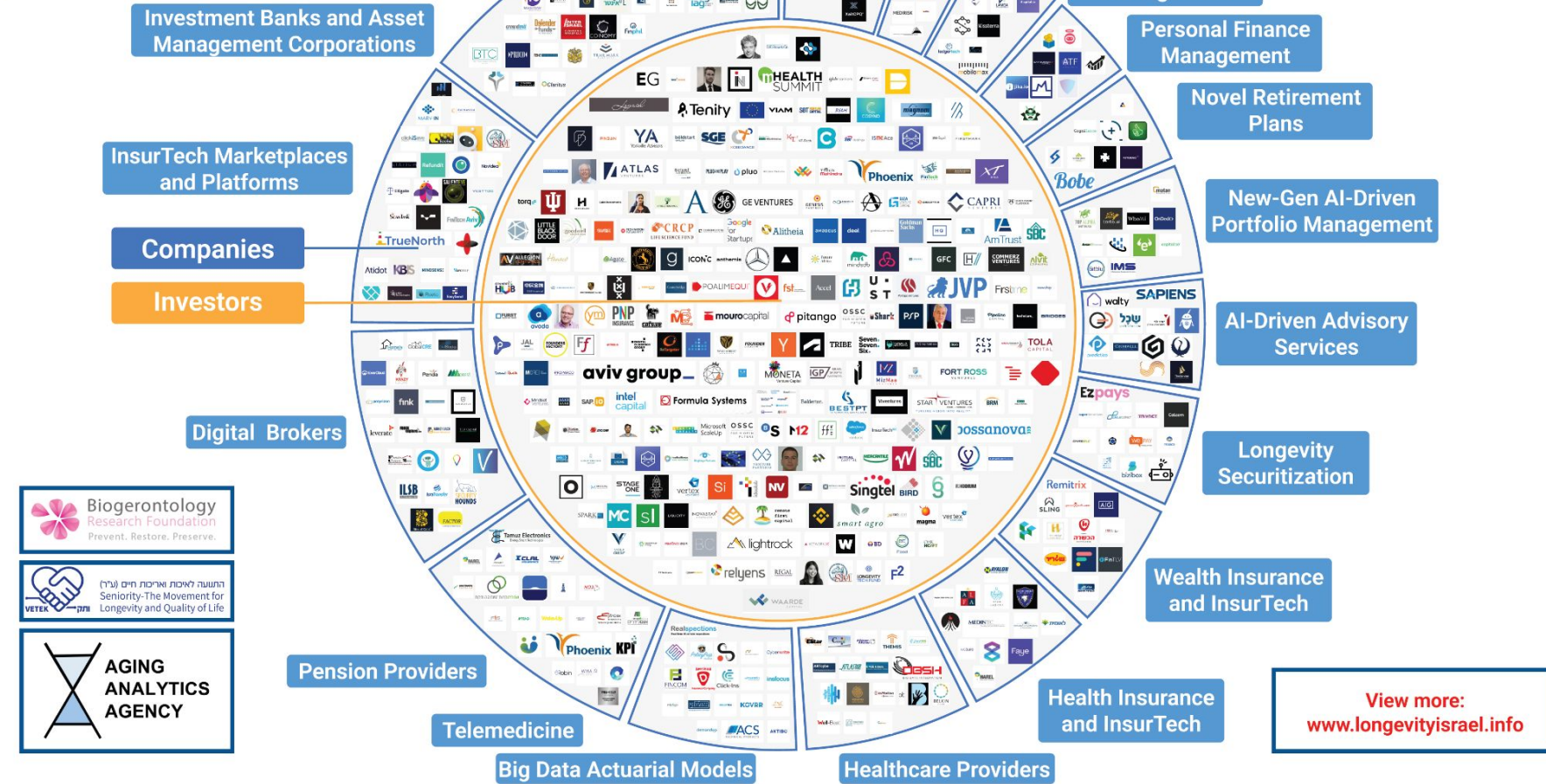


Longevity Financial Industry Framework



Longevity Financial Industry in Israel 2023

Companies - 250
Investors - 260



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VETEK
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AGING ANALYTICS AGENCY

View more:
www.longevityisrael.info

250 Companies

Longevity Financial Industry in Israel 2023



Investment Banks



InsurTech Marketplaces



Digital Brokers



Health Insurance and InsurTech



Big Data Actuarial Models



Healthcare Providers



AI-Driven Advisory Services



Longevity Securitization



Other



Pension Providers



Wealth Insurance and InsurTech



AI-Driven Portfolio Management



Robo-Retirement



Personal Finance Management



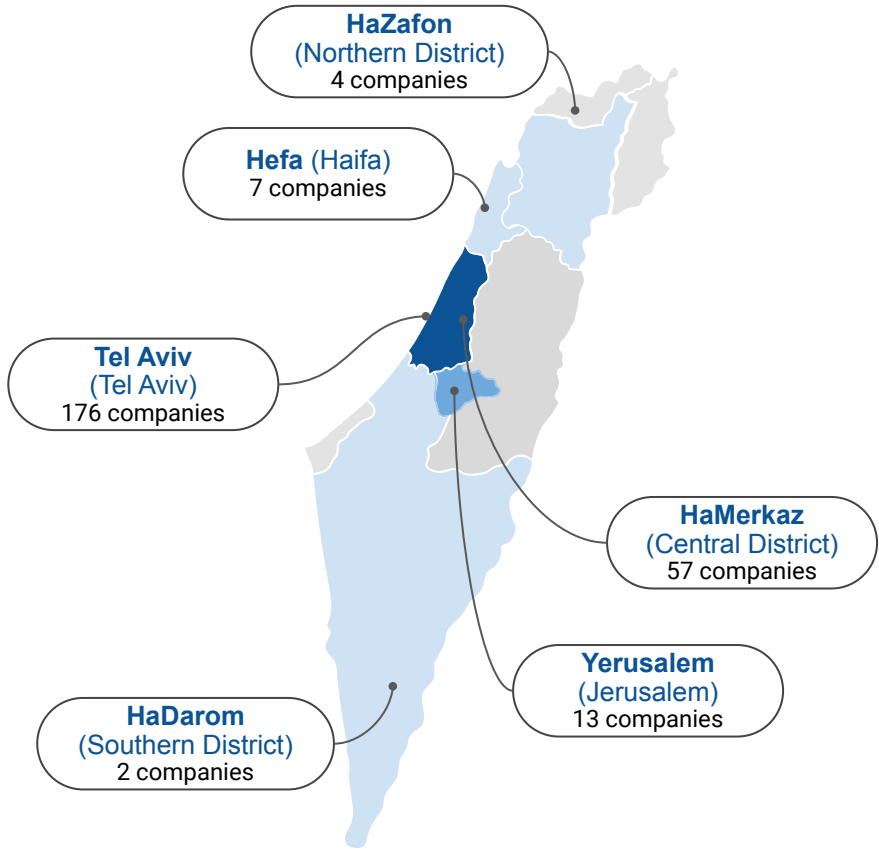
Automated Claims Management



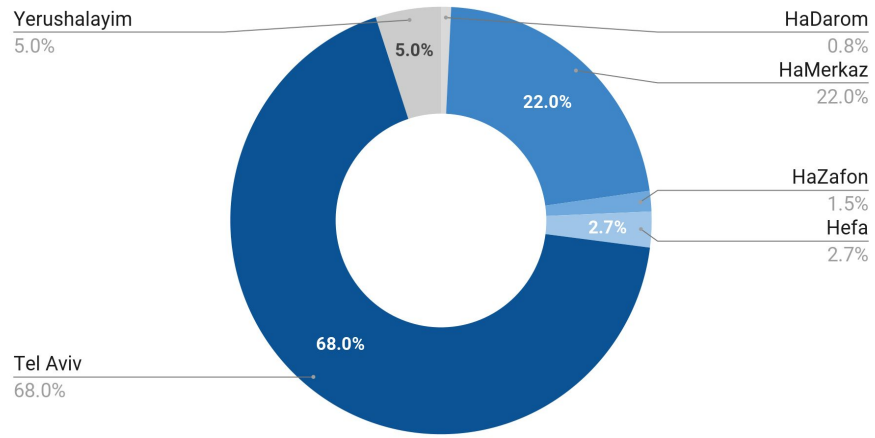
Life Insurance



Geographical & Sectoral Distribution of Longevity Finance Companies



Distribution of Longevity Financial Companies across Locations



Most **Longevity Finance** companies are located in the **Tel Aviv area**, accounting for **176 companies**, which is more than two-thirds of the total number of companies. **HaMerkaz** comes next with **22%** of the total number of companies, followed by **Yerusalem**, **Hefa**, **HaZafon**, and **HaDarom** with a total of **26 companies**.

Funding Distribution Across Longevity Finance Sectors in Israel over Years (1/2)

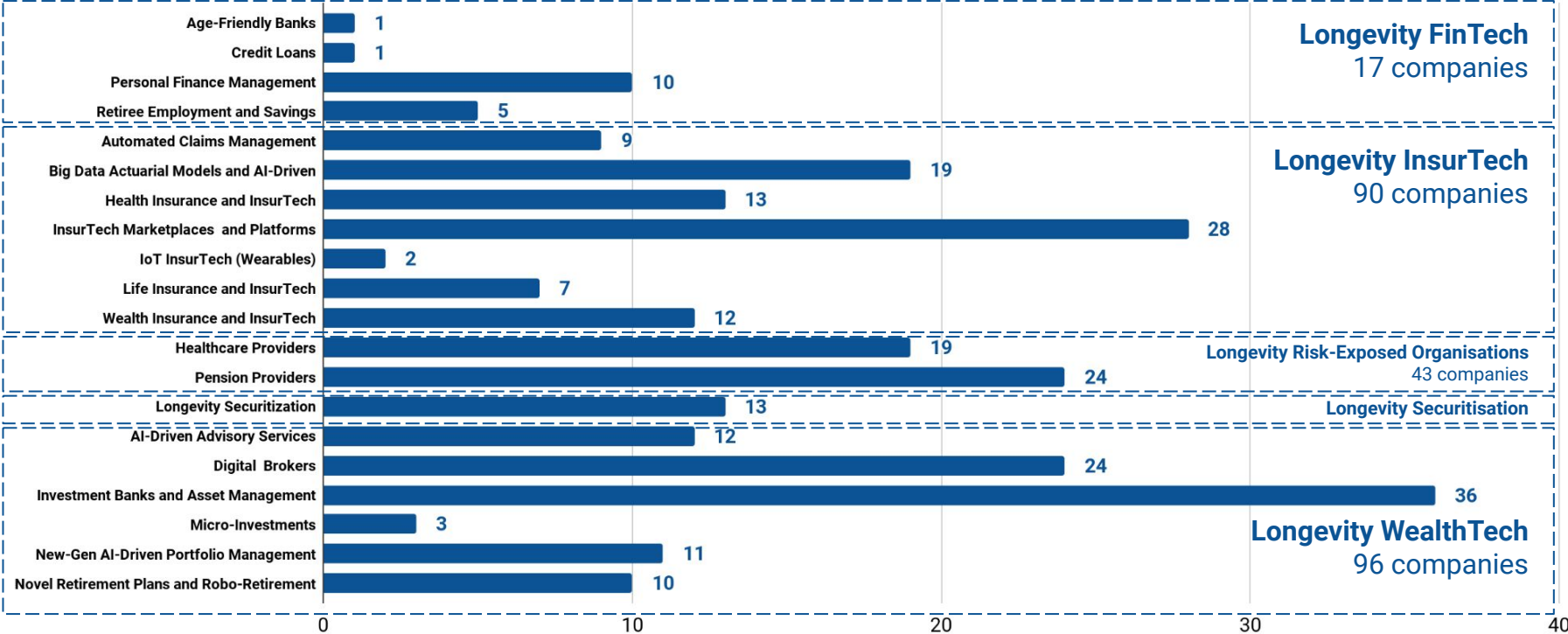
Sector	Subsector	2017	2018	2019	2020	2021	2022	2023	Grand Total
Longevity FinTech	Age-Friendly Banks		\$1.0M	\$1.0M	\$1.0M	\$2.0M			\$5.0M
	Credit Loans			\$0.0M					\$0.0M
	Personal Finance Management		\$1.0M			\$1.0M			\$5.0M
Longevity FinTech Total			\$2.0M	\$1.0M	\$1.0M	\$3.0M			\$10.0M
Longevity Insurance and InsurTech	Automated Claims Management			\$1.0M		\$3.0M	\$1.0M		\$5.0M
	Big Data Actuarial Models and AI-Driven Premium Calculation	\$3.0M	\$2.0M	\$2.0M	\$1.0M	\$0.0M			\$9.0M
	Health Insurance and InsurTech	\$1.0M	\$1.0M	\$2.0M	\$1.0M	\$1.0M	\$2.0M		\$8.0M
	InsurTech Marketplaces and Platforms	\$2.0M	\$6.0M	\$4.0M	\$8.0M	\$8.0M	\$4.0M		\$34.0M
	Life Insurance and InsurTech	\$0.0M			\$1.0M				\$2.0M
	Wealth Insurance and InsurTech	\$1.0M	\$1.0M		\$0.0M	\$1.0M	\$0.0M		\$3.0M
Longevity Insurance and InsurTech Total		\$7.0M	\$10.0M	\$9.0M	\$11.0M	\$13.0M	\$7.0M		\$61.0M

Funding Distribution Across Longevity Finance Sectors in Israel over Years (2/2)

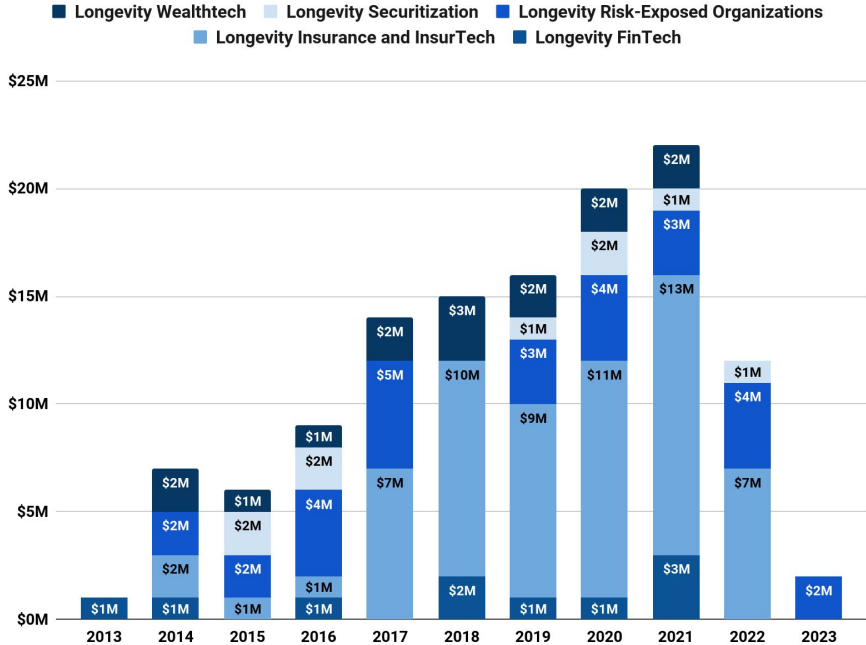
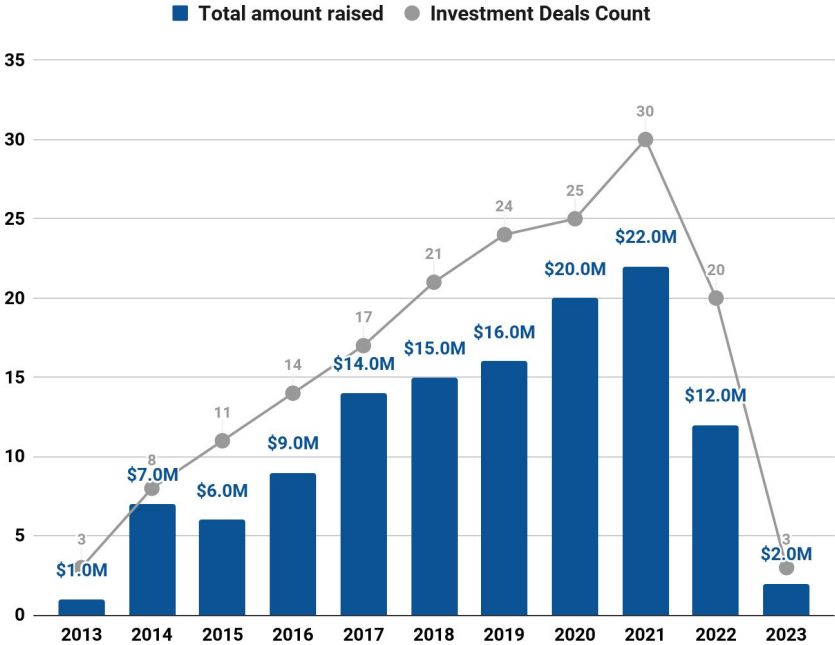
Sector	Subsector	2017	2018	2019	2020	2021	2022	2023	Total
Longevity Risk-Exposed Organisations	Healthcare Providers	\$5.0M	\$0.0M	\$1.0M	\$4.0M	\$3.0M	\$1.0M	\$0.0M	\$20.0M
	Pension Providers			\$2.0M			\$3.0M	\$2.0M	\$9.0M
Longevity Risk-Exposed Organisations Total		\$5.0M	\$0.0M	\$3.0M	\$4.0M	\$3.0M	\$4.0M	\$2.0M	\$29.0M
Longevity Securitisation	Longevity Securitisation			\$1.0M	\$2.0M	\$1.0M	\$1.0M		\$9.0M
Longevity Securitisation Total				\$1.0M	\$2.0M	\$1.0M	\$1.0M		\$9.0M
Longevity Wealthtech	AI-Driven Advisory Services	\$2.0M		\$1.0M	\$1.0M				\$4.0M
	Digital Brokers								\$2.0M
	Investment Banks and Asset Management Corporations		\$1.0M	\$0.0M					\$1.0M
	New-Gen AI-Driven Portfolio Management		\$2.0M	\$1.0M	\$1.0M	\$2.0M			\$8.0M
	Novel Retirement Plans and Robo-Retirement			\$0.0M					\$0.0M
Longevity WealthTech Total		\$2.0M	\$3.0M	\$2.0M	\$2.0M	\$2.0M			\$15.0M
Total for All Sectors		\$14.0M	\$15.0M	\$16.0M	\$20.0M	\$22.0M	\$12.0M	\$2.0M	\$124.0M

Longevity Finance Companies Distribution by Sectors

Longevity Finance Industry companies are distributed across five major sectors, whereas Longevity Insurance & InsurTech and Longevity WealthTech & Asset Management are the most represented sectors among Israel-based companies. Longevity Securitisation, being the emerging sector of the Longevity Finance Industry, is represented by the least number of companies in Israel.

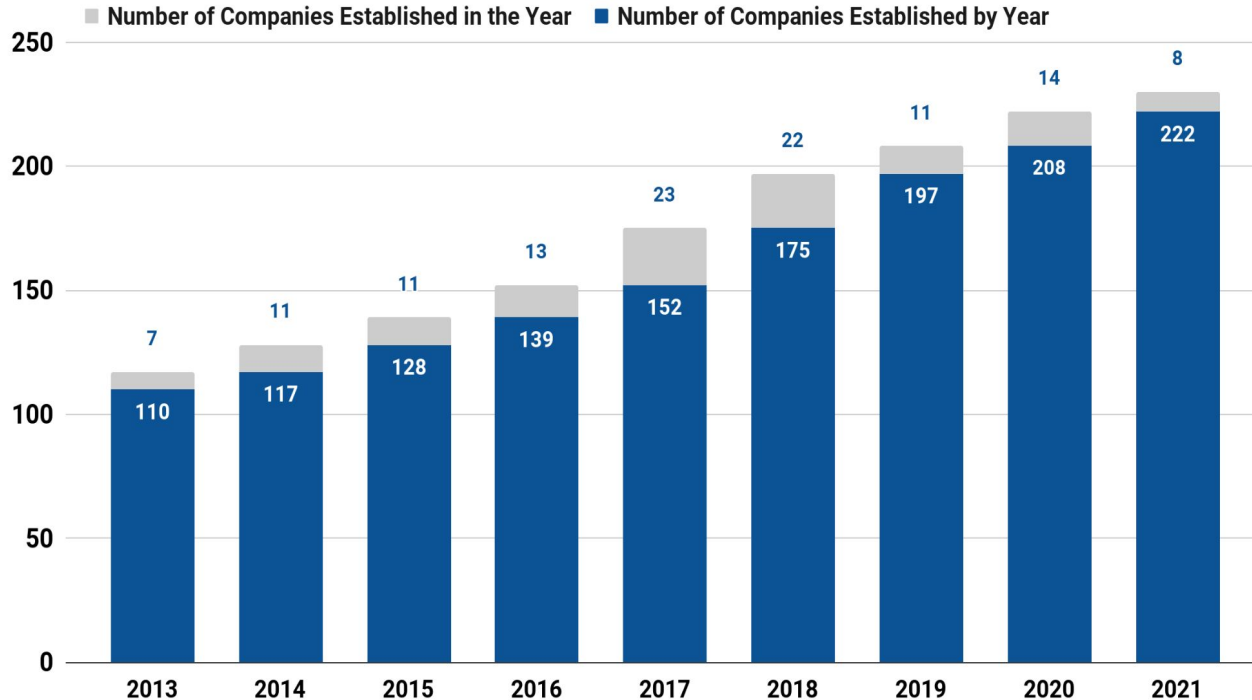


Investment Dynamics of Longevity Finance Companies



The left graph clearly shows that the volume of investment in the Longevity Finance Industry of Israel has been growing in 2015-2021 with a CAGR of 47%. However, the investment volume decreased by 83% in 2022, compared to the previous year. The graph on the right shows that over the past 11 years, the Longevity Insurance and InsurTech sector was the most funded (61 deals, or almost half of all deals).

Cumulative Number of Established Companies



From the chart, we can see that the number of companies established each year has fluctuated, with a peak in 2017 when 23 companies were established. The number of companies established in 2021 (8) is the lowest in the period shown.

However, when we look at the cumulative number of companies established, we see a steady increase from 110 in 2013 to 222 in 2021. This indicates that while the number of new companies established each year may fluctuate, the overall trend is towards an increasing number of companies being established over time.

Longevity WealthTech and Asset Management

Longevity WealthTech and Asset Management refers to the application of technology to help individuals plan and manage their finances to live a longer life. This field focuses on providing financial planning solutions for people who are expected to live beyond the traditional retirement age of 65. Longevity WealthTech companies use AI, Machine Learning, and Big Data analytics to help clients plan for long-term financial goals such as retirement, healthcare costs, and other expenses that may arise in old age.

Novel Retirement Plans and Robo-Retirement

- Innovative solutions related to retirement plans, such as those offered by robo-advisors.
- Robo-advisors can help predict retirement goals by the target date and recommend ways to get back on track if needed.

Digital Brokers

- Online platforms and software tools provide easy access to stock market information and investment opportunities.
- Finance apps that make stock markets and innovative tools more accessible to a wider consumer base.

AI-Driven Advisory Services

- Solutions that use Machine Learning algorithms to provide consumers with investment advice.
- Emphasising the importance of long-term planning and flexibility for Longevity.

Investment Banks and Asset Managers

- Integrated solutions in health and personal finance management.
- Nonbiomedical components in achieving practical outcomes in Healthy Human Longevity.

New-Gen AI-Driven Portfolio Management

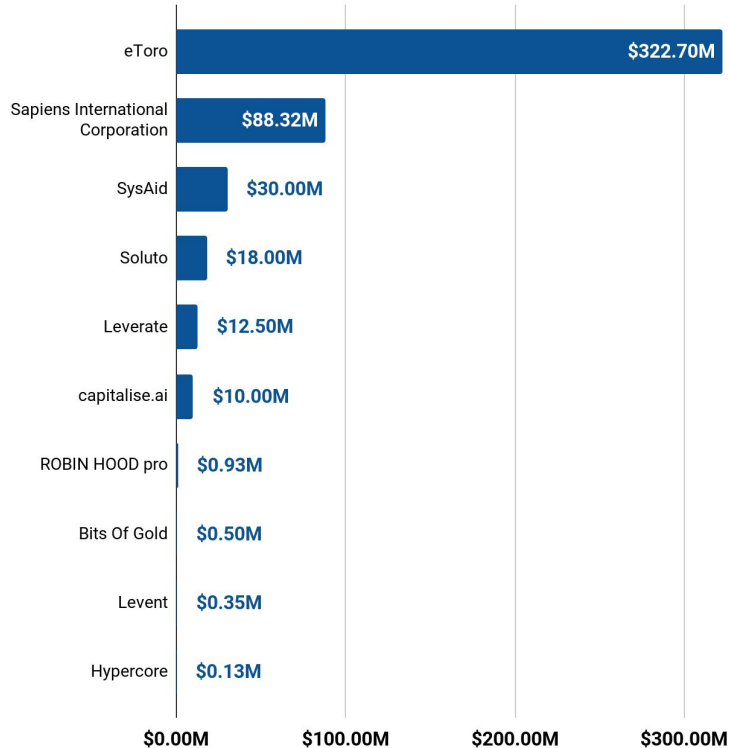
- Enhanced experience to investors.
- Interest across older age groups.
- Better performance than human-managed portfolios.

Micro-Investments

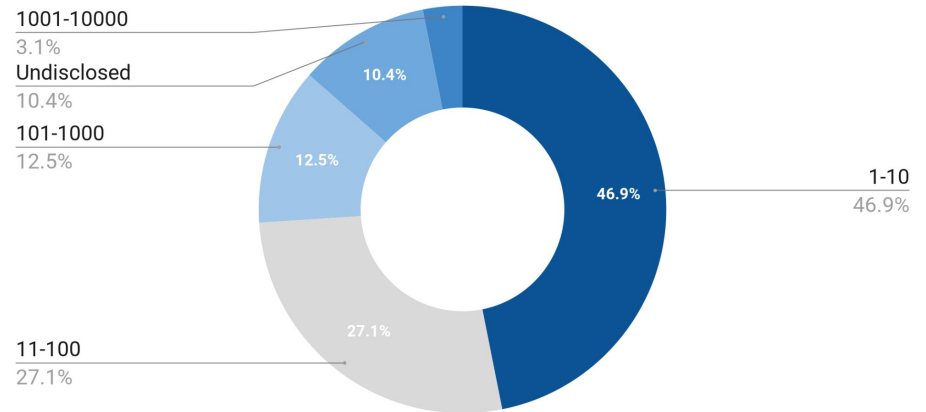
- More accessible investments to a wider pool of investors.
- Tailored solutions to the specific needs of older customers.

Longevity WealthTech and Asset Management in Israel

Top 10 Companies by Total Funding, \$M



Companies Distribution by Number of Employees



Longevity WealthTech and Asset Management sector is gaining traction in the Israeli companies ecosystem as the larger number of providers emerge on the market and receive investments from both venture investors and financial institutions, aiming to wider ember innovative solutions in their services. Currently, the WealthTech sector in Israel is shaped by almost 50% by small-size companies developing disruptive technologies in the wealth management industry.

Longevity Insurance and InsurTech

These companies typically use digital platforms, AI, Big Data, and other technologies to streamline insurance processes, improve the customer experience, and reduce costs.

InsurTech Marketplaces and Platforms

- Insurance marketplaces and platforms are digital ecosystems that connect industry participants, boosting innovation, price, and purchasing.

Big Data Actuarial Models and Premium Calculations

- Big Data and AI can help insurance companies construct mortality models for use by their actuaries.
- These models can improve pricing, underwriting, and identification of new market opportunities for Longevity-related products.

Disability InsurTech

- Disability insurance products provide income in case of policyholder's inability to work due to disability.

Wealth Insurance and InsurTech

- Long-term care insurance covers costs for long-term care services, such as nursing homes and assisted living facilities. Estate planning helps preserve wealth and transfer it to future generations.

IoT InsurTech (Wearables)

- Wearables like smartwatches and fitness trackers help InsurTech companies track customers' lifestyles. This data can be used to customise insurance policies and pricing based on risk.

Life InsurTech

- Life InsurTech subsegment covers organisations that provide payment of a stipulated sum to a designated beneficiary upon death of the insured.

Health InsurTech

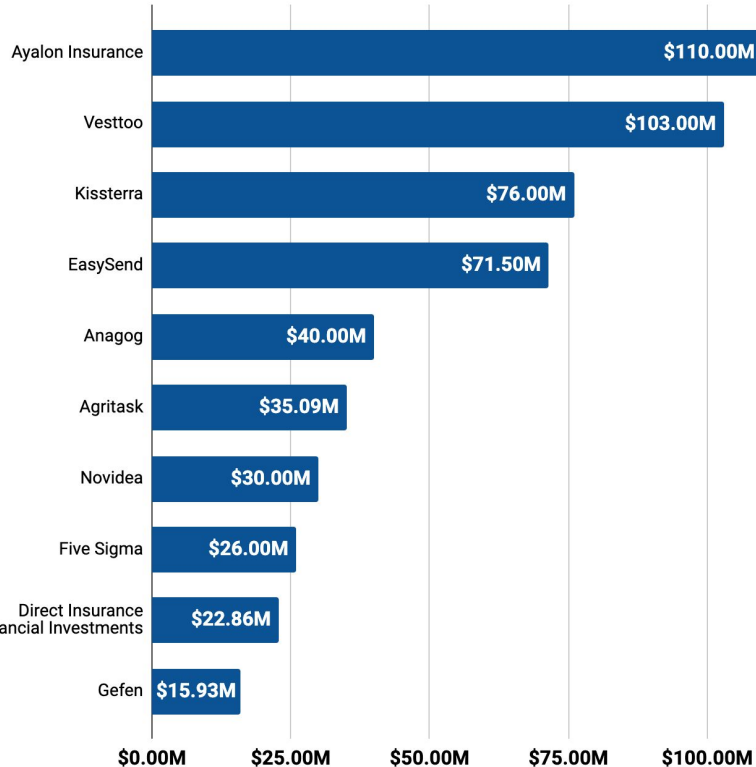
- The financing structure of healthcare system and, particularly, the health insurance has a vital role in improving the overall quality and expectancy of life.

Automated Claims Management

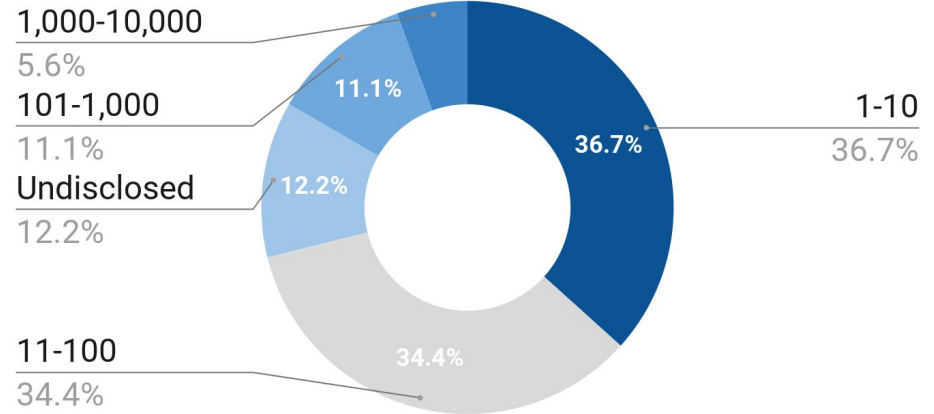
- This sector includes handling tasks such as assessing and processing claims, determining fraud, and providing quick service and efficient experience for customers.

Longevity Insurance and InsurTech

Top 10 Companies by Total Funding, \$M



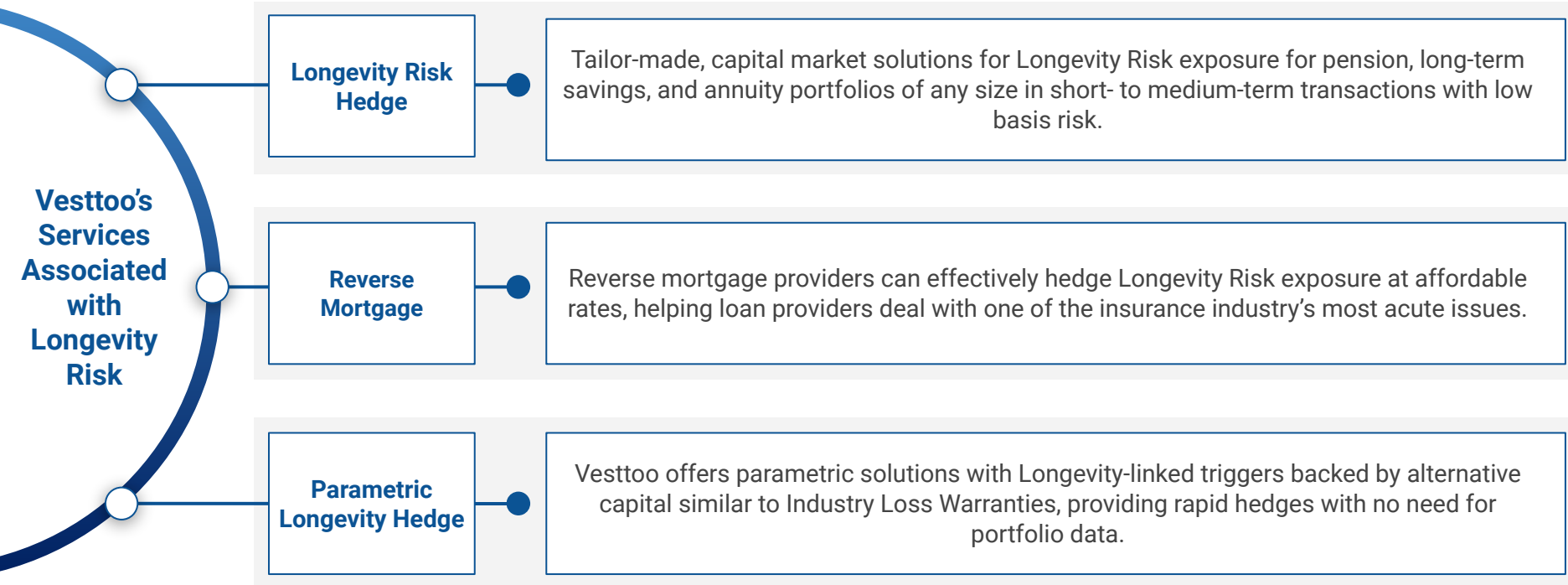
Companies Distribution by Number of Employees



Israel has a growing InsurTech industry, with many companies and established companies focusing on developing innovative technologies and solutions for the insurance industry. InsurTech companies have been receiving the largest amounts of funding compared to other sectors. The Israeli InsurTech industry includes companies that offer various services, such as digital insurance platforms, fraud detection and prevention tools, and data analytics solutions for insurance companies. At the same time, the Israeli market already witnessed InsurTech companies focusing on Longevity Risk management or develop solutions for the elderly.

Case Study of Longevity InsurTech in Israel: Vesttoo

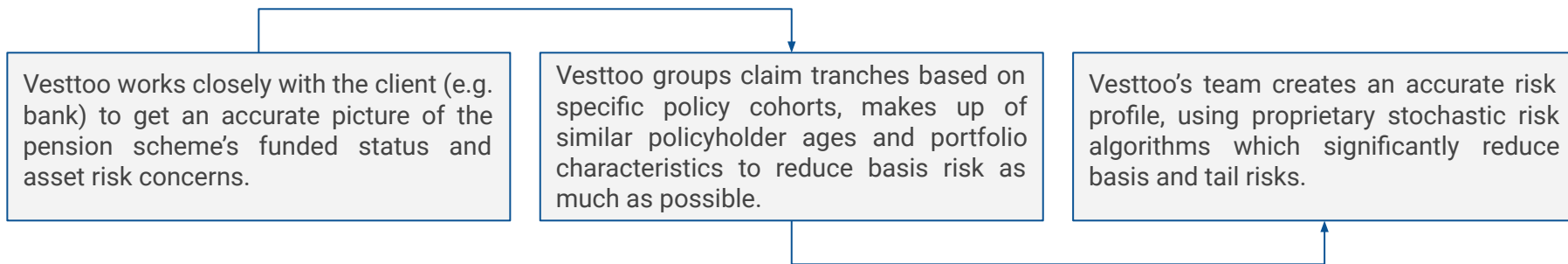
Vesttoo, an Israel-based InsurTech company, is using AI-based risk models to model long-tail risks such as Longevity. These models accurately predict risk development while lowering inherent basis risk. Vesttoo provides cedents with effective capital market solutions for Longevity Risk exposure associated with pension, LTC, annuity, and reverse mortgage portfolios.



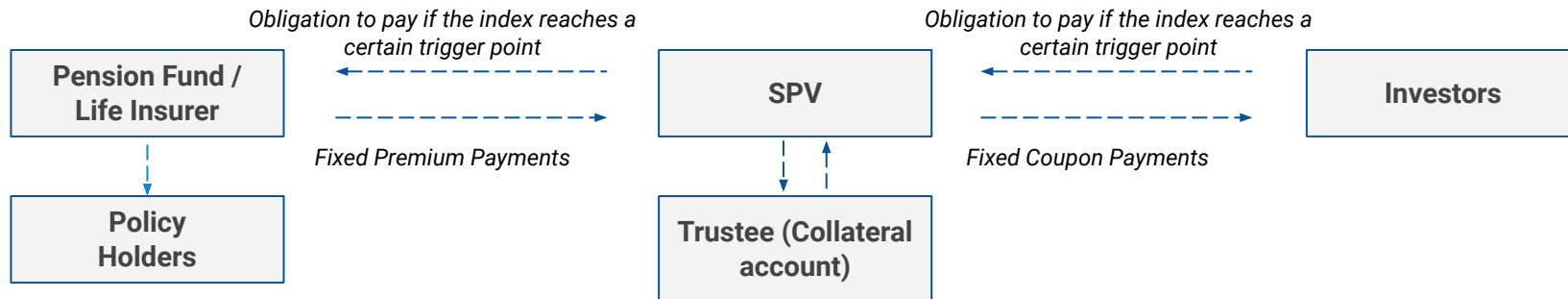
Case Study of Longevity InsurTech in Israel: Vesttoo's Longevity Risk Hedging Mechanism

Vesttoo works closely with insurers and reinsurers to manage their Longevity Risk using the capital markets. Vesttoo's capital relief solution builds portfolio-specific risk transfer programs with proven low basis risk for any portfolio size and annuity type.

Vesttoo's Longevity De-risking Process



Deals Structuring Mechanism



Longevity FinTech

Longevity FinTech refers to financial technology companies that specialise in providing products and services related to Longevity Risk management, retirement planning, and other financial needs of an ageing population. These companies leverage technology to provide innovative solutions to individuals and organisations looking to manage their Longevity Risk and plan for retirement.

Age-Friendly Banks

- Age-friendly banks focus on providing tailored financial products, services, and protections for older adults.
- Financial institutions have a responsibility and opportunity to better serve the growing older adult population.

Retiree Employment

- The trend of older adults remaining economically active in senior age presents an opportunity for companies to develop solutions catering to this demographic, such as specialised hiring platforms and educational initiatives.
- As the older population constitutes a significant portion of the workforce, offering employment benefits that cater to their needs can also be a potential opportunity for companies.

Longevity Credit Unions

- Credit unions are a type of financial cooperative that provide traditional banking services and can be formed by companies or communities for their employees and members.
- Longevity credit unions are tailored to meet the financial needs of the ageing population and provide services such as financing for life expenses.

Healthy Lifestyle Bonuses

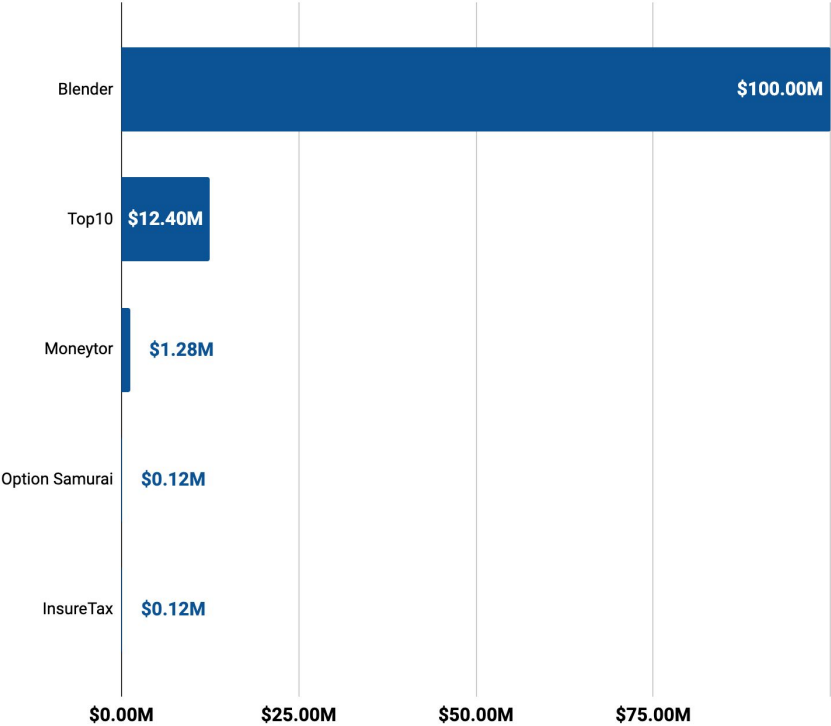
- The segment involves companies that provide solutions for an active and healthy lifestyle, and is expected to grow in upcoming years due to increasing demand from clients.
- These solutions aim to improve the overall well-being of clients and can include various types of businesses, such as fitness, nutrition, and wellness.

Providers of Reverse Mortgage (Equity Release)

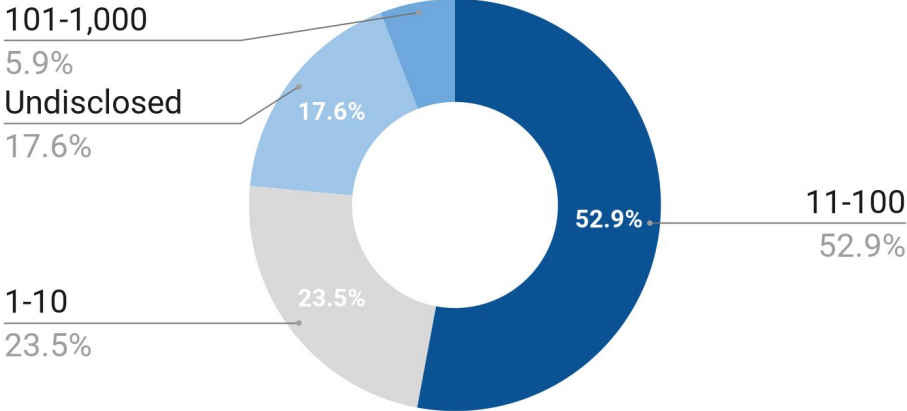
- A reverse mortgage is a type of loan used by homeowners of at least 60 years old who have considerable equity in their homes.
- In comparison with traditional asset-backed loans, reverse mortgage loans provide the elderly with a means of hedging Longevity Risk by helping to maintain a sustainable level of retirement income, while retaining tenure in the home.

Longevity FinTech

Top Companies by Total Funding, \$M



Companies Distribution by Number of Employees



Israel has become a burgeoning hub for Longevity FinTech companies, utilizing advanced technology to address the challenges of Longevity.

Blender received the highest funding amount of \$100.00 million, followed by Top 10 with \$12.40 million. Moneytor, Option Samurai, and InsureTax received comparatively lower funding amounts of \$1.28 million, \$0.12 million, and \$0.12 million, respectively. More than half of organisations have between 11 and 100 employees.

Longevity Securitisation

Longevity securitisation is a financial mechanism that enables insurance companies and pension funds to transfer the risk of increased life expectancy to investors in capital markets. The basic idea behind Longevity securitisation is that investors purchase securities that provide a return based on the mortality experience of a specified population or portfolio of individuals.

Securitisation Service Providers

- Securitisation service providers can help pension funds and insurance companies to structure and market securities that are backed by their pension or annuity assets.
- They can also manage and service the securities after they have been issued.

Government Bodies

- Government can create and regulate the market for Longevity-linked securities. It can issue sovereign Longevity bonds to finance the cost of living of an ageing population.
- Government bodies can also provide guarantees and reinsurance to help pension funds and insurance companies to borrow money against their pension or annuity assets.

Trust Companies

- The companies can provide pension funds and insurance companies with trust and custodial services, and can also invest in securities that are backed by their pension or annuity assets.
- They can also invest in securities that are backed by pension or annuity assets.

Derivative Providers

- The providers can help pension funds and insurance companies to manage interest rate and credit risk of the pension or annuity assets and borrow money using these derivatives.
- They can also help pension funds and insurance companies to borrow money using these derivatives.

Clearing and Settlement Services

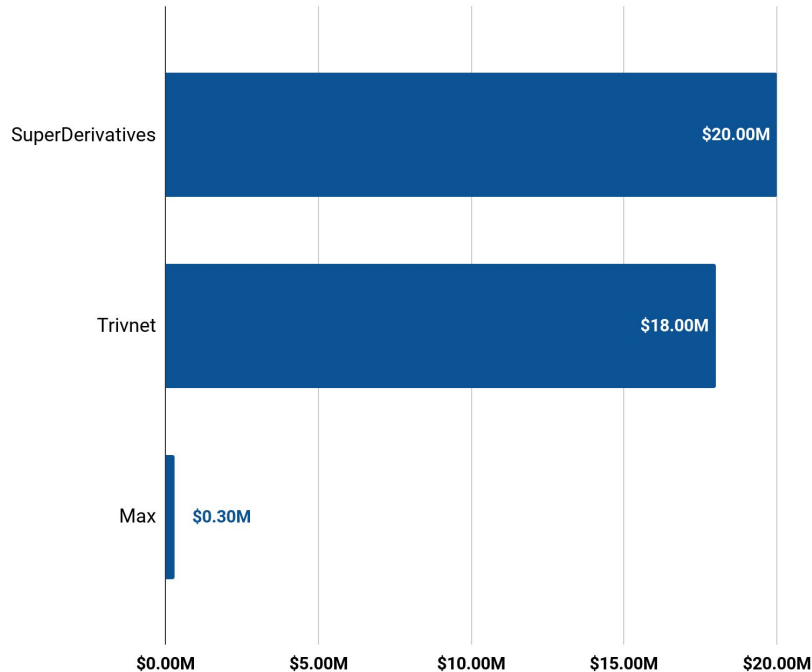
- Clearing and settlement services provide pension funds and insurance companies with services to clear and settle trades of Longevity-linked securities. They can help to reduce the counterparty risk of trading these securities.
- These entities can also provide services to manage the collateral and margin of these securities.

Rating Agencies

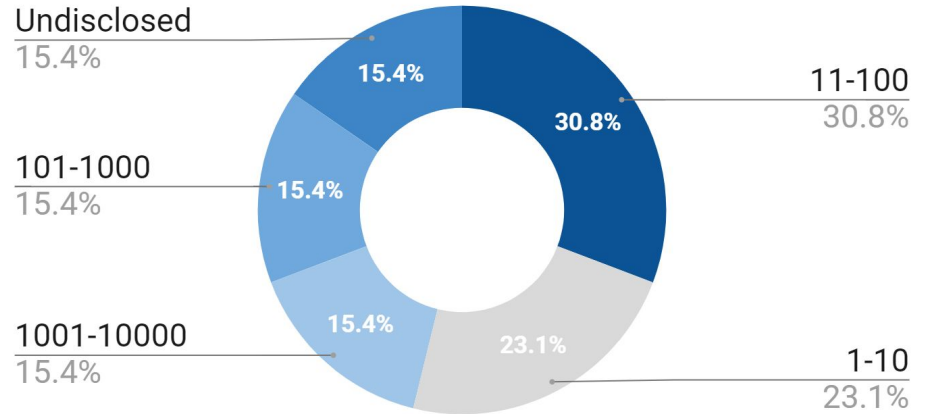
- Rating agencies can provide credit ratings for securities that are backed by pension or annuity assets, which can make it easier for pension funds and insurance companies to borrow money.
- They can also invest in securities that are backed by pension or annuity assets.

Longevity Securitisation

Top Companies by Total Funding, \$M



Companies Distribution by Number of Employees



Longevity securitisation service providers offer great opportunities for hedging the Longevity Risk as it is a major issue for insurance companies and pension funds. There are few securitisation companies in Israel; the left chart shows three companies by their total funding amounts. SuperDerivatives received the highest amount of \$20 million; Trivnet comes next with a gap of \$2 million, and Max takes third place with an amount of only \$0.3 million.

Longevity Risk-Exposed Organisations

Longevity Risk is the risk that an individual or organisation will live longer than expected, leading to increased financial obligations and expenses. Here are some examples of organisations that may be exposed to Longevity Risk.

Corporate and Independent Pension Funds

- Corporate pension funds provide retirement benefits to current and former employees of a company and may transfer Longevity Risk off their books.
- Independent pension funds are retirement savings plans that are not affiliated with a specific employer or organisation, created with the goal of providing a reliable source of income in retirement.

Healthcare Providers

- Healthcare providers face increased costs as the population ages and lives longer. Long-term care and chronic disease management put strain on healthcare systems.
- Healthcare providers may see a reduction in revenue as older patients require more long-term care and less acute care, which is typically more profitable for providers.

Public Pension Funds

- Public pension funds are retirement savings plans that are established and managed by government entities.
- Longevity Risk is a major concern for public pension funds as the increased life expectancy of their members puts a strain on the funds' ability to meet their long-term obligations.

National Healthcare Budgets

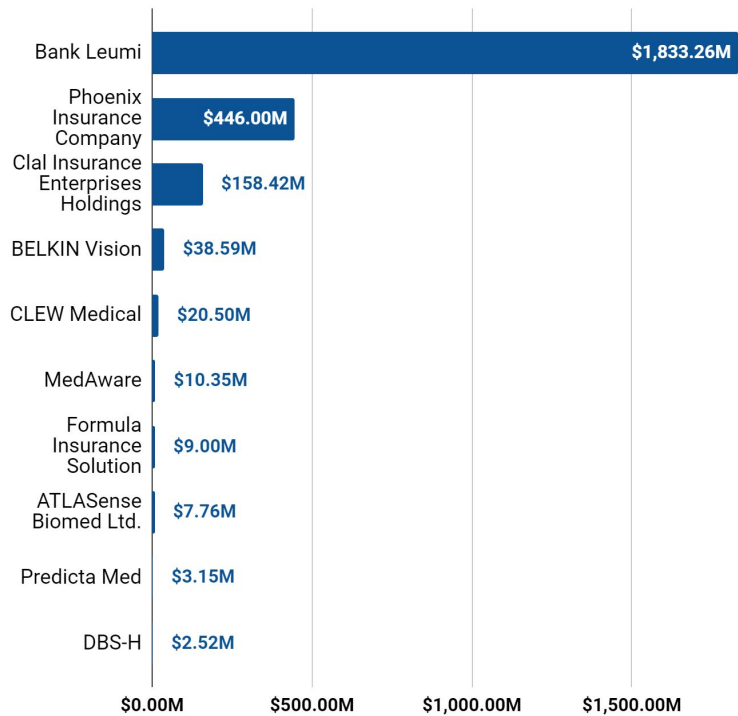
- Governments have significant Longevity Risk exposure through public pension plans and social security schemes.
- To address this risk, governments can implement measures such as acknowledging the exposure, ensuring fiscal sustainability, risk sharing with private pension providers, and transferring the risk through pension system reform and individual financial buffers.

Annuity Providers

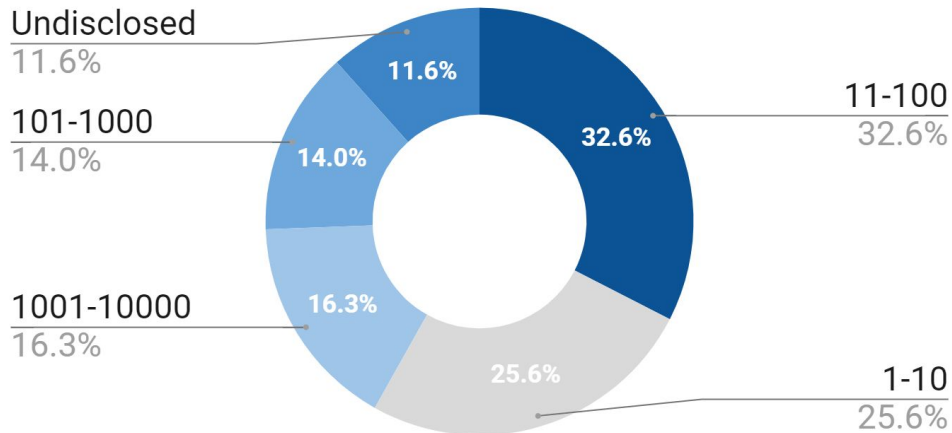
- Annuity providers may face financial strain as they may have to pay out benefits for longer periods of time due to increased Longevity.
- The liabilities of life insurance companies are also highly exposed to Longevity Risk while their assets, typically equities, bonds, and real estate, are not. Large insurance corporations hold a large amount of Longevity Risk, and many of them, such as Towers Watson and Swiss Re, already practice the risk transfer to global reinsurers large enough to absorb the risk.

Longevity Risk-Exposed Organisations

Top Companies by Total Funding, \$M



Companies Distribution by Number of Employees



Longevity Risk-exposed companies are those that are vulnerable to the financial impact of people living longer than expected. In Israel, there are several industries and companies that may be exposed to Longevity Risk. They are ranging from large-size corporations aggregating sufficient financial resources to small-size companies. The vast majority of Longevity Risk-exposed companies are those having up to 100 employees.

Longevity Investment Organisations

Longevity investment organisations are entities that specialise in investing in companies, products, and technologies that address the challenges of ageing and promote Longevity.

Longevity Companies

- Includes entities related to scientific research into ageing and its diseases, as well as synergies between multiple sectors.
- Longevity companies are maturing and becoming more prevalent, with large institutional investors increasingly investing in the industry and a full-fledged emerging infrastructure.

Longevity-Focused Family Offices

- High net worth individuals (HNWIs) and family offices have a significant interest in the industry of radical life extension.
- They are actively seeking ways to invest in and benefit from breakthroughs in the field of Longevity.

Hedge Funds

- Hedge funds aim to benefit from breakthroughs in the field of Longevity and provide capital and resources to support growth of Longevity companies.
- Longevity companies offer hedge funds diversification benefits and high returns potential; the Longevity Industry is relatively uncorrelated with other sectors.

Longevity-Focused VCs

- Among several thousand investment funds in the Longevity Industry space, venture capital funds that focus mainly on Longevity companies are the leading funding institutions.
- These funds aim to accelerate breakthroughs in different areas of Longevity and make them more widely available and affordable.

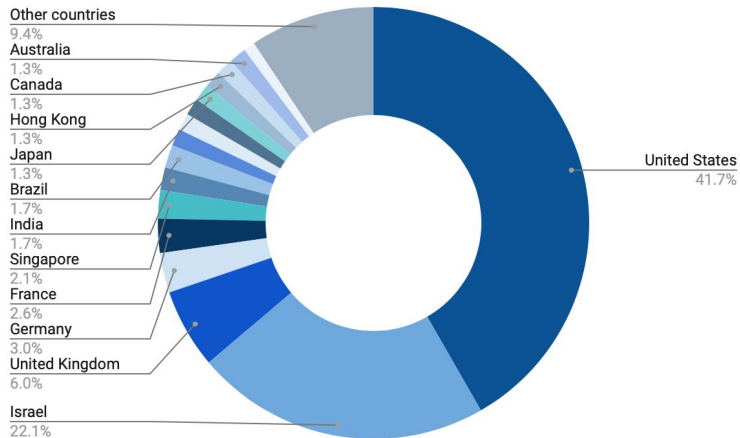
Private Equity Funds

- Private equity funds of various types, such as growth equity, buyout, and mezzanine funds, have a strong interest in the radical life extension industry.
- Private equity funds play a critical role in providing the capital and resources needed to support the growth of companies, as well as in bringing cutting-edge Longevity solutions to the market.

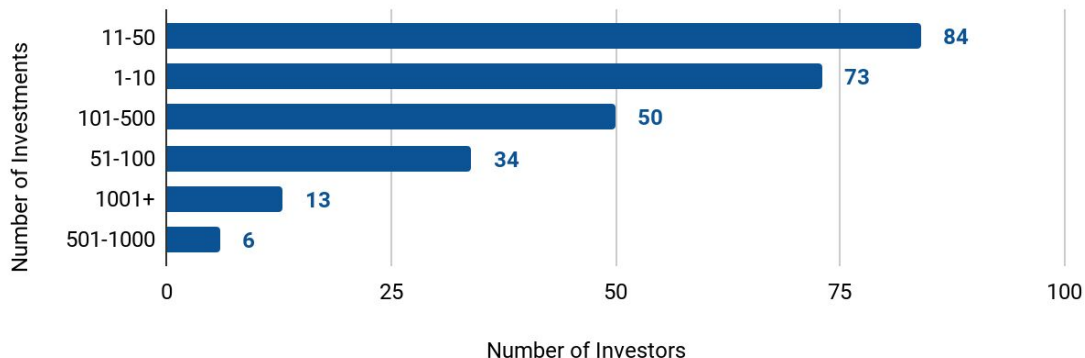
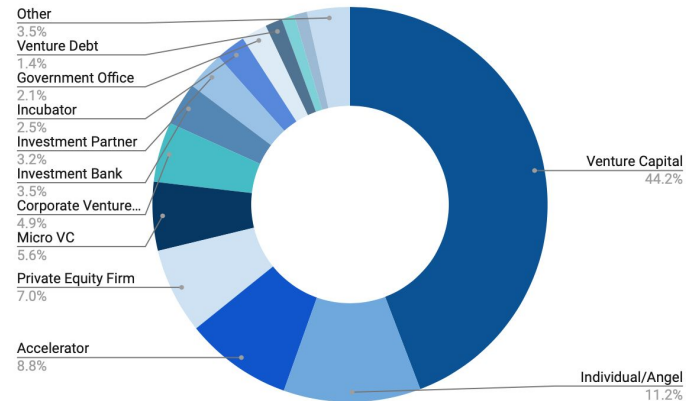
Accelerators and Incubators

- Accelerators and incubators provide companies with access to resources and mentorship to help them develop their products and grow their businesses.
- Many accelerators and incubators are also motivated by the social impact of investing in Longevity companies as they can help to improve the quality of life for people globally.

Overview of Investors in Israeli Longevity Finance Companies



According to the graph on the left, almost half of all investors are located in the USA. About one-fifth are local, that is, with headquarters in Israel. Next come the United Kingdom, Germany, and France by a wide margin.



According to the graph above, 44% of investors are venture capitalists. The combined share of angel investors, accelerators, PE firms, other VCs, investment banks, and partners is exactly the same. One third of investors invested 11 to 50 times, and fewer – up to 10 times. A considerable portion of investors invested more than 100 times but fewer than 500 times (see graph on the left for precise data).

Top Investors in Longevity Companies in Israel

InventusLife is a venture capital firm that specializes in investing in early-stage healthcare and life sciences startups. The firm is based in India and was founded in 2008. InventusLife focuses on startups that are working on innovative healthcare solutions that can make a meaningful impact on patient outcomes. The firm provides funding, mentorship, and resources to help its portfolio companies succeed.











Shlomo Tyran Foundation is a philanthropic organization that supports initiatives in education, healthcare, and social welfare. The foundation was established by Shlomo Tyran, a successful businessman and philanthropist, with the goal of creating positive change in Israel and around the world. The foundation supports a range of programs, including scholarships for students, medical research, and community development initiatives.



Sagol Network is a group of private investors who are focused on investing in early-stage Israeli startups. The network was founded by Israeli businessman Sami Sagol and his family, who have a long history of supporting entrepreneurship and innovation in Israel. The Sagol Network invests in a wide range of industries, including healthcare, biotech, cybersecurity, and artificial intelligence. The network provides funding, mentorship, and resources to help its portfolio companies grow and succeed.



Overview of Major Funding Deals, 2022-2023

Company	Subsector	Amount	Round	Date
 Bank Leumi	Pension Providers	\$536M	Post-IPO Debt	Feb-2023
 Vesttoo	InsurTech Marketplaces	\$80M	Series C	Oct-2022
 Robin	Pension Providers	\$30M	Series C	Jul-2022
 Faye	Health InsurTech	\$8M	Seed	May-2022
 weSure	Health InsurTech	\$11M	Post-IPO Debt	Aug-2022
 Bank Leumi	Pension Providers	\$797M	Post-IPO Equity	Jun-2022
 urance.io	Automated Claims Management	\$4M	Series A	Apr-2022
 Clal Insurance	Pension Providers	\$158M	Post-IPO Equity	Jan-2022



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Longevity Ethics in Israel 2023



What is Longevity Ethics?

Longevity Ethics is an emerging field of study that explores the **ethical, social, and economic implications of extending human lifespan and healthspan**. It is concerned with the ethical considerations of developing and implementing technologies and practices that may help people live longer, healthier lives, while also addressing the societal and individual challenges that may arise from such developments. Longevity Ethics **aims** to promote an interdisciplinary dialogue between researchers, policymakers, and stakeholders to ensure that the benefits of longevity technologies are ethically and equitably distributed, and that any negative consequences are addressed in a responsible and sustainable manner. Longevity Ethics encompasses a **wide range of issues**, including:

Access to life-extending treatments and technologies

The **impact** of extended life on family structures and intergenerational relations

The **allocation of societal resources** for longevity research and development

The **environmental impact** of increased human longevity

Fairness in the distribution of longevity benefits and risks

The **ethical implications** of modifying human biology and genetics to extend lifespan

The **cultural and psychological impact** of longer life spans on personal and social identity

The **potential for social inequalities** to widen as a result of longevity advancements.

Access to Longevity Treatments

Access to Longevity treatments is a **key ethical issue in Longevity research**. While advancements in this field have the potential to increase lifespan and improve overall health and wellness, it is important to ensure that these treatments are accessible to all individuals, regardless of their socioeconomic status.

In Israel, several clinics are dedicated to Longevity research and treatment, such as the **Aviv Clinics** and the **Longevity Clinic**. These clinics offer a variety of services, including regenerative medicine, stem cell therapy, and hormone replacement therapy.

However, these treatments can be expensive, and not all individuals have equal access to them. To address this issue, Israeli policymakers are exploring ways to make Longevity treatments more affordable and accessible to a broader range of people. For example, **the Israeli Ministry of Health** has established **the National Program for Healthy Aging**, which includes initiatives to promote Longevity research and make treatments more widely available.

Moreover, Israeli researchers are also working on developing new, more cost-effective approaches to Longevity treatments. One example is the work being done at the **Hebrew University of Jerusalem's Biodesign Program**, which is developing innovative medical technologies to improve healthcare accessibility and affordability.



Aviv Clinics feature an aesthetic inspired by first-class airline service. Here, patients inside the hyperbaric oxygen therapy chamber. (Credit: Aviv Clinics)

Sheba Hospital's new longevity centre aims to empower patients with data and strategies to optimise and extend their healthspan. (Credit: Longevity Center Concept Art)



Addressing Inequalities

Longevity advancements have the potential to exacerbate existing inequalities, as those with access to life-extending treatments may become an elite group with increased advantages. To address this issue, Israel's Longevity industry is actively working to promote social equity and ensure that the benefits of these advancements are distributed fairly.

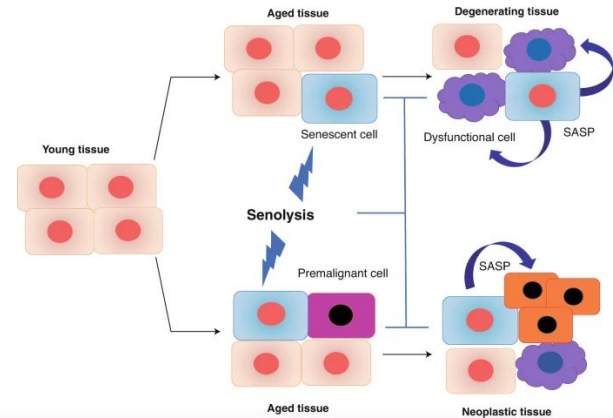
To promote social equity and address other inequalities in Longevity research, the following steps are being taken in Israel:

Developing policies and initiatives to ensure that life-extending treatments are accessible to all individuals, regardless of socioeconomic status.

Investing in research to explore new, more affordable approaches to Longevity treatments.

Fostering collaborations between the Longevity industry and community organizations to ensure that advancements are distributed fairly and equitably.

One example of a life-extending treatment that has raised concerns about inequality is **senolytic therapy, which targets senescent cells to slow the aging process**. While promising, this treatment is currently quite expensive and not widely accessible. To address this issue, Israeli researchers are exploring new, more affordable approaches to senolytic therapy, such as using plant-based compounds as an alternative to expensive drugs.



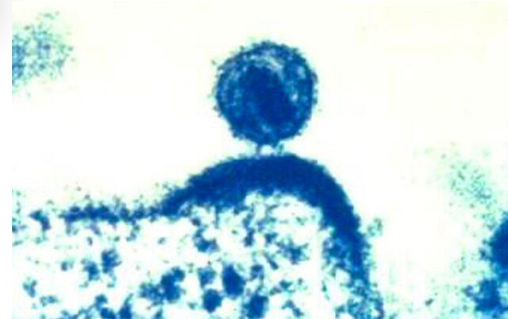
One strategy to interfere with aging is to prevent senescent cells from releasing SASP-associated factors that contribute to cancer and age-related disease. Credit: Judith Campisi, Buck Institute; adapted with permission.

Misuse of Longevity Technologies

As Longevity technologies continue to advance, there is a risk that they may be misused for non-medical purposes. This can include using life-extending treatments for cosmetic purposes or to enhance athletic performance, among other potential misuses.

To address this risk, regulations and guidelines are being developed to ensure that Longevity technologies are used for legitimate medical purposes only. For example, the Israeli Ministry of Health has established guidelines for the use of stem cell therapies, which limit the use of these treatments to specific medical conditions. However, despite these efforts, the risk of misuse remains. In Israel, researchers are exploring new ways to prevent and detect the misuse of Longevity technologies.

For example, a team of researchers from Tel Aviv University and Bar Ilan University is developing a system to monitor and detect the unauthorized use of gene-editing technologies, which could be misused for non-medical purposes.



A single human immunodeficiency (HIV) virus buds from a human immune cell, which the virus had infected, and within which the HIV virus had been replicated. (NIAID via AP)

To prevent the misuse of Longevity technologies, the following steps are being taken in Israel:



Developing regulations and guidelines to ensure that Longevity technologies are used for legitimate medical purposes only.

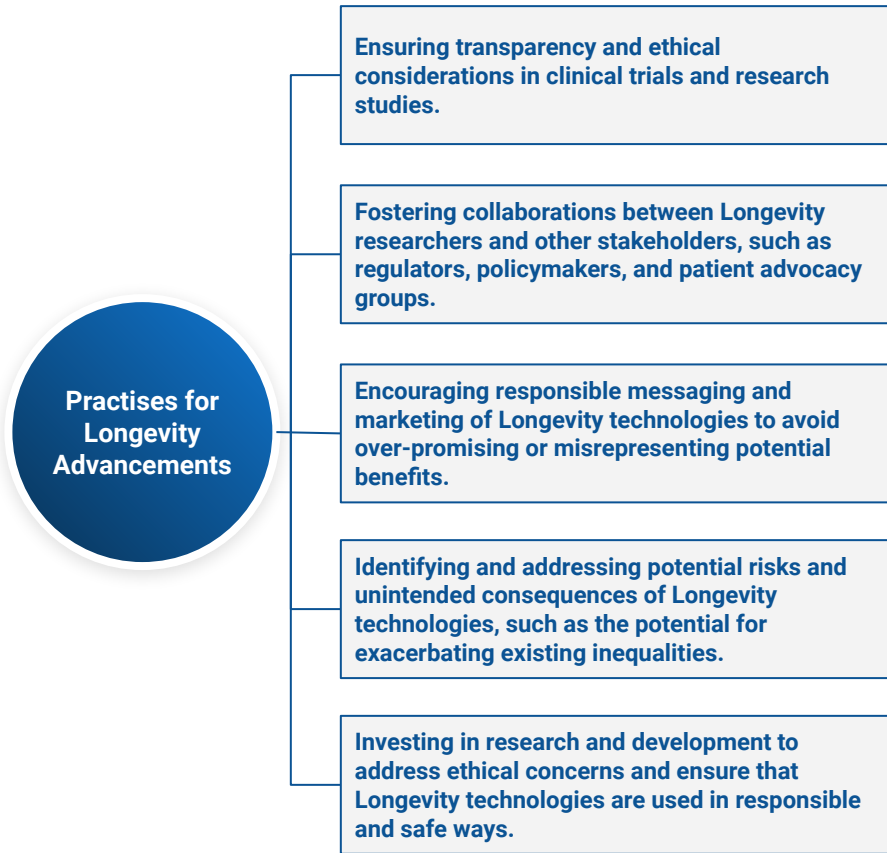


Investing in research to prevent and detect the unauthorized use of Longevity technologies.



Promoting public awareness of the potential risks of misusing Longevity technologies.

Balancing Progress with Responsibility



As the Longevity industry continues to make strides in life-extending research and technology, it is important to balance progress with responsibility. To ensure that advancements are made ethically and with consideration for potential risks and consequences, a set of responsible practices should be followed.

Statistics suggest that there is growing public concern around the ethical implications of Longevity advancements. In a survey conducted by the Longevity Vision Fund,

68%

of respondents expressed concern about the potential ethical implications of Longevity technologies.

By following responsible practices and prioritizing ethical considerations, the Longevity industry can ensure that advancements are made in a responsible and sustainable way. In Israel, as of 2023, there is an increasing emphasis on the importance of longevity ethics as a crucial aspect of societal progress, where individuals and communities alike strive to extend the quality and duration of human life.

Longevity ethics in COVID-19 crisis

THE JERUSALEM POST



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The Jerusalem Post attracts attention to an important issue: age has been proven to be one of the major risk factors for COVID-19. Despite social awareness of the elderly people being at a higher risk, not enough effort has been put into their protection during the pandemic. Multiple aging-related diseases involving degenerative aging processes, the diminishing resilience and deficient immunity are the main cause for severe COVID-19 cases. Thus, it is clear that addressing elderly people health issues would significantly downregulate the scale of COVID-19 crisis for the whole society.

Vetek launched a public initiative for “Enhancing research, development and education for promoting healthy longevity and preventing aging-related diseases”. It was supported by the associations “Vetek (Seniority) - the Movement for Longevity and Quality of Life” and “Disabled, Not Half a Person”. This is a great example of a public advocacy effort to raise public awareness of the issue and support preventive geroscience approach.

More of such public initiatives are essential, which is well demonstrated by the insufficient funding in preventive geroscience. **NIH** allocated over \$3.6 billion for the COVID-19 response, while **the National Institute of aging within the NIH** has only received a few millions of investments into geroscience-oriented approach.



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Longevity Governance in Israel 2023



What is Longevity Governance?

Healthy Longevity is affected by many groups of factors such as: socioeconomic status, demography, income, wellbeing, the quality of the health system and the ability of people to access it, health behaviours such as tobacco and excessive alcohol consumption, poor nutrition and lack of exercise, social factors, genetic factors and environmental factors including overcrowded housing, lack of clean drinking water and adequate sanitation.

Longevity is becoming a topic of increasingly prominent recognition and prioritization among progressive governments, and the emergence in the past several years of **Longevity Politics and Governance** - a state in which the concept of optimized National Healthy Longevity becomes an actual political talking point and tangible goal among politicians and between national and municipal governments.

Longevity progressiveness is important for driving economic progress and competitiveness – both for developed and developing economies. **Government** has two roles in moving the Longevity industry forward: **national initiatives** such as social care, financial reforms, investment in biotechnologies and infrastructure for precision medicine ecosystems, and **intergovernmental initiatives** for marshaling the combined key technologies, resources and experts from nations around the world.

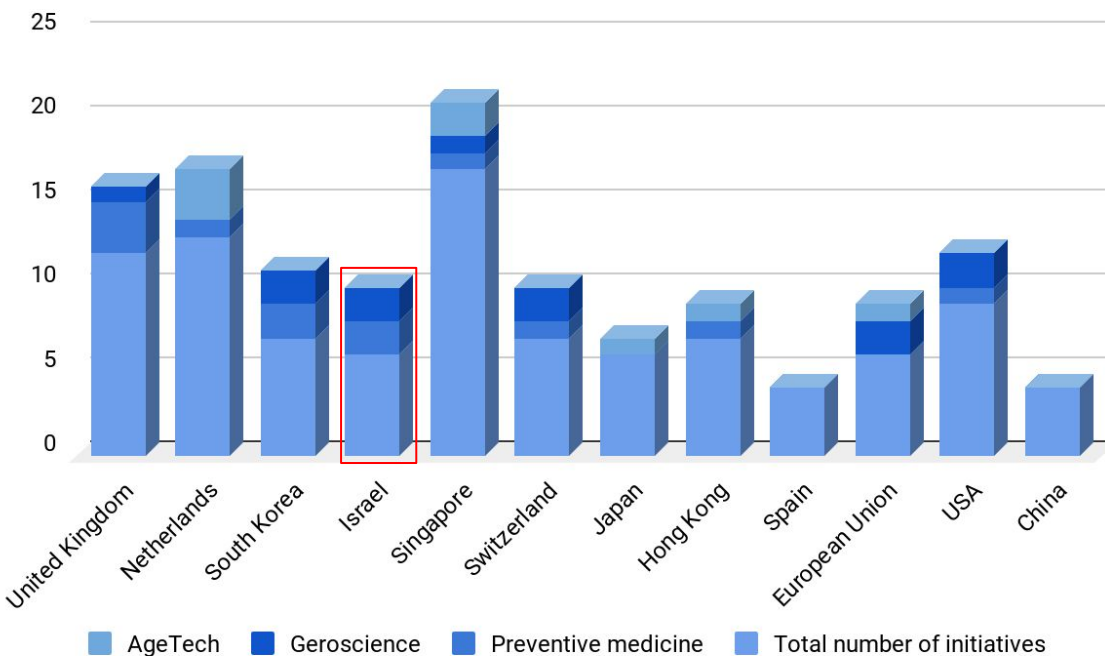
Longevity Governance	Social Care	Industrial Strategies	Precision Health
	Advanced IT-Solutions	Financial Reforms	Modernization

Current State of the Longevity Governance / Achievements and Problems

Different governments have been offering a myriad of ad-hoc solutions for the demographic crisis. **However, while each offers a step in the right direction, no true national-level Longevity development strategy currently exists.**

Government programs range from financial innovations such as the Swiss city of St. Gallen's "elderly bank" to lifestyle and fitness programs like **Japan's plans for an Ageless Society**, in which people aged 65 or older will not be regarded as seniors but encouraged to stay healthy and remain economically active.

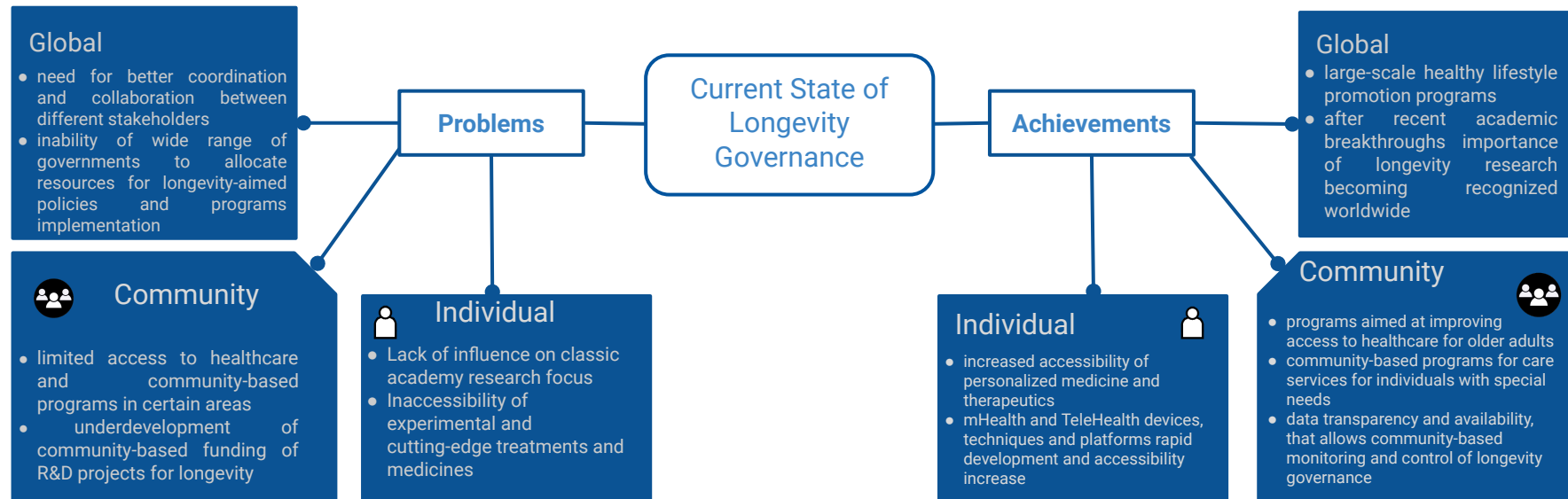
These solutions also include AgeTech programs such as the **Singapore government's initiatives** that focus on smart homes to improve the quality of life and well-being of the elderly and on increasing their digital literacy.



Represented here is the total number of relevant initiatives in the UK, the Netherlands, South Korea, **Israel**, Singapore, Switzerland, Japan, Hong Kong, Spain, the European Union, the USA and China.

Current State of the Longevity Governance / Achievements and Problems

Growing recognition of the Longevity Governance importance is associated with recent breakthrough in age-related diseases research and need for increase in the study of aging and age-related diseases funding was one of initiating factors for capacities and responsibilities accumulation in Longevity Governance.



Challenge is the need for more research on the economic, social, and ethical implications of extending human lifespan and improving healthspan. This includes a better understanding of how these advancements will impact workforce, retirement, and healthcare systems, as well as the broader socio-economic implications of an aging population.

One of key achievements has been the increasing recognition of the importance of longevity governance by governments, international organizations, and private sector stakeholders. This has led to the development of various national and international initiatives and programs focused on addressing the challenges of aging populations.

Government Longevity-Related Projects and Initiatives Countries Ranking

Different countries choose various ways to establish their Longevity-Related Projects and Initiatives:

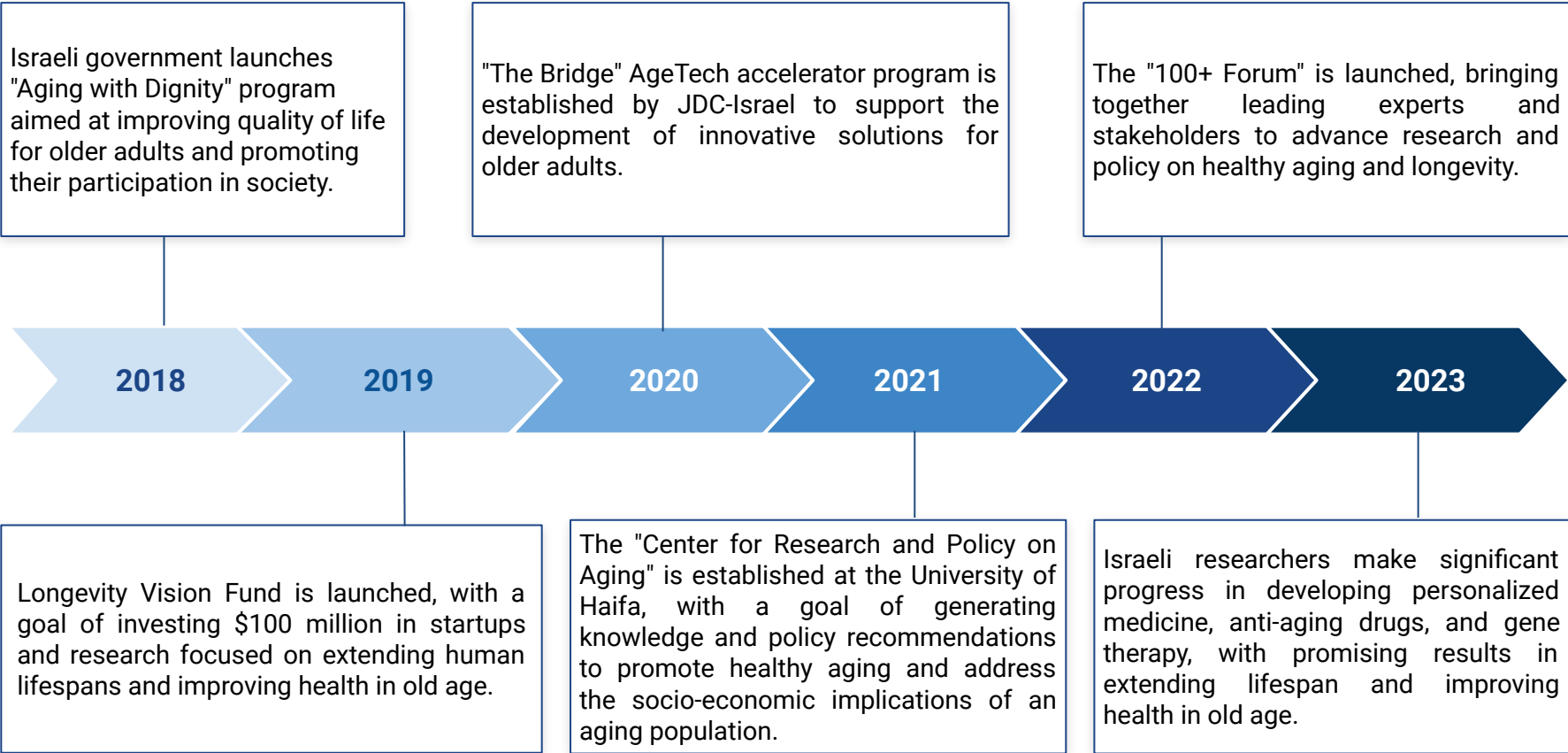
Young parliamentary democracies like Spain, with limited history of relevant government projects. These nations produce a lot of government efforts for the aged citizens. Still, they do not make a deliberate attempt to resolve all issues of the demographic challenge, instead opting for a series of short-term strategies and ad hoc rules for aging communities.

Technologically advanced tiger economies such as Singapore, South Korea, and Hong Kong. These countries are similar to what we call “Longevity-progressive countries” – small technocratic countries that have been motivated to develop coordinated strategies for their Aging Populations.

Israel's 5th place ranking in the Longevity Governance Index reflects its top performance in addressing aging-related challenges and highlights the huge opportunities for the country to further advance in this field.

POSITION	COUNTRY	COUNTRY SCORE
1	United Kingdom	5.29
2	Netherlands	4.36
3	Singapore	4.15
4	South Korea	4.00
5	Israel	3.94
6	Switzerland	3.93
7	Hong Kong	3.41
8	Japan	3.10
9	USA	3.07
10	Spain	1.94
11	European Union	1.88
12	China	1.85

Longevity Governance Milestones in Israel



Strategic Vision of the Longevity Governance in Israel

SWOT analysis of Longevity Governance in Israel as of 2023:

Strengths

- Israel has a strong tradition of innovation and entrepreneurship, which has translated into a thriving ecosystem of startups and research institutions focused on longevity and aging.
- The government has shown a commitment to promoting healthy aging and supporting innovation in the longevity industry, through programs like Aging with Dignity and the Longevity Vision Fund.
- Israel's healthcare system is well-developed and provides a strong foundation for developing new solutions and treatments for age-related diseases and conditions.

Weaknesses

- Israel faces significant demographic and economic challenges posed by an aging population, including rising healthcare costs and a shrinking workforce.
- There are significant health disparities and inequalities in access to healthcare and social support for older adults, particularly those from marginalized and disadvantaged communities.
- The longevity industry is still relatively new and faces regulatory and ethical challenges, including questions about the safety and efficacy of new treatments and technologies.

Opportunities

- Israel's strengths in innovation and technology present significant opportunities for developing new solutions and products that promote healthy aging and improve quality of life for older adults.
- The global market for longevity products and services is projected to grow significantly in the coming years, creating new opportunities for Israeli companies and startups.
- Israel's location at the crossroads of Europe, Asia, and Africa provides opportunities for international partnerships and collaborations in the longevity industry.

Threats

- The longevity industry faces significant ethical and regulatory challenges, particularly as new treatments and technologies raise questions about safety, efficacy, and access.
- The global economic and political environment is uncertain and may impact funding and investment in the longevity industry.
- The rapidly changing nature of the industry means that companies and startups must be able to adapt quickly to new challenges and opportunities.

Strategic Endeavors for the Longevity Governance in Israel

Research, Development and Education for the Promotion of Healthy Longevity in Israel National Masterplan on Aging

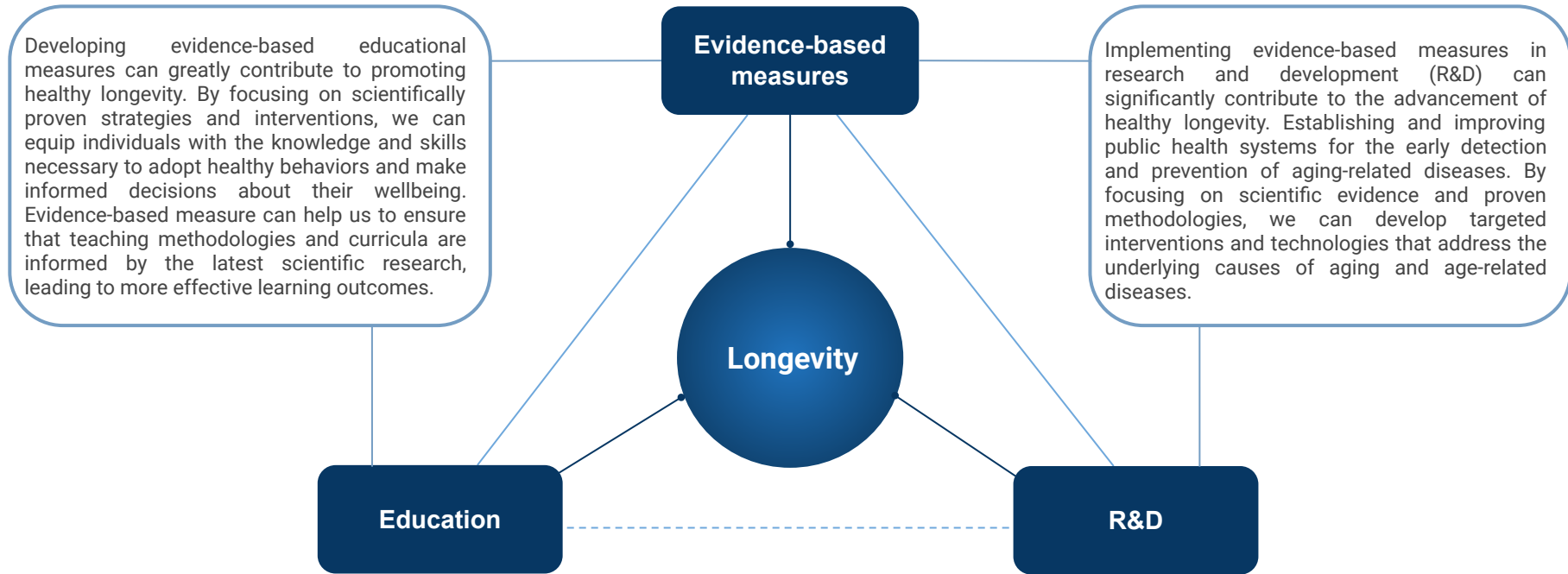
The Israel National Masterplan on Aging was published on July 25, 2019, and includes a section on "Research, Development and Education for the Promotion of Healthy Longevity and Prevention of Aging-related Diseases." This section is a long term strategic challenge and objective for future discussion. The program includes increasing budgets for research and development for healthy longevity, increasing awareness about aging-related diseases and education for healthy longevity, and establishing and improving public systems for early detection and prevention of aging-related diseases. The Masterplan emphasizes the objective to increase healthy life expectancy and reduce the period of time when senior citizens live with diseases and functional decline. This is in accordance with the WHO 13th Program of Work. Although the inclusion of the subject is a good achievement, there is still much work to be done in order to further raise awareness and implement the program for the benefit of all.



Longevity Nation - Enhancing Research, Development and Education for Healthy Longevity

Longevity Nation is a conference that focuses on advancing healthy longevity through interdisciplinary collaboration in science, technology, and society. This conference brings together leading voices in the longevity space and public figures to develop ethical scientific and technological solutions for healthy aging. By leveraging Israel's strengths in this area, it aims to boost the prominence of the field and enhance international cooperation in longevity research and education.

Enhancing R&D and Education for Longevity



To effectively promote healthy longevity, it is crucial to increase the budget allocated to education and R&D. Greater investment in these areas will drive innovation, accelerate the development of evidence-based interventions, and empower individuals to make informed decisions about their health and well-being as they age.

Future Outlook for Longevity Governance in Israel

Israel's longevity industry is poised for continued growth and innovation in the years to come. Here are a few trends and priorities that are likely to shape the future of longevity governance in Israel:





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10 Longevity Nonprofits In Israel 2023



Longevity Nonprofits: Vetek



התנועה לאיכות ואריכות חיים (ע"ר)
Seniority-The Movement for
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Focus Areas of the Alliance

- Advancement of Healthy Longevity for the entire population through scientific research
- Education for Healthy Longevity in Israel
- Organising discussions of Israeli decision-makers to support ageing and Longevity R&D
- Formed partnerships and affiliations with leading relevant Israeli and international agencies and organisations
- Advocacy and social activism

Headquarters location: Israel

Mission: Advancement of Healthy Longevity

Website: Longevityisrael.org

In order to help address the ageing-related health challenges, the Association is uniquely poised to advance biomedical ageing and Longevity research in Israel. It is advised by leading Israeli and international scientists in diverse fields of biomedical ageing and Longevity R&D. Since its foundation by Rafi Eitan, it has been supported by noted public figures and advocates, strategically situated and connected in the Israeli and international scientific and civic establishment.

Israeli Longevity Alliance has organised or co-organised several national and international conferences on biomedical ageing and Longevity research in Israel, such as the conference in Bar Ilan University in 2017 co-sponsored by the Israel Ministry of Science and Technology, and the conference in Weizmann Institute of Science in 2019 co-sponsored by the US NIH National Institute on Ageing.

Longevity Nonprofits: Disabled, Not Half a Human Being



Main Focus Areas of the Disabled, Not Half a Human Being

- support services to individuals with disabilities and their families, such as counseling, financial assistance, and access to resources for education, healthcare, and assistive technology.
- educating the public about the challenges faced by individuals with disabilities and the importance of inclusion.
- create opportunities for people with disabilities to develop their skills and secure meaningful employment.

Headquarters location: Israel

Mission: Empower individuals with disabilities

Disabled, Not Half a Human Being (DNH) is a non-profit organization dedicated to promoting the rights, dignity, and respect of individuals with disabilities. The organization was founded with the goal of challenging the societal perception that people with disabilities are "half a human being," and instead, emphasizes their full humanity and potential.

DNH's mission is to empower individuals with disabilities by advocating for their rights, creating awareness, and fostering an inclusive society that embraces diversity and equal opportunities for all. Their vision is to create a world where people with disabilities are valued, respected, and treated as equal members of society. Through workshops, seminars, and training programs, DNH educates people about the importance of creating an inclusive environment for people with disabilities.

Disabled, Not Half a Human Being is committed to empowering people with disabilities by breaking down societal barriers and fostering understanding and acceptance. By promoting the idea that disability does not define a person's worth, the organization aims to create a more inclusive and equal world for all.

Longevity Nonprofits: ESHEL



Headquarters location: Jerusalem, Israel

Mission: Extending independent living among older adults

Website: eshelnet.org.il

Key Measures and Challenges in Israel

- Retirement is ranked 10th out of 43 events that increase stress in a person's life
- Only 45% of Israelis past retirement age have a pension, and 20% of Israeli adults over 65 live in poverty
- The average life expectancy of a person in Israel who reaches the age of 60 is another 17.8 years

Eshel is Israel's social research and development incubator tasked with developing comprehensive responses to the complex challenges faced by Israeli society with the ageing population. Eshel brings together and serves as an "honest broker" between government ministries, prominent stakeholders, and professionals involved in the care of older adults.

Eshel functions under the auspices of the Joint Distribution Committee (JDC), a US-based NGO that provides relief, rescue, and reconstruction services to Jewish and non-Jewish clients around the world.

JDC-Eshel aims to improve the well-being of vulnerable older adults in Israel by advancing their autonomy, functional ability, and independence. It will accomplish this by embedding a person-centred approach, providing a continuum of services and assimilating coordinated care throughout the system.

Longevity Nonprofits: Israeli Association of Geriatric Medicine



Main Goals of the Association

- Bring together all the doctors who are members working in and having an interest in geriatric medicine
- Be responsible for the geriatric medicine residency programme
- Encourage scientific research in the field of geriatric medicine
- Organise the scientific activity for the members of the union in the field of geriatric medicine
- Advise the Hari and its institutions in the field of geriatric medicine

Headquarters location: Kiryat Ekron, Israel

Mission: Brings together all stakeholders in the field of geriatric medicine

Website: geriatrics.org.il

The Israeli Association of Geriatric Medicine brings together all physicians and stakeholders in the field of old-age medicine. The association has about 200 full members, specialists in geriatric medicine, and about 200 additional members, doctors, and para-medical professionals interested in old-age medicine.

The union established joint committees for facilitating discussion and was active with the Society for Psychogeriatrics in the Union for Psychiatry, the Union for Physical Medicine and Rehabilitation, the Society for Quality in Medicine, the Union for Public Health, and the Association of Hospital Directors.

The union published a newsletter, part of the *Dorot* newspaper, which has a high circulation among all those involved in the field of ageing. Every year the union holds at least three conferences.

Longevity Nonprofits: Israel Cancer Association



Main Activities of the Association

- Funding and promoting cancer research
- Implementing cancer prevention and early detection programmes
- Assisting in the upgrade of medical and rehabilitation services at oncology centres, in patients' homes, and within the community
- Promoting patients' rights and enhancing their quality of life
- Providing professional training to multidisciplinary medical staff

Headquarters location: Givatayim, Israel

Mission: Improve the quality of lives of cancer patients

Website: cancer.org.il

The Israel Cancer Association (ICA) was established as a voluntary organisation in 1952, with the aim of reducing cancer morbidity and mortality and to improve the quality of cancer patients' lives.

ICA has earned its widespread recognition, both nationally and internationally, as a spearhead in the fight against cancer. ICA works in close collaboration with health authorities, but all its activities are funded solely by private contributions with no government funding.

Since its inception in 2007, the ICA project "Steps to a Healthy Life" has aimed to expose cancer patients to the healthy advantages of physical activity, encourage cancer patients to build time in their schedule for planned, structured physical activity and make it part of their daily routine; offer consultation and guidance to patients who wish to join; provide workshops held at the various medical centres and ICA branches in the community.

Longevity Nonprofits: Israel Gerontological Society

האגודה הישראלית לגרונטולוגיה
ISRAEL GERONTOLOGICAL SOCIETY



Main Activities of IGS

- Publishing a quarterly journal *Gerontology and Geriatrics* (in Hebrew, with summaries in English)
- Biannual IGS meetings (since 1976) that also host guests from abroad
- Initiating and organising interdisciplinary conferences, seminars, and regional meetings, organised in cooperation with academic institutes in Israel and abroad
- Awarding prizes and honorary certificates for outstanding research projects and paying respect to individuals for their contribution in the field of gerontology

Headquarters location: Kiryat Eqron, Israel

Mission: Brings together all stakeholders in the field of gerontology

Website: gerontology.org.il

The Israel Gerontological Society was established in 1956, witnessing a phenomenal, unprecedented rate of population ageing in Israel, as well as around the world. This “demographic revolution” has its specific characteristics in Israel.

IGS is a voluntary organisation which serves as a framework for research and academic institutions, organisations, services, and agencies dealing with the subject of ageing in Israel. Among the members of IGS most are from the professional community of gerontologists. The events it organises (conferences, seminars, etc.) are attended by thousands.

The society’s governing bodies include a board, an executive committee, and officers who are specialists in different areas of gerontology and head the four sections of the Society: social gerontology and behavioural science, applied gerontology, medicine and health, biological gerontology. IGS is a member of the International Association of Gerontology and Geriatrics and active in its European section.

Longevity Nonprofits: Enosh



Headquarters location: Kfar Saba, Israel

Mission: Delivering comprehensive community-based rehabilitation services to people with psychosocial disabilities

Website: enosh.org.il

Main Activities of Enosh

- Providing quality and professional community-based mental health services for people with psychosocial disabilities and to support their families
- Increasing awareness around mental health and fight society's stigmas towards people with psychosocial disabilities
- Promoting the rights of people with psychosocial disabilities and their family members

Enosh – the Israeli Mental Health Association is the largest mental health organisation in Israel delivering comprehensive community-based rehabilitation services to people with psychosocial disabilities and their families. Since 2017, Enosh has been a consultative organisation to the UN- ECOSOC regarding mental health policies and service delivery.

Enosh believes that everyone deserves to live a fulfilling and meaningful life. Their work is guided by the recovery framework with a holistic approach that promotes living an independent life in the community. Enosh offers a range of mental health rehabilitation services in the domains of housing, employment, social-recreational centres, early intervention, family consultation, and respite homes as an alternative to psychiatric hospitalisation.

Enosh teams are specialised in different mental health intersections: homelessness, trauma, CPTSD, elderly, youth, religious communities, suicide prevention, lived experience, youth mental health, LGBTQ, and more.

Longevity Nonprofits: Israeli Foundation for Osteoporosis and Bone Diseases



Main Activities of the Foundation

- Impart professional and personal knowledge to teams in the field of medicine, nursing, nutrition and diet, physical therapy, exercise and fitness
- Impart knowledge about bone diseases to the general public
- Encouraging legislation change and control in the field of bone health by the state institutions
- Maintains contact with its members through a newsletter, publications, and joint events

Headquarters location: Pardes Hanna-Karkur, Israel

Mission: Raise awareness of the prevention and treatment of bone diseases

Website: bone.org.il

The Israeli Foundation for Osteoporosis and Bone Diseases was established in 1998 by leading specialists in the field of bone health in Israel, not for profit. The association works to promote bone health in the life cycle and to raise awareness of the prevention and treatment of bone diseases.

The association is a member of "Khamoni," a social network for health from the Gartner Institute, that operate a forum which allows the members of the association optimal access to information about the various aspects of the osteoporosis disease and its consequences.

Israeli Foundation for Osteoporosis and Bone Diseases works to change by encouraging legislation and control in the field of bone health by state institutions and supports the introduction of drugs into the health basket for the treatment of bone diseases.

Longevity Nonprofits: Briah Foundation



Main Focus Areas of the Briah Foundation

- Improving the medical service in sensitive situations, such as sexual trauma, pregnancy loss, operating rooms, postpartum depression, disadvantaged populations
- Advancing the medical rights of women dealing with chronic pain diseases
- Improving the way intimacy tests are performed in Israel

Headquarters location: Israel

Mission: Promoting women's rights in healthcare

Website: briah.org

Briah Foundation takes action by changing policy and promoting grass-roots activism to reach a better healthcare system for women. Briah Foundation uses mass online surveys that reach thousands of women to collect data about obstacles they face when receiving medical care. The data is processed into reports with concrete recommendations, allowing to impact Policy and public awareness, protocols of health systems and HMOs, and medical staff training.

The goal is to improve the medical care that women receive by influencing procedures, protocols, and training of medical teams. The Foundation does this through research and data collection, lectures for teams, lobbying the system, and media activity.

The Foundation supports the initiatives in a variety of fields relevant to women's health. It financially supports the projects and provides a framework of accompaniment and support through the "Creative Incubator."

Longevity Nonprofits: Melabev



The Melabev Method

- Engaging patients in meaningful activities and fulfilling their needs for social interaction
- Enabling most clients to be able to age in place and remain in their homes for as long as possible
- Programming is based on the acceptance of the person's present cognitive level while respecting the participant's past
- Person-centred approach, focusing on the individual's culture, mother tongue, and interests

Headquarters location: Jerusalem, Israel

Mission: Improving the quality of life of people with dementia and Alzheimer's

Website: melabev.org.il

Since its inception, Melabev specialises in improving the quality of life of older adults and in providing services for people with dementia and Alzheimer's of all ages. Every year, thousands of people coping with dementia and Alzheimer's, as well as their families and relatives, receive a wide range of Melabev services.

Melabev provides a comprehensive response at every stage of the client's cognitive decline, from diagnoses and throughout the phases and progression of dementia.

Melabev's goal is to enhance the well-being of those in their care, giving them the quality of life, dignity, and increased self-worth they so deserve.

The Melabev method is a unique therapeutic method that provides a broad and diverse spectrum of targeted therapies on the cognitive, mental, and physical levels through an array of professional services. This all happens under one roof, giving patients a social, warm, loving, and respectful framework.

Longevity Nonprofits: Taub Centre for Social Policy Studies



State of the State Report by the Taub Centre

- The Taub Centre for Social Policy Studies released “the State of the Country Report 2022.” The report includes nine new articles, including a review of the main trends of the past year in the fields of the economy, the labor market, education, welfare, health, and demography
- The report also covers life expectancy analysis and insights on age-specific mortality rates in Israel

Headquarters location: Jerusalem, Israel

Mission: Developing innovative and practical options for macro public policies that advance the well-being of Israelis

Website: taubcentre.org.il

The Taub Centre for Social Policy Studies in Israel is an independent, nonpartisan, socioeconomic research institute based in Jerusalem. The Centre conducts high-quality, impartial research on socioeconomic conditions in Israel and develops innovative, equitable, and practical options for macro public policies that advance the well-being of Israelis. The Centre strives to influence public policy through direct communications with policymakers and by enriching the public debate that accompanies the decision-making process.

Founded in 1982, the Taub Centre provides the country’s top policymakers and the general public with a professional “big picture” perspective, as well as policy options, in the economic and social spheres. The Centre’s five interdisciplinary policy programmes in education, labour, social welfare, health, and economics bring together prominent academic researchers and leading experts from the policy realm. Together, these policy fellows and Taub Centre researchers carry out collaborative discussions and cutting-edge analyses of the nature, source, scope, and resolution of some of the most severe challenges facing Israel today.



התנועה לאיכות ואריכות חיים (ע"ר)
Seniority-The Movement for
Longevity and Quality of Life



Biogerontology
Research Foundation
Prevent. Restore. Preserve.



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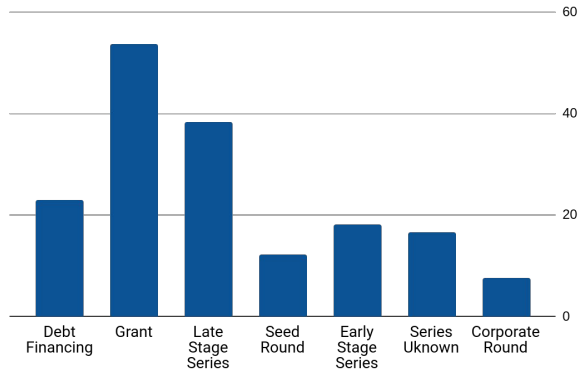
LONGEVITY
INTERNATIONAL

Longevity Industry Ecosystem in Israel: 2023 Trends



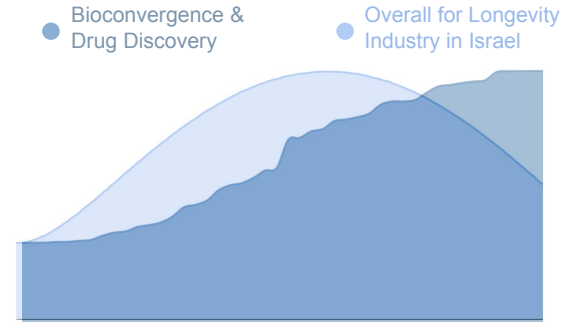
Bioconvergence and Drug Discovery

Average Funding per Round, \$M



Funding per company		
Max	Average	Min
\$120M	\$45M	\$0.08M

Companies Relative Distribution by Total Funding Amount

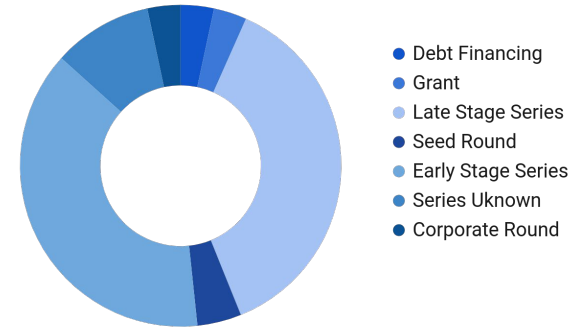


Bioconvergence involves the integration of different scientific disciplines, such as biology, chemistry, physics, and computer science, to develop new solutions for drug discovery. This approach enables researchers to combine knowledge and technologies from different fields to create more effective and efficient drug development processes. Israel is a leader in biotechnology and has a strong ecosystem of companies and research institutions that are working to develop innovative drug discovery solutions. Several Israeli companies are using bioconvergence to develop new drugs, with a focus on Precision Medicine and personalised treatments.

Bioconvergence and Drug Discovery: 1E Therapeutics

1E Therapeutics stands out among other BioPharma companies raising \$120 million in only one seed round, which is more than half of cumulative funding amount per seed round in the industry.

Cumulative Funding per Round in the Industry



1E Therapeutics is a BioTech company with a strong focus on developing innovative therapeutics for the treatment of age-related diseases. 1E Therapeutics is a drug-development company creating RNA-targeting therapeutics based on a proprietary drug-design platform. 1E therapeutics already has lead compounds that address a wide array of indications in oncology, age-related diseases, immunology, antimicrobial resistance, viral infections, and orphan neurological disorders.

1E Therapeutics is a BioTech company that is focused on the development of innovative therapeutics based on bifunctional fusion proteins. Their lead candidate, 1E-001, is a first-in-class molecule that has shown promising preclinical results for the treatment of a range of age-related diseases. This technology works by targeting specific proteins in cells that are associated with both cancer and ageing, which makes it a potential game-changer in both the oncology and Longevity fields.

The company's technology has potential applications in the Longevity field as the elimination of senescent cells has been shown to have positive effects on healthspan and lifespan. 1E Therapeutics is well positioned to become a key player in the emerging field of senolytics and anti-ageing therapeutics. 1E-001 is an example of successful product and capability to produce state-of-art biomolecules for cell therapy, so there's a high likelihood of success in further leveraging of bifunctional fusion proteins unique properties in the Longevity field.

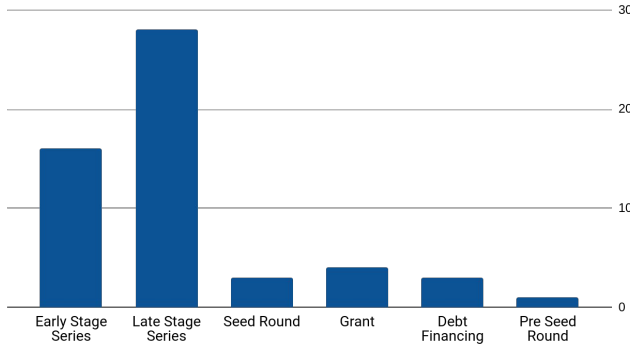
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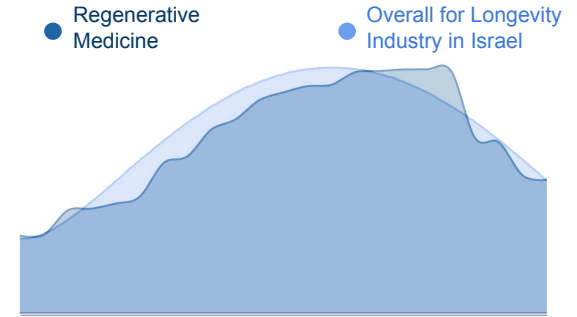
Regenerative Medicine

Average Funding per Round, \$M



Funding per company		
Max	Average	Min
\$128M	\$17M	\$0.06M

Companies Relative Distribution by Total Funding Amount

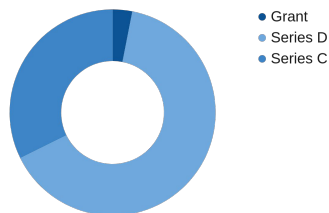


Regenerative medicine includes stem cell therapy, tissue engineering, and gene therapy. Israel is a leader in stem cell research and has made significant advancements in this field, including the development of a way to produce stem cells from skin cells without using embryos. Israeli companies are also exploring the potential of tissue engineering to create new organs and tissues for transplantation, which also lies in frame of bioconvergence emerging trend.

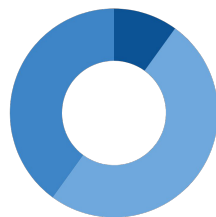
Regenerative Medicine: Regentis Biomaterials



Funding Rounds by Count



Total Funding per Round, \$



One notable grant was a \$2.2 million Small Business Innovation Research (SBIR) Phase II grant from the National Institutes of Health (NIH) to develop a hydrogel-based product for the repair of knee cartilage in 2016.

Regentis Biomaterials is an Israeli company focused on the development of hydrogels for the regeneration of damaged tissues in a variety of medical applications. Regentis Biomaterials has successfully developed GelrinC technology, which has been tested in clinical trials for the treatment of knee cartilage lesions and has demonstrated superior results compared to traditional treatments.

Regentis Biomaterials has developed a hydrogel technology called GelrinC, which is a resorbable, biocompatible, and injectable hydrogel matrix designed for cartilage repair. The technology has been tested in clinical trials for the treatment of knee cartilage lesions and has demonstrated superior results compared to traditional treatments. GelrinC technology can potentially be applied to a wide range of soft tissue regeneration.

Regentis Biomaterials' GelrinC technology has potential applications in the field of Longevity and anti-ageing research. As the hydrogel matrix can be customised to mimic different types of tissues, it has the potential to be used for the regeneration of a wide range of damaged tissues and organs affected by ageing, making it a promising solution in the field of Longevity and anti-ageing research.

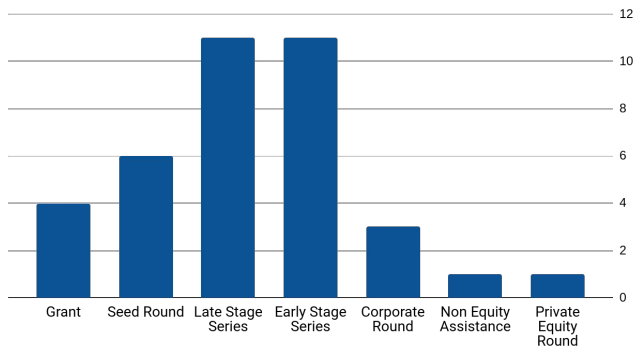
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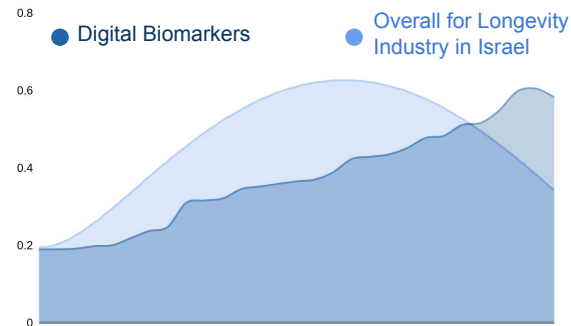
Digital Biomarkers

Average Funding per Round, \$



Funding per Company		
Max	Average	Min
\$172M	\$22M	\$1M

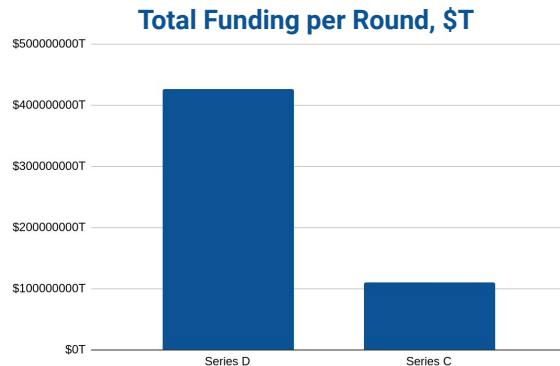
Companies Relative Distribution by Total Funding Amount



Digital biomarkers can include data from wearable devices, mobile apps, and other sensors. Israel is home to a growing number of digital health companies that are developing new ways to collect and analyse data, including the use of Artificial Intelligence and Machine Learning. These technologies offer the potential to identify early signs of disease, monitor disease progression, and optimise treatment plans for individual patients. As the use of digital biomarkers continues to grow, they are expected to play an increasingly important role in the Longevity Industry, helping to improve patient outcomes and reduce healthcare costs.

Digital Biomarkers: Sight Diagnostics

sight



Sight Diagnostics is an Israeli medical device company that has developed a rapid blood diagnostic platform called Olo. In August 2020, the company announced that it had raised \$71 million in a Series D funding round led by Koch Disruptive Technologies (KDT) and Longliv Ventures, bringing the total amount of funding raised to over \$124 million.

Sight Diagnostics is an Israeli medical devices company that provides a digital platform to analyse blood samples and generate lab-grade results in minutes, using machine vision and AI. The company aims to provide more accessible, affordable, and efficient healthcare to people worldwide. Sight Diagnostics' technology has the potential to transform healthcare by making blood testing faster, more accurate, and more accessible.

Sight Diagnostics technology uses digital imaging and Machine Learning to rapidly analyse blood samples and provide accurate diagnostic results in minutes. The company's flagship product, OLO, can perform a complete blood count (CBC) test and provide a lab-grade blood analysis in minutes without the need for additional equipment or trained personnel. The OLO analyser is designed to be easy to use, requires minimal training, and is portable, making it well-suited for use in a variety of healthcare settings.

Sight Diagnostics' technology could play an important role in the early detection and treatment of diseases, including those related to ageing. By providing faster, more accurate blood tests, the company's products could help physicians diagnose and treat age-related diseases earlier when they are most treatable. Sight Diagnostics is also exploring other applications of its technology, such as blood-based cancer diagnostics and monitoring, and by accumulating samples they can expand device diagnostics capabilities.

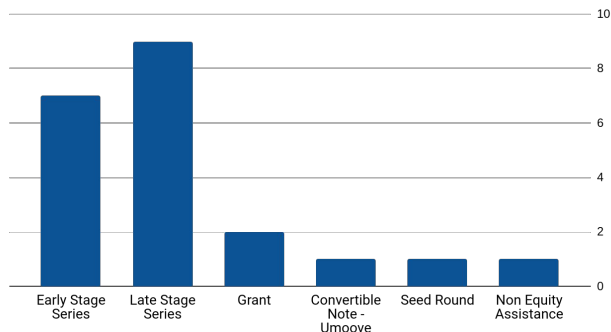
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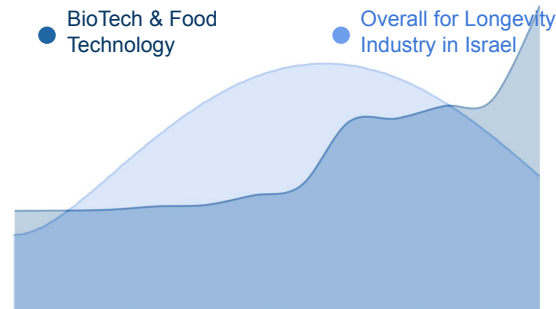
BioTech and Food Technology

Average Funding per Round, \$M



Companies Relative Distribution by Total Funding Amount

Funding per company		
Max	Average	Min
\$51M	\$10M	\$0.03M



Precision fermentation takes this a step further by using advanced biotechnology to produce more complex compounds, such as pharmaceuticals, with greater precision and at a lower cost. Israel is home to several precision fermentation companies that are developing new ways to produce these high-value compounds using advanced technologies, such as CRISPR gene editing and synthetic biology. As the demand for sustainable, cost-effective, and innovative ways to produce complex compounds continues to grow, precision fermentation is expected to play an increasingly important role in the Longevity Industry.



Remilk has raised a total of \$23.6 million in funding over two rounds. The company's first funding round was a \$11.3 million seed round in January 2020, led by Israeli venture capital firm Fresh Start and included participation from CPT Capital, OurCrowd, and ProVeg International. The funding was used to develop Remilk's technology and scale up production. In January 2021, Remilk announced that it had raised an additional \$12.6 million in a Series A funding round led by new investor, Happiness Capital. Other investors included existing investors CPT Capital, OurCrowd, and ProVeg International. The latest funding round, Series B, was in January 2022, with \$1.2 billion dollars raised from 10 investors.

Remilk is an Israeli company that develops dairy alternatives using microbial fermentation. Their aim is to provide sustainable and healthy dairy alternatives that are free from animal-based ingredients. Remilk's dairy alternatives have the potential to play a role in improving the sustainability and ethicality of the food industry, including the Longevity and anti-ageing markets, as a growing number of consumers are interested in plant-based, sustainable, and healthy alternatives.

Remilk's technology involves using microbial fermentation to produce casein and whey proteins that are identical to those found in cow's milk. They also use plant-based ingredients to create the texture and flavour of dairy products. Their products are vegan, lactose-free, and free from antibiotics, hormones, and other contaminants.

The company's products have applications not only in the food industry but also in the health and wellness industry as they can be used to develop functional foods and supplements. As people become more conscious of the environmental and ethical impact of their food choices, Remilk's technology has the potential to play a significant role in shaping the future of the food industry.

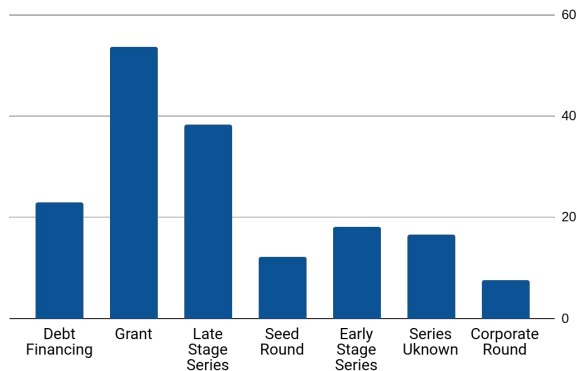
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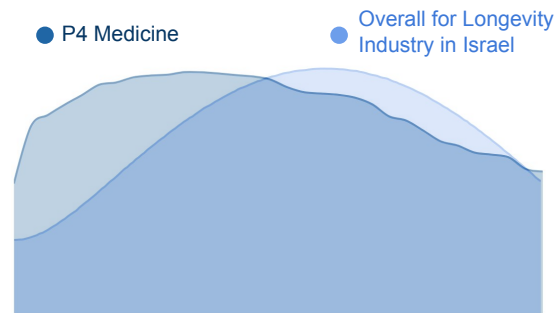
P4 Medicine

Average Funding per Round, \$M



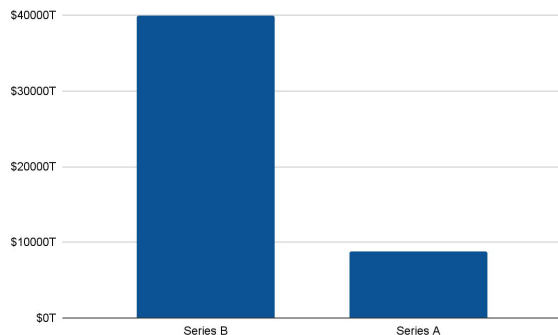
Funding per company		
Max	Average	Min
\$150M	\$21M	\$0.1M

Companies Relative Distribution by Total Funding Amount



P4 Medicine, which stands for Predictive, Preventive, Personalised, and Participatory Medicine, aims to shift the focus of medicine from reactive to proactive by using advanced technologies and data analysis to predict and prevent disease before it occurs. This approach is highly personalised, taking into account a person's unique genetic make-up, lifestyle, and environmental factors. Patients are also encouraged to participate actively in their own healthcare, with a focus on prevention and early intervention. Israel is well-positioned to be a leader in P4 Medicine due to its strong expertise in genomics, biotechnology, and digital health.

Total Funding per Round



In July 2021, BrainQ announced that it had raised \$40 million in a Series B funding round. The funding was led by Hanaco Ventures, with participation from Clal Insurance, OurCrowd, and other investors. The funds will be used to accelerate the development and commercialisation of BrainQ's technology.

BrainQ is an Israeli company that specialises in developing personalised electromagnetic treatment for patients with neurological disorders. In healthcare, BrainQ is focused on developing innovative solutions for patients with neurological disorders. The company's goal is to improve outcomes for patients with conditions such as stroke and traumatic brain injury.

BrainQ technology is based on years of neuroscience research and uses an AI-based platform to optimise treatment for patients with neurological disorders. Using a proprietary AI-based platform, BrainQ aims to optimise treatment for stroke, traumatic brain injury, and other neurological conditions. The technology is based on a deep understanding of neuroscience and has the potential to transform the way neurological conditions are treated.

BrainQ technology has the potential to revolutionise the treatment of neurological disorders by providing personalised, data-driven treatment plans. With further development and clinical trials, it could become a powerful tool in the fight against age-related neurological conditions, such as dementia and Alzheimer's disease. BrainQ leveraging AI to adapt powerful electromagnetic therapeutic techniques to patient, gaining safety of procedures, stability of outcome, and swift treatment.

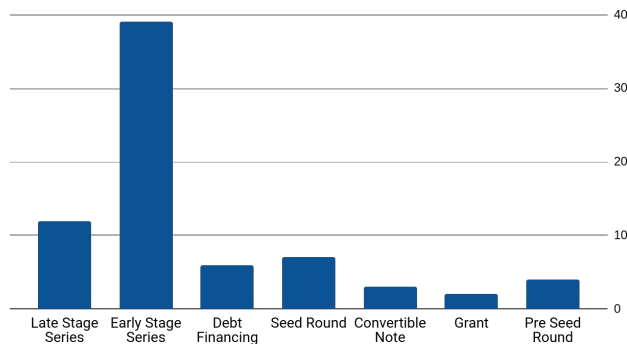
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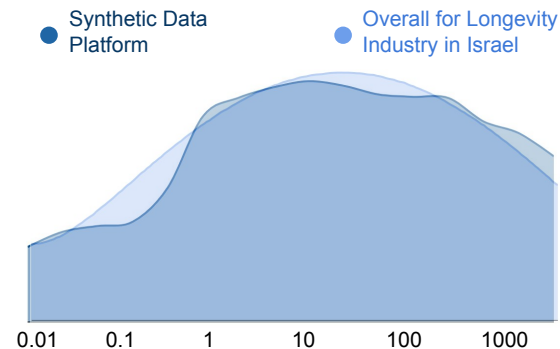
Synthetic Data Platform

Average Funding per Round, \$M



Funding per company		
Max	Average	Min
\$51M	\$10M	\$0.03M

Companies Relative Distribution by Total Funding Amount

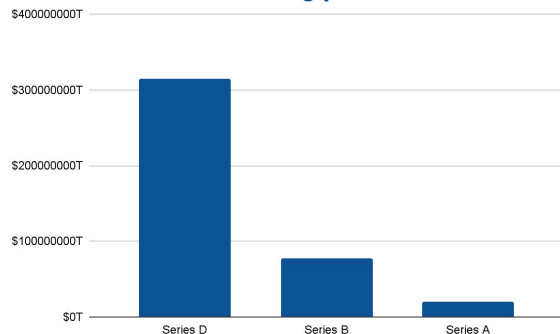


Synthetic data platforms offer several benefits, such as protecting patient privacy, enabling rapid prototyping and testing, and reducing the need for expensive and time-consuming clinical trials. Israel is home to a growing number of digital health companies that are developing synthetic data platforms for various applications, including drug discovery, medical imaging, and disease diagnosis. These platforms use advanced algorithms and data modeling techniques to create highly realistic synthetic data sets that can be used to train Machine Learning models and simulate different scenarios. Synthetic data platforms are expected to play an increasingly important role in accelerating research and development.

Synthetic Data Platform: MDClone

MDCLONE

Total Funding per Round



In May 2021, MDClone announced that it had raised \$26 million in a Series C funding round. The funding was led by Red Dot Capital Partners, with participation from existing investors such as aMoon and OrbiMed.

MDClone is a healthcare technology company based in Israel that specialises in data analytics and collaborative research. MDClone provides a secure platform for analysis and sharing of medical data. The company's mission is to improve global healthcare by democratising access to data and enabling researchers to share insights and accelerate discoveries.

MDClone has developed a secure, privacy-preserving platform that allows researchers to access large-scale, real-world healthcare data without compromising patient privacy. The blockchain-based platform uses synthetic data to create a virtual, nonidentifiable copy of the original data set, which can be used for research and analysis without revealing any individual patient information. This approach ensures data privacy and compliance with regulatory requirements, while also enabling data collaboration and accelerating research.

MDClone data analytics approach capable to transform medical research, allowing to conduct it by making large-scale, real-world healthcare data available for analysis without compromising privacy or security. The platform's innovative approach to data privacy and collaboration could lead to breakthroughs in Personalised Medicine, disease prevention, and population health management. MDClone's key features include secure data access, privacy-preserving technology, and data collaboration.

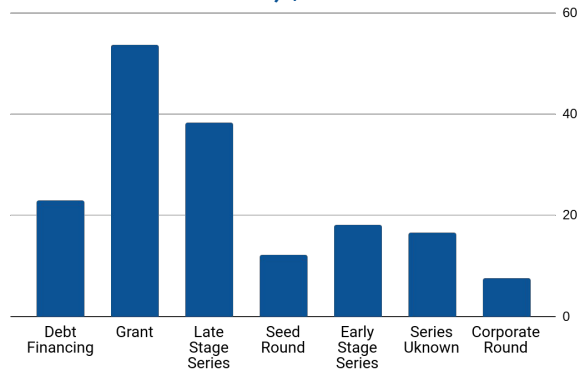
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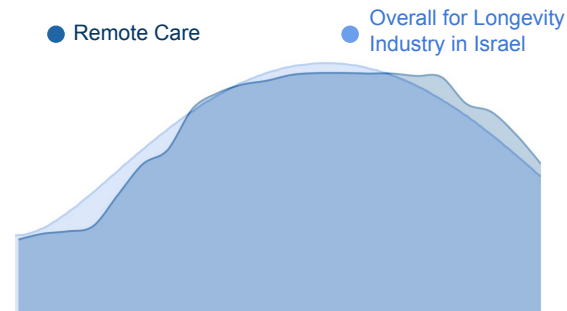
Remote Care

Average Funding per Round, \$M



Funding per company		
Max	Average	Min
\$90M	\$13M	\$0.03M

Companies Relative Distribution by Total Funding Amount

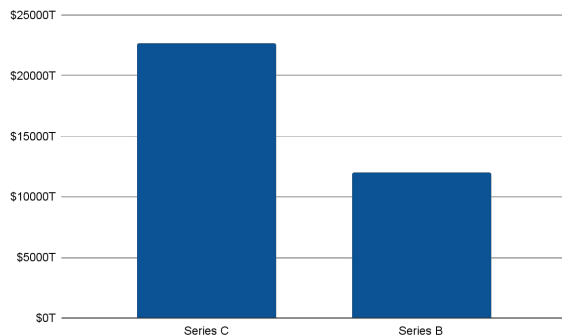


The COVID-19 pandemic has accelerated the adoption of remote care in Israel and around the world as it offers a safer and more convenient way for patients to receive medical care. Israel has a strong start-up ecosystem focused on digital health, and several companies are developing innovative remote care solutions. The trend towards remote care is expected to continue to grow in the coming years as the demand for convenient and accessible healthcare continues to rise.

Remote Care: keepMED



Total Funding per Round, \$T



In May 2021, MDClone announced that it had raised \$26 million in a Series C funding round. The funding was led by Red Dot Capital Partners, with participation from existing investors, such as aMoon and OrbiMed.

keepMED is an Israeli digital health start-up that provides a patient-centric platform for medication management. The company aims to improve patient outcomes by empowering patients to take control of their medication routines and adherence, reduce medication errors, and decrease the risk of hospitalisation.

keepMED technology allows patients to easily manage their medication intake by using smart pillboxes, which automatically track and analyse their adherence. Patients receive real-time reminders and alerts if they miss a dose, and caregivers can also monitor their loved ones' adherence remotely. The platform also generates comprehensive medication management reports and analytics for healthcare providers, improving communication and care coordination between providers and patients.

keepMED technology has the potential to significantly impact the Longevity field by improving medication adherence, which is a crucial factor in managing chronic diseases that affect older populations. The platform can help prevent adverse medication-related events and hospitalisations, leading to better patient outcomes and quality of life.

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התנועה לאיכות ואריכות חיים (ע"ר)
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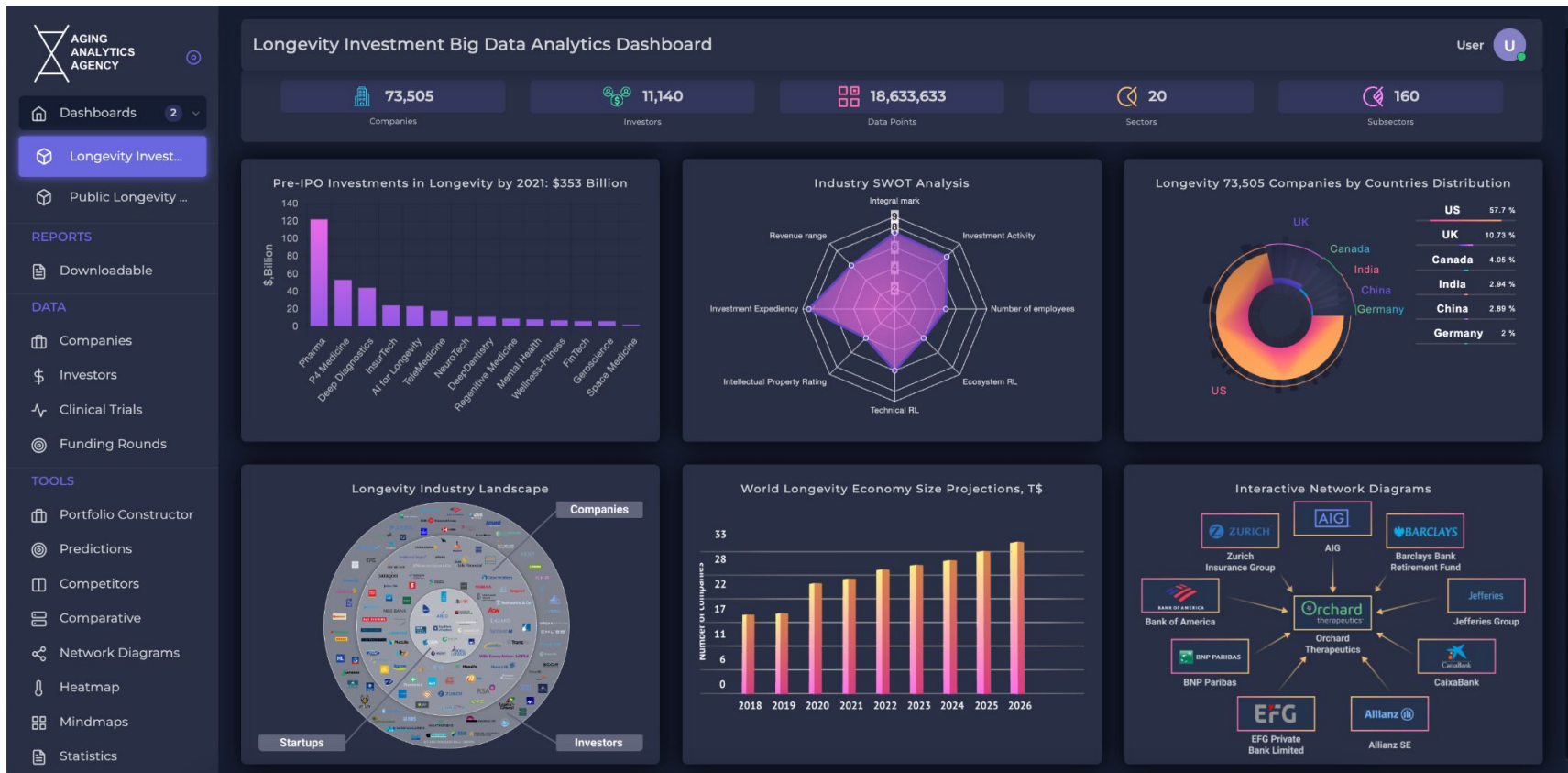
Longevity Industry Ecosystem in Israel 2023: Conclusions



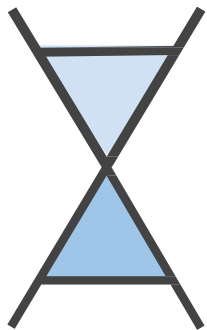
Innovative Healthcare in Israel: Conclusions

- The vast majority of the approximately 1,800 operational life sciences companies in Israel, established by Israeli entrepreneurs, have their headquarters located within the country, with only 15% having their headquarters situated in foreign countries. The Israeli government has designated National Priority Areas and Development Zones in peripheral areas as a way to stimulate economic growth and incentivize entrepreneurs to establish their companies in these regions. However, despite the substantial economic benefits that these areas offer, such as tax incentives and other government support, 80% of the life sciences companies in 2021 chose not to locate their headquarters in these areas.
- The capital of Israel, Tel Aviv, took the first place in every sector of the Longevity market of Israel. It hosts the largest number of R&D hubs, BioTech companies, clinics and hospitals that provide clinical trials, as well as advanced clinics and diagnostic centres.
- The Medical Devices sector has historically been and continues to be the dominant subsector, accounting for approximately 36% of Longevity R&D companies in 2021, despite a 4% decrease from 2020. Telemedicine, on the other hand, is the second largest subsector and experienced a 3% increase in representation in life science companies in 2020, making it the fastest growing subsector. Biotechnology and Pharmaceuticals, however, have remained consistent with 2020 levels in terms of company representation. Looking towards 2022, the distribution of subsectors remains unchanged from 2021 during the first 9 months of the year.
- Pharmaceutical companies from all over the world have been drawn to Israel for the purpose of conducting clinical trials of their products, with a consistent annual average of approximately 350 clinical studies being conducted until 2022. The primary areas of focus for clinical research in Israel are oncology, cardiological disorders, and gastroenterological disorders.
- Israel is leading the way in the technological development of the digital health sector, with a particular focus on the implementation of AI in healthcare. As a result, a large proportion of digital health companies in Israel are utilizing AI in their products, with 146 Israeli AI companies operating in the healthcare market segment. The cumulative funding raised by Israeli AI healthcare companies is a total of \$847 million, with 67 of them having raised one or more funding rounds.

Longevity Investment Big Data Analytics Dashboard



About Ageing Analytics Agency



**AGING
ANALYTICS
AGENCY**

www.aginganalytics.com

Ageing Analytics Agency is primarily interested in strategic collaboration with international corporations, organisations, and governments in Longevity-related projects and initiatives.

Ageing Analytics Agency is open to cooperation with strategic clients via a variety of approaches, including:

- Conducting customised case studies, research and analytics for internal (organisational) use, tailored to the precise needs of specific clients.
- Producing open-access analytical reports.
- Offering customised analysis using specialised interactive industry and technology databases and IT-Platforms.

In certain specific cases, if it meets our interests, Ageing Analytics Agency is open to co-sponsoring research and analytics for the production of internal and open-access industry reports, as well as special case studies for a variety of governmental, international, and corporate clients. Their topics of interest may include Longevity, the Longevity Financial Industry, Longevity Policy and Governance, and the development and execution of fully-integrated National Healthy Longevity Development Plans tailored to the specific needs of national governments and economies.

About Deep Knowledge Group



www.dkv.global

Deep Knowledge Group is a data-driven consortium of commercial and non-profit organizations active on many fronts in the realm of DeepTech and Frontier Technologies (AI, Longevity, BioTech, Pharma, FinTech, GovTech, SpaceTech, FemTech, Data Science, InvestTech), ranging from scientific research to investment, entrepreneurship, analytics, consulting, media, philanthropy and more. **Major DKG projects are:**

- Big Data Analytical System
- InvestTech platform
- Longevity Club
- Longevity Books
- Longevity and DeepTech Investment Projects
- Fifth Industrial Revolution
- Analytical and Ranking Agencies
- Deep Knowledge Philanthropy

As a mathematical corporation focused on building the bridge to the 5th Industrial Revolution, Deep Knowledge Group is decisively committed to DeepTech for Social Good, Techno-Philanthropy and DeepTech and Longevity Industry Financial Commoditization.

About Vetek (Seniority) Association



www.longevityisrael.org

The Vetek Association has been at the forefront of aging research and advocacy in Israel. It has organized or co-organized several national and international conferences on biomedical aging and longevity research in Israel, such as the conference in Bar Ilan University in 2017 co-sponsored by the Israel Ministry of Science and Technology, and the conference in Weizmann Institute of Science in 2019 co-sponsored by the US NIH National Institute on Aging.

The main aim of Vetek (Seniority) Association – the Movement for Longevity and Quality of Life is to act for the advancement of healthy longevity for the entire population through scientific research, technological development, medical treatment, public health and educational measures, advocacy and social activism.

Within this general aim, the Vetek Association emphasizes and promotes the amelioration of the deteriorative aging process as the main factor undermining healthy longevity.

About Longevity International



www.longevity.international

Longevity.International is a first-of-its-kind, open-access non-profit decentralized Longevity Industry Knowledge and Collaboration platform with the aim of promoting a greater degree of synergy, efficient cooperation, and discussion among a variety of Longevity Industry participants and stakeholders, including companies, investors, non-profits, academic labs and R&D hubs, governmental bodies and policy makers.

The platform utilizes sophisticated data-driven analytics provided by Aging Analytics Agency and advanced IT solutions (including interactive industry databases with intelligent multi-parametric search and filter capabilities) sponsored by Deep Knowledge Group.

Longevity.International is a unique platform that **brings together various stakeholders** from the Longevity Industry to collaborate, share knowledge and ideas, and work towards a common goal of promoting healthy longevity. With advanced IT solutions and data-driven analytics provided by Aging Analytics Agency and Deep Knowledge Group, the platform provides an intelligent and interactive database that facilitates efficient cooperation and discussion. Non-profit and non-commercial organizations that share the vision of transforming the challenge of aging into an opportunity for longevity are encouraged to join as institutional partners, while commercial organizations can support the platform as sponsors.

About Biogerontology Research Foundation



Biogerontology
Research Foundation
Prevent. Restore. Preserve.

www.biogerontology.info

The Biogerontology Research Foundation is the UK's leading non-profit focused on Longevity and on expediting the coming paradigm shift from disease treatment to personalized precision prevention.

It was the main initial donor that provided financial and organisational support to Longevity International UK for the purpose of establishing the APPG for Longevity.

It was also actively involved in the successful initiative of adding a new extension code for “ageing-related diseases” accepted in 2018 by the World Health Organization during the last revisions of its International Classification of Diseases framework - the closest any group has come to classifying ageing as a disease.

The Biogerontology Research Foundation has always made progressive policy proposals relating to Longevity a core element of its activities, and has recently made the decision to significantly expand its scope of activities in this regard, interfacing with both national and international policy-related organizations to further the United Kingdom's activities relating to Longevity politics and governance.

About ATLAS (Assistive Technology, Longevity and Ageing Society)



www.at-las.org

ATLAS (Assistive Technology, Longevity and Ageing Society) is an Advocacy for the prioritisation of frontier technologies in AssistiveTech and AgeTech to impact lives on a global scale. We believe that technology is a major enabler of social inclusion in the world, and so we leverage partnerships via tech founders, venture philanthropy and impact investment to deliver a future of technology for all.

ATLAS pledges to:

- Champion the AssistiveTech Ecosystem and its potential to drive social inclusion
- Promote healthy Longevity and its importance to society and ecosystem
- Restore the Technological Rights of our senior community

ATLAS is a non-profit organization that aims to create a world where technology is accessible and inclusive for people of all ages and abilities. Their focus is on advocating for the use of frontier technologies in the fields of AssistiveTech and AgeTech, promoting healthy longevity, and restoring the technological rights of senior citizens. By partnering with tech founders, venture philanthropy, and impact investors, ATLAS is working towards delivering a future of technology that benefits everyone.

About Longevity Industry Ecosystem in Israel IT-Platform

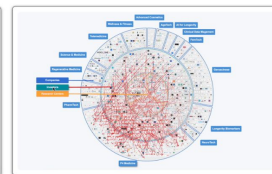


Welcome to the Aging Analytics Agency's IT Platform, developed in collaboration with the Biogerontology Research Foundation and Vetek (Seniority) Association. As a central hub for resources and information on Israel's Longevity Industry, our platform complements the "Longevity Industry in Israel 2023" report, which offers a comprehensive analysis of the sector.

- The platform and report together provide an extensive overview of the companies, investors, and R&D activities in Israel's Longevity Industry, aiming to inform and guide stakeholders such as investors, entrepreneurs, and policymakers.
- Our commitment to advancing this industry is showcased by the platform's aggregation of materials on the Longevity ecosystem in Israel and beyond.



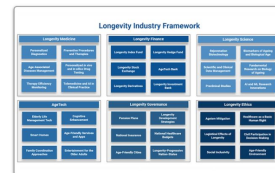
Longevity Industry in Israel Report



Interactive Mindmaps



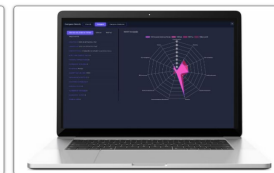
Leaders Database



Longevity Industry Framework



Mindmap



Longevity Industry Dashboard

Longevity Industry Ecosystem in Israel

Introduction the new Longevity Industry Ecosystem in Israel: Longevity Industry Ecosystem in Israel 2023

Access now!

Navigate Longevity Ecosystem in the Israel and more

Longevity Industry in Israel Report

Interactive Mindmaps

Leaders Database

Longevity Industry Framework

Top-200 Longevity Industry Companies in Israel 2023

Mindmap

Longevity Industry Dashboard

Longevity Industry Framework

Mindmap

Longevity Industry Dashboard

Longevity Nation Conference – international collaboration

Longevity Nation Conference is taking place 26 - 27 March in Bar-Ilan University, Israel. This event aims to increase the synergy between the scientific research, novel technologies and aging society to find new solutions for healthy longevity progress.

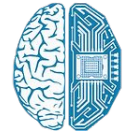
Aging Analytics Agency is proud to collaborate with with the world leaders in longevity and aging including **Vetek**, **International Longevity Alliance**, **Biogerontology Research Foundation**, **ESAAM**, **Shlomo Tyran Foundation** and others. Such cooperation brings together the loudest voices to promote and develop the longevity ecosystem in Israel and worldwide.



התנועה לאיכות ואריכות חיים (ע"ר)
Seniority-The Movement for
Longevity and Quality of Life



INTERNATIONAL
LONGEVITY
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