Amundi
Investment Solutions

Trust must be earned

How to integrate artificial intelligence into retirement benefit management?

Tuesday 22nd of October 2024
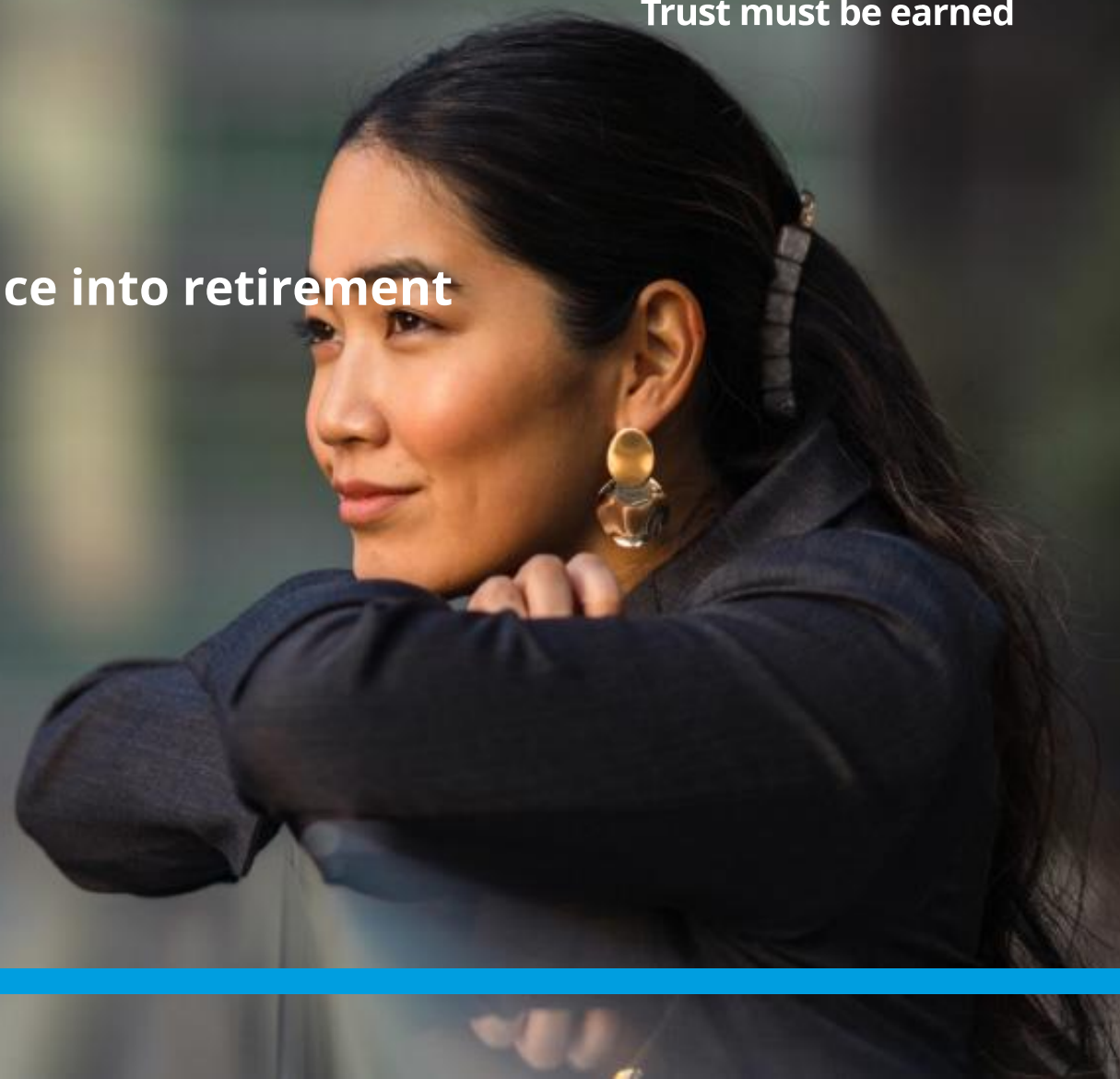
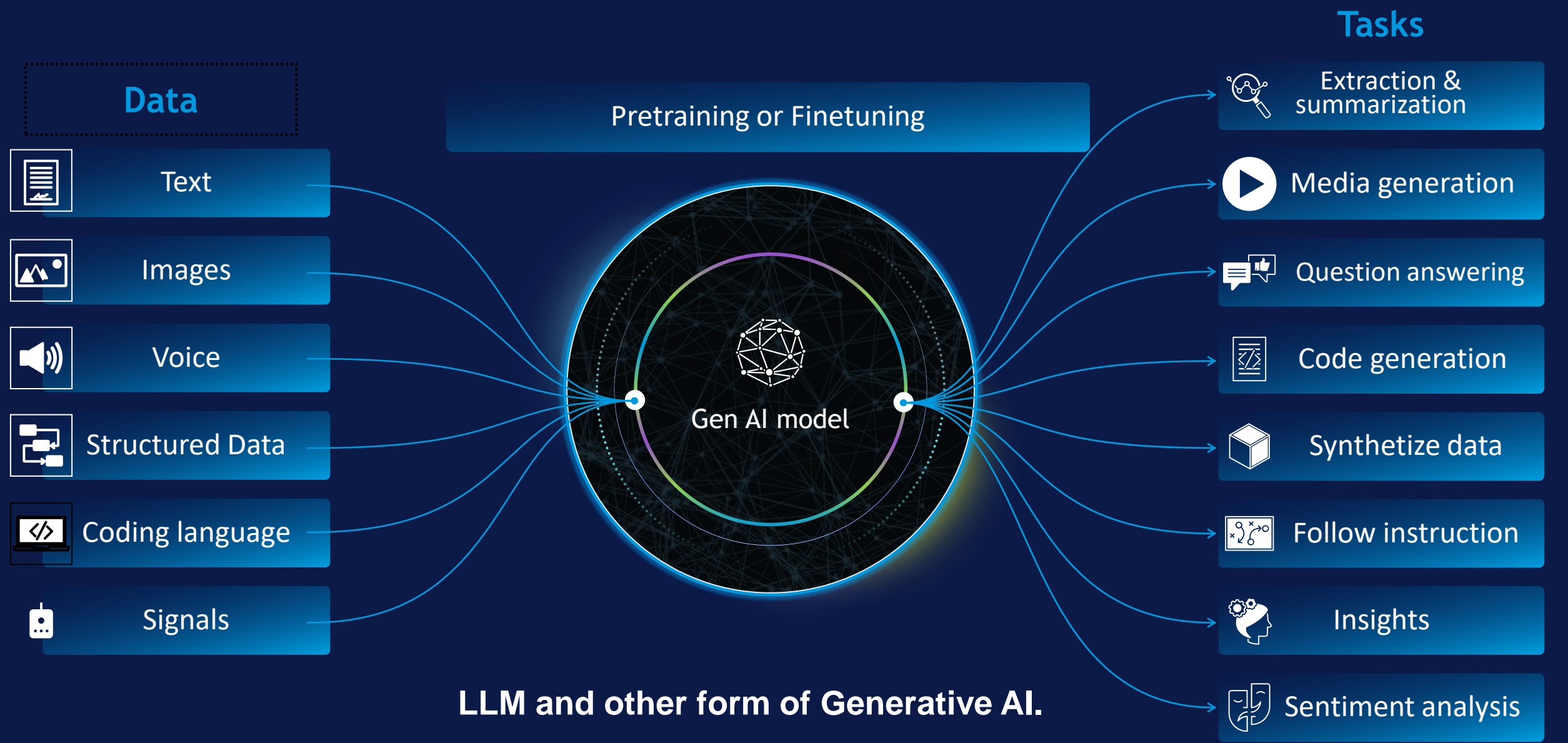# Summary

- Artificial Intelligence in financial landscape.

- AI case around retirement solutions practices.

- AI embedded retirement solutions discussions.

- Conclusion.

A.I. in financial landscape

How we will define AI and Gen AI for our conversation

Data

- Text
- Images
- Voice
- Structured Data
- Coding language
- Signals

Pretraining or Finetuning

Gen AI model

LLM and other form of Generative AI.

Tasks

- Extraction & summarization
- Media generation
- Question answering
- Code generation
- Synthetize data
- Follow instruction
- Insights
- Sentiment analysis

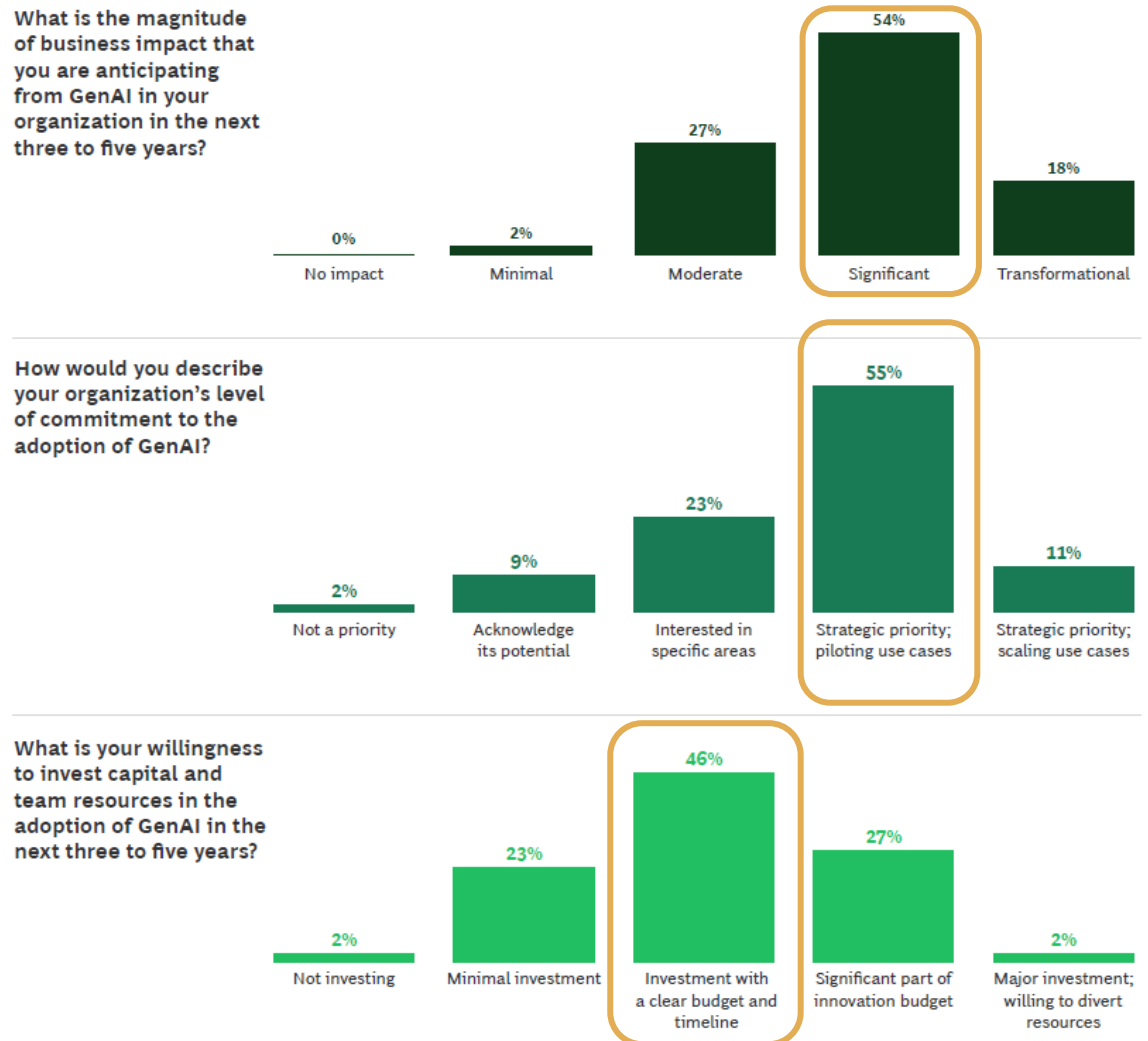AI will also have very meaningful and differentiated impact across industries.

A study of 400 case studies by McKinsey shows that 67% of the time, AI can add incremental value over traditional analytical techniques
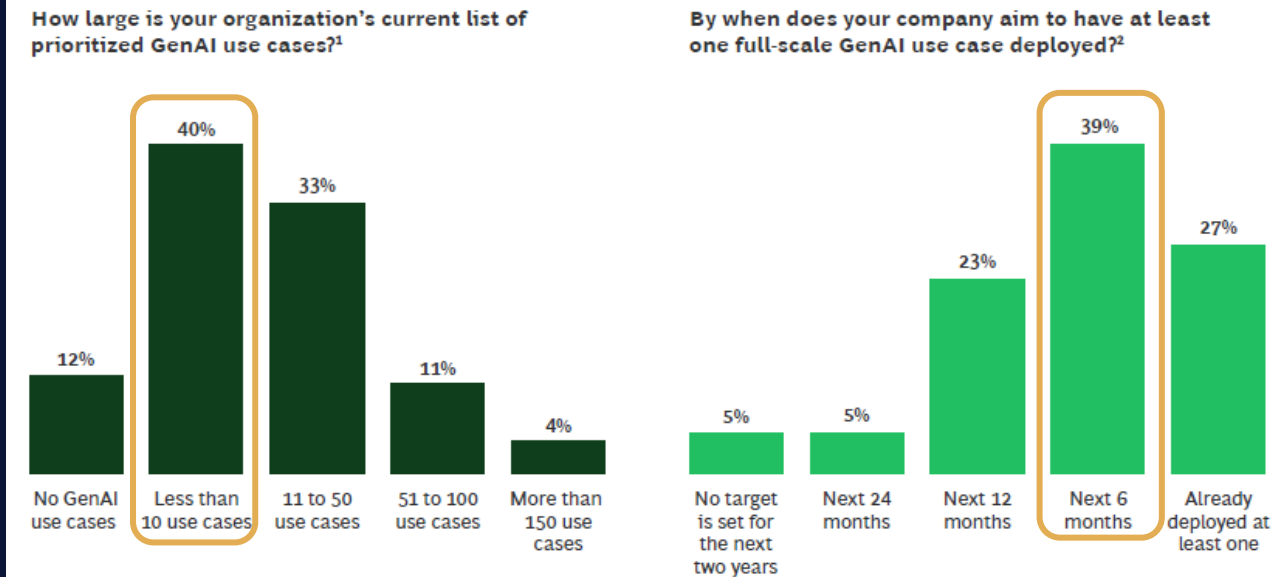
Artificial intelligence in Asset Management / financial landscape

Asset Managers Recognize GenAI as a Strategic Priority

What is the magnitude of business impact that you are anticipating from GenAI in your organization in the next three to five years?

No impact	Minimal	Moderate	Significant	Transformational
0%	2%	27%	54%	18%

How would you describe your organization's level of commitment to the adoption of GenAI?

Not a priority	Acknowledge its potential	Interested in specific areas	Strategic priority; piloting use cases	Strategic priority; scaling use cases
2%	9%	23%	55%	11%

What is your willingness to invest capital and team resources in the adoption of GenAI in the next three to five years?

Not investing	Minimal investment	Investment with a clear budget and timeline	Significant part of innovation budget	Major investment; willing to divert resources
2%	23%	46%	27%	2%

Asset Managers Are Experimenting with GenAI Use Cases

How large is your organization's current list of prioritized GenAI use cases?[1]

No GenAI use cases	Less than 10 use cases	11 to 50 use cases	51 to 100 use cases	More than 150 use cases
12%	40%	33%	11%	4%

By when does your company aim to have at least one full-scale GenAI use case deployed?[2]

No target is set for the next two years	Next 24 months	Next 12 months	Next 6 months	Already deployed at least one
5%	5%	23%	39%	27%

Artificial intelligence in Asset Management / financial landscape

BlackRock

Fidelity

PIMCO

Amundi
Investment Solutions

Vanguard

BNY | INVESTMENTS

HSBC Asset Management

eastspring investments

. . .

Betterment

personal CAPITAL
AN EMPOWER COMPANY

Wealthfront

charles SCHWAB

. . .

, utilize AI to assist with retirement planning,

"These platforms offer various features

Our teams of data scientists, AI engineers and researchers are constantly exploring new ways for AI to enhance our business.

AI Labs

For more than five years, D... has been creating artificial intelligence (AI) enabled solutions for financial services. We aim to empower clients with trustworthy and scalable platforms.

Innovation Lab

AI already a strategic topic but only targeted use cases …

AI implementation: Asset Management use case

We have made positive progress in developing our Artificial Intelligence capability. The external view is that we are ahead of the market in terms of technological capability, and we are now at the "go / no-go" stage for business deployment

What Have been achieved so far

✓ **Established GenAI community**
~xx users from across company business lines, aligned with the Cybersecurity team

✓ **Built company GenAI module**
Our own GenAI module built

✓ **Deployment of business cases** *(ongoing)*
We have experimented with a number of POCs, and several are scaling:
- Compliance and Translation
- Investment, ESR, Real Estate, ETF
- RFP *(see appendix for more details)*
- Wealth Story telling

Recent feedback from Microsoft, the biggest technology company globally and a leader in AI,
is that **we are at the forefront in the market**

Effort: 10 / 20 / 70

The work on skills and organizations requires the most significant efforts.

10% — Algorithms
AI Generative models

20% — Technology / IT
Data Platforms, Data Quality and Accessibility
Data Visualization Tools
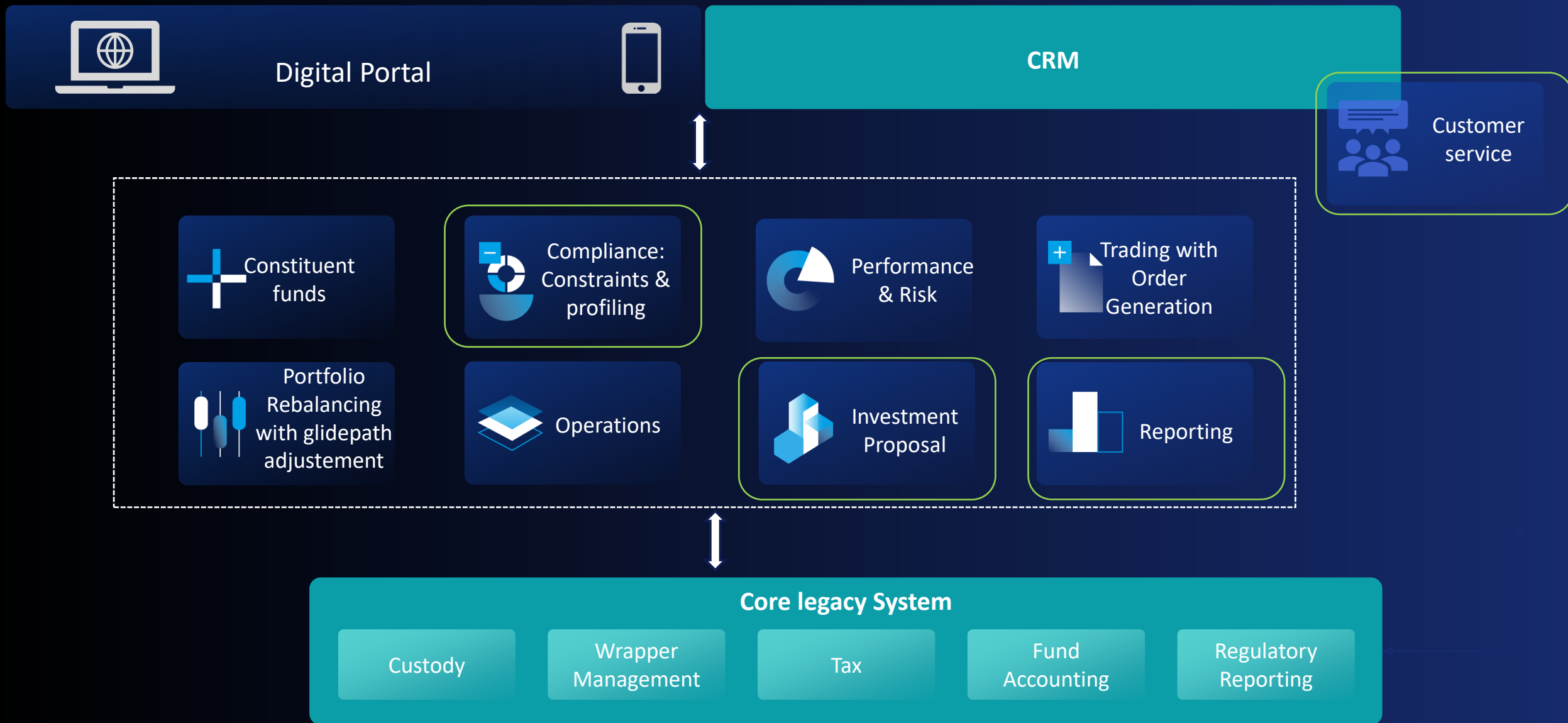
70% — Skills and Organization
Work Methods and New Processes
Organizational Evolution Talents and Skills
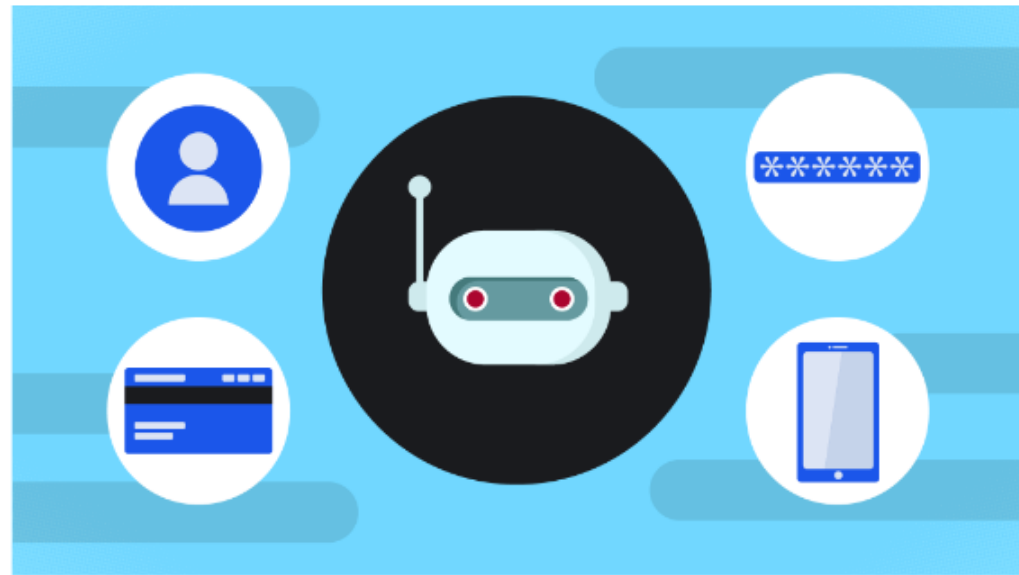Change Management & Communication

Key Learnings in AM landscape

1 Three areas to investigate: "GenAI in daily life," "Rethinking business processes," and "inventing new business models"; efforts should be focused on 1 and 2.

2 GenAI enhances the employee (e.g., personal advisor or assistant), total automation is rarely possible; the impact will come from an 80-90% productivity gain on certain parts of the process rather than 10-20% everywhere.

3 Some uses are now mature (especially text/code generation, synthesis, and conversational interfaces), others not yet (e.g., problem-solving, design, ...).

4 Large Language Models (LLMs) alone are rarely sufficient to solve a business problem – there is a need to build AI + GenAI solutions.

5 More than 50% of skills will be impacted, requiring a real HR approach and monitoring of the impact to protect and develop human capital.

6 Proof of Concepts (POCs) are easy, but industrialization is harder; with significant integration challenges to achieve the expected results, however, experimentation should allow for the gradual taming of the technology.

7 Technologies evolve rapidly (performance/cost) – it is necessary to maintain agility in the choice of models, and to build skills for the use of this new technology.

8 There is a combined need for a coordinated approach (to capture the expected gains, prioritize efforts, manage risks, and improve the learning curve) and experimentation to encourage ownership.

AI case around Retirement solutions

Embracing AI in some parts of retirement management value chain

Digital Portal

CRM

Customer service

Constituent funds

Compliance: Constraints & profiling

Performance & Risk

Trading with Order Generation

Portfolio Rebalancing with glidepath adjustement

Operations

Investment Proposal

Reporting

Core legacy System

Custody

Wrapper Management

Tax

Fund Accounting

Regulatory Reporting

Typical exemple of « Chatbot »

Generative AI chatbots are a type of program that can process, analyze, and **respond to human-provided inputs**

They use various statistical, computer science, and AI methods to facilitate communication and generate **natural-sounding responses**

These methods include **natural language processing (NLP)** and **natural language generation (NLG)**

Creating New Responses

GenAI chatbots can respond to inputs by producing new responses from scratch.

Large language models (LLMs) and **NLP** allow them to analyze and generate responses to natural human language.

Training

These chatbots are trained on extremely large **linguistic datasets**.

These datasets may include books, articles, blog posts, and public social media posts.

Output and Uses

Chatbots have many uses, including research, translation, and content creation.

To enhance process around retirement management

Use cases:

#1 - Compliance Assistant
#2 – Research
#3 - Wealth and robo advisory

Experiment #1 - Compliance

AI Assistant controlling Compliance
with Internal & Regulatory Rules
and Ensuring Consistency

Case Study: Compliance

Presented below is a case study of using AI to solve a business problem

Business problem	Streamlining and enhancing the process for checking marketing materials for compliance errors

Background

- Compliance only able to monitor 50% of marketing materials

- Only slides / documents are monitored, not videos

- Increasing volume of controls required by regulators

Approach

- Scope of tests covered:
  1. Rules checking: Reg Rules and Internal rules
  2. Statements control
  3. Coherency detection with reference documents

Solution

- AI Compliance Checker used to scrutinise marketing and other related documents, ensuring they align with compliance standards

- Integrated with current systems to automate the review process, reducing human error and the potential for greenwashing and false marketing

- Mass documentation upload and AI results monitoring enabled

Benefits

COST SAVING
- Decrease in non-compliance fines and penalties

FREE UP CAPACITY
- Reduced human effort – 2FTE made available to focus on high risk controls

BRAND REPUTATION
- Avoiding greenwashing accusations (or false marketing)

QUALITY
- Over 90% accuracy
- 100% of marketing materials checked

For Institutional Investors, Distributors and Financial Advisors Only

Experiment #2 – AI Web Research Assistant

Autonomous AI assistant designed for conducting web research and compiling thematic report notes.

Case Study: AI Web Research Assistant

Presented below is a case study of using AI to solve a business problem

Business problem	The goal is to improve efficiency in manual research for business intelligence and marketing task for an investment specialist team.

Background

- Manual effort in handling diverse sources

- Analyst teams do a lots of screening and crafting before starting their analysis

- Handling Information using different formats.

Approach

- POC of 6 months

Solution

- AI Research Assistant tool for business intelligence : Generate reports and provide sources

- Ready to use web app interface

Benefits

FREE UP CAPACITY
- Reduced human effort, teams can focus on qualitative analysis

QUALITY
- Limit hallucinations
- Can be tailored for multiples objectives such as Marketing or Business Intelligence; and

COST SAVING
- Quick implementation and Cost efficient solution

Tool– GenAI

Specialized chatbot

Conversations history

Models and parameters

ALTO ALTO STUDIO (Ppr)

CONVERSATIONS

+ chatgpt global
+ Q&A over documents
+ Chat Maestro

Type to search...

| 04/09/2023 | Name |
| Q&A over documents | uY3gzAbUdr |

| 28/08/2023 | Name |
| Q&A over documents | a9ajxAakiv |

Name
nkb55efHGs

Name
nBNSy6IAYJ

Name
DFqTNmvkES

Name
JnS9HOqNfh

Name
)3UoTkcow6

Q&A over documents

Connexion is ON

Me :

que fais le lab innovation d'amundi?

Audit : *que fais le lab innovation d'amundi?*

Number of tokens: 9

Chat Bot :

Le Lab Innovation d'Amundi s'attaque aux principaux défis du marché tels que les percées technologiques, les processus métier lean, les nouveaux produits et la promotion de l'innovation dans le secteur de l'épargne. Il vise à proposer des solutions à valeur ajoutée à tous les utilisateurs d'ALTO, à éviter la dispersion technologique avec l'innovation et à soutenir les équipes locales dans leurs efforts d'innovation. Le Lab Innovation est également un lieu de présentation pour les nouvelles technologies, la conception de nouveaux produits et la refonte des processus métier.

Number of tokens: 140
Total number of tokens (Input + Hidding Prompt + Response): 882

Sources

Audit « behind the scene »

| Prompt Template | *Write your question* | Send |

Filters on personal docs. as source of kwnowledge

Search for a file

Select all   Collapse all

Project **JuridiqueTest**

Project **Keipperso**

File Innovation_I

File Generative_

File Innovation_L

SOURCES

Page Content:Amundi Technology Innovation...abliGeneralities June 23.
Metadata: {'source': 's3a://app-data-studio-ppr/projects/Keipperso/Innovation_Lab._generalities.pptx', 'filename': 'Innovation_Lab._generalities.pptx', 'file_directory': '/tmp/tmp4b2suizm/projects/Keipperso', 'filetype': 'application/vnd.openxmlformats-officedocument.presentationml.presentation', 'page_number': 1}

Page Content:Innovation is not a process it's a mindset The Innovation Lab is Amundi Technology toolbox your inspired challenges such as technological breakthrough lean business process new product product innovation in the savings sector Key solutions à tous users est valeur... Can not not not centralize, but distribute its expertise Propose added-value solutions... Transparency, explicability, low consumption by design... ALTO: Amundi Leading Technologies & Operations 4 Innovation Lab
Metadata: {'source': 's3a://app-data-studio-ppr/projects/Keipperso/Innovation_Lab._generalities.pptx', 'filename': 'Innovation_Lab._generalities.pptx', 'file_directory': '/tmp/tmp4b2suizm/projects/Keipperso', 'page_number': 4}

Page Content:Business and R&D Innovation : Objectives and openness Objective Achieve and speed of R&D speed... Ocio, Risk, PMe (FI, Smart beta, Japan) B U S I N E S S Build and new developments client driven ALTO* solution M.Dartiguenave Architecture: F.Gazin Dat: A.Body Amundi ESG: E.Laugel ALTO* Climate Temperature, Stress and Physical risk MIT Partnership L.Yedid J.Dien On top learning powered FaaS/for AMINT Datascience B.I. on Trading activity Amundi Intermediation Datascientists: L.Duquenne Innovation Lab: R.Mery Support Researchers Amundi institute: M.Defend Amundi Institute R&D IT Equity: K.Elmgreen, P.Galassi Alto Solution: M.Dartiguenave Wealth&D: N.Pinson Wealth Ptf Optimization for Sabadell FICO integration/ Usecse implementation POC Fundchannel: P.A. Domon Caceis Lab: K.Haj Taieb Casa Lab: G.De La Tour Distributed ledger tech for CA Fund Fund channel T E C H Synergy: Datascientist community (risk, perf, trading, institute, Pms: strutred, equity, fixed income, japan, Amt r&d teams.
Metadata: {'source': 's3a://app-data-studio-ppr/projects/Keipperso/Innovation_Lab._generalities.pptx', 'filename': 'Innovation_Lab._generalities.pptx', 'file_directory': '/tmp/tmp4b2suizm/projects/Keipperso', 'filetype': 'application/vnd.openxmlformats-officedocument.presentationml.presentation', 'page_number': 8}

Page Content:Innovation Lab our showcase for new technologies, design new products and reshape business processes Fed by internal needs, market prospective, fintech ecosystem & our client ideas Innovation Lab prototype quickly new added value for Alto*, test it and scale up thanks the Alto Solution team Support Pre-sales, Demo and Discussion with prospects and clients Business Innovations Innovation streams Tech Innovations Product Innovations Data mesh – Data as a product / Self service Alto* Climate Stress test powered by MIT partnership Net zero Alignment Physical Risk channel distribution : order mutual funds in a second thx DLT AmundiGPT - access all internal unstructured knowledge Amundi institute: Support Research Working Paper 3 Innovation Lab - Generalities - May 23.
Metadata: {'source': 's3a://app-data-studio-ppr/projects/Keipperso/Innovation_Lab._generalities.pptx', 'filename': 'Innovation_Lab._generalities.pptx', 'file_directory': '/tmp/tmp4b2suizm/projects/Keipperso', 'filetype': 'application/vnd.openxmlformats-officedocument.presentationml.presentation', 'page_number': 3}

Retrieve the original sources of knowledge used to anwer

Models

| chatgpt 3.5 | chatgpt 3.5 16k | chatgpt 4 | chatgpt 4 32k |

Chain Type

stuff

Parameters

Temperature

0   Temperature

Nb of Document Parts

Nb of Document Parts
4

Number of messages history injected in prompt
2

Custom prompt

Save

Save settings

Prompt store - samples

2
5

Research Assistant Demo

Ex: Web research on the COP28 Announcements

Task done in 20' rather than 1 day

Alto Studio – A.I. reseach assistant

Thematic note

Experiment #3 – AI investment proposal comments and rationale

Use of GenAI to explain investment proposal to client

Wealth platform/ Use of GenAI to explain investment proposal to client

Create a proposal

Name your proposal

Mrs Moreno proposal 19Jun24

Storytelling for client

Language
◉ English ○ French

Register
○ Slang ◉ Informal ○ Formal

[Generate comment]

Normal ⬍ | **B** *I* U A | 🔗 🖼 🔗 ▦ | 🔢 ☰ | ¶

Mrs. Martinez Moreno,

I hope this message finds you well. I've been closely monitoring the recent shifts in the global economic landscape and your portfolio's performance, and I'm excited to share some tailored investment opportunities that align with the current climate and your financial goals.

Over the past month, we've seen some significant movements in the macroeconomic environment. Japan's Q2 GDP growth exceeded expectations, primarily driven by a surge in exports. However, a contraction in exports is expected to lead to a mild economic slowdown in H2. Inflation has been stubbornly high, but it's anticipated to start declining, remaining above the Bank of Japan's target until mid-2024.

Emerging Markets are showing a mixed bag of results. While China faces challenges, countries like Mexico and Brazil are demonstrating resilience, with Mexico benefiting from its proximity to the robust US economy. Speaking of the US, it's showing surprising resilience with strong labor market conditions and domestic demand, which could lead to further monetary policy tightening.

Internal notes

Normal ⬍ | **B** *I* U A | 🔗 🖼 🔗 ▦ | 🔢 ☰ | ¶

do not forget to xxx

AMBITION

Generate plug & play storytelling to the banker to help build his client pitch when presenting a new allocation

BENEFITS
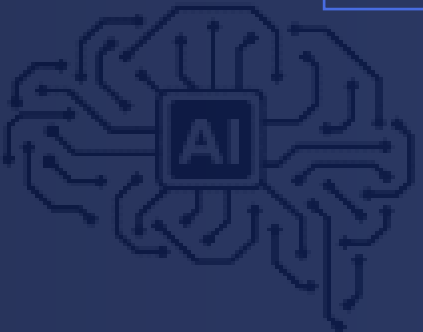
Increase productivity.

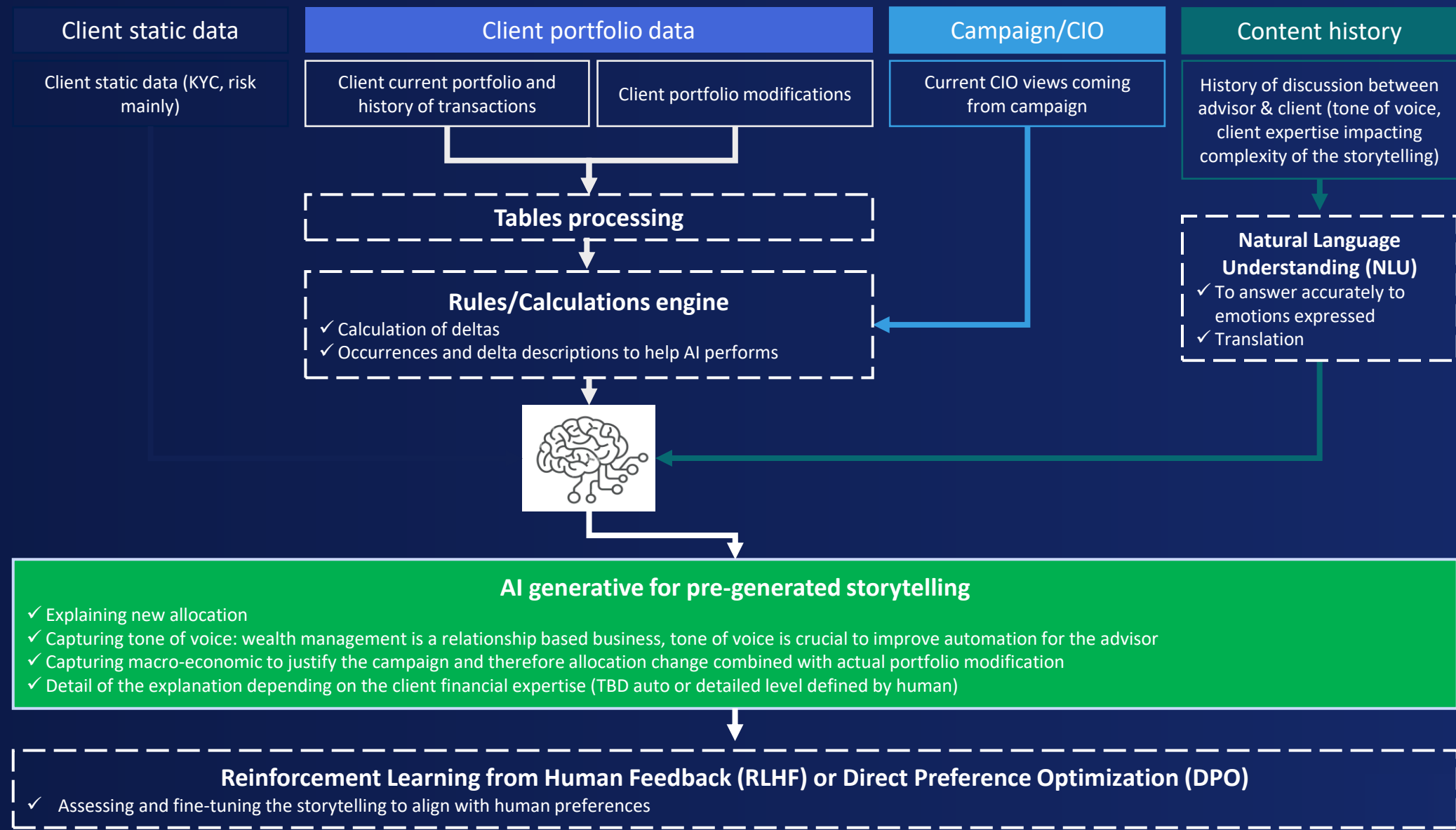**CIO insights (macro views…) automatically captured in the storytelling, avoiding distortions.**

Consistent storytelling across the client base taking into account each profile.

Augmented average storytelling quality and relevance. [9]

Short term flow chart of AI for Wealth client

Client static data	Client portfolio data		Campaign/CIO	Content history
Client static data (KYC, risk mainly)	Client current portfolio and history of transactions	Client portfolio modifications	Current CIO views coming from campaign	History of discussion between advisor & client (tone of voice, client expertise impacting complexity of the storytelling)

Tables processing

Rules/Calculations engine
✓ Calculation of deltas
✓ Occurrences and delta descriptions to help AI performs

Natural Language Understanding (NLU)
✓ To answer accurately to emotions expressed
✓ Translation

AI generative for pre-generated storytelling
✓ Explaining new allocation
✓ Capturing tone of voice: wealth management is a relationship based business, tone of voice is crucial to improve automation for the advisor
✓ Capturing macro-economic to justify the campaign and therefore allocation change combined with actual portfolio modification
✓ Detail of the explanation depending on the client financial expertise (TBD auto or detailed level defined by human)

Reinforcement Learning from Human Feedback (RLHF) or Direct Preference Optimization (DPO)
✓ Assessing and fine-tuning the storytelling to align with human preferences

AI embedded Retirement solutions case

….in theory …..

Embracing AI in the full retirement management value chain

Digital Portal

CRM

Customer service

Constituent funds

Compliance: Constraints & profiling

Performance & Risk

Trading with Order Generation

Portfolio Rebalancing with glidepath adjustement

Operations

Investment Proposal

Reporting

Core legacy System

| Custody | Wrapper Management | Tax | Fund Accounting | Regulatory Reporting |

AI Vision in retirement planning: from profiling to glidepath implementation…

IFA / RM

Robo advisor and goal based approach

Wealth and savings platform

AI fully embedded ??

Could be

Let see

AI aggregator

- Historic Expenses
- Taxes and tax rate
- All bank accounts
- Salaries
- Personal informations
- Financial goals
- Investment timeline
- Monthly savings capabilities
- Available savings

Personalized retirement planning

Customer service

Risk assessment

Predictive analytics

Investment optimization

Automated record keeping

End-saver Experience
Examples of combination

Growth Engine
- 85% equities / 15% Fixed Income
- Expected return: 7,8%

Decumulation Engine
- 25% equities / 75% Fixed Income & MM
- Target Return: 5,5%
- Expected return: 4,8%

Investor Lifecycle & Financial Solutions

Income

Savings

Loans

Borrowing

Investment Solutions

?

Consumption

Dissavings

Accumulation Phase

Decumulation Phase

Youth — Working Years — Retirement

Age
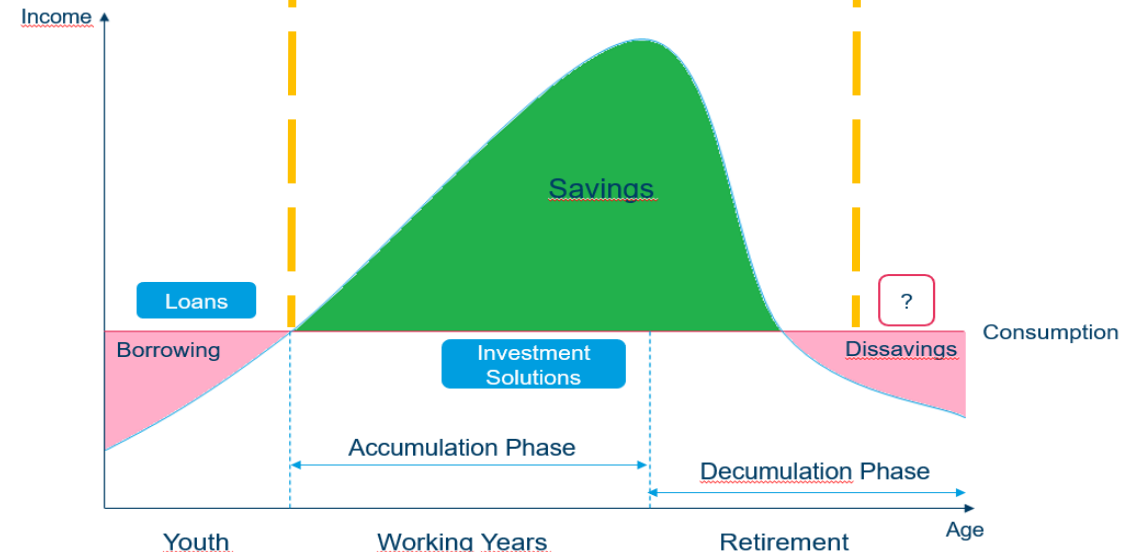
AI embedded Retirement solutions case

….in theory …..

But Far from live go

Some challenges for AI full proof of concept in retirement management

- Social Issues
- Ethics
- Opacity and data integration
- Hallucinations
- Regulations
- Scalability
- Reputation
- Security