

Emerging Issues **2024** **FORUM**

01. AI and the Impact on Retirement

Paul Andrews., Managing Director | CFA Institute
Anthony Falzone, Deputy Executive Director and COO | PRIM

DoubleTree by Hilton
Westborough, MA

September 18, 2024



Commission Members

Philip Y. Brown, Esq.

Principal/Founder, Brown Counsel
Chairman

The Honorable Diana DiZoglio

Auditor of the Commonwealth
Vice Chairman

Kathleen M. Fallon

Practice Area Director,
Public Consulting Group

Kate Fitzpatrick

Town Manager, Town of Needham

James J. Guido

Lieutenant, Chelsea Police Department

Richard MacKinnon, Jr.

President, Professional
Firefighters of Massachusetts

Jennifer F. Sullivan, Esq.

Governor's Appointee
Investment Professional

Bill Keefe

Executive Director

Public Employee Retirement Administration Commission

Five Middlesex Avenue
Suite 304
Somerville, MA 02145

Phone 617 666 4446
Fax 617 628 4002
TTY 617 591 8917
Web www.mass.gov/perac



Emerging Issues **FORUM**

2024



01. AI AND THE IMPACT ON RETIREMENT

Speakers:

Paul Andrews, Managing Director | CFA Institute

Anthony Falzone, Deputy Executive Director and COO | PRIM

Pensions and the Rise of Artificial Intelligence

PERAC ANNUAL CONFERENCE
18 SEPTEMBER 2024

Paul Andrews

2

THE FUTURE OF PENSIONS AND THE RISE OF ARTIFICIAL INTELLIGENCE

Agenda

Current Issues Facing Pension Systems

The Rise of AI and Relevance to Pensions

Overview of the Pension Value Chain

1. Membership and Payment Channels
2. Recordkeeping and Account Management
3. Governance and Investment
4. Investment Management
5. Payout Phase

Addressing Pension Challenges

Key Recommendations and Conclusions

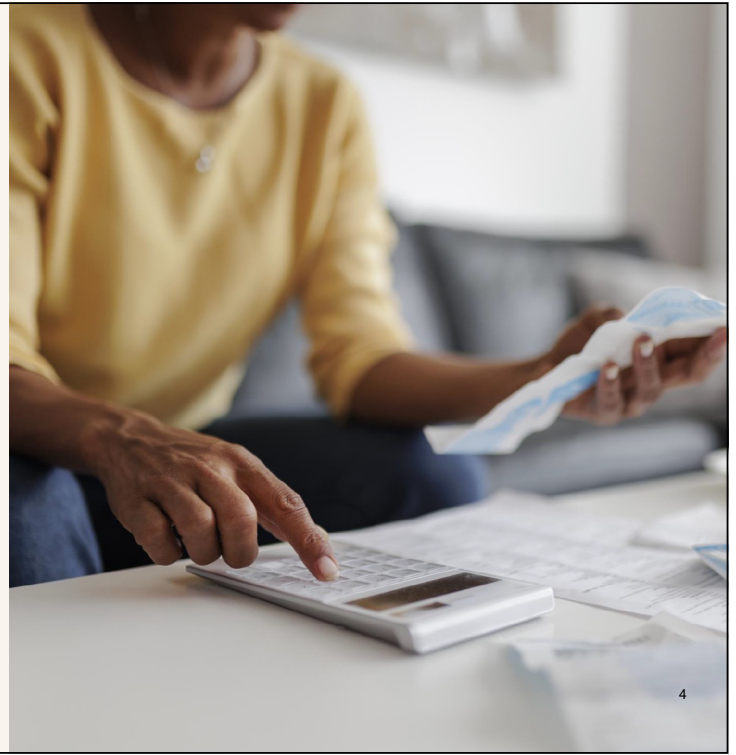
© 2023 CFA Institute. All Rights Reserved

3

NOTES:

Current Issues Facing Pension Systems

© 2023 CFA Institute. All Rights Reserved



4

Current Issues Facing Pensions and Retirement Income Systems

Changing Demographics

- Populations around the world are aging, driven by increasing life expectancy and declining birth rates.

Underfunding

- Traditionally refers to DB plans where liabilities exceed assets.
- Recent estimates of unfunded state and local pension obligations in the US totaled \$1.5 trillion (Knapp et al., 2023)
- Currently available strategies such as raising the retirement age or contribution rates may not be sufficient to meet funding shortfalls.

Inflation

- Some public pensions have shifted from wage indexation to price indexation.
- Half of OECD countries provide inflation protection.

Rising inequality

- Estimated 700 million people live in extreme poverty (World Bank, 2024).
- Gig workers and informal workers often excluded from retirement plans.

Financial literacy and information gaps

- Financial systems are more complex than ever, often requiring a blend of instruments.
- Shifts from DB to DC have placed funding risk on individual plan members.

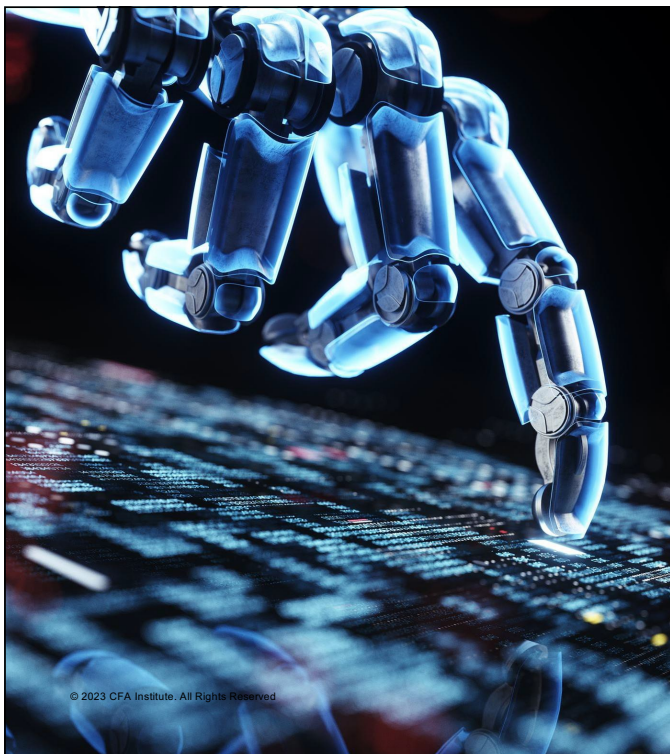
Demands for personalization and financial wellness

- Overall expansion of pension-provided services to include financial wellness.
- Plan sponsors must balance customized offerings with concerns of choice overload.

© 2023 CFA Institute. All Rights Reserved

5

NOTES:



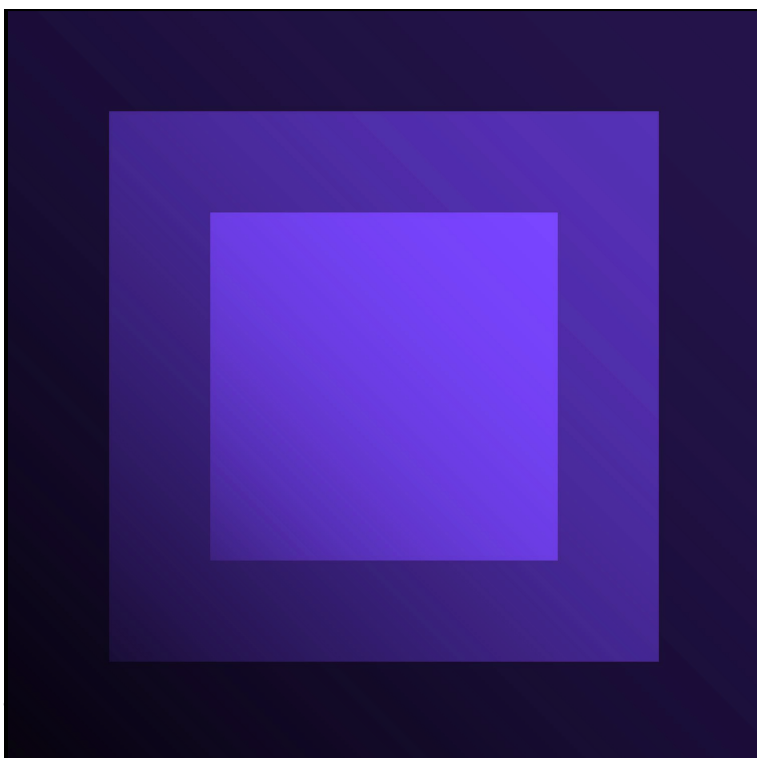
© 2023 CFA Institute. All Rights Reserved

THE FUTURE OF PENSIONS AND THE RISE OF
ARTIFICIAL INTELLIGENCE

The Rise of AI and Relevance to Pensions

The Future of Pensions and the Rise of
Artificial Intelligence

6



“AI represents a huge potential to improve our pension and social security systems by analyzing data more quickly, improving accuracy, highlighting future risks, reducing costs, improving outcomes and communication, and helping members in a more personalized way. This should provide individuals with a much better experience as they interact with our complex retirement systems.”

— Mercer CFA Institute Global
Pension Index 2023

7

NOTES:

What do we mean by AI?

Artificial Intelligence (AI) refers generally to any imitation of human cognition using computers (Bartram et al., 2020).

- Machine learning (ML) – outputs are based on algorithms trained on past data (i.e., the algorithms ‘learn’ to produce the correct outputs).
- Examples: artificial neural networks (ANNs), tree-based models, LASSO regressions, cluster analysis, support vector machines (SVMs), and natural language processing (NLP)

While AI is not new to the investment industry, recent attention has been given to generative AI (GenAI)

- GenAI are models that respond to prompts by producing new content based on their training data.



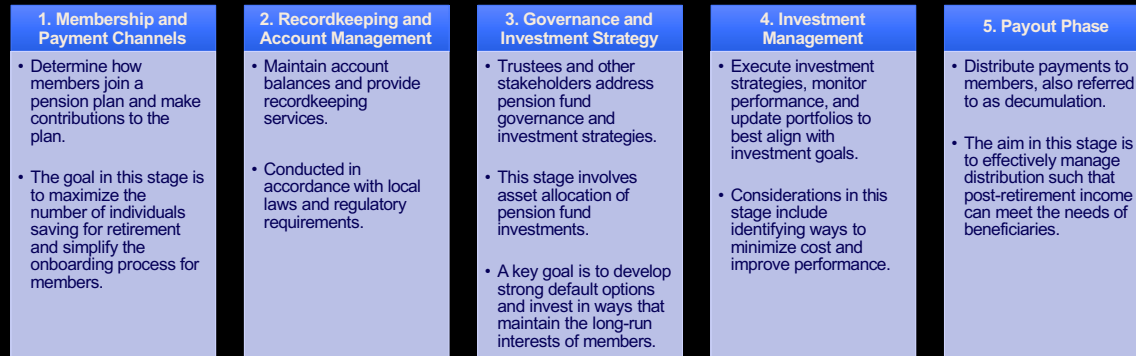
Pension Value Chain



(World Bank Group, Social Protection and Jobs Discussion Paper, 2019)

NOTES:

Pension Value Chain



10

1. Membership and Payment Channels

- Onboarding
- Member Engagement
- Payment Systems



11

NOTES:

Membership and Payment Channels

Onboarding

Automated collection of new member data, reducing errors and encouraging complete member information.

- Collection of name, birth date, contact information, company and employment data, date of enrollment, contribution information, investment preferences, and other investment-relevant information. AI can be used to scan for errors or inconsistencies in the data.
- Automated prompts for additional information (e.g., prompts about spousal information or other investment information). This information can be collected through an interactive portal or chatbot.
- Natural language processing (NLP) can aid in transferring physical documents into editable and searchable digital content.

Storage and maintenance of member data.

- Ensure data privacy protections and data security in accordance with local laws and regulations.
- Run regular checks of member data to ensure all information is correct and up-to-date.

Membership and Payment Channels

Member Engagement

AI Chatbots – automated response tools that allow users to hold conversations that simulate interactions with a live human agent (ISSA, 2021).

- Responding to member-specific questions regarding funded status, portfolio allocations, and tax requirements. Screening members at call centers to gather necessary information and connect members to the appropriate party.
- Popular due to reasonable cost/benefit ratio. Saves pension agents from having to respond to commonly asked questions and is relatively low cost and low maintenance once implemented.
- Can enhance ease of access to information and heightened financial literacy among members.

Sentiment analysis – using NLP and text mining to gather and analyze subjective information, such as thoughts and opinions on different topics or products (Wankhade et al., 2022).

- Pension providers can solicit feedback or use available data (such as data from chatbot interactions) to analyze member sentiment about new products and services.
- Increased personalization by gauging sentiment on general topics, such as retirement, ESG investing, or annuities.

NOTES:

Membership and Payment Channels

Payment Systems

Streamline automated payment systems

- Machine learning is already being used to extract and standardize data items such as payment amount, payment recipient, and account details for authorization.
- AI could facilitate faster payment clearing and settlement by dynamically routing transactions through efficient channels (Zagha, 2024).
- Advancements in payment platforms and services could positively impact pension inclusion, particularly in developing markets.

2. Recordkeeping and Account Management

- Reporting and Disclosure
- Fraud Prevention



NOTES:

Recordkeeping and Account Management

AI can consolidate information held in multiple formats and provide pension administrators with easy access to plan-specific details through enhanced search and summary tools.

AI can be used to ensure the timely processing of member data, including contributions, investments, reconciliations, and claims that has been vetted for errors and missing documents.

Reporting and Disclosure

Case Study: LifeSight by Willis Towers Watson – AI-generated benefit statement and automated nudges

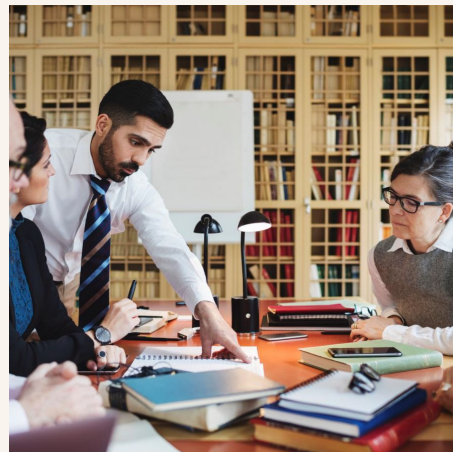
- WTW used AI to develop a personalized video presentation for each benefit statement using the same data that would be compiled into a paper statement. Promotes ease of understanding (e.g., numbers are rounded and no jargon).
- ML algorithms identify when a member hits a certain key event in their investor lifecycle (e.g., nearing retirement, approaching tax limits, or retirement income likely to run out). The system sends out a call to action to prompt members to make relevant adjustments.

Fraud Prevention

Involves training ML algorithms on large amounts of historical data that include fraudulent activities. The model adapts to accurately identify those patterns as fraudulent and is then used to flag new instances of fraud in data accumulated in real time.

3. Governance and Investment

- Enhancing Trustee Decision-Making
- Determining Investment Strategy
- Manager Selection and Maintenance



NOTES:

Governance and Investment

Enhanced Trustee Decision-Making

Newfront, a US technology-driven insurance brokerage and retirement advisory firm, uses LLMs to analyze publicly available Form 5500 filings to help plan sponsors establish plan-specific benchmarks and competitor analyses.

Case Study: Pi Partnership uses Knowa – Governance Platform

- All pension documents, including board meeting notes, reports, and compliance logs, were uploaded to Knowa's platform, allowing each trustee to access all historical documents across their governance portfolio. Knowa Q, a generative AI tool, can then respond to queries using historic scheme-specific content (e.g., "Summarize our last meeting", "Did we discuss this topic before?", or "Who were the trustees at this board meeting?")

"Pension scheme trustee boards have never had such a tough job to do. Increasing demands are coming from all directions; whether that be from regulatory scrutiny, enhanced ESG reporting, volatile investment markets or, as the economic environment becomes more challenging, from covenant risk" – Cardano UK publication (2022)

Governance and Investment

Determining Investment Strategy

Regular assessments of assets and liabilities are required for DB plans. AI and ML models offer new ways of assessing non-linear relationships of complex data.

- Enhanced predictions of assumptions, including salary increases, retirement dates, member mortality, inflation rates, and investment return.
- Studies using deep reinforcement learning (DRL) improved outcomes of net portfolios relative to traditional ALM analyses.

DC plans require developing and maintaining an investment menu that operates in the best interest of plan members.

- Target-date funds (TDF) have become increasingly popular in DC plans. AI can assist by collecting investor-specific information and identifying patterns across member data to make personalized investment suggestions.
- E.g., Envestnet's Insights Engine predicted when a plan member had outside assets, including asset type, with over 75% accuracy (Carlson, 2023), which could then be used to prompt members to exclude certain types of investments or alter the distribution of asset classes.
- ML techniques like cluster analysis and deep learning could be used to generate personalized or semi-personalized portfolio defaults.

NOTES:

Governance and Investment

Manager Selection and Maintenance

Case Study: Japan's Government Pension Investment Fund (GPIF) – Asset manager selection

- GPIF was unsatisfied with fund performance. Linking management fees with active return did not address underlying issues with manager selection and structure.
- Sony Computer Science Laboratories, Inc., developed an initial pilot system, **Style Detector Array (SDA)**, that used deep learning to identify management styles using detector arrays (neural networks trained on virtual fund manager behavior).
 - Used to identify adherence to well-known investment styles (value, momentum, etc.) and changes in investment style.
- Sony CSL developed another system, '**Resembler**', that provided quantitative metrics for fund manager investment strategy and aspects of the asset management process that were previously only qualitative.
 - Training data from actually existing funds. Rather than identifying factor exposures, it identifies a fund's 'uniqueness' or distinct trading style.
 - 'Self-resemblance': detection of characteristic investment behavior to aid in selecting candidate funds and monitoring existing funds.
 - 'Mutual-resemblance': assessment of similarities among funds for fund selection.

4. Investment Management

- Managing the Pension Portfolio
- Private Markets
- Sustainable Investing
- Robo-Advisors



NOTES:

Investment Management

Managing the Pension Portfolio

Determining asset allocation

- AI can be leveraged to inform asset allocation decisions based on emerging market trends, economic indicators, and historical performance data.
 - Enhanced predictions of stock movements and index performance.
 - Identification of systemic risk factors.
 - Improved mean-variance optimization and rebalancing strategies.
- Natural language processing (NLP) can be used to extract insights from unstructured and unconventional data sources including earnings calls, news sources, and social media.

Optimizing trade execution

- AI can efficiently analyze future transaction costs including bid-ask spreads, market impact costs, and trading commissions.
- ML techniques like performance-weighted random forests enhance predictions on price changes following order book events.
- Deep reinforcement learning can optimize trade execution by dividing trades into smaller orders executed over a set period, learning from market microstructure data rather than relying on fixed model parameters.

Investment Management

Managing the Pension Portfolio

Managing portfolio risk

- ML strategies can be used to address market risk by incorporating additional and unconventional data sources, produce more robust forecasting models of market changes, and back test current risk models.
- Credit risk analysis can also be improved through AI. This is particularly relevant for liability-driven investment strategies that incorporate derivatives into their portfolios to hedge solvency risk.

But watch out for...

- Model bias – discrepancies between model predictions and actual values
 - **Underfitting** occurs when the model is not complex enough to fit the training data and fails to capture some of the relevant correlations.
 - **Overfitting** occurs when the model is too complex and excessively fits the training data, leading it to identify correlations between unrelated variables.

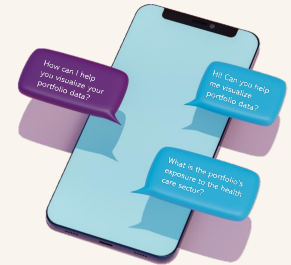
NOTES:

Investment Management

Private Markets

Case Study: BlackRock's Aladdin and eFront – Investment management and private markets

- Investment in private markets is largely about data, and specifically, data collected from a wide variety of documents. Being able to efficiently collect and tag metadata on these various documents is a significant value add for alternative investors.
- ML software analyzes those documents to identify the relevant components to consolidate, normalize, and standardize the information for investors.
- BlackRock released an eFront copilot late last year, built on Azure OpenAI, which can respond to questions, build custom reports, and visualize exposures, performance measures, and other portfolio insights.



The Future of Pensions and the Rise of Artificial Intelligence

Investment Management

Sustainable Investing

Some of the biggest challenges in ESG investing is the lack of standardized data, limited or inconsistent company disclosures, and the subjectivity and dynamic nature of ESG metrics.

AI can assist in the parsing and analysis of large amounts of structured and unstructured data, summarize and extract relevant insights from company disclosures, and evolve with shifting ESG criteria.

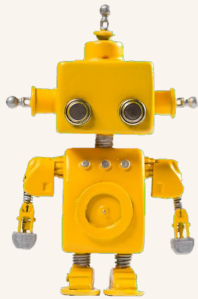
- E.g., Phoenix Group partnered with Neural Alpha to leverage GenAI and LLMs to develop human rights performance assessments and scorecards for risk management and reporting.

AI can also aid in pension fund reporting of investment decisions and climate-related financial risk.



NOTES:

Investment Management: Robo-Advisors



Robo-advisors are automated services that use computer algorithms to manage investment portfolios and offer financial advice.

- They can reduce costs and provide additional insights through increased computing power.
- They are less prone to errors and biases that affect human judgment.
- Examples: Betterment – uses ML to minimize tax liabilities; Wealthfront uses ML algorithms to derive rebalancing and diversification insights from user behavior.

Add computational power to highly unusual or complex portfolios.

- AI can enhance robo-advisors by producing portfolios with better out-of-sample performance.

Require significant testing and supervision to ensure accuracy and transparency.

Robo-advisors should be considered as part of a broader holistic strategy to engage with pension plan members and promote better investment decision-making.

5. Payout Phase

- Risk Management for DB Plans
- Personalized Risk Analysis and Decumulation Strategies for DC Plans



NOTES:

Payout Phase

Risk management for DB Plans

Improve risk assumptions

Based on demographic, labor, and financial information of constituent members

- Involves assumptions surrounding retirement age, rate of promotion, rate of contribution, lump sum payouts, and member behaviors; also includes market assumptions such as rates of inflation, interest, discount rates, and assumed future investment returns.

Enhanced predictive analytics

- Add analytical power and reduce computing costs for current risk model calculations.
- Test current risk models using ML-driven verification techniques.
- ML can be used to generate **synthetic data**, which could be designed to eliminate biases in historical data, produce data for future scenarios or populations, and protect member privacy.

Payout Phase

Personalized Risk Analysis and Decumulation Strategies for DC Plans

Improve risk assumptions

Similar to DB plans, ML approaches can strengthen assumptions used in analyzing longevity risk and the ability to finance retirement.

- AI-driven tools can be used to incorporate the effects of income taxes, time-varying bond yields, and uncertain life expectancies within retirement modeling.

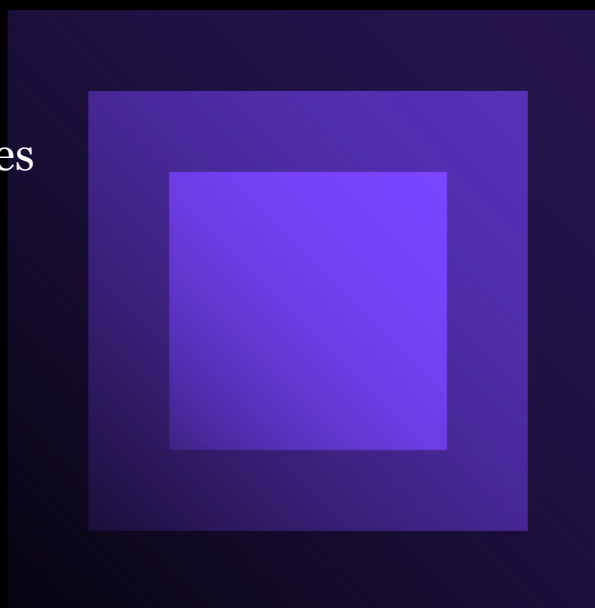
Personalized retirement strategies

- Studies of reinforcement learning algorithms and deep learning approaches showed improved performance over classic decumulation strategies such as the 4% rule or age-determined drawdowns.
- AI can be used to offer personalized strategies in decumulation and enhanced annuity options and calculations.
- The ability for AI and ML techniques to analyze complex datasets and perform multivariate analyses can help align personalized accumulation and decumulation strategies for DC plan members.

NOTES:

Addressing Pension Challenges

AI/ML tools are being developed to increase efficiency and effectiveness of pension data management, communication, and asset management.



30

	1.Membership and Payment Channels	2.Recordkeeping and Account Management	3.Governance and Investment Strategy	4.Investment Management	5.Payout Phase
Changing Demographics	Streamline the onboarding process so members can invest early, personalize their investments, and minimize error.	Enhance data cleansing to ensure member information is accurately documented over time and across platforms and services.	Improve trustee decision-making through AI-driven collection and analysis of plan data. Adapt to evolving investor needs and preferences with increased personalization, ensuring that trustees adhere to changing regulatory demands.	Optimize investment portfolio analyses and trade executions to enhance the long-term funded position. Develop targeted investment products designed for specific demographics.	Provide accurate and nuanced actuarial calculations based on personalized variables. Assess the likelihood of future behavioral patterns across different generations.
Underfunding	Support onboarding data collection and member engagement, which can better serve individual member needs. Improve contribution and payment infrastructure and efficiency with ML.	Increase efficiencies and lower costs of account management, including enhanced data cleaning, reporting and disclosure, and fraud prevention.	Produce real-time assessments of current funded status and forecasting with multivariate ML models that capture nonlinear trends in market and portfolio data. Reduce costs and enhance investment manager selection to improve pension investment performance.	Increase access and analytical capabilities for a wider universe of assets, including private markets and ESG investments. Optimize trade execution to lower fees and incorporate trading costs into investment decisions.	Perform risk analyses with improved assumptions that consider long-term changes in markets, investor preferences, and economic indicators. Integrate accumulation and decumulation strategies using advanced analyses that leverage AI across the value chain (e.g., enhanced ALM assessments and drawdown strategies).
Inflation	Gain a more nuanced understanding of member income needs and lifestyle changes during times of high inflation.	Alert members to changes in risk status, including inflation risk, using automated alerts that regularly track market and portfolio conditions.	Improve trustee scenario analyses and more accurately predict inflationary risk and effects using ML.	Use ML and NLP approaches to manage portfolio risk, gain a better understanding of future trends, and extract economic insights from conventional and unconventional data sources.	Generate enhanced inflation projections using ML techniques and incorporate inflation assumptions into scenario analyses and risk models.

NOTES:

	1.Membership and Payment Channels	2.Recordkeeping and Account Management	3.Governance and Investment Strategy	4.Investment Management	5.Payout Phase
Rising Inequality	Decrease barriers to entry and enhance pension access through pension dashboards, robo-advisors, and automated payment services. Enhance electronic payment infrastructure to increase pension inclusion.	Improve member communication and reporting by building accessible platforms that use NLP to present information at an appropriate level.	Identify populations vulnerable to pension underfunding and retirement insecurity to generate targeted and tailored investment strategies.	Develop advanced robo-advisory services that increase access to personalized investment services and advice while reducing cost.	Produce nuanced and segmented risk analyses that account for unique challenges faced by vulnerable populations. Use of synthetic datasets could serve to remove biases in the data and enhance privacy to protect underrepresented populations.
Financial Literacy and Information Gaps	Improve member engagement and educate investors at an appropriate level through chatbots and other AI-driven interactive digital platforms.	Generate reports and nudges that engage with members at key moments and use natural language to more effectively communicate.	Respond to member inquiries in a timely manner by providing efficient and automated analyses and updates.	Offer tailored investment advice and enhance member engagement through robo-advisors and interactive platforms.	Incorporate advanced modeling techniques into projections of decumulation to better inform investors and clarify products and opportunities, including annuities or risk transfer options.
Demands for Personalization and Financial Wellness	Provide personalized holistic investment and financial wellness strategies through AI-driven improvements in data collection, segmentation, and consolidation. Use sentiment analysis to better understand members, including needs and wants.	Standardize data for individual members across platforms and services. Ensure information is current and accurate.	Develop personalized default investment selections and strategies (i.e., beyond target-date funds) based on member data that is cleaned and categorized through AI.	Identify and incorporate investor preferences relevant to investment management, including personal risk tolerance and investment values.	Build nonlinear risk modeling techniques that can capture multiple variables and accommodate the link between accumulation and decumulation. Design digital tools that incorporate multiple aspects of financial wellness, such as robo-advisors that help with budgeting and retirement planning.

© 2023 CFA Institute Research and Policy Center. All Rights Reserved.

32

THE FUTURE OF PENSIONS AND THE RISE OF ARTIFICIAL INTELLIGENCE

Key Takeaways

- AI has the potential to deliver **increased personalization, efficiency, and enhance accuracy** across the value chain in ways that address key challenges faced by pensions and retirement income systems, including funding concerns, market risks, and supporting the overall financial wellness of member populations.
- Implementing AI within member onboarding, communications, reporting, and retirement planning could **enhance overall member engagement, boost financial literacy, and support members** at each point in their retirement lifecycle. Tools are already available in the form of chatbots, robo-advisors, interactive dashboards, automated nudges, and AI-generated account statements.
- Another area likely to be impacted by AI is **pension plan governance**. Pension governance is a collaborative process that involves coordination across a variety of stakeholders, including plan sponsors, pension trustees, investment managers, actuaries, and legal counsel. AI technologies **may assist multi-stakeholder interactions and facilitate ease of information sharing, including significant reductions in administrative burden** through report summaries, error identification, and prompt responses built on generative AI technology. Increased efficiencies in information sharing and analysis could improve pension-board decision-making, including investment strategy decisions, and produce timely resolutions to member issues.

© 2023 CFA Institute. All Rights Reserved

33

NOTES:

Key Takeaways

- Within investment management, AI and ML models may improve the analytical capacities of internal and external portfolio managers, enhance actuarial analyses of pension fund risks, and maintain updated assessments of current and future market trends. AI could be particularly useful in analyzing **private markets** and data related to **sustainable investments**.
- Improvements in **actuarial assumptions** and **predictive analytics** driven by advanced ML techniques could benefit asset liability management and strategies for pension de-risking. DC plans may benefit from having ML analyses that incorporate predictions of member behavior and produce accumulation and decumulation strategies personalized to individual member characteristics.
- Using **external service providers** may be an effective way to incorporate AI technologies into the value chain, especially for smaller pension funds or those without appropriate resources to scale technology in-house. Pension trustees and administrators should perform due diligence when vetting technology providers to ensure **adherence to privacy and data regulations and responsible use of technology**. They should also ensure technology goals and strategies are appropriately aligned with the aims, values, and long-term time horizon of the pension fund.



Conclusions and Recommendations

Key Recommendations

- Use AI to supplement, not replace, human decision-making.
- Be clear about what the aim is and how to design, test, and judge output.
- Balance the need for personalization with the need for simplicity.
- Develop collaborative multi-stakeholder solutions between firms, sectors, and regulators.
- Incorporate technology in ways that build trust and rapport with pension members.

NOTES:

References

Carlson, D. (2023). AI has potential to improve plan design, expand retirement plan access. PLANSPONSOR.

Knapp, D., Asch, B. J., Armour, P., & Okuda-Lim, Z. (2023). Causes and consequences of the crises in state and local pension funding. RAND Corporation.

Price, W. (2019). Developing coherent pension systems: Design issues for private pension supplements to NDC schemes, no. 1929, Social Protection & Jobs, World Bank Group.

Zagha, N. S. (2024, April 2). Revolutionizing payments: How AI transforms transactions and security – use cases – Part 1. Technology & Entrepreneurship. LinkedIn <https://www.linkedin.com/pulse/revolutionizing-payments-how-ai-transforms-security-nasser-sami-m5r1c/>



Emerging Issues **FORUM** 2024

QUESTIONS??



EMERGING ISSUES FORUM 2024 | NAME OF PANEL | 37

NOTES:



PRESENTATION TO THE PERAC EMERGING ISSUES FORUM

PRESENTED BY

Anthony J. Falzone, Deputy Executive Director and Chief Operating Officer

September 18, 2024

1

About PRIM



\$105.3 billion investment fund that invests public employee pension benefits

- PRIM has a professional, experienced and focused investment staff.
- PRIM does not administer benefits.

PRIM's mission is to relieve the pension funding burden on the taxpayer

- Self-funded agency which generates asset returns for the Massachusetts pension system.
- PRIM's Project SAVE initiative is achieving nearly \$300 million annualized value enhancing activities for the fund annually.

PRIM is independent and governed by a nine-member Board of Trustees

- Massachusetts State Treasurer is the Chair of the PRIM Board.
- A robust committee structure lends investment and operational expertise to the decision-making process.



2

NOTES:



PRIM Core Beliefs

3

We believe that any investment must be evaluated on three equally important parameters: return, risk and cost.

We don't make tactical asset allocation decisions or investment decisions based on market or economic predictions. Instead, we engineer a strategic, long-term asset allocation strategy that we hope will stand the test of a long-time horizon.

We value a basis point of cost reduction more than a basis point of return. Because we can count on cost savings every year, but nobody ever really knows what the markets will deliver.

The Growing Relevance of AI (Why are we discussing AI and PRIM?)

Industry Disruption:

AI's integration is reshaping industry standards, prompting enterprises to innovate or risk falling behind competitors

Past Examples

- Roomba Navigation
- iPhone + SIRI in 2010
- Customer Service Phone Trees

Workforce Adaptation:

Employees must acquire AI-related skills to enhance productivity and remain employable in changing job markets

The introduction of Generative AI and its Processing Power

Current Examples

- Content Creation, Writing of All Kinds, Software Code Generation
- Large Language Model (LLM), Analyze Data using a conversational interface
- Commerce and Social Media in Visual Content creation (Avatars-Virtual Fitting Rooms, AI Chatbots)



4

Mass
PRIM

NOTES:

PEW Research Survey Insights

Usage Statistics:

55% of Americans use AI regularly, indicating widespread engagement with technology

Knowledge Gap:

44% of individuals believe they do not utilize AI, highlighting substantial misconceptions technology's integration

Impact on Awareness:

This disparity calls for initiatives to enhance public understanding of AI's presence and capabilities

5



The Benefits and Growing Concerns

Benefits

- Faster computing can provide real-time data processing and analytics
- Machines and technology that talk and interact with you and sound just like a person
- Reduce costs - automation of repetitive tasks, enhanced operational efficiency, and process improvement

Concerns

- Security (applications, private company data, social engineering, etc.)
- Hallucinations (train the model)
- Algorithmic bias (unanticipated data manipulation)
- Moral and ethical dilemmas
- The expense to develop and maintain AI systems
- Lack of data governance



6



NOTES:

The Transformative Potential of AI: Questions Remain

What can AI actually do reliably, and at a reasonable cost?

Reliability: AI can perform certain tasks, like data analysis, pattern recognition, and automating repetitive processes, with high accuracy

Cost: The cost-effectiveness of AI varies depending on the complexity of the tasks and the scale. Cost-effective for large-scale, data-intensive tasks but may not be feasible for smaller or more nuanced operations

How many of the tasks will be useful and/or additive?

Usefulness: AI excels in tasks that involve large datasets, predictive analytics, and process automation

Additive Tasks: The value of AI increases when it enhances or augments human capabilities, leading to new opportunities or efficiencies

What impact will AI have on the labor force?

Job Displacement: Certain jobs, particularly those involving repetitive tasks, are at risk of being automated

Job Creation: New roles in AI development, maintenance, and oversight are emerging

Skill Shifts: The labor market may shift towards roles that require more advanced technical skills or creative problem-solving abilities



7



PRIM's AI Road Map

We believe in being thoughtful and deliberate in everything we do

- Focus on the risk and the cost which tie into our core beliefs
- With so much speculation on AI, we don't want a solution in search of a problem; we want to be innovative and open-minded
- PRIM has access to some of the world's highest-performing and most sophisticated investment managers and consultants, leverage those resources

Be Informed - What we have heard from our partners and peers

There is no shortage of opinions on AI (Some are very excited, while others are more cautious)

- Some believe there is some AI washing going on so companies can stay competitive and not look outdated
- Some feel the jury is still out on how effective or efficient some of the more complex AI tools will be when the dust settles
- Some worry about ethical dilemmas and security concerns
- Varying views and practices

8



NOTES:

The AI Data – Where the Rubber Meets the Road

With all the hype, it is easy to lose focus on what is at the heart of AI: underlying data

- How many companies have robust data governance plans in place?
- How many of you do?
- Do you have policies that cover data governance when onboarding new employees?
- Do you have policies that govern the use of AI tools?
- Where to save files, acceptable formats, QA, remediation, etc.?

If the data is the fuel that feeds the AI engine, you need to be confident in its integrity

- Data quality is paramount in trusting your results
- Developing frameworks to support GenAI programs are a must
(Ethical frameworks and audit/monitoring frameworks)

9



PRIM's Strategic Plan- Moving Forward

Where will we go from here?

- We will finalize an "AI Use Policy" and "AI Governance Framework" before implementation
- We will continue to be curious and talk with peers and partners as the AI marketplace evolves
- We will continue to work on our proof of concept
- We will continue to fine-tune our approach while being mindful of costs

Other Considerations

- As more tools become available, we will evaluate the various software offerings
- With so many software companies coming to market, we need to make sure we partner with one that will be around for the long term

Off-the-shelf products that are configurable have advantages

- Support before, during, and after implementation
- Structured maintenance and savings on hardware
- More robust use case analysis to identify areas of efficiency
- Keep costs manageable and known

10



NOTES:



Massachusetts Pension Reserves
Investment Management Board 53
State Street, Suite 600
Boston, MA 02109
617-946-8401
www.mapension.com

THANK YOU

CONTACTS

Francesco Daniele
Director of Client Services
Office 617-946-8416
E-mail: fdaniele@mapension.com

Laura Strickland
Senior Client Services Officer
Office 617-946-8490
E-mail: lstrickland@mapension.com

Emily Green
Senior Client Services Analyst
Office 617-946-8486
E-mail: egreen@mapension.com

11



QUESTIONS??



12

NOTES:



Emerging Issues **FORUM** **2024**

COMMONWEALTH OF MASSACHUSETTS
Public Employee Retirement Administration Commission

Five Middlesex Avenue, Suite 304 | Somerville, MA 02145

Phone: 617-666-4446 | Fax: 617-628-4002

TTY: 617-591-8917 | Web: www.mass.gov/perac

