DEEP
KNOWLEDGE
GROUP
LIFE SCIENCES DIVISION

Philanthropy
International

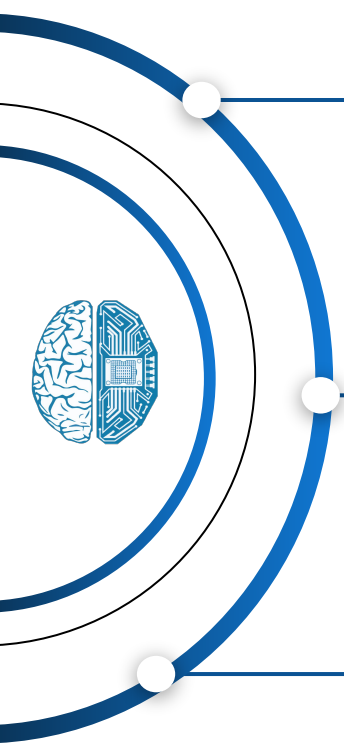
Lyme Investment Financing Enterprises (LIFE Fund)

Data-Driven Impact Investment for Market-Ready, Human-Validated Lyme Disease Treatments

www.philanthropy.international/lyme

About Deep Knowledge Group

Deep Knowledge Group is a consortium of commercial and nonprofit organisations active on multiple fronts in the realm of DeepTech and Frontier Technologies (AI, Longevity, FinTech, GovTech, InvestTech), ranging from scientific research to investment, entrepreneurship, analytics, media, philanthropy, and more.



Deep Knowledge Group runs several data-driven **investments and financial vehicles**

- DEEP KNOWLEDGE VENTURES
- InvestTech Platform
- LONGEVITY FINANCIAL CLUB
- DeepTech and Longevity Industry Financial Advisors
- LONGEVITY CARD
- LONGEVITY CAPITAL

Deep Knowledge Group's **analytical subsidiaries** are world leaders in analytics for DeepTech and Longevity industries

- AGING ANALYTICS AGENCY
- Big Data Analytics Department
- GovTech Analytics
- FemTech Analytics
- NeuroTech Analytics
- DEEP KNOWLEDGE ANALYTICS
- SpaceTech Analytics
- DEEP PHARMA INTELLIGENCE

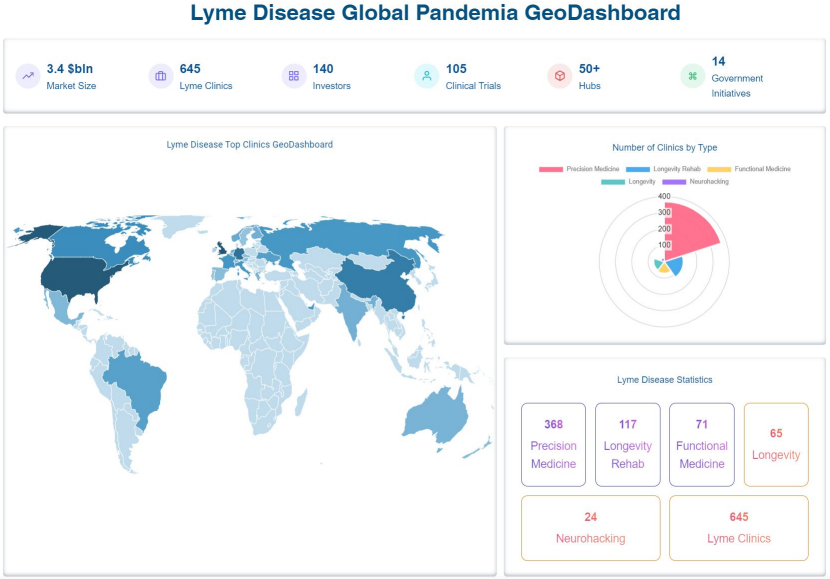
Deep Knowledge Philanthropy pioneers several infrastructural **social impact projects**

- DEEP KNOWLEDGE PHILANTHROPY
- LONGEVITY CLUB
- LONGEVITY INTERNATIONAL
- ATLAS
- 5th Industrial Revolution Institute
- Swiss Longevity Valley
- Biogerontology Research Foundation — Prevent. Restore. Preserve.
- Philanthropy International

Lyme Investment Financing Enterprises (LIFE Fund) Overview

Lyme **I**nvestment **F**inancing **E**nterprises (**LIFE Fund**) is a first-of-its-kind impact investment and Techno-Philanthropy initiative led by Deep Knowledge Group that uses data-driven analytics to fund Lyme-focused companies and projects with the highest assessed probability of delivering real-world human impact on the global pandemic of Lyme Disease, backed by the best underlying science and medicine.

Structured as a rolling fund (modelled in terms of legal configuration on the example of AngelList's Evergreen Impact Investment Funds) to enable broader and more accessible participation from investors, the impact fund's investment target identification and capital allocation decision making is driven by Deep Knowledge Group's world-class Lyme Disease Global Pandemia Big Data Analytical System and Dashboard, which uses sophisticated AI-driven market monitoring and intelligence, comparative and competitive analytics, and scientific, medical and technological benchmarking to identify and fund high-impact Lyme projects.



The project is backed by Deep Knowledge Group, a global consortium of commercial and non-profit organizations united in their mission for supporting, developing and advancing DeepTech for social impact and techno-ethical business for social good, whose reputation for early identification of high-impact life sciences investment targets, the development and ownership of extremely sophisticated Frontier Science and Technology analytics, market intelligence and forecasting, and unwavering commitment to a mandate of Techno-Philanthropy is unmatched.

LIFE Fund: Lyme Investment Financing Enterprises

Data Driven Impact Investment Fund Focused on Funding High-Impact, Market-Ready, Human-Validated Lyme Disease Treatments

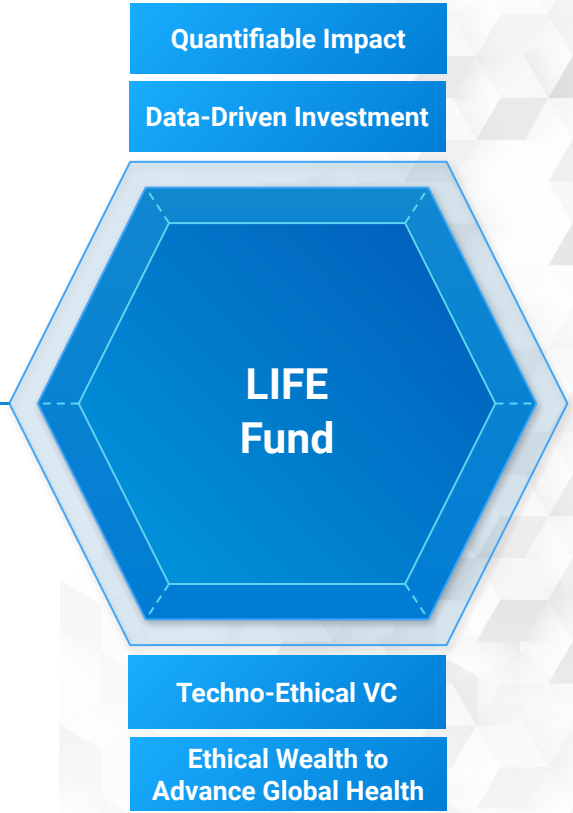
Investment Target Identification, Fund Composition and Structuring, and Capital Allocation Decision Making Driven by AI and Data Science

Global Lyme Pandemia Market Intelligence Big Data Analytical System Uses Deep Analytics, Ranking and Forecasting for Investment Decisions

Dual ROI: Profitable Capital Gains and True Impact on Lyme Disease

15% of Raised Capital Allocated to Internal Incubation Fund to Finance the Next Wave of Lyme Treatments (5-10 Years from Market Readiness)

Led by Global Consortium Renowned for Advanced Life Sciences Investment, Tech Industry Forecasting, and Techno-Philanthropy



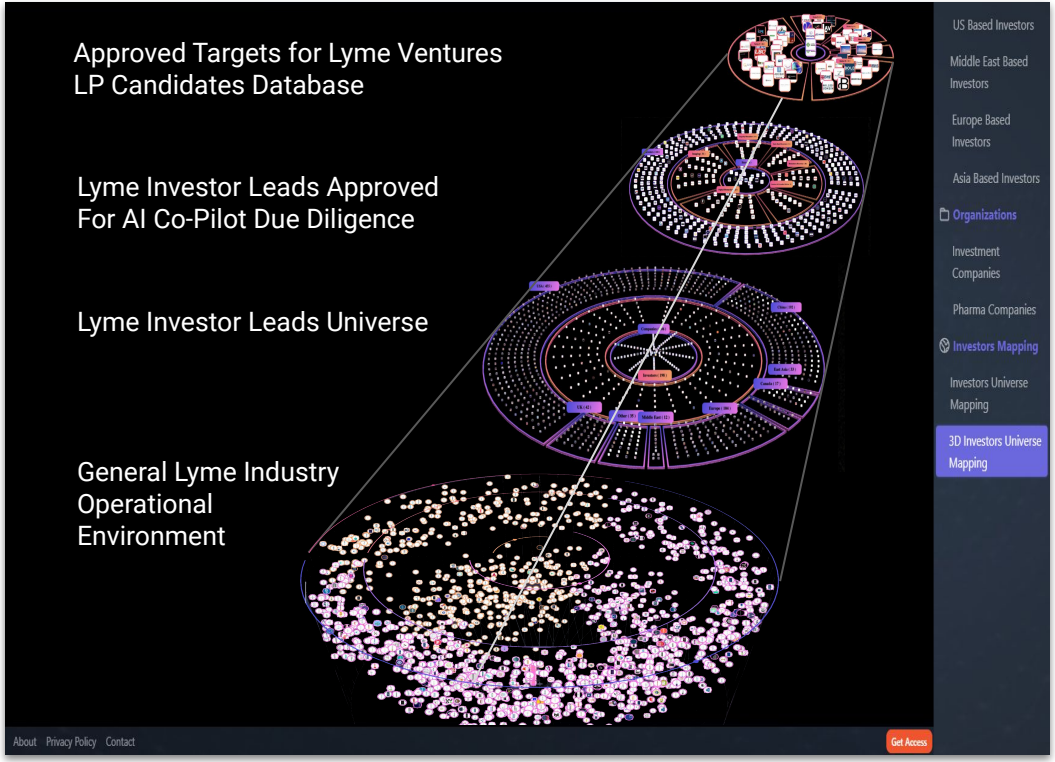
Lyme Investment Financing Enterprises (LIFE Fund) Overview

Deep Knowledge Group has also developed a sophisticated Investment Universe Big Data Analytics System to monitor, model and track the operations environment of Ultimate Decision Makers (UDMs) in a variety of life sciences investment domains.

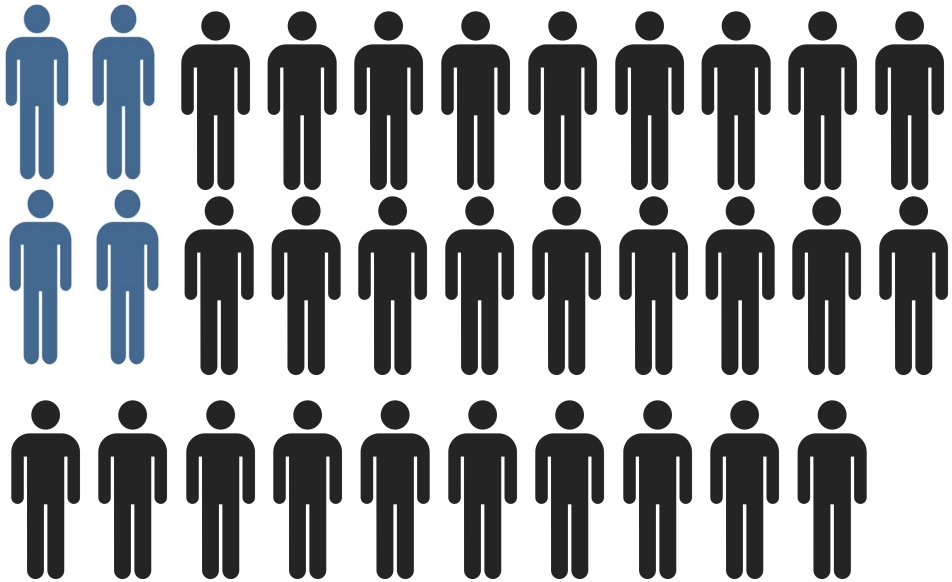
DKG has adapted this existing infrastructure for the purpose of identifying and profiling investors, HWNIs, celebrities and other high-calibre personalities with personal stakes in combating Lyme Disease Pandemia (**including 360+ billionaires who suffer from Lyme Disease themselves**).

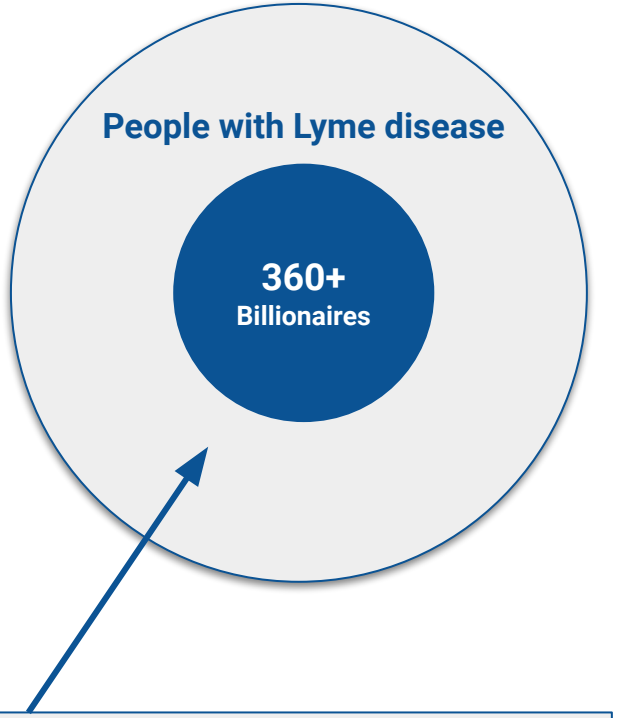
These leads will form the initial LP targets for Lyme Ventures, and engagement with them will be conducted using the above-described business intelligence assets, combined with DKG's hybrid AI Co-Pilot-augmented automated investor relations and engagement technology.

Lyme Investment Universe Market Intelligence System



Billionaires affected by Lyme disease





Over **360+** billionaires are affected by Lyme disease. This significant figure underscores the widespread impact of the disease across various demographics, highlighting the need for continued awareness, research, and support for those affected in high-profile spheres.

Involvement of Celebrities in Lyme Awareness

Karen Allen

Christy Turlington Burns

Amy Tan

Debbie Gibson

Alec Baldwin

Ben Stiller

Daryl Hall

Jordan Fisher

Marla Maples

Lauren Lovejoy

Ally Sheedy

Rebecca Wells

Dana Parish

Kelly Osbourne

Jamie-Lynn Sigler

Daryl Hannah

Ramona Singer

Parker Posey

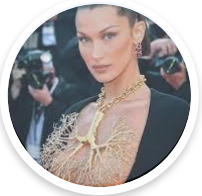
Ashley Olsen

Debbie Harry

Kathleen Hanna

Scott Jurek

Katina Makris


Bella Hadid

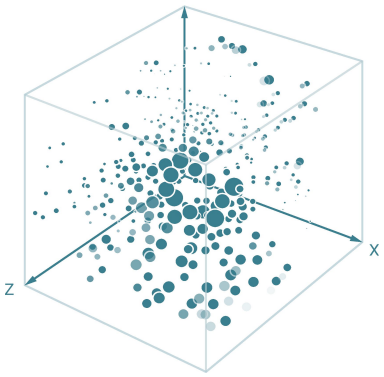
Investment Universe Operational Environment Establishment

Entity or Particular Project

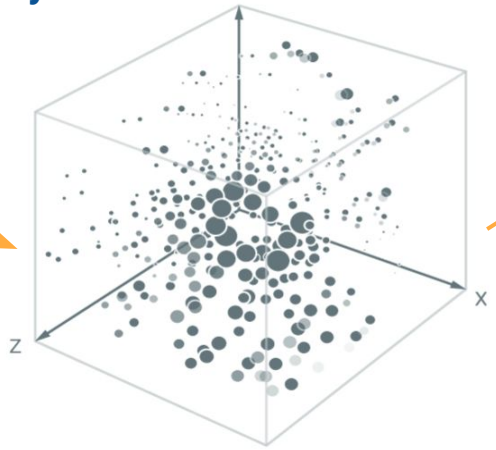
Evaluation

- SWOT Analysis
- Industry Mapping
- Framework Creation
- Key Parameters Identification

Lyme Industry Universe*



Lyme Investment Universe



AI Driven Analytical Module

AI Driven Analytical Module

Operational Environment: Collected Dataset of Relevant Organisations and their Parameters

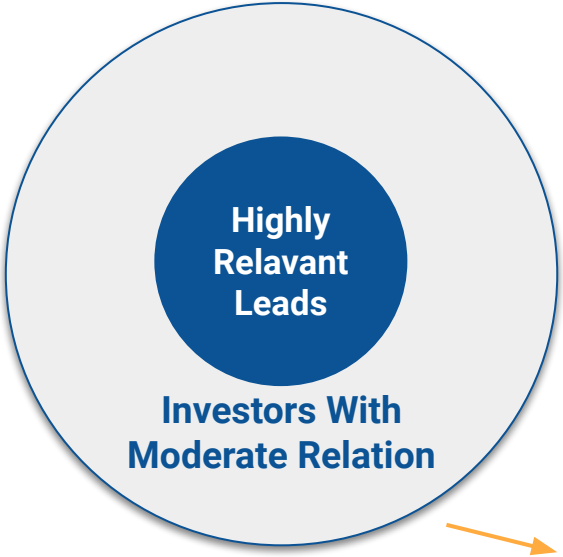
Highly Relavant Entities

Organisations With Moderate Relation

Further Analysis and Automated Data Enrichment

Multi Dimensional Vector Space Establishment

Enriched Dataset of Relevant Organisations and their Parameters



Analytical Module*

CCQQ Analysis

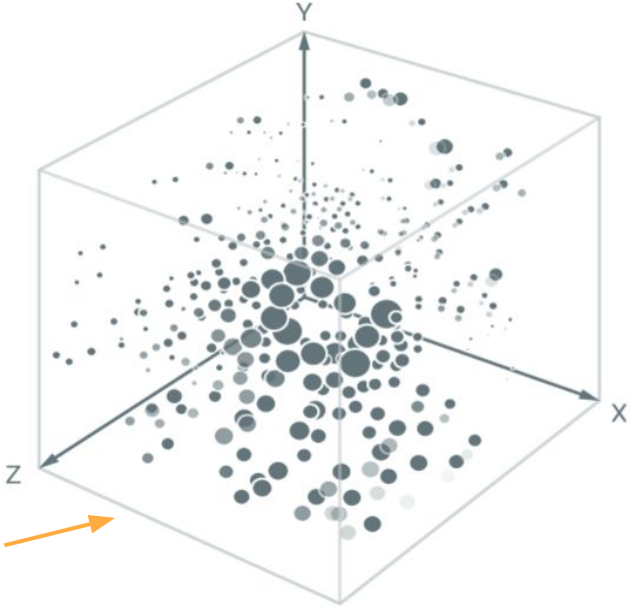
Competitive	Comparative
Quantitative	Qualitative

Vectors Creation

Quantitative data	Qualitative data
Feature Encoding	AI Driven Tagging

Vectors Matching

Investment Universe Multi Dimensional Vector Space



AI Augmentation System Construction

*Analytical Module encompasses multiple steps of data vectorisation and processing which are just partially showcased in the framework. More information can be provided upon request.

Investment Relations Dashboard

Chosen Entity Operational Environment	
50 Companies	300 Investment Funds

Initial Analysis

- Interconnections Mapping
- Investing History Research
- Co Investing Patterns Detection
- Financial Position Analysis
- Current State Evaluation
- Investment Focus Assessment

Multi Factor Scoring

Core Factors	Importance
Number of Companies Invested in	1
Number of Investments	2
Participation as Lead Investor	3
Focus Stage of Investment	4
Last Round's Participation	5
Repeated Investments	6
Investments in Field Since 2022	7
Investments in Companies with Losses	8
Investments in Overvalued Companies	9
Investments in Recovering Companies	10

50
Funds with High Score for Potential Engagement

250
Funds with Medium Score for Potential Engagement

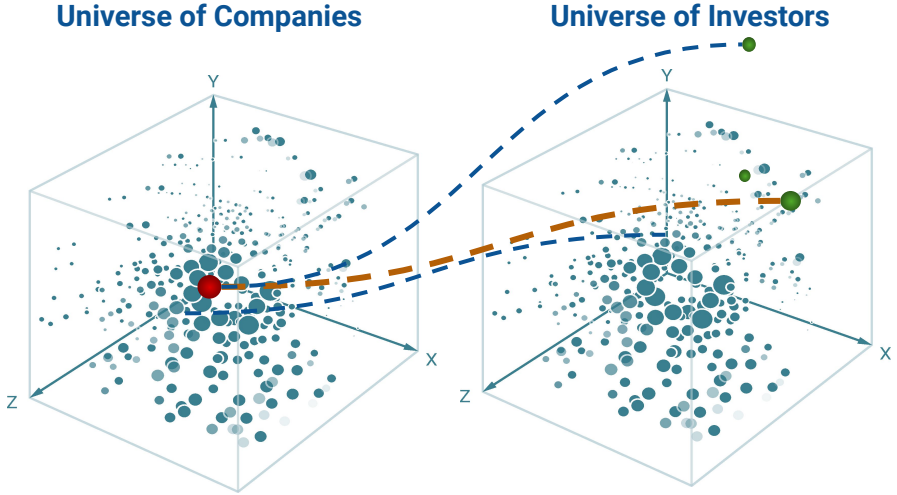
AI-driven Matching Tool

For Companies

Based on algorithmic multiparametric analysis of the client and investor profiles, the AI-driven Matching Tool can within seconds match start-ups seeking to raise money with several hundreds of the most relevant potential clients and investors from a pool of several tens of thousands.

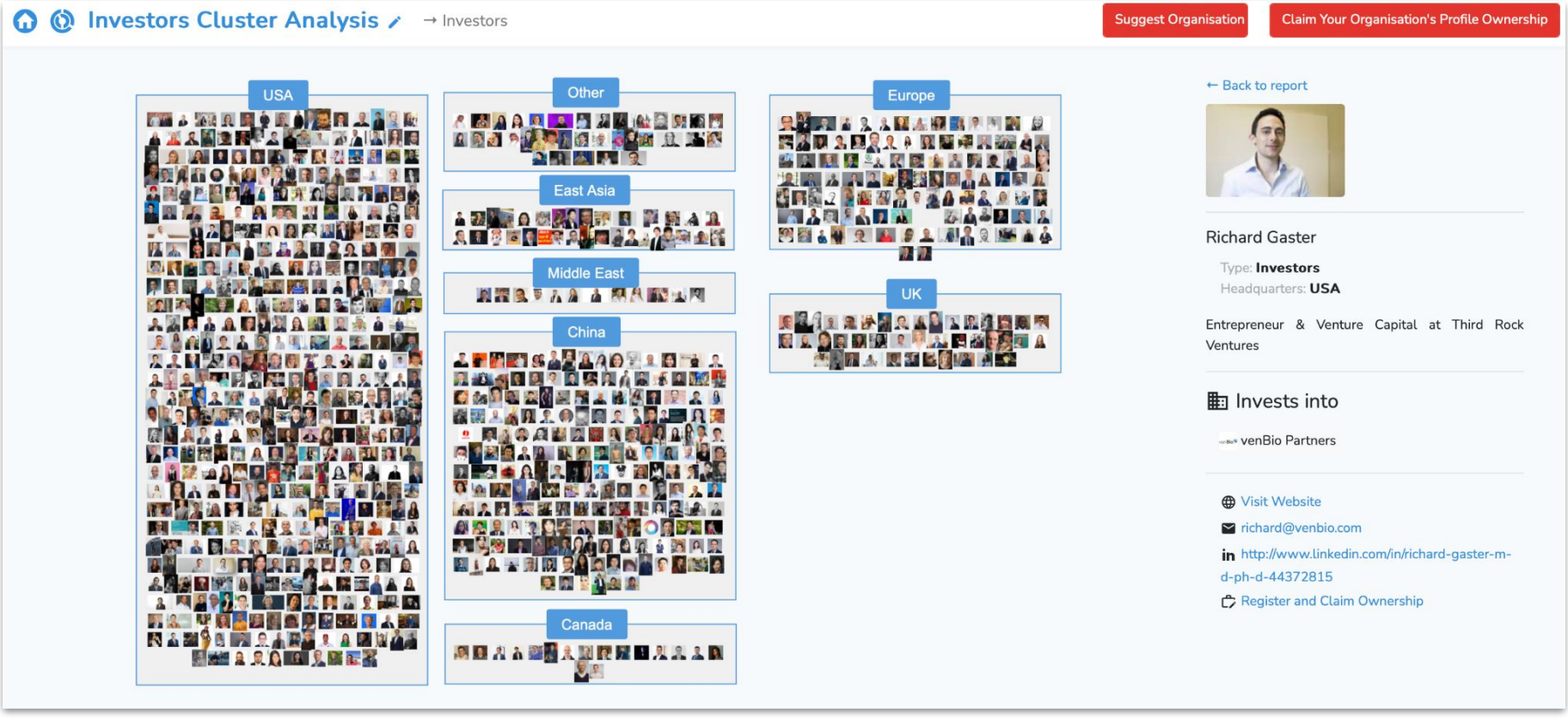
For Investors

Based on investors' preferences, the AI-driven Matching Tool can recommend the most relevant companies that can serve as potential investment targets for them, and immediately provide automated SWOT and comparative analysis.



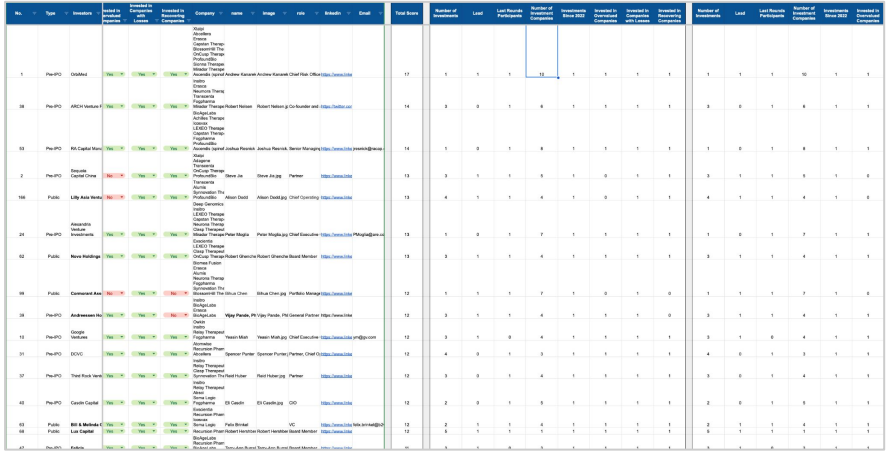
Indirect matching approaches based on deep learning and reinforcement learning to identify hidden patterns and connections are combined with **direct matching approaches** based on algorithmic and machine learning analysis of the known sectors of activity of companies, investment track-record, and preferences of investors. The matching tool is able to identify the matches between investors and start-ups out from the large set of entities based on input data parameters.

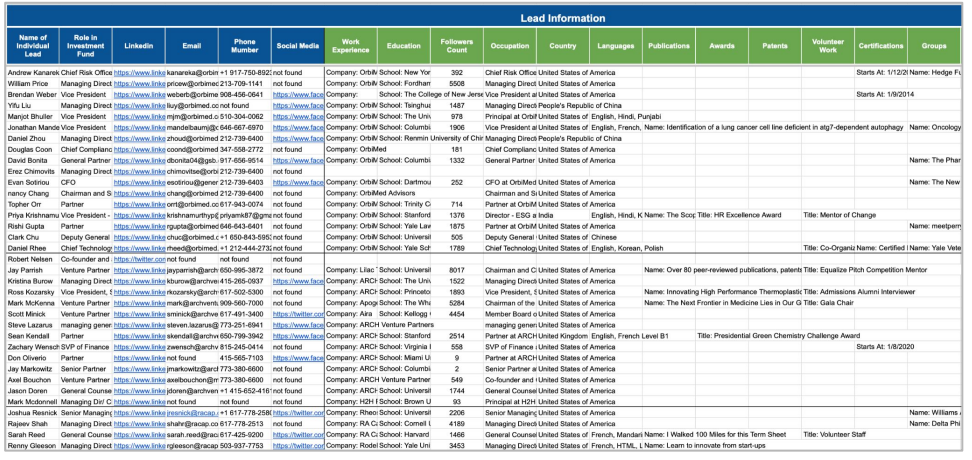
Investors Cluster Analysis



Investors Cluster Analysis is a tool that helps interact with investors decision makers personal profiles and dissects the Investor Leads Universe into categories according to certain criteria such as Location.

Investors Cluster Analysis and Individual Profiles for Direct Engagement

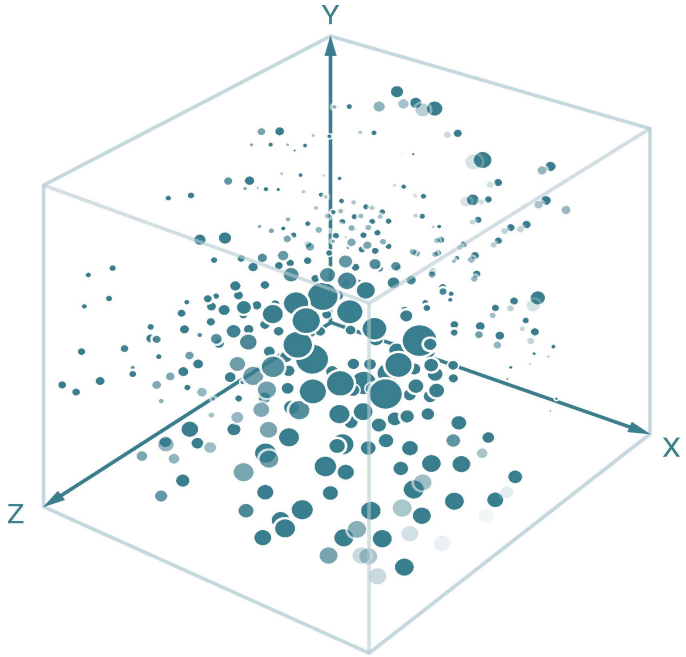




Besides Analytics Accessible via Dashboard the system also provides documents in the conventional format in Excel Spreadsheets, Word and PDF documents Available within Dashboard Data Room.

Individual Leads Analytics Dashboard

Chosen Entity Investors Universe



50 High Score Investors	250 Mid Score Investors

Associated Leads Search

High Score Investors	Mid Score Investors

Decision Maker Extraction

High Number Extraction	Minimum 3 Decision Makers

Data Enrichment

Contact Details Collection	Employment History
Open Source Intelligence	Additional Details

Enriched Personal Profiles

AI Generated Personal Engagement Recommendations	Short Profile Summaries for Overview

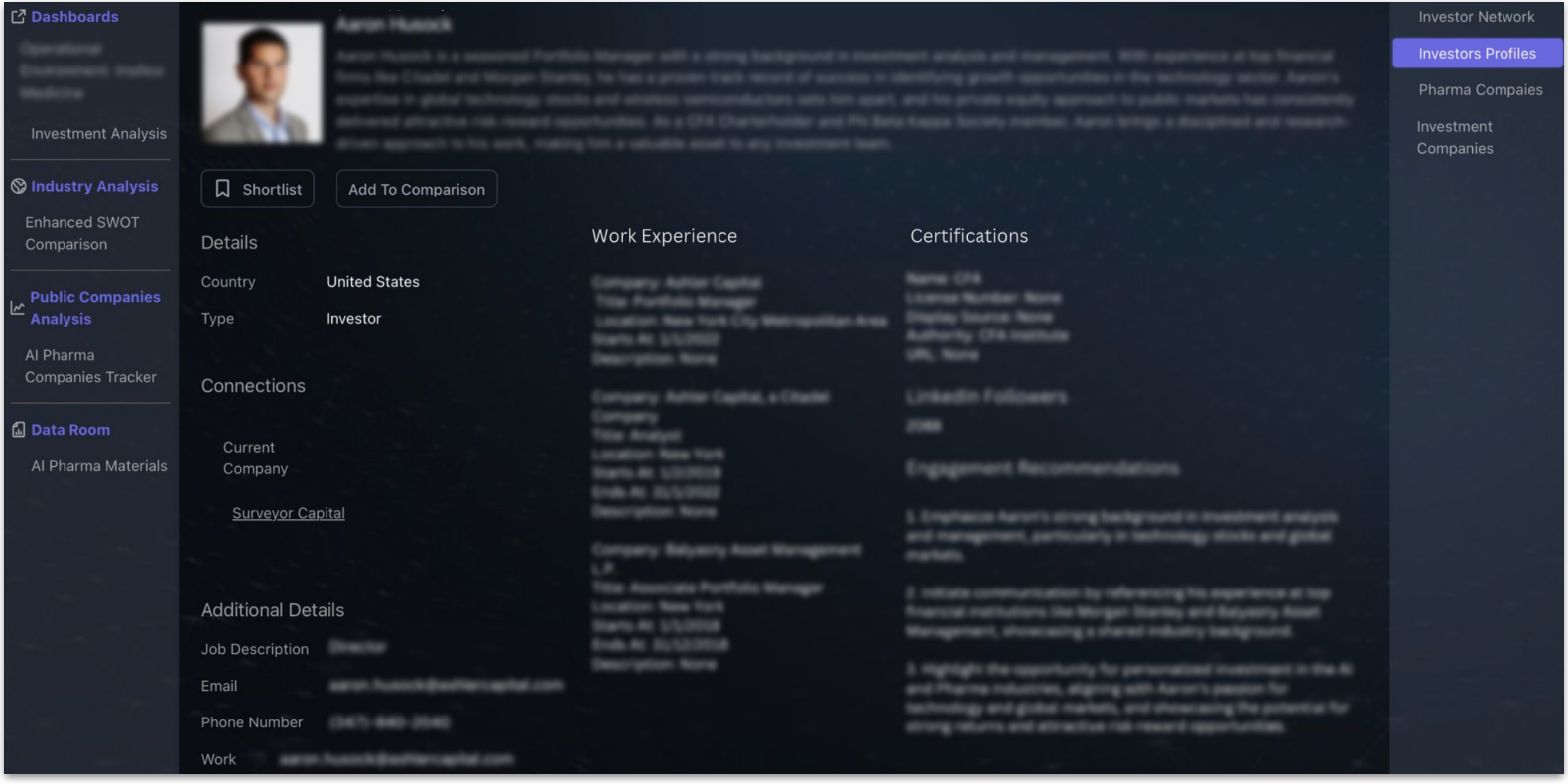
300

Leads Associated with Investment Organisations with High Score

700

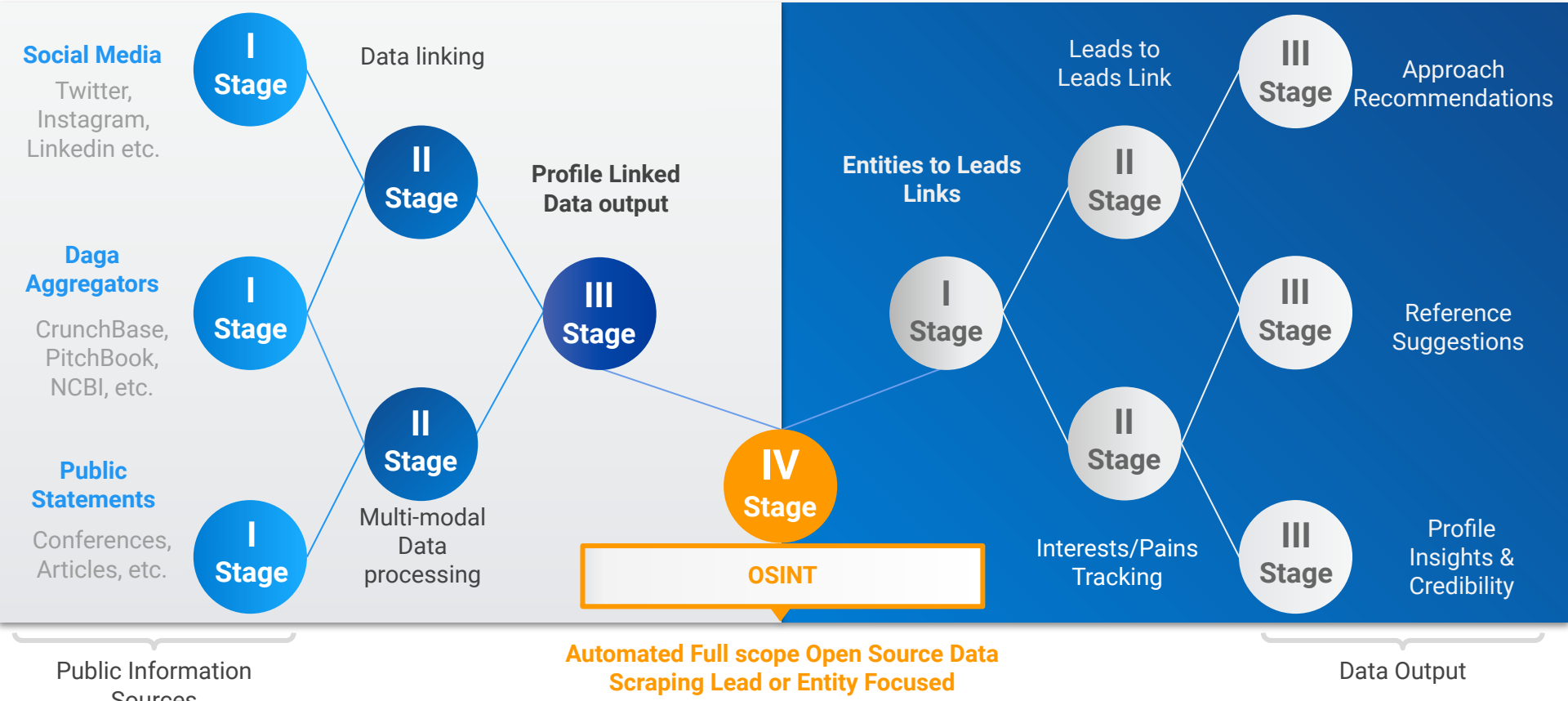
Leads Associated with Investment Organisations with Medium Score

Investor's Personal Profiles with Recommendations for Engagement



The Personal Profiles feature of the Dashboard offers a comprehensive database of over 1000 investor decision-makers, each profiled with meticulous detail. These profiles are augmented by an OSINT-enhanced analysis which includes: contact details, relevance scores for outreach, and AI-generated engagement recommendations.

Open Source Defensive INTelligence Analysis



Global Lyme Disease Pandemia Dashboard

The **Global Lyme Disease Pandemia Dashboard** is a robust market intelligence, monitoring, benchmarking and forecasting system that uses AI and Big Data Analytics to deliver tangible market intelligence on the Global Lyme Disease research and treatment ecosystem across industry, academia, science. Medicine and technology.

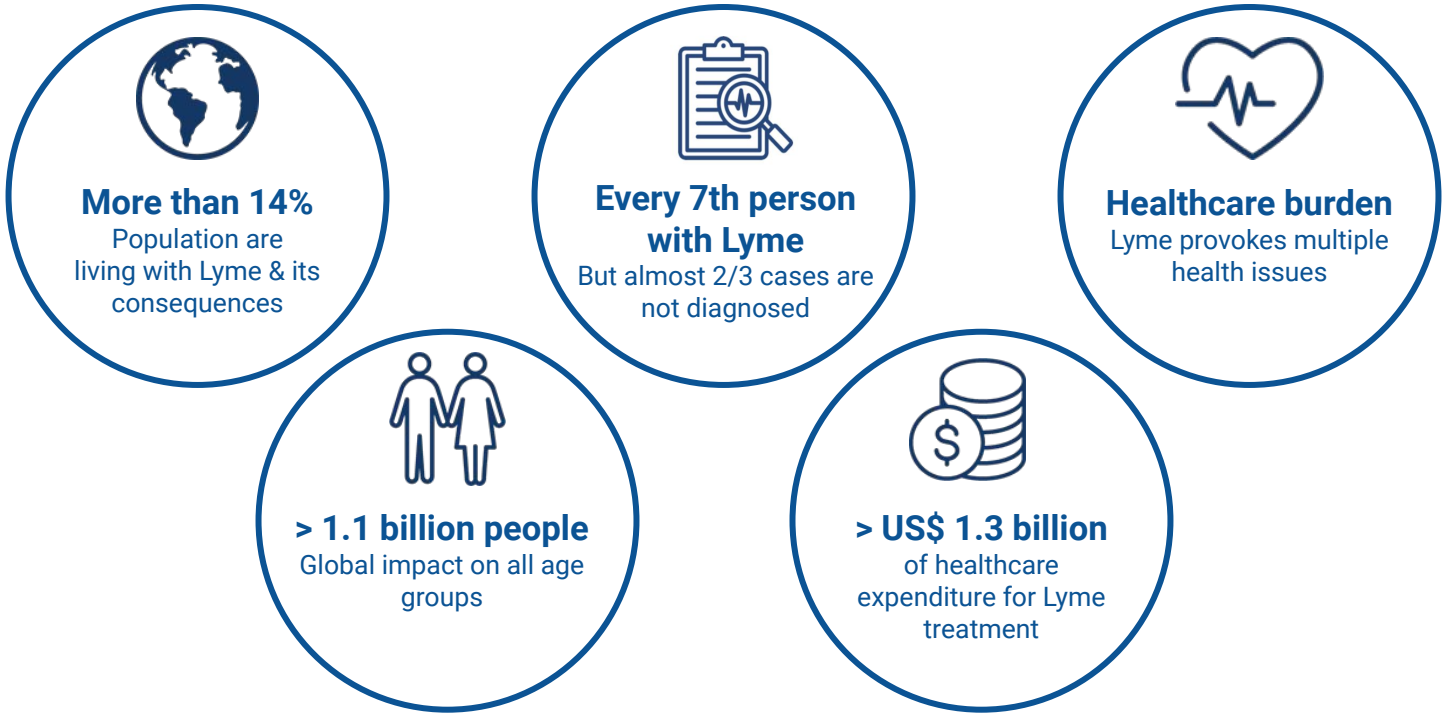
It aggregates data from various authoritative sources and presents it through intuitive and interactive charts and graphs, effectively detailing key statistics and trends in prevalence, diagnosis, and treatment markets. The dashboard includes a **clinical trials chart** by country, a comprehensive year-by-year **line graph of Lyme cases**, and an informative **world map** highlighting affected populations. Additionally, it features a projected market size chart for Lyme disease treatments, effectively indicating potential growth opportunities.

This sophisticated and advanced platform is fortified by the support of **140+ investors**, **100+ clinical trials**, **640+ top clinics**, and an impressive database of **17000+ data points**.

DKG's Lyme Disease Global Pandemia Big Data Analytical System and Dashboard will be used as the main basis for the fund's investment target identification and due diligence processes.

140+	**Investors**
100+	**Clinical Trials**
640+	**Top clinics**
17000+	**Data points**

Why Lyme Disease is a Global Pandemia



As of 2023, the global population has reached 8.14 billion. Approximately 14% of this population, which equates to 1.1376 billion people, is estimated to be affected by Lyme disease. Roughly one in every seven individuals is grappling with Lyme. However, unofficial statistics suggest that the actual number could be three times higher, emphasizing the pervasive nature of Lyme disease and its classification as a global pandemic. All of these despite the fact, that there is more than $1.3B of healthcare expenditure for Lyme treatment.

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More than 14%

Population are living with Lyme & its consequences

Every 7th person with Lyme

But almost 2/3 cases are not diagnosed

Healthcare burden

Lyme provokes multiple health issues

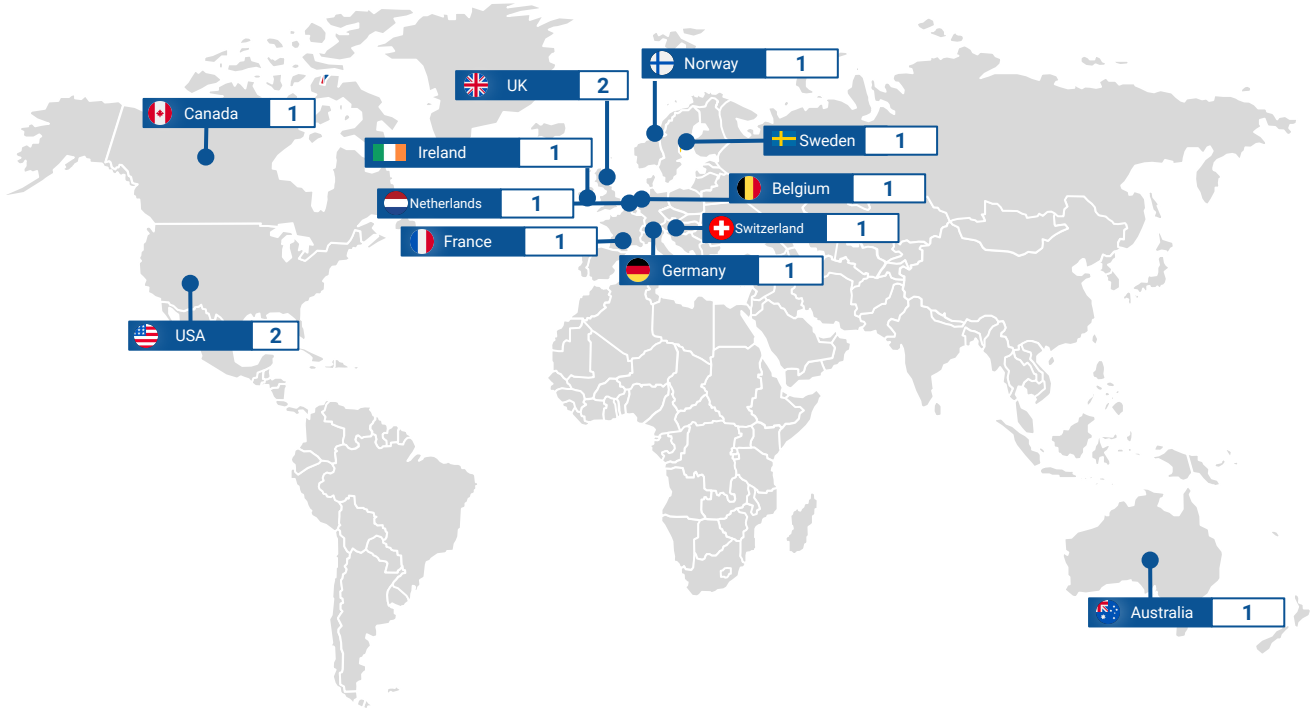
> 1.1 billion people

Global impact on all age groups

> US$ 1.3 billion

of healthcare expenditure for Lyme treatment

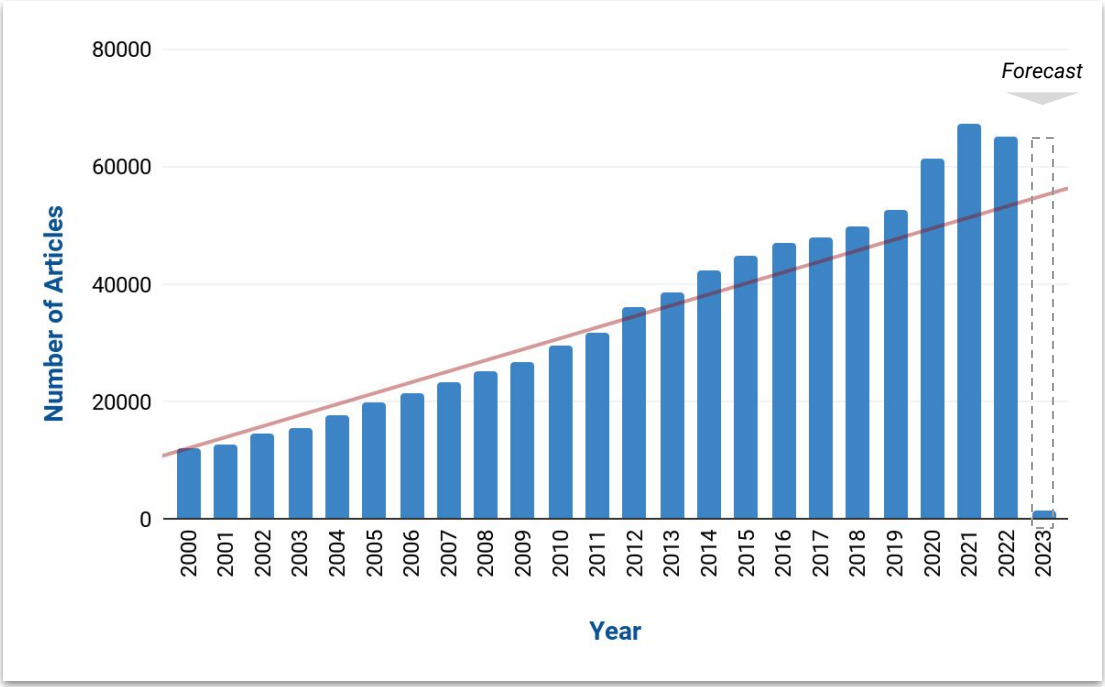
Global Government Initiatives Addressing Lyme



Governments worldwide have recognized **the growing impact of Lyme disease** and initiated dedicated efforts to address its challenges. More than in **15 countries** have established parliamentary groups and governmental initiatives, representing a **collaborative approach** to enhance awareness, research, and policies for a comprehensive response to the Lyme epidemic.

Significance of Lyme Pandemic as a Global Health Challenge

Number of articles on Lyme Disease, 2000-2023



More than 14% of the world's population probably has, or has had, tick-borne Lyme disease, as indicated by the presence of antibodies in the blood. Lyme disease affects millions worldwide, posing a significant health challenge.

Escalating incidence demands heightened awareness and strategic interventions. Lyme Disease diverse manifestations strain healthcare systems globally.

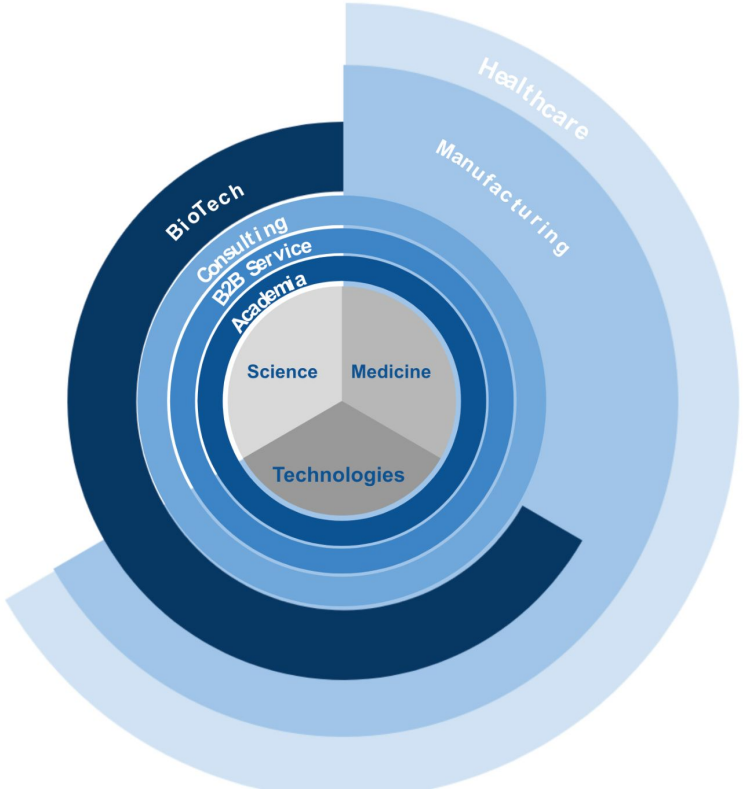
Links to Autism and Alzheimer's amplify the challenge. Global collaboration needed for effective prevention and management.

Structure of the Lyme Market by Company Type

Lyme Disease is a chronic bacterial infection which is primarily transmitted to humans through the bite of an infected black-legged tick. The disease is named after the town of Lyme, Connecticut, where the first cases were identified in the 1970s. It is the most common vector-borne disease in the United States, with over 30,000 cases reported each year. An increase in the incidence of diabetes due to ageing, obesity, and unhealthy lifestyles is one of the factors contributing to the growth of the diabetes market, which is part of the Longevity Industry ecosystem.

Today, the **Lyme market** straddles the science, medicine, and high technology markets. Leading manufacturers and healthcare providers are focusing on technological innovations and the development of advanced products in order to gain a substantial share of the market. Lyme Technologies have significant economic potential, as evidenced by the increase in the capitalisation of the healthcare market, the market's stable growth, and the active development and improvement of technologies in this area.

Structure of the Lyme Market



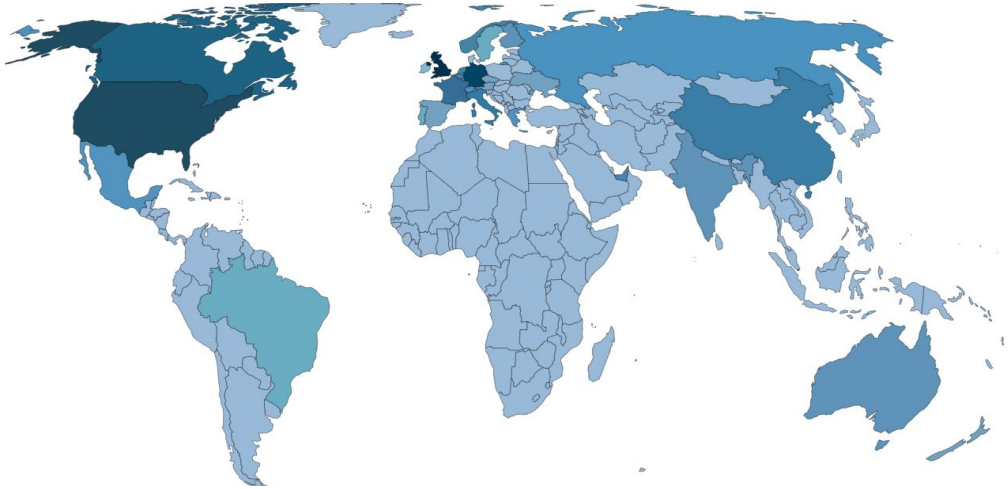
Diagnostic and Treatments

Lyme disease is a bacterial infection caused by the **Borrelia burgdorferi bacterium**, primarily transmitted through the bite of **infected black-legged ticks**. Common symptoms include fever, fatigue, headache, muscle and joint aches, and swollen lymph nodes.

Diagnosing Lyme disease involves evaluating symptoms, medical history, and conducting laboratory tests. **Detection** and **Treatment** are crucial to prevent complications. Prevention strategies include using insect repellent, wearing protective clothing, and performing tick checks after outdoor activities.

The disease is prevalent in all over the World and especially in **North America, Europe, Asia and Australia and New Zealand**. Specific regions in the United States and West Europe show higher incidence. **Prompt medical attention** is essential for a full recovery from Lyme disease. Lyme disease, a prevalent bacterial infection worldwide, underscores the importance of prompt diagnosis, treatment, and preventive measures to mitigate its impact on public health.

Global Distribution of Lyme Disease: Prevalence Map



The Enhanced Personalized Diagnostic and Treatment Protocol for Lyme Disease epitomizes a sophisticated and individualized approach to effectively managing Lyme disease. Beginning with patient's comprehensive medical history, and past treatments, the protocol employs a diverse diagnostic measures and a treatment approach. Moreover, proactive monitoring and support are integral components of the protocol, ensuring continuity of care and a collaborative patient-provider relationship.

Advanced Treatments

Hyperbaric Chamber

Presently, the predominant approach in managing Lyme Disease, Alzheimer's Disease, and Diabetes involves behavioral therapies and early interventions, highly effective in the initial stages of the conditions. Alongside these interventions, **intermittent hypoxic-hyperoxic treatment** and **hyperbaric chambers** are emerging as potential adjunct therapies.

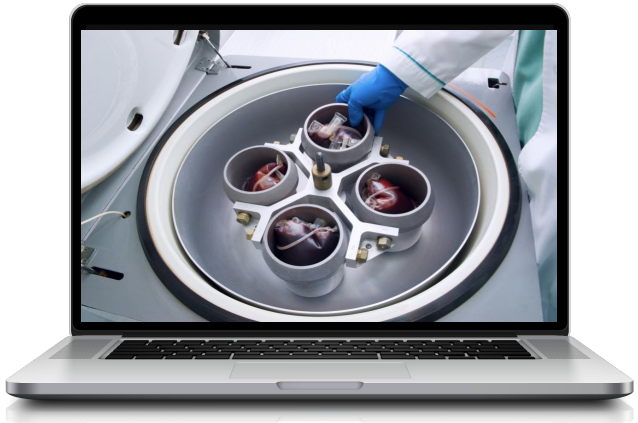
These treatments, known for their benefits in chronic diseases and aging, exhibit promise in enhancing immunity and improving overall health.

Intensive interventions like **applied behavior analysis** or speech-language therapy may become necessary.

Individuals who experience persistent challenges post-treatment, termed post-treatment Lyme/Alzheimer's/Diabetes syndrome, might need customized therapies or additional support. To address specific symptoms or behavioral issues, certain cases may benefit from medication, such as mood stabilizers or antipsychotics.

Brain Imaging

Advanced Treatments



Plasmapheresis

Plasmapheresis a medical procedure involving the removal, treatment, and return of blood plasma, is being explored for its potential impact on treating Lyme, Autism, Alzheimer, Diabetes diseases. This intervention aims to address the complexities by targeting the removal of specific antibodies and immune factors. The procedure involves separating blood, extracting and treating plasma, and reintroducing it.

Research suggests potential benefits in reducing disease-related symptoms, particularly in cases where standard treatments prove less effective or involve persistent symptoms post-treatment.

Keto and Carnivore Diets play a pivotal role in influencing mitochondrial health and are gaining attention for their potential therapeutic impact on Lyme, Autism, Alzheimer, Diabetes diseases. This dietary approach holds promise in addressing the persistent symptoms and complications associated with the tick-borne illness.

Emerging evidence suggests that adopting these nutritional strategies may positively affect mitochondrial function, leading to enhanced energy metabolism and immune response.

Keto and Carnivore Diets

Link between Lyme, Autism and Alzheimer

Understanding Age-Specific and Groups Impact

Adults	Neurological Implications, Inflammatory Response
Kids	Maternal Transmission, Inflammatory Impact
Seniors	Age-Related Vulnerabilities, Inflammatory Response
Animals	Neurological Concerns, Inflammatory Response

Lyme is a chronic health condition that manifests unique neurological implications across age groups, with notable associations to **Autism in children and Alzheimer's in seniors**. Scientific endeavors aim to unravel the molecular pathways connecting Lyme disease to the development of Autism in children and Alzheimer's in seniors. Research delves into the complexities of how Lyme-induced factors may influence neurodevelopment in children and contribute to neurodegeneration in seniors.

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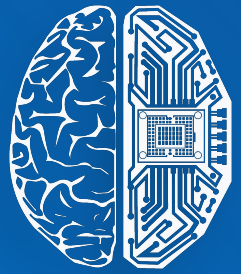

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