# 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 AI-DRIVEN INVESTMENT SOLUTIONS

## What do the most-sophisticated Investors think about Al?



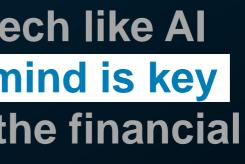
«Al is extremely powerful. At Bridgewater, we use it to work in parallel with our managers to produce better investment decisions»

**RAY DALIO** FOUNDER OF BRIDGEWATER ASSOCIATES



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







### WE ARE A **FINTECH** COMPANY

#### OUR **TEAM** (MDOTM + MDOTM LAB)

110+ FINANCE PROFESSIONALS & CREATIVE **INNOVATORS** 

OUR **OFFICES**  LONDON 125 Kingsway London, WC2B 6NH, UK

## **Our solutions**



#### Portfolio **Advisory**

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





A platform that provides unbiased insights for your investment decisions

WE DEVELOP **ARTIFICIAL INTELLIGENCE TO BUILD RELIABLE** PORTFOLIOS

WE BELIEVE IN

**SCIENCE-ROOTED** 

**INVESTMENT DECISIONS** 

60+

PHYSICISTS, **ENGINEERS &** DATA SCIENTISTS Signatory of:





Via Passione 8. 20122 Milan

### **NEW YORK**

219 W 49th St, New York, NY 10019

### \$1B+

**ASSETS UNDER ADVISORY** 

#### Al Support to the **Investment Process**



**ASSETS UNDER** TECHNOLOGY

# Our clients include



















Banca Patrimoni **Sella** & c.

Banca Profilo

**BANCA** Indipendenti insieme





























# #1

# **ARTIFICIAL INTELLIGENCE** & COMPLEXITY

## **\$124** WORTH OF MARKET CAP IS TRADED

**ON GLOBAL EXCHANGES** (SOURCE: WFE)

3+ MILLION STOCK MARKET INDICES

1000 **THE PROBLEM** IS HOW MUCH COMPUTING **GROWN OVER THE PAST 20 YEARS** 

# Financial markets become Nore complex every day

150'000+ LISTED

**SECURITIES** 

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

60+ **EXCHANGES** 

90% HAS BEEN PRODUCED ONLY IN

THE PAST 2 YEARS

### 2.5 x 10<sup>18</sup> BYTES OF NEW DATA IS CREATED EVERY SINGLE DAY

(SOURCE: IDC)

70+

GLOBAL

MACRO EVENTS

### 80% OF THE MARKET

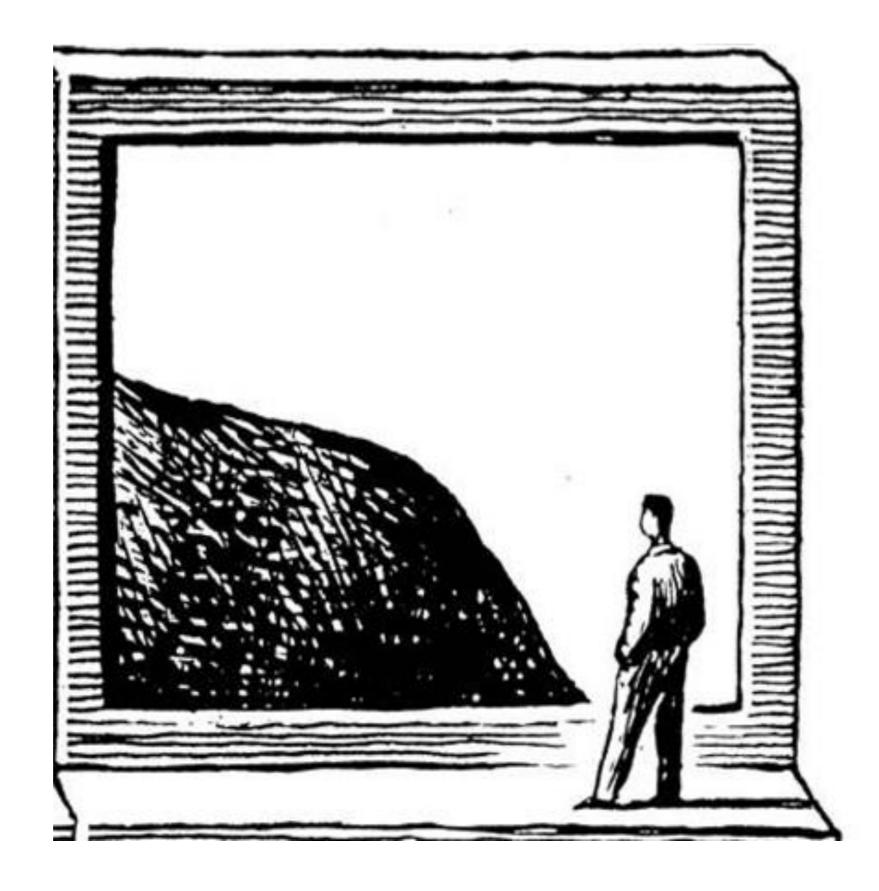
**USE AUTOMATION TO SUPPORT INVESTMENT DECISIONS** (SOURCE: CNBC)

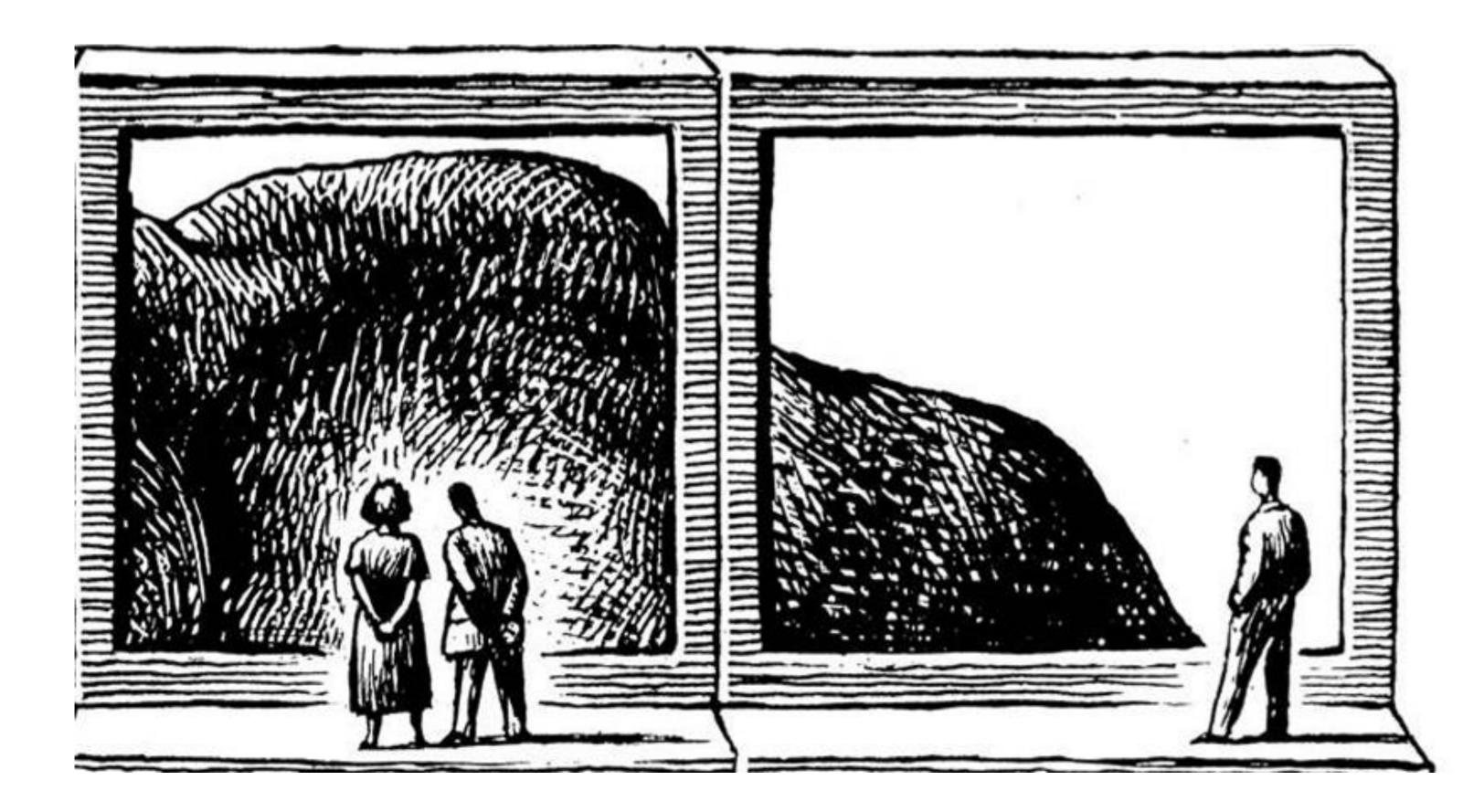
**175 TRILLION** GYGAB

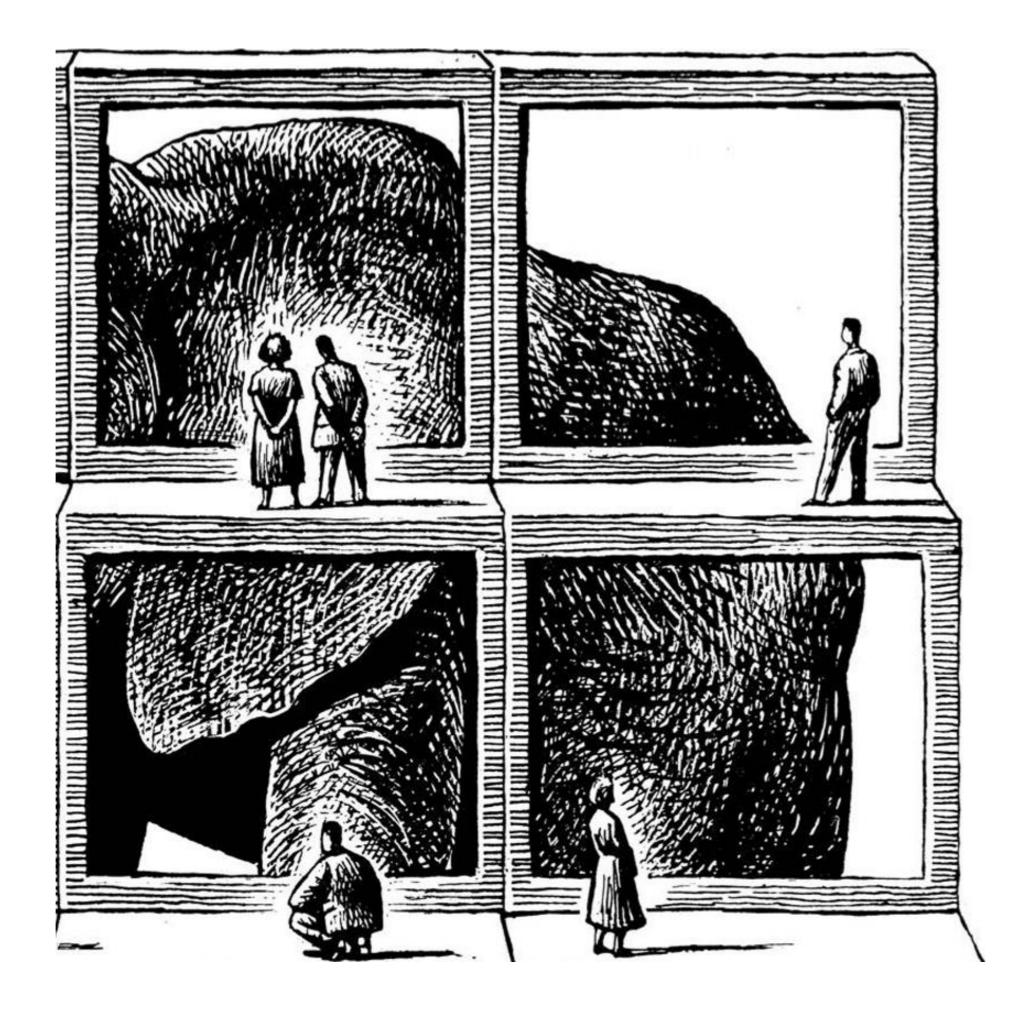
IS HOW MUCH DATA WILL BE STORED BY 2025

MORE BITES OF DATA THAN STARS IN THE UNIVERSE

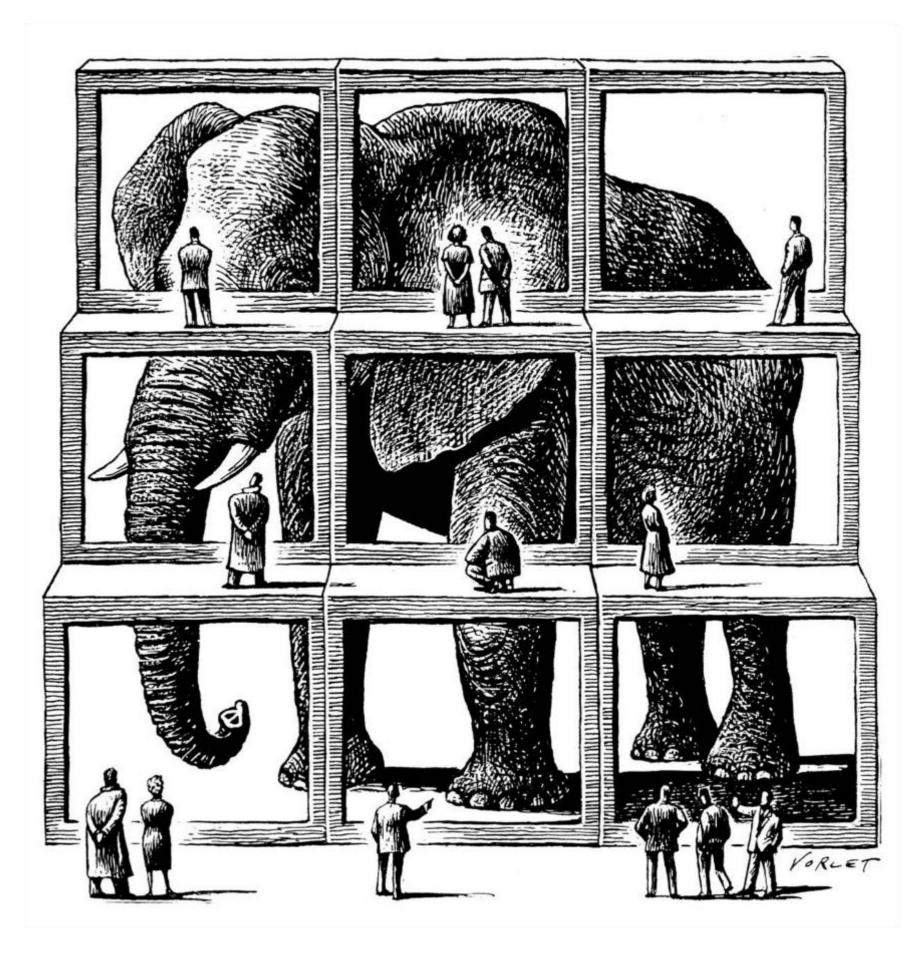
40

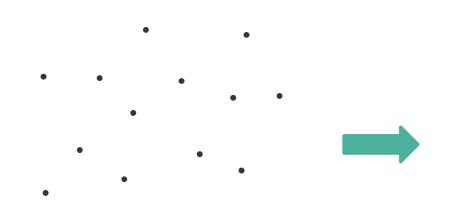






# GETTING THE FULL PICTURE



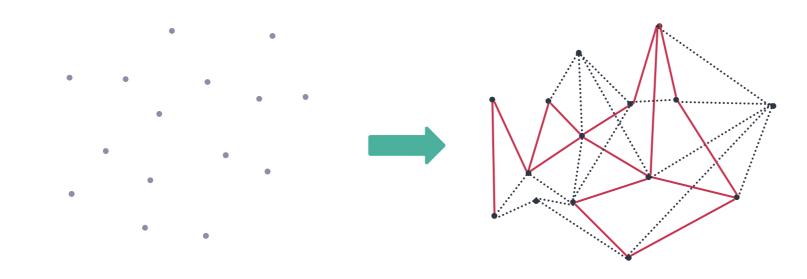


Works within rising complexity

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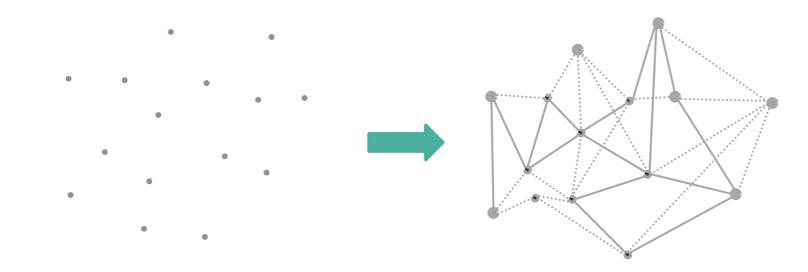
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Works within rising complexity



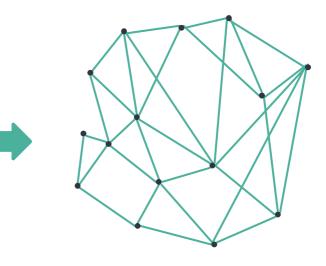
Works within rising complexity Learns non-linear relationships



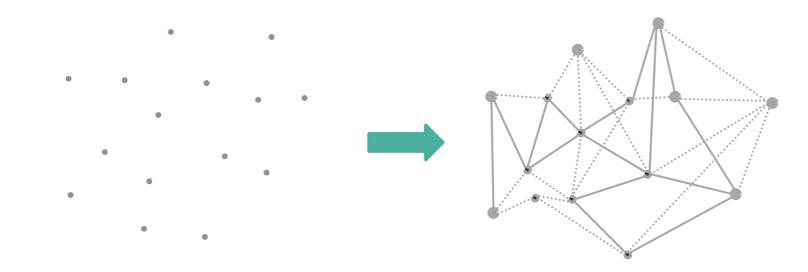


Works within rising complexity

Learns non-linear relationships

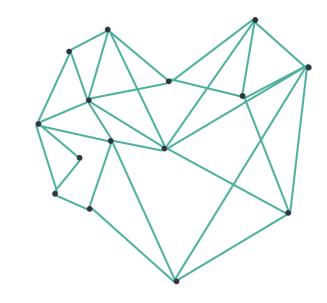


### Adapts when markets change



Works within rising complexity

Learns non-linear relationships



### Adapts when markets change

# **Analytical AI vs Generative AI**

	ANALYTICAL AI
WHAT IT DOES	<ul> <li>Solves complex Y time-varying analytical problems</li> </ul>
STRENGTHS	<ul><li>Explainable</li><li>Forward-looking estimations</li><li>Anomaly Detection</li></ul>
USE CASES	<ul> <li>Portfolio Optimisation</li> <li>Regime Analysis</li> <li>Factor Modelling</li> <li>Risk Management</li> </ul>
EXAMPLES	<ul> <li>▷ MOOTM</li> <li>▷ Sphere</li> <li>□ DataRobot</li> <li>□ Clik <ul> <li>□</li> <li>□ clarifai</li> </ul> </li> </ul>

#### **GENERATIVE AI**

Generate new content from a text or unstructured input

CreativeCreates new contentText automation

•

Question asnwering
Information retrieval
Text generation
Summarization



# Living in the era of **AI DEMOCRATIZATION**

Al is no longer only used by those who develop it



# Living in the era of **AI DEMOCRATIZATION**

Today, everyone can leverage its power









# Chat**GPT**

Write a	non-disclosure agreement.	Make the term of the
	S NON	Relations this Agree
		agent, or for any pu
		Severabili remainder parties.
		Integratio of the par negotiatic
		Waiver. Th provision performar
		Agreemer
	Stop generating	
	• o	make the term

#### e agreement 3 years.

nip of the Parties. The parties are independent contractors. Nothing contained in ment shall be deemed to constitute either party as the employer, employee, representative of the other party, or both parties as joint venturers or partners rpose.

ty. If a court finds any provision of this Agreement invalid or unenforceable, the  $\cdot$  of this Agreement shall be interpreted so as best to affect the intent of the

n. This Agreement expresses and constitutes the understanding and agreement ies with respect to the subject matter hereof and supersedes all prior ns, understandings, and agreements between the parties.

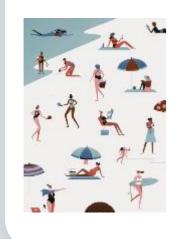
ne failure of either party to require performance by the other party of any of this Agreement shall not affect in any way the full right to require such nce at any time thereafter. A waiver of any breach of any provision of this at shall not be taken or held to be a waiver of the provision itself.

S Regenerate response

of the contract 3 years

10

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.





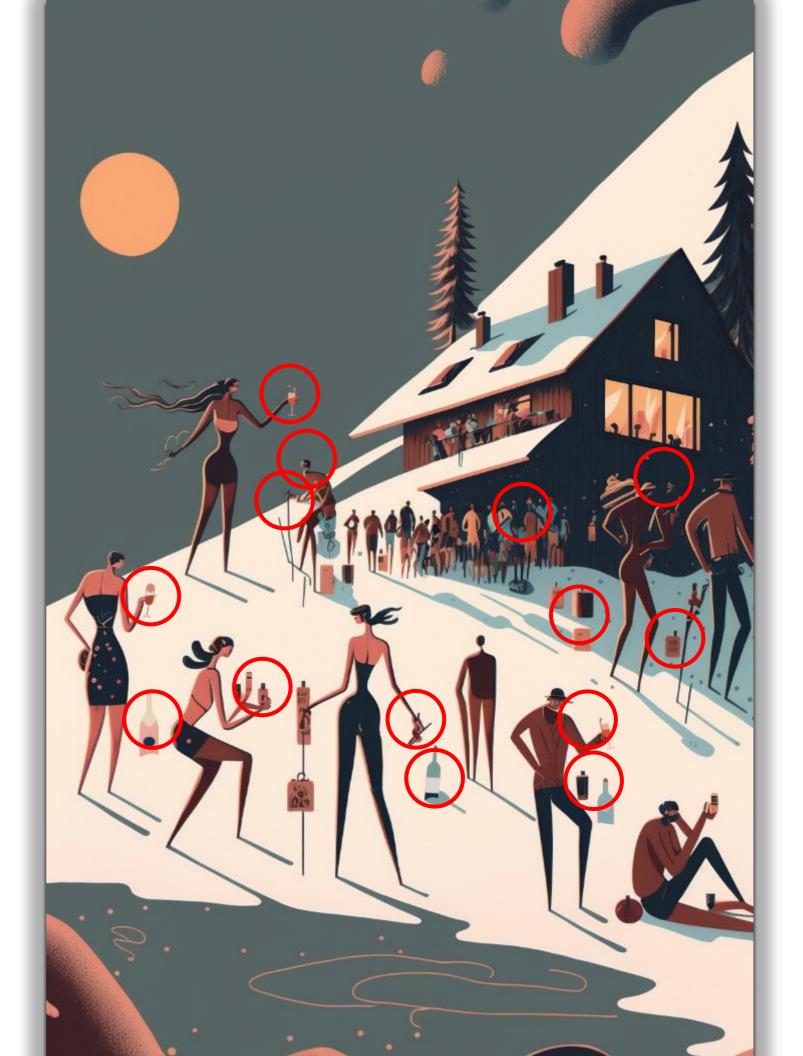
Make it more of a skiing party in front of a Chalet, with people wearing skiing clothes, like jackets, boots, skiis, gloves, hats, and more. Make it a cold and pretty day, with beautiful colors. Make sure that there are no people at the beach, it is only a skiing context.



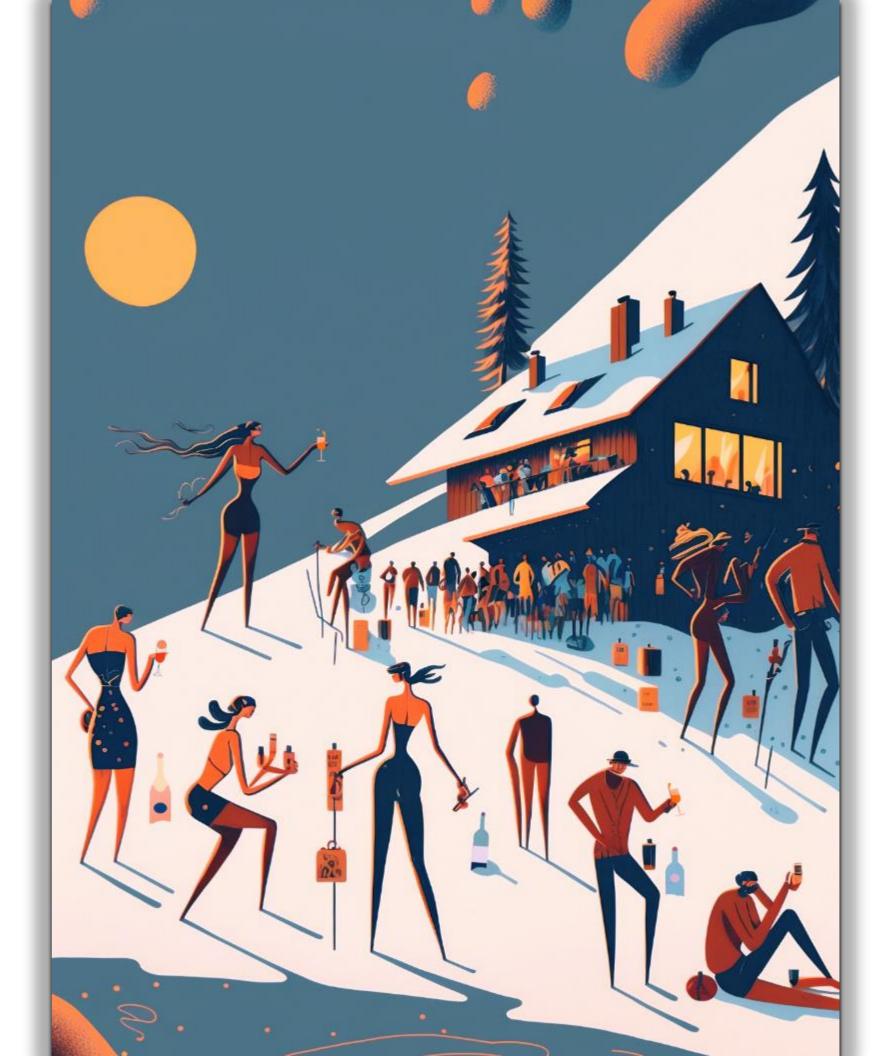
Al's Output



First Edit



Second Edit



**Final Result** 





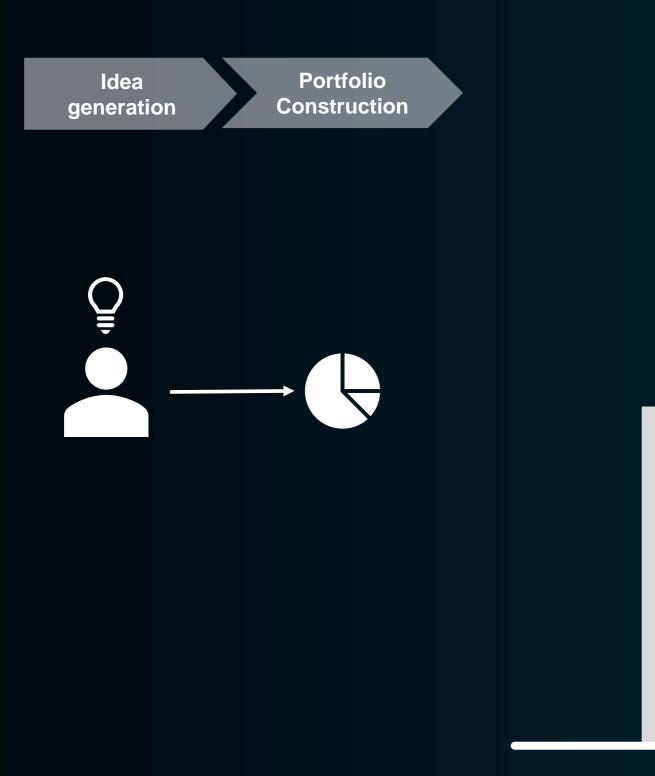
# Living in the era of **AI DEMOCRATIZATION**

Does it also apply to the world of investments?

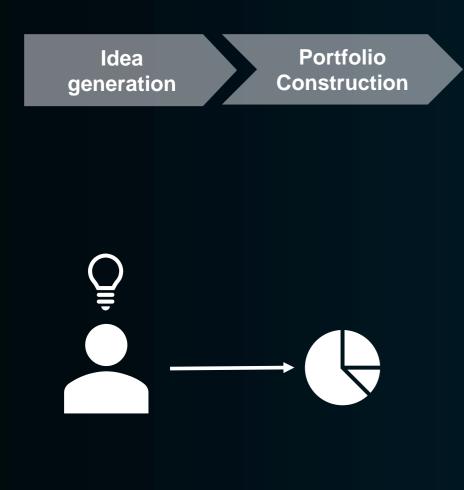




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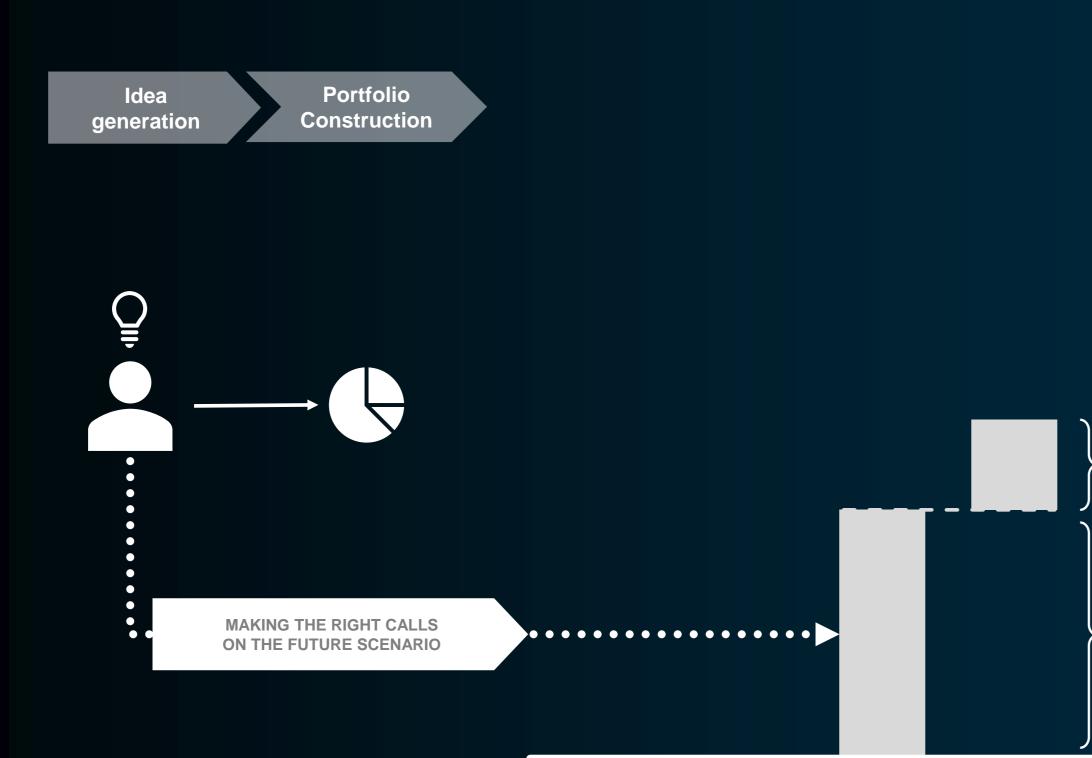






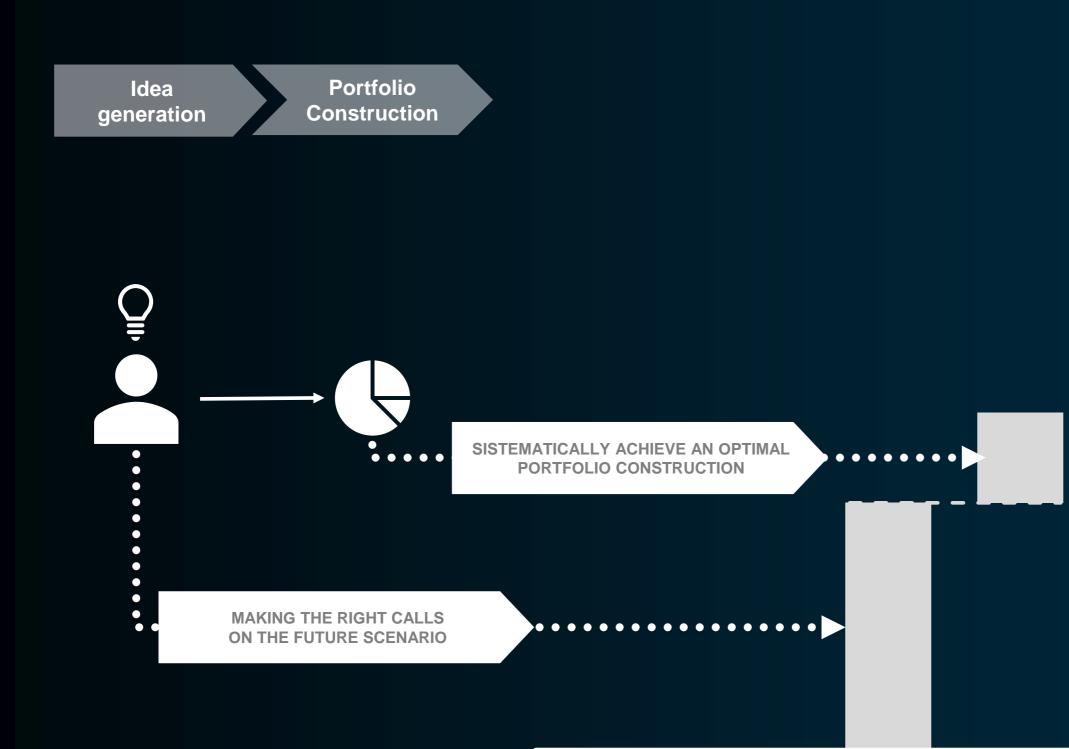


#### PORTFOLIO CONSTRUCTION ALPHA





#### PORTFOLIO CONSTRUCTION ALPHA





#### PORTFOLIO CONSTRUCTION ALPHA





#### PORTFOLIO CONSTRUCTION ALPHA

Portfolio Construction

Idea

generation

#### 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		

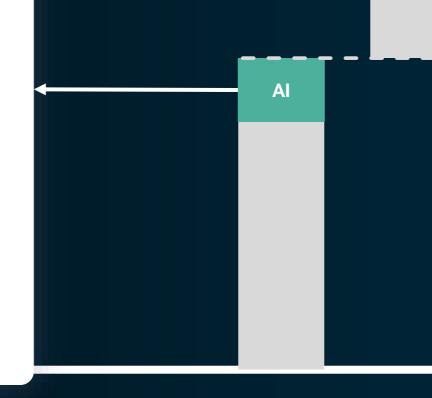
#### **REGIME-SWITCH STRATEGY\***

PERFORMANCE OF EU, US, EU+US AND REGIME-BASED MOOTM 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 entrify allocated to cash.





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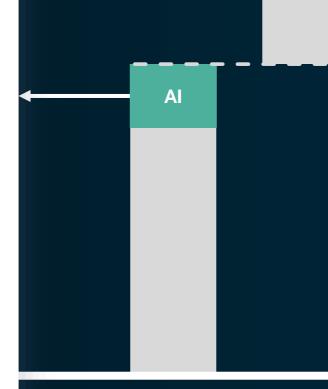


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Portfolio Construction

Idea

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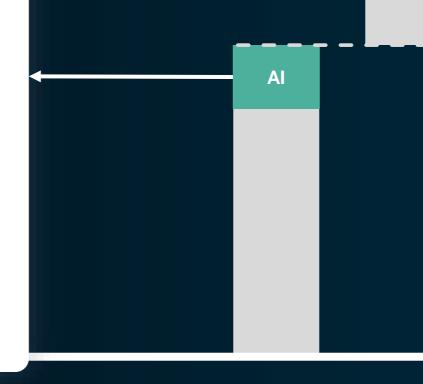
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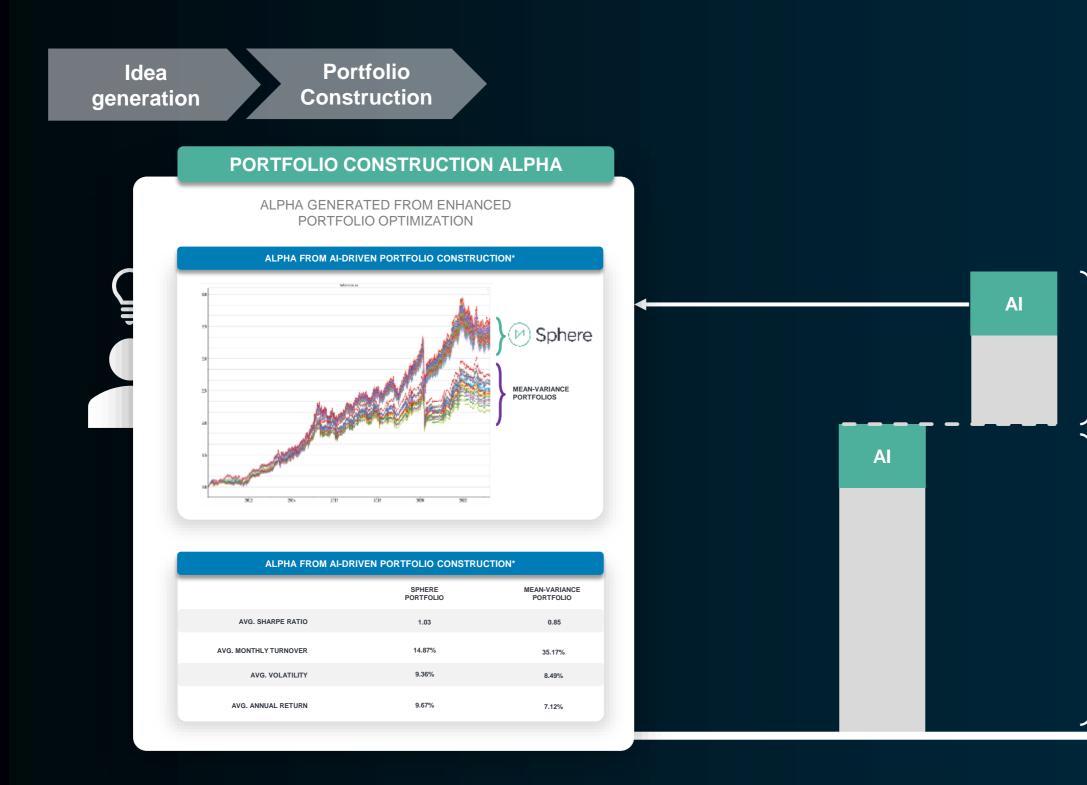
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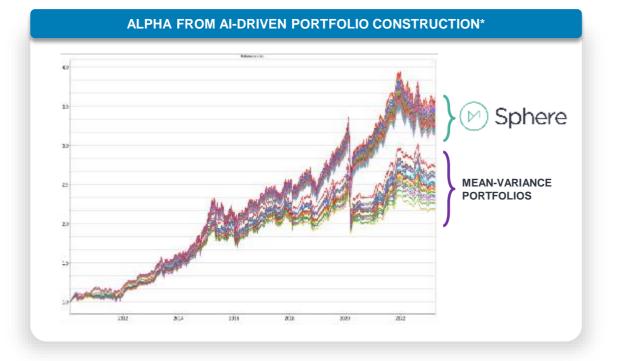


#### PORTFOLIO RETURN

#### PORTFOLIO CONSTRUCTION ALPHA

#### **PORTFOLIO CONSTRUCTION ALPHA**

#### ALPHA GENERATED FROM ENHANCED PORTFOLIO OPTIMIZATION



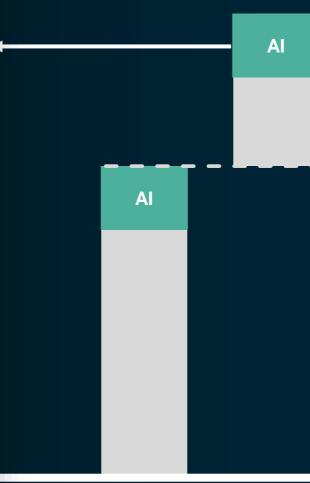
ALPHA FROM AI-DRIVEN PORTFOLIO CONSTRUCTION*					
	SPHERE PORTFOLIO	MEAN-VARIANCE PORTFOLIO			
AVG. SHARPE RATIO	1.03	0.85			
AVG. MONTHLY TURNOVER	14.87%	35.17%			
AVG. VOLATILITY	9.36%	8.49%			
AVG. ANNUAL RETURN	9.67%	7.12%			

#### **Results:**



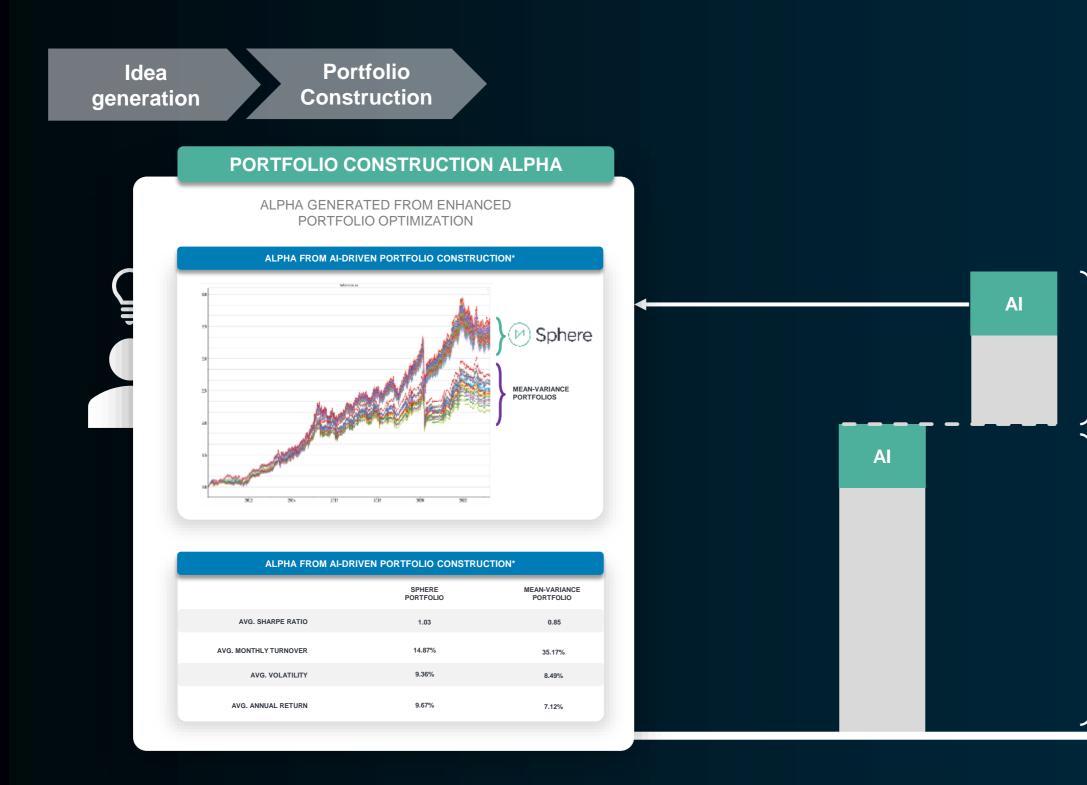


\*Methodology: Grid Search of Black & Litterman Mean-Variance Portfolios against Sphere Portfolios with same expected returns and investable universe.



#### PORTFOLIO RETURN

#### PORTFOLIO CONSTRUCTION ALPHA



#### PORTFOLIO RETURN

#### PORTFOLIO CONSTRUCTION ALPHA

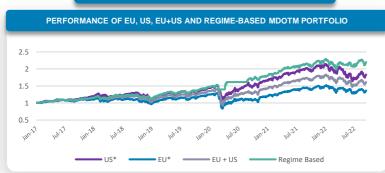


Idea generation

#### FORECASTING ALPHA

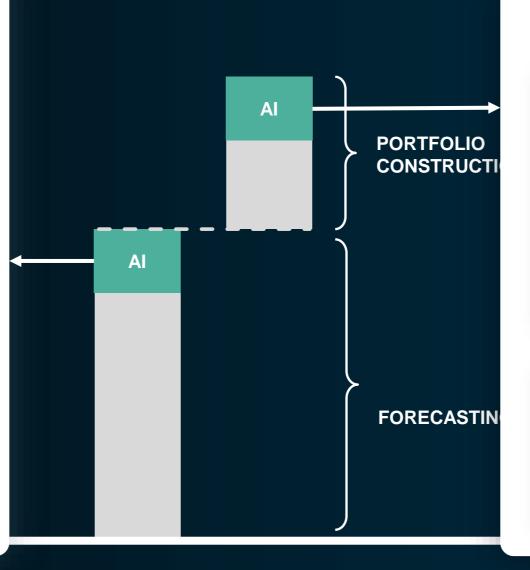
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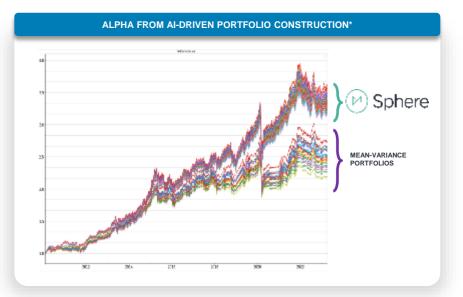
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### Al applications in the investment process:

**Optimise Positioning** 

**Unbiased Investment Inputs** 

**Asset Allocation** 

**Idea Generation** 

**Portfolio Construction** 

**Forecast Market Regimes** 

**Stress Testing** 

Personalised Market Views

**Risk Expectations** 

**Scenario Analyses** 

...and much more



**Portfolio Enhancement** 

**Forward-Looking Indicators** 



#### DASHBOARD

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#### **Asset Class Overview**

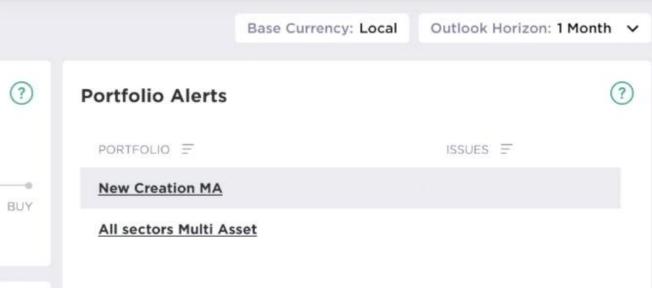


#### Outlook

Equity Outlook	View	Fixed Income Outlook					View	Commodities Outlook					View
EQUITY = SU U N	o so	FIXED INCOME	SU	U	N	0	so	сомм. =	SU	U	Ν	0	so
Equity EM Large Cap		US Long Gov		1.1.1.1	•			Precious metals	-	0	•	E A	1
Equity Europe Large		US Medium Gov	1	L L	•	1		Industrial metals	1	1	•	1	- 0 -
Equity US Large Cap		US Short Gov	1	1.1.1		0		Energy		1		0	•
Equity JP Large Cap		US Hy	0	1		ł		Agriculture	0	i F		1	1
		US Corp		-		9	•						
		EU Long Gov	1	0		1							
		EU Medium Gov	1	-		-	0						
		EU Short Gov	1	1	•	1							
					1								



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#### Commentary

(?)

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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
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EXAMPLES	MOOTMSphereDataRobotQlik@arabesqueClarifai

#### **GENERATIVE AI**

Generate new content from a text or unstructured input

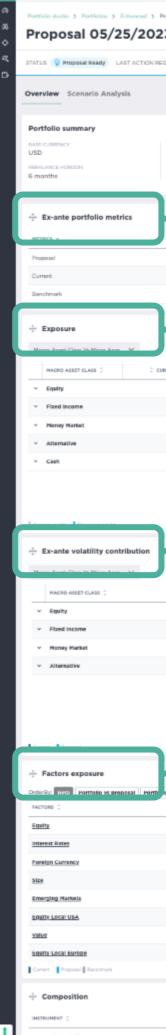
CreativeCreates new contentText automation

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Question asnwering
Information retrieval
Text generation
Summarization



# Sphere ChatGPT Integration



	⊘ Spher	re				(†) Help	Tommaso Migliore      ✓
Proposel 05/25/2023						Comparative Bend 60% Global Equit;	tmark y - 40% Global Appre
REQUEST: ENMANCEMENT (05/25/2023)						Back to current	Accept / Edit · Reject
ASSET CLASS Multi-Asset ISNCHMME 60% Global Equity - 40% Global Ag	Universe Enhanc Universe Enhanc REFERENCE SAA	NEX CONSTRAINTS Historical Vall (95% 3 Y C 0%	(ear): <b>14.00%</b> 20%				0
							۵
	inn ; anni	ALISED VOLATILITY	÷ EPPICIENCY	RATIO	0 XMB 932 34	PAX DRAWDOWN	© DIVERSIFICATION BATIO
	5.00 N	10.67%		0.59	4.03 %	-21.91.%	1.25
	5.42 S	9.19 N 9.41 N		0.62	4.24 %	-17.46%	1.41
	2.82 %	2418		0.05	4.30 %	-19:22.9	114
CURRENT WOOHT : ENHANCED WDOHT 05 46.895 57.395 38.565 29.875 14.585 2.575 0.005 5.185 0.015 0.015				2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	<ul> <li>geographics, and micro asset</li> <li>Macro Asset Class: The weight increased by 10:30%. Fixed with a weight of 318%.</li> <li>Geography: The weight of increased by 6.02%. Emery added with a weight of 33.</li> <li>Micro Asset Class: The weight has decreased by 4.09%. F added with a weight of 3.3</li> <li>These changes reflect a shift Market and USA and Canada</li> </ul>	a significant changes in Ha expan- classes. The most relevant chang light of Money Mariat has decrease d income has decreased by <b>6.695</b> USA and Canada has decreased by <b>6.9</b> ging Mariats has decreased by <b>6.9</b> <b>8</b> . git of Geographic has increased inancials has decreased by <b>3.379</b> <b>65</b> . towards Equity and Europe, while the addition of Alternative and 0 the increase in Geographic expect	ess pre: set by 4.99%, while Equity has i. Alternative has been added y 6.66%, while Europe has 56%, and Global has been by 25.37%, while Money Market i, while Alternative has been inducing exposure to Money Inducing exposure to Money
CURRENT : : : 7.945 1.685 0.095	PRDPOSAL     S765     S265     G.085	2017/E184002 05 75 25 +L825 -C.485	3% 4% 5% 6%			rket view used to build your portf	olio and the market view MEDRUM PORECAST START DATE: 06/15/2023
1.025	E275	•2.03 S			Sphere forecast Regime forecast calculated b FORECAST HORIZON & MONTAS 33% - LOW REK - PRO REK	y Sphere and updated weekly.	33%
o vs benchmark Proposal vs benchmark					05	0 0.5	ی 🚺 🕲 کاروند اور
		0.59 0.7		0.63			
		0.49 0.4		0.35			
		0.29 0.3	a	0.00			

LENTIFIER () ASKET CLASS () - CURRENT WEDN'T () EMMANCED WEDN'T () DIFFER

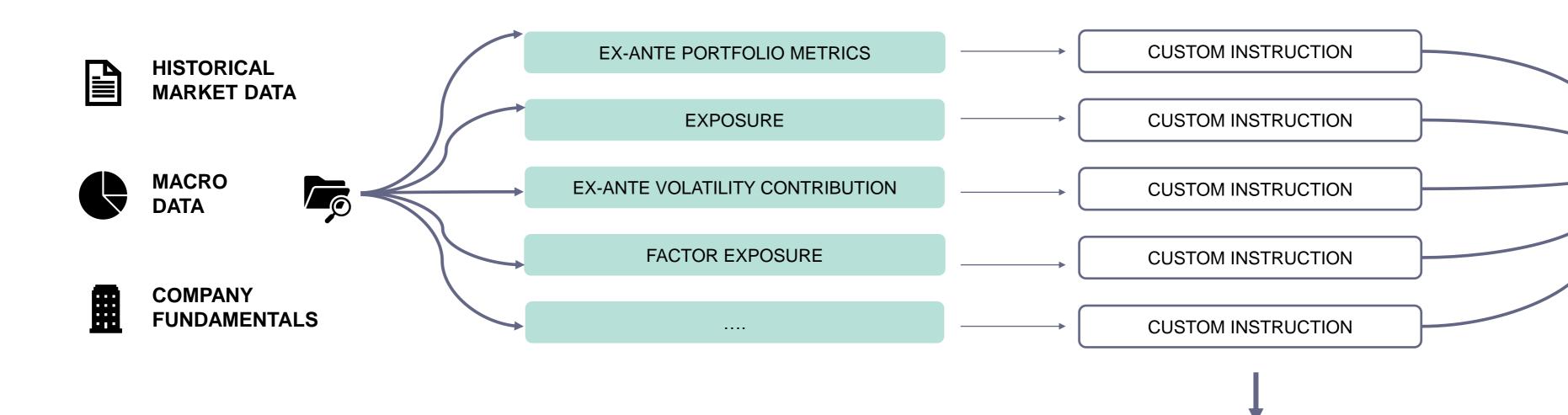
-0.05

-0.05

DATA SOURCES



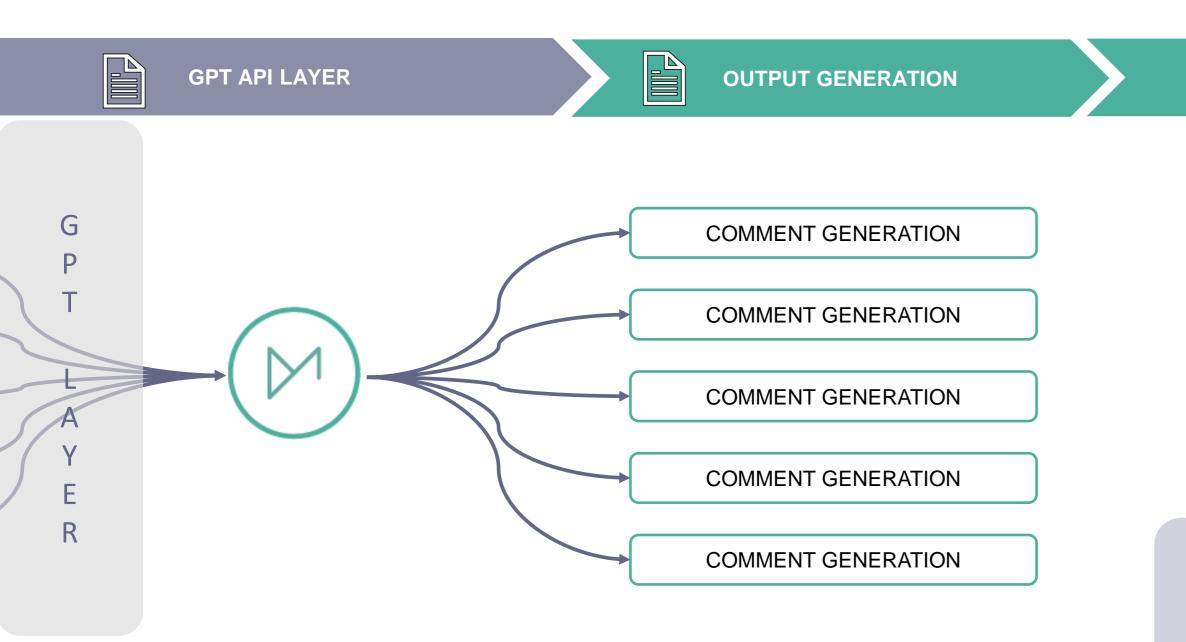
#### SPHERE'S ANALYTICAL AI CALCULATIONS



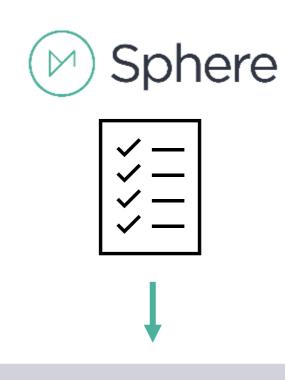


#### PROPRIETARY PROMPT ENGINEERING ARCHITECTURE

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



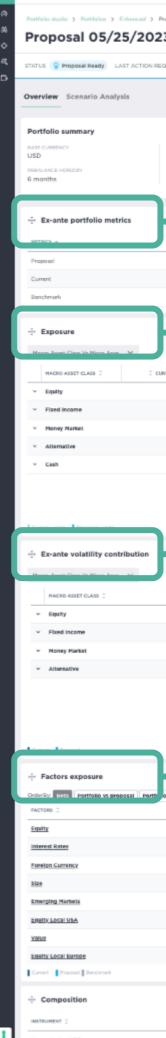
#### **SPHERE COHERENCE CHECK**



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

**FINAL OUTPUT** 

## ChatGPT Integration in Sphere



	⊘ Spher	re				(†) Help	Tommaso Migliore      ✓
Proposel 05/25/2023						Comparative Bend 60% Global Equit;	tmark y - 40% Global Appre
REQUEST: ENMANCEMENT (05/25/2023)						Back to current	Accept / Edit · Reject
ASSET CLASS Multi-Asset ISNCHMME 60% Global Equity - 40% Global Ag	Universe Enhanc Universe Enhanc REFERENCE SAA	NEX CONSTRAINTS Historical Vall (95% 3 Y C 0%	(ear): <b>14.00%</b> 20%				0
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	inn ; anni	ALISED VOLATILITY	÷ EPPICIENCY	RATIO	0 XMB 932 34	PAX DRAWDOWN	© DIVERSIFICATION BATIO
	5.00 N	10.67%		0.59	4.03 %	-21.91.%	1.25
	5.42 S	9.19 N 9.41 N		0.62	4.24 %	-17.46%	1.41
	2.82 %	2418		0.05	4.30 %	-19:22.9	114
CURRENT WOOHT : ENHANCED WDOHT 05 46.895 57.395 38.565 29.875 14.585 2.575 0.005 5.185 0.015 0.015				2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	<ul> <li>geographics, and micro asset</li> <li>Macro Asset Class: The weight increased by 10:30%. Fixed with a weight of 318%.</li> <li>Geography: The weight of increased by 6.02%. Emery added with a weight of 33.</li> <li>Micro Asset Class: The weight has decreased by 4.09%. F added with a weight of 3.3</li> <li>These changes reflect a shift Market and USA and Canada</li> </ul>	a significant changes in Ha expan- classes. The most relevant chang light of Money Mariat has decrease d income has decreased by <b>6.695</b> USA and Canada has decreased by <b>6.9</b> ging Mariats has decreased by <b>6.9</b> <b>8</b> . git of Geographic has increased inancials has decreased by <b>3.379</b> <b>65</b> . towards Equity and Europe, while the addition of Alternative and 0 the increase in Geographic expect	ess sno: sed by 4.99%, while Equity has i. Alternative has been added by 6.66%, while Europe has 56%, and Global has been by 25.37%, while Money Mariant i, while Alternative has been inducing exposure to Money Jobel may provide
CURRENT : : : 7.945 1.685 0.095	PRDPOSAL     S765     S265     G.085	2017/E184002 05 75 25 +L825 -C.485	3% 4% 5% 6%			rket view used to build your portf	olio and the market view MEDRUM PORECAST START DATE: 06/15/2023
1.025	E275	•2.03 S			Sphere forecast Regime forecast calculated b FORECAST HORIZON & MONTAS 33% - LOW REK - PRO REK	y Sphere and updated weekly.	33%
o vs benchmark Proposal vs benchmark					05	0 0.5	ی 🚺 💽 Significant factors only
		0.59 0.7		0.63			
		0.49 0.4		0.35			
		0.29 0.3	a	0.00			

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-0.08

-0.05

Al integration to ask Sphere real-time questions.

**FINAL OUTPUT** 

## ChatGPT Integration in Sphere

**Examples:** 

- Compare Portfolios

XXXX, YYYY in the next month?

- Why is this instrument in my Portfolio?

- What do you expect from these Asset Classes:

- What-if Scenario?

022 → Nov 3, 2022

18

50%

