

Meeting of the Board of Trustees

December 6, 2023



Public Agenda Item #18

Reconvene the Meeting of the Board of Trustees

December 6, 2023

Public Agenda Item #19

Executive Session -

In Accordance with Section 551.074, Texas Government Code, the Board of Trustees will meet in executive session to deliberate the employment, evaluation, and duties of the Internal Auditor. Thereafter, the Board may consider appropriate action in open session.

December 6, 2023

Public Agenda Item #20

Consideration of Group Benefits Advisory Committee Report

December 6, 2023

Bernie Hajovsky, Director of Enterprise Planning

Dr. Janet Bezner, GBAC Committee Chair

GBAC Annual Report

Committee Background



- 11-member committee provides stakeholder input in the planning and development of the Group Benefits Program
- Committee charter sets the framework for structure and activities
- Committee meets twice each year (Spring and Fall)

GBAC Annual Report

Spring 2023 Meeting



- **Topics discussed in March**

- Fiscal Year 2022 GBP annual report
- Coverage of weight loss medications
- Participant use of telemedicine since the onset of the COVID-19 pandemic
- Participant engagement in health and wellness opportunities
- Review of benefits materials used to attract a qualified workforce

GBAC Annual Report

Fall 2023 Meeting



- **Topics discussed in October**

- New legislation impacting health plans and participants
- Coverage of weight loss and diabetes management medications
- Transitions to new third-party administrators for prescription drug and vision plans
- Third-party administrator network provider updates
- Current wellness initiatives
- Use of benefits to recruit and retain a qualified workforce

GBAC Annual Report

Committee Feedback



- No formal recommendations for the Board of Trustees

- Committee will continue to evaluate:
 - coverage of weight loss and diabetes management medications
 - coverage of fertility benefits
 - engagement in health and wellness opportunities

Discussion

Public Agenda Item #21

Consideration of Group Benefits Advisory Committee Members – (Action)

December 6, 2023

Bernie Hajovsky, Director of Enterprise Planning

Appointment of GBAC Members

Membership



- Committee is comprised of up to 11 members, including:
 - retirees
 - state and institution employees
 - health-related institution employee
 - insurance or benefits design professional
- Members serve 3-year staggered terms
- **Members serve at the will of the board**

Appointment of GBAC Members

Three Vacancies Across Multiple Categories



- State agencies, large (more than 800 employees)
- **State agencies, mid-sized (100 – 799 employees) – (1)**
- State agencies, small (fewer than 100 employees)
- Institutions of higher education, 4-year
- Institutions of higher education, 2-year
- **Health-related institution (academic, administrator or practitioner) – (1)**
- **Retirees – (1)**
- Insurance or benefits design professional

Appointment of GBAC Members

Staff Recommendations



Nominee	Category	Organization	Title
Joe Freeman	State agency, mid-sized	Office of Court Administration	HR Director
Jan Graeber	Retiree	N/A	Retired
Ronald L. Cook, DO	Health-related institution	Texas Tech University Health Sciences Center	Chief Health Officer

Discussion
Action Item

Public Agenda Item #22

*Consideration of Contract Award Recommendation to Provide Third-Party Administrative Services for HealthSelect of Texas[®] and the Consumer Directed HealthSelectSM Plans under the Texas Employees Group Benefits Program—
(Action)*

December 6, 2023

Blaise Duran, FSA, Acting Director of Group Benefits

Debbie Legg, Manager of Health Plan Operations

Gabrielle Schreiber, Director of Procurement and Contract Oversight

HealthSelect and CDHS Plans

Current Contract



ERS contracts with **Blue Cross and Blue Shield of Texas (BCBSTX)** to provide HealthSelect of Texas[®] (HealthSelect) and Consumer Directed HealthSelectSM (CDHS) Services under the Texas Employees Group Benefits Program (GBP).

- HealthSelect – a managed care, point-of-service health plan
- CDHS – a high-deductible health plan provided with a health savings account

The cost of the plans is funded by the state, but participants pay a portion of dependent coverage.

HealthSelect and CDHS Plans

Who is responsible for program policy?



Texas Legislature			ERS Board of Trustees	
Eligibility	Contribution Strategy	Appropriations	Professional Management	Plan Design
Who can be covered	How the cost is shared	How the cost is funded	How contracting and cost management save the plan money	How benefits ensure quality, provide choice and align incentives with health risks

HealthSelect and CDHS Plans



Issuance of Solicitation

On April 11, 2023, ERS issued a request for proposals (RFP) for a qualified entity to provide third-party administration services for the HealthSelect and CDHS Plans.

The solicitation provides for a contract term of six years, which begins upon execution of the contract by ERS and extends through August 31, 2030, subject to the terms of the contract.

HealthSelect and CDHS Plans



Minimum Requirements Review

- ERS received two Minimum Requirements submissions by the due date of May 3, 2023:
 - BCBSTX; and
 - United Health Group Incorporated.
- ERS issued an amendment to the RFP on May 24, 2023 with a due date for proposals of June 8, 2023.
 - ERS received a proposal from BCBSTX.

HealthSelect and CDHS Plans



Preliminary Review Phase

- For the Preliminary Review Phase, ERS evaluated the proposal on:
 - Compliance with the RFP;
 - Responsiveness; and
 - Certain vendor performance checks required by the Texas Comptroller of Public Accounts.

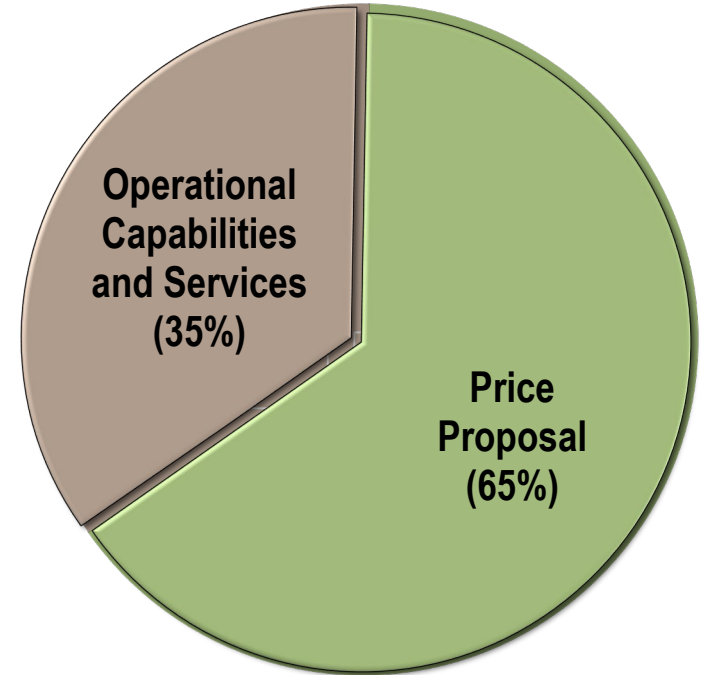
- BCBSTX passed the Preliminary Review Phase and moved to the Proposal Review Phase.

HealthSelect and CDHS Plans

Proposal Review Phase

ERS determines the appropriate weighting of Price, and Operational Capabilities and Services. For this RFP:

- Price Proposal, 65%; and
- Operational Capabilities and Services, 35%.



HealthSelect and CDHS Plans



Proposal Review Phase

- Price Proposal (65%) includes:
 - Proposed administrative fee;
 - In-area Target Claim Cost (TCC);
 - Provider reimbursements;
 - Information regarding Texas network providers; and
 - Information regarding Texas contracted non-network providers.
- Operational capabilities and services (35%) include program eligibility, provider network, communication, information systems and operational requirements.

HealthSelect and CDHS Plans

Proposal Review Phase



ERS also began evaluating several pass/fail items during the Proposal Review Phase:

- Contractibility;
- Legal requirements and regulatory compliance;
- SOC-1 and SOC-2 audit reports; and
- Financial stability.

HealthSelect and CDHS Plans

Proposal Review Phase



Based on the evaluation of the pass/fail items, Operational Capabilities and Services, and Price during the Proposal Review Phase, ERS chose to continue to review BCBSTX's proposal in the Finalists Review Phase.

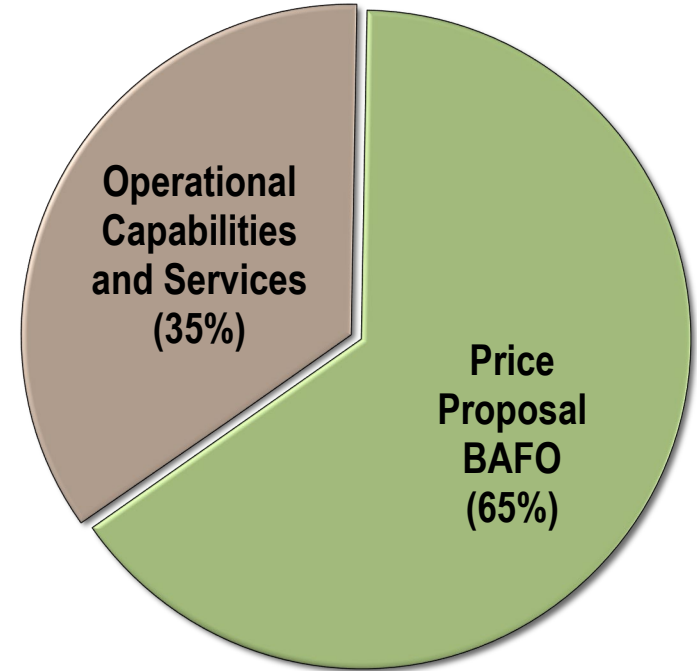
HealthSelect and CDHS Plans

Finalists Review Phase



ERS evaluated the Finalist based on new and clarified information:

- Data Center and Security Operations Center Site Visits (in person and via video conference);
- Operational Facilities Site Visits (via video conference);
- Interviews (in person);
- Past Performance;
- Financial Stability;
- Contractibility and Legal Requirements and Regulatory Compliance;
- Best and Final Offer (BAFO) Price.



HealthSelect and CDHS Plans

Finalists Review Phase – Scoring



	Total 100%	Price 65%	Operational Capabilities and Services 35%
BCBSTX	93.25	65	28.25

HealthSelect and CDHS Plans



Finalists Review Phase: Price

- BCBSTX proposed the same network that is currently used by HealthSelect participants. Therefore, the only difference in the price from the current contract is the administrative fee.

	Current	BCBS	Difference
Administrative Fee	\$320.1 million	\$291.9 million	\$28.2 million

HealthSelect and CDHS Plans

Finalists Review Phase: Network



- The proposed network is the same as the current HealthSelect network. However, this network has grown since the last RFP.

	2017 RFP	2023 RFP
% of Members with Access	89.6%	95.5%
PCPs	8,857	21,579
Specialists	42,598	66,790
Behavioral Health Providers	5,541	23,856

HealthSelect and CDHS Plans

Finalists Review Phase: Operational Capabilities



- BCBSTX's proposal improves on its current contract offerings, such as
 - Numerous third-party vendor relationships;
 - Additional programs to promote wellness and reduce claims;
 - More patient-centered medical homes;
 - Strategic use of AI;
 - Increase in number of ERS-dedicated staff; and
 - Broad-sweeping innovative ideas.

HealthSelect and CDHS Plans

ERS Recommendation



Based on the evaluation process discussed, ERS recommends the Board of Trustees of the Employees Retirement System of Texas award the contract to Blue Cross and Blue Shield of Texas, to provide third-party administration of the HealthSelect of Texas[®] and the Consumer Directed HealthSelectSM Plans under the Texas Employees Group Benefits Program.

Discussion
Action Item

Public Agenda Item #23

Consideration of Status Update of the Group Benefits Program

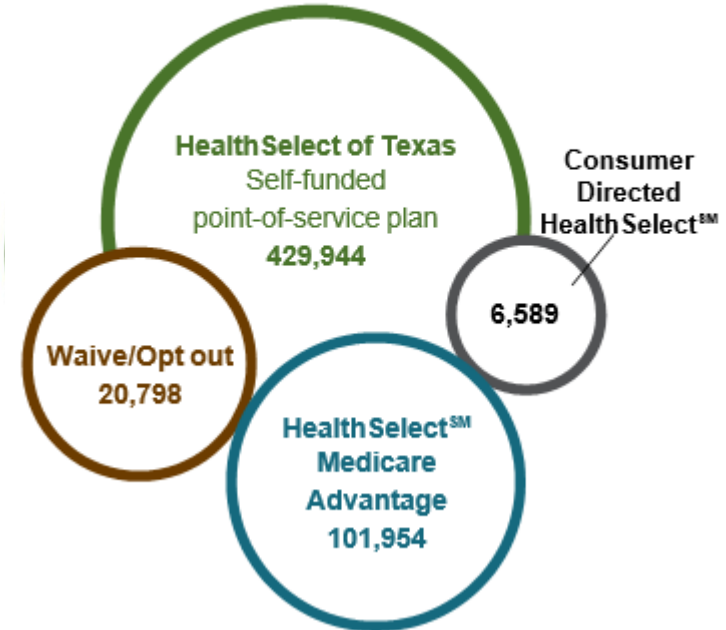
December 6, 2023

Blaise Duran, FSA, Acting Director of Group Benefits

GBP Status Update

- The self-funded Point of Service (POS) HealthSelect of Texas plan is the primary health plan for state agency and eligible public higher education employees & retirees.
- In many cases, patients must have a referral from their PCP to receive in-network benefits when seeing a specialist.

80% of GBP health plan participants enrolled in HealthSelect of Texas
August 31, 2023



GBP Status Update

RSV Coverage for Adults



- July 21, 2023 the CDC recommended coverage of the RSV vaccine for adults age 60 and over.
- ERS authorized coverage under medical effective September 1, 2023.
- As most physician offices did not carry the vaccine for adults, ERS worked with Optum to cover under the pharmacy benefit on October 3, 2023.

GBP Status Update

EyeMed Implementation



EyeMed was successfully implemented as the State of Texas Vision Plan administrator effective September 1, 2023.

- Out-of-network contact lens allowance increased from \$100 to \$200.
- Copay for in-network polycarbonate lenses decreased from \$50 to \$40 due to EyeMed's provider contracts.
- Member cost for in-network retinal imaging is capped at \$39 due to EyeMed's provider contracts.

GBP Status Update



PBM Express Scripts (ESI) Implementation

- The Board selected ESI as the PBM at the December 2022.
- Changing PBMs also results in a change in formularies. Staff works with the new PBM to minimize disruption.
- In order to ensure members have time to address changes with their doctors, coverage of non-formulary drugs will be extended to March 31, 2024 for participants in HealthSelect Rx.
- HealthSelect Medicare Rx will follow CMS rules, which allow for a transition fill.

GBP Status Update



Express Scripts (ESI) Implementation (cont.)

- Letters have started being sent to members impacted by formulary changes, explaining the changes.
- The ESI network contains most major pharmacy networks, however since their selection, Kroger has gone out of network.
- Kroger leaving the network will not have an impact on access, as there is another pharmacy .6 miles away on average. The farthest a member will have to go is 2.9 miles.
- Mailing of ID cards and welcome kits began in November and continues in December.

Discussion

Public Agenda Item #24

Consideration of Health Insurance Financial Update for Fiscal Year 2023 and Outlook for Fiscal Year 2024

December 6, 2023

Blaise Duran, FSA, Acting Director Group Benefits

Phil S. Dial, FSA, Rudd and Wisdom, Inc.

HealthSelect of Texas[®] Review



Trends

	PY21	PY22	PY23 Estimated
Medical Trend	13.1%	3.0%	3.8%
Pharmacy Trend	8.6%	11.4%	12.7%
Combined Medical and Pharmacy Trend	11.9%	5.3%	6.4%

HealthSelect Review



Impact of new Diabetes medications

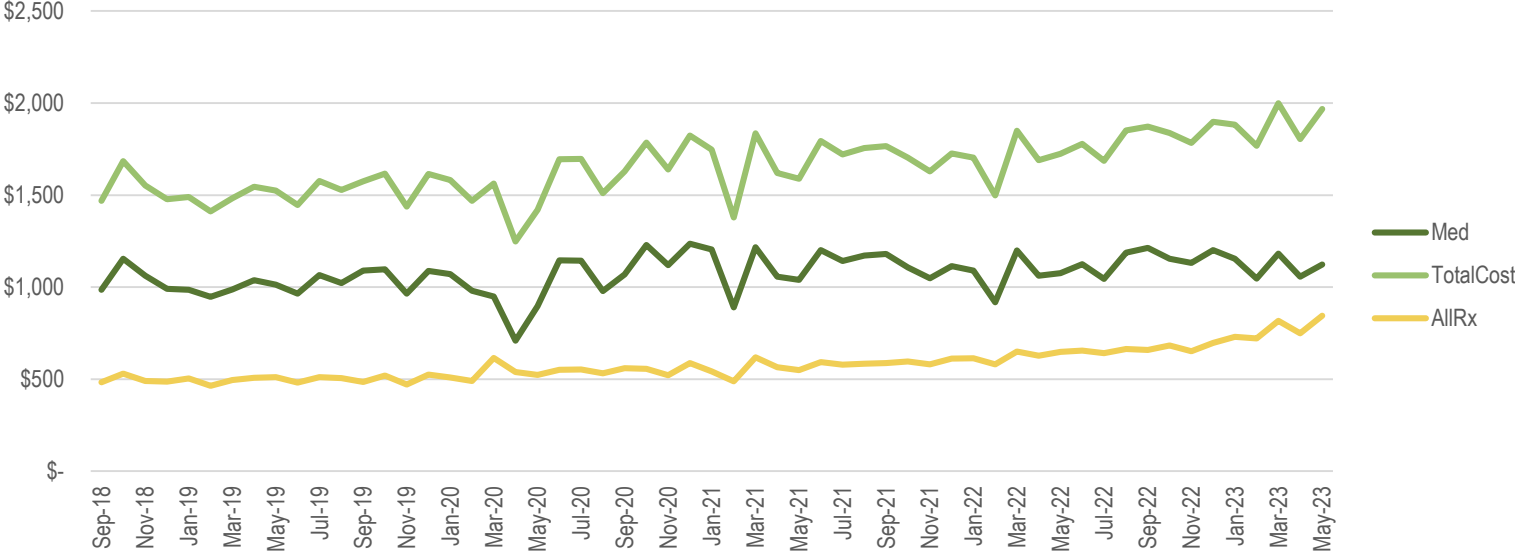
- New GLP-1 agonist medications, Ozempic and Mounjaro, have come on the market for the treatment of diabetes.
- These drugs are rapidly growing in utilization, due in large part to the significant weight loss associated with their use.
- GLP-1 agonists accounted for 42% of the \$218.3 million increase in spend on drugs for the treatment of diabetes in PY23.

HealthSelect Review

Impact of new diabetes medications



Monthly Health Care Cost for a Participant with Diabetes

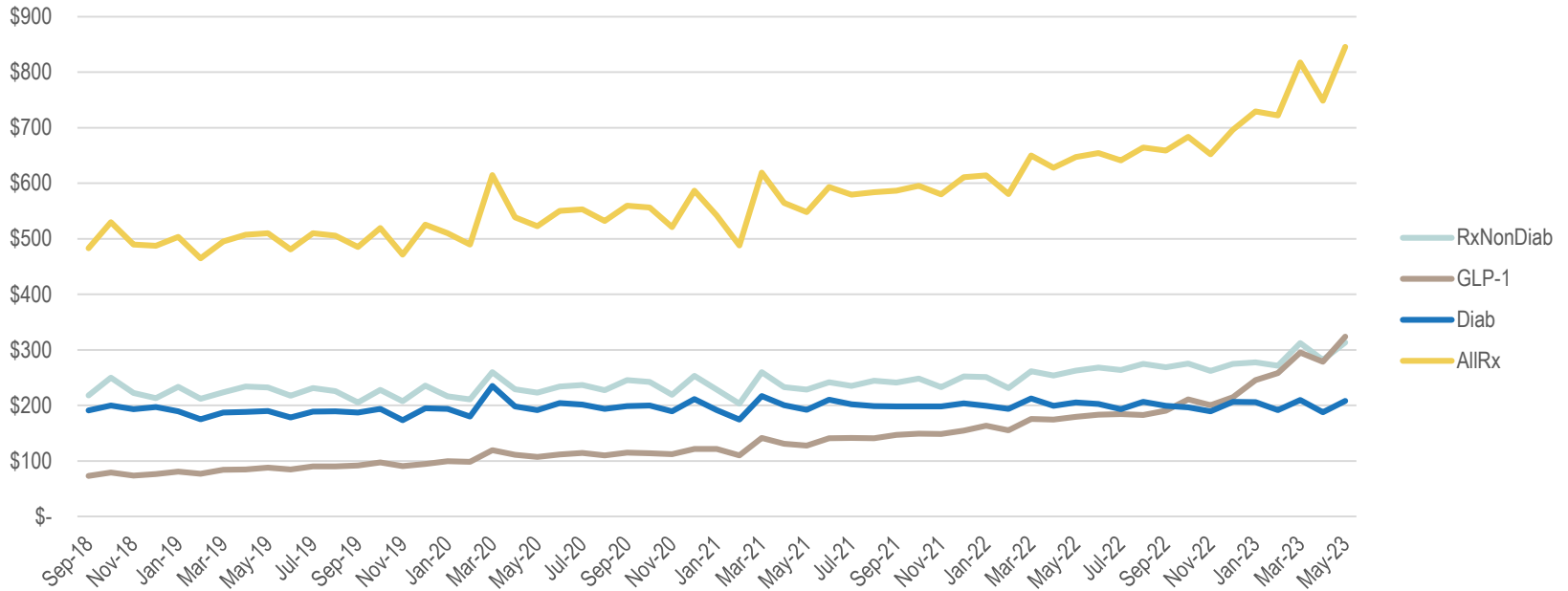


HealthSelect Review

Impact of new diabetes medications



Monthly Pharmacy Cost for a Participant with Diabetes



Fiscal Year Projections



Plan Year 2024 Financial Outlook

- Current projections indicate the GBP will likely need to draw down funds from the contingency fund beginning this year.
- Projected savings from the new PBM contract will reduce, but not eliminate, the loss.
- Savings from the new HealthSelect TPA contract will also affect the amount of funds needed in future years.
- COVID-19 costs have stabilized and are projected to remain around current levels.

Fiscal Year Projections



Group Benefit Health Plan Performance (in millions)

	PY22	PY23 Estimated	PY24 Projected	PY25 Projected	PY26 Projected	PY27 Projected	PY28 Projected	PY29 Projected
Revenue	\$3,940	\$4,360	\$4,525	\$4,696	\$4,801	\$4,907	\$5,014	\$5,122
Expenditures	\$3,751	\$4,164	\$4,554	\$4,984	\$5,423	\$5,892	\$6,393	\$6,947
Net Gain (Loss)	\$189	\$196	(\$29)	(\$288)	(\$622)	(\$985)	(\$1,379)	(\$1,825)
Contingency Fund Balance	\$3,292	\$3,488	\$3,459	\$3,171	\$2,549	\$1,564	\$185	(\$1,640)

Includes all GBP health plans

Discussion

Public Agenda Item #25

Annual Report on Customer Benefits Program

December 6, 2023

Robin Hardaway, Director of Customer Benefits

Successful FY23 in Customer Benefits

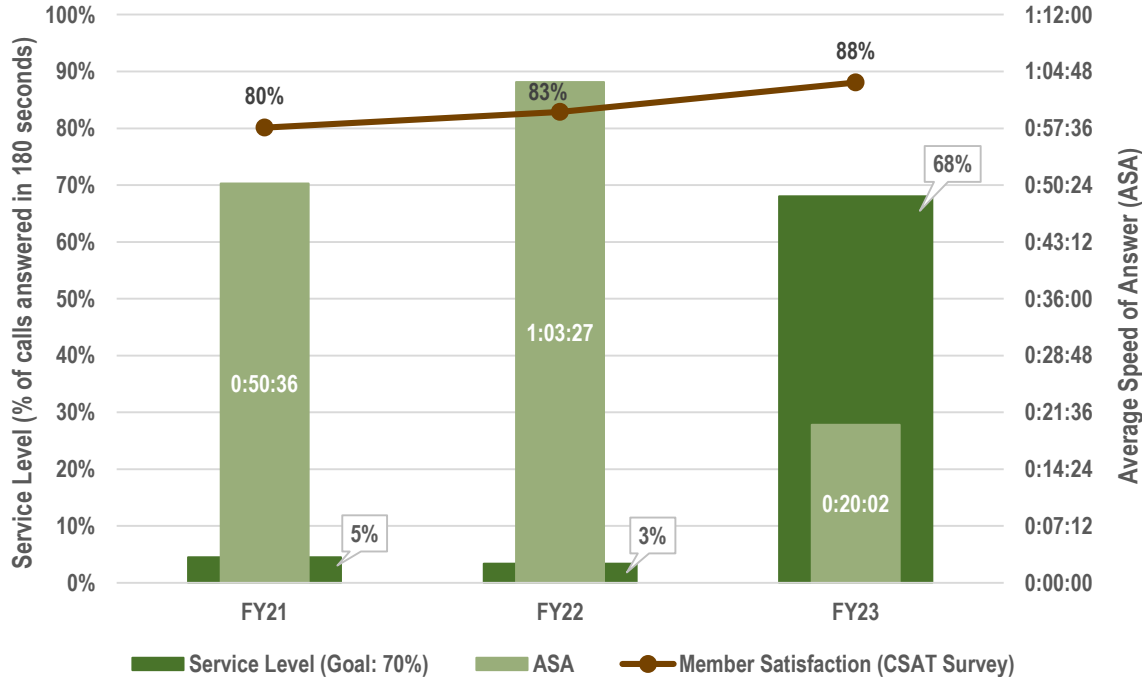


- Customer Benefits has seen significant improvements in many areas, specifically:
 - Frequently met service level (answered 70% of calls in 120 seconds) and ended the FY with a 65% increase.
 - Improved survivor benefits processing time by approximately 85%.
 - Increased customer satisfaction ratings.
- Completed initiatives:
 - Selected vendor for the Retirement Insurance System Enhancement (RISE) project and began implementation activities.
 - Supported the implementation of Group 4 activities.
 - Supported the implementation of federal W4-P and W4-R tax withholding changes.
 - Supported implementation of the first phase of multi-factor authentication.
 - Transitioned 80% of more complex insurance calls to the outsource call center.
 - Completed “Action Beyond the Call” to improve service to members.
 - Participated in multiple RFP’s and vendor selections.
 - Participated in the legislative session by analyzing approximately 30 bills.

Member experience is significantly improving



Year Over Year Member Experience (ERS)



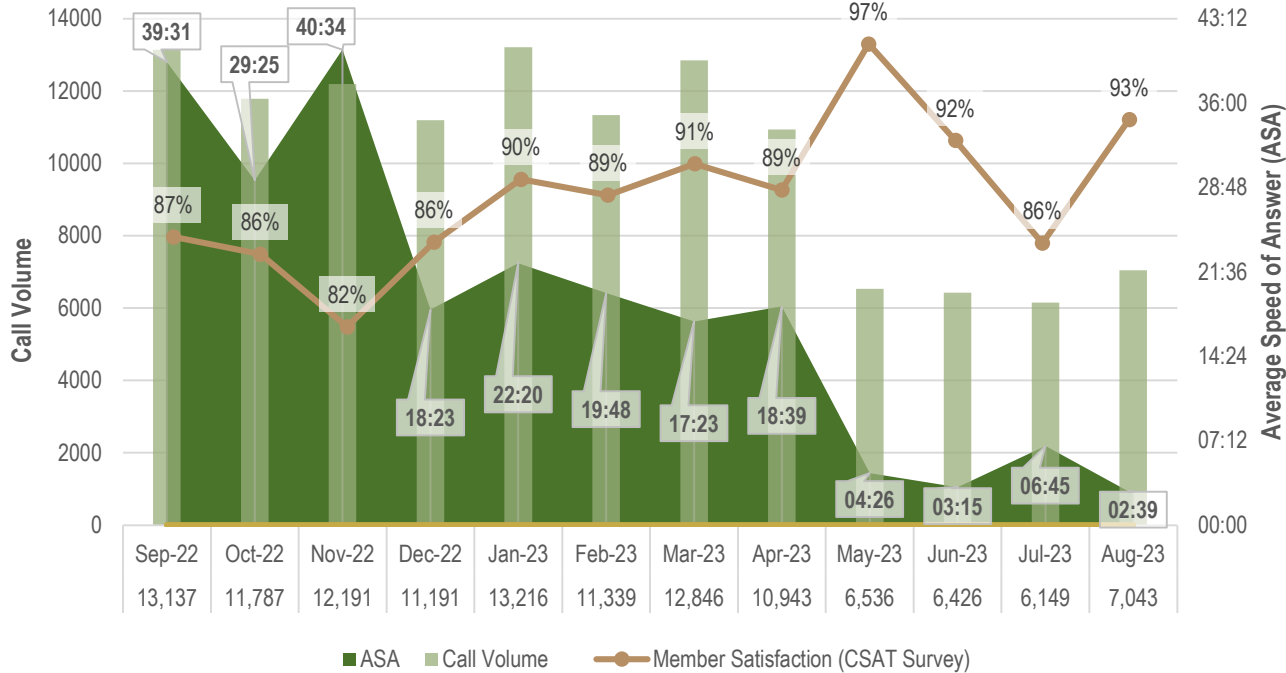
FY24 Q1 To date:
 Service Level: 57.65%
 ASA: 4m 15s
 Member Satisfaction: 98%

- FY 21 and FY22:**
- Multiple resignations
 - Began hiring directly at ERS and through Temp to Hire.
- FY 23:**
- Frequent hiring classes
 - Additional resources above the approved budgeted FTE's
 - Majority of insurance calls transitioned to outsource call center

By end of year FY 23 calls under 3 minutes



FY23 Member Experience Over Time - ERS

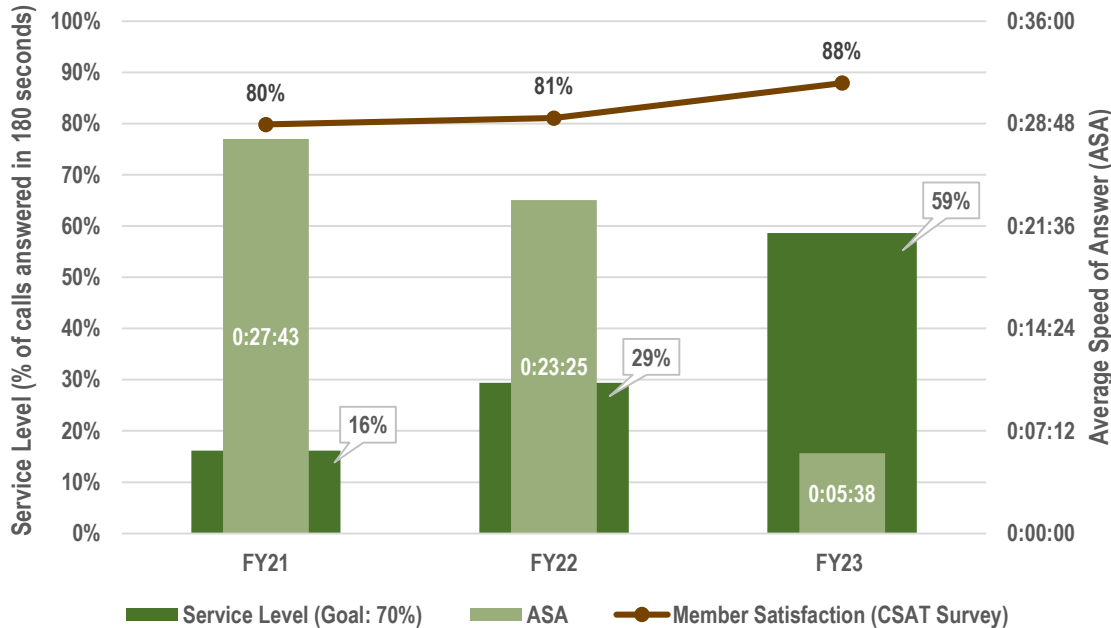


- May 2023 most insurance volume transferred to outsource call center.
- All positions filled with extra resources to account for future attrition
- Continuing subject matter expertise training for existing counselors.
- May 2023 survey process moved to 100% manual process and resulted in a decrease in surveys sent and response rate.

Outsourced Service Indicators Continue Trends of Improved Performance



Year Over Year Member Experience
(Outsource General Support)

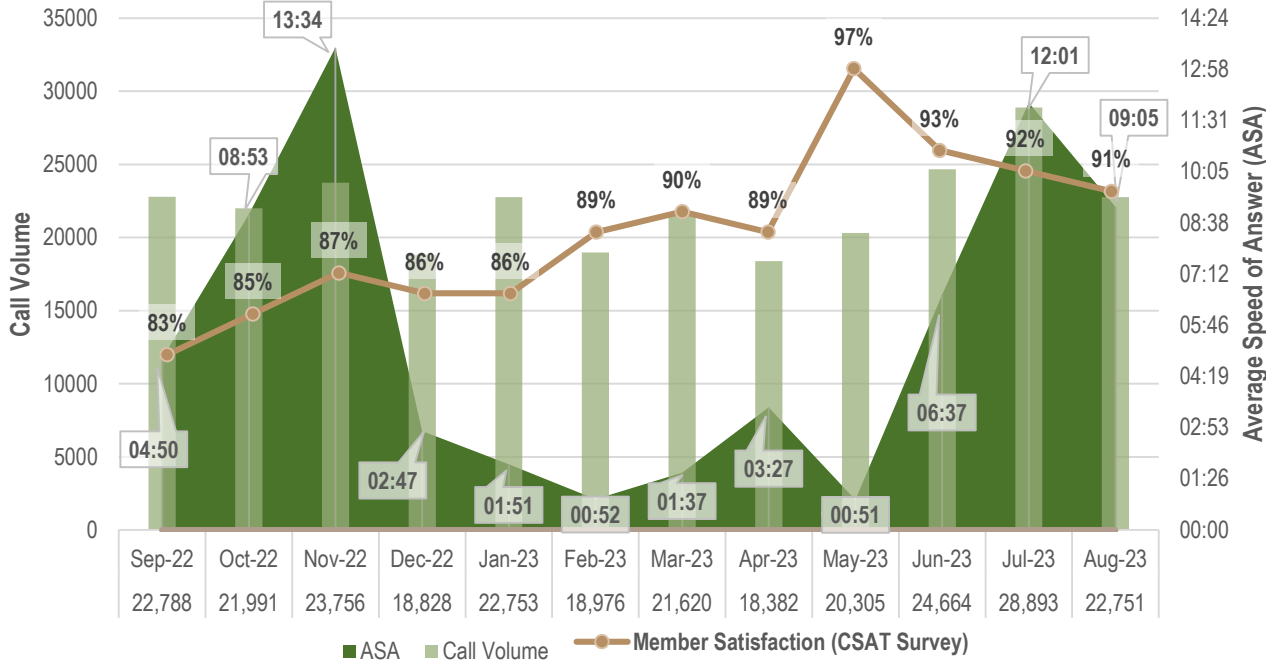


FY24 Q1 to date:
 Service Level: 66.61%
 ASA: 3m 27s
 Member Satisfaction: 90%

- FY 21**
- New outsource center contract began
- FY 22:**
- COVID and mass resignations
 - Revamped training to ensure agents are better prepared to service members
 - Adjusted nesting activities to better support agents and reduce early tenure attrition
- FY 23:**
- To improve staffing ERS allowed 100% remote workforce in the contiguous US
 - Vendor increased employee referral bonus
 - Implemented outsourcing complex calls

Outsource vendor: Preparing for successful implementation of new insurance call volume

FY23 Member Experience Over Time - Outsource General Support

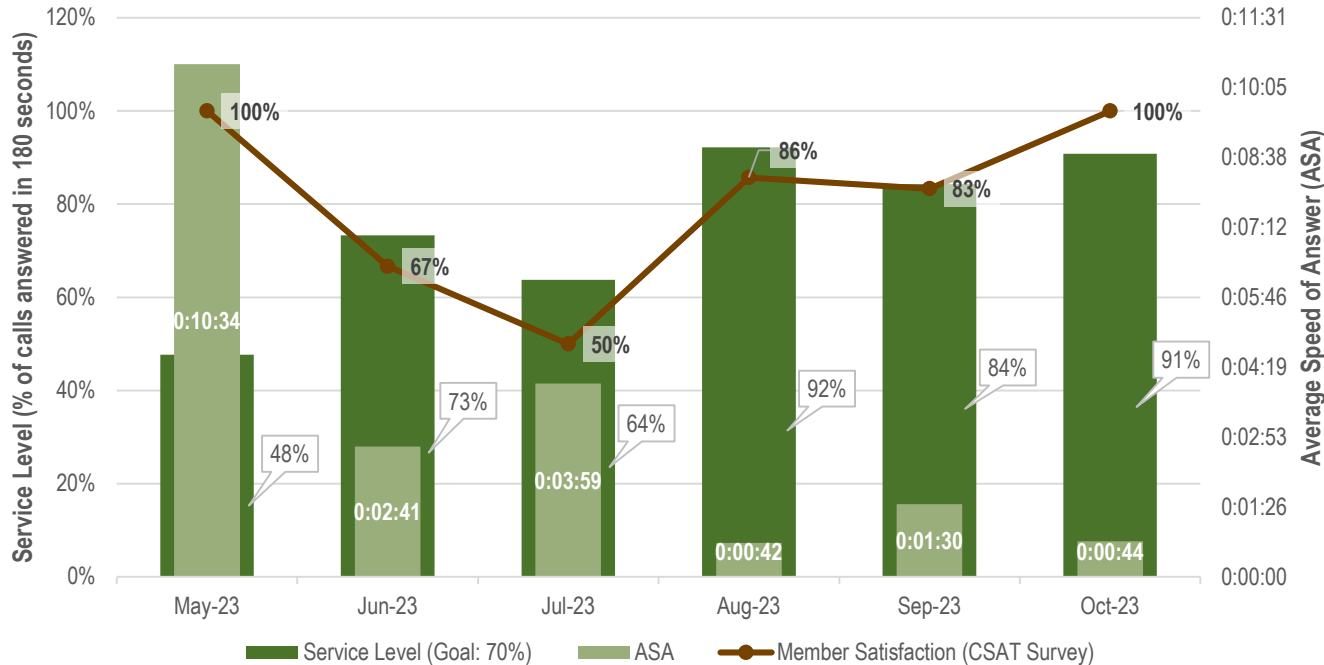


- Created a new staffing model, high-performing agents to move to Outsource Insurance
- Staffing ramp-up in preparation for insurance began in December 2022
- May 2023 vendor began managing insurance volume
- Summer Enrollment dates shifted by one week resulting in a significant impact on incoming call patterns
- Vendor adjusted to the new staffing model and new call volume, performance has improved in FY24

Successfully transitioned more complex insurance calls to outsource vendor



Month Over Month Member Experience - Outsource Insurance

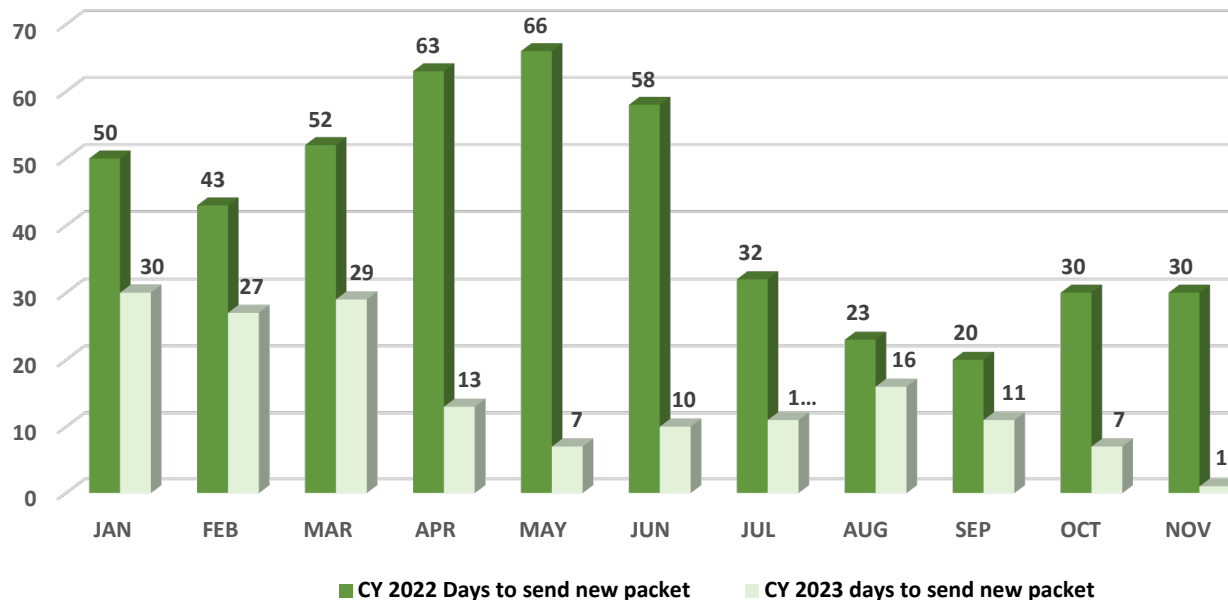


- Majority of insurance call volume transitioned on May 8, 2023, and ERS continued to support insurance volume through August 31, 2023.
- Outsource Insurance queue is well staffed with tenured outsourced staff.
- Surveys moved to 100% manual process May 2023 resulting in decrease in response rate.

65% reduction in days for ERS to send beneficiaries their initial packet for death claims



New Death Packet Processing Time



Significant reductions in the days to process new deaths reported to ERS.

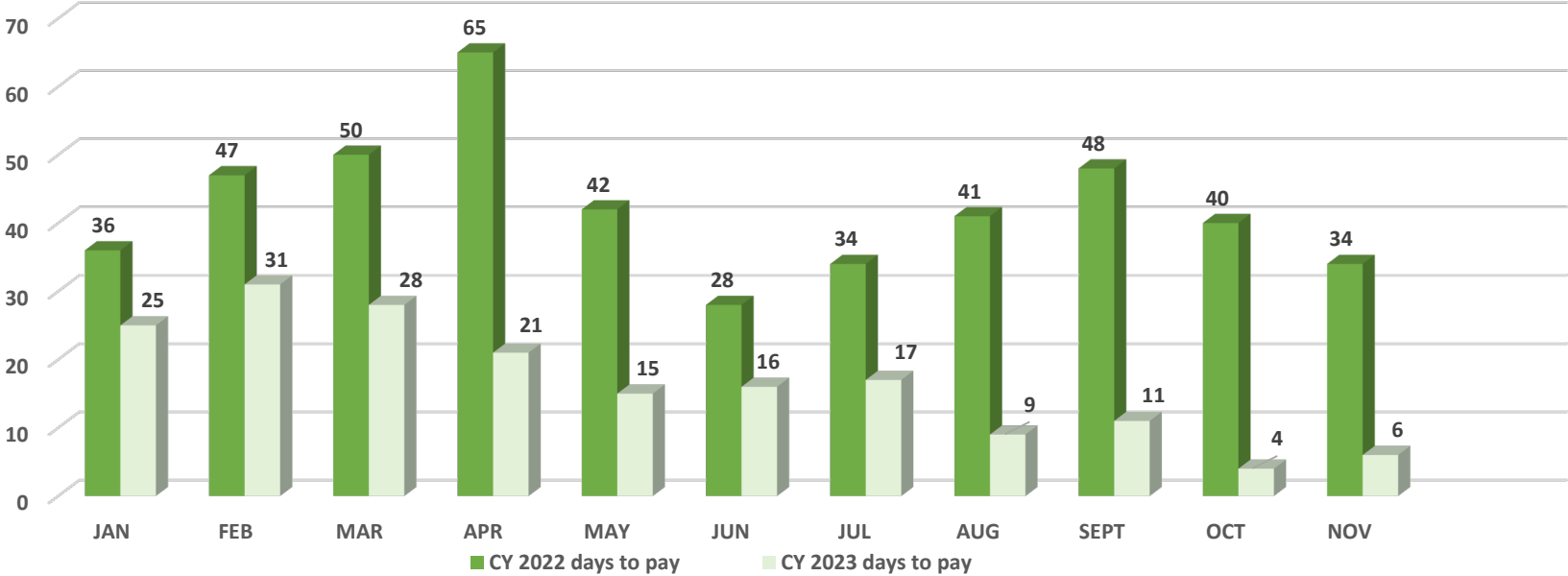
How?

- Board approved additional FTE's
- Fully staffed
- Overtime
- Teamwork

85% reduction in days to pay beneficiaries



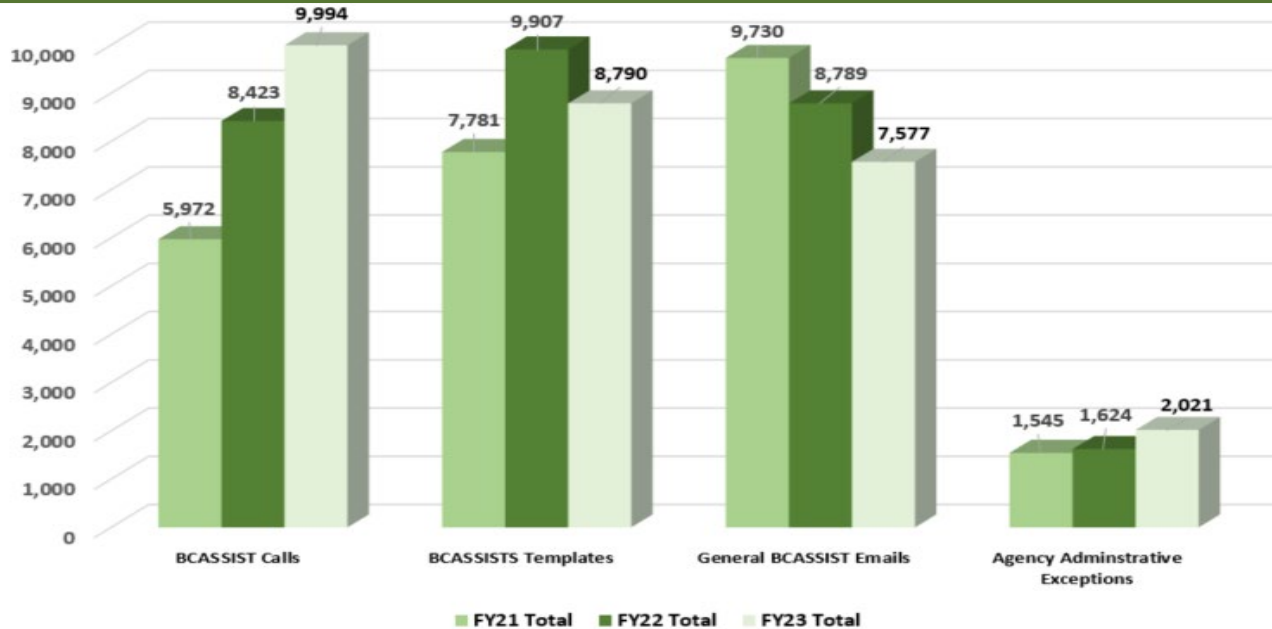
Incoming Document Processing Time



ERS assists employers across Texas

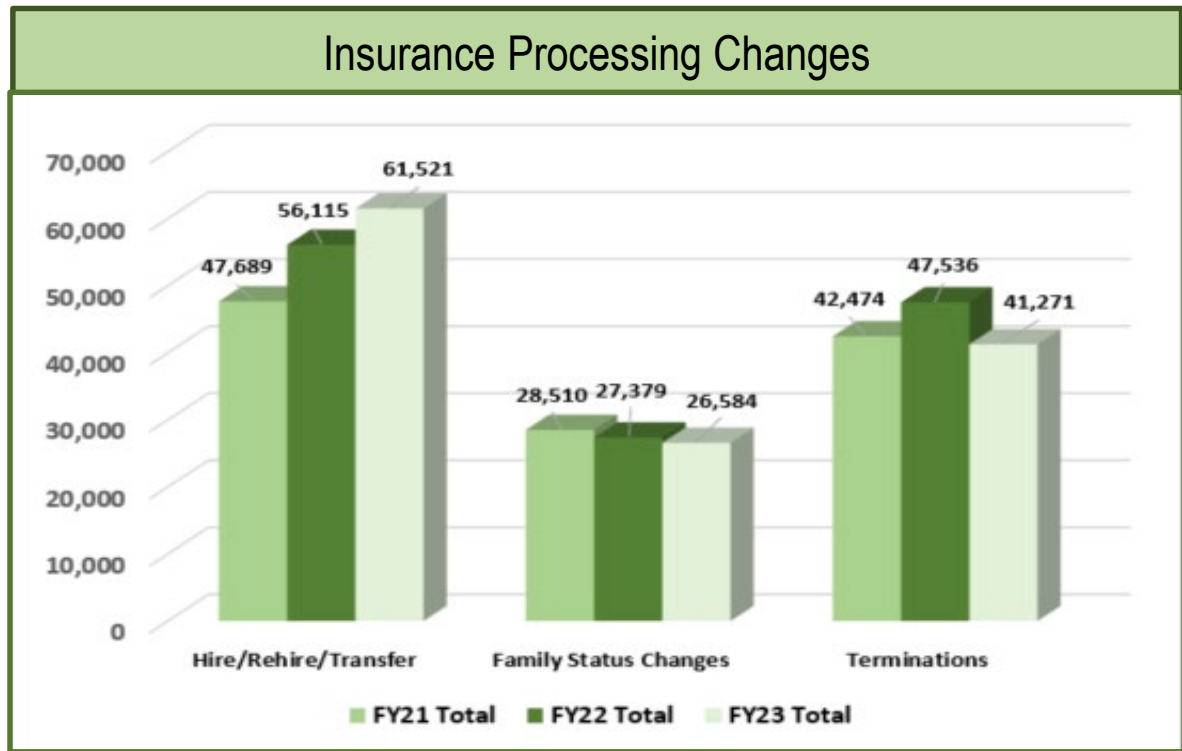


Benefit Coordinator Assistance (BCASSIST)



BCASSIST is a dedicated group that provides insurance eligibility and enrollment assistance through various communication methods to benefits coordinators at over 200 State agencies and Higher Education Institutions.

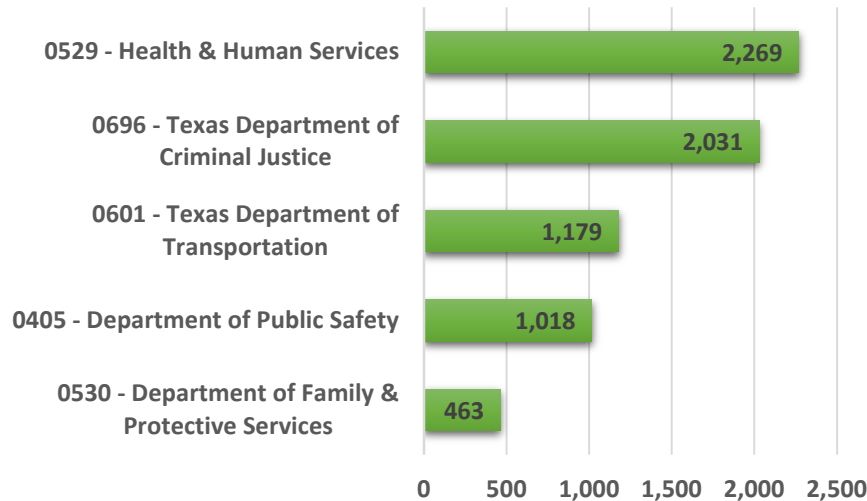
ERS processes insurance and benefits changes to over 530,000 covered lives



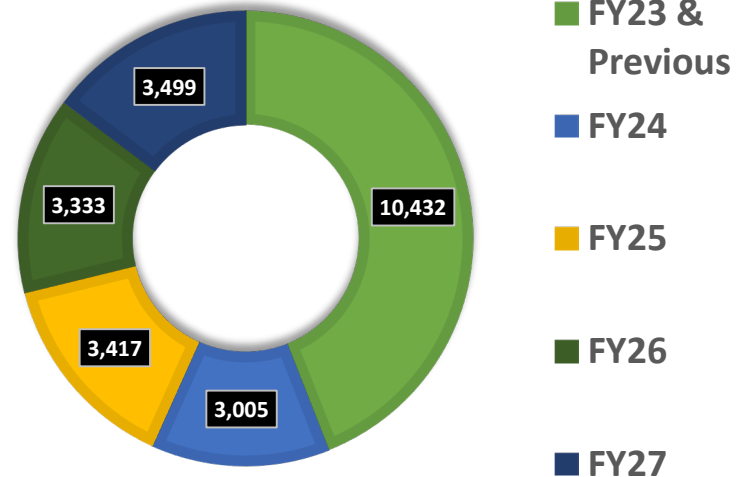
- Growth of the state
- Increases in the number of employees hired/rehired, or transferring from one employer to another
- Mid-year benefits changes related to Family Status Changes remain consistent.

First Retirement Eligibility- 7% of the active workforce is currently eligible to retire

Highest Volume of Eligible to Retire by Agency



16% of the active state workforce is eligible to retire by 2027

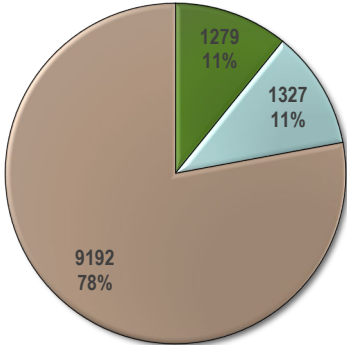


Retirement Account Withdrawals slightly decreased in FY 23



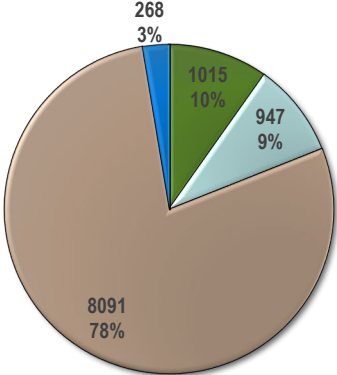
In September 2022 new hires began contributing to Group 4 and represent 3% of the total withdrawals in FY 2023

FY 22 Retirement Account Withdrawals
Total: 11,798
3 years and 3 months service



■ Group 1 ■ Group 2 ■ Group 3

FY 23 Retirement Account Withdrawals
Total: 10,321
3 years and 2 months service



■ Group 1 ■ Group 2 ■ Group 3 ■ Group 4

Retirements have decreased over the years

Retirees by Class



FY 21 and 22:

- Impacted by COVID and the great resignation.

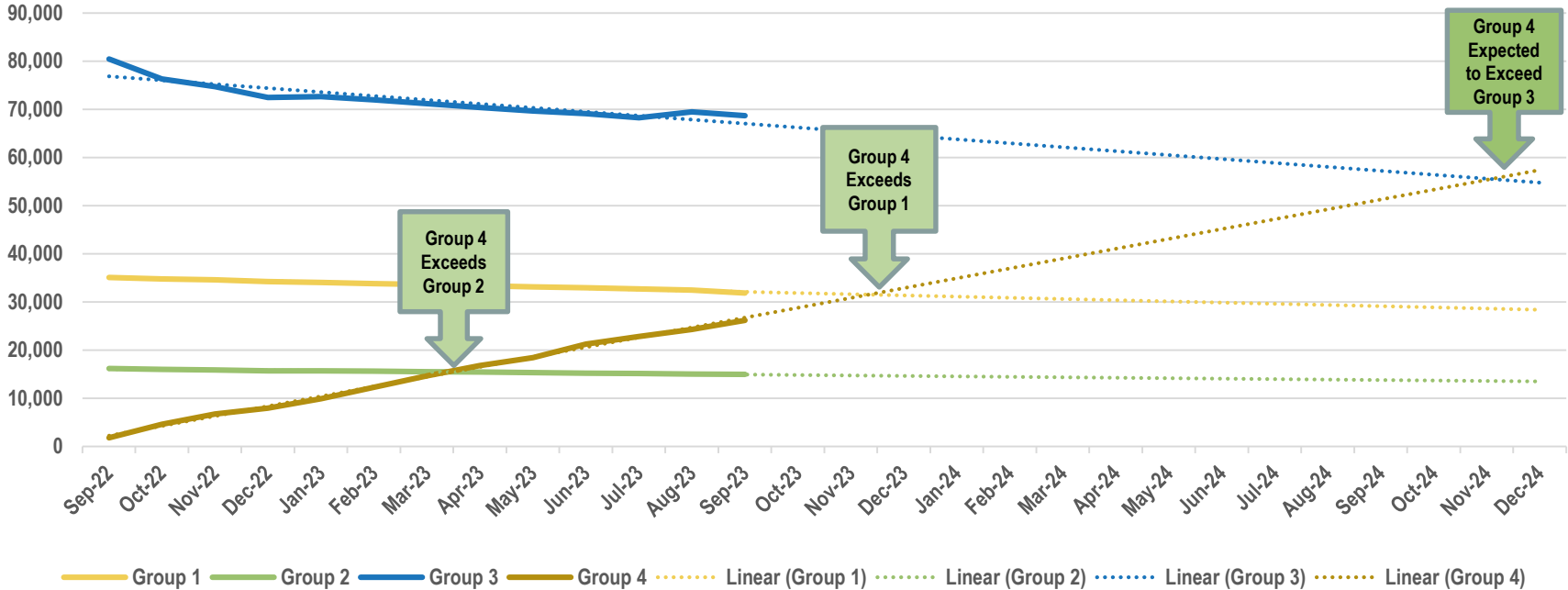
FY 23:

- The job market changed.
- 5% salary increase in July 2023 and an expected 5% in September 2024

Group 4 is expected to pass contributing members in all groups by end of 2024



ERS Contributing Member Growth by Group



FY 2024 Initiatives



- Continued implementation of Group 4
- Retirement & Insurance System Enhancement (RISE) implementation
- Data conditioning and migration activities for RISE implementation
- Judicial Retirement System cash balance plan implementation
- Annual Annuity Adjustment Option (HB 1393) implementation
- Enhance the ability to survey members after receiving counseling via telephone
- Implement visible queues for hold time transparency
- Continued implementation of phase 2 and phase 3 of multifactor authentication
- Moving to our new home on the 2nd floor of the main ERS building

Discussion

Public Agenda Item #26

Educational Presentation

December 6, 2023

Albert Gauthier, Senior Director Analyst, Gartner

Cathy Terrell, Deputy Executive Director

Chuck Turner, Chief Information Officer



Getting Started in Gen AI

Auditor General - BC

Albert Gauthier – Sr. Director Analyst



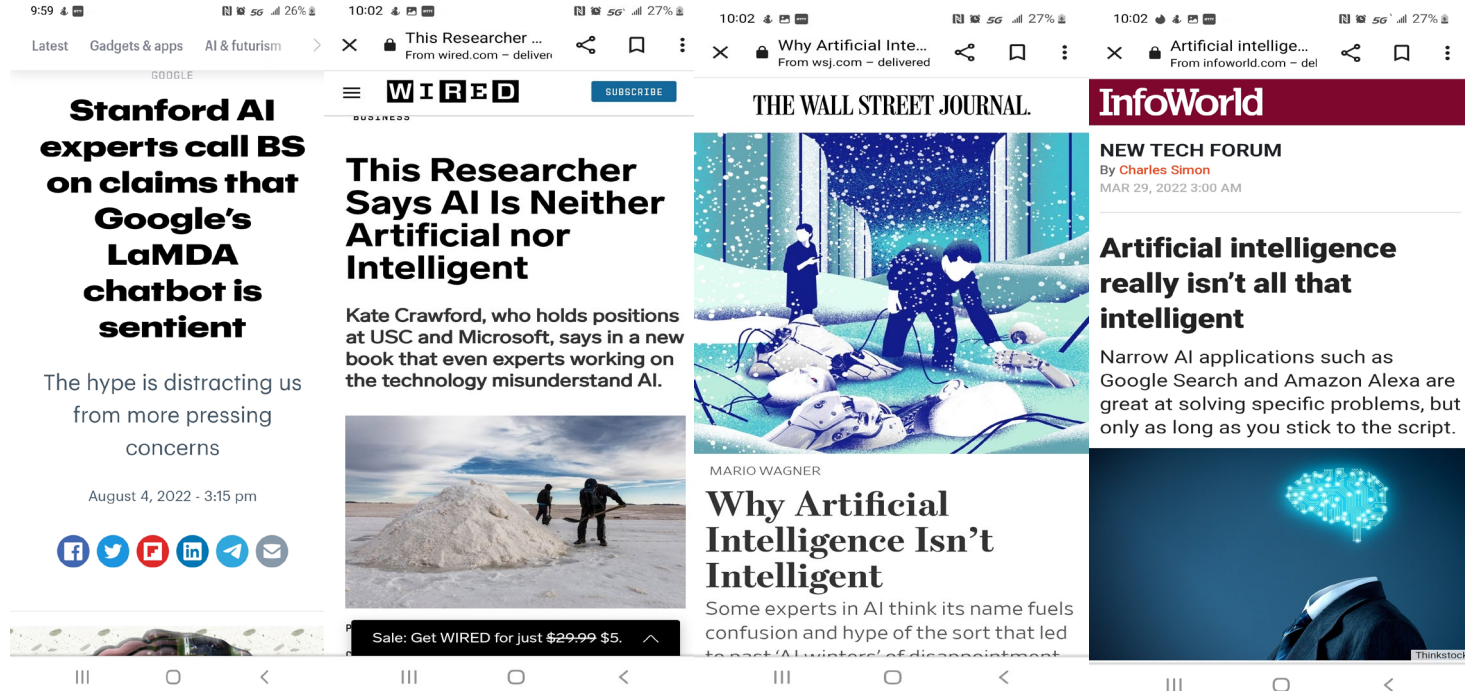
What is Artificial Intelligence

- AI in 2023 describes statistical analysis that has been around for 50 years.
- Set of tools wrapped around to “tune” the statistical analysis.
- As raw computing capabilities improve, the ability to quickly analyze large data sets and modify those data sets has improved.
- Artificial Intelligence is the “latest” description of old technologies.
- Current ML is based almost exclusively on Statistical Analysis to find patterns
- Not intelligent.

Distinctions

- The term “AI” has been used to describe many things.
 - NLP (Alexa, Google)
 - Linear/Polynomial Regression Analysis
 - Probability
 - Neural Networks (Remember the Terminator)
 - Machine Learning
 - Stochastic based models (LLM including ChatGPT)

Utopian and Dystopian Views of AI – Or this.



The Hype of Generative AI

- Headline: [How generative AI is revolutionizing the future of smart cities](#)

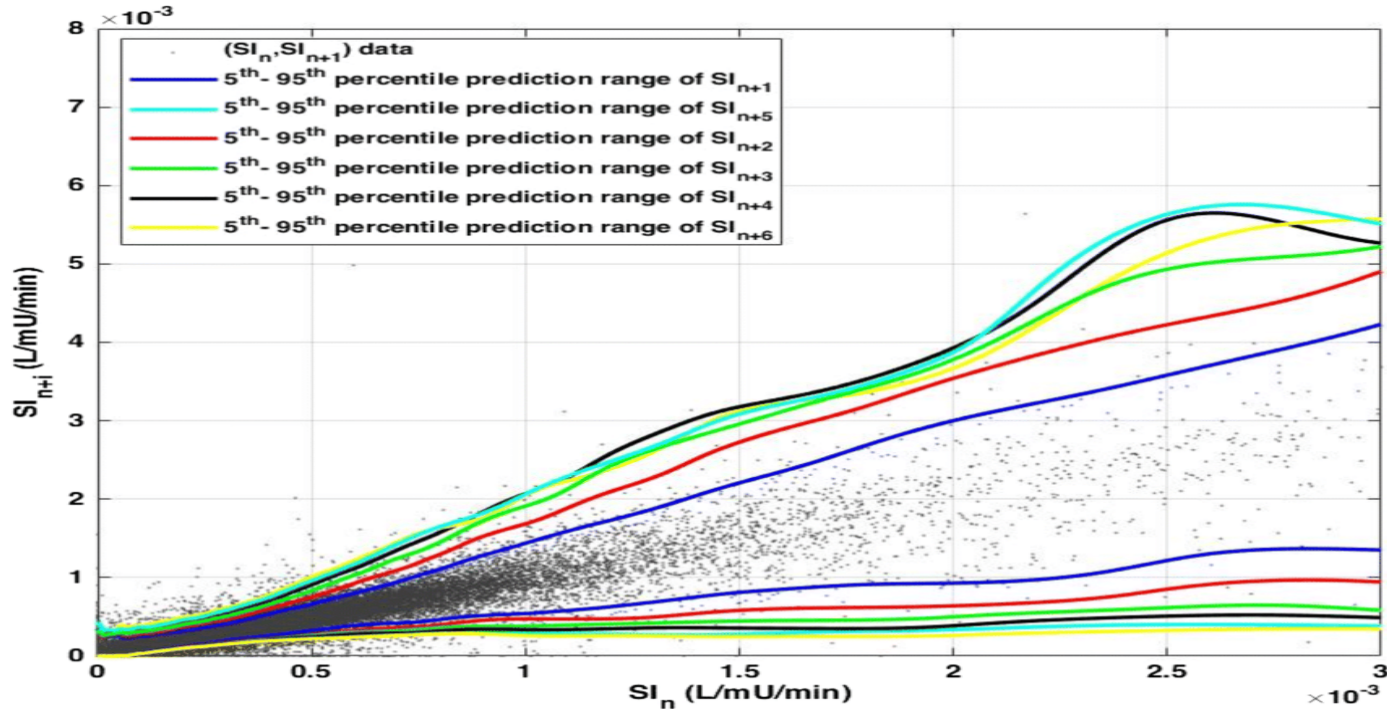
- “In conclusion, generative AI has the potential to revolutionize the way we plan, develop, and manage smart cities. By providing insights into citizen behavior, traffic patterns, and environmental factors, generative AI can help cities become more efficient, sustainable, and accessible.”



What about Chat GPT and other LLM?

- Chat GPT is a “Large Language Model” (LLM) or Foundational Machine Learning Model. Original models built on Stochastics (some call the stochastic parrots).
- Conversational chatbot with Generative Pretrained Transformer (GPT).
- Is “generative” AI meaning, it crafts a response with “new” content and tries to format it into natural language.
- **(Stochastics** is the study of data sets with random probability distributions that can be analyzed statistically but not predicted.) Due to the uncertainty present in a stochastic model, **the results provide an estimate of the probability of various outcomes.**
- Interesting, entertaining and wrapped in a lot of hype (anyone remember the metaverse).
- GARTNER: Is ChatGPT artificial general intelligence? No.

Stochastic Modelling – 5 to 95% probability





How does it work?

- Classifies “intent” like Alexa or Google with confidence scores (statistics) BUT using stochastic-like analysis.
- Produces “constraints” to bound the response.
- Trained with up to 300 Billion Words from various sources.
- Can summarize responses with marginal degrees of accuracy (use cautiously) conditional upon input.
- Models are fine-tuned by your feedback (unless you use the API)
- Generates outputs based on trained foundational models (i.e. If the model is not trained in a particular area, it doesn’t work).
- Uses probability analysis.
- Determine the best (most probable) path based on your input.



More specifically, model strengths include

- Generate and augment prose or narratives
- Code development, translation, explanation and augmentation
- Summarize and simplify long-form texts.
- Classify content for sentiment or by topic area.
- Answer questions,
- Translate and convert language (including programming languages).
- Written content augmentation and creation.



What it isn't

- Accurate much of the time.
- Equally strong across all domains...only where it's trained.
- Sentient (Perceptive)...it is not AI
- Insightful i.e.) **Gives you the same answer if you ask how to build a high-performance team of plumbers or brain-surgeons.**
- Reliable & Trustworthy (ie Requires expert review).
- Able to be customized or trained with your data.
- Not particularly insightful much of the time. Regurgitates prescribed paths through the model.



Popular Use Cases of ChatGPT

ChatGPT Capabilities

- ✓ Create written content.
- ✓ Answer questions (noncomputational) and discover information.
- ✓ Transform the tone, formality or writing genre of language on request.
- ✓ Summarize and classify text.
- ✓ Compare paragraphs and correct grammar.
- ✓ Generate ideas, suggestions and key points on different topics.
- ✓ Classify and categorize content based on the example provided.
- ✓ Generate, translate, explain and verify computer code.
- ✓ Translate text to instructions, query or different language.

Select Enterprise Use Cases of ChatGPT



Customer service: Improve customer-facing chatbot breadth and quality, effectively respond to customer inquiries and complaints, and generate personalized responses.



Sales and marketing: Engage with potential customers on a website or in a chatbot, and provide recommendations and product descriptions.



Legal and compliance: Draft and summarize legal documents, and create draft compliance policies and training material.



HR: Create interview questions, write offer letters and job descriptions, summarize employee survey results and suggest employee engagement activities.



Software programming: Generate computer code from prose, convert code from one programming language to another, correct erroneous code and also explain code.

What Exactly is GenAI in a Professional Context?

GenAI Creates & Learns

Gartner's AI Definition:

- **Analyzes** data with logic-based techniques like Machine learning (ML)
- **Interprets** events, supports and automate decisions (careful here).

Gartner's Generative AI Definition:

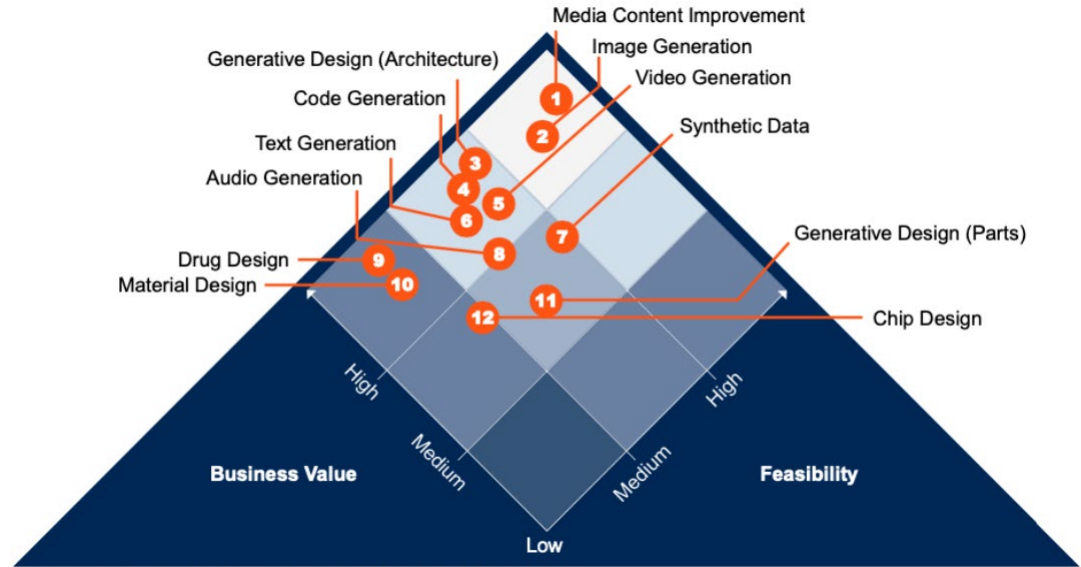
- **Creates** newly derived content, strategies, designs and methods.
- **Learns** from large repositories of original source content.

Risks Executives Should be Watching

- △□ Hallucinations
- △□ No Attribution
- △□ Data Leakage

What Use Cases Are Emerging for CXOs?

Gartner Use Case Prism for Generative AI



Key Issue Take-Away:

Foundation models represent a huge step change in the field of AI, due to their massive pretraining, which makes them effective at few-shot and zero-shot learning, enabling them to be versatile.

But...

- Too many organizations are jumping into the technology without understanding the problem and the use case
- This is going to create failed POCs
- Many organizations have a solution looking for a problem.
- Driven by leadership and the hype cycle.
- Have complete misunderstanding of how the models are built, use cases and limitation.

Getting Started in Gen AI Pilot

- What is your use case?
- Will OOTB model suffice?
 - Prompt Engineering & Token Filtering?
 - Model Selection?
 - Text Based UI (Chat GPT)
 - API's and Application Embedding.
- Is Model Augmentation required?
 - Model Selection?
 - Model Training, Testing and Feedback?
 - APIs used for Training?

Key Findings

- The most successful pilots focus on demonstrating business potential, not on technical feasibility. Organizations tend to run technical pilots that simply demonstrate that it is possible to build something with generative AI, leading to only incremental improvements and ignoring the transformative potential of this technology.
- IT leaders struggle to identify and prioritize impactful generative AI use cases due to the broad and emerging nature of the technology.
- Mature AI organizations involve business partners and software engineers as key members of their AI projects and pilot teams.

[View Document](#) 



Use Cases for Foundation Models

NLP

Text Generation, Q&A, Summarization, Search, Classification, Entity Extraction, Intent Recognition, Translation, Rewrite, Text to Speech

Computer Vision

Text to Image, Image Classification, Object Detection, Video Classification, Image to Text

Software Engineering

Text to Code, Code Completion

General Sciences & Others

- Drug Discovery, Genomic Sequencing, Chemical Formulation
- Human-Robot Interaction

Enterprise ChatGPT/GPT Usage Areas: Pros and Cons

ChatGPT

Out-of-the-Box Model Usage

- Uses ChatGPT service “as is,” no direct access to GPT-3.5 model.
- **Pro:** Fast to market; limited investments; gain experience.
- **Con:** Limited differentiation; control range is limited.

Prompt Engineering/ In Context Learning

- Uses tools to create, tune, and evaluate prompt inputs and outputs.
- **Pro:** Better targeted ChatGPT and GPT3 results; low startup costs.
- **Con:** Must integrate with business systems to introduce data.

GPT3 Model

Deployment/ Fine Tuning of Custom Models

- Uses (builds/fine tunes/licenses) GPT or other language models directly.
- **Pro:** Customized or optimized models, data, parameters and tuning.
- **Con:** Requires added funding and skills. This is **not** ChatGPT.

Out-of-the-Box Model Usage

- This form of usage is by far the most accessible and common today.
- Text-based webchat interface (chat.openai.com). API recently available.
- For most use cases, output must be reviewed by a human, as it may contain inaccuracies or unacceptable content.
- Enterprises may achieve useful results with limited investments and skills. But because many users are inexperienced, they risk overlooking data, security and analytics risks.
- A limitation is that the model cannot include real-time, current or custom data. Nor does it cover recent historical events (those after December 2021). However, new data can be added via a prompt at the time of interaction.

Prompt Engineering/In Context Learning

- Prompt engineering can be applied to both ChatGPT and GPT use cases. It involves developing a systematic approach to creating, tuning, and evaluating results in terms of inputs and outputs to and from ChatGPT.
- In ChatGPT, the prompt is the critical element driving results. Small changes to a prompt's choice of words and word order can result in significant changes in output. A prompt can also contain data that should be incorporated or considered when generating a response.
- Leaders should anticipate that prompt engineering is a new technical skill that will need to be developed, along with related tools.
- In some cases, this requirement will extend to building a separate learning model to optimize prompts.
- In Context Learning, leveraging Retrieval Augmented Generation, is the dominant model in use by organizations that must keep data secure and regularly update data in an LLM context

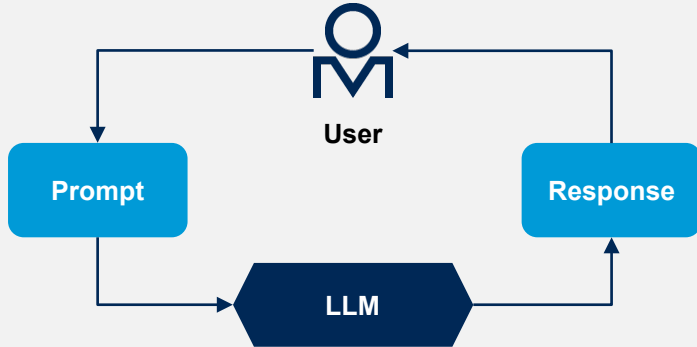
Deployment/Fine Tuning of Custom Models

- This is the likely long-term approach for sophisticated solutions.
- This approach is not possible with ChatGPT, as it does not provide users with access to customize its underlying model.
- Besides GPT, other foundation models exist. Some are specialized.
- Customizing foundation models is a complex task that requires significant skills, data curation and funding.
 - Enterprises should anticipate a robust market for third-party models customized for different use cases.
 - Planners should anticipate the emergence of third-party, fit-for-purpose, specialized models. Buying one of these may prove a better approach for many enterprises than customizing a model themselves.
 - Applications may also have prebuilt models for their users.

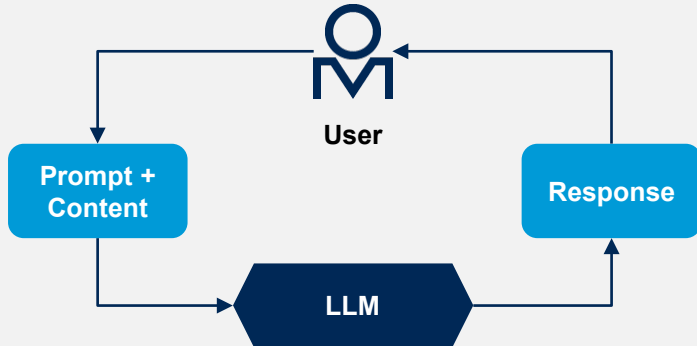
Use LLMs “As-Is”



Simple Prompt



Prompt With Content



VALUE

- **Benefits:**
 - The simplicity and versatility of this design pattern — a general purpose natural language generation tool — makes it high value in complementing workflows of language and software production.
- **Drawbacks:**
 - Risk of incorrect or biased outputs, requiring human quality control of generated response.
 - Potential privacy risks when sharing IP or confidential information.

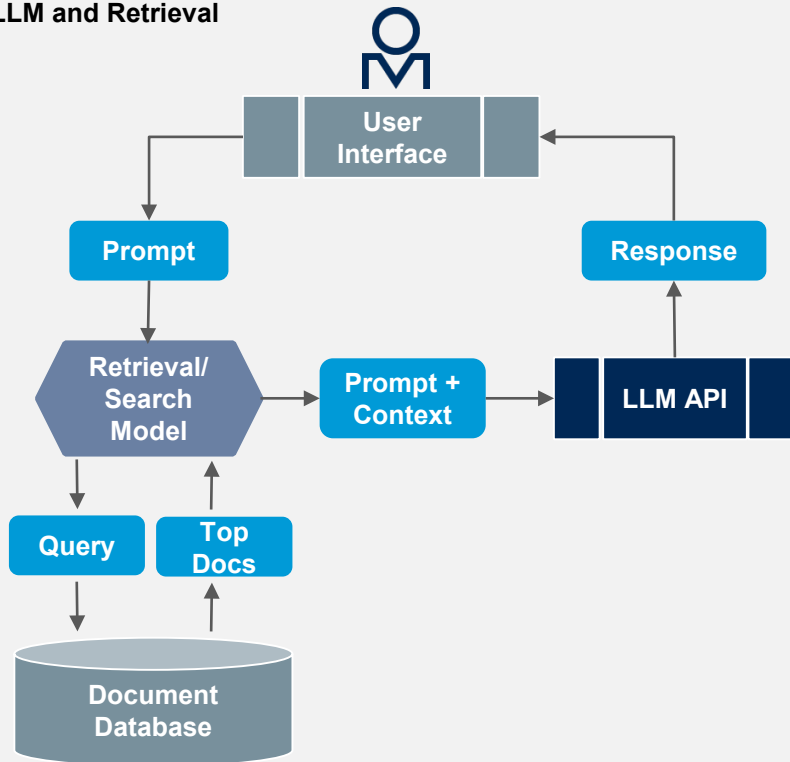
USE CASES

- Code generation
- Idea generation/brainstorming
- Copywriting/content creation
- General knowledge discovery/search
- Basic translation/NLP tasks

LLM With Document Retrieval or Search



LLM and Retrieval



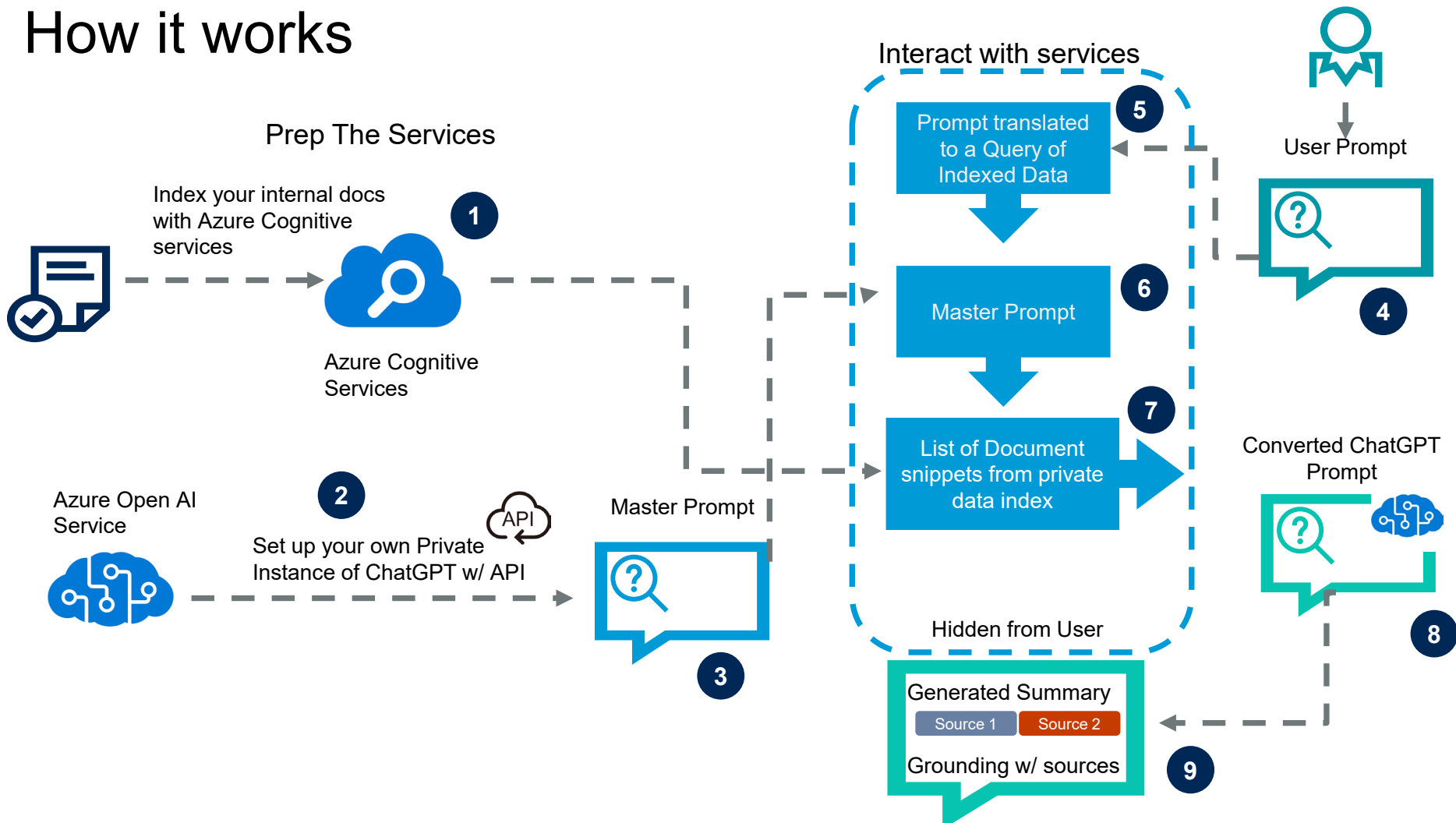
VALUE

- **Benefits:**
 - The potential to link LLMs with internal document databases, unlocking insights from internal data with LLM capabilities.
 - The potential to have much more accurate and recent information.
 - The resulting system could include references/citations to the original source documents from which the response was generated.
- **Drawbacks:**
 - LLM retrieval models can still be inaccurate and hallucinate, albeit typically less than when using LLMs without retrieval.
 - Requires a strong information classification to mitigate privacy risks.
 - Data leakage risk if LLM and search are not in the same infrastructure.

USE CASES

- Using LLMs to answer questions about an internal, private document database
- Augmenting LLMs with web search results

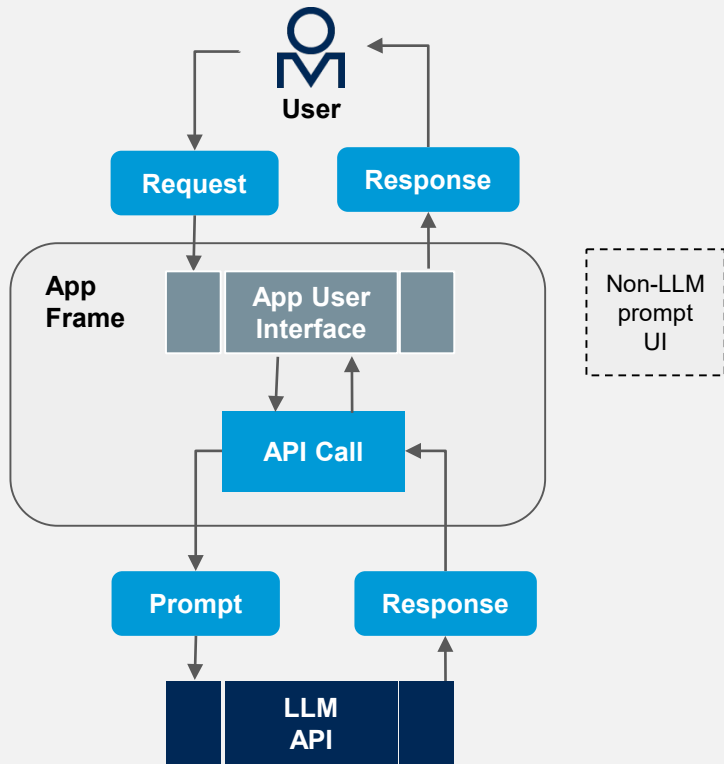
How it works



Embed LLM “As-Is” Into an Application Frame



LLM Exposed Within an Application Frame



DESIGN PATTERN APPLICATION

- **Name:** Embed LLM “as-is” into an application frame
- **Description:** Exposing LLM capabilities via an application frame that makes API calls to the LLM on the back end
- **Motivation:** To better control and secure adoption of LLM capabilities
- **Solution:** Service called via API and results presented in UI frame inside host application
- **Implementation:** Implemented as an on-demand discovery or content generation tool (in essence, a new tool in a frame awaiting a prompt from user)

VALUE

- **Benefits:**
 - Takes advantage of the better privacy and security protections included in API offerings (as compared to the end-user applications).
 - Easier to monitor compliance by recording usage via the proprietary user interface.
 - APIs give more flexibility for creating complex workflows (for example, adding automated controls before sending data to the API).
- **Drawbacks:**
 - Volume of use and pricing: API costs need to be monitored.
 - Private instances of LLMs could be eventually be offered directly by vendors, changing the cost-benefit of building a private user interface.

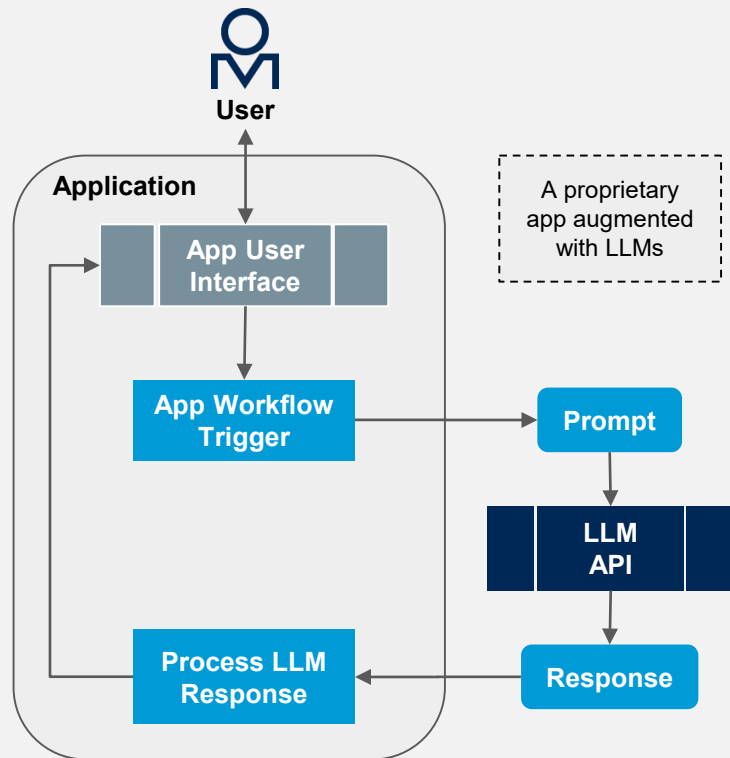
USE CASES

- Enabling employee access to LLMs in a controlled environment
- All the use cases in the [Using LLMs As-Is](#) apply here: code generation, Idea generation/brainstorming, copywriting/content creation, general knowledge discovery, basic NLP tasks

Embed LLM Into an Application Workflow



LLM in an Application Workflow



DESIGN PATTERN APPLICATION

- **Name:** LLM embedded in an application workflow
- **Description:** Embedding as-is LLM as part of a broader application workflow. This differs from the [Application Frame pattern](#) in that this is not just a way to expose LLM APIs, but a way to integrate them as part of a complex application
- **Data Considerations:** Potential inconsistency between the LLM and the host application context and data
- **Motivation:** To expand the functionality of an application with LLM capabilities
- **Solution:** LLM called via API by application and results processed by the application
- **Implementation:** Can be implemented in two ways:
 - As a secondary source of content proactively queried by application and presented to the user
 - Where the LLM output drives another process in the application and may or may not present results in the UI

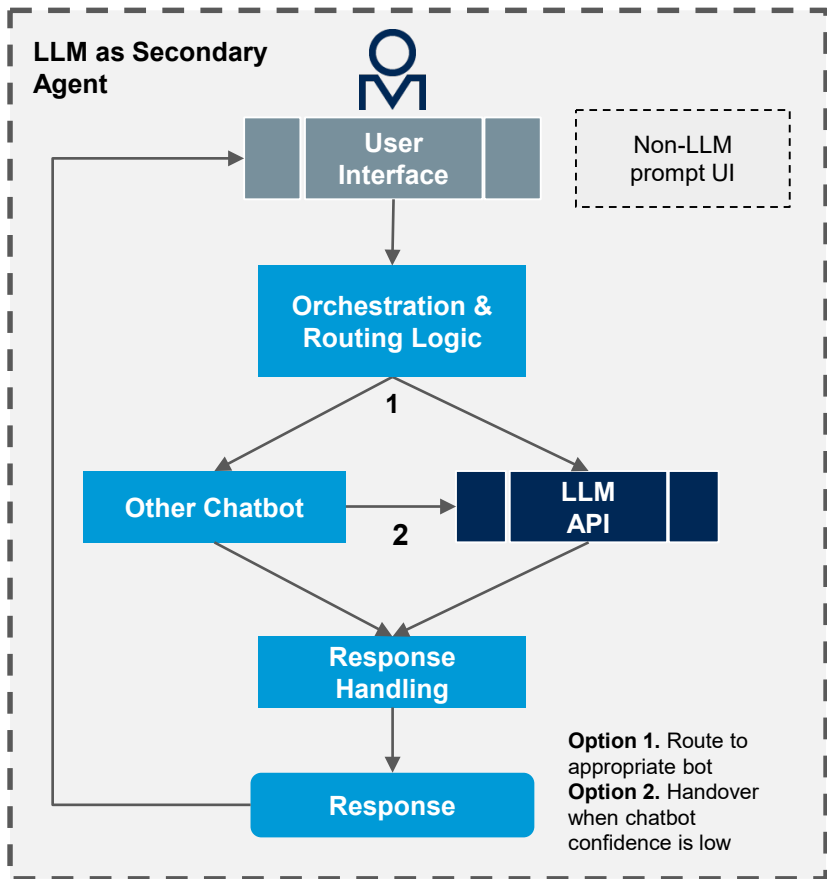
VALUE

- **Benefits:**
 - Enhances the functionality of an application
- **Drawbacks:**
 - Usage controls need to be implemented to keep API costs under control
 - Using the LLM as a component of an application might be too risky for some use cases, requiring careful guardrail design

USE CASES

- Embedding LLMs into productivity software or collaboration tools
- Presenting LLM outputs alongside existing search results
- Embedded into a content management system
- Chatbot application expanding virtual assistant network with LLMs

LLM as a Secondary Chatbot



DESIGN PATTERN APPLICATION

- **Name:** LLM as a secondary conversational agent
- **Description:** A conversational system routes requests to an existing chatbot or the LLM API. This handover could also be done from the existing chatbot.
- **Motivation:**
 - To add a broad general knowledge experience to a conversational UI
 - To enable open-ended conversations
- **Solution:** There are two broad approaches:
 - Where a chatbot orchestration function routes a user query to either an existing chatbot or the LLM API
 - Where existing chatbot has low confidence and hands query over to the LLM
- **Implementation:** The incumbent conversational system is responsible for invoking the LLM based on context or enabling the chatbots in its network to fall back/hand over to the LLM based on confidence levels (or some other factor).

VALUE

- **Benefits:**
 - Extend the conversational capabilities of an existing chatbot ecosystem
- **Drawbacks:**
 - Low consistency in response between the LLM and the existing chatbot
 - Risk in low accuracy/hallucinations coming from the LLM responses
 - External chatbots may require sending customer data into the LLM API, potentially creating a privacy risk

USE CASES

- Improving customer service chatbots
- Augmenting nonplayable characters in video games

Recommendations

As an IT leader focused on leveraging generative AI to create business value, you should:

- Run a workshop to generate use-case ideas with the business, focusing on the disruptive potential of generative AI and the way in which it can enable strategic objectives.
- Prioritize the use cases for your pilot against their potential business value and feasibility. Focus on no more than a few use cases for your generative AI pilot.
- Assemble a small but diverse team, including business partners, software developers and AI experts. Dedicate this fusion team for the duration of the pilot.
- Create a minimum viable product to validate each use case. Identify the target business key performance indicator (KPI) improvement hypothesis, and define the deployment approaches and risk mitigations required to quickly test this hypothesis.

[View Document](#) 



Instill Responsible AI Practices

Prevent Misuse

- Usage Guidelines
- Enforcement

Mitigate Hallucinations

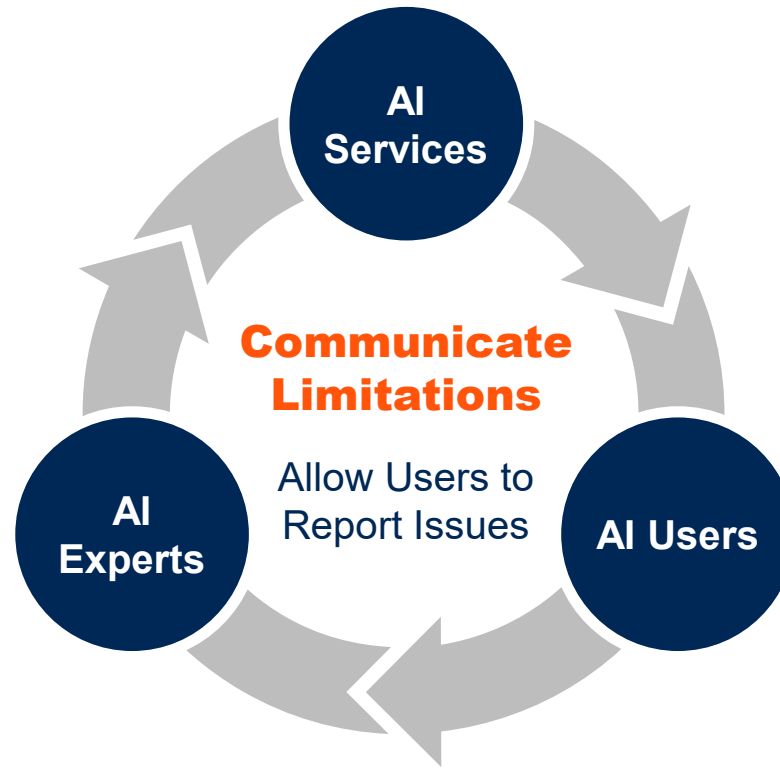
- Document Limitations
- Model Monitoring

Collaborate Across Stakeholders

- Seek Diversity
- Publish Lessons Learned



Create a Feedback Loop





Conduct Adversarial Testing via “Red Teaming”

Instead of doing extensive annotation, the red team conducts adversarial testing, actively seeking out examples where it fails.

The model is retrained on these examples, with the team adding new adversarial examples — continuing this process until they close the loop on finding failures.



Upskilling Recommendations

- Align your skills development with the deployment patterns for LLMs that best fits your organizations use case and maturity. For most organizations, this will consist of the adoption of COTS applications incorporating LLMs, or LLM applications that leverage retrieval augmented generation (RAG).
- Cross functional technical teams should upskill prompt engineering, knowledge graph and LLMOps skills. Citizen Data Scientists should develop prompt engineering skills.
- Learn from product management best practices and spend more time on discovery before you jump into delivery. Figuring out what to build, how to build it, and how to bring it to market, even with help from a smart AI copilot, is still a highly challenging activity.
- Architects: focus on improving Team, Processes and Organization design with methods such as Agile, Team Topologies and Wardley mapping to enable the velocity, service orientation and adaptability to change required by AI adoption.

Prompt Engineering Methods & Skills

	Technical Skills	Soft Skills	Tools
Core	Prompt Formulation/Chaining	Writing/Communication Business Domain Knowledge	Prompt Management
Valuable	Advanced Prompting Methods Prompt Monitoring/Relevance Scoring	Creativity Reasoning Product Sense Thinking End-To-End Collaboration	Prompt Engineering/Prompt Infrastructure Search/Indexing/Vector Databases
Specialized	Semantic Search Knowledge Engineering Adversarial Prompting Prompt Optimization	Architecture User Empathy Design Thinking Persuasion	Automation/Workflow Platforms Symbolic AI Plugins Data Labeling

Large Language Model (LLM) Considerations

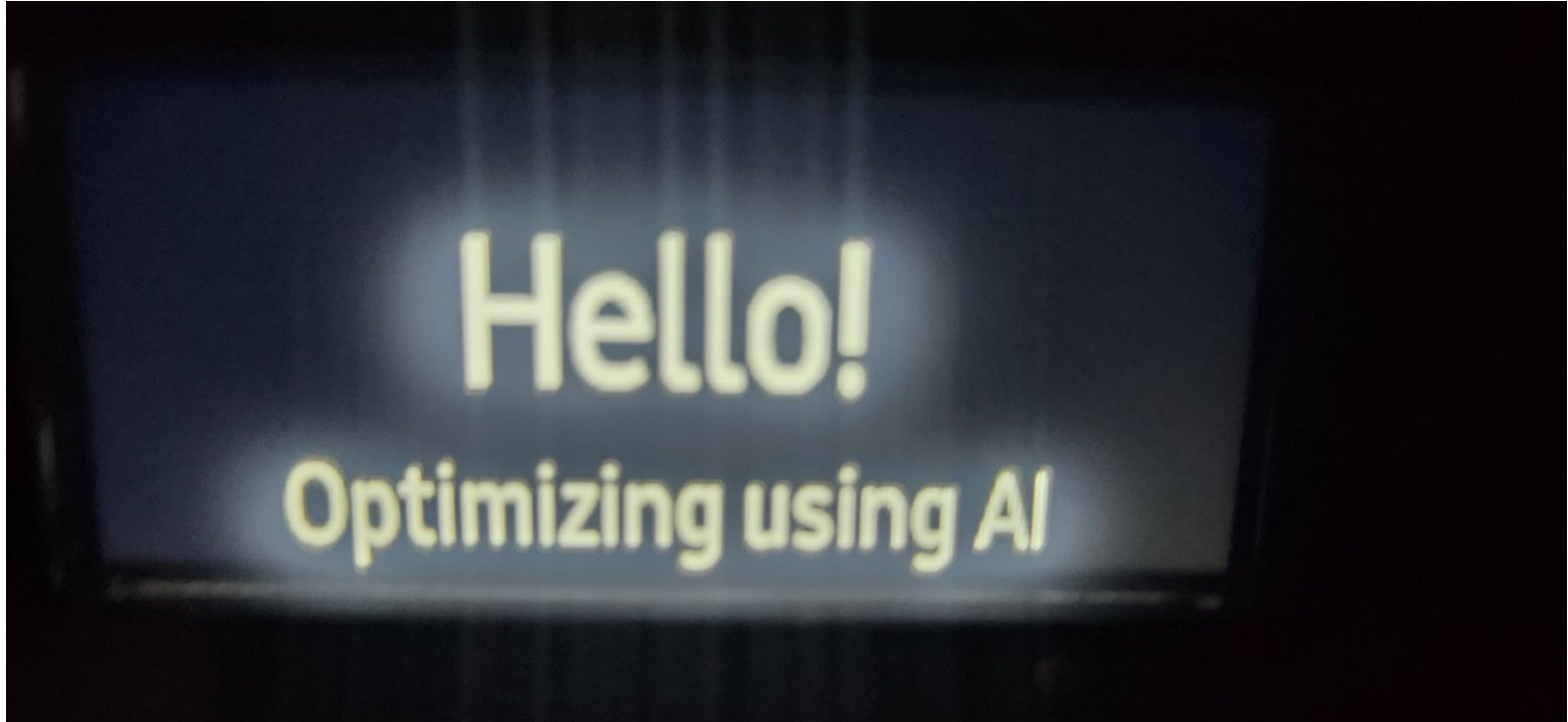




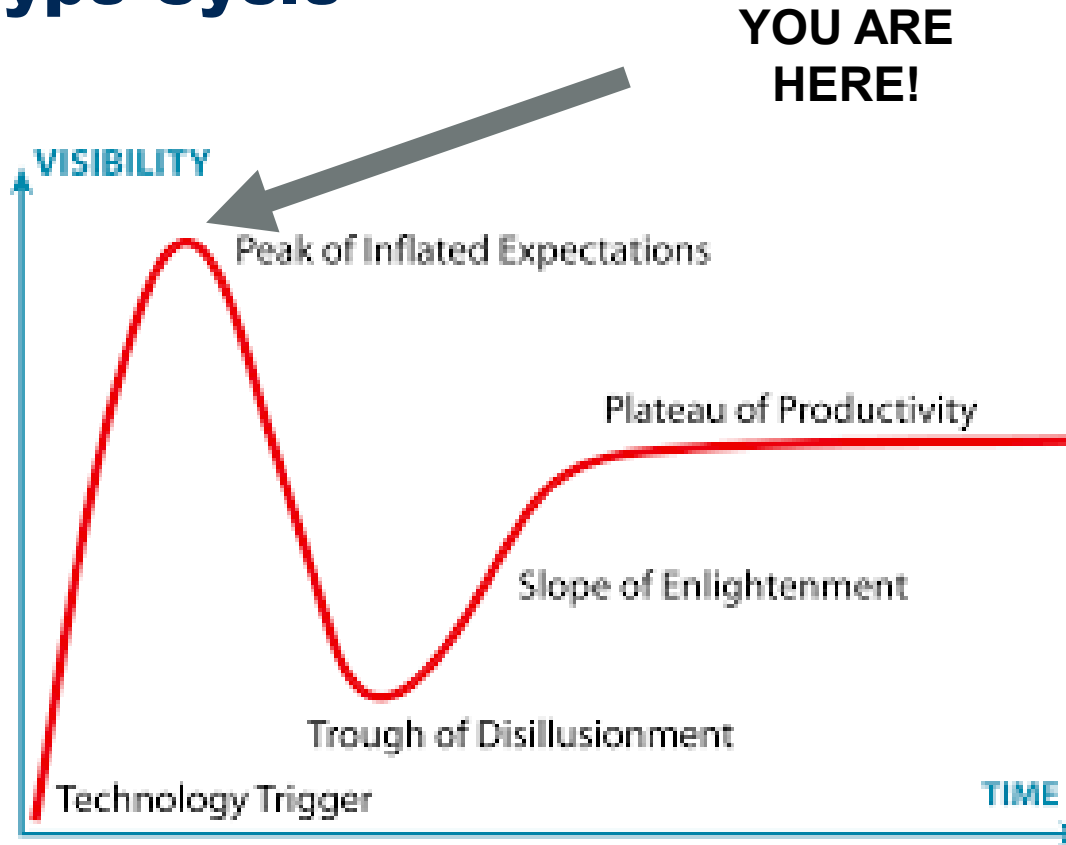
Future of Generative AI

- Raw potential is enormous — more powerful and versatile models, but safety and veracity remain questionable.
- Will be rapidly embedded into consumer and business apps.
- Model sizes will continue to scale but clients will prioritize cost, simplicity, security, transparency and domain specificity.
- Emergence of new business models & ecosystems.
- Growth in multimodal models.
- The concentration of power that this phenomenon entails and its effects aren't fully understood today.
- Everything claims to be powered by AI.

My Washing Machine



Gartner Hype Cycle



Tech world in 2023



Recommendations

- Create a position paper that outline the benefits, risks, opportunities and deployment roadmap for foundation models.
- Choose task-specific pretrained models to avoid expensive customization and training.
- Instill responsible AI practices to prevent misuse and mitigate unintentional behavior.
- Facilitate seamless machine-human interaction through UX redesign, feedback loop and education on prompt engineering.
- Designate an incubation team to monitor industry developments, communicate the art of possible, experiment with BUs and share valuable lessons learnt companywide.

Discussion

Public Agenda Item #27

Agency Update

December 6, 2023

Porter Wilson, Executive Director

Agency Update

State Employees Charitable Campaign



- 74.9% of ERS employees contributed, raising \$66,139
(exceeding our agency goal by 116.03%)
- Four divisions had 100% participation
- Full agency effort lead by Elizabeth Roque and Adriana Monreal



Agency Update

Leasing Update and Building Renovation



- 1836 San Jacinto
 - Active negotiations with two food and beverage operators for south and north first floor retail spaces
 - Letter of intent with office tenant for about 15,000 square feet
 - Construction wrapping up for UT leased space, with classes in building starting this spring
- ERS Legacy Building
 - Demolition underway on second floor in preparation for Customer Benefits occupancy
 - Abatement project will cause temporary closure of 2nd through 5th floors from December 15 to January 8. Building remains open for visitors

Discussion

Public Agenda Item #28

*Reminder Regarding Future Meetings of the ERS
Board of Trustees, Investment Advisory Committee, and
Audit Committee*

December 6, 2023

Next Meeting Dates



Fiscal Year 2024 Meeting Dates

2-day Workshop:

Tuesday, December 5, 2023

Wednesday, December 6, 2023

Wednesday, March 20, 2024

Wednesday, May 22, 2024

Wednesday, August 21, 2024

Public Agenda Item #29

Adjournment of the Board of Trustees Meeting

December 6, 2023