Deep Pharma Intelligence

Market Intelligence System and AI-driven Big Data Analytics Dashboard

Market Intelligence System and AI-driven Big Data Analytical Dashboard*

Data-focused Tools and Solutions

Market Intelligence Tools and Solutions

Advanced Visualization Elements

Automated Comparative SWOT Analysis

Pharma Patents, Services and Solutions Database

Investment and Financial Analysis

Drug Discovery Phases Coverage

News and Entities NLP Analysis

Drugs' Target Pathways Browser

Cross-Industrial Comparative Analysis

Market Intelligence and AI-driven Big Data Analytical Dashboard

*Note: we provide profound investment and data science insights on the private and public markets via customized IT-Platforms and Dashboards.

About Deep Knowledge Group

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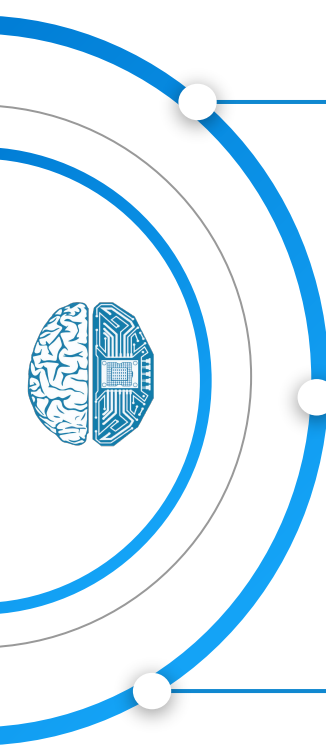
Deep Knowledge Group runs several data-driven **investments and financial vehicles**

- DEEP KNOWLEDGE VENTURES
- LONGEVITY CAPITAL
- Longevity Financial Advisors
- LONGEVITY CARD

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

- AGING ANALYTICS AGENCY
- Big Data Analytics Department
- DEEP KNOWLEDGE ANALYTICS GOVTECH DIVISION
- FemTech Analytics
- NeuroTech Analytics
- COVID-19 ANALYTICS
- SpaceTech Analytics
- DEEP KNOWLEDGE ANALYTICS
- DEEP PHARMA INTELLIGENCE
- INNOVATION EYE
- InvestTech Advanced Solutions

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

- DEEP KNOWLEDGE PHILANTHROPY
- Swiss Longevity Valley
- LONGEVITY INTERNATIONAL
- Biogerontology Research Foundation Prevent. Restore. Preserve.
- LONGEVITY CHARITY

DeepTech-related Analytical Subsidiaries of Deep Knowledge Group

Deep Knowledge Group's analytical subsidiaries produce advanced analytics on DeepTech and frontier-technology industries using sophisticated frameworks and algorithmic methods that combine hundreds of specifically-weighted metrics and parameters to deliver insightful market intelligence, pragmatic forecasting and tangible benchmarking.

InvestTech Advanced Solutions
www.invest-solutions.tech
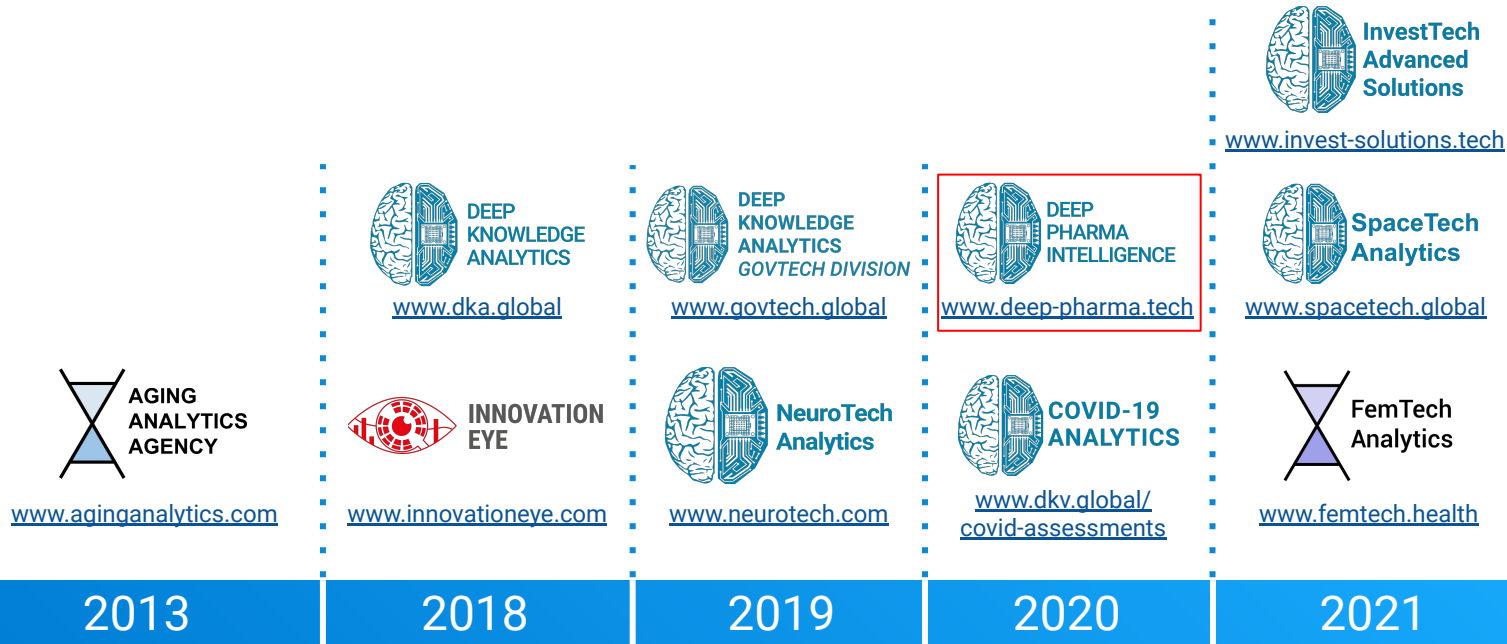
The extensive expertise in DeepTech sectors allowed us to create AI-Driven Big Data Analytics System and Dashboards

DEEP KNOWLEDGE ANALYTICS
www.dka.global

DEEP KNOWLEDGE ANALYTICS GOVTECH DIVISION
www.govtech.global

DEEP PHARMA INTELLIGENCE
www.deep-pharma.tech

SpaceTech Analytics
www.spacetech.global

AGING ANALYTICS AGENCY
www.aginganalytics.com

INNOVATION EYE
www.innovationeye.com

NeuroTech Analytics
www.neurotech.com

COVID-19 ANALYTICS
www.dkv.global/covid-assessments

FemTech Analytics
www.femtech.health

| 2013 | 2018 | 2019 | 2020 | 2021 |

Analytical Methods and Systems Developed by Deep Knowledge Group

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

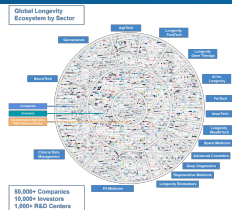**Frameworks of Complex Longevity and DeepTech Industries**

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
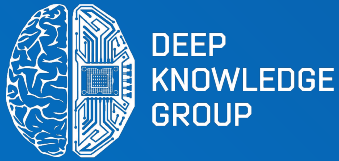
Big Data Analytics Dashboards

2020 - 2021

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

AI-driven Big Data Analytics System and Dashboards

2021 - 2022

The Problem

The IT platform to be developed is said to cover the following:
- What type of services are provided by a given entity
- Do these services, as well as other parameters, indicate the sustainability of the entity
- What are the competitors of a given entity and how one could compare this entity to its peers
- What phases of drug discovery a given entity tries to cover
- What are the most expedient acquisition scenarios for a given entity.

The key-points mentioned above indicate the following features of the IT platform:
- An existence of a database with the factual information on every entity
- A need in machine learning applications to extract and then associate certain 'tags' with every entity to clarify the drug discovery phase, as well services provided
- A need in machine learning applications to create a meaningful entity-to-competitor analysis
- A need in machine learning applications to create a recommendation system able to advise on acquisition specifics.
.
As a result, the following concept of the platform is created.

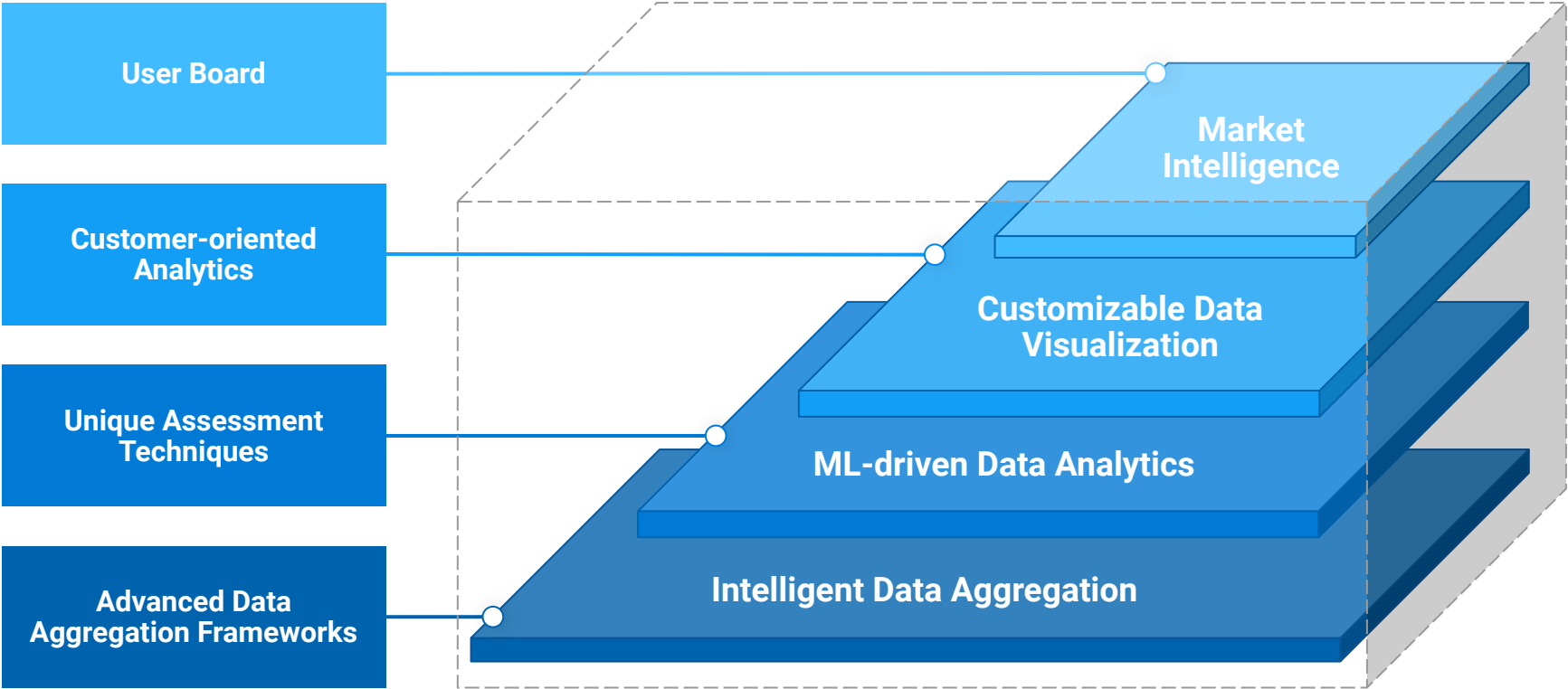# The Solution — AI-driven Big Data Analytical Dashboard

AI Engine of Big Data Analytical Dashboard: Data Science behind the IT Product

Note: below, we describe the toolkit that we implement in other Deep Knowledge Group's projects and will use to build this Tailor-Made Market Intelligence System
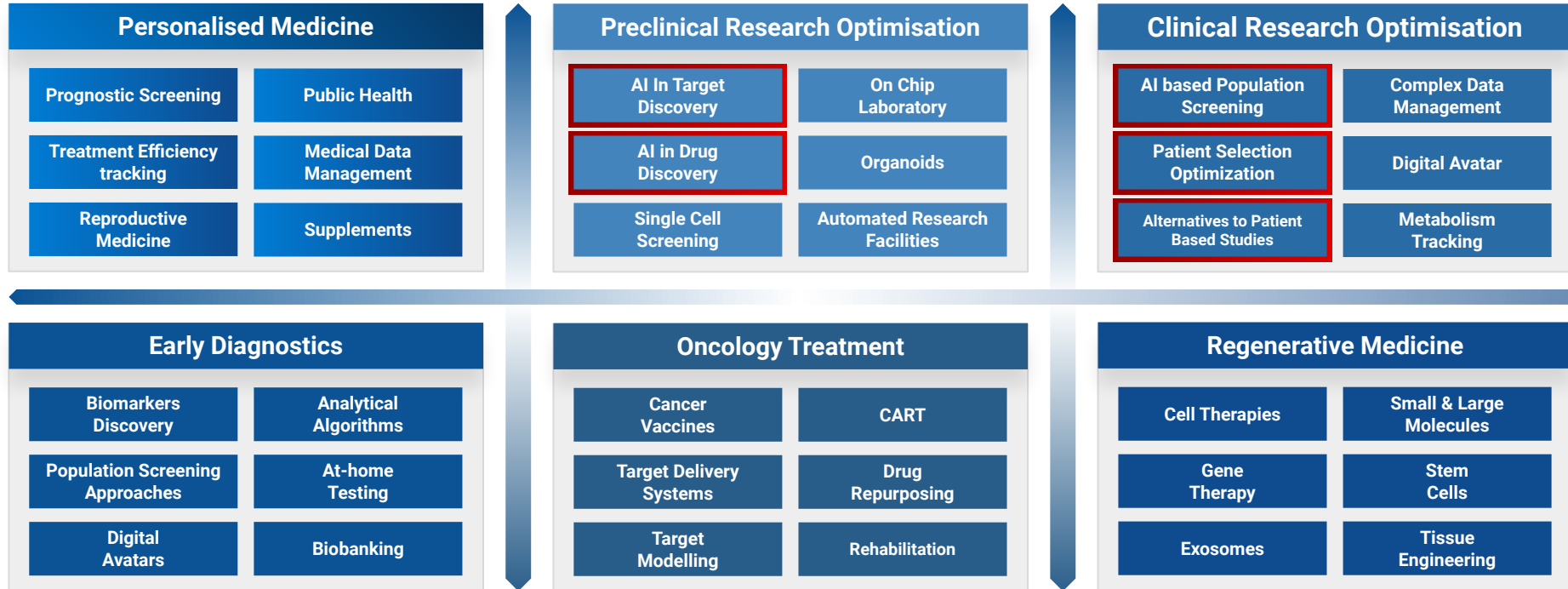
Market Intelligence System and AI-driven Analytical Dashboard IT Architecture

User Board

Customer-oriented Analytics

Unique Assessment Techniques

Advanced Data Aggregation Frameworks

Market Intelligence

Customizable Data Visualization

ML-driven Data Analytics

Intelligent Data Aggregation

Disruptive Technology in Pharma Framework

Current focus of **Deep Pharma Intelligence (DPI) Dashboard** is aimed at **Artificial Intelligence role in Drug Discovery**. Yet, the **core strategic goal for DPI** is to expand dashboard coverage in order to **include all projected disruptive technologies** and companies that use them in the Pharmaceutical Industry. **The Framework visualizes all potential disruptive sectors in Pharmaceutical Industry which will be presented in Dashboard, while highlighted blocks are categories which are already covered.**

Personalised Medicine

Prognostic Screening	Public Health
Treatment Efficiency tracking	Medical Data Management
Reproductive Medicine	Supplements

Preclinical Research Optimisation

AI In Target Discovery	On Chip Laboratory
AI in Drug Discovery	Organoids
Single Cell Screening	Automated Research Facilities

Clinical Research Optimisation

AI based Population Screening	Complex Data Management
Patient Selection Optimization	Digital Avatar
Alternatives to Patient Based Studies	Metabolism Tracking

Early Diagnostics

Biomarkers Discovery	Analytical Algorithms
Population Screening Approaches	At-home Testing
Digital Avatars	Biobanking

Oncology Treatment

Cancer Vaccines	CART
Target Delivery Systems	Drug Repurposing
Target Modelling	Rehabilitation

Regenerative Medicine

Cell Therapies	Small & Large Molecules
Gene Therapy	Stem Cells
Exosomes	Tissue Engineering

Major Components of Data Science and AI Engine Architecture

Data Aggregation

Big Data Analytics System and Dashboard cover the datasets synthesized from various sources and having the different types of representation

Database Extension

The data sets behind the finalised data provided to users is subject to constant updating to ensure the precise results of analysis

Natural Language Processing (NLP) Engine

Advanced NLP-techniques are used for gathering and storing the multiparametric and high-dimensional data.

Components of Data Science and AI Engine

AI-Based Clustering

Embedded AI engine is able to find the interconnections and form the groups of entities having the similar characteristics

Companies Assessment with Machine Learning

Dashboards provide the ranking of both private and public companies based on the aggregated and constantly refreshed market data

AI-based Predictions

Big Data Analytics System and Dashboard has the modules able to forecast the possible ways of future traction of certain events (such as stock prices) based on the large sets of market data

Accurate Data Science-Based Company Assessment

An example of a SWOT analysis of Pharma and HealthTech companies with parameters tailored specifically to market segments.

Tailor-Made Market Intelligence System: Summary

Market-specific IT-platform focusing on data and solutions that are relevant to the market specialist

More than a database: a set of intelligence AI-driven tools providing unique insights on the industry dynamics

Meaningful tools for any type of goals: combination of interpretable analytics and raw-data for the internal research

Cloud-based platform allowing optimal up-time and seamless models update and implementation

Tailor-Made Market Intelligence System
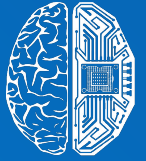
Data-focused Tools and Solutions

Advanced Visualization.
Dashboards Constructor
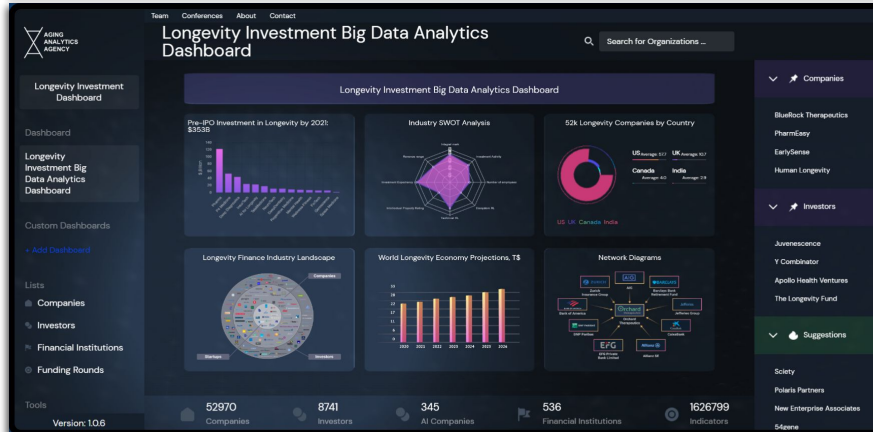
E — Enables the creation of tailored and personalized analytical dashboards in a matter of minutes

A — All features that are available on other dashboards are already enabled
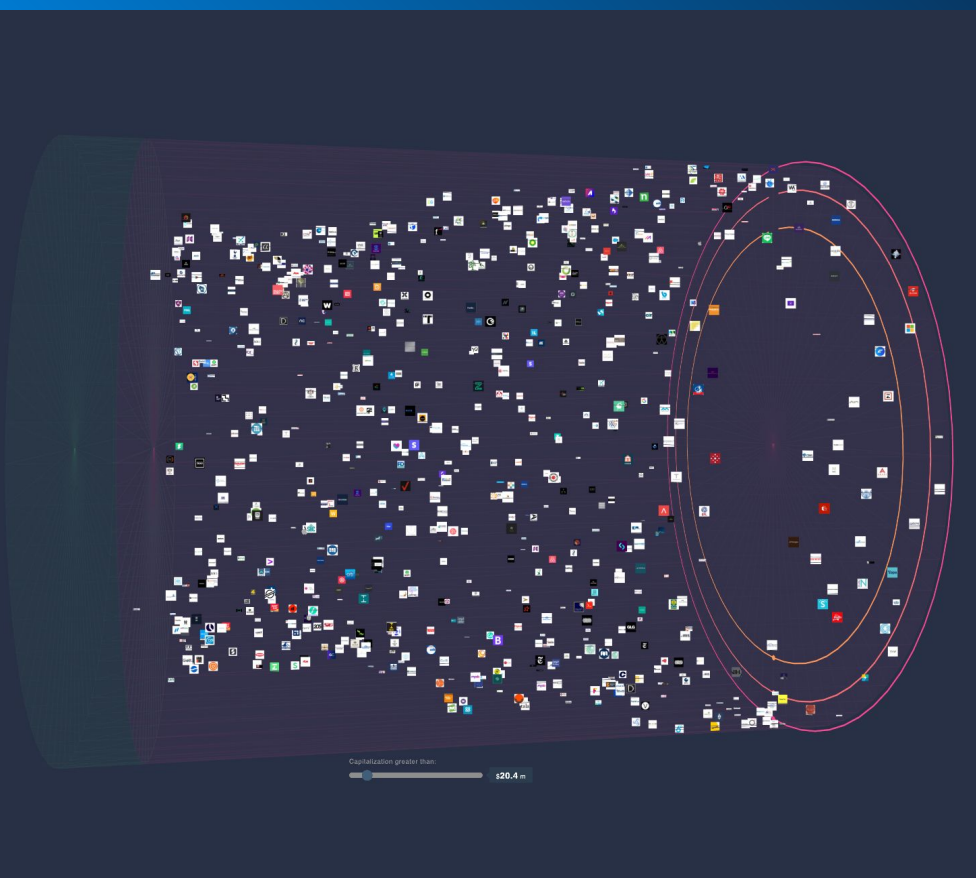
S — Save time and money on analyst training with a low-code solution

Y — You are the one who decides - purchase a white label solution or request creation-on-demand

Advanced Visualization.
3D Mindmaps Enhancement

Key Features

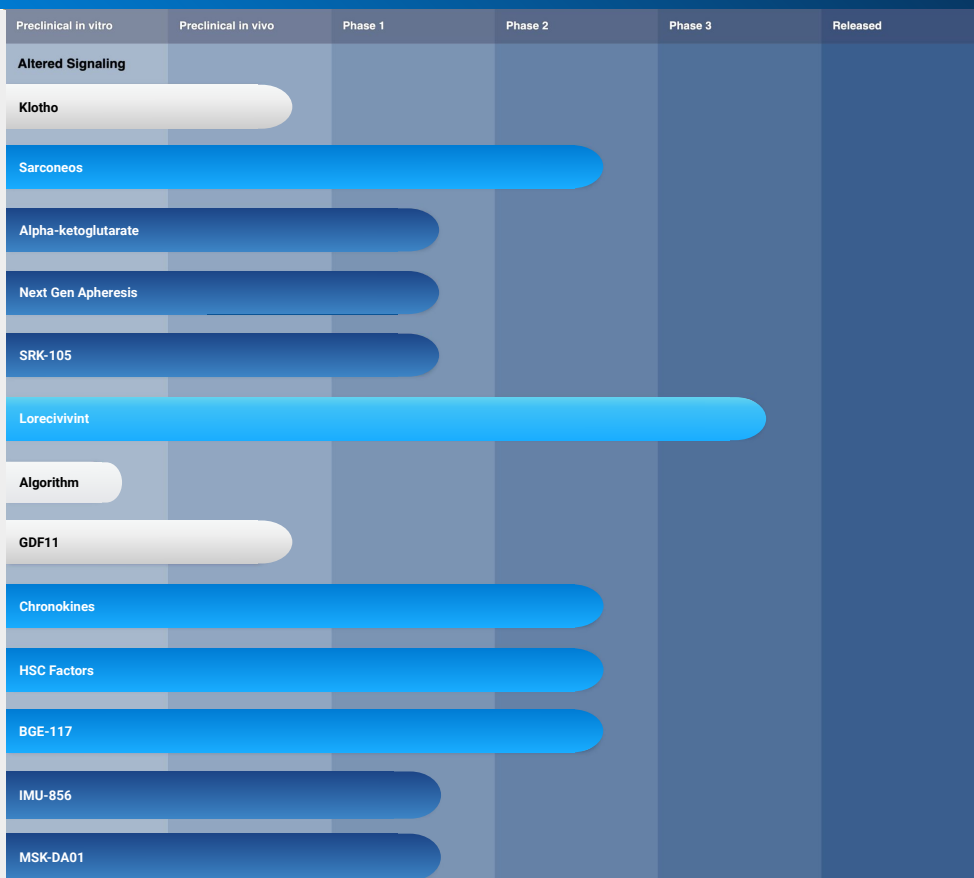**T** — Think in a multi-dimensional way

U — Uniqueness is what valued across the industries. Make your data stand-out

B — Bring the future you are heading for closer, by making right decisions about the market

E — Evolve with the state-of-the-art technological solutions for alternative data analytics

Clinical Trials Tracker

Preclinical in vitro	Preclinical in vivo	Phase 1	Phase 2	Phase 3	Released
Altered Signaling					
Klotho					
Sarconeos					
Alpha-ketoglutarate					
Next Gen Apheresis					
SRK-105					
Lorecivivint					
Algorithm					
GDF11					
Chronokines					
HSC Factors					
BGE-117					
IMU-856					
MSK-DA01					

- Constantly-growing database of completed and ongoing Longevity-related clinical trials

- Science-based market insights

- Ranking of therapeutic programs by disorders types

- Regional distribution of clinical trials programs

Automatic Generation of the Pharma Industry Analytical Case Study

W — Writing reports made easy!
Don't waste your time and money on market reports

O — Operate with the Machine Learning-based data insights

R — Reinforce your market analytics with zero efforts

D — Dedicate more time to things that matter

Why?

Patent Search

Patent Search | Patent E-register | Application Status | Help

Publication Type:

☑ Published   ☐ Granted

Application Date (National) ▾	From: mm/dd/yyyy To: mm/dd/yyyy	AND ▾
Title ▾	e.g. ONBOARD VEHICLE DIGITAL IDENTIFICATION TRANSMISSION	AND ▾
Abstract ▾	e.g. COMPUTER IMPLEMENTED	AND ▾
Complete Specification ▾	e.g. VEHICLE DIGITAL IDENTIFICATION	AND ▾
Application Number ▾	e.g. 3285/CHENP/2008	AND ▾
Patent Number ▾	e.g. 236542	AND ▾
Applicant Name ▾	e.g. SRM Institute of Science and Technology	AND ▾
Inventor Name ▾	e.g. Singh	AND ▾
Inventor Country ▾	e.g. INDIA	AND ▾
Inventor Address ▾	e.g. Delhi	AND ▾
Filing office ▾	e.g. Delhi	AND ▾

THE LEGAL STATUS IPO

☐ Application
☐ Protective document

PROTECTIVE DOCUMENT STATE

☐ 🟡 Valid
☐ 🔴 Invalid
☐ 🟡 Ceased to be effective

TYPE IPO

☐ Inventions
☐ Utility models
☐ Trade Marks
☐ Industrial designs
☐ International trademark registrations with distribution to the territory of Ukraine
☐ Copyright to the work
☐ Agreement on the transfer (alienation) of property rights to the work
☐ Copyright for an official work

Top 1000 results by filing date

Relative count of top 5 values

Assignees		CPCs
— On-Bright Electronics (Shanghai) Co., Ltd.	Inventors	3.3%
— Apple Inc.		2.8%
— Samsung Electronics Co., Ltd.		1.8%
— Immersion Corporation		1.5%
— Lutron Electronics Co., Inc.		1.2%

Expand

T — Thousands of patents on the Pharma Industry to track the latest developments across sub-sectors

E — Establish scientifically validated market analytics by implementing IP research

C — Create value proposition for users by ML-driven analysis of the existing patents

H — Harvest the information on the latest pharma-related IP breakthroughs

Services and Solutions Database

(K) Kick-start the solution with the same DSSM approach, allowing data management optimization
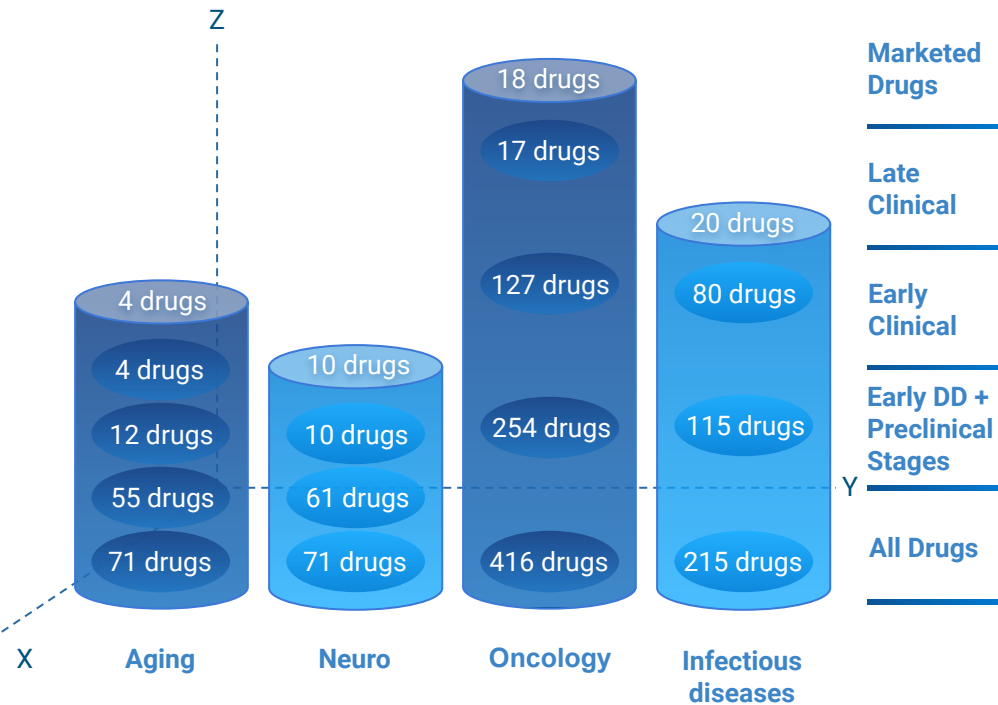
(N) Nested tagging approach for in-depth search

(O) Oftenly-updated and curated database to keep-up with the companies' changes

(VV) Vertical Value chain: B2B focus

Drug Discovery Phases Coverage

Cylinder chart data:

Aging: 4 drugs, 4 drugs, 12 drugs, 55 drugs, 71 drugs

Neuro: 10 drugs, 10 drugs, 61 drugs, 71 drugs

Oncology: 18 drugs, 17 drugs, 127 drugs, 254 drugs, 416 drugs

Infectious diseases: 20 drugs, 80 drugs, 115 drugs, 215 drugs

Phase categories:
- Marketed Drugs
- Late Clinical
- Early Clinical
- Early DD + Preclinical Stages
- All Drugs

D — Drug Discovery Phases will be sourced via DSSM approach

R — Recalculation can be made anytime on-demand

U — Unified database will allow tagging any company according to their phase coverage

G — Global companies' coverage allow the creation of the most comprehensive database of its kind

Data-focused Tools and Solutions: Summary

Data visualization solutions to bring more clarity to the raw data

Intellectual Property and scientific-related data to indicate the actual company background

Investors and companies brought together to illustrate the under- and over-invested areas of the industry

Market stratification through the solutions and service the companies are currently offering

Data-focused Tools and Solutions
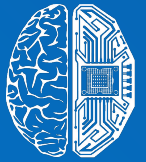
Market Intelligence Tools and Solutions

www.deep-pharma.tech

Automized SWOT Analysis

Our Approach

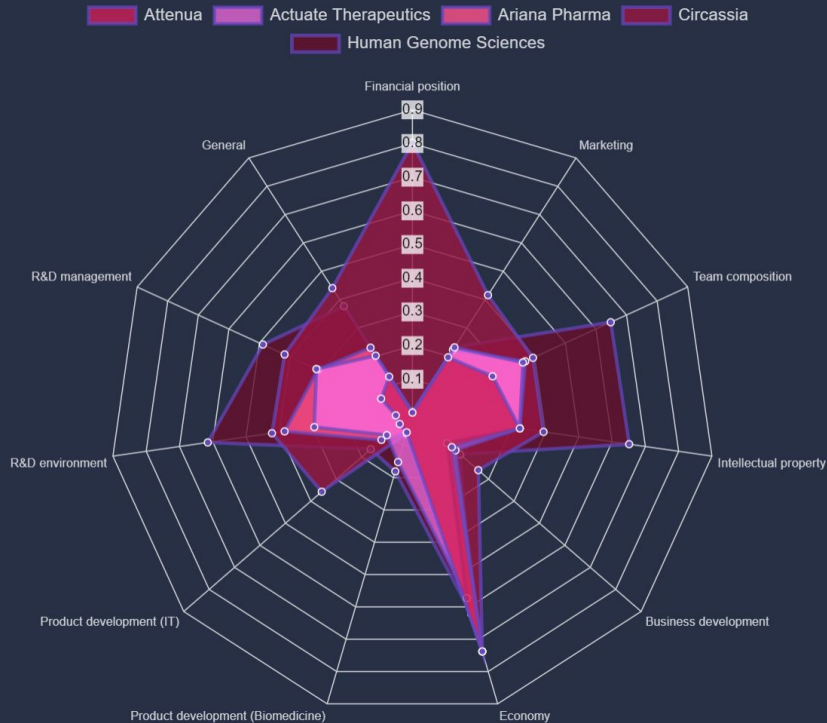### Radial Analysis of a Longevity-Related Company
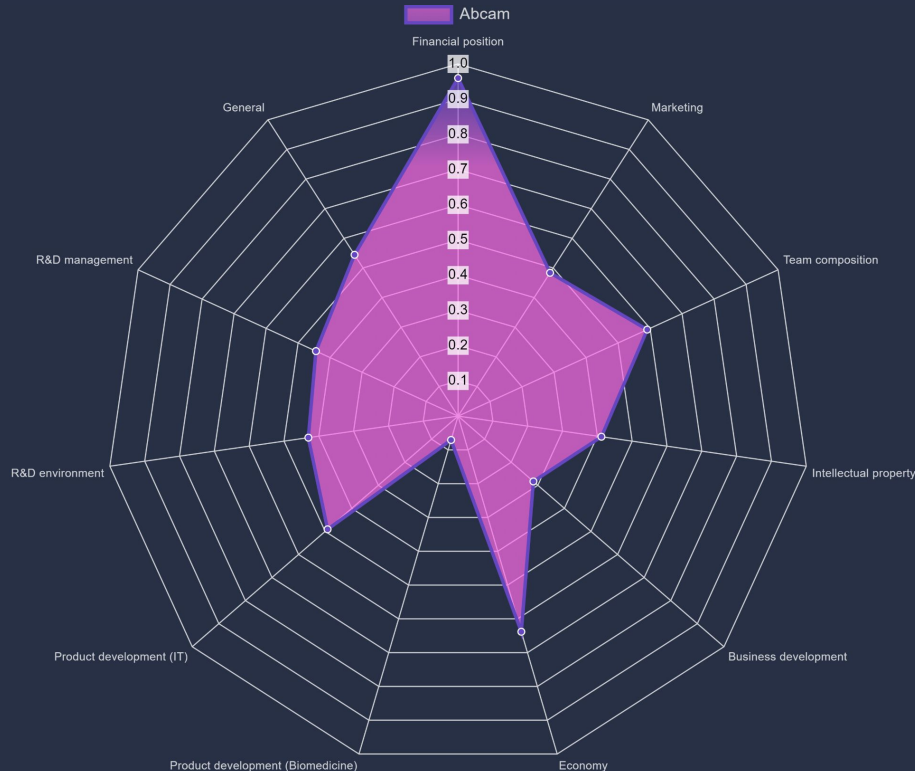
The tool is developed to visualize the overall ranking of an individual company

- 170 unique parameters
- Public and Private companies
- Any types of entities

- Due diligence
- Market intelligence
- Portfolio optimization

Gather — **Define** — **Analyse** — **Apply**
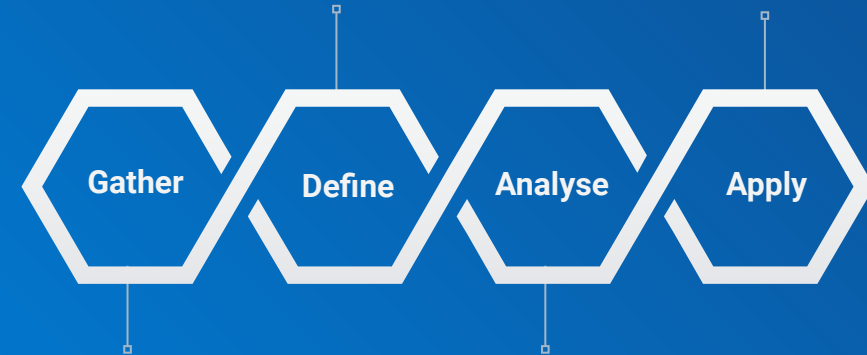
- Structured data
- Unstructured data
- Mixed data
- Alternative data

- Cutting-edge Natural Language Processing algorithms
- Cross-validation made by experts
- Industry-adjusted, as well as gross average constants

Automated Comparative Analysis

Radial Analysis of Five Longevity Related Companies

Attenua • Actuate Therapeutics • Ariana Pharma • Circassia
Human Genome Sciences

The tool is developed to compare a few selected companies by several hundred parameters

- Unlimited number of compared companies

- Entities from all industries and markets

- On-demand analytics and due diligence for one or multiple companies

- Comparison of hundreds of parameters in a matter of seconds

Private & Public Companies Cross Analysis

Why?

Private Company Data

Similar Public Companies' Data
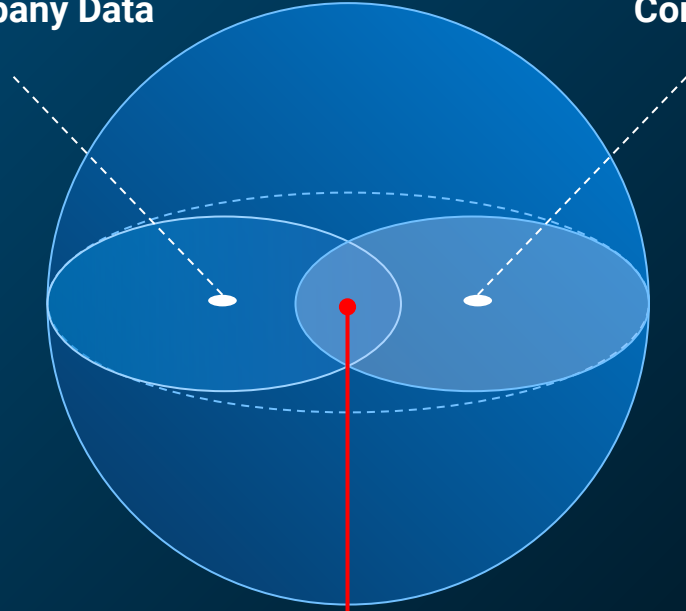
Precise Private Company Evaluation

R — Reverse the data scarcity among private companies for adequate assessment
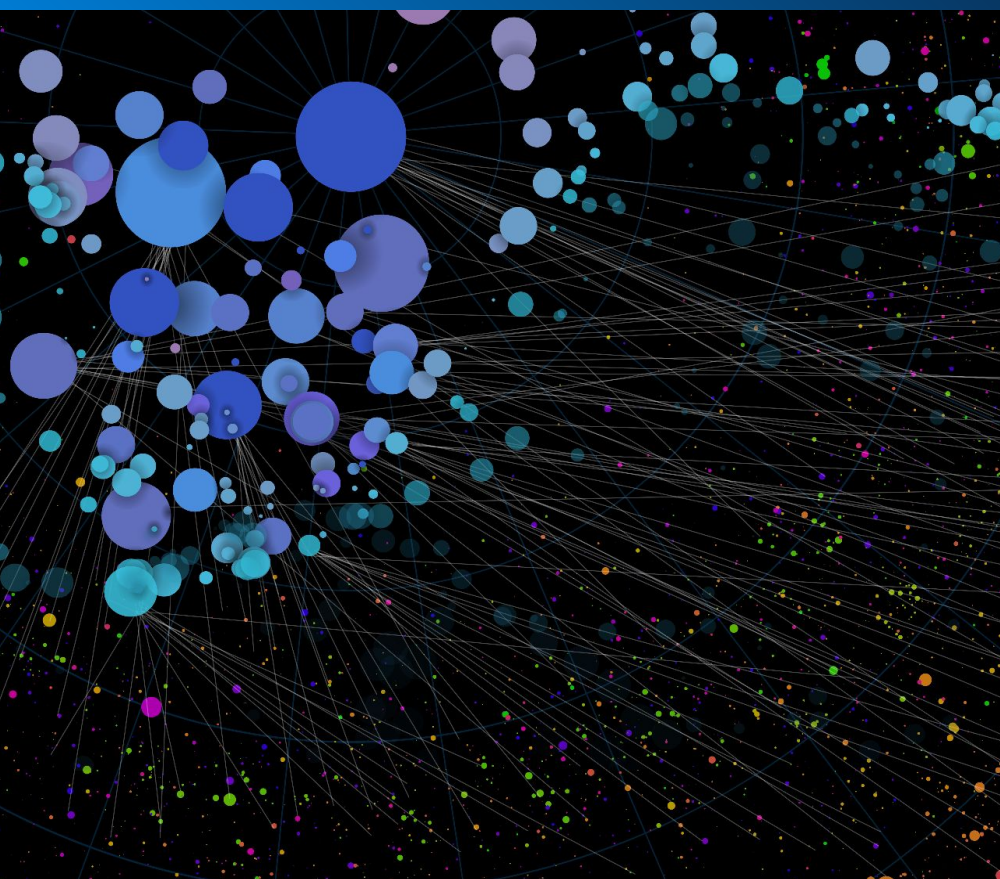
A — Accelerate private companies due diligence

T — Trace the trends of private and public markets for specific sectors

E — Estimate the growth potential of the late-stage companies

Cross-Industrial Comparative Analysis

V — Variety of parameters brought together to provide the meaningful market intelligence

I — Intersectoral and cross-sectoral entities assessment
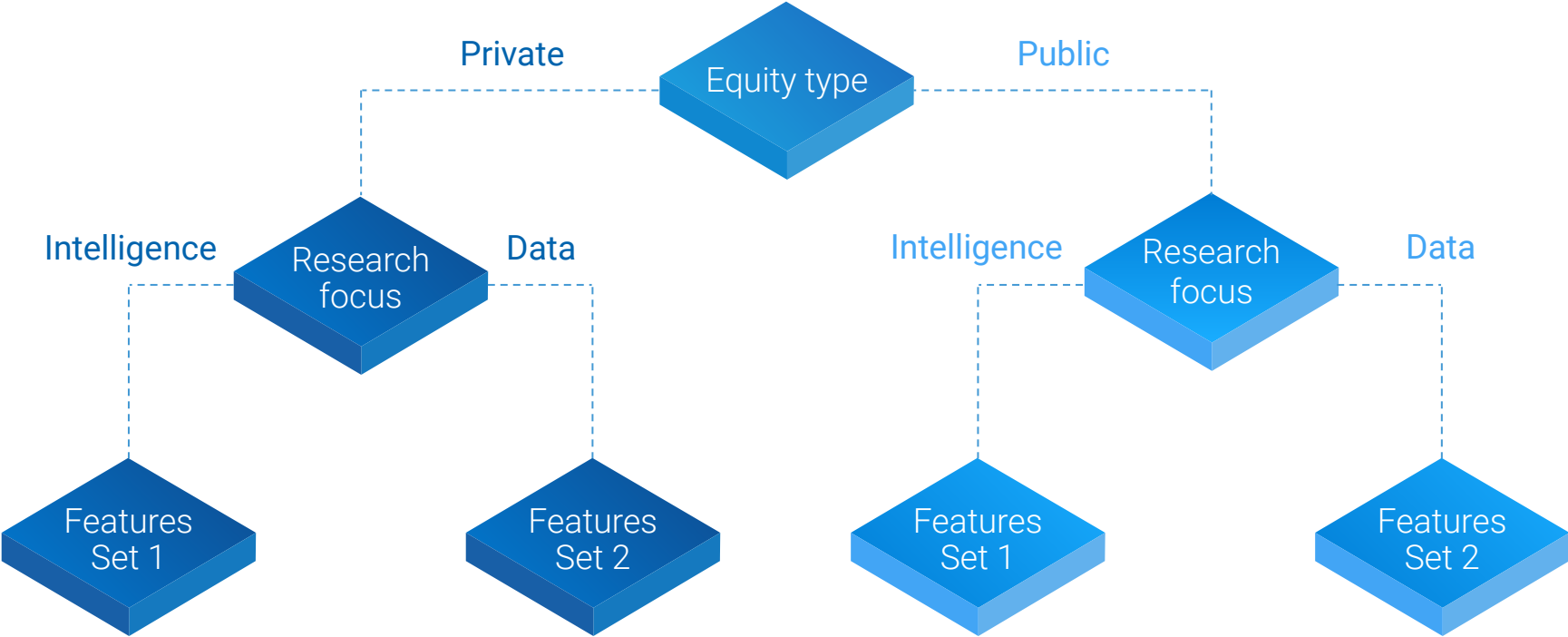
E — Entry and advanced levels of analysis suited for different types of users

W — Weekly-curated database for the latest news analysis across different topics

Tool Development Status: Under Development

Platform User Guide Decision Tree

Private

Public

Equity type

Intelligence

Research focus

Data

Intelligence

Research focus

Data

Features Set 1

Features Set 2

Features Set 1

Features Set 2

Market Intelligence Tools and Solutions: Summary

Private equity through the lens of data-driven solutions, showing the unique industry's insights

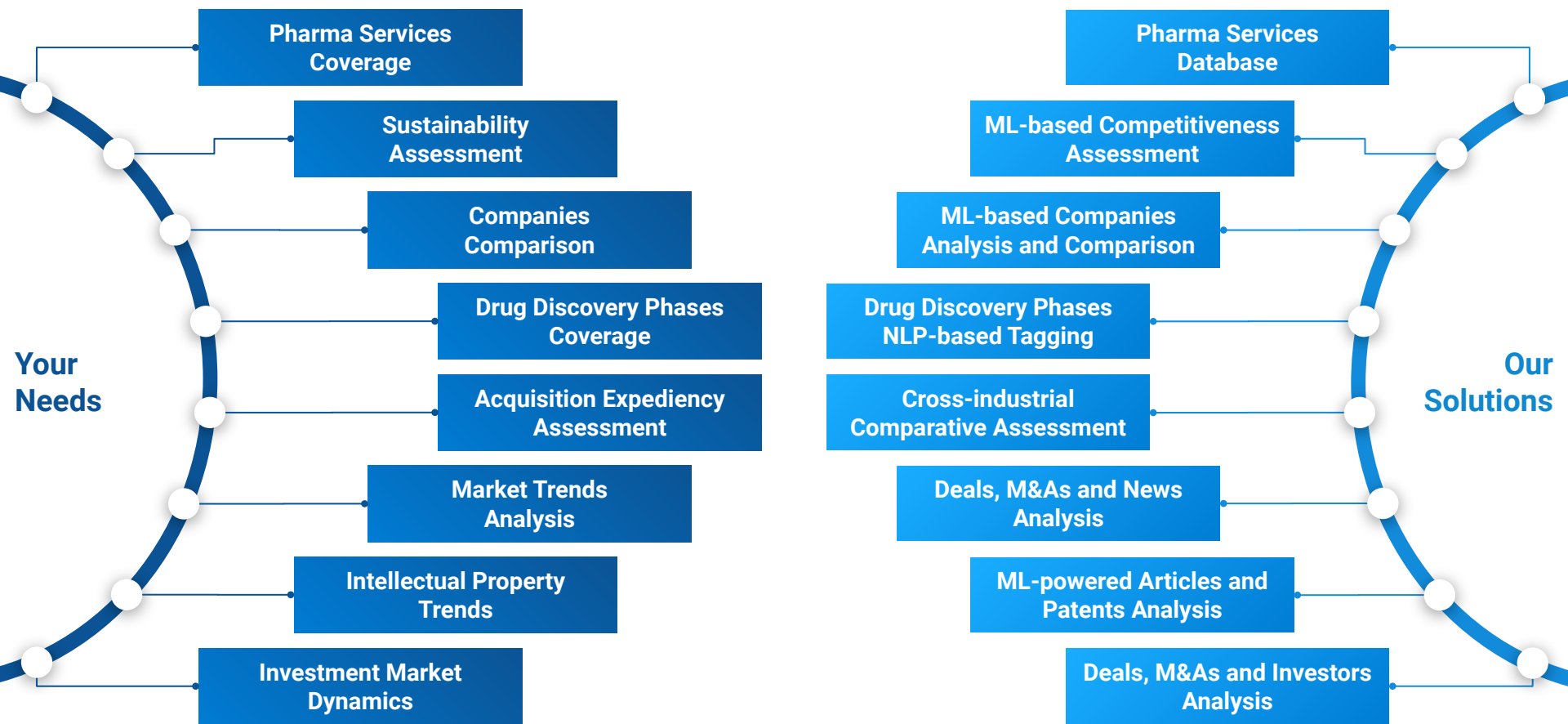AI-driven competitors analysis for the companies assessment

AI-driven investors matching approach to form the most efficient syndicate for your allocations

Public equity-based benchmarking to understand the future perspectives of the new market players

Market Intelligence Tools and Solutions

Proposition Summary

Proposition Summary: Your Needs and Our Solutions

Your Needs

- Pharma Services Coverage
- Sustainability Assessment
- Companies Comparison
- Drug Discovery Phases Coverage
- Acquisition Expediency Assessment
- Market Trends Analysis
- Intellectual Property Trends
- Investment Market Dynamics

Our Solutions

- Pharma Services Database
- ML-based Competitiveness Assessment
- ML-based Companies Analysis and Comparison
- Drug Discovery Phases NLP-based Tagging
- Cross-industrial Comparative Assessment
- Deals, M&As and News Analysis
- ML-powered Articles and Patents Analysis
- Deals, M&As and Investors Analysis

Proposition Summary

Deep Pharma Intelligence aims to provide an ecosystemic market intelligence solution for Pharmaceutical industry specialists, focusing on market-specific metrics and data for the AI in Pharma market, as well as general analytical solutions.

This precisely-designed solution will include data-focused market intelligence tools that provide maximal flexibility to the users. **The platform will also have a specific M&A and due diligence focus in order to provide valuable market insights for industry decision makers, optimizing the research-allocation process**.

This market intelligence solution will be a cloud-based analytical platform, encompassing both a set of pre-validated AI and Big Data Analytical system components developed for other projects in the Deep Knowledge Group consortium, as well as new unique intelligence approaches and technologies.

The flexibility of the platform development process will allow stakeholders to suggest new tools and features tuned to their specific needs, and **the overall development of the system will be made in stages so that the most important solutions (according to partner and stakeholder feedback) will be prioritized**.

While the analytical platform is going to be a solution available for many third parties, Deep Pharma Intelligence is ready to provide a wider range of additional benefits for its clients, which can be discussed separately.

We are open to a mutually beneficial cooperation
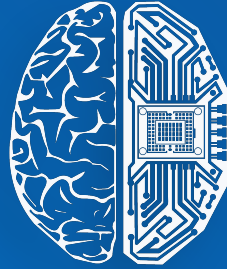
Deep Pharma Intelligence

E-mail: info@deep-pharma.tech | Website: www.deep-pharma.tech