MDOTM

AI-DRIVEN INVESTMENT SOLUTIONS

momentum

global investment management

Tommaso Migliore
CEO & Co-Founder of MDOTM Ltd

WE ARE A
FINTECH
COMPANY

WE BELIEVE IN
SCIENCE-ROOTED
INVESTMENT DECISIONS

WE DEVELOP
ARTIFICIAL INTELLIGENCE
TO BUILD RELIABLE
PORTFOLIOS

MDOTM
AI-DRIVEN INVESTMENT SOLUTIONS

What do the most-sophisticated Investors think about AI?

RAY DALIO
FOUNDER OF BRIDGEWATER ASSOCIATES

«AI is extremely powerful. At Bridgewater, **we use it to work in parallel with our managers** to produce better investment decisions»

KENNETH GRIFFIN
CEO & FOUNDER OF CITADEL

«Balancing the influx of new tech like AI with **the power of the human mind is key for better decision-making** in the financial markets»

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PORTFOLIOS

OUR TEAM
(MDOTM + MDOTM LAB)

110+
FINANCE PROFESSIONALS & CREATIVE INNOVATORS

60+
PHYSICISTS, ENGINEERS & DATA SCIENTISTS

Signatory of:
PRI Principles for Responsible Investment
MDOTM is the first AI-driven advisor to sign the Principles for Responsible Investment (UNPRI)

OUR OFFICES

LONDON
125 Kingsway London, WC2B 6NH, UK

MILAN
Via Passione 8, 20122 Milan

NEW YORK
219 W 49th St, New York, NY 10019

Our solutions

Portfolio Advisory

Bespoke AI-driven portfolios at security level
(ISIN & weights)

$1B+
ASSETS UNDER ADVISORY

Sphere

AI Support to the Investment Process

A platform that provides unbiased insights for your investment decisions

$70B+
ASSETS UNDER TECHNOLOGY

Our **clients** include

MDOTM

AI-DRIVEN INVESTMENT SOLUTIONS

#1 ARTIFICIAL INTELLIGENCE & COMPLEXITY

$124 TRILLION
WORTH OF MARKET CAP IS TRADED ON GLOBAL EXCHANGES
(SOURCE: WFE)

3+ MILLION
STOCK MARKET INDICES

70+
GLOBAL MACRO EVENTS

2.5 x 10^{18} BYTES
OF NEW DATA IS CREATED EVERY SINGLE DAY
(SOURCE: IDC)

1000X
IS HOW MUCH COMPUTING P
GROWN OVER THE PAST 20 YEARS
(SOURCE: JURVESTON, K

THE PROBLEM

Financial markets become

More complex every day

80% OF THE MARKET
USE AUTOMATION TO SUPPORT INVESTMENT DECISIONS
(SOURCE: CNBC)

150'000+
LISTED SECURITIES

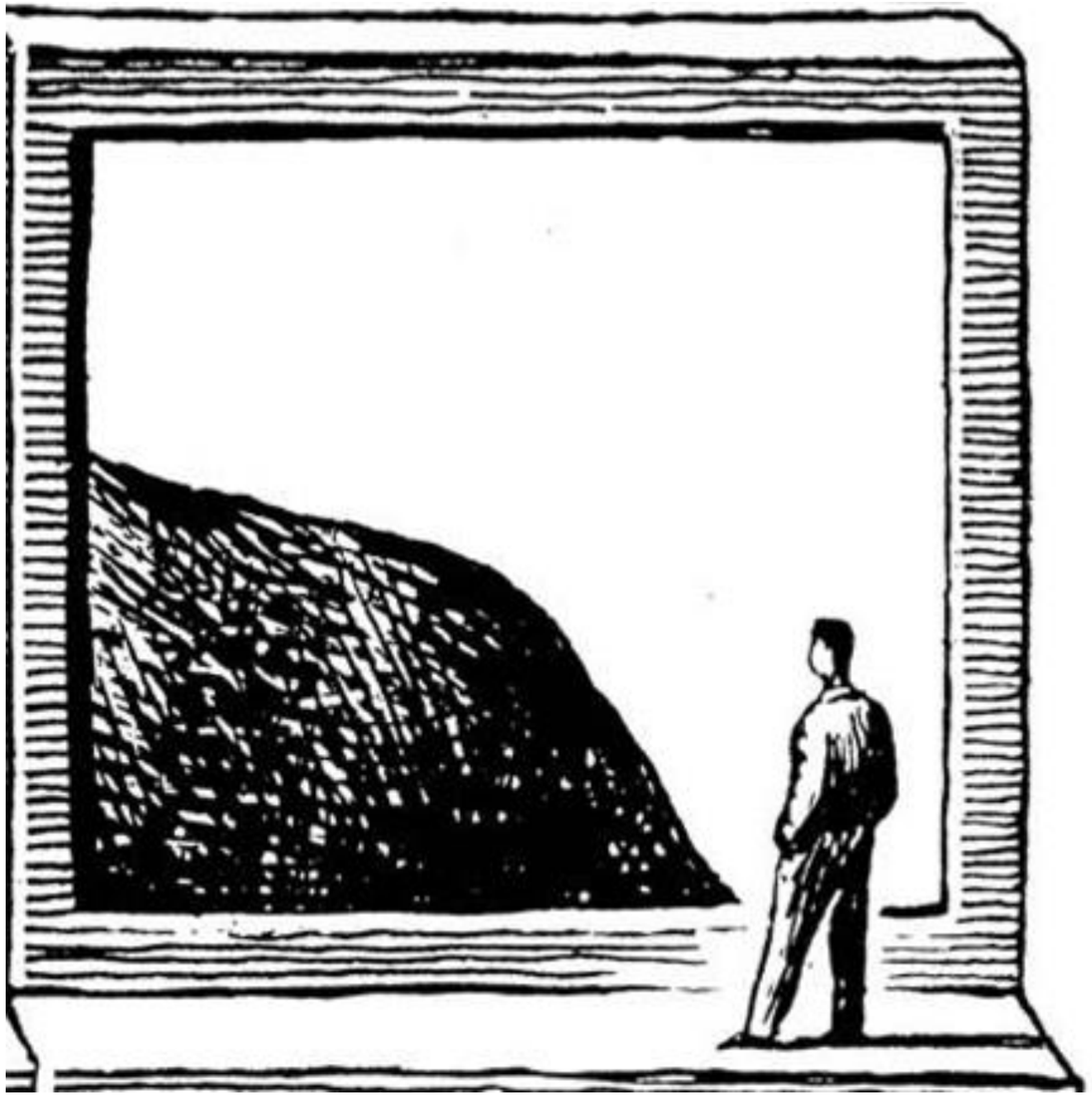
175 TRILLION GYGABYTES
IS HOW MUCH DATA WILL BE STORED BY 2025
(SOURCE: IDC)

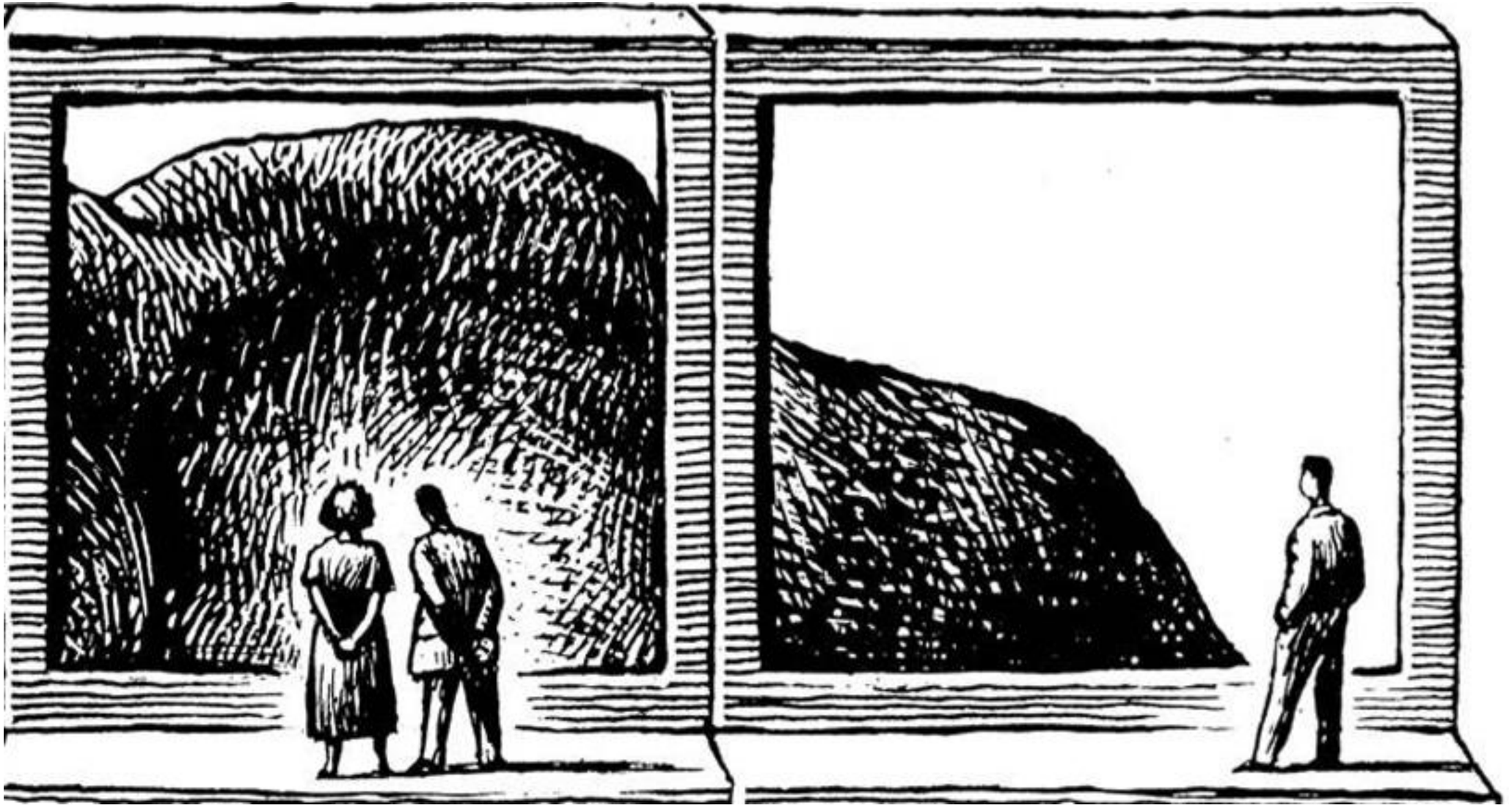
40 TIMES
MORE BITES OF DATA THAN STARS IN THE UNIVERSE

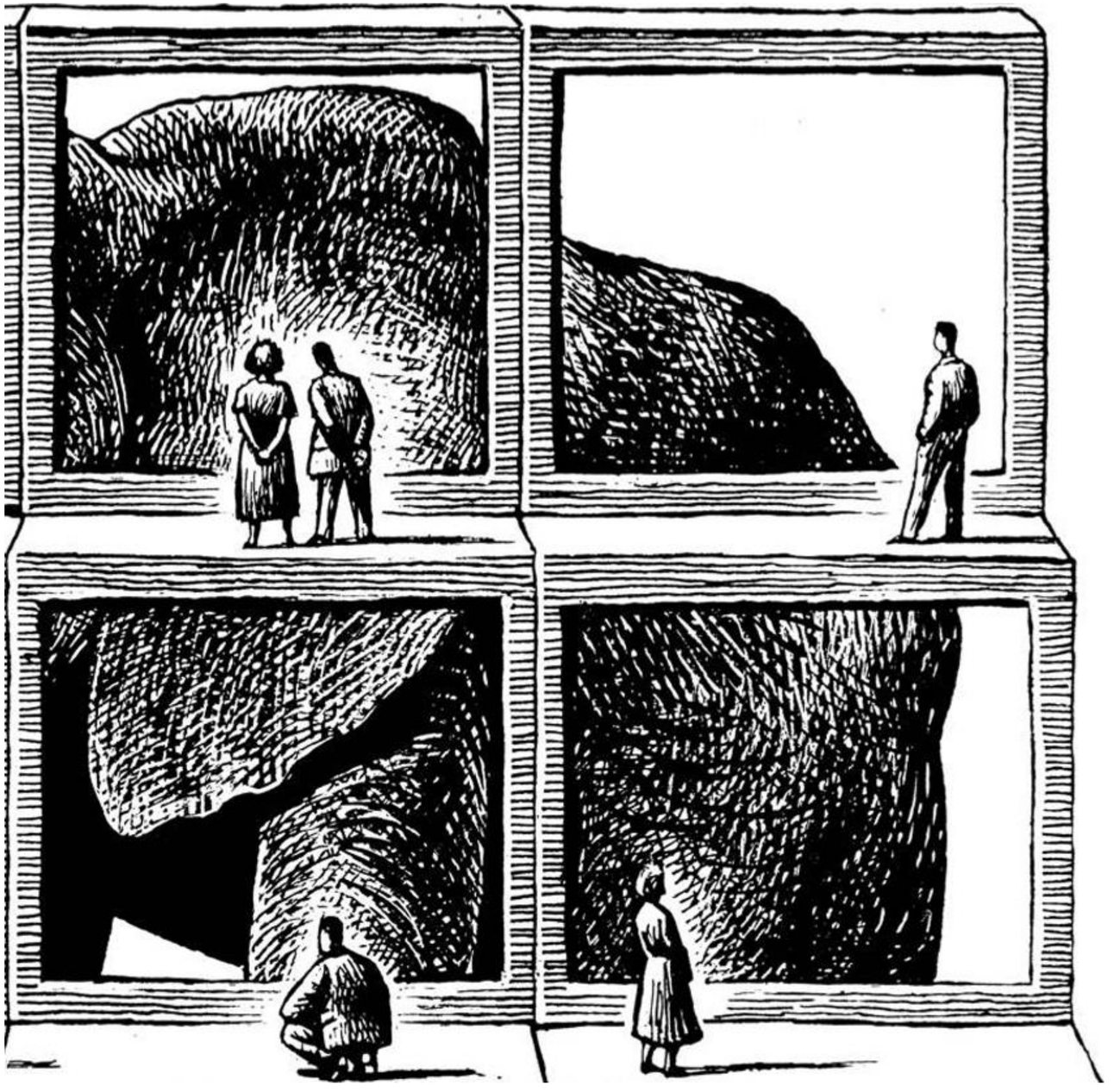
30 BILLION
EVENTS ARE PROCESSED EVERY DAY ON THE NYSE
(SOURCE: FINRA)

60+
EXCHANGES

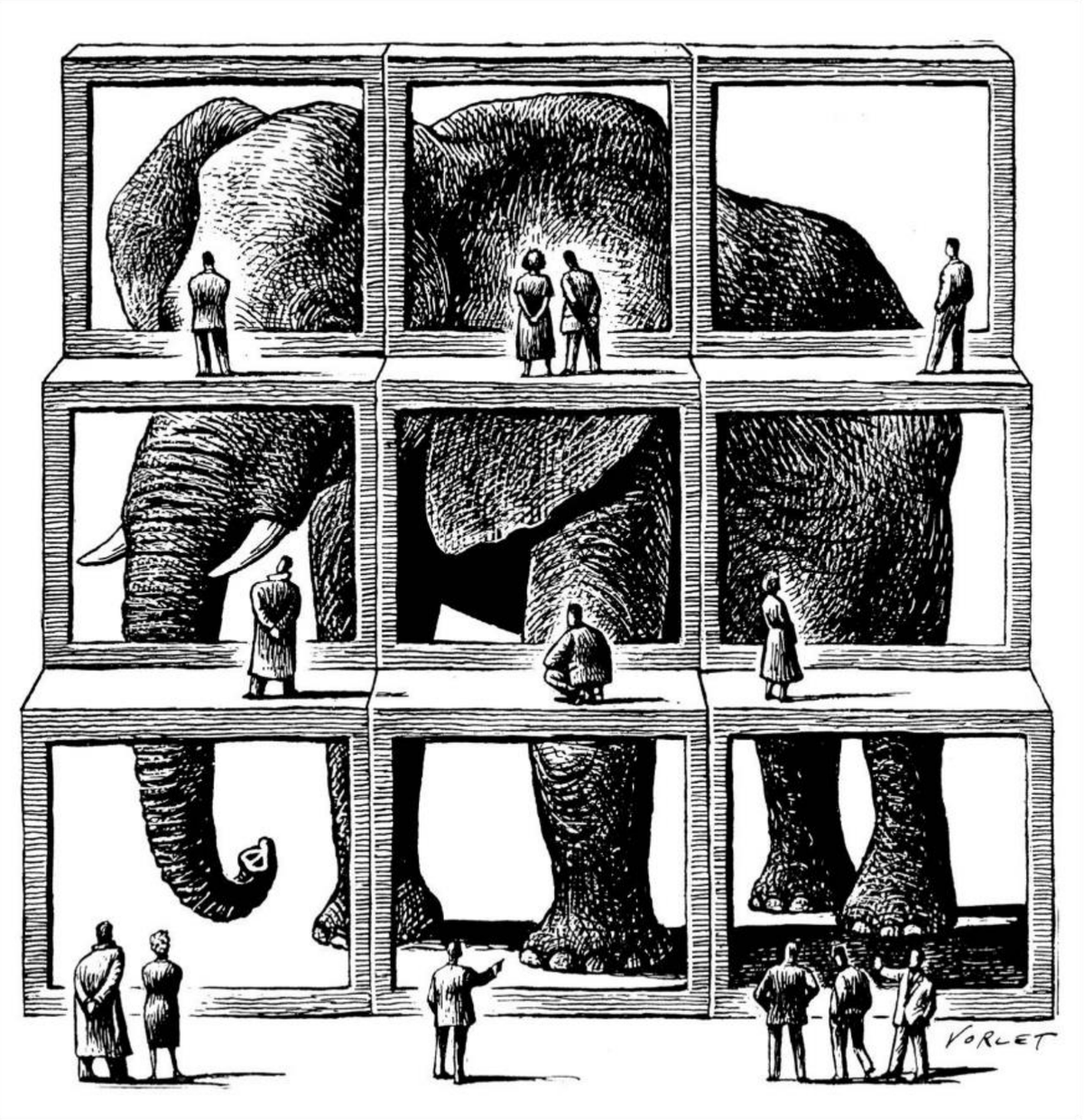
90% OF DATA
HAS BEEN PRODUCED ONLY IN THE PAST 2 YEARS
(SOURCE: IDC)







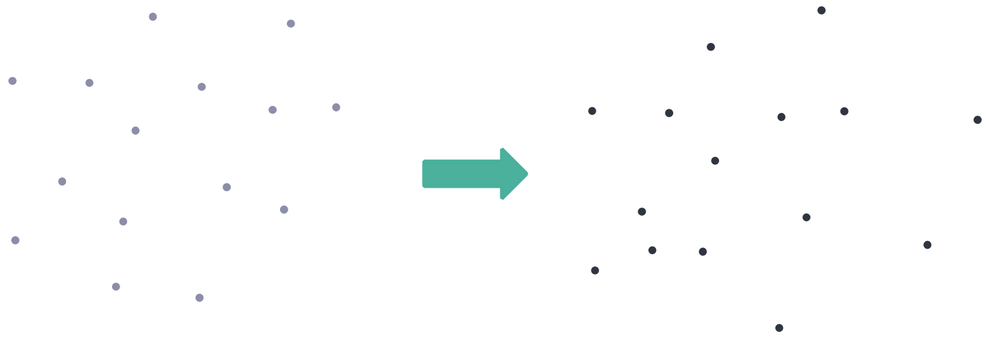
GETTING THE FULL PICTURE



Artificial intelligence

Works within
rising complexity

Artificial intelligence



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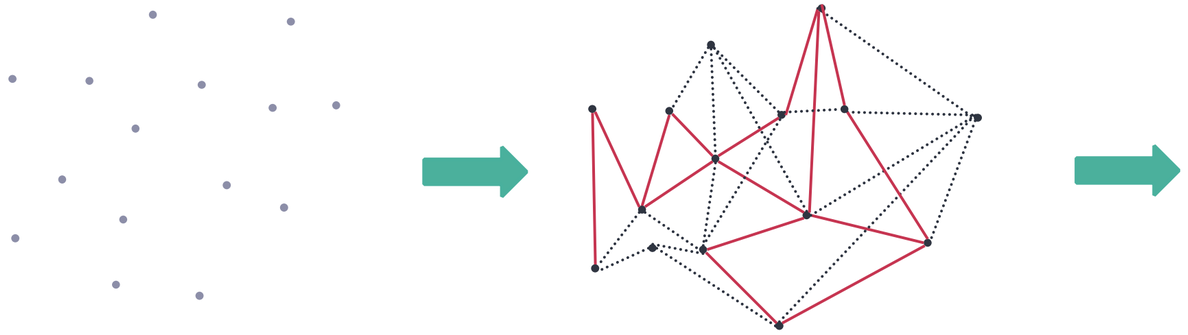
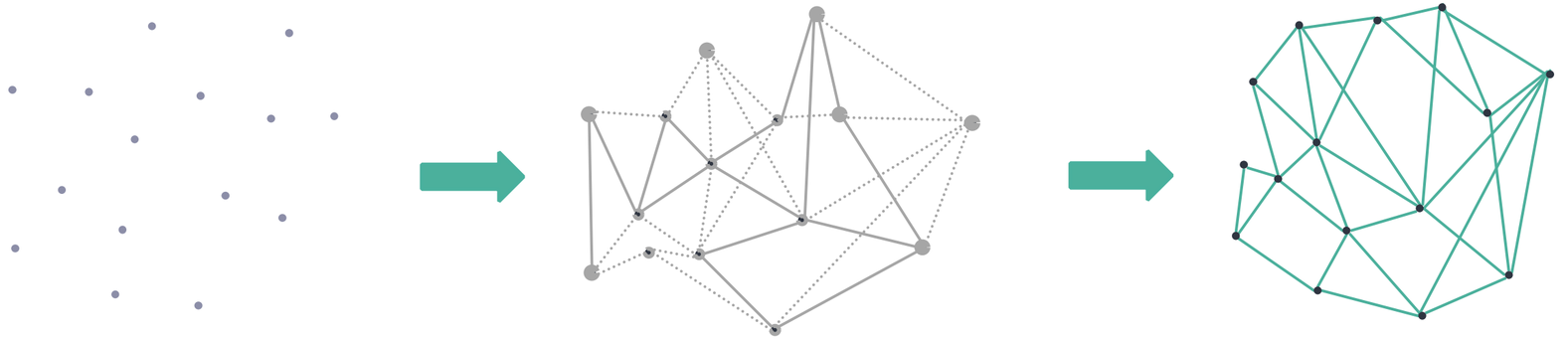


Works within
rising complexity

Learns
non-linear relationships

Artificial intelligence



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Learns
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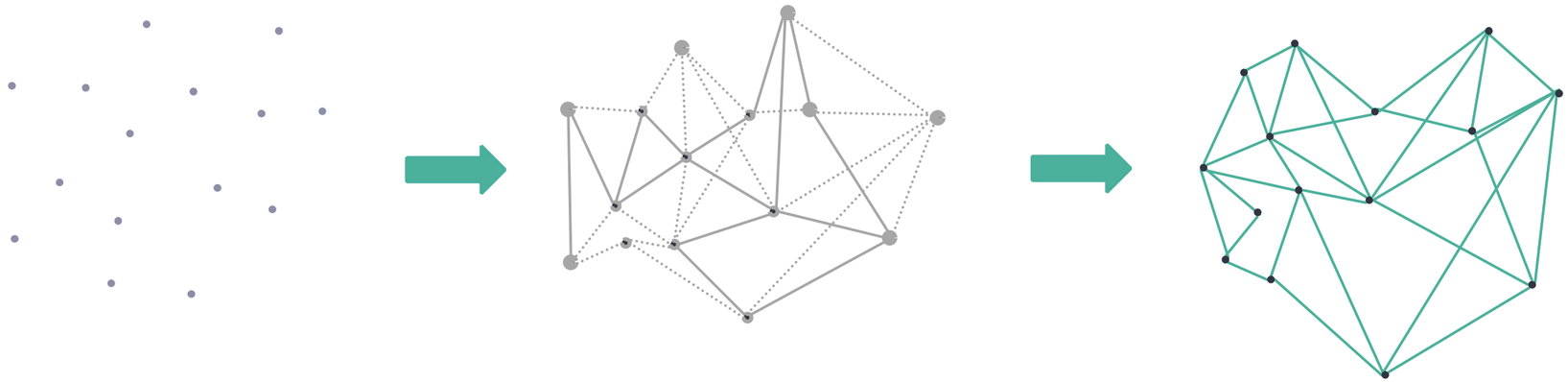
Adapts
when markets change

Artificial intelligence



Works within
rising complexity

Learns
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Adapts
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Analytical AI vs Generative AI

	ANALYTICAL AI	GENERATIVE AI
WHAT IT DOES	• Solves complex Y time-varying analytical problems	• Generate new content from a text or unstructured input
STRENGTHS	• Explainable • Forward-looking estimations • Anomaly Detection	• Creative • Creates new content • Text automation
USE CASES	• Portfolio Optimisation • Regime Analysis • Factor Modelling • Risk Management	• Question asnwering • Information retrieval • Text generation • Summarization
EXAMPLES	MOTM, Sphere, DataRobot, Qlik, arabesque, clarifai	ChatGPT, Ps, Midjourney, Canva, DALL·E, Google AI

Living in the era of

AI DEMOCRATIZATION

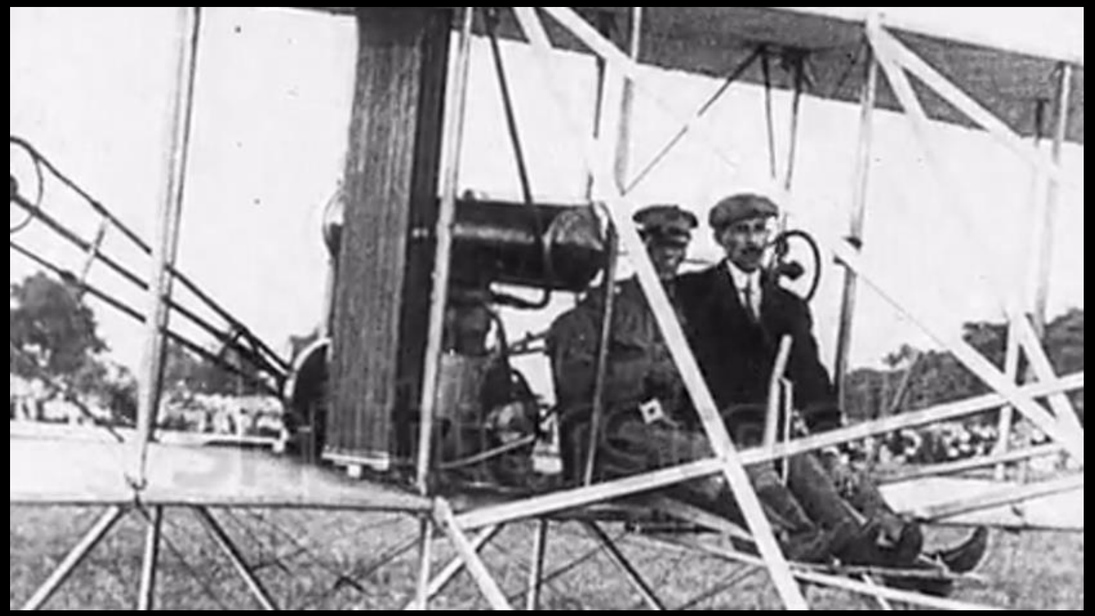
AI is no longer only used
by those **who develop it**

Living in the era of

AI DEMOCRATIZATION

Today, **everyone** can
leverage its power

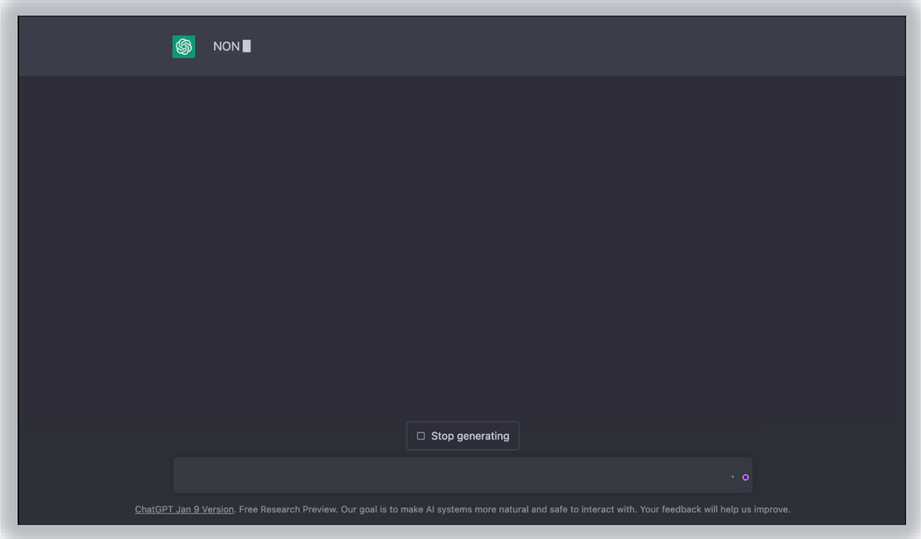
BEFORE



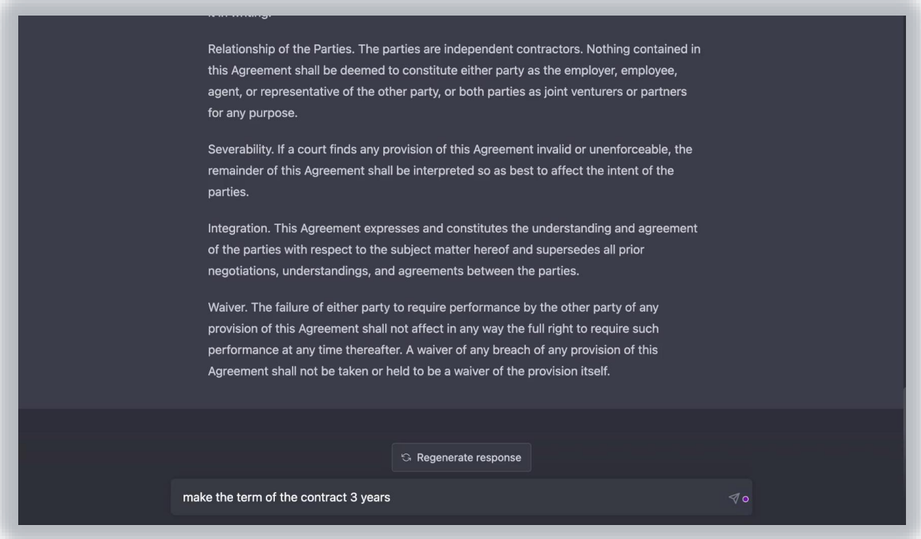
NOW

ChatGPT

Write a non-disclosure agreement.



Make the term of the agreement 3 years.



Midjourney

Generate a new image based off of the style of the one attached, but this one is of people skiing on the mountain, with a chalet on the background.

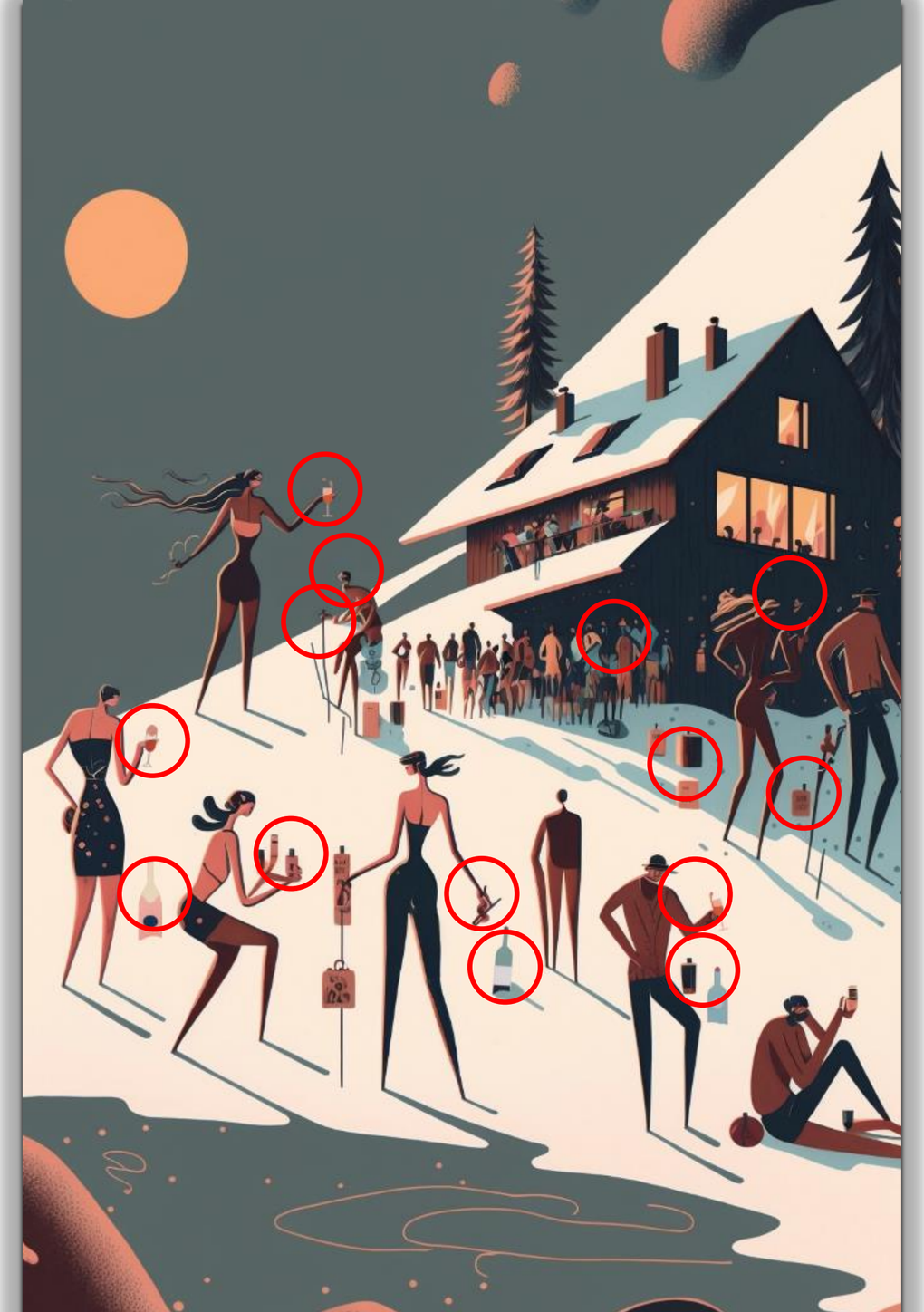
Make it more of a skiing party in front of a Chalet, with people wearing skiing clothes, like jackets, boots, skiis, gloves, hats, and more. Make it a cold and pretty day, with beautiful colors. Make sure that there are no people at the beach, it is only a skiing context.

Midjourney

AI’s Output

Midjourney

First Edit



Midjourney

Second Edit

Midjourney

Final Result

F205 #30

THE MILANESER

04 JAN 2023

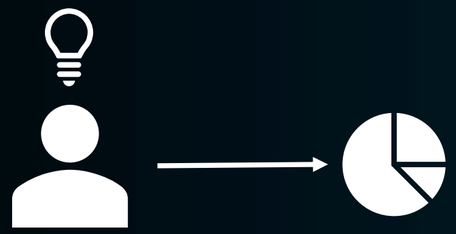
Living in the era of
AI DEMOCRATIZATION

Does it also apply to the world of investments?

Idea generation

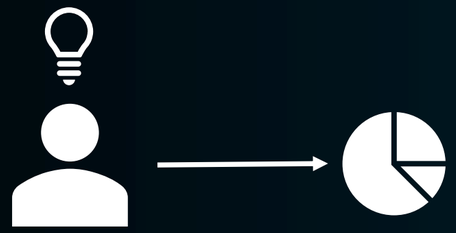
Idea generation

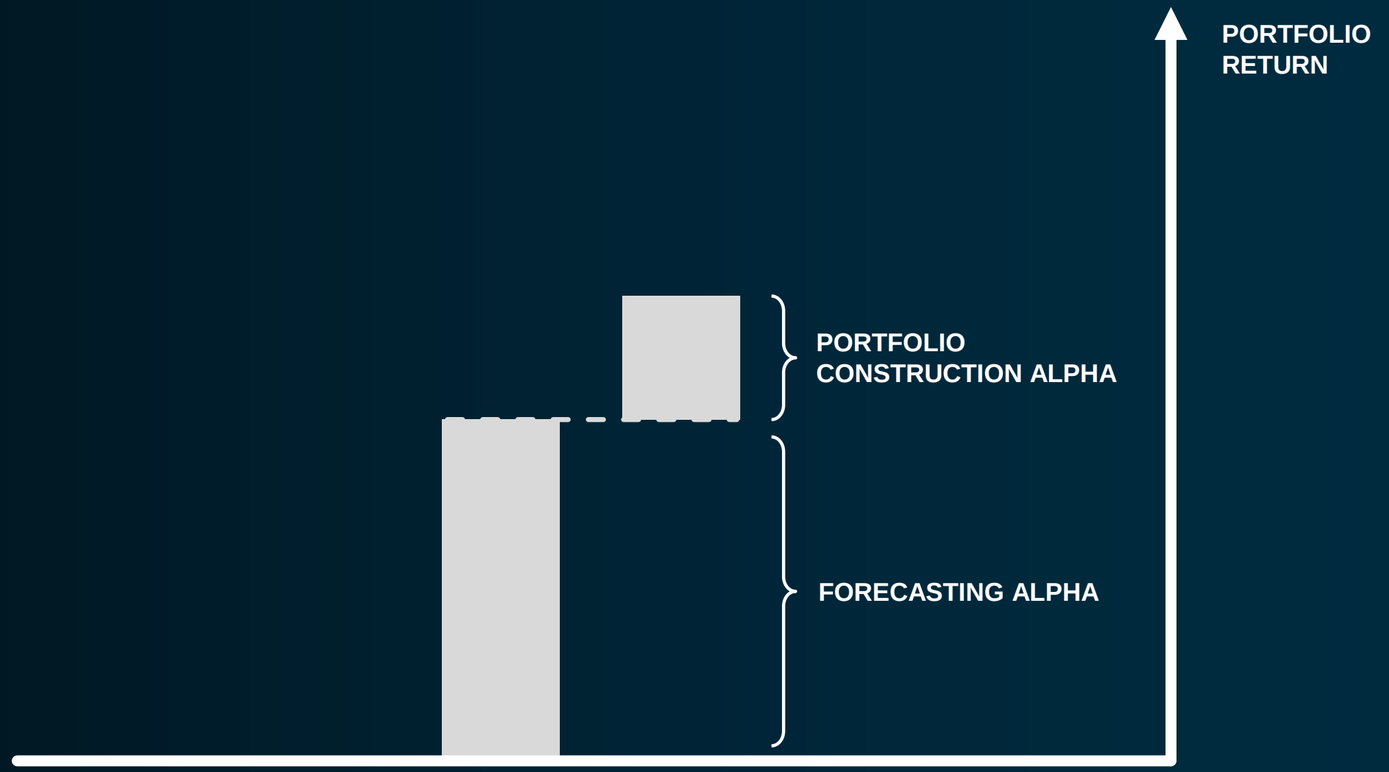
Portfolio Construction

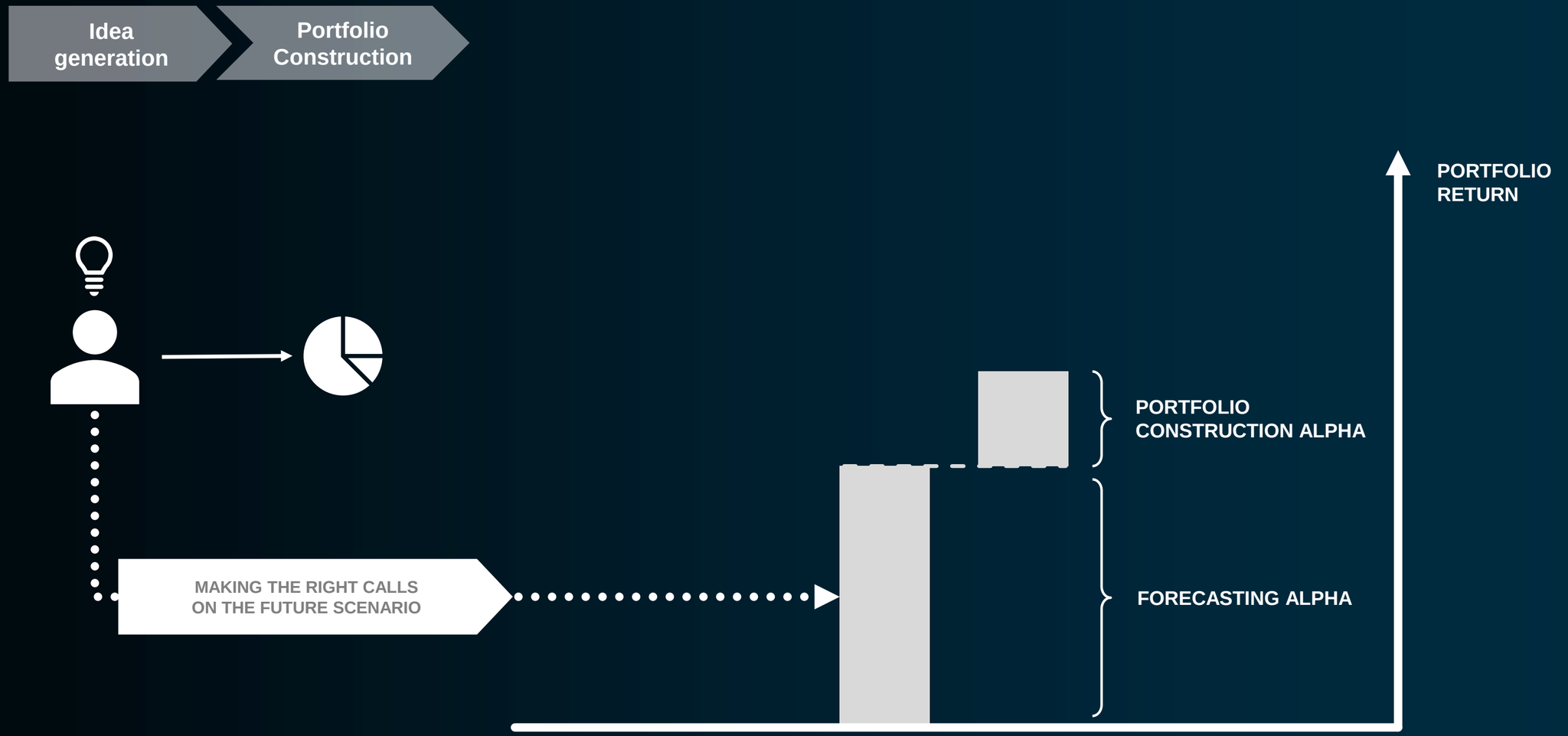


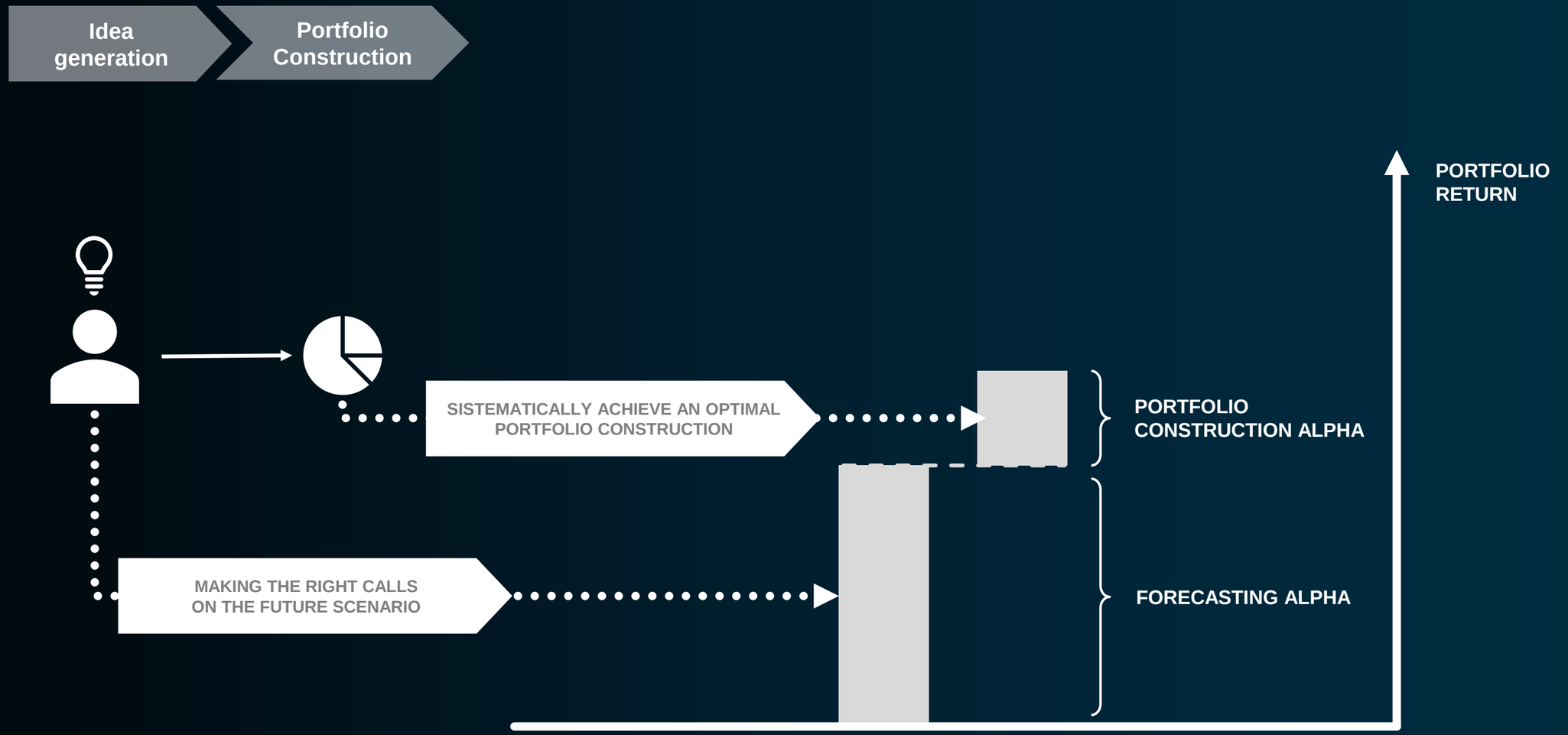
Idea generation

Portfolio Construction






Idea generation
Portfolio Construction
PORTFOLIO RETURN
PORTFOLIO CONSTRUCTION ALPHA
FORECASTING ALPHA
MAKING THE RIGHT CALLS ON THE FUTURE SCENARIO


Idea generation
Portfolio Construction
PORTFOLIO RETURN
SISTEMATICALLY ACHIEVE AN OPTIMAL PORTFOLIO CONSTRUCTION
PORTFOLIO CONSTRUCTION ALPHA
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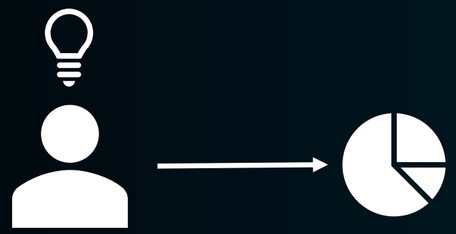
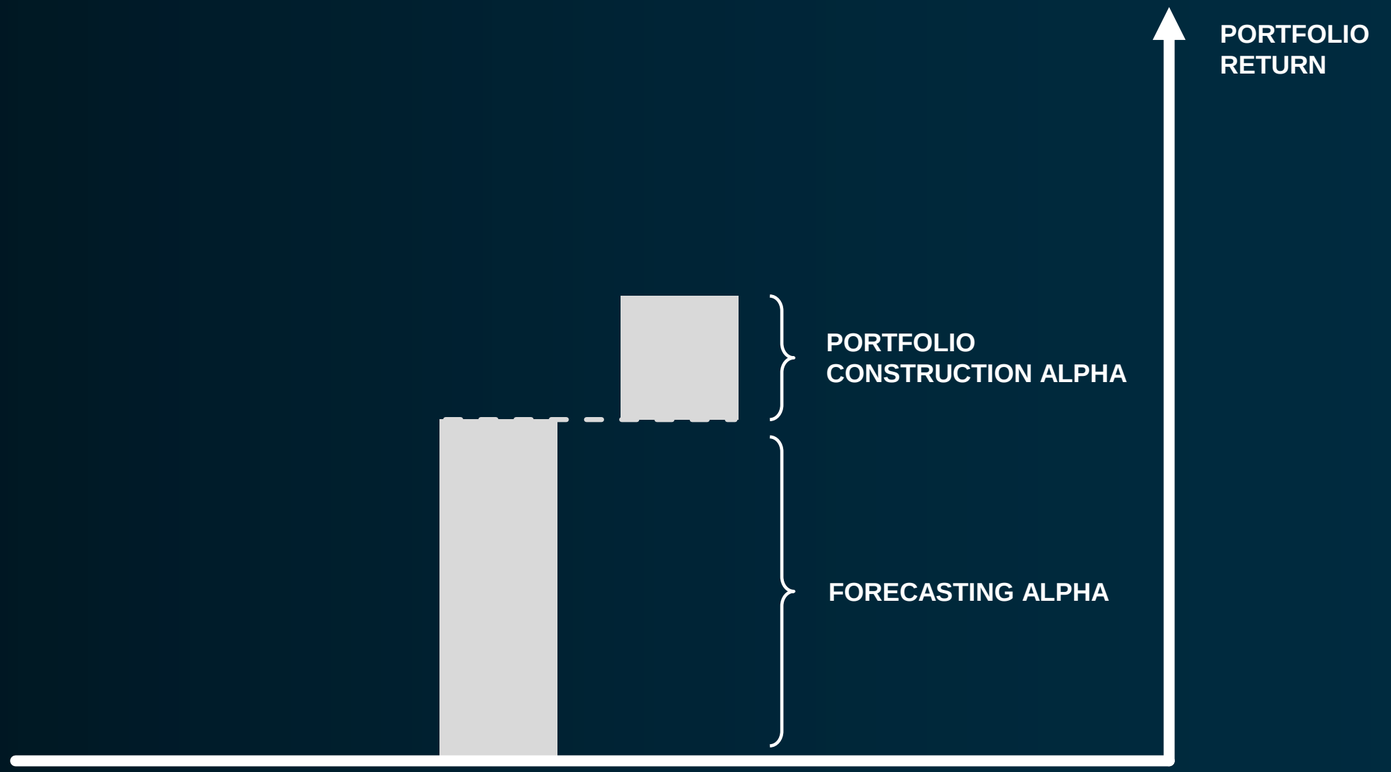
Idea generation

Portfolio Construction





Idea generation

Portfolio Construction

FORECASTING ALPHA

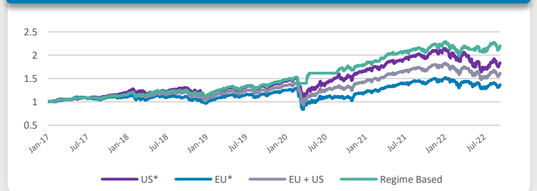
ALPHA GENERATED FROM MORE ACCURATE
RISK-RETURN & REGIME FORECASTS

ALPHA OF MAIN AI-DRIVEN INDICATORS (%)

	ANN. RETURN	VOLATILITY	EFF. RATIO
GEOGRAPHIC EQUITY	0.84%	2.43%	0.36
GEOGRAPHIC FIXED INCOME	0.48%	0.72%	0.66
US SECTORS	1.62%	2.30%	0.71
EU SECTORS	1.63%	2.36%	0.69

REGIME-SWITCH STRATEGY*

PERFORMANCE OF EU, US, EU+US AND REGIME-BASED MDOTM PORTFOLIO



PERFORMANCE OF EU, US, EU+US AND REGIME-BASED MDOTM PORTFOLIO

	EU	US	EU+US	REGIME-BASED
RETURN	5.6%	11.3%	8.8%	14.9%
VOLATILITY	16.6%	19.8%	16.0%	11.7%
EFFICIENCY RATIO	0.34	0.57	0.54	1.27
AVG. DRAWDOWN	-5.5%	-4.3%	-4.33%	-2.16%
MEDIAN DRAWDOWN	-3.3%	-1.7%	-1.84%	-0.84%
MAX DRAWDOWN	-35.3%	-33.9%	-34.2%	-13.89%

***Methodology:** If a geography scores better than the other - meaning it has more **favourable market regime** - the portfolio is 100% invested in that equity market. In case of equivalent scoring, the allocation is evenly distributed 50%-50% among the EU and US markets. If both the markets are identified to be in a high-stress phase, the portfolio is entirely allocated to cash.

AI

PORTFOLIO CONSTRUCTION ALPHA

FORECASTING ALPHA

PORTFOLIO RETURN

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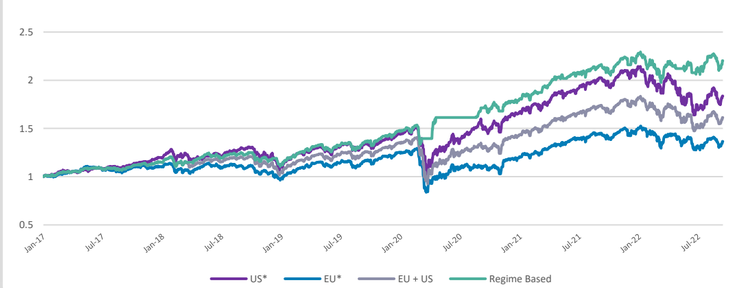

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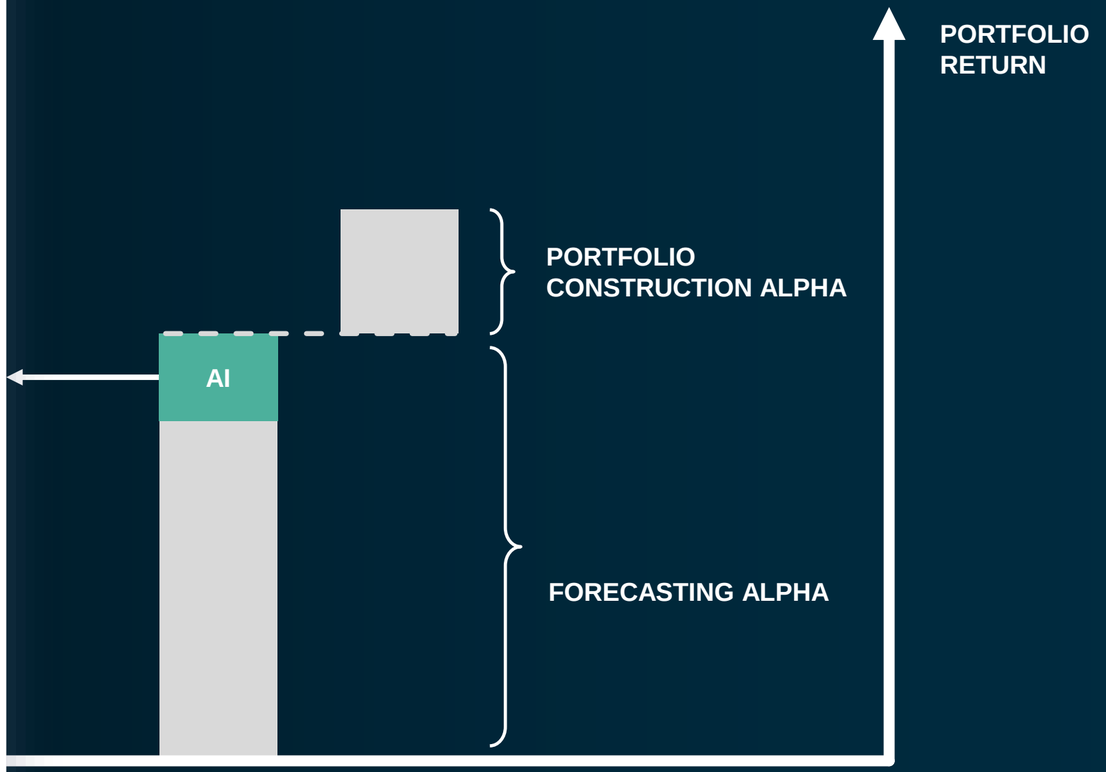

Idea generation

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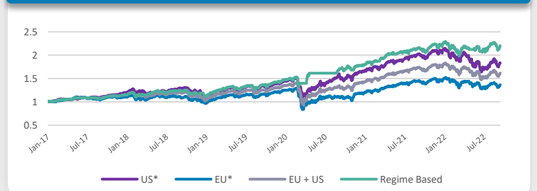

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AI

PORTFOLIO CONSTRUCTION ALPHA

FORECASTING ALPHA

PORTFOLIO RETURN

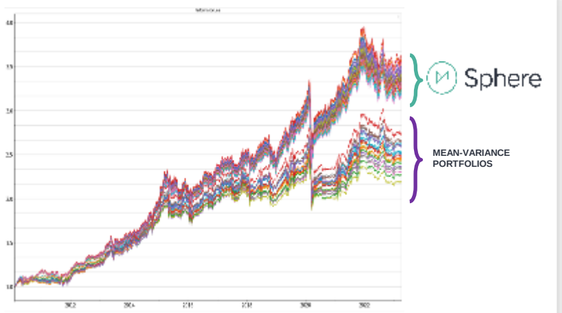
Idea generation

Portfolio Construction

PORTFOLIO CONSTRUCTION ALPHA

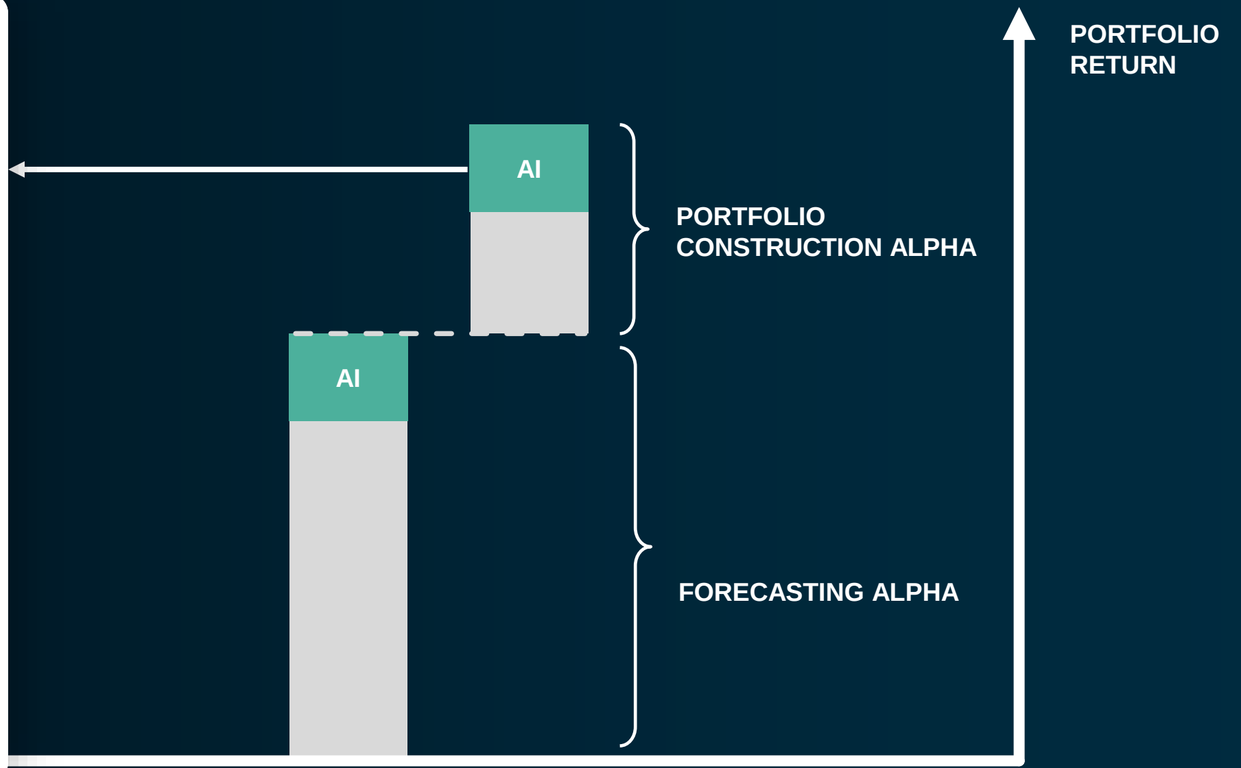
ALPHA GENERATED FROM ENHANCED PORTFOLIO OPTIMIZATION

ALPHA FROM AI-DRIVEN PORTFOLIO CONSTRUCTION*



ALPHA FROM AI-DRIVEN PORTFOLIO CONSTRUCTION*

	SPHERE PORTFOLIO	MEAN-VARIANCE PORTFOLIO
AVG. SHARPE RATIO	1.03	0.85
AVG. MONTHLY TURNOVER	14.87%	35.17%
AVG. VOLATILITY	9.36%	8.49%
AVG. ANNUAL RETURN	9.67%	7.12%



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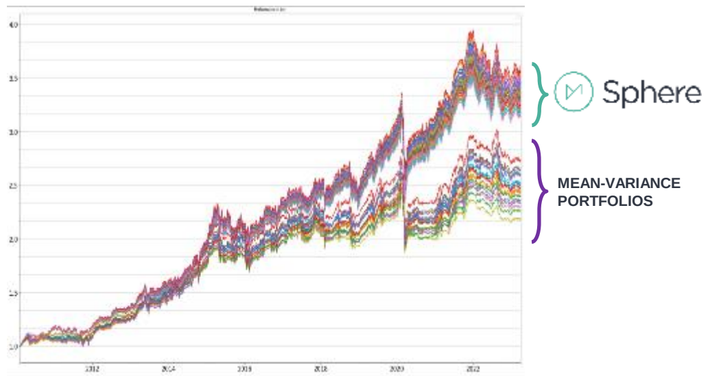

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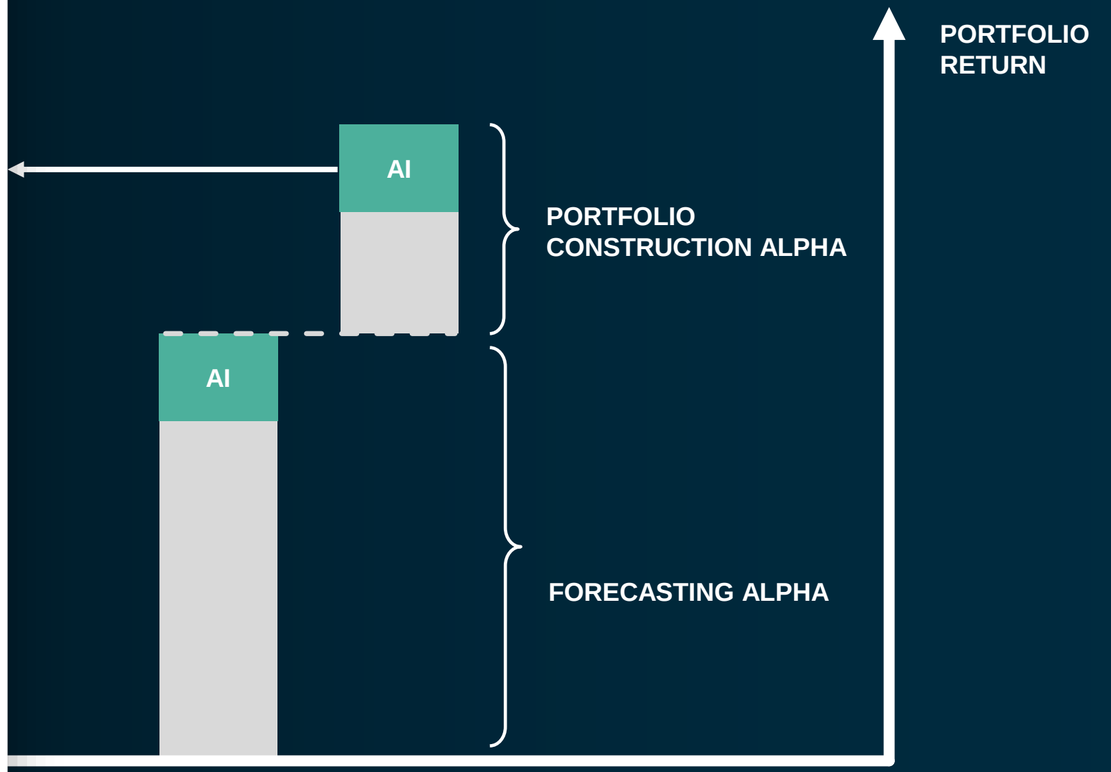
Results:

+35%
HIGHER
SHARPE RATIO

+2.5%
INCREASE
IN PERFORMANCE

-20%
PORTFOLIO
TURNOVER

***Methodology:** Grid Search of Black & Litterman Mean-Variance Portfolios against Sphere Portfolios with same expected returns and investable universe.



Idea generation

Portfolio Construction

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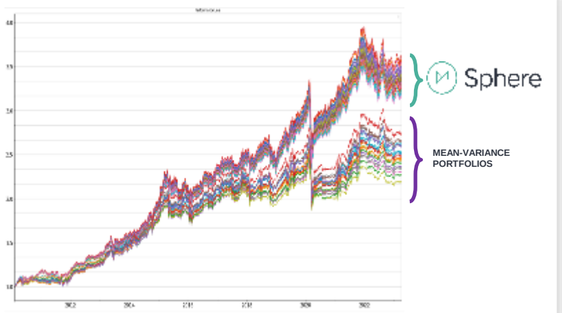

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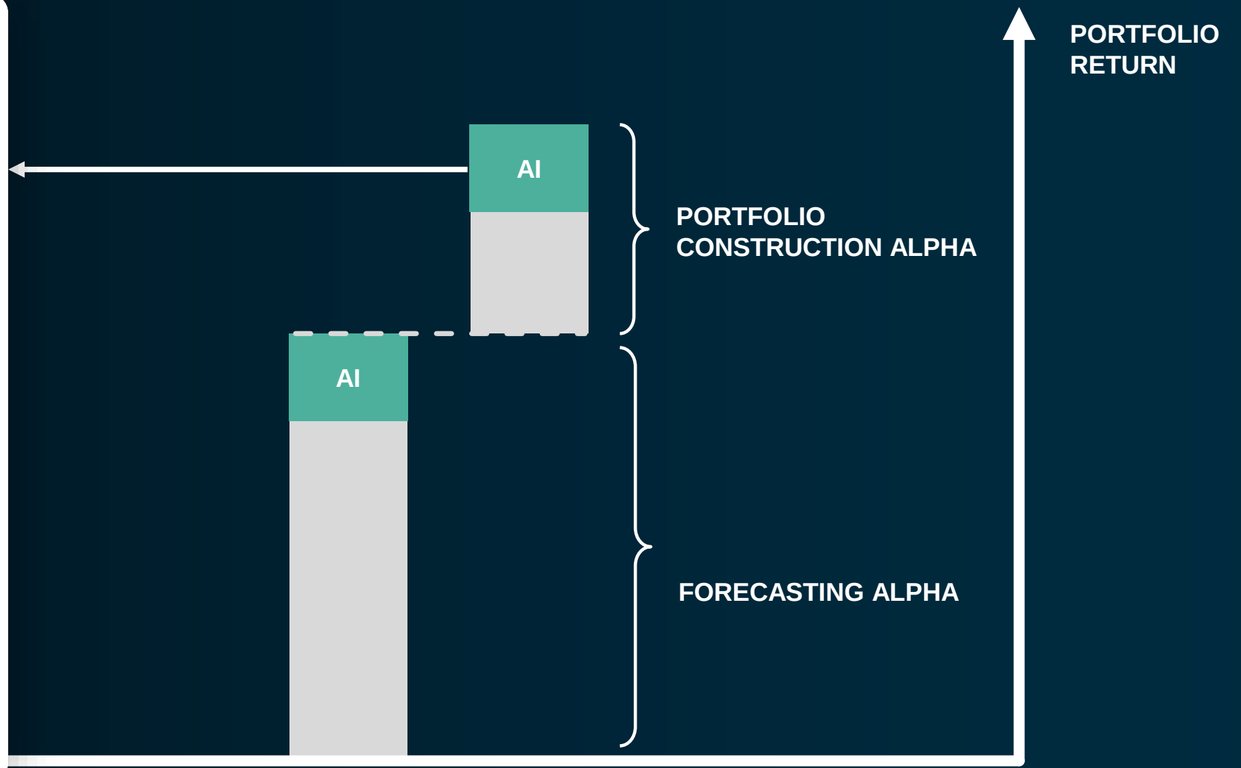

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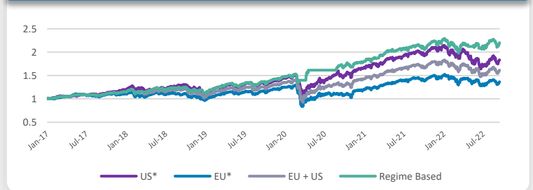
REGIME-SWITCH STRATEGY*

PERFORMANCE OF EU, US, EU+US AND REGIME-BASED MDOTM PORTFOLIO



PERFORMANCE OF EU, US, EU+US AND REGIME-BASED MDOTM PORTFOLIO

	EU	US	EU+US	REGIME-BASED
RETURN	5.6%	11.3%	8.8%	14.9%
VOLATILITY	16.6%	19.8%	16.0%	11.7%
EFFICIENCY RATIO	0.34	0.57	0.54	1.27
AVG. DRAWDOWN	-5.5%	-4.3%	-4.33%	-2.16%
MEDIAN DRAWDOWN	-3.3%	-1.7%	-1.84%	-0.84%
MAX DRAWDOWN	-35.3%	-33.9%	-34.2%	-13.89%

***Methodology:** If a geography scores better than the other - meaning it has more **favourable market regime** - the portfolio is 100% invested in that equity market. In case of equivalent scoring, the allocation is evenly distributed 50%-50% among the EU and US markets. If both the markets are identified to be in a high-stress phase, the portfolio is entirely allocated to cash.

AI

AI

PORTFOLIO CONSTRUCTI

FORECASTIN

PORTFOLIO CONSTRUCTION ALPHA

ALPHA GENERATED FROM ENHANCED PORTFOLIO OPTIMIZATION

ALPHA FROM AI-DRIVEN PORTFOLIO CONSTRUCTION*

ALPHA FROM AI-DRIVEN PORTFOLIO CONSTRUCTION*

	SPHERE PORTFOLIO	MEAN-VARIANCE PORTFOLIO
AVG. SHARPE RATIO	1.03	0.85
AVG. MONTHLY TURNOVER	14.87%	35.17%
AVG. VOLATILITY	9.36%	8.49%
AVG. ANNUAL RETURN	9.67%	7.12%

AI applications in the **investment process:**

Optimise Positioning

Unbiased Investment Inputs

Asset Allocation

Idea Generation

Portfolio Enhancement

Portfolio Construction

Forecast Market Regimes

Stress Testing

Personalised Market Views

Forward-Looking Indicators

Risk Expectations

Scenario Analyses

…and much more

DASHBOARD

Base Currency: Local | Outlook Horizon: 1 Month

Asset Class Overview

Equity

SELL — BUY

Fixed Income Duration

SHORT — LONG

Commodities

SELL — BUY

Outlook

Equity Outlook

View

EQUITY	SU	U	N	O	SO
Equity EM Large Cap			●		
Equity Europe Large...			●		
Equity US Large Cap			●		
Equity JP Large Cap			●		

Fixed Income Outlook

View

FIXED INCOME	SU	U	N	O	SO
US Long Gov			●		
US Medium Gov			●		
US Short Gov				●	
US Hy	●	●			
US Corp				○	●
EU Long Gov		●			
EU Medium Gov					●
EU Short Gov			●		

Commodities Outlook

View

COMM.	SU	U	N	O	SO
Precious metals		○	●		
Industrial metals			●		○
Energy				○	●
Agriculture	●	●			

● ● ● Current positioning ○ Previous positioning SU Strong Underweight U Underweight N Neutral O Overweight SO Strong Overweight

Portfolio Alerts

PORTFOLIO	ISSUES
New Creation MA	
All sectors Multi Asset	

Commentary

Macroeconomic environment remains unstable and highly complex as we head into the autumn. As seen during the second half of August, Fed's commitment to further increase interest rates to tame inflation translated into negative growth across all equity markets. The current dynamic increases the likelihood of a recession in the near future, prompting ALICE to indicate a continuation of the high-stress regime. The worsening macroeconomic outlook lowers expected returns across all markets. Nonetheless, Energy, Health Care and Utilities sectors are considered interesting due to their relatively better risk-return profiles. A similar

#2

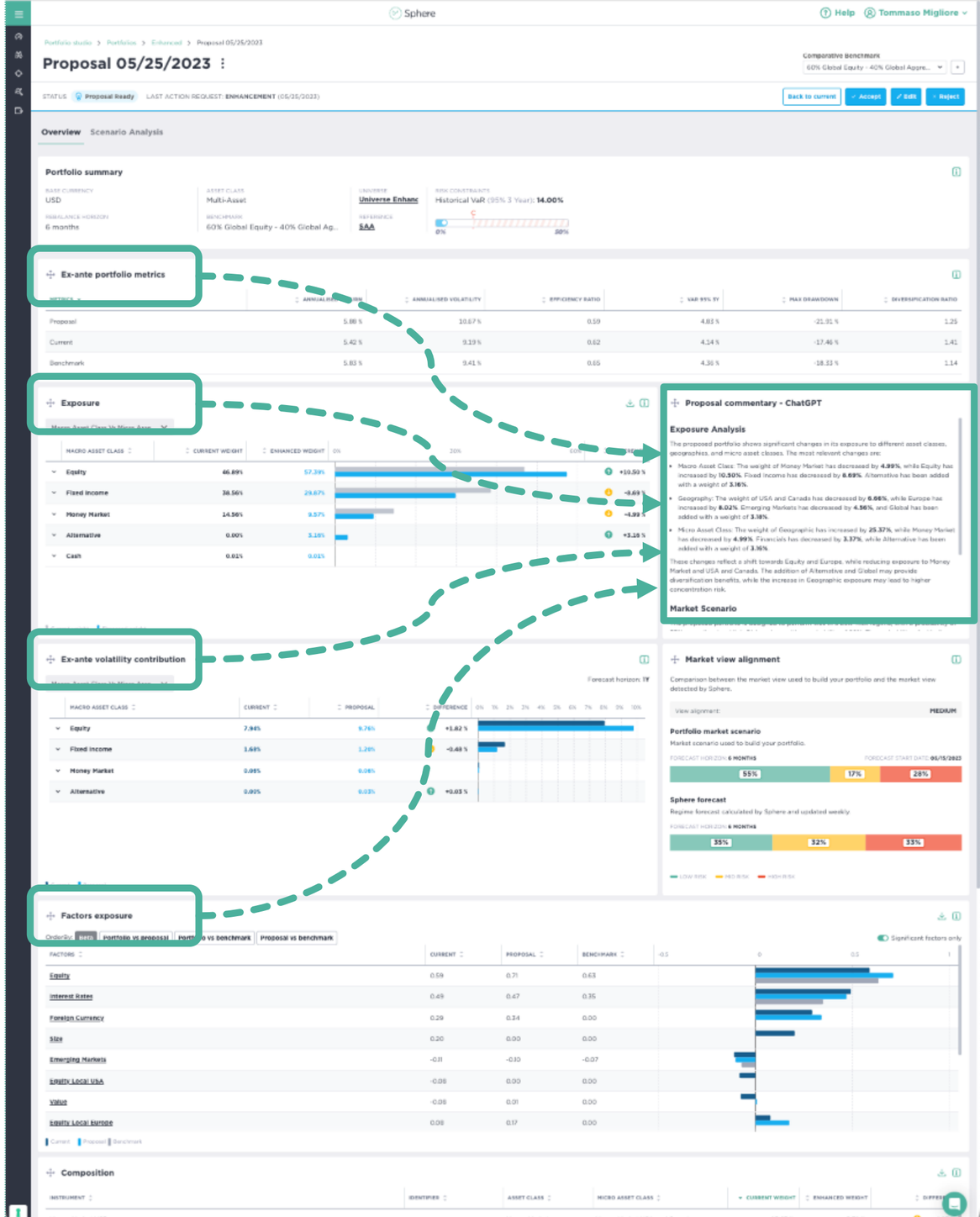
LEVERAGING GENERATIVE & ANALYTICAL AI

Analytical AI vs Generative AI

	ANALYTICAL AI	GENERATIVE AI
WHAT IT DOES	• Solves complex Y time-varying analytical problems	• Generate new content from a text or unstructured input
STRENGTHS	• Explainable • Forward-looking estimations • Anomaly Detection	• Creative • Creates new content • Text automation
USE CASES	• Portfolio Optimisation • Regime Analysis • Factor Modelling • Risk Management	• Question asnwering • Information retrieval • Text generation • Summarization
EXAMPLES	MOTM, Sphere, DataRobot, Qlik, arabesque, clarifai	ChatGPT, Ps, Midjourney, Canva, DALL·E, Google AI

Sphere

ChatGPT Integration



DATA SOURCES

SPHERE'S ANALYTICAL AI CALCULATIONS

PROPRIETARY PROMPT ENGINEERING ARCHITECTURE

HISTORICAL MARKET DATA

MACRO DATA

COMPANY FUNDAMENTALS

- EX-ANTE PORTFOLIO METRICS → CUSTOM INSTRUCTION
- EXPOSURE → CUSTOM INSTRUCTION
- EX-ANTE VOLATILITY CONTRIBUTION → CUSTOM INSTRUCTION
- FACTOR EXPOSURE → CUSTOM INSTRUCTION
- …. → CUSTOM INSTRUCTION

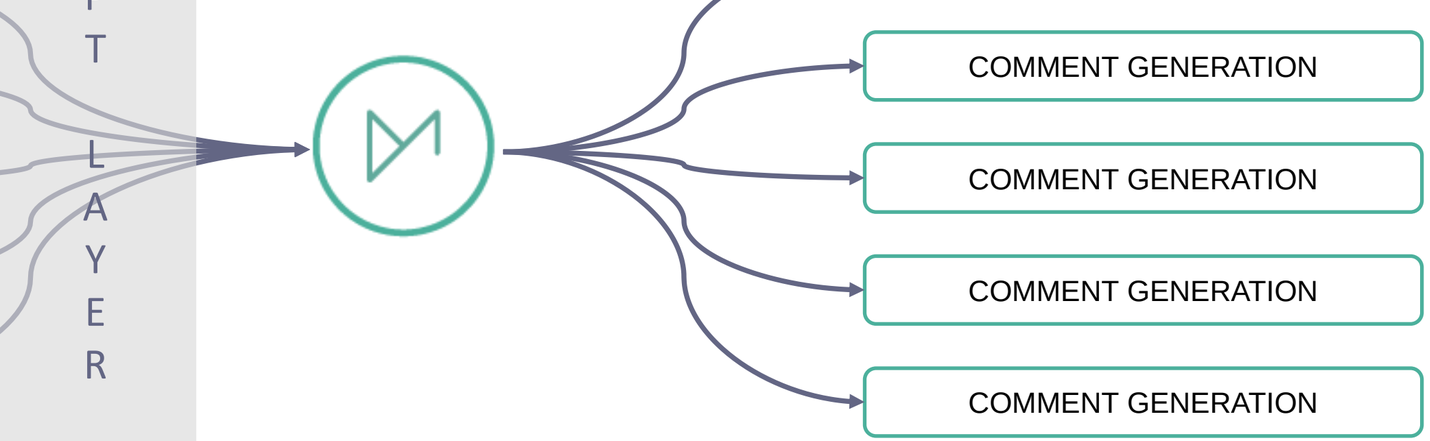
Carefully crafting **specific instructions or prompts** that enable the AI model to generate insightful and coherent portfolio commentaries

GPT API LAYER

OUTPUT GENERATION

SPHERE COHERENCE CHECK

GPT LAYER

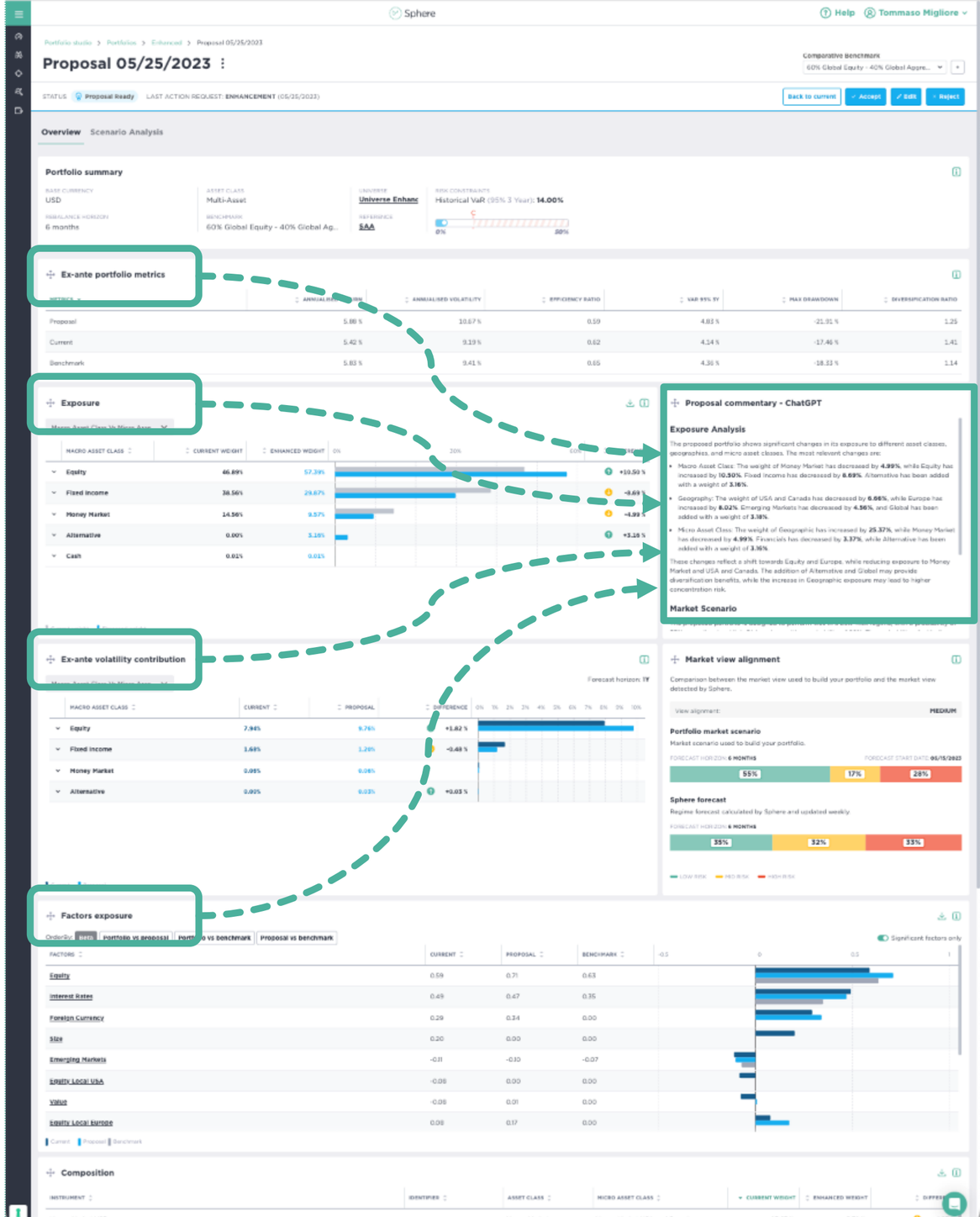


Sphere

Evaluating the commentary's logical flow, relevance, clarity, and accuracy to ensure it offers **coherent financial insights**.

FINAL OUTPUT

ChatGPT Integration in Sphere

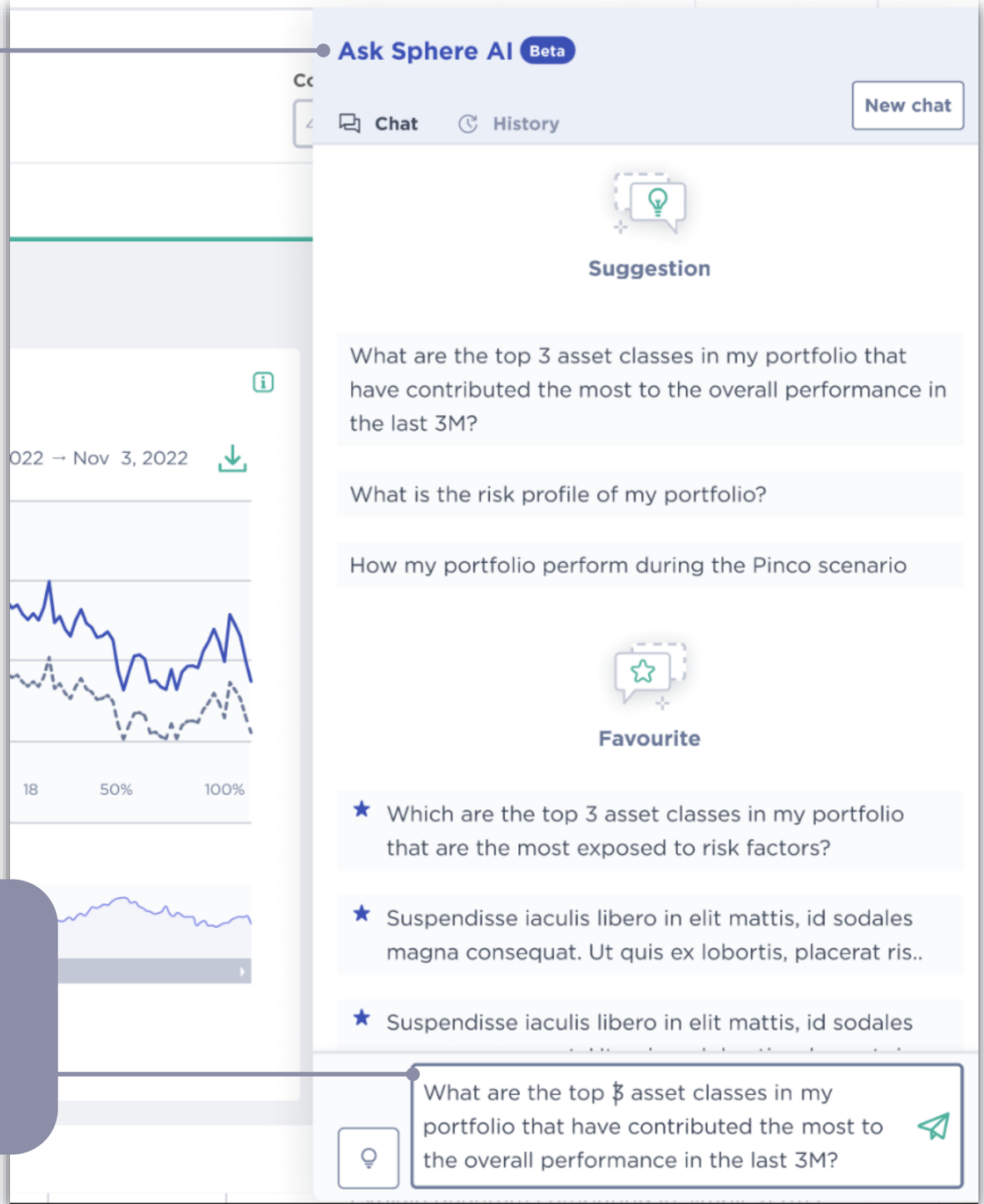


AI integration to ask Sphere real-time questions.

FINAL OUTPUT

ChatGPT Integration in Sphere

Examples:
- Compare Portfolios
- What-if Scenario?
- What do you expect from these Asset Classes: XXXX, YYYY in the next month?
- Why is this instrument in my Portfolio?



Q&A