DEEP KNOWLEDGE GROUP

Analytical Frameworks

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Major Differentiating Points and Advantages of Deep Knowledge Group Analytics Methods

Deep Knowledge Group is a consortium of commercial and non-profit 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. The Group is known for its sophisticated multidimensional DeepTech analytics, predictive forecasting and benchmarking, and considers its 10+ analytical subsidiaries its most valuable asset.

The DeepTech sector and its numerous component industries (Longevity, SpaceTech, NanoTech, AI, etc.) are developing at an extremely rapid pace of progress and innovation, with hundreds of thousands of companies that five years ago would be considered as just tech companies, but which have evolved enough in terms of technological and scientific sophistication and complexity to be considered as DeepTech. As a result, DeepTech is gradually replacing Tech as the new normal. We consider the Longevity Industry in particular to be at the very forefront of DeepTech.

The complexity and technological intersectionality of these industries is already so advanced that it makes standard methods of analysis, due diligence and forecasting ineffective, and this unprecedented overcomplexity is only growing, exhibiting increasing degrees of fusion and interconnectivity between different domains of science and technology. There is a pressing need for methods of analytics, benchmarking and forecasting capable of matching and withstanding this growing overcomplexity in order to support, formulate and execute effective decision making. Deep Knowledge Group has an extensive track record of designing effective analytical frameworks for managing this complexity.

- Our Group's focus is on the most advanced DeepTech Industries (and especially those that are the most sophisticated from a scientific and technological point of view), with a particular prioritisation of the Artificial Intelligence and Longevity Industries
- We uniquely specialise in the design of multidimensional logic frameworks to define and precisely categorise DeepTech industries and technologies
- These analytical frameworks heavily prioritise the scientific and technological features of projects and companies, and create the only reliable systematic basis for conducting effective DeepTech analysis, benchmarking and forecasting
- We have designed and validated specialised software capable of aggregating information and data on a massive scale and in a structured manner, subjecting this data to proprietary Big Data Analytical methods in order to effectively and actionably analyse entire DeepTech industries on global and regional scales
- These analytical approaches are then integrated with proprietary Big Data Design software that employs advanced visualisation techniques to represent entire industries within one display, reflecting the dynamics, trends, scope and/or categorical dimensions of entire industry landscapes at a single glance, similar to the concept of 'star maps' (*visualisations of the entire set of stars visible in the night sky*)
- We then use machine learning techniques to extract hidden correlations and latent patterns within this extreme abundance of data, transforming them into actionable insights
- These techniques are further enhanced by applying specific methodologies of technological forecasting across short-term and long-term timeframes. The end result of this process is similar to Gartner curves, but in our case these are also combined with advanced Big Data analysis of DeepTech industries, sectors and segments, and enhanced with regional assessments of each industry in particular

- While we do have analytics on publicly traded companies (which in general tend to have very significant volumes of information openly accessible), our major focus is on private equity companies (which tend to have lesser volumes of data in the open domain), and we are also conducting sophisticated analysis of matured pre-IPO companies

- For this purpose we strongly prioritise conducting AI-driven *cross analyses* between pre-IPO companies and publicly traded companies that were only recently listed (and which in many respects can be reasonably compared with very matured pre-IPO companies), which yields very unique and actionable insights. In a similar manner we conduct cross-analyses between matured private equity companies and early stage startups, which allows extraction of highly unique insights and valuable correlations not obtainable by any other system we are aware of.

Alternative data in DKG as a cutting-edge solution

Alternative data, by definition, is the data that comes from sources outside of the company. Alternative data analysis can be viewed as an investigation of the traces that the business leaves instead of self-reporting fillings and press releases.

There are many benefits to expanding analytical scope with this type of data, namely:

- better timing - we see the relevant event for the business immediately or with a short lag and don't have to rely on companies' official statements
- objectivity - alternative data is more robust to potential misreporting or fraud because of its externality to company nature and opportunity to cross-validate a few sources
- scope - financial reports are written by the rules and often disclose only details requested by the corresponding standard. The scope of alternative data is limited only by a willingness to look for the data because the number of traces each company leaves during its business is sufficient to obtain a decent understanding of its intangible assets.

The classical approach to valuation relies a lot on financial reports and uses them as a background to build future predictions. However, for private companies, these reports are usually unavailable unless the company is willing to disclose them, which is quite rare, and even in that case, the level of reliability and details can be lower than the one for a public company which has to meet the IFRS, US GAAP or another set of standards.

Our approach is based on two observations:

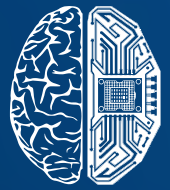
- when the company of interest is a research-based company which sells (or is going to sell) technology, formulas, and molecules, its future cash flows and therefore value weakly depend on financial numbers of the last quarter or year, but depends on their intangible assets such as intellectual property, experience of employees, projects in progress, etc. As well as its competitive environment.
- if the most relevant data is the data described above, there is really not so much difference between the public and private research-based companies, and the valuation of private companies can be approximated without particular knowledge of all of existing financial details

Luckily, alternative data is available in various open sources. We carefully collect relevant metrics for each DeepTech industry and thoroughly analyse them using public equity and its market price as a reference. Our model is based on more than 150 metrics covering patents, publications, team competence, etc.

Looking at the market pricing of public equity, we are able to determine the key metrics affecting value and use them to find market inefficiencies and thus price private companies with a similar business structure.

Clustering machine learning algorithms help us to define the proper peer group for each company, get a view of the market structure and competition.

All listed above allow us to value a large number of private and public companies and get a broader and deeper view of their business. We are constantly monitoring new data becoming available and incorporating it into the valuation models.



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Evolution of Analytical Frameworks

Introduction to Evolution of Analytical Methods

Over almost a decade of activities, Deep Knowledge Group and its analytical subsidiaries have constructed intricate analytical frameworks competent enough to analyze, define, and forecast the extraordinarily sophisticated industries and the disruptive technologies pushing those industries. The current document summarises the traction of Deep Knowledge Group to the finalisation of the most advanced industries covering the innovative technological approaches.

Another important aspect of industrial frameworks creation is developing benchmarks and performance metrics that can be used to compare different companies and technologies. **Deep Knowledge Group has been among pioneering organizations which started to develop approaches to building the industrial frameworks.** Over a decade years of active work, the analytical frameworks has been developed and revised to provide interested parties with the most reliable analytical methods.

The evolution of analytical methods used for frameworks finalisation involves the key following milestones:

- During 2013 - 2015, analytical subsidiaries of Deep Knowledge Group have released the first-of-its-kind frameworks of emerging industries. For example, Aging Analytics Agency has revealed frameworks covering Regenerative Medicine, which served as the groundbasis to full Longevity Industry framework;
- Starting from 2014, Deep Knowledge Group has been releasing the analytical reports based on the frameworks which outlined the marked trends and key developments across the industries;
- From 2019 and onwards, the analytical frameworks served as the basis for collecting the relevant industries data and further representation through advanced methods like interactive mindmaps, databases and analytical dashboards;
- **To date, analytical industrial frameworks allowed for creation of Big Data Analytics System and Dashboards which deliver the valuable industries data based on the AI advanced analytical algorithms.**

Evolution of Analytical Methods and Systems Developed by Deep Knowledge Group

Created frameworks as a basis for further analytical research of complex industries

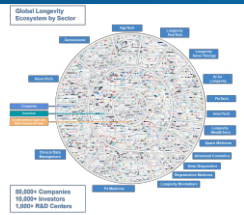
Frameworks of Complex Longevity and DeepTech Industries

2013

Produced first-of-their-kind reports on Longevity and DeepTech

Fundamental Analytical Reports

2014 - 2018



Industrial and regional representation of the market development

Advanced Visualization of DeepTech Industries

2019

Different analytical products arranged into thematic dashboards

Big Data Analytics Dashboards

2020 - 2021

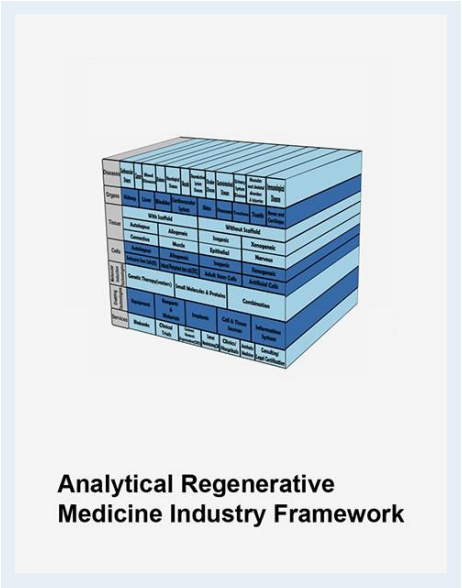
Extended the number of dashboards' tools and added the embedded AI Engine

AI-driven Big Data Analytics System and Dashboards

2021 - 2023

Evolution of Reports Released by Aging Analytics Agency: 2013 - 2015

Specialized Longevity Industry Reports



2013

2014

2015

Sophisticated Multi-Dimensional Analytical Framework

Aging Analytics Agency's 3-D Longevity Industry Analytical Framework, the production of which was necessitated by the complexities of the sector, and required in order to obtain a tangible and pragmatic understanding of the industry in order to structure investment strategy in a relevant way.

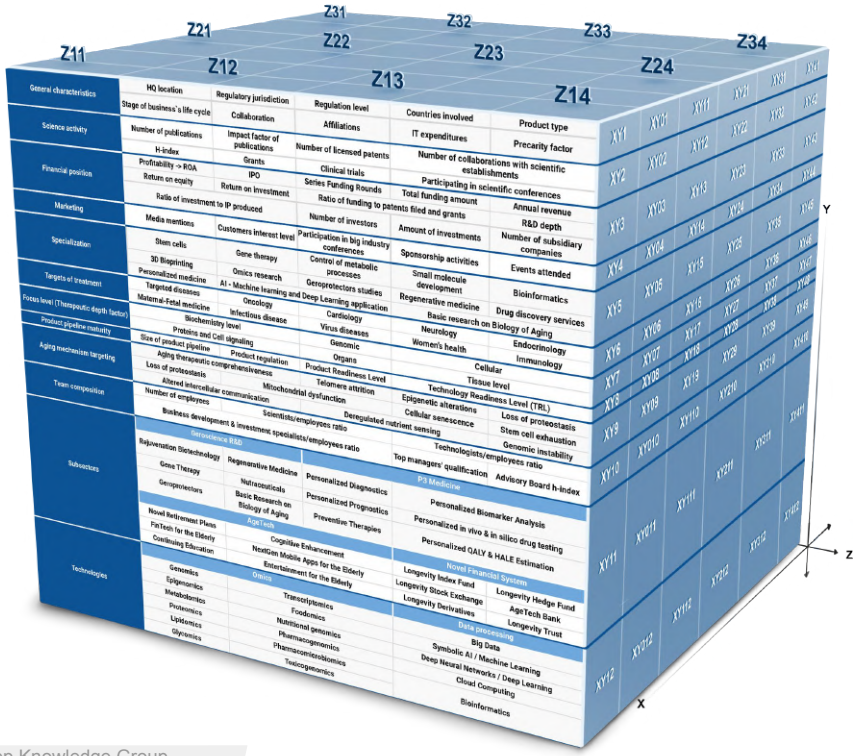
Aging Analytics Agency has been working over the course of the past five years on designing and validating increasingly quantitative and multidimensional approaches to industry analytics so as to serve as the leading tools and solutions for strategic decision making, with the aim of developing corresponding frameworks to the levels necessitated by the rapidly complexifying nature of the global healthcare system.

Sophisticated Multi-Dimensional Analytical Framework

The metrics developed for and used in Aging Analytics Agency's National Longevity Development Plans: Global Overview 2019 report, presented in UK Parliament at the official launch event of the All-Party Parliamentary Group for Longevity, are broken down into 6 distinct layers, with specific ratios being derived from 1st layer metrics, specific metric ratios and growth rates of ratios being derived from 3rd-layer metrics, effectiveness measures being derived from 4th layer metrics, and effectiveness measure growth rates being derived from 5th layer metrics.

Comprehensive Open-Access and Proprietary Analytical Frameworks for Benchmarking and Forecasting

Open Access Metrics



Aging Analytics Agency recognizes that an industry as complex and multidimensional as the Longevity industry requires the application of an equally multidimensional comparative analysis and classification framework.

This analytical framework includes metrics for identifying the breadth of the industry, identifying the diverse technological threads that make up the future growth of the industry, and its depth, identifying

the focus level of each technology, and the state of maturation of each. To identify the top 400 Longevity companies across 10 specific Longevity Industry subsectors, open access metrics were applied.

Comprehensive Open-Access and Proprietary Analytical Frameworks for Benchmarking and Forecasting

Proprietary Metrics

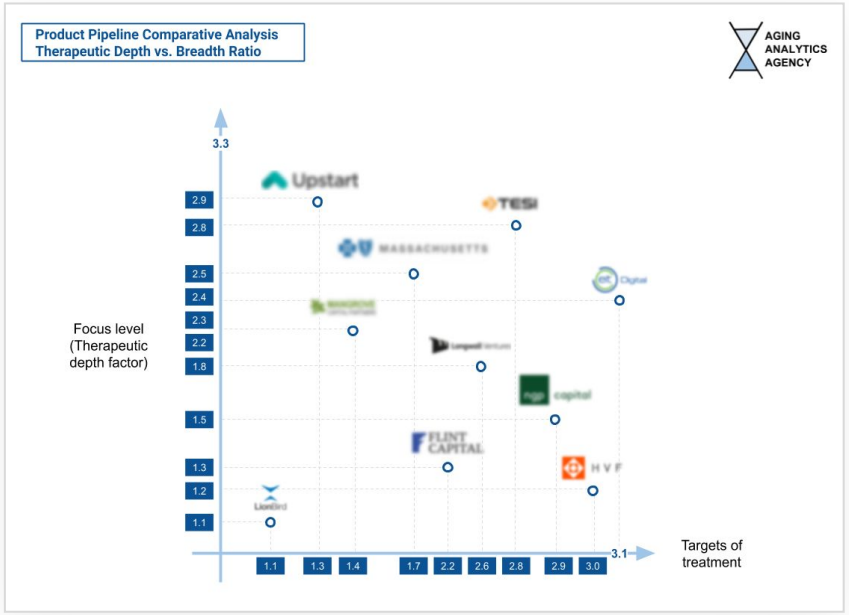
Developed years ago, the methodology and metrics of the framework were public and used in a number of other open-access Aging Analytics Agency reports, whereas a large portion of the analytical frameworks used for benchmarking are proprietary, available to potential clients interested in more tailored analytics, SWOT and practical recommendations via NDA.

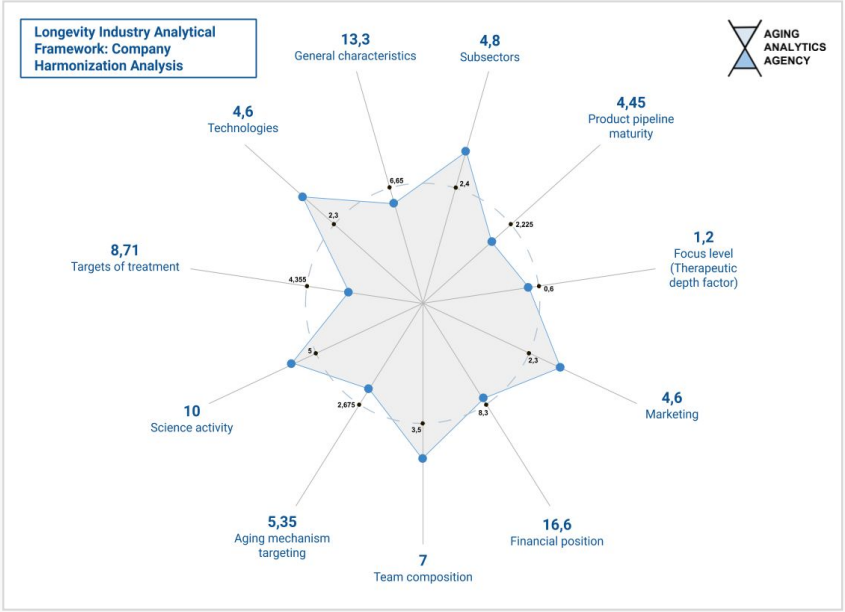
These include both absolute values (quantitative or qualitative) and dynamic parameters to analyze metrics as they change over time.

Benchmarking of top-100 and top-40 Longevity Companies was conducted primarily via the use of proprietary metrics, which includes parameters specific to 10 distinct Longevity Industry subsectors, and which also analyzes dynamic changes in company strengths and weaknesses over time.

Advanced Longevity Industry Analytical Frameworks

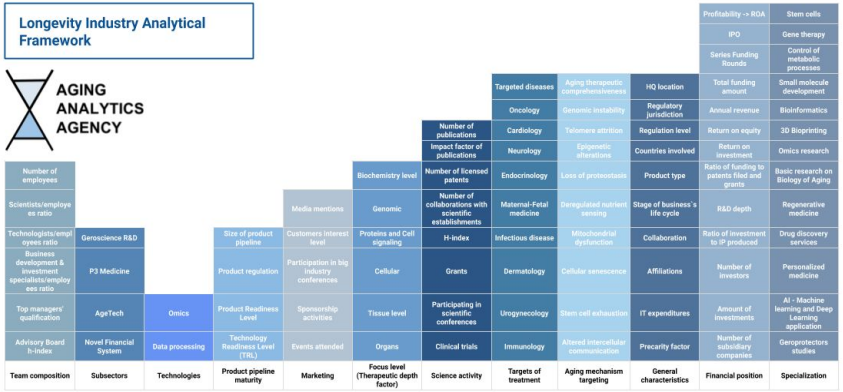
Since first developing quantitative analytical frameworks for Longevity Industry analysis in 2013, Aging Analytics Agency has continued to refine these comparative analysis systems, both in terms of the specific metrics used to conduct its market studies, as well as the mathematical formulas used to combine them, and the advanced visualization techniques used to make their forecasts, ranking and determinations maximally concrete and understandable.



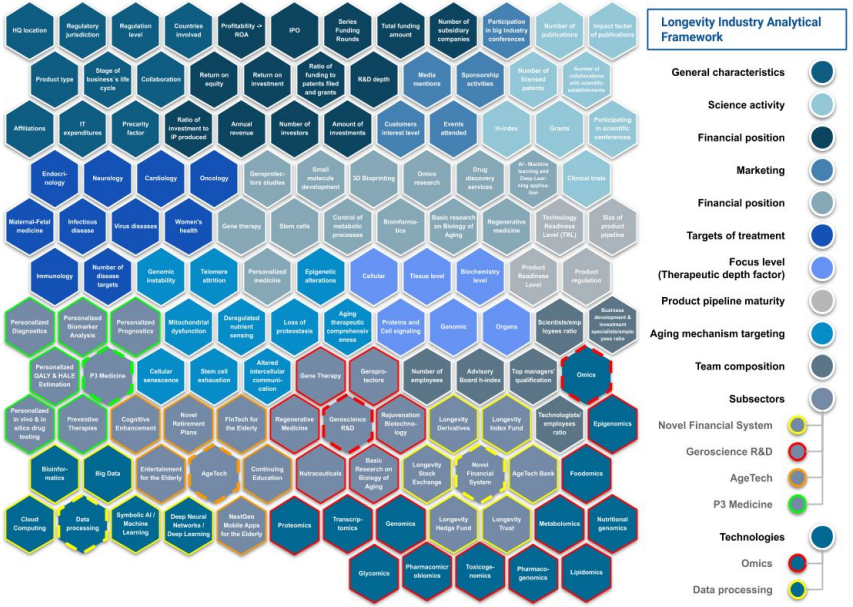


Advanced Longevity Industry Analytical Frameworks

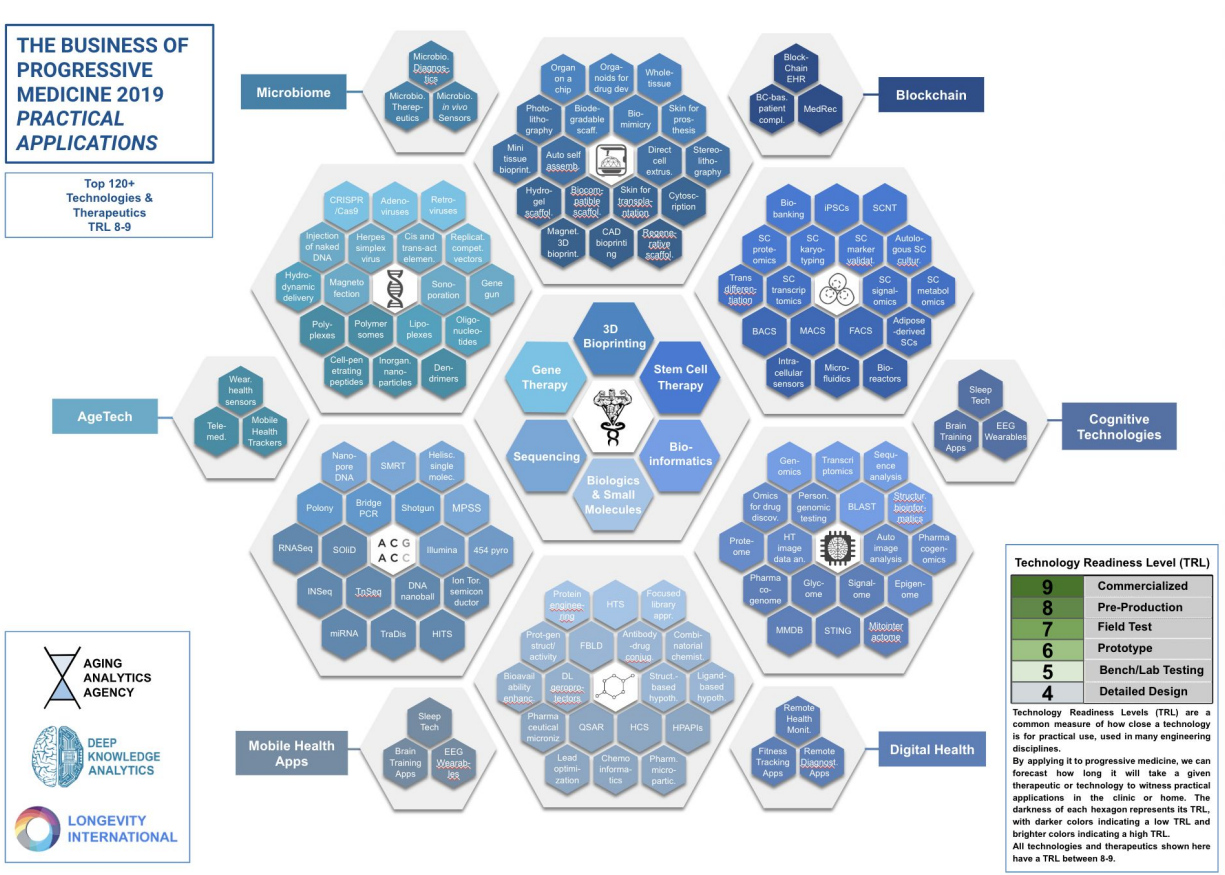
These analytical methodologies have evolved to incorporate 3-D frameworks where metrics and submetrics can be visualized simultaneously, as well as the development of advanced “timeline machines” to study the changing state of a company’s strength in specific areas ranging from scientific validation to business development, R&D, etc. over time, and projected into the future based on the statistical properties of its past behaviour. **The quantitative frameworks developed by Aging Analytics Agency form the basis for investment target identification, portfolio structuring and optimization, and due diligence processes.**



SUBSECTORS						
Geroscience R&D	Rejuvenation Biotechnology	Gene Therapy	Geroprotectors	Regenerative Medicine	Nutraceuticals	Basic Research on Biology of Aging
P3 Medicine	Personalized Diagnostics	Personalized Prognostics	Personalized QALY & HALE Estimation	Personalized Biomarker Analysis	Personalized in vivo & in silico drug testing	Preventive Therapies
AgeTech	Novel Retirement Plans	FinTech for the Elderly	Continuing Education	Cognitive Enhancement	NextGen Mobile Apps for the Elderly	Entertainment for the Elderly
Novel Financial System	Longevity Index Fund	Longevity Stock Exchange	Longevity Derivatives	Longevity Hedge Fund	AgeTech Bank	Longevity Trust
TECHNOLOGIES						
Omics	Genomics	Epigenomics	Metabolomics	Proteomics	Lipidomics	Glycomics
	Transcriptomics	Foodomics	Nutritional genomics	Pharmacogenomics	Pharmacomicrobiomics	Toxicogenomics
Data processing	Big Data	Symbolic AI / Machine Learning	Deep Neural Networks / Deep Learning	Cloud Computing	Bioinformatics	



De-Risking Longevity Investments via Technology Readiness Levels (TRLs)



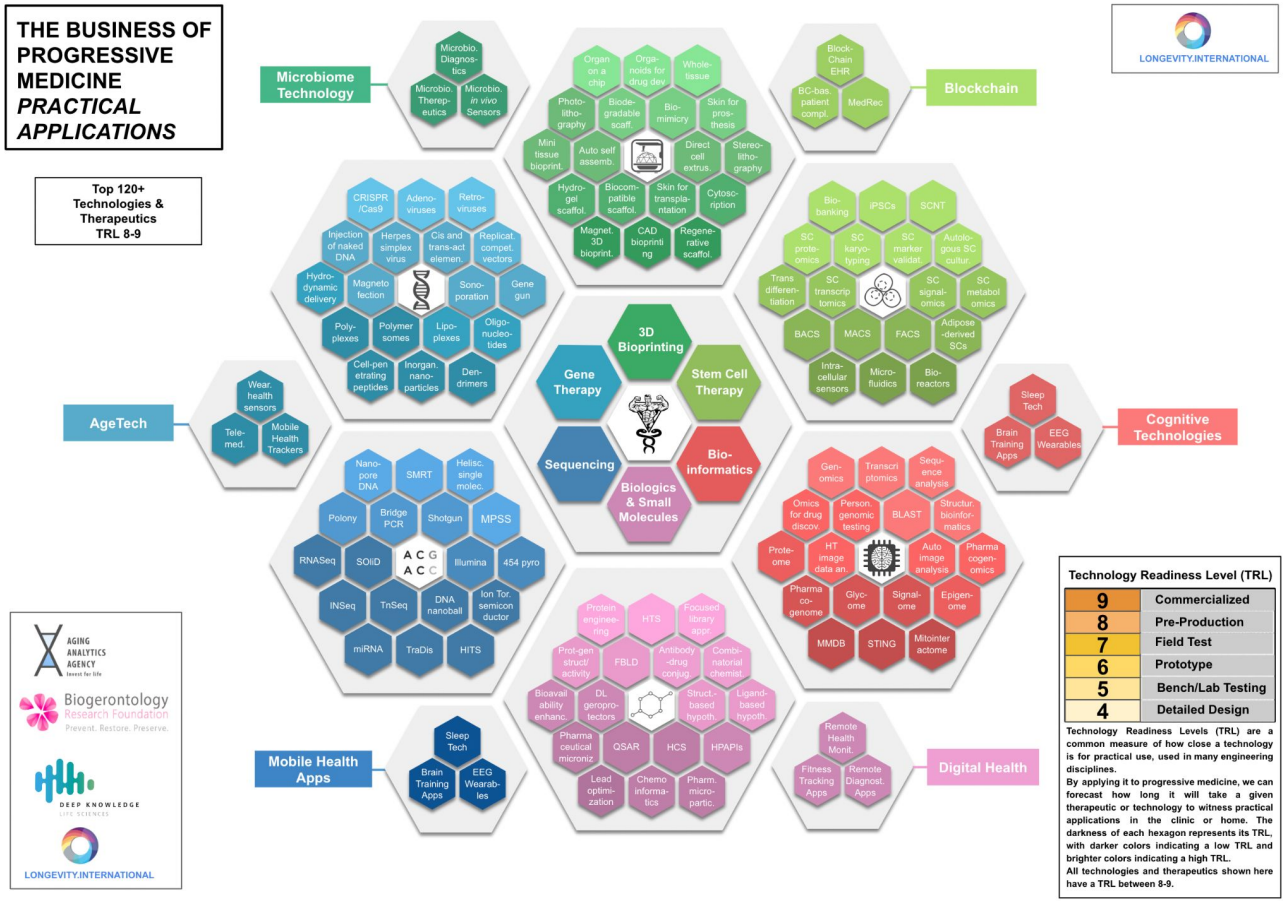
Aging Analytics Agency was the first entity to take validated approaches for market-readiness forecasting developed in other advanced industries like aerospace and apply it the the life sciences and the Longevity industry.

Technology Readiness Levels (TRLs) use a ranking of 1-9, with 9 being the most mature technology. Specific levels are assigned to specific technologies by a group of relevant scientific experts.

The use of TRLs provides a uniform metric, enabling consistent discussions of maturity across different types of technologies. In the coming years, TRLs can underpin efforts to shed light on the most important technologies and reveal those currently furthest away from practical applications.

Therefore, TRLs enable the right timing and focus to ensure each emerging technology accomplishes its specific endpoints, and highlights the interactions that are possible between technologies.

Business of Progressive Medicine Practical Applications Analytical Framework



NeuroTech Market and Technology Analysis Framework

General characteristics of the market

Technologies

Trends

Markets by disorders

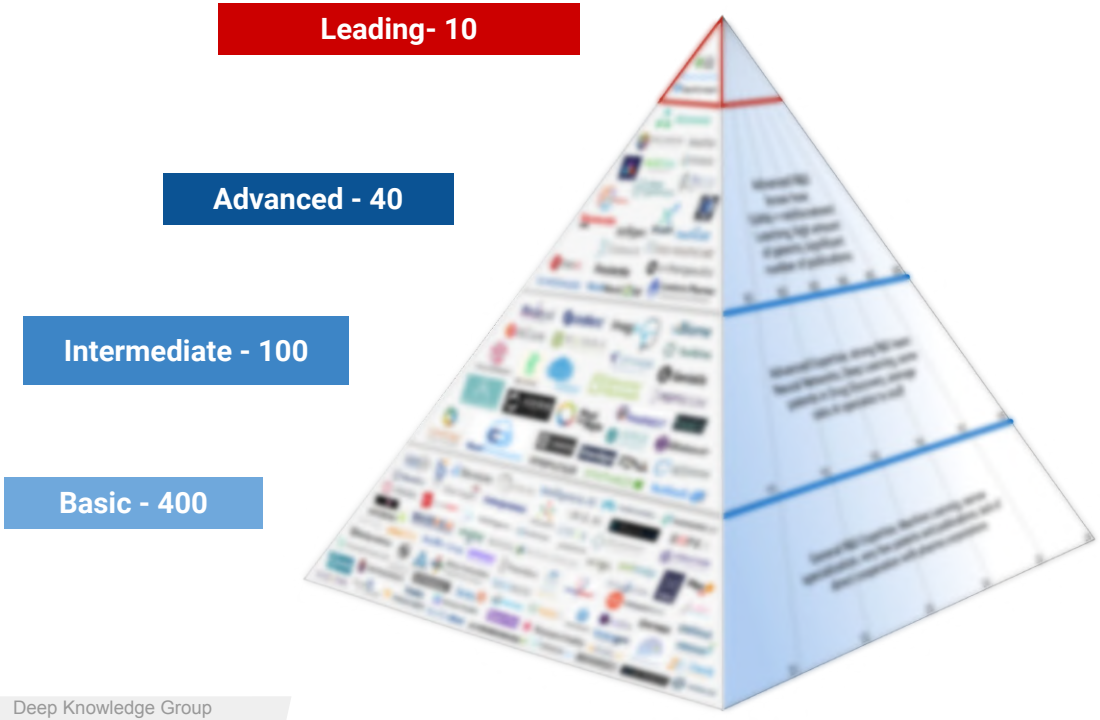
Risks and opportunities

Financials

Market in the context

Deep Multidimensional Benchmarking of Global Longevity Industry

At the request of Longevity.Capital, Aging Analytics Agency has developed a sophisticated multidimensional analytical framework to benchmark the full scope of companies within the global Longevity Industry via advanced comparative and competitive analyses in order to identify the top-40 most promising Longevity companies distributed across 10 distinct market sectors, revealing the untapped bottom of the Longevity Industry iceberg.



This benchmarking is first applied to the full scope of Longevity companies globally, comparing hundreds of active players in the space side by side, which are then segregated into progressive levels of advancement and potential. The only way to identify the most promising players in an industry distinguished by extreme levels of complexity and multidimensionality is to use advanced comparative analytical frameworks of equal complexity. This analytical methodology is the data-driven foundation which forms the basis for the structuring of the fund's general investment strategy, company valuation procedures, and due diligence processes.

Deep Knowledge Group Coined and Popularized the Term ‘Longevity Industry’

Longevity Industry Landscape Overview 2018 Volume I: The Science of Longevity

Download Report

Longevity Industry Landscape Overview 2018 Volume II: The Business of Longevity

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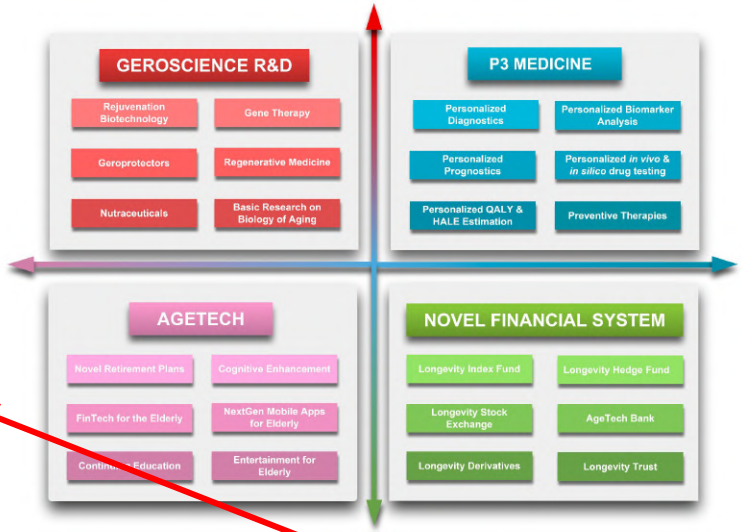
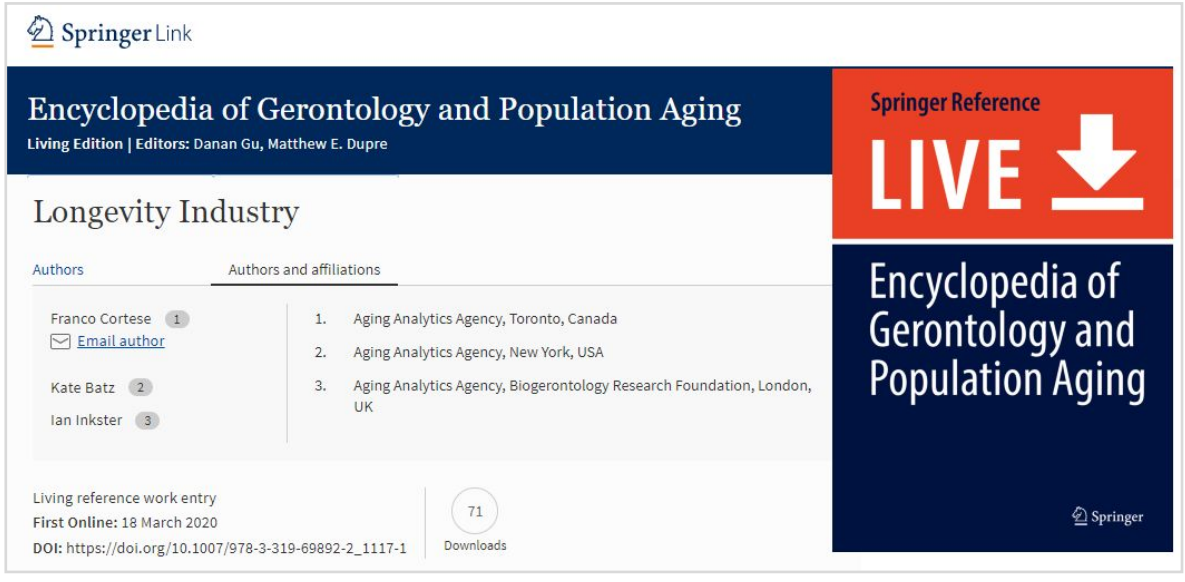


Deep Knowledge Group’s work toward creating a truly comprehensive, actionable and relevant Longevity Industry Framework began in earnest through the release of its first formal **Longevity industry framework in 2017/2018** through the publication Aging Analytics Agency’s 1000+page *Longevity Industry Landscape Overview 2018* (*Volume I: The Science of Longevity* and *Volume II: The Business of Longevity*).

Aging Analytics Agency was the First to Define the Longevity Industry



Deep Knowledge Group's flagship Longevity-focused analytical subsidiary Aging Analytics Agency also contributed the **official definition** and only entry of the '*Longevity Industry*' in the ***Encyclopaedia of Gerontology and Population Aging***, the world's largest and most definitive encyclopaedia on aging and Longevity compiled and edited by Danan Gu (**Population Division of the United Nations, Department of Economic Social Affairs Population Division, New York USA**) and Matthew E. Dupre.

From 2018 - 2022, Deep Knowledge Group continued to build upon the foundation of Aging Analytics Agency's first-ever comprehensive, full-scope definition and analytical framework for the Longevity Industry through the release of dozens of open-access analytical reports and IT-Platforms via a number of its life science-focused analytical subsidiaries, continuing its mission to comprehensively structure the industry's breadth and complexity by identifying, classifying, and profiling all participants in the Global Longevity Industry ecosystem, applying AI, modern data science, machine learning, reinforcement learning and Big Data analysis for industry analytics to make this information available through a variety of open-access reports and analytics.

Longevity Industry Framework Developed in 2018

GEROSCIENCE R&D

- Rejuvenation Biotechnology
- Gene Therapy
- Geroprotectors
- Regenerative Medicine
- Nutraceuticals
- Basic Research on Biology of Aging

P4 MEDICINE

- Personalized Diagnostics
- Personalized Biomarker Analysis
- Personalized Prognostics
- Personalized in vivo & in silico drug testing
- Personalized QALY & HALE Estimation
- Preventive Therapies

AGETECH

- Novel Retirement Plans
- Cognitive Enhancement
- FinTech for the Elderly
- NextGen Mobile Apps for the Elderly
- Continuing Education
- Entertainment for the Elderly

NOVEL FINANCIAL SYSTEM

- Longevity Index Fund
- Longevity Hedge Fund
- Longevity Stock Exchange
- AgeTech Bank
- Longevity Derivatives
- Longevity Trust

Longevity Financial Industry Framework Developed in 2018

AGETECH

- Rejuvenation Biotechnology
- Gene Therapy
- Geroprotectors
- Regenerative Medicine
- Nutraceuticals
- Basic Research on Biology of Ageing

WEALTHTECH

- Robo-retirement
- Digital Brokers
- Micro-investments
- Annuities
- Long-term Securities
- Robo-advisors

LONGEVITY

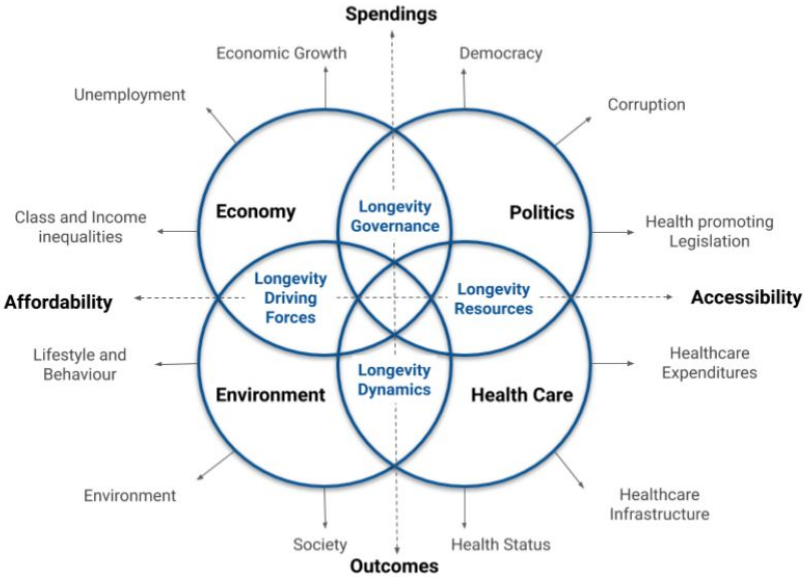
- Novel Retirement Plans
- Cognitive Enhancement
- FinTech for the Elderly
- NextGen Mobile Apps for the Elderly
- Continuing Education
- Insurance for the Elderly

ASSET MANAGEMENT

- Longevity Index Fund
- Longevity Hedge Fund
- Strategies Diversification
- AgeTech Bank
- Longevity Derivatives
- Pension Planning

Longevity Governance Analytical Framework Developed in 2019

One of the analytical precedents used in the creation of the present special case study (**and its corresponding analytical framework**) is "*Global Longevity Governance Landscape: 50 regions Big Data Comparative Analysis of Longevity Progressiveness*", a special analytical case study developed by its Longevity-focused analytical subsidiary that applied Big Data Analysis (utilizing **200 parameters** applied to **50 regions**, encompassing **10,000 data points in total**) to rank the effectiveness of nation's Longevity Progressive Medicine Policy/Governance efforts.



Most Comprehensive Longevity Industry Framework

We uniquely specialize in the design of multidimensional frameworks to define and precisely categorise industries and technologies. These analytical frameworks heavily prioritize the scientific and technological features of projects and companies, and create the only reliable systematic basis for conducting effective analysis, benchmarking and forecasting.

Longevity Science	
Rejuvenation Biotechnology	Basic Research on Biology of Ageing
Geroprotectors	Regenerative Medicine
Nutraceuticals	Gene Therapy

Longevity Medicine	
Personalised Diagnostics	Personalised HALE and QALE Estimation
Personalised Prognostics	Personalised in Vivo and in Silico Drug Testing
Preventive Therapies	Participatory Medicine

AgeTech	
NeuroTech	Cognitive Enhancement
Smart Homes	NextGen Mobile Apps for the Elderly
Continuing Education	Entertainment for the Elderly

Longevity Finance	
Longevity Index Fund	Longevity Hedge Fund
Longevity Stock Exchange	AgeTech Bank
Longevity Derivatives	Longevity Investment Bank

Longevity Governance	
Pension Plans	National Healthcare Budgets
Longevity Development Strategies	Elderly Care Programs
National Insurance	Elderly Education

Longevity Ethics	
Ageism Mitigation	Civil Participation
Logistical Effects of Longevity	Age-friendly Environment
Social Inclusivity	Healthcare as a Basic Human Right

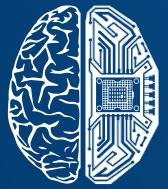
Summary to Evolution of Analytical Frameworks

As of 2023, Deep Knowledge Group's use of AI and Big Data has allowed to develop more sophisticated and accurate analytical frameworks, and to provide deeper insights into the factors driving innovation and growth in different industries.

This approach has the potential to transform the way businesses, investors, and policymakers make decisions, and to drive innovation and growth in a wide range of industries.

Currently, the following major points can characterize the general approach to industrial frameworks creation developed by Deep Knowledge Group:

- One key aspect of this transformation has been the development of **AI-driven models and algorithms** that are capable of analyzing large and complex datasets. These models can identify patterns and trends that may not be visible to human analysts, and can provide more accurate and nuanced insights into the factors driving innovation and growth in different industries.
- In addition, Deep Knowledge Group has expanded **the use of Big Data**, drawing on a wide range of sources. This allows to gather a more diverse and comprehensive set of information, and to identify emerging trends and opportunities in real time.
- Based on the analytical frameworks and the use of AI and big data, Deep Knowledge Group has developed **unique Big Data Analytical System and Dashboards**, providing insights into the performance and trends of various industries, companies, and technologies in structured manner.
- Industrial Analytical Frameworks will serve as the basis for further improvement of analytical methods, creation of next-generation initiatives and systematization of new developments across the innovative industries.



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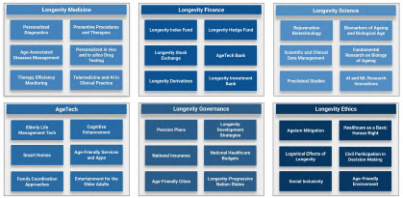
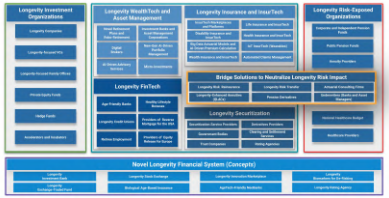
Longevity Industry



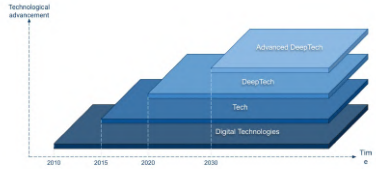
Longevity Financial Industry



Longevity Governance Industry

Longevity Corporate Strategy

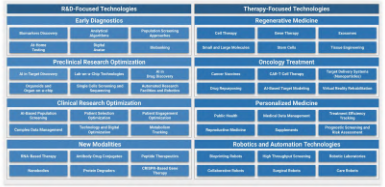
DeepTech Industry



Philanthropy Industry

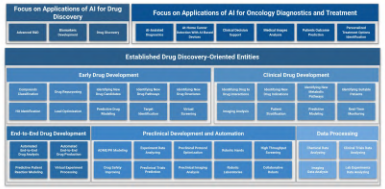
5th Industrial Revolution Framework

Disruptive Technologies in Pharma

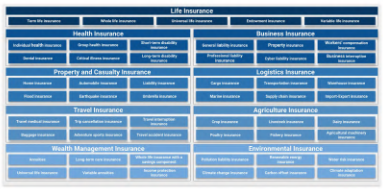


Deep Knowledge Group Analytical Frameworks

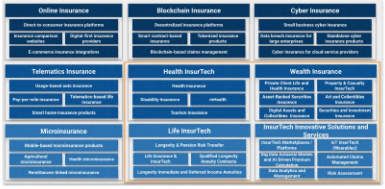
AI in Drug Discovery Industry



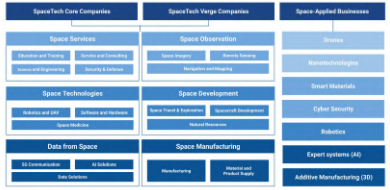
Insurance Industry



InsurTech Industry

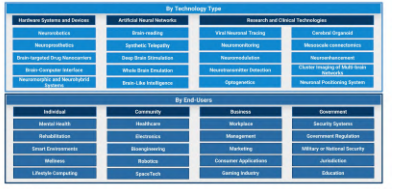


SpaceTech Industry



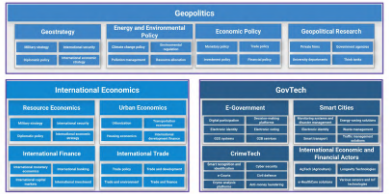
GovTech Industry

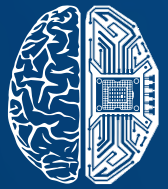
NeuroTech Industry



FemTech Industry

Geoeconomics Industry





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Longevity Industry Analytical Frameworks

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Introduction to Longevity-related Analytical Frameworks

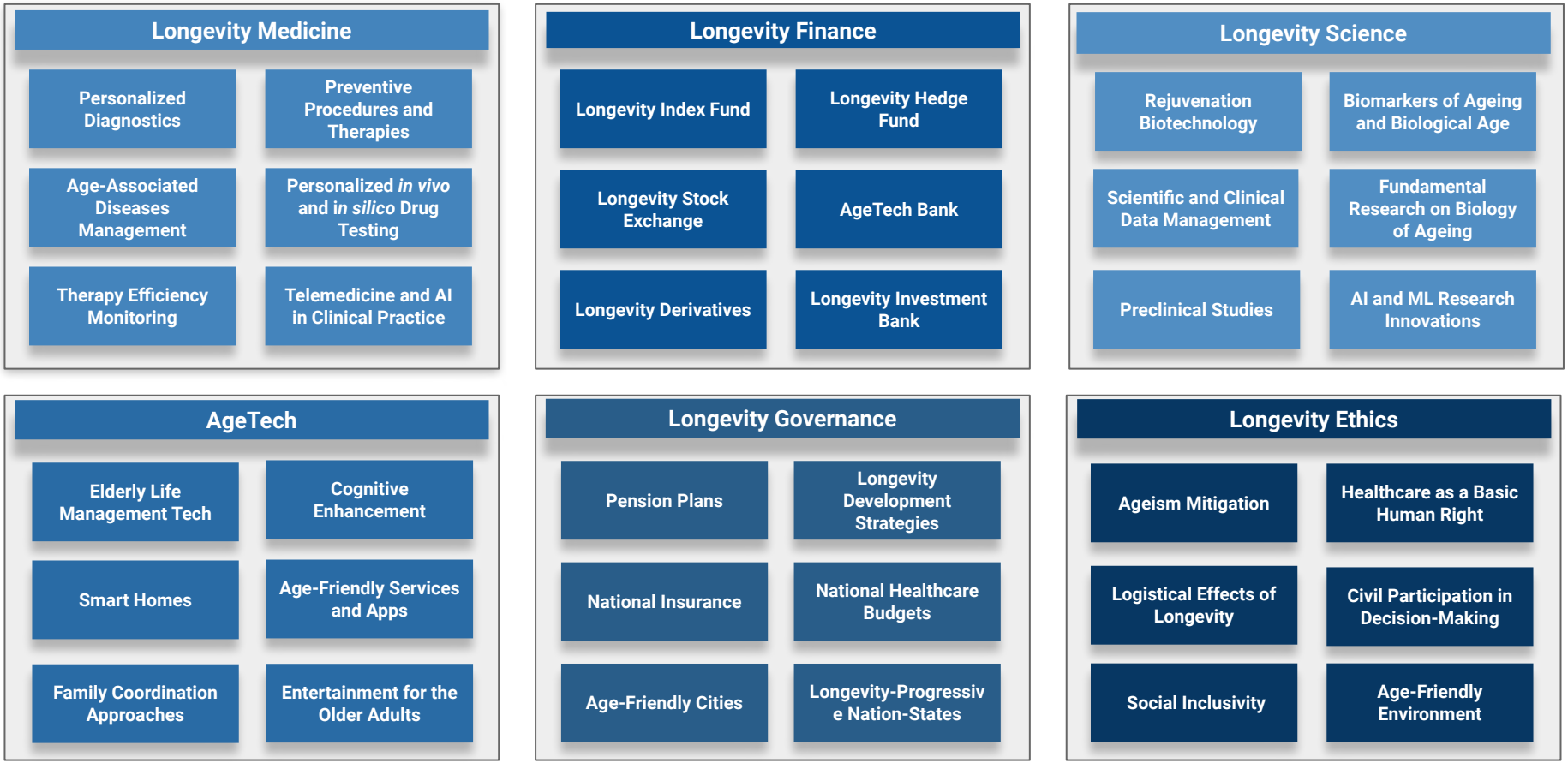
Deep Knowledge Group has developed a Longevity Industry Framework to analyze the rapidly growing field of anti-aging and life extension technologies. The framework is designed to provide a comprehensive view of the industry, including the different technologies, companies, and stakeholders involved.

Deep Knowledge Group's work toward creating a truly comprehensive, actionable and relevant Longevity Industry Framework began in earnest through the release of its first formal Longevity industry framework in 2017/2018 through the publication Aging Analytics Agency's 1000+page Longevity Industry Landscape Overview 2018 (Volume I: The Science of Longevity and Volume II: The Business of Longevity).

The major distinguishing features of the Longevity Industry Framework:

- Using this framework, Deep Knowledge Group has been able to develop a comprehensive understanding of the longevity industry and identify key trends and opportunities for growth. They have also been able to provide insights and recommendations for businesses, investors, and policymakers looking to navigate this rapidly evolving field.
- The Longevity Industry Framework provides a valuable tool for analyzing the complex and rapidly evolving field of anti-aging and life extension technologies, and has the potential to drive innovation and growth in this important area of healthcare.
- Longevity Industry Framework does not focus exclusively on life science-related components but also involves the Longevity Finance, Longevity Governance thereby constituting the most comprehensive approach which was proposed by industry experts to date.
- Active work on Longevity Industry Framework has allowed to create the full-fledged Longevity Industry Big Data Analytical System and Dashboard as the practical implementation of the framework to market and research needs.

Longevity Industry Framework



Longevity Financial Industry Framework

Longevity Investment Organizations

- Longevity Companies
- Longevity-focused VCs
- Longevity-focused Family Offices
- Private Equity Funds
- Hedge Funds
- Accelerators and Incubators

Longevity WealthTech and Asset Management

- Novel Retirement Plans and Robo-Retirement
- Investment Banks and Asset Management Corporations
- Digital Brokers
- New-Gen AI-Driven Portfolio Management
- AI-Driven Advisory Services
- Micro-Investments

Longevity FinTech

- Age-Friendly Banks
- Healthy Lifestyle Bonuses
- Longevity Credit Unions
- Providers of Reverse Mortgage for the USA
- Retiree Employment
- Providers of Equity Release for Europe

Longevity Insurance and InsurTech

- InsurTech Marketplaces and Platforms
- Life Insurance and InsurTech
- Disability Insurance and InsurTech
- Health Insurance and InsurTech
- Big Data Actuarial Models and AI-Driven Premium Calculation
- IoT InsurTech (Wearables)
- Wealth Insurance and InsurTech
- Automated Claims Management

Bridge Solutions to Neutralize Longevity Risk Impact

- Longevity Risk Reinsurance
- Longevity Risk Transfer
- Actuarial Consulting Firms
- Longevity-Enhanced Annuities (QLACs)
- Pension Derivatives
- Underwriters (Banks and Asset Managers)

Longevity Securitization

- Securitization Service Providers
- Derivatives Providers
- Government Bodies
- Clearing and Settlement Services
- Trust Companies
- Rating Agencies

Longevity Risk-Exposed Organizations

- Corporate and Independent Pension Funds
- Public Pension Funds
- Annuity Providers
- National Healthcare Budget
- Healthcare Providers

Novel Longevity Financial System (*Concepts*)

- Longevity Investment Bank
- Longevity Exchange-Traded Fund
- Longevity Stock Exchange
- Biological Age-Based Insurance
- Longevity Innovation Marketplace
- AgeTech-Friendly NeoBanks
- Longevity Biomarkers for De-Risking
- Longevity Rating Agency

Longevity Governance Industry Players

Governmental

- Policy Makers
- National Initiatives
- Research Institutes
- Healthcare Systems
- Non-departmental Organisations
- Products and Services
- Intergovernmental Organisations
- Pension Funds

Non-Governmental

- Universities and Academia
- Charity Funds
- Individual Influencers and Investors
- Activist Movements
- Non-Profitable Communities
- Monitoring Centres

Legal

- Policies
- National Master Plans
- Municipal Government Plans
- Industrial Strategies

Medical

- Healthcare Systems
- Research Initiatives
- Medicine Programmes
- Development Programmes

Economical

- Pension systems
- Healthcare and Research Expenditures
- Economic Wellbeing of the Country
- Elderly Funds

Social

- Public Education
- Organisational Agendas
- Basic Sanitation Facilities
- Life Expectancy and HALE

Longevity Corporate Strategy Framework

Business Strategy	Market Superiority	Governance	Ownership	Leadership	Innovation
SWOT Analysis	Demographic Analysis	Data and Analytics	Regulatory and Policy	Branding and Marketing	Vision and Mission
Distribution and Sales	Market Segmentation	Risk Management	Business Model Innovation	Partnership and Collaboration	Research and Development
Competitive Analysis	Market Analysis	Employee Development	Monitoring and Evaluation	Corporate Social Responsibility	Product and Service Innovation

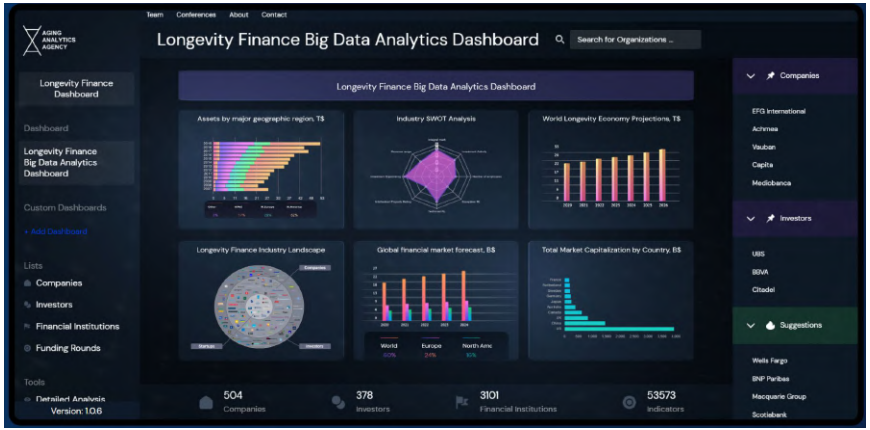
Longevity Industry Big Data Analytics Dashboards

Longevity Investment Big Data Analytics Dashboard

The Dashboard is based on data provided by Aging Analytics Agency, which is active in the industry since 2013. The Dashboard has been designed to serve as a first-of-its-kind resource for knowledge-based, validated investment insights covering four major Longevity industry domains: the Longevity FInancial Industry, Longevity R&D, Longevity Medicine and Longevity Technology.

Longevity Finance Big Data Analytics Dashboard

The Dashboard is a white-label solution designed for financial corporations (e.g. banks, pension funds, asset management firms and insurance companies) looking to adjust their business models to longevity-focused banking and tap into the multi-trillion dollar market of 1 billion people in retirement.



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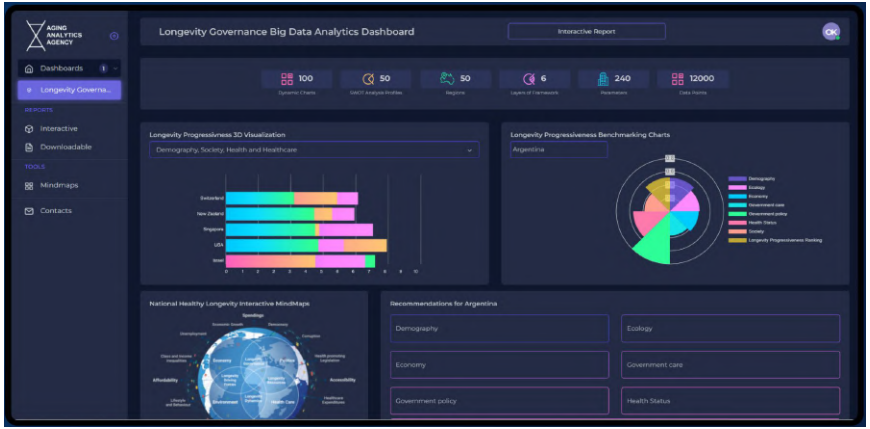
Longevity Industry Big Data Analytics Dashboards

Public Longevity Companies Big Data Analytics Dashboard

The Public Longevity Companies Big Data Analytics Dashboard aggregates data on publicly traded companies across all Longevity sectors. Users can use the wide set of tools to build portfolios according to their specific requirements and investment strategies.

Longevity Governance Big Data Analytics Dashboard

The Longevity Governance Big Data Analytics Dashboard enables access to continuous monitoring of the specific governmental policy activities directly impacting both National Healthy Longevity and Longevity Industrialization, and to consistently track and analyze data points related to government-led Longevity development initiatives.



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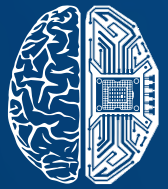
Key Parameters of Longevity-focused Big Data Analytical System and Dashboards

www.deep-innovation.tech/longevity-dashboard



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DeepTech Industry Analytical Framework

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Introduction to DeepTech Industry Analytical Framework

Deep Knowledge Group has developed a **DeepTech Industry Framework** to analyze the complex and rapidly evolving field of DeepTech referring to technologies that are based on cutting-edge scientific research and have the potential to drive significant innovation and growth in a wide range of industries.

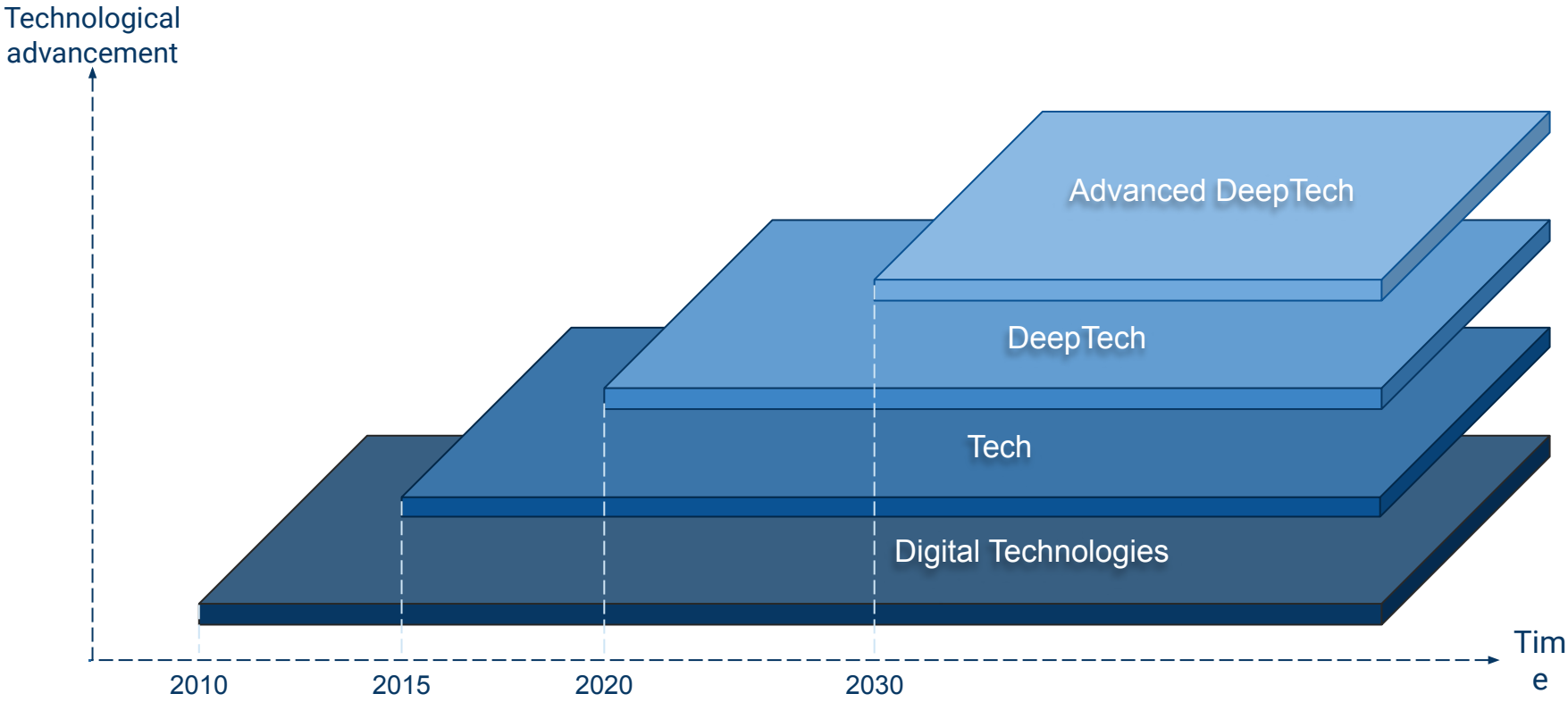
Overall, the DeepTech Industry Framework developed by Deep Knowledge Group provides a valuable tool for analyzing the complex and rapidly evolving field of DeepTech, and has the potential to drive innovation and growth in a wide range of industries.

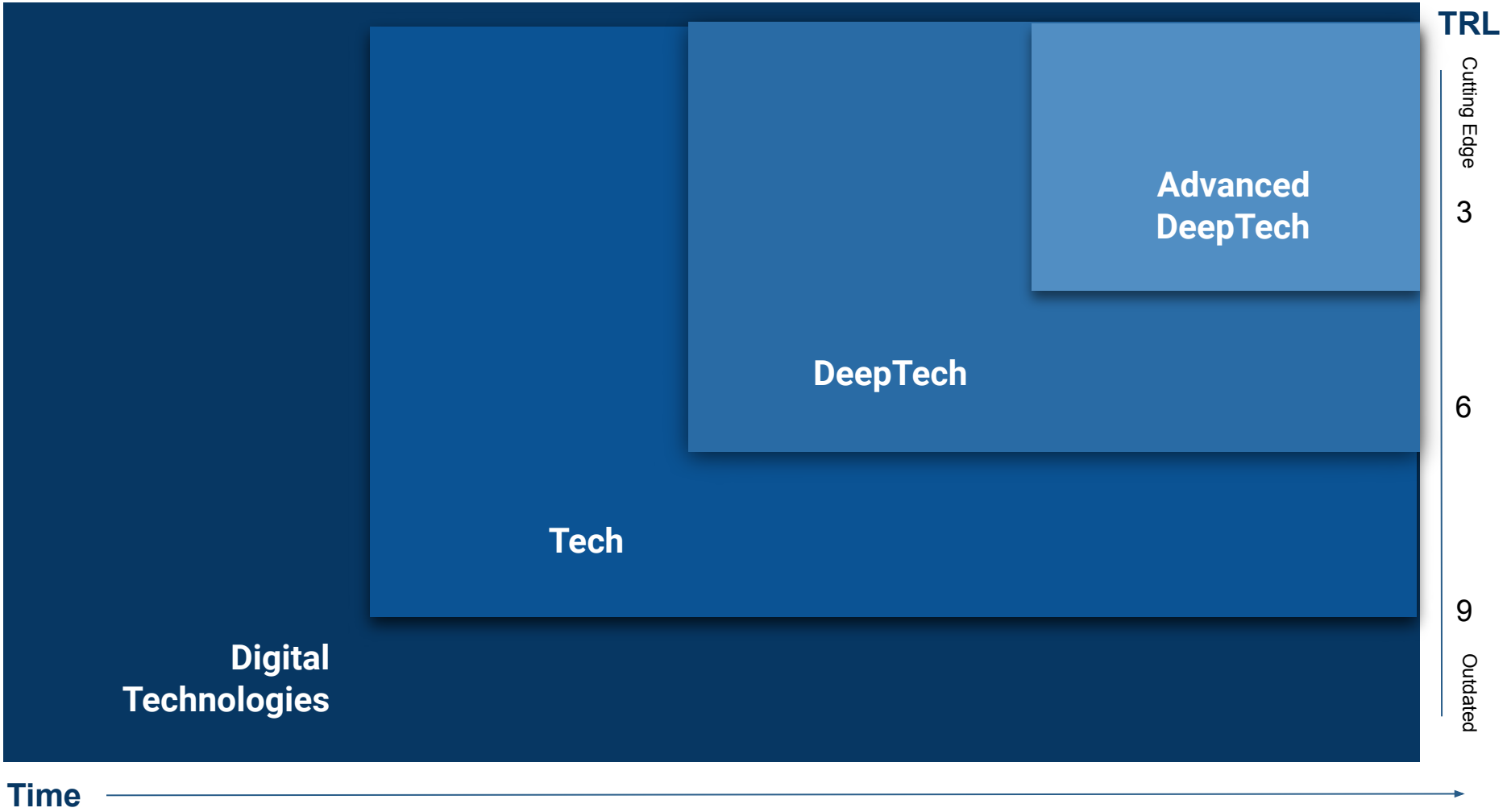
The major distinguishing features of the DeepTech Framework:

- With the application of advanced analytical methods, DeepTech Industry Framework provides the separation of technologies into broad categories with the assessment of the level of disruptive changes which can be brought by particular technologies. The categories involve **Digital Technologies, Tech, DeepTech and Advanced DeepTech.**
- Deep Knowledge Group has been able to develop a comprehensive understanding of the deep tech industry and identify key trends and opportunities for growth. They have also been able to provide insights and recommendations for businesses, investors, and policymakers looking to navigate this rapidly evolving field.
- The framework relies on advanced data analysis techniques to identify key trends and insights in the DeepTech industry. AI and machine learning algorithms are used to analyze large amounts of data from a wide range of sources, including scientific publications, patents, and investment data.

DeepTech Industry Framework serves as the ground basis for the creation of the range of thematic Dashboards dedicated to specific domains of DeepTech, for example GovTech, regions-based digital ecosystems, FemTech, SpaceTech, etc.

DeepTech Industry Framework




TRL
Cutting Edge
3
6
9
Outdated
Advanced DeepTech
DeepTech
Tech
Digital Technologies
Time

Digital Technologies

Tech

- Drones Development
- Seed Technologies
- Waste Management
- Geopositioning Technologies
- Business Development Technologies
- Avionics and Flight Vehicles
- Electrical Vehicles
- Telecommunication Technologies
- Chemicals and Chemical Synthesis
- Optical Manufacturing
- Automation Technologies

Tech

DeepTech

EdTech

RegTech

LegalTech

AgTech

3D Printing

Machine Learning and Big Data

HealthTech

Renewable Energy Systems

GIS Systems

Blockchain

GovTech

DeepTech

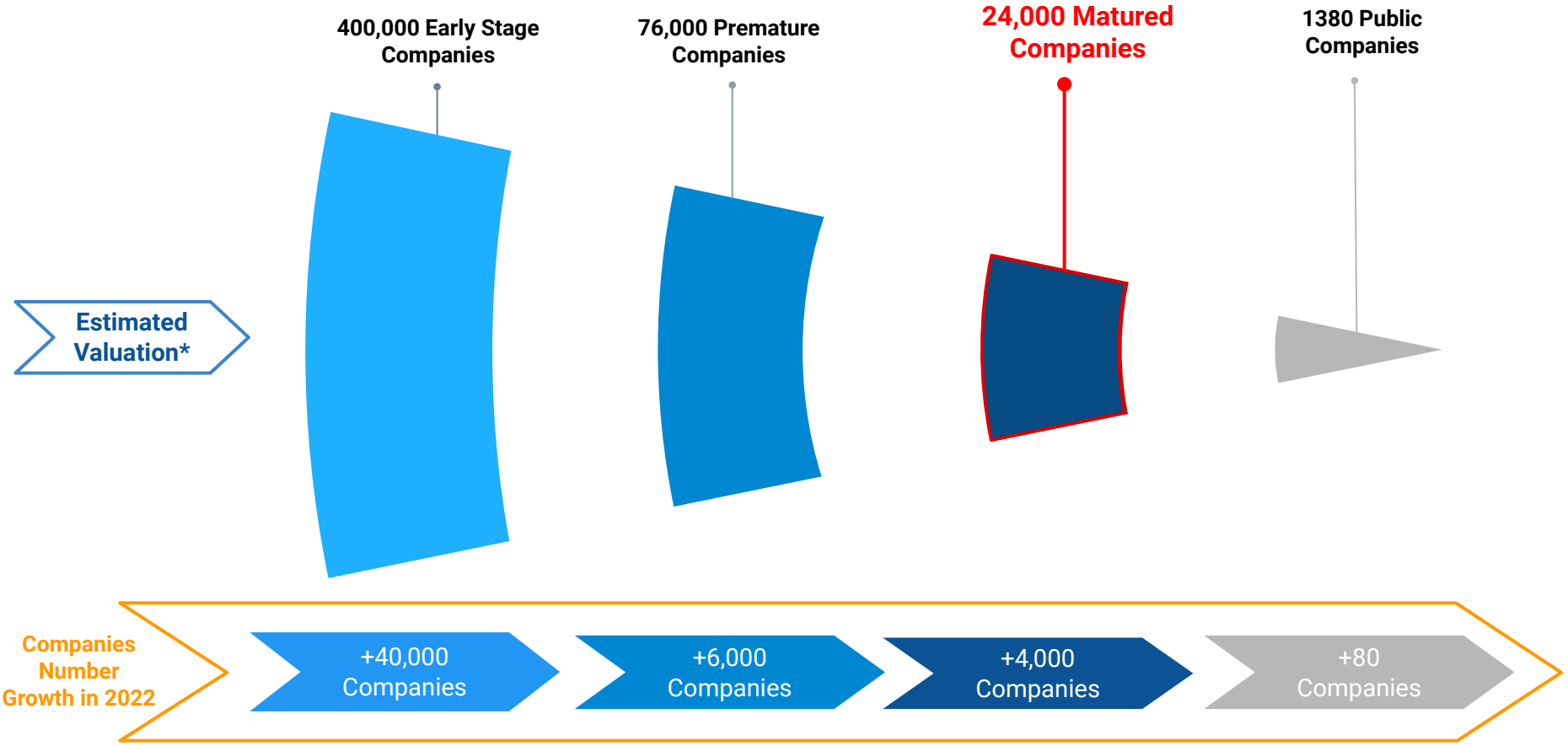
Advanced DeepTech

- Longevity and HealthTech
- Deep Learning AI Systems
- Internet of Things
- Pharma and BioTech
- Advanced 3D Printing
- Robotics
- Smart Cities
- SpaceTech
- Advanced Renewable Energy Systems

Advanced DeepTech

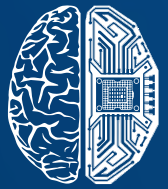
- Advanced Artificial Intelligence Systems
- Deep Diagnostics Technologies
- MetaVerse
- Atomically Precision Manufacturing
- Advanced Longevity HealthTech
- Advanced Smart Cities
- PharmTech and Advanced BioTech
- Energy 2.0
- Advanced SpaceTech
- NanoTech

DeepTech Industry Size



DeepTech-focused Big Data Analytics System and Dashboards

www.deep-innovation.tech/deeptech-dashboard



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Philanthropy Industry Analytical Framework

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Introduction to Philanthropy Industry Analytical Framework

The **Philanthropy Industry Analytical Framework** created by the Deep Knowledge Group is a comprehensive framework designed to analyze the global philanthropy industry. It is intended to help philanthropic organizations, investors, and other stakeholders understand the industry's current state, trends, challenges, and opportunities.

The Philanthropy Industry Analytical Framework is intended to provide a holistic view of the philanthropic industry and inform decision-making among philanthropic organizations, investors, and other stakeholders. By using this framework, organizations can assess their current state and identify areas for improvement to achieve greater impact and maximize the effectiveness of their capital deployments.

The Philanthropy Industry Analytical Framework was used to create the respective Big Data Dashboard, which is an analytical tool that allows users to interact with the framework and obtain insights into the philanthropy industry.

Philanthropy Industry Analytical Framework

Social Impact Organisations

Philanthropy

- Charities
- Non-Profits and NGOs
- Grant-invested
- Grant-invested and Trading Revenue

Sustainable Development

- Animals Protection
- Food Management
- Community Development
- Environment and Ecology

Health

- Hospitals
- Community Health Care
- Family Welfare
- Disability Care

Human Services

- Arts and Culture
- Humanitarian Aid
- Educational and Consulting
- Inclusive Development

Venture Philanthropy

- Social Investment Companies (SI)
- Social Enterprises Generating Revenue
- Socially-Driven Businesses

Investment Platforms

- Value Banking
- Social Stock Exchanges

Advisory

- Social Investment Advisers
- Funding Consultancies

Investment Funds

- Venture Philanthropy Funds
- Social Investment Funds

Social Profit Philanthropy

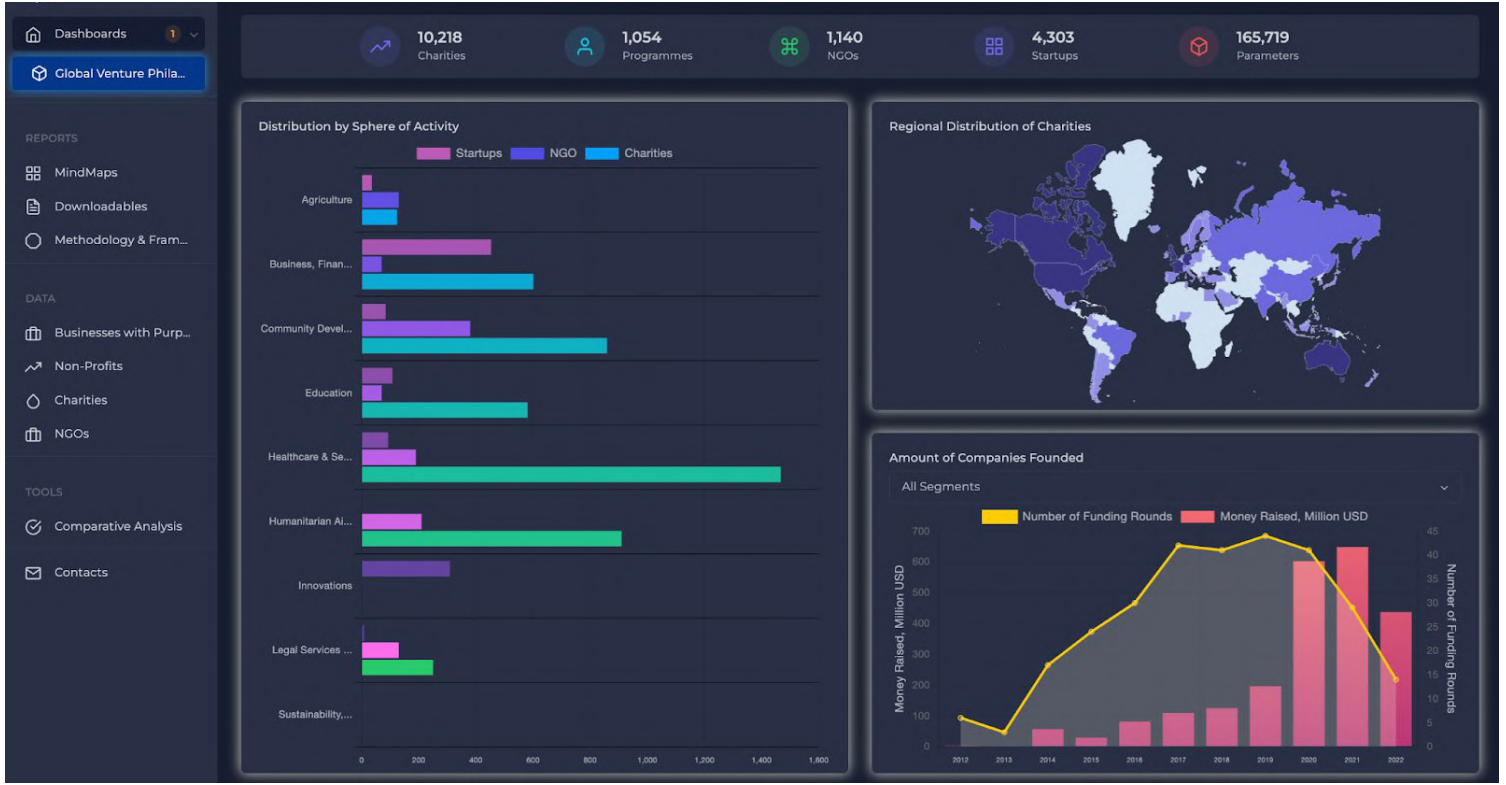
- Socially Responsible Businesses
- Companies Allocating % to Charity
- Sustainable Development
- Nature & Climate Protection
- Education, Culture, and Sport
- Humanitarian Aid
- Legal Services
- Healthcare & Support
- Financial Inclusion

Philanthropy Ecosystem Big Data Analytical System and Dashboard

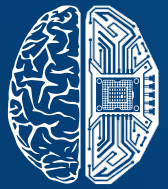
Philanthropy Industry Big Data Analytical System and Dashboard provides the comprehensive analytics of the Philanthropy Industry and extensive database of charity organizations over the globe.

www.philanthropy.international//philanthropy-dashboard

Philanthropy Ecosystem Big Data Analytical System and Dashboard



www.philanthropy.international/philanthropy-dashboard



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5th Industrial Revolution Analytical Framework

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Introduction to 5th Industrial Revolution Analytical Framework

The analytics of Deep Knowledge Group's analytical subsidiaries, each contributed a component to the integral system of Deep Knowledge Group's **5th Industrial Revolution Analytics Framework** and Forecasting System.

The Multidimensional Analytical Framework will allow to build the comprehensive approach to the investigation of the transformational changes of the 5th Industrial Revolution and building the effective Forecasting System for the upcoming future.

The 5th Industrial Revolution Analytical Framework is intended to provide a holistic view of the 5IR and inform decision-making among policymakers, business leaders, investors, and other stakeholders. By using this framework, organizations can assess their current state and identify opportunities and challenges to harness the potential of the 5IR for economic, social, and environmental progress. The framework helps to foster innovation, collaboration, and responsible governance in the 5IR, leading to a more sustainable and inclusive future.

Moreover, the 5IR Analytical Framework made it possible for Deep Knowledge Group to build the **Long Term Technological Forecasting System** aiming to systemize the technological changes of the 5th Industrial Revolution. Moreover, this System will be deliver the sophisticated framework of the variety of DeepTech domains showing the patterns between them for the upcoming future.

5th Industrial Revolution Framework

MetaTechnologies

- Neurotech
- Digitization
- ML-driven technologies
- AI-backed Technologies DL
- IoT Connectivity Technologies

DeepTech

- Security
- Reg Tech
- HealthTech
- Bioinformatics
- GeoEngineering
- IoT
- SpaceTech
- FinTech 2.0
- New Materials
- Space Medicine

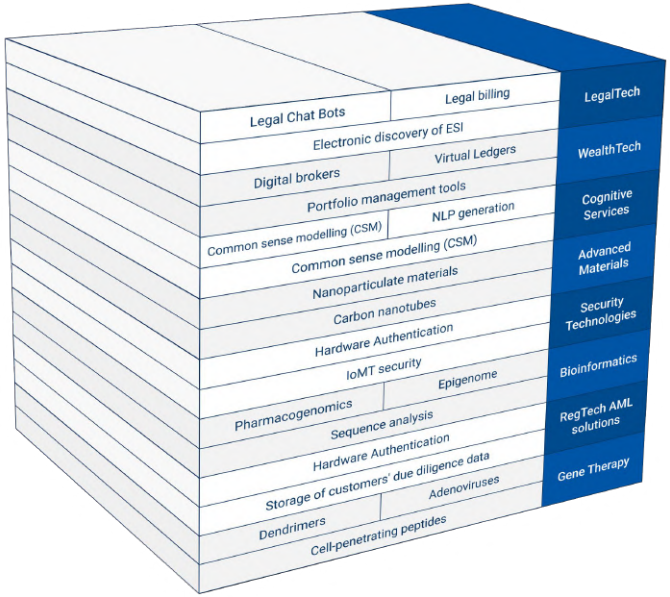
PoliTech & SocieTech

- GovTech
- EduTech
- GeoPolitics
- Technocracy
- Societal Psychology

Financial Systems & Economies

- InvestTech
- Innovation Economics
- Novel Financial System
- Innovation Marketplaces
- DeepTech-Tied Financial Derivatives

4th Industrial Revolution Framework



5th Industrial Revolution Framework

Deep Knowledge Group leverages its expertise and resources to build the framework for a successful transition to the 5IR. This would require collaboration with key stakeholders and a focus on innovative industries domains. **In order to make the practical transition to 5th Industrial Revolution, DKG establishes the Long-Term Technology Forecasting System.**

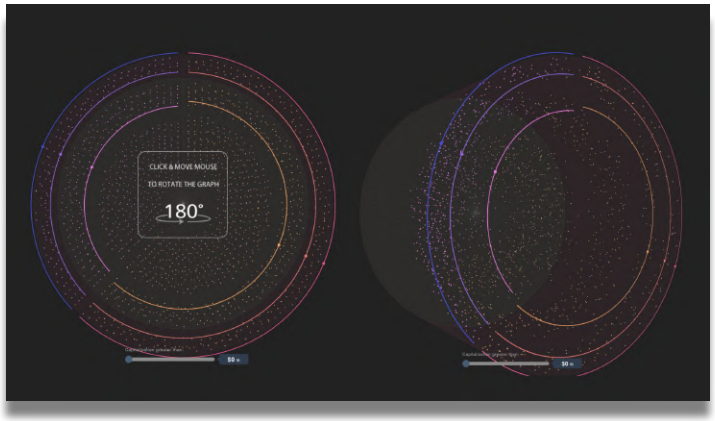
Overview of Long-Term Technological Forecasting System

Deep Knowledge Group is building Long-term Technological Forecasting System which is set to make projections on future advancements in technology and predicting their potential impact on society and the economy. The goal of such a System is to provide a framework for informed decision-making by governments, large financial institutions businesses, and individuals.

At the same time, this System will present the practical insights on market, namely through identification of companies actively developing disruptive technologies which potentially can participate in M&A transactions. Moreover, the System makes the strong reliance on retrospective analysis meaning that the results generated by the System is constantly compared with the past projections.

Strategic Goals of Long Term Technological Forecasting System

- Serving as the leading source of data for decision makers
- Comprehensive tracking of technological developments
- Identification of technological trends playing the pivotal role during upcoming decade

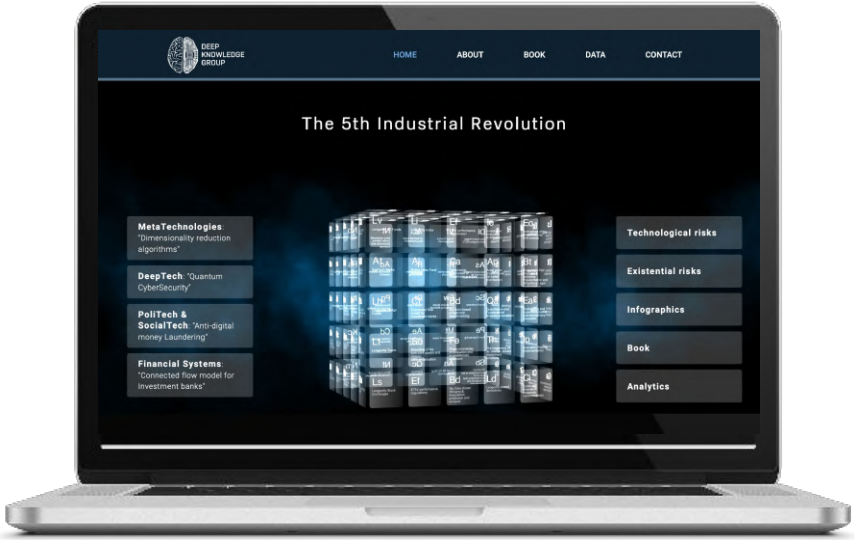


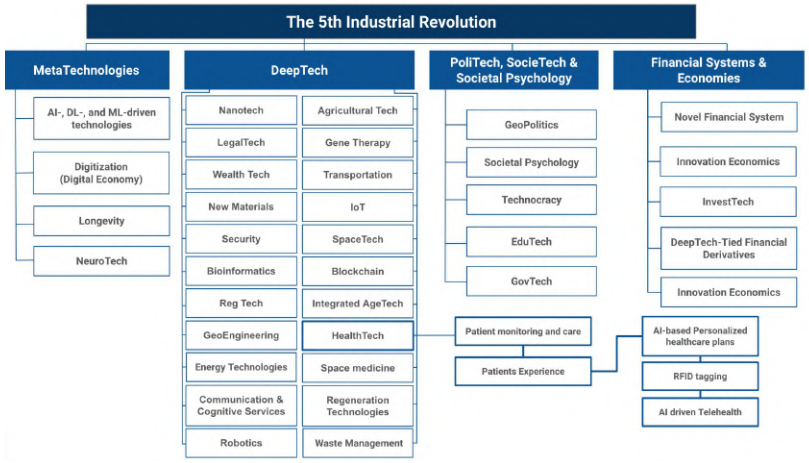
- Providing insights on technological improvements for leading organizations
- Detection of promising technological niches
- Exchange of industry knowledge between experts

www.5revolution.tech

The 5th Industrial Revolution Institute

Despite the accelerated pace of technological progress that characterizes the 21st century, in reality, technology's practical implementation and overall impact on humanity faces many challenges. For this purpose, Deep Knowledge Group intends to set up **the 5th Industrial Revolution Institute**.





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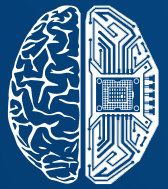

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Other Analytical Frameworks

Disruptive Technologies in Pharma Framework

R&D-Focused Technologies

Early Diagnostics

- Biomarkers Discovery
- Analytical Algorithms
- Population Screening Approaches
- At-Home Testing
- Digital Avatar
- Biobanking

Preclinical Research Optimization

- AI in Target Discovery
- Lab-on-a-Chip Technologies
- AI in Drug Discovery
- Organoids and Organ-on-a-chip
- Single Cells Screening and Sequencing
- Automated Research Facilities and Robotics

Clinical Research Optimization

- AI-Based Population Screening
- Patient Selection Optimization
- Patient Engagement Optimization
- Complex Data Management
- Technology and Digital Optimization
- Metabolism Tracking

New Modalities

- RNA-Based Therapy
- Antibody-Drug Conjugates
- Peptide Therapeutics
- Nanobodies
- Protein Degraders
- CRISPR-Based Gene Therapy

Therapy-Focused Technologies

Regenerative Medicine

- Cell Therapy
- Gene Therapy
- Exosomes
- Small and Large Molecules
- Stem Cells
- Tissue Engineering

Oncology Treatment

- Cancer Vaccines
- CAR-T Cell Therapy
- Target Delivery Systems (Nanoparticles)
- Drug Repurposing
- AI-Based Target Modeling
- Virtual Reality Rehabilitation

Personalized Medicine

- Public Health
- Medical Data Management
- Treatment Efficiency Tracking
- Reproductive Medicine
- Supplements
- Prognostic Screening and Risk Assessment

Robotics and Automation Technologies

- Bioprinting Robots
- High Throughput Screening
- Robotic Laboratories
- Collaborative Robots
- Surgical Robots
- Care Robots

AI in Drug Discovery Industry Framework

Focus on Applications of AI for Drug Discovery

- Advanced R&D
- Biomarkers Development
- Drug Discovery

Focus on Applications of AI for Oncology Diagnostics and Treatment

- AI-Assisted Diagnostics
- At-Home Cancer Detection With AI-Based Devices
- Clinical Decision Support
- Medical Images Analysis
- Patients Outcome Prediction
- Personalized Treatment Options Identification

Established Drug Discovery-Oriented Entities

Early Drug Development

- Compounds Classification
- Drug Repurposing
- Identifying New Drug Candidates
- Identifying New Drug Pathways
- Identifying New Drug Structures
- Hit Identification
- Lead Optimization
- Predictive Drug Modeling
- Target Identification
- Virtual Screening

Clinical Drug Development

- Identifying Drug to Drug Interactions
- Identifying New Drug Indications
- Identifying New Metabolic Pathways
- Identifying Suitable Patients
- Imaging Analysis
- Patient Stratification
- Predictive Modeling
- Real-Time Monitoring

End-to-End Drug Development

- Automated End-to-End Drug Analysis
- Automated End-to-End Drug Production
- Predictive Patient Reaction Modeling
- Virtual Experiment Processing

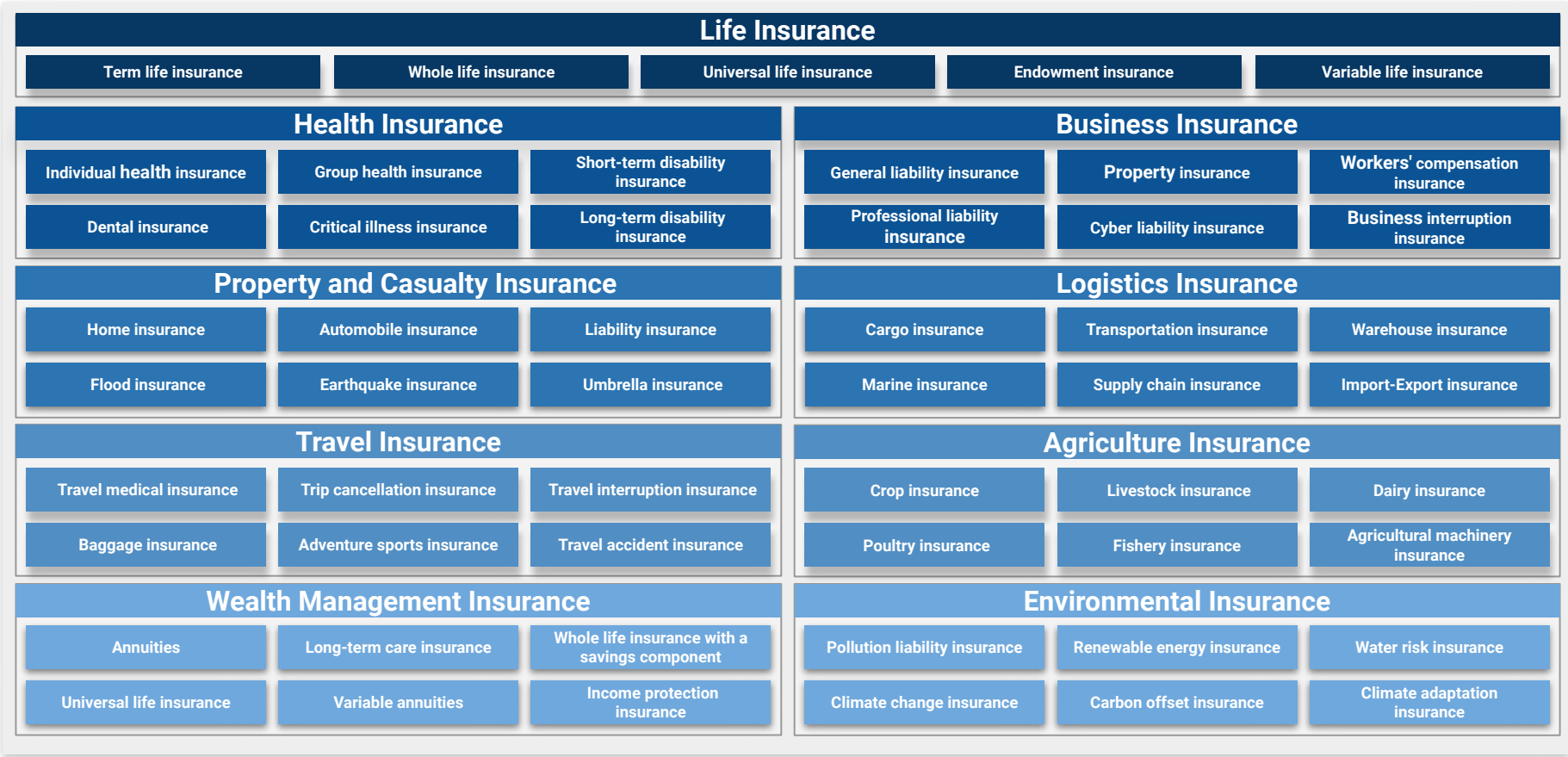
Preclinical Development and Automation

- ADME/PK Modeling
- Experiment Data Analyzing
- Preclinical Protocol Optimization
- Robotic Hands
- High Throughput Screening
- Drug Safety Improving
- Preclinical Trials Prediction
- Preclinical Imaging Analysis
- Robotic Laboratories
- Collaborative Robots

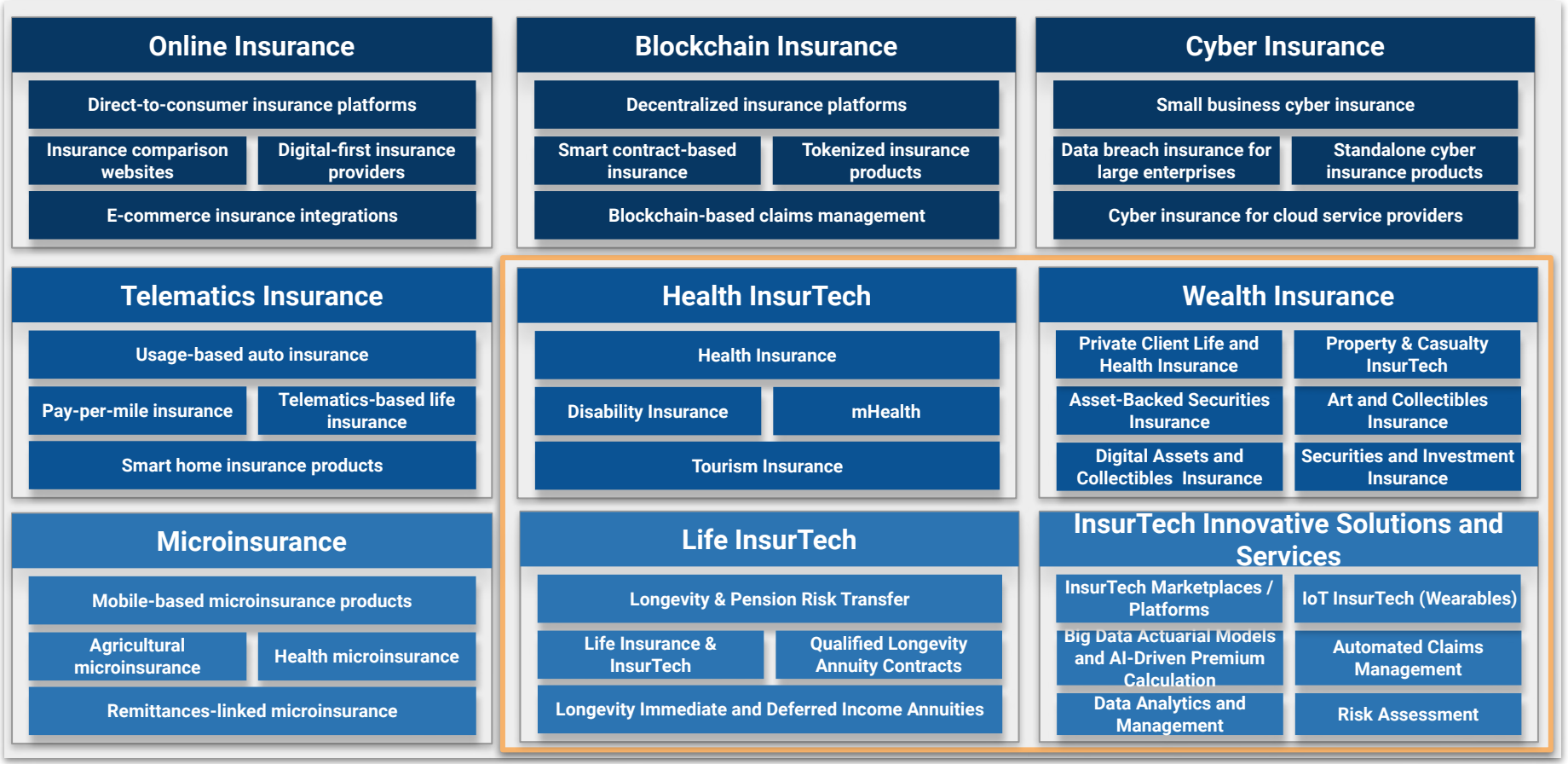
Data Processing

- Chemical Data Analyzing
- Clinical Trials Data Analyzing
- Imaging Data Analysis
- Lab Experiments Data Analyzing

Insurance Industry Framework



InsurTech Industry Framework



SpaceTech Industry Framework

SpaceTech Core Companies

Space Services

- Education and Training
- Service and Consulting
- Science and Engineering
- Security & Defense

Space Technologies

- Robotics and UAV
- Software and Hardware
- Space Medicine

Data from Space

- 5G Communication
- AI Solutions
- Data Solutions

SpaceTech Verge Companies

Space Observation

- Space Imagery
- Remote Sensing
- Navigation and Mapping

Space Development

- Space Travel & Exploration
- Spacecraft Development
- Natural Resources

Space Manufacturing

- Manufacturing
- Material and Product Supply

Space-Applied Businesses

- Drones
- Nanotechnologies
- Smart Materials
- Cyber Security
- Robotics
- Expert systems (AI)
- Additive Manufacturing (3D)

GovTech Industry Framework

Ecosystem Participants

- Startups & Entrepreneurs
- Leading Contractors
- Universities
- Consultants
- Accelerators & Incubators
- Government
- Donors
- End Users & Citizens

Industry Segments

CivicTech	RegTech	Data Security	Public Safety	Smart City and Transport	Healthcare Solutions
Infrastructure Development	KYC & AML Solutions	Identity and Access Management	Law Enforcement	Smart City Infrastructure	Personalized medicine
Water and Waste Management	Regulatory Reporting	Firewalls	Emergency Services	Smart Energy and Building	Telemedicine
E-Government Solutions	**Digital Services**	**Monitoring Systems**	**Information Technology**	**Workforce Management**	**Decision Making Platforms**
AI-enhanced Behavioral Analytics	E-Government Services	Performance Management Systems	Software Development	Human Resources Management	AI and ML Platforms
Public Services Customization	Data Management	Business Intelligence Systems	IT Services and Support	Payroll and Benefits	Simulation and Modeling Platforms

NeuroTech Industry Framework

By Technology Type

Hardware Systems and Devices	Artificial Neural Networks	Research and Clinical Technologies	
Neurorobotics	Brain-reading	Viral Neuronal Tracing	Cerebral Organoid
Neuroprosthetics	Synthetic Telepathy	Neuromonitoring	Mesoscale connectomics
Brain-targeted Drug Nanocarriers	Deep Brain Stimulation	Neuromodulation	Neuroenhancement
Brain-Computer Interface	Whole Brain Emulation	Neurotransmitter Detection	Cluster Imaging of Multi-brain Networks
Neuromorphic and Neurohybrid Systems	Brain-Like Intelligence	Optogenetics	Neuronal Positioning System

By End-Users

Individual	Community	Business	Government
Mental Health	Healthcare	Workplace	Security Systems
Rehabilitation	Electronics	Management	Government Regulation
Smart Environments	Bioengineering	Marketing	Military or National Security
Wellness	Robotics	Consumer Applications	Jurisdiction
Lifestyle Computing	SpaceTech	Gaming Industry	Education

FemTech Industry Framework

FemTech Investors

- Venture Capital Funds
- Accelerators and Incubators
- Angel Groups
- Family Investment Offices
- Private Equity Firms
- Government Offices & University Programs
- Investment Banks

FemTech Companies

- Reproductive Health & Contraception
- General Healthcare
- Pregnancy & Nursing
- Women's Longevity
- Menstrual Health
- Mental Health
- Pelvic & Uterine Healthcare
- Sexual Health
- Menopause Care
- Women's Wellness

Product Types Across Subsectors

- Diagnostics
- Telehealth
- Devices (Wearables, Hardware, etc.)
- Drugs, Vitamins & Supplements
- Services
- Apps / Software
- Consumer Products
- Digital Platform

FemTech Hubs & Communities

- Partnership and Networking
- Startups Support Programs and Platforms
- Events, Media and Marketing

FemTech R&D Centers and Labs

- Clinical and Scientific Medical Centers
- Research, Policy and Education Institutions
- R&D of Innovative Products and Services

Geoeconomics Industry Framework

Geopolitics

Geostrategy
- Military strategy
- International security
- Diplomatic policy
- International economic strategy

Energy and Environmental Policy
- Climate change policy
- Environmental regulation
- Pollution management
- Resource allocation

Economic Policy
- Monetary policy
- Trade policy
- Investment policy
- Financial policy

Geopolitical Research
- Private firms
- Government agencies
- University departments
- Think tanks

International Economics

Resource Economics
- Military strategy
- International security
- Diplomatic policy
- International economic strategy

Urban Economics
- Urbanization
- Transportation economics
- Housing economics
- International development finance

International Finance
- International monetary economics
- International banking
- International capital markets
- International investment

International Trade
- Trade policy
- Trade and development
- Trade and environment
- Trade and finance

GovTech

E-Government
- Digital participation
- Decision-making platforms
- Electronic identity
- Electronic voting
- G2G systems
- G2B services

Smart Cities
- Monitoring systems and disaster management
- Energy-saving solutions
- Electronic identity
- Waste management
- Smart transport
- Traffic management solutions

CrimeTech
- Smart recognition and identification
- Cyber security
- e-Courts
- Civil defence
- Cryme analysis platforms
- Anti-money laundering

International Economic and Financial Actors
- AgTech (Agriculture)
- Longevity Technologies
- e-HealthCare solutions
- Various sensors and IoT technologies

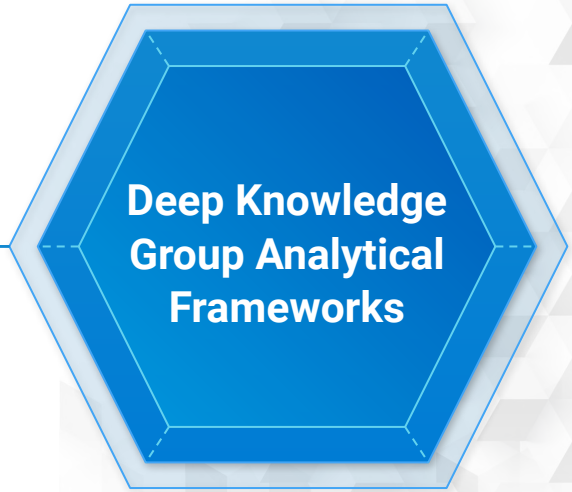
Summary of Deep Knowledge Group Analytical Frameworks

Over almost a decade of profiling the innovative industries, Deep Knowledge Group has built the unique approaches for building the analytical industrial frameworks and delivering tangible results.

DKG will continue to work on improving existing frameworks and creating new ones that are relevant to different emerging industries. The primary goal of the frameworks enhancement lies in their adjustment to emerging technological trends.

DKG's proprietary methodologies for creating frameworks is an important part of the company's intellectual property, meaning that the approaches behind the frameworks can be considered as corporate assets.

Deep Knowledge Group believes that creating and using frameworks is an important component of achieving a competitive advantage in the market. By developing and implementing frameworks that are superior to those of competitors, the company can differentiate itself and gain an edge in the industry.



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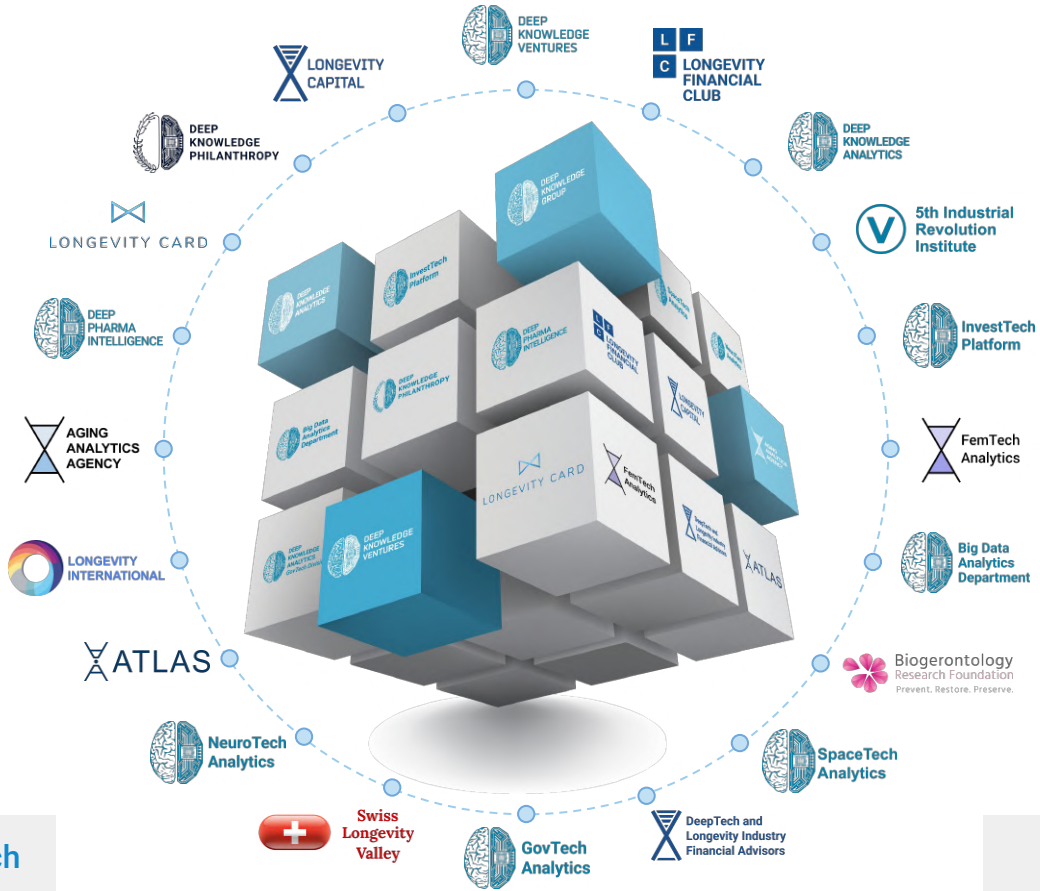

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