MDOTM

AI-DRIVEN INVESTMENT SOLUTIONS

Unlocking Value With Analytical & Generative AI in Investments: Practical Use Cases

Tommaso Migliore, CEO and Co-founder - MDOTM Ltd

MDOTM
AI-DRIVEN INVESTMENT SOLUTIONS

WE ARE A
FINTECH
COMPANY

WE BELIEVE IN
SCIENCE-ROOTED
INVESTMENT DECISIONS

WE DEVELOP
ARTIFICIAL INTELLIGENCE
TO BUILD RELIABLE
PORTFOLIOS

OUR TEAM (MDOTM + MDOTM LAB)	60+ FINANCE PROFESSIONALS & CREATIVE INNOVATORS	40+ PHYSICISTS, ENGINEERS & DATA SCIENTISTS	$15M INVESTED IN R&D & IT
MDOTM LAB	35+ PROFESSORS, PHD & MASTER'S STUDENTS	6 PARTNER UNIVERSITIES	100+ RESEARCH PROJECTS CONCLUDED
OUR OFFICES	LONDON 125 Kingsway London, WC2B 6NH, UK	NEW YORK 219 W 49th St, New York, NY 10019	MILAN Via Passione 8, 20122 Milan

Our AI Platform

Sphere

Add speed & scale to your investments and client engagement with **Analytical** and **Generative AI**
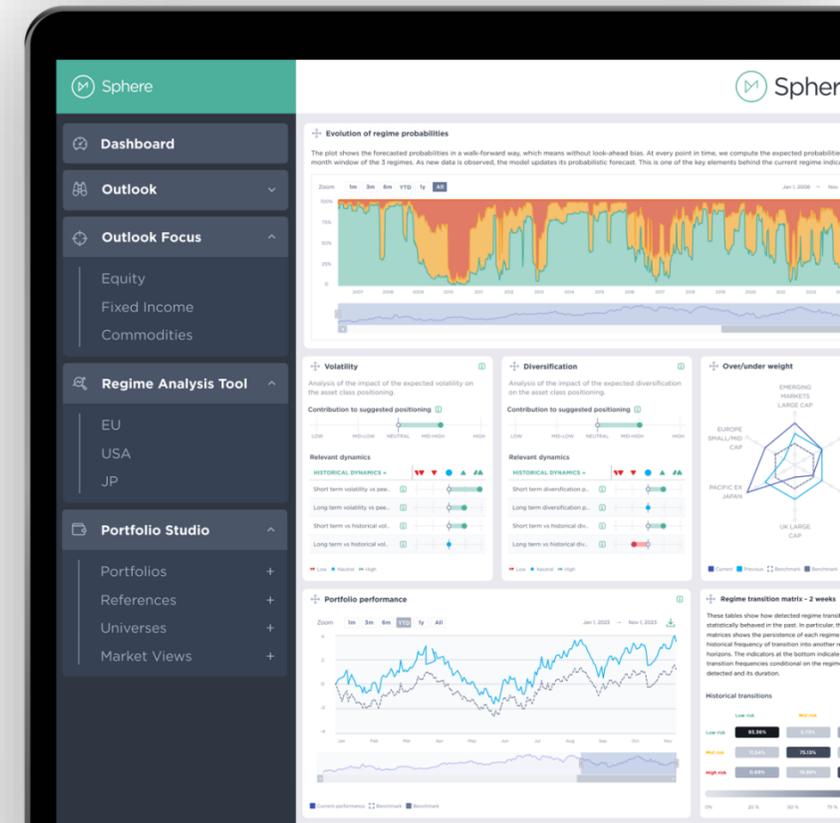
Our investment solutions are trusted by leading financial institutions

LAZARD
ASSET MANAGEMENT

Amundi
ASSET MANAGEMENT

Harbor
CAPITAL ADVISORS, INC.

UniCredit

BANCA PASSADORE & C.
BANCA PRIVATA INDIPENDENTE FONDATA NEL 1888

UnipolSai
ASSICURAZIONI

ZURICH

momentum
global investment management

Kempen

EUROMOBILIARE
ADVISORY SIM

BARINGS

RATHBONES

Volksbank

BANCA DEL SEMPIONE
SIMPLON BANK
BANQUE DU SIMPLON

MACQUARIE

BANCA
CREDINVEST

Banca
Patrimoni
Sella & C.

Sella
SGR

VALORI
ASSET MANAGEMENT

PEGASO
CAPITAL PARTNERS SA

BancaProfilo

BPS (SUISSE)

cherry
bank

KAIROS
a Julius Baer Group company

ABALONE
ASSET MANAGEMENT

AGENDA

- **Why AI Today**

- **The Two Branches Of AI**

- **Controlled Generative AI**

- **Client Use Cases**

Today Asset & Wealth Management is more complex and competitive than ever

The key challenges

Too much data

We are **constantly bombarded** by an **immense volume of data** from various sources and channels, inundating our senses and **demanding our attention**

Increasing market complexity

Capturing market dynamics, **explaining** performances and **reporting becomes harder** and more time-consuming

Mass personalization

Clients are demanding more personalized solutions. This puts pressure on operations and investments teams

Fee margins are getting tighter

Digital solutions, **passive investing and more competition puts pressure on margins** that become tighter and tighter

Firms use AI to improve quality, performance and marginality

The AI opportunity

Making Sense of Complexity

Today, the challenge is not so much about gathering data but rather it is about **interpreting and extracting value from it**

Customization at scale

AI can process **millions of data points** in seconds and build thousands of **custom portfolios simultaneously**

Automating reporting

Generative and **Analytical AI** can produce **human-like commentaries** with deep data analytics capabilities

Higher margins + faster growth

Investment firms that integrate **AI overperform peers** by **+8.1%** in **AuM growth** and **+7.7% in revenue growth**

Sources: Deloitte: "Wealth and Asset Management 4.0"; MDOTM: "The Science Behind Sphere"

UNDERSTANDING THE TECHNOLOGY
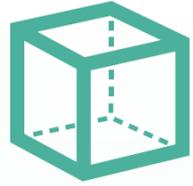
Analytical AI
Solve complex problems

What It Does:
Solves complex & time-varying analytical problems

Use Cases:
- Portfolio Optimisation
- Regime Analysis
- Factor Modelling
- Risk Management

Examples:

MDOTM
AI-DRIVEN INVESTMENT SOLUTIONS

Sphere

DataRobot

Qlik

arabesque

clarifai
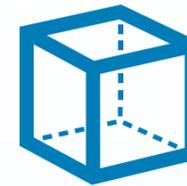
Generative AI
Retrieve, assemble, generate

What It Does:
Generate new content from a text or unstructured input

Use Cases:
- Question answering
- Information retrieval
- Text generation
- Summarization

Examples:

ChatGPT

Ps

Midjourney

Canva

DALL·E

Google AI
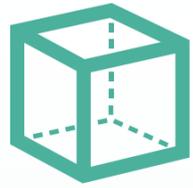
Analytical AI
## Solve complex problems

Example: weather forecasting

Data Collection
Meteorologists collect **vast amounts of data from various sources** such as satellite imagery, weather stations, and radar systems

Analysing & Learning
They analyse past weather patterns, seasonal variations, and atmospheric conditions to **identify correlations and anticipate weather trends**

Forecasting
They make **forecasts about upcoming weather conditions**, predicting phenomena like rainfall or temperature fluctuations

Generative AI
Retrieve, assemble, generate

Example: writing text

Learning from very large datasets

Tokenization

MDOTM	IS	A	COMPANY	THAT	X

Words Embeddings

0 — 1

| COMPANY ON | .35 .29 .15 .08 .25 .27 .09 .19 .25 .25 .26 .34 .16 .27 .33 .17 .33 .30 .34 .13 .41 .34 .23 .21 .31 |

Encoded Output

New output generation

Probability

provides	AI-driven	investment	solutions
has	a	platform	called	Sphere
was	founded	in	1989
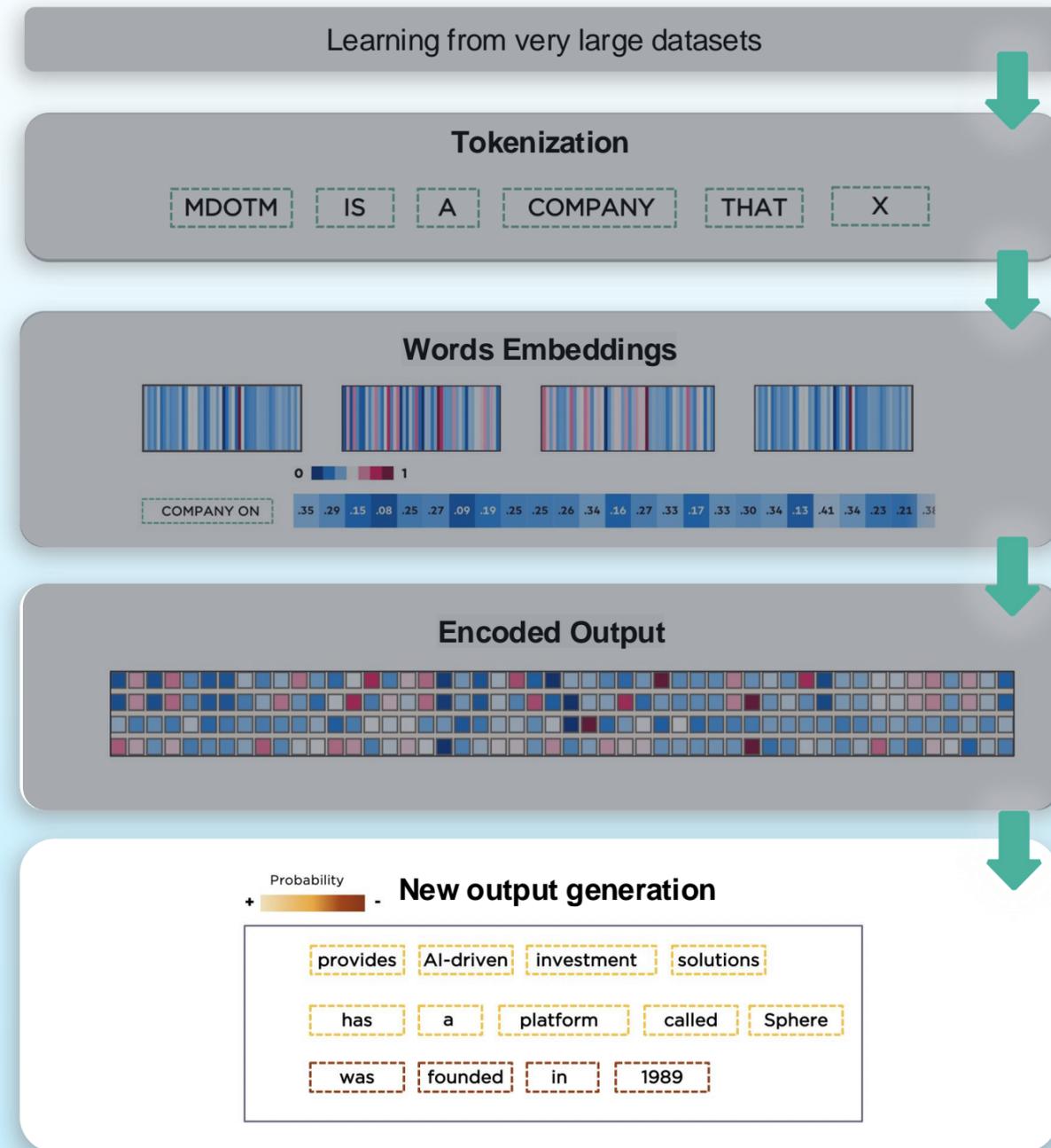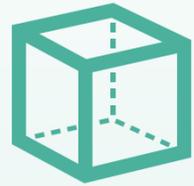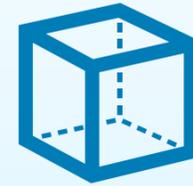
Analytical AI + Generative AI

$10 - 15 \times 100$

500×92.5

41×31

$\tan(30)$
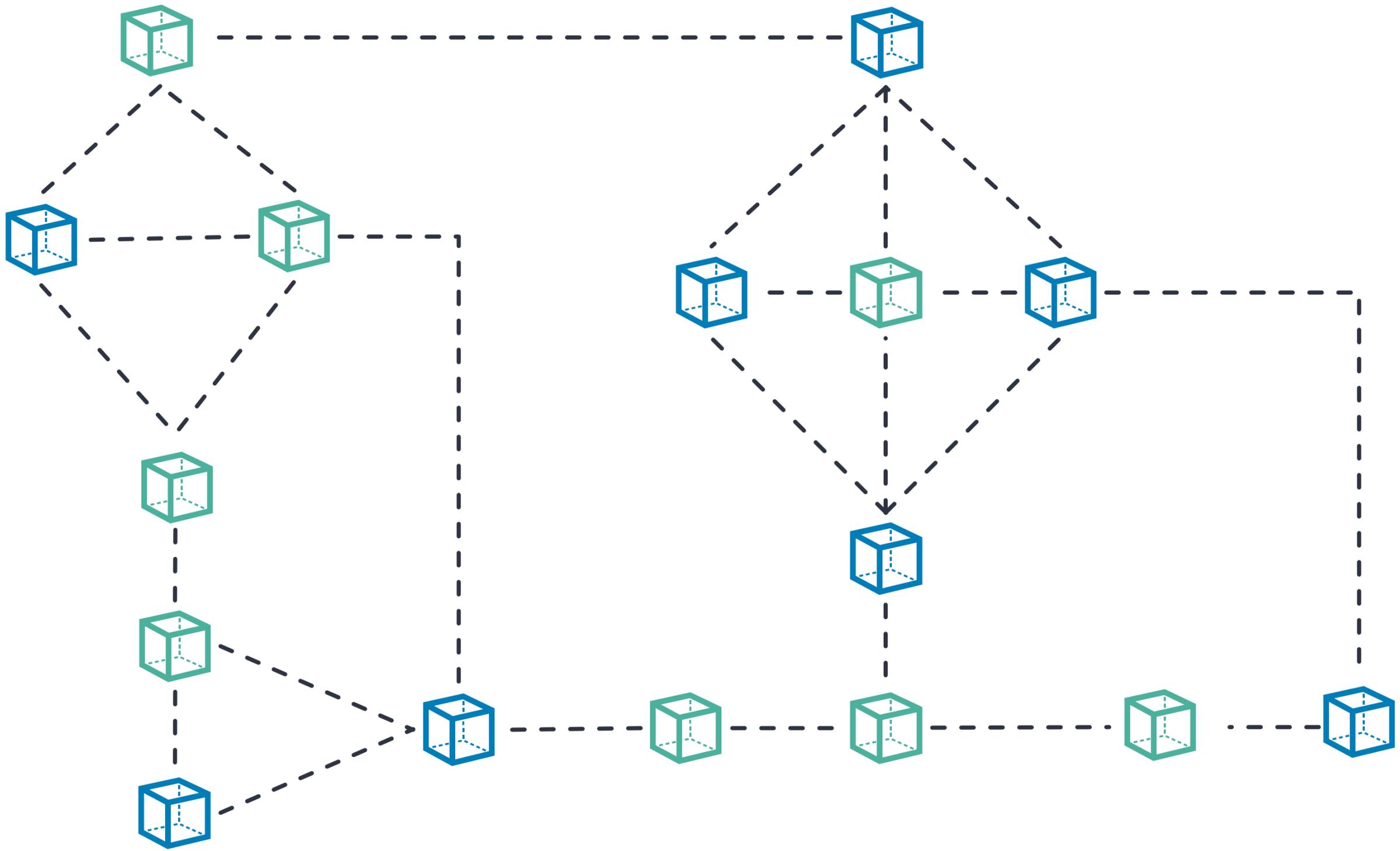
Tax Deductions
$2500
1250.50
129
45
4100
52.49
101.012

_____

Investing Use Case 1: Solve Specific Tasks

Human Trigger

1 GENERATIVE AI

Understands the question, **gathers and enriches** available data

2 ANALYTICAL AI

Computes a **mathematical solution** leveraging large datasets

3 GENERATIVE AI

Uses the underlying data to **generate a written explanation** in natural language

Solution

The user visualises the output
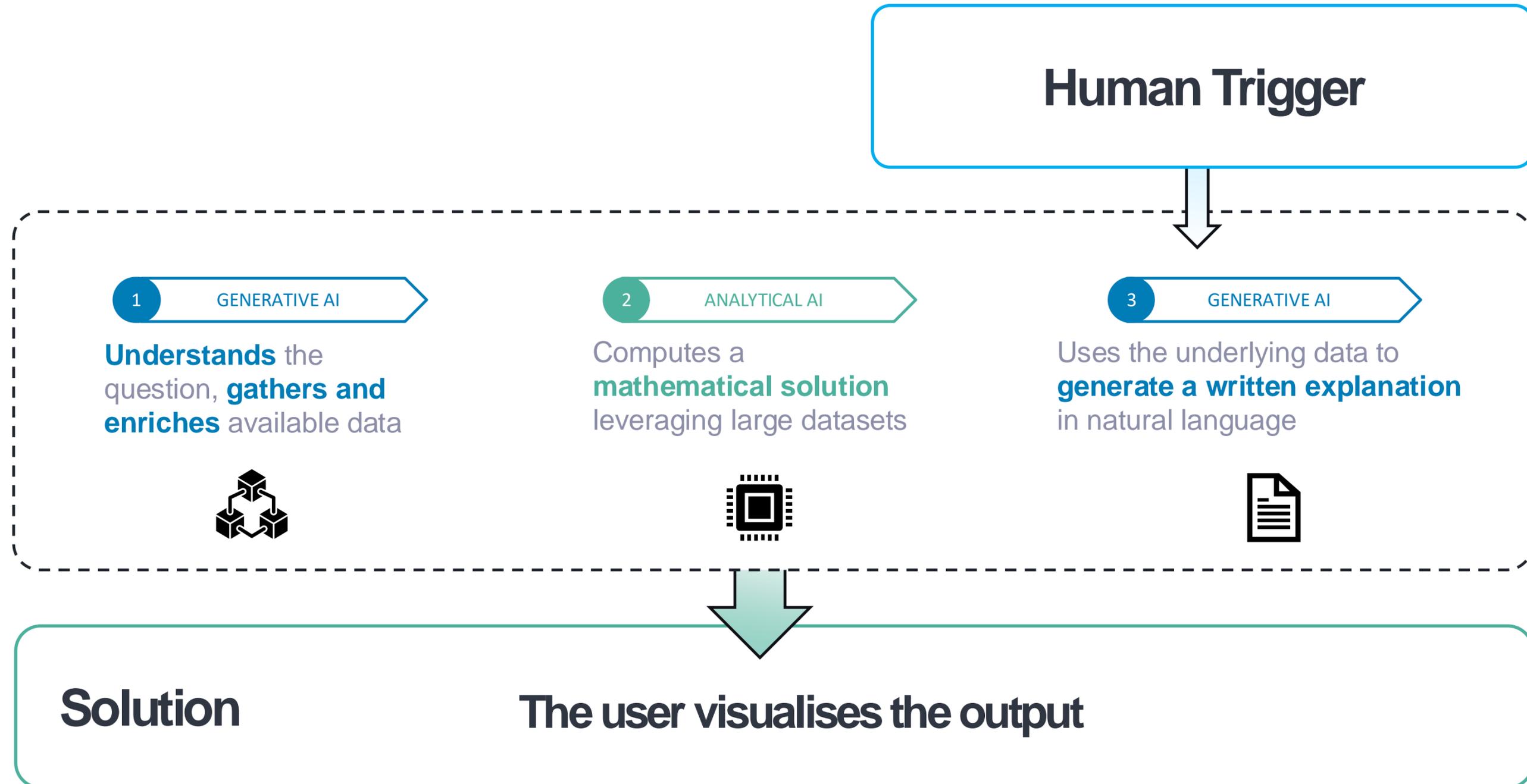
Investing Use Case 2: Investment Companion

Data-Driven Trigger

1 ANALYTICAL AI	2 GENERATIVE AI	3 ANALYTICAL AI	4 GENERATIVE AI
Detects an anomaly and reacts from a data change	Gathers and **enriches available data**	Starts an **automated analysis routine** using large datasets	Uses the underlying data to **generate a report with explanations**

Solution

The user visualises the output
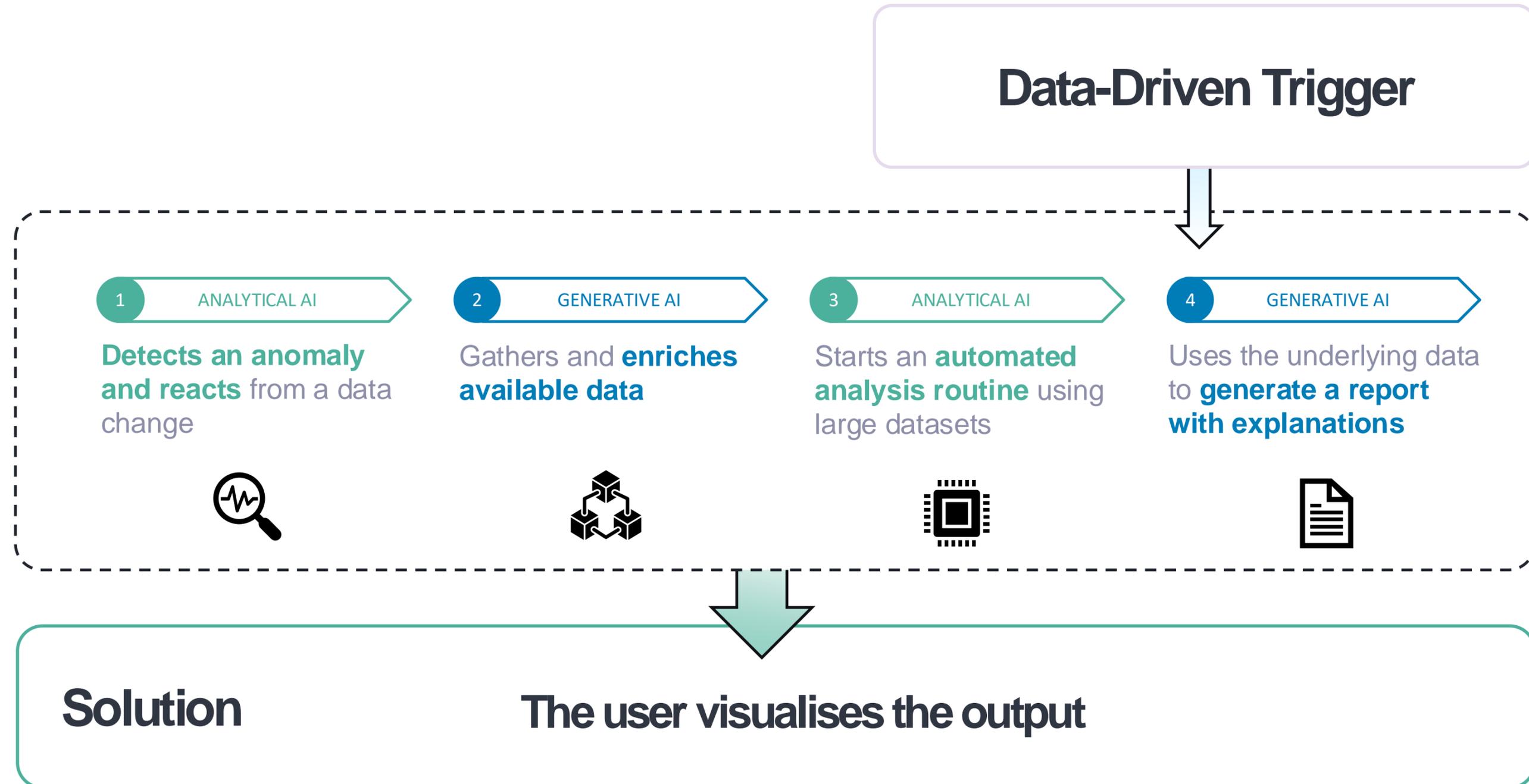
MDOTM's Application in Asset Management

Analytical AI
Solves complex problems

BIG DATA

Non-Chronological Learning

To create a **probabilistic forecasting** on expected returns and var-covar matrix
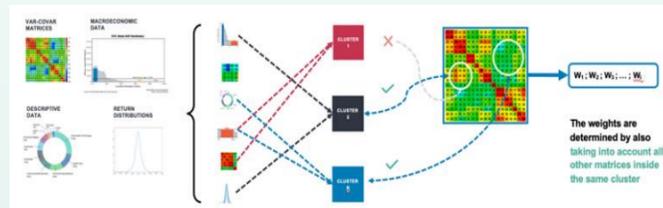
Regime Analysis

To **evaluate market risk framework** and the precision of estimates and tail risk

Sphere's AI Calculations

MDOTM's Application in Asset Management

Generative AI
Retrieve, assemble, generate

Controlled Gen AI Process
- Data check
- Coherence Analysis
- Data Enrichement
- Prompt Engineering
- Output Consistency

### Specialized Language Model

ChatGPT

Gemini

Output Generation

Proposal commentary - ChatGPT

Exposure Analysis

The proposed portfolio shows significant changes in its exposure to different asset classes, geographies, and micro asset classes. The most relevant changes are:

- Macro Asset Class: The weight of Money Market has decreased by **4.99%**, while Equity has increased by **10.50%**. Fixed Income has decreased by **8.69%**. Alternative has been added with a weight of **3.16%**.
- Geography: The weight of USA and Canada has decreased by **6.66%**, while Europe has increased by **8.02%**. Emerging Markets has decreased by **4.56%**, and Global has been added with a weight of **3.18%**.
- Micro Asset Class: The weight of Geographic has increased by **25.37%**, while Money Market has decreased by **4.99%**. Financials has decreased by **3.37%**, while Alternative has been added with a weight of **3.16%**.

These changes reflect a shift towards Equity and Europe, while reducing exposure to Money Market and USA and Canada. The addition of Alternative and Global may provide diversification benefits, while the increase in Geographic exposure may lead to higher concentration risk.

Market Scenario

The proposed portfolio is designed to perform well in a Low-Risk regime, with a probability of

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Analytical AI
Solves complex problems

Gathers Data

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Human Trigger

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Exposure Analysis

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- Macro Asset Class: The weight of Money Market has decreased by **4.99%**, while Equity has

Our AI:
built to power millions of portfolios

A proprietary AI infrastrucure that can be used by any asset & wealth manager

Since 2015, MDOTM invested over $15 million in building its proprietary AI R&D and IT infrastructure to understand how financial markets work and leverage their deep underlying dynamics. By collaborating with top universities worldwide in its own research hub – the MDOTM Lab – the company has piooneered some of the most advanced technologies on the market for scenario analysis, market regime forecasting, complex portfolio rebalancing and portfolio construction at scale

Sphere

Modern & Clean UI/UX
Analytical and Generative AI-powered features are embedded in a easy to navigate platform that can be used directly or seamlessly integrated via APIs in any other investment tool or existing infrastructure

Controlled Generative AI
AI's explainability layers are processed in a proprietary prompt engineering called «Controlled Generative AI» that uses a third-party LLM model to verbalize the insights into text

Analytical AI's Explainability Layers
Proprietary & automated data-analysis framework to identify which risk factors or return drivers affected the AI's investment decisions and what market view is implied in the current portfolio positioning.

Analytical AI Engine
Proprietary Analytical AI architecture that consist of unique implementations of Deep Neural Networks, Random Forests and Hidden Markov Models to perform regime analysis, security selection, risk-return estimantion and advanced portfolio construction

Core Back-end
Proprietary data architecture integrated with third-party data providers and cloud computing to run automatic data cleaning routines to feed & allow AI models's continuous learning

AI USE CASES IN INVESTMENT MANAGEMENT

AI Use Cases In Investment Management

1. AI-DRIVEN INVESTMENT INSIGHTS

Expand your team's investment perspective with unbiased investment insights
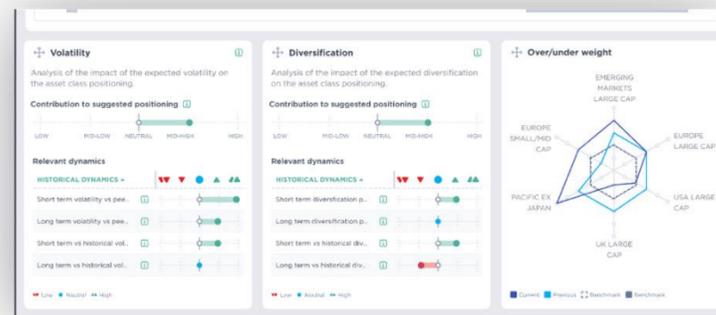
Common use cases:

> Investment Committees' Strategic and Tactical Asset Allocation
> Multi-Asset Investment Teams
> Quantitative input within client's model construction
> Signals for PMs

Used by:

– Chief Investment Officers
– Investment Committee
– Investment Strategists
– Portfolio Managers

2. PORTFOLIO REBALANCING AT SCALE

Achieve a smooth and optimal portfolio construction that reduces deviations from your targets
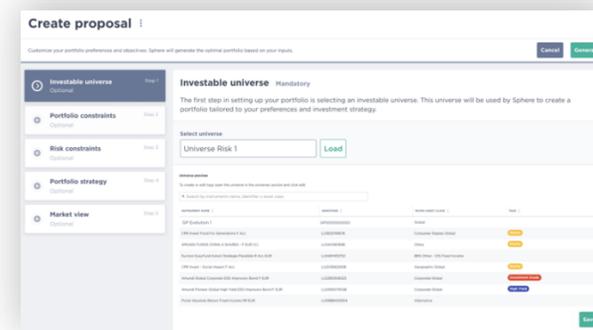
Common use cases:

> Fund managment, ETFs, Segregated Accounts, Personalized Mandates
> Discretionary mandates
> Wealth Management Advisory Activity
> AMC (Actively Managed Certificates)
> Direct Indexing

Used by:

– Chief Investment Officers
– Portfolio Managers
– Multi-Asset Team
– Advisory Team
– Financial Advisors & Private Bankers

3. StoryFolio

Enhanced portfolio understanding with Automated Generative AI commentaries

Common use cases:

> Individual Portfolio Commentaries
> Wealth Management Clients' Commentaries
> Discretionary Mandates
> Model Portfolio Delivery

Used by:

– Distribution
– Portfolio Managers
– Multi-Asset Teams
– Advisors & Relatioship Managers
– Financial Advisors/Private Bankers

SPHERE'S MARKET VIEW

SPHERE'S MARKET VIEW 1 YEAR

- **Medium risk**, coming increasingly from equity component while fixed income improves

- **Differs** from current market recessionary narrative. Risk forecasts increased, but far from levels consistent with recent recessions and/or large market corrections

- Despite recent reductions, favours **marginal long positions on selected risky assets**
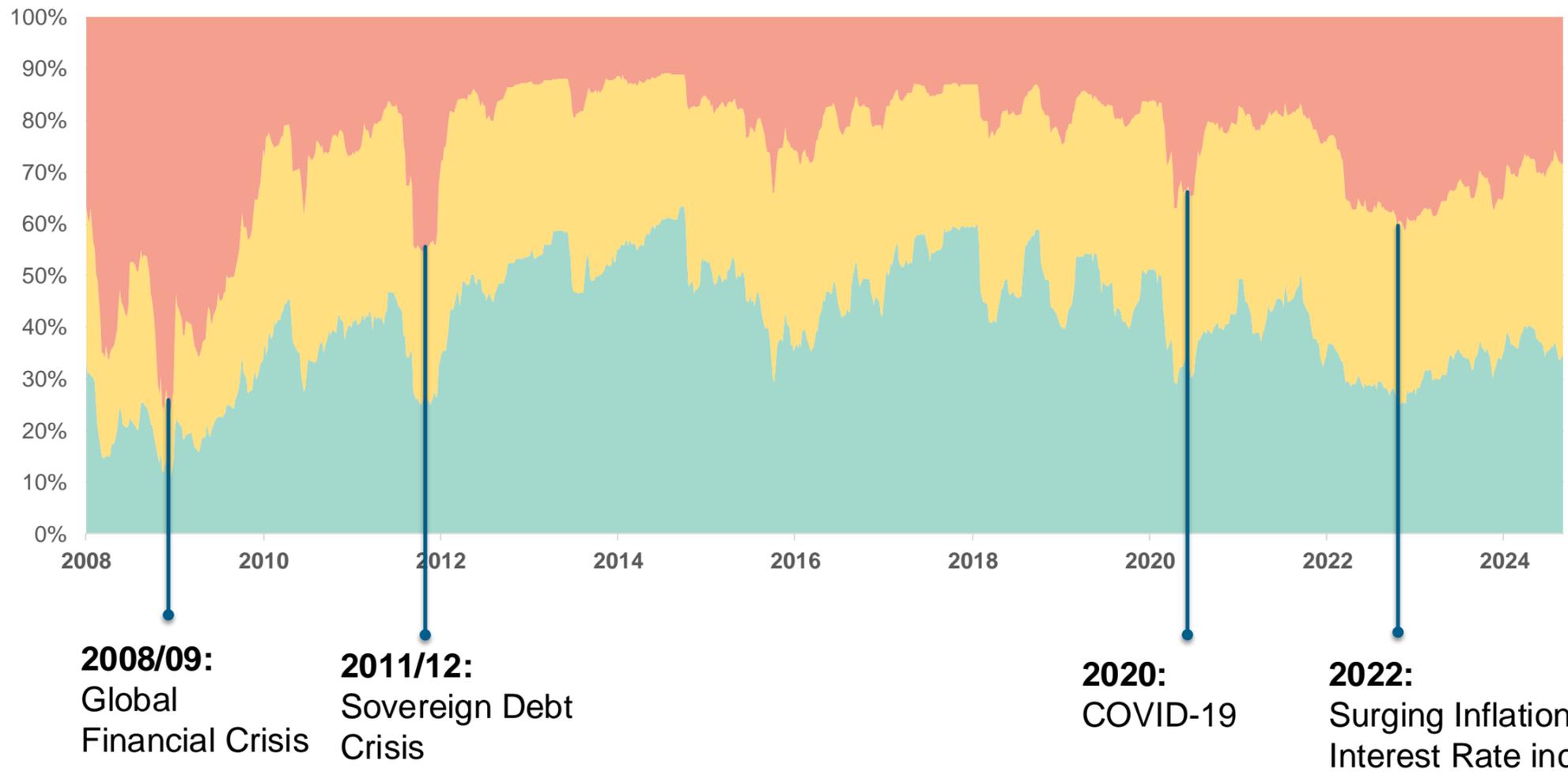
	Regime A (Low Risk)	Regime B (Mid Risk)	Regime C (High Risk)
Expected Probability (Current)	**34.61%**	**37.02%**	**28.37%**
Historical Average Probability (from 2003)	45.19%	30.58%	24.23%

TODAY:
- Regime C <40%
- A Regime higher than C

2008/09: Global Financial Crisis

2011/12: Sovereign Debt Crisis

2020: COVID-19

2022: Surging Inflation and Interest Rate increase

EQUITY: Mild Overweight

- Sphere's view on Equities is **positive**, supported by **good risk-adjusted returns** expectations and resilient fundamentals

- More caution than before due to **deteriorating risk assessment**, captured by HMMs, and signals of short-term market rotations away from growth and cyclical dynamics

Geo-focus:

- **US** deemed high return/high risk bet looking forward. Promising, but unstable given sustainability of debt and AI-driven valuations

- **Europe** deemed less risky, but offers lower remuneration as well and faces macro slowdown

- **Japan** considered less attractive now, as concerns of return compression from polict tightening renders it a riskier investment

FIXED INCOME: Neutral

- **Neutral allocation with slightly aggressive selection** on duration in Fixed Income, as risks decidedly reduce below 2022-2023 levels.
    - Favours pure duration exposure through govies mid-long curve portions
    - Prefers spread at lower rating and lower maturity

- **Negative expected correlation** in 2025 is once again a positive contributor to risk management, favouring a slight higher risk-taking than otherwise

- **Overweight considered less efficient** in comparison to equity and given 2-sided risk still persists, given global inflationary drivers

- Strategic opportunity remains on **carry-type positions on spread assets**, given low default rates and contained risk. Only efficient enough on selected speculative segments, and the most subject to review in case of a faster-than-anticipated slowdown

EU

DURATION: 3

CREDIT: 3.5

US

DURATION: 3.5

CREDIT: 4

COMMODITIES: Neutral

- Caution on commodities, which present **ascending risk levels** and, aside for **Gold**, show deteriorating macro support, especially from US slowdown and Chinese contracting demand.

- Given higher diversification in Fixed Income, Commodities also "lose" part of their appeal which supported the view since now.

Q&A
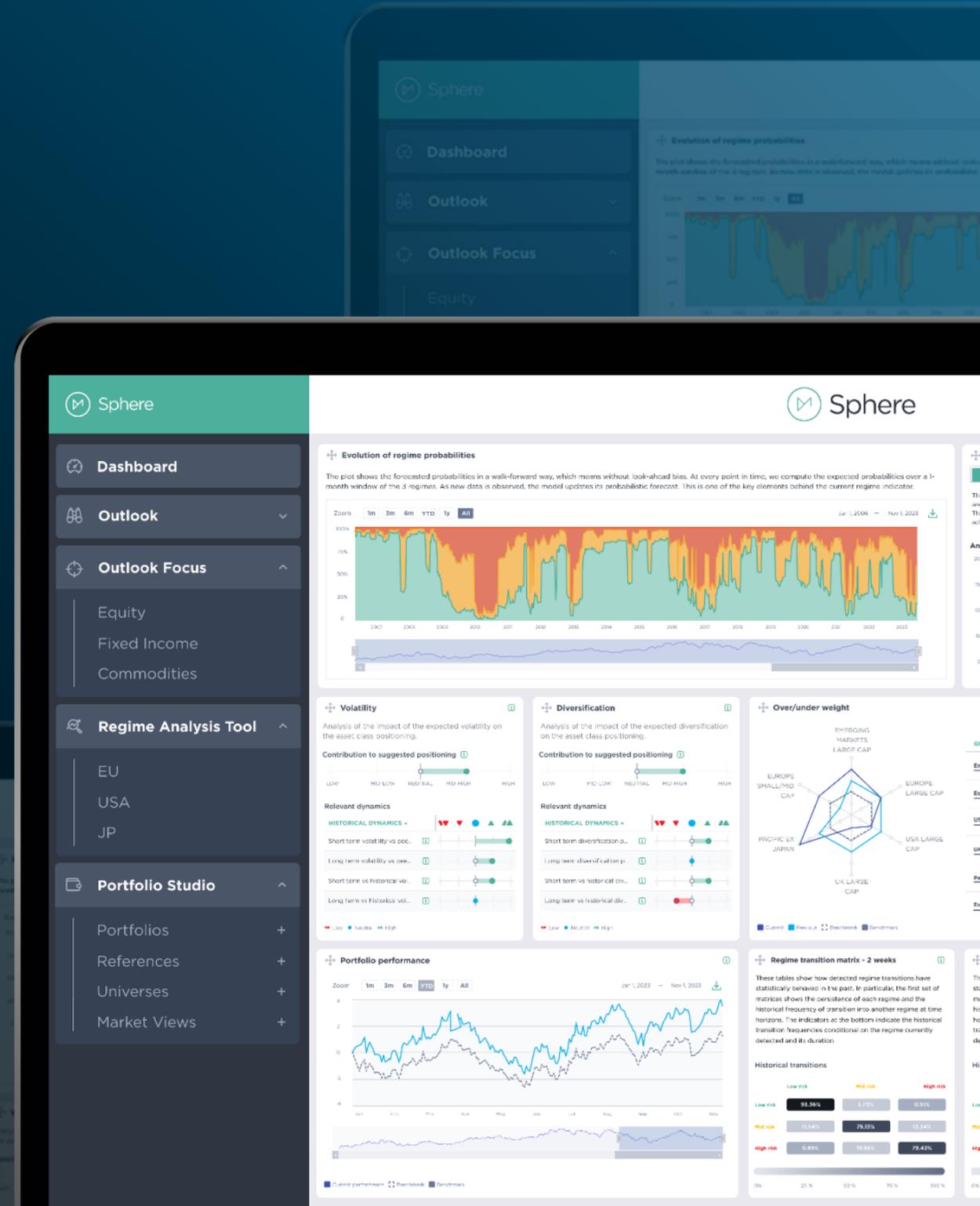
MDOTM Ltd. is a global provider of AI-driven investment solutions for Institutional Investors. Founded in London in 2015, the company has a team of over 100 data scientists, engineers, and finance professionals. MDOTM Ltd. provides Portfolio Advisory and Asset Allocation services to Banks, Insurance Companies, Family Offices, Pension Funds, Wealth and Asset Managers. Numerous financial institutions across the UK, Europe, and the US leverage MDOTM Ltd.'s advisory and its AI platform to support their investment process. Wealth and Asset Managers. Numerous financial institutions across the UK, Europe, and the US leverage MDOTM Ltd.'s advisory and its AI platform to support their investment process.

Top 100 AI Providers in the World

Fintech Global Awards

Best Asset Management Solution US

Financial Services Review Awards

Best Product of the Year

Global Fintech Awards

Excellence in Fintech

Global Investment Awards

MDOTM
AI-DRIVEN INVESTMENT SOLUTIONS

Signatory of:

PRI | Principles for Responsible Investment

WEALTHTECH 100

AIFINTECH 100

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