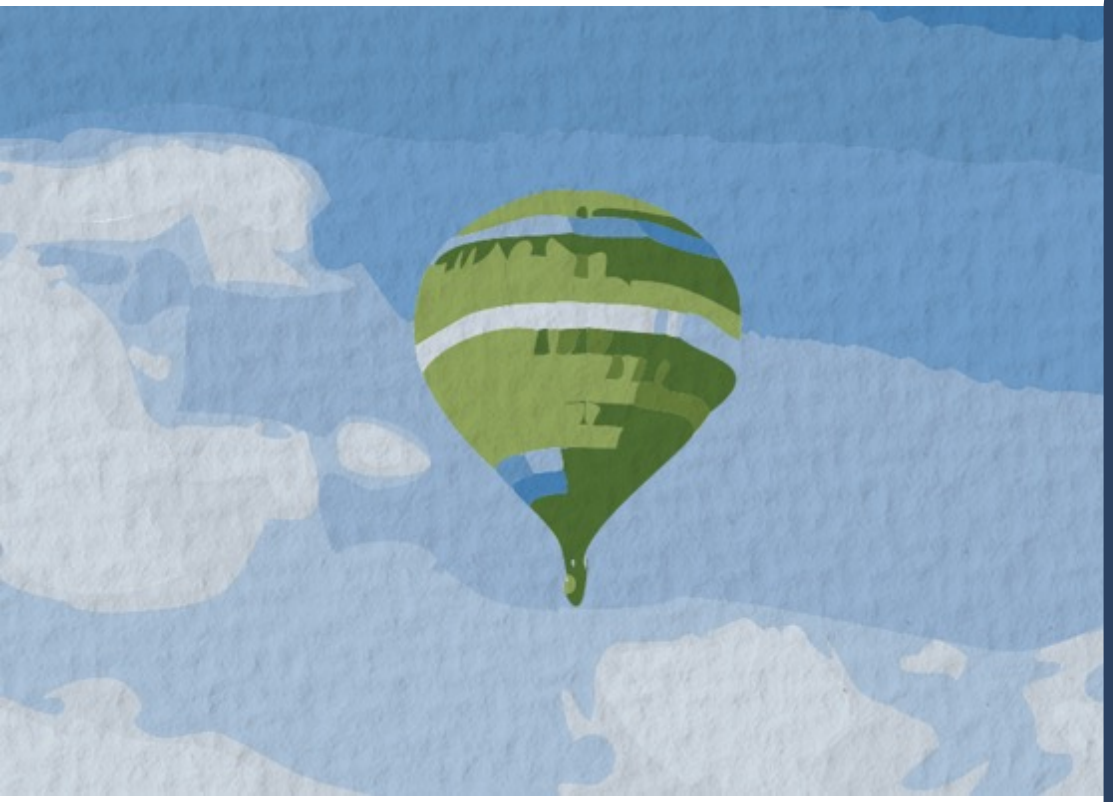

Empower Your Organization with GenAI

AI-mpact: From Vision to Value

Mike Jones
Syntax – Global Director, Product Portfolio Management
michael.jones@syntax.com

June 17 – 20, 2024 • Caesars Palace • Las Vegas, NV

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Mike Jones

Global Director,

Product Portfolio Management

- Over 30 years working with infrastructure through roles in infrastructure operations, architecture, and consulting, with a focus on building and managing Infrastructure-as-a-Service product offerings for the last 7 years
- Responsible for Syntax Enterprise Cloud offerings and Syntax Generative AI

Syntax History with Oracle

1 of 4 Strategic Managed Services Providers in North America

1997

Syntax Signs JD Edwards Strategic Partner Agreement

Core Services begins hosting EBS (Core Services)

2007

Syntax Named #1 JDE Cloud Platinum Partner in North America

2017

Syntax Acquires Market-Leading EBS Cloud Provider Core Services

2018

Syntax Announces Support for OCI Generation 2

2019

Syntax Acquires JDE Cloud Leader Emerald Cube Solutions

2021

Named 1st Strategic MSP in North America by Oracle with EBS and JDE expertise

2023

Achieved Integration Cloud, Cloud ERP, and Cloud SCM Competencies

Syntax Launches GenAI on OCI, OCI IAM JIT, and Syntax CloudSpan Solutions

2024

Launched OCI Stellar Cyber MSSP Offering

What is Generative AI?

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Generative AI Capabilities

GenAI is a type of deep learning that "generates" new content that simulates human generated content

At the heart of GenAI are Foundation Models pre-trained on vast amounts of information

GenAI is customizable to specific domains through fine-tuning and augmentation (RAG)

GenAI has many use cases like creating and summarizing documents, answering questions, code generation, and image creation

GenAI increases efficiencies by making AI more accessible

Basics – What's ChatGPT

ChatGPT	An OpenAI service that incorporates a conversational chatbot with an LLM to create content. It was trained on a foundational model of billions of words from multiple sources and was then fine-tuned by reinforcement learning from human feedback.
Large Language Models (LLMs)	AI that is trained on vast amounts of text, allowing it to interpret and generate humanlike textual output.
Foundation Models	Large machine learning models trained on a broad set of unlabeled data, fine-tuned and adapted to a wide range of applications.
Generative AI (GenAI)	AI techniques that learn from a representation of artifacts in a model & generate new artifacts with similar characteristics.

How Is Generative AI Different?

Traditional AI analyzes existing data to make predictions.

Traditional AI

Mainly Classify and Predict

Excels at pattern recognition

Symbols
Lifetime Value Score, Intents, Risk Levels, "Turn Left", Image Category, Emotion Type …"

Generative AI

Expand to Generate

Excels at pattern creation

Artifacts
Video, Language, Pictures, Designs, Schematics, Code, New Data, Learning Methods.

Generative AI generates new content based on learned patterns.

Basics – What's ChatGPT

Traditional AI

Request: **Is this a cat?**

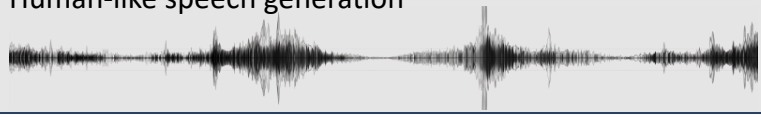
Response: **Yes**

Generative AI

Request: **Create a picture of a photorealistic cat.**

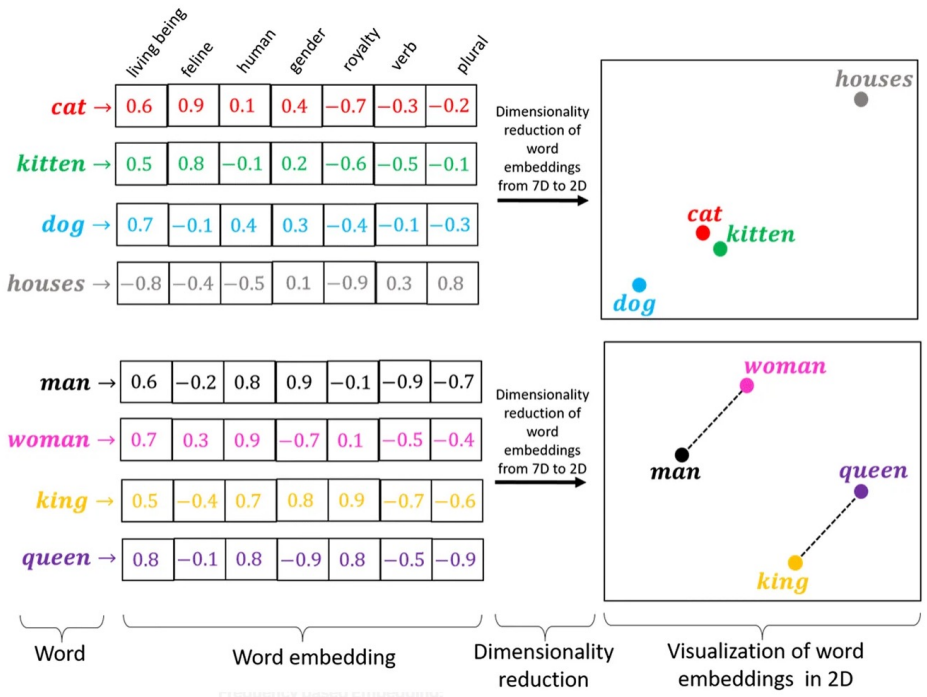
Response:

Types of Foundation Models

Foundation Model	Input	Output
Text to Text Generate text from natural language queries	"Summarize research on how much coffee per day is considered healthy"	General health guidelines suggest that moderate coffee consumption can be incorporated into a healthy diet, which equates to about 3 – 5 cups per day or 400 mg of caffeine.
Text to Embeddings Generate numerical representation of text for finding similarities	"domestic cat"	Numerical representation of "domestic cat" for use in similarity comparisons {-0.523, 0.191, 0.871, -0.226…}
Text to Speech Generate human quality speech from text	"The quick brown fox jumps over the lazy dog"	Human-like speech generation 
Text to Image Generate image from natural language input	"Create a picture of a princess riding a unicorn during a solar eclipse"	

Embeddings

- Numerical representation of a piece of information that captures the semantic meaning of the information
- Invented in 2013 by a team at Google (Word2Vec) as the underpinning of Google Search Autocomplete
- Translator that turns various types of data into a universal language of numbers that computers can understand and compare
- Allows for arithmetic operations with words
  - Swiss is to Switzerland as Cambodian is to Cambodia (nationalities)
  - Mouse is to mice as dollar is to dollars (plurals)
  - King - Man + Woman = Queen
- Reflects many biases that are present on human language
  - Doctor – Man + Woman = Nurse

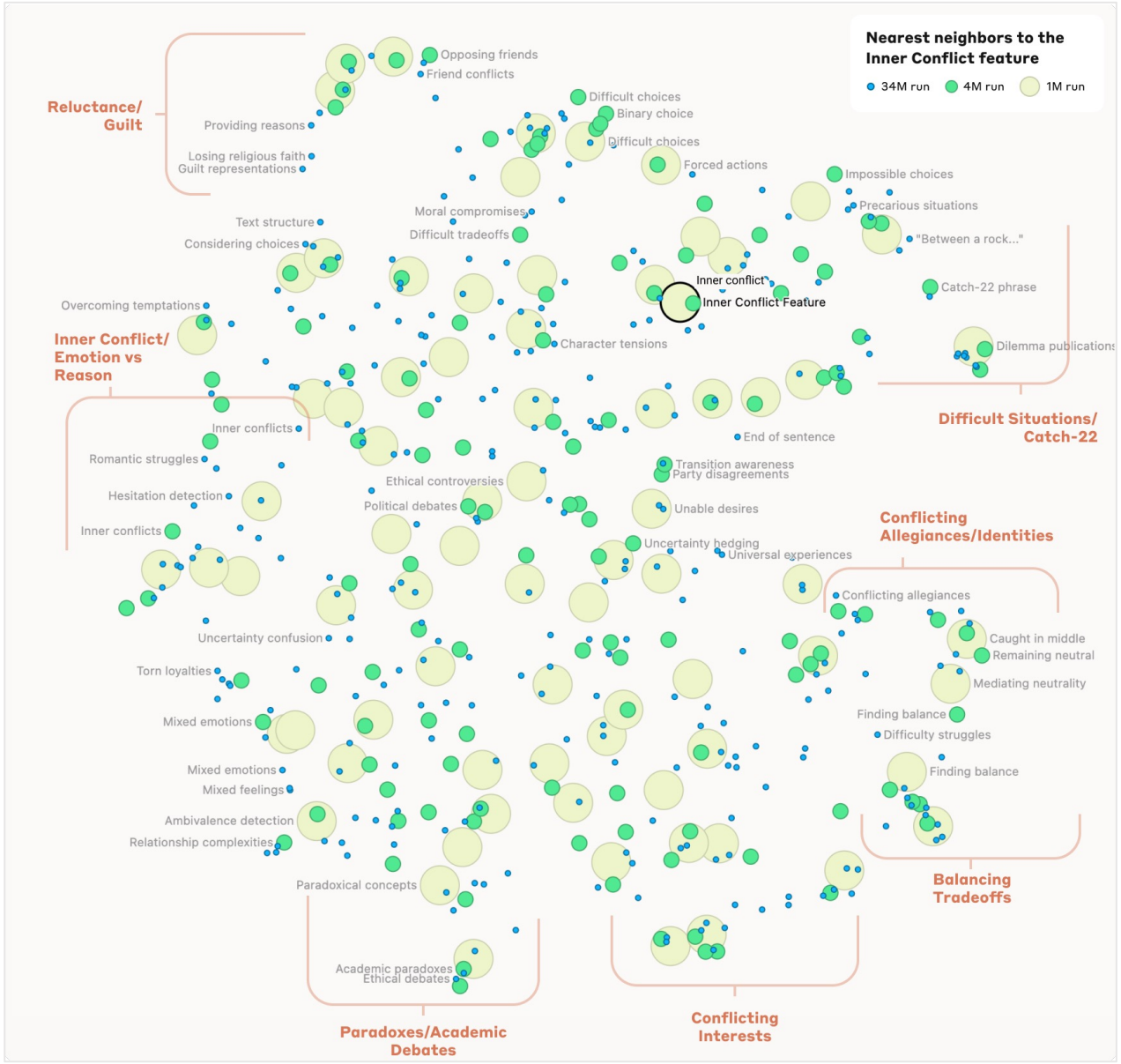


Generative AI: LLM effectiveness

Use-case family	Non-Agentic	Agentic	Examples
Prediction/forecasting	Low	Low	Risk prediction, customer churn prediction, sales/demand forecasting
Planning	Low	Medium	Operation research, optimization, route planning
Decision intelligence	Low	Medium	Decision support, augmentation, automation
Autonomous systems	Low	Medium	Self-driving cars, advanced robotics, drones
Perception	Medium	Medium	Object detection, recognition, analysis
Anomaly detection/monitoring	Medium	Medium	Abnormal transaction detection, outlier detection, monitoring
Segmentation/classification	Medium	High	Clustering, customer segmentation, object classification
Recommendation systems	Medium	High	Recommendation engine, personalized advice, next best action
Intelligent automation	Medium	High	Intelligent document processing, object character recognition, robotic process automation, hyperautomation
Content generation	High	High	Text generation, image and video generation, synthetic data
Conversational user interfaces	High	High	Virtual assistant, chatbot, digital worker
Knowledge discovery	High	High	Knowledge store, search, mining

LLM Complexity

We are still learning how Large Language Models work

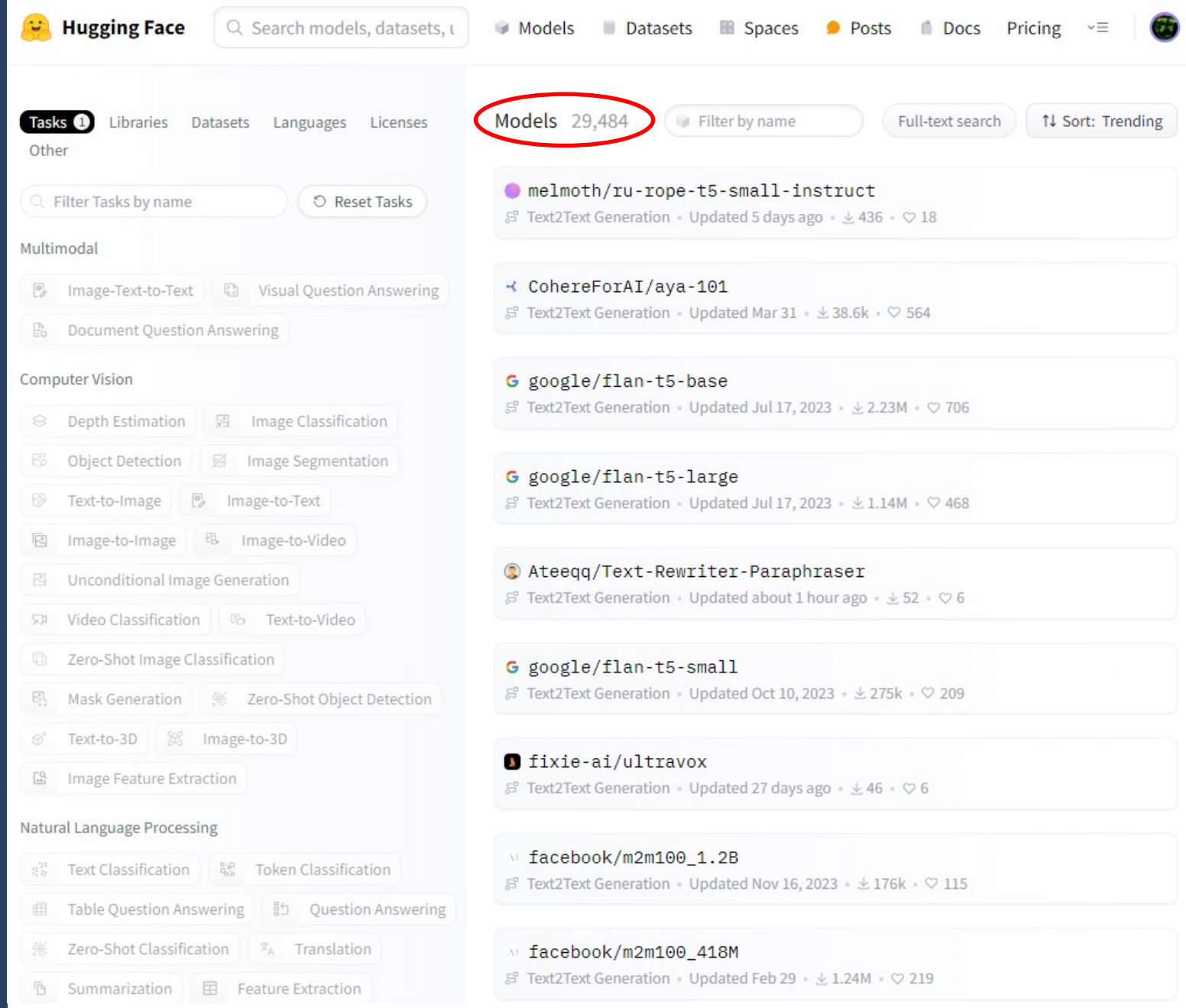


A simplified diagram illustrating the concepts of "near" and "inner conflict" within Anthropic's Claude Model, as presented in the publication "Scaling Monosemanticity: Extracting Interpretable Features from Claude 3 Sonnet."

Volume of Options

Hugging Face, a company and AI community providing access to open-source tools for developing ML and AI applications, currently tracks around 30,000 text to text models, with more being added weekly.

These vary from fully custom models to fine-tuned variations of other models.



Large Language Models – Deployment Options

Local LLM

Deployed locally on cloud of choice

- Data handled 100% locally
- Requires GPUs for performance
- Only open models are available
- Difficult to run large models
- Platform needs to be managed
- Pay for compute power

Private LLM

Consumed within Hyperscaler service

- Data handled 100% within your tenant
- Hardware/GPU is abstracted
- Hyperscaler supported models only
- Can run large and proprietary models
- Hyperscaler managed
- Pay hyperscaler usage/consumption

Public LLM

Consumed via API to LLM provider

- Data handled according to terms of use
- Hardware/GPU is abstracted
- Can only run provider models
- LLM accessed via provider API
- Provider manages infra and service
- You pay provider usage/consumption

Common approaches for customizing FMs

Prompt Engineering

Retrieval Augmented Generation (RAG)

Fine-tuning/continuous-pretraining

Train from scratch

Quality
Performance

Time
Cost
Complexity

Prompts, Context, & Temperature

Prompt:

Input string that you give to the model. It's the question or statement you want the model to respond to.

Context Window:

The total size of the buffer / context the model can handle on an interaction. How much data it can analyze without summarizing in sections first

Prompt Engineering:

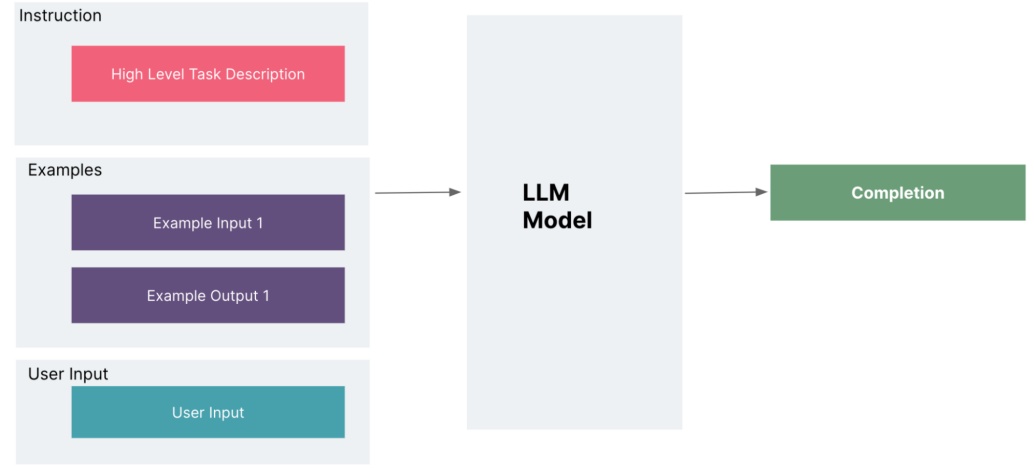
Process of crafting input questions or statements to get better answers from models.

Prompt Injection:

Technique to extract and override the initialization / system prompt.

Temperature:

A value between 0 and 1 that controls the randomness of the model's output. The higher the value the higher the chances of hallucinations. Creativeness versus Coherence trade-off



Main Components of a GenAI Platform

LLM Applications
Consume Generative AI as a Service via a Secure API

AI Agents
Automation of tasks with specific domain intelligence

Virtual Assistant

Bot Logic
Custom conversational Bot that talks to AI platform

Chat Platform
Integration for Natural Language Queries

Secure API Layer

Example Generative AI Platform
Cognition and Intelligence

Developer
Build apps with drag-and-drop visual modeling

Dashboard
Provide visibility

GenAI Studio
No code / Low code Development Platform

Ecosystem Telemetry
Observability, System Logs, Insights, Alerts

External Connectors
Gateway to iPaaS Platforms

ORACLE
servicenow
salesforce
splunk>

Data Anonymization
Mask sensitive data and apply security rules

Large Language Model(s)
Local or Private Large Language Model(s) provided by OCI

Retrieval Augmented Generation
Retrieve data from outside AI Model

Vector Database
Optimized Embeddings Storage and Querying

Data Indexer
Load and Embed private data from multiple sources

Enterprise Data Sources

Data Access & Governance
Ensure secure and compliant data accessibility across applications

GenAI Knowledge Base

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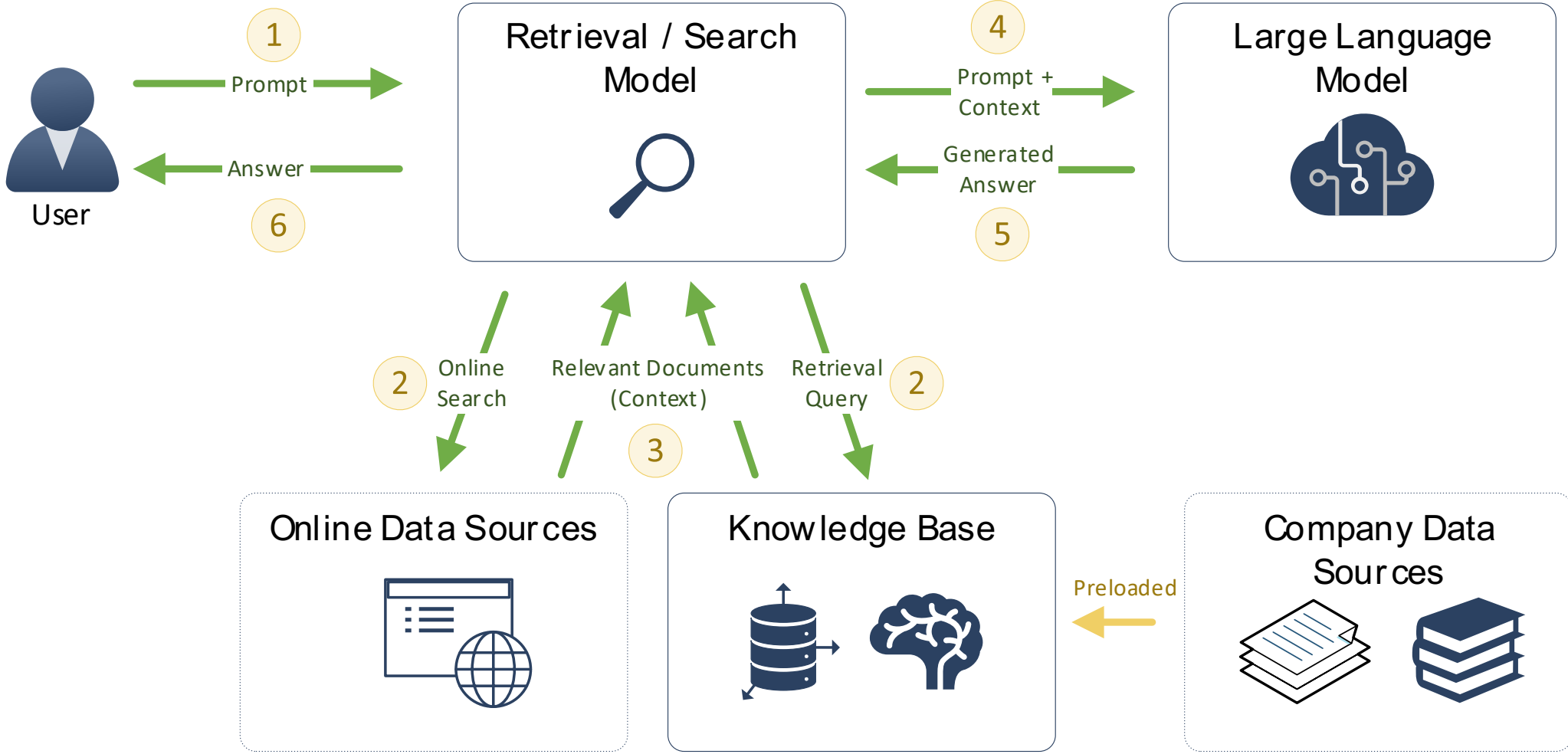
Retrieval Augmented Generation



Generative AI Benefits

Values of Generative AI

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Solving Business Challenges with Generative AI

In a recent Gartner webinar poll of more than 2,500 executives, 38% indicated that customer experience and retention is the primary purpose of their generative AI investments. This was followed by revenue growth (26%), cost optimization (17%) and business continuity (7%).

Generative AI can **create high-quality, original content for marketing**, reducing the need for human input and saving time and cost

Generative AI can help **automate and streamline business processes**, improving efficiency and reducing the risk of human error

Generative AI can **analyze large datasets to provide insights and predictions**, aiding in informed decision-making

Generative AI can help **develop innovative products**, driving competitive advantage and increasing customer satisfaction

Generative AI: Capabilities

Text Processing

Generation, summarization, paraphrasing, translation, and proofreading

Information Retrieval & Analysis

Text extraction, semantic search, document analysis, and knowledge discovery

Interactive Communication

Chatbots, customer assistance, intent recognition, and emotion detection

Coding Assistance

Code generation, summarization, review, suggestions, and assistance

Multimedia Creation & Editing

Multimedia generation, art and music composition, speech, voice generation, multimedia classification and editing

Creative & Research Assistance

Content brainstorm, augmentation, personalization, suggestions, and ideas

Data Analysis & Insights

Data summarization, forecasting, reasoning, anomaly detection, conversion, and synthetic data generation

Automation & Productivity

Process and workflow automation, workforce productivity and enablement, and strategic decision support

Tools & Memory

Extend LLM capabilities with access to tools and memory:

- Web search
- Database I/O
- File I/O
- E-mail
- Teams & Slack
- Phone & SMS
- Retrievers
- Parsers
- Short-term memory
- Embeddings
- Document loader
- Vector databases
- Knowledge bases
- Guardrails
- Telemetry

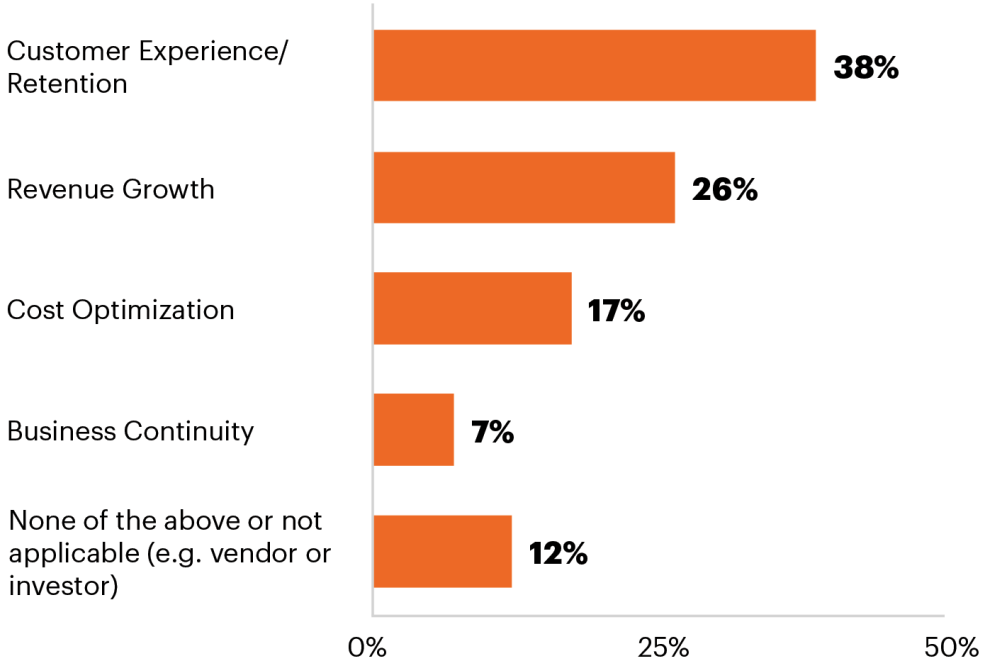
Why Generative AI now?

In today's rapidly evolving business landscape, staying competitive requires harnessing the power of artificial intelligence.

GenAI, the next generation of AI technology, empowers your enterprise to make smarter decisions, automate repetitive tasks, and unlock unparalleled insights from your data.

By embracing GenAI now, you're not just keeping pace with the competition; you're leapfrogging ahead, ensuring efficiency, innovation, and growth.

Primary Focus of Generative AI Initiatives



gartner.com

Source: Gartner

Gartner

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Horizontal vs Vertical Language Models

Horizontal Models

Benefits

- Designed for versatility – can be used for many use cases across industries, organizations and departments
- Most common deployed today (GPT, Claude, Cohere, Meta, are all used broadly)

Challenges

- Typically requires more customizations (RAG, fine tuning) to optimize for specific use cases
- Less optimal (generalist)

Vertical Models

Benefits

- Designed for more specific use cases, such as specific industries (healthcare, manufacturing, financial, etc..)
- Contains domain specific knowledge
- Cheaper than build

Challenges

- Limitations on scope limits broad capabilities
- Not as readily available yet, may require further tuning

By 2027, more than 50% of the GenAI models that enterprises use will be domain-specific (industry or business function), up from 1% in 2023. – Gartner Predicts (2024)

Horizontal Common Use Cases

	Development Assistance	Customer Service	Analytics	Knowledge Worker
How to use it	Automate code development and improve code quality. This can be done by helping to identify programming patterns, suggest code snippets, and even detect bugs in the code. With GenAI studio, rapid development of flows is available through easy drag and drop interface.	Generative AI can simulate near-human quality interactions with customers by powering chatbots or virtual assistants, often engaging queries in real time, and anticipating their needs based on previous interactions. It can also assist human agents by suggesting responses and providing relevant information.	The strength of Generative AI lies in its ability to parse huge volumes of data, identify patterns, and generate insights that might be missed by human analysts. In analytics, it can read and understand complex data sets and generate reports and dashboards, present data in human-readable forms, predict trends, and even suggest actions based on the interpreted data.	Generative AI can be utilized to augment information creation and dissemination. AI can summarize long texts, suggest conclusions from data, and even draft articles or reports. By automating these tasks, Generative AI increases productivity and frees up professionals to focus on more complex, high-value tasks.
Impacts	• Significantly speed up the software development process • Improve code quality	• Quicker response times • Consistent customer support • Reduced costs • Improved customer satisfaction	• Faster decisions using data • Improve the quality of decisions • Improve the overall adoption of evidence-based approaches	• Improve overall productivity and morale among knowledge workers

Vertical Common Use Cases (Manufacturing)

Generative AI has the power to revolutionize the manufacturing industry through significant advancements in productivity and effectiveness.

Product Design & Development

Enhance product design by generating new design ideas. Explore a wide range of design possibilities allowing faster, more efficient innovation.

Customer Service Automation

Improve the customer experience by accelerating the resolution times for frequent interactions through tailored responses.

Enterprise Knowledge Management

Enhance the utilization of knowledge assets by automating the examination of data from diverse sources, including manuals, maintenance records, customer feedback, inventory systems, and others.

Supply Chain Optimization

Keep track of supply levels and forecast future demand to streamline supply chain management, preventing instances of under-stocking or overproduction.

Quality Control

Enhance the process of quality inspection by pinpointing product flaws through the analysis of images sourced from cameras and various sensors, thus facilitating the identification of anomalies.

Predictive Maintenance

Interpret and analyze machinery data to foresee potential failures before they occur, enabling a proactive approach to maintenance.

Vertical Common Use Cases (Retail)

Generative AI has the power to revolutionize the retail industry through significant advancements in productivity, personalization and effectiveness.

Personalized Marketing

Deliver targeted marketing strategies and product suggestions informed by historical customer data, enabling more impactful engagement.

Enhanced Customer Service

Optimize customer service interactions by automating the handling of common inquiries and providing personalized shopping advice via virtual assistance, which allows human representatives to focus on more complex issues.

Store Layout Optimization

Analyze sales and foot traffic data to strategically design store layouts that enhance visibility and accessibility of popular products, thus improving customer shopping experience and maximizing sales.

Supply Chain Optimization

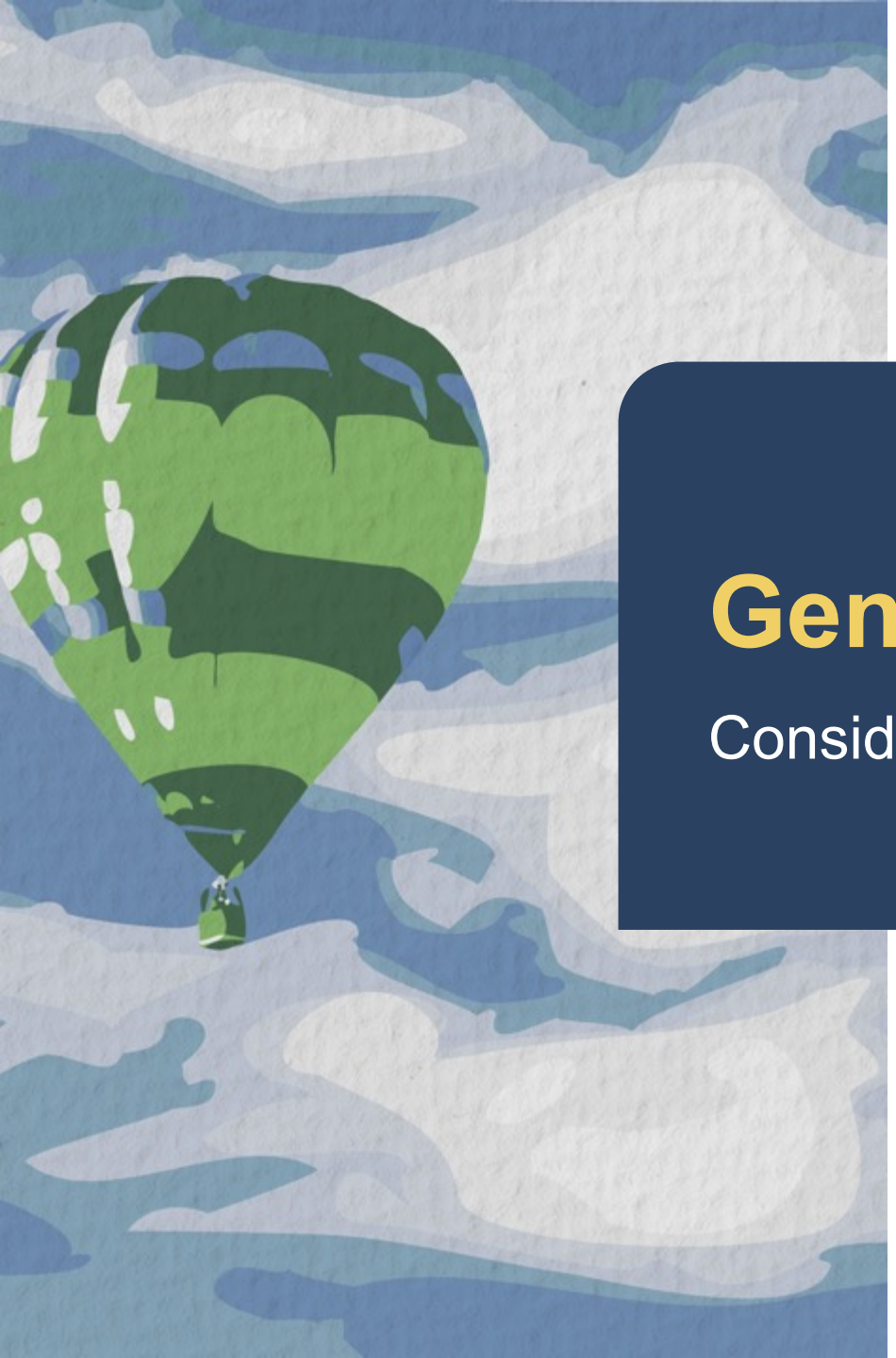
Evaluate sales figures, monitor inventory levels, gauge customer sentiment, and anticipate future demand to enhance supply chain efficiency and delivery performance.

Price Optimization

Regularly analyze competitor pricing, track demand shifts, and study market trends to help adjust and optimize pricing strategies, ensuring competitiveness and alignment with market demand and trends for maximum profitability.

Product Design

Revolutionize retail product design by creating personalized designs, accelerating prototyping, predicting trends, reducing design costs, simulating market responses, and promoting sustainability.



Generative AI Challenges

Considerations and Risks of Generative AI

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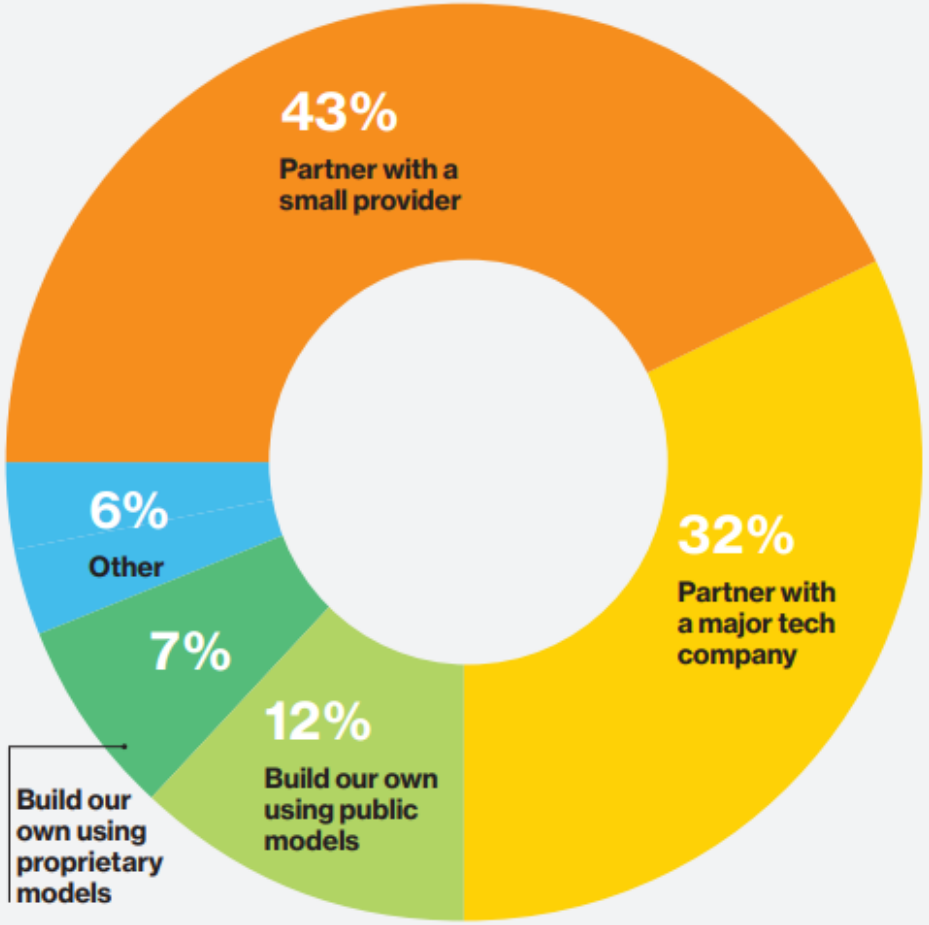
Identifying Strategy

- **Clear Objectives**: Identify specific goals and use cases that Generative AI can address to align with business strategy.
- **Performance Measurement**: Define key performance indicators (KPIs) to measure the impact and success of AI initiatives.
- **Operational Integration**: Assess and allocate the necessary resources to build, deploy, and manage Generative AI solutions effectively.
- **Vendor and Partner Selection**: Carefully select the right technologies and partners to support AI initiatives and ensure successful implementation.
- **Training**: Educate users and developers on effectively and safely adopting Generative AI solutions through comprehensive training programs.

Partnering Considerations

In 2023, MIT Technology Review polled 1,000 executives and found 75% say they plan to work with a partner.

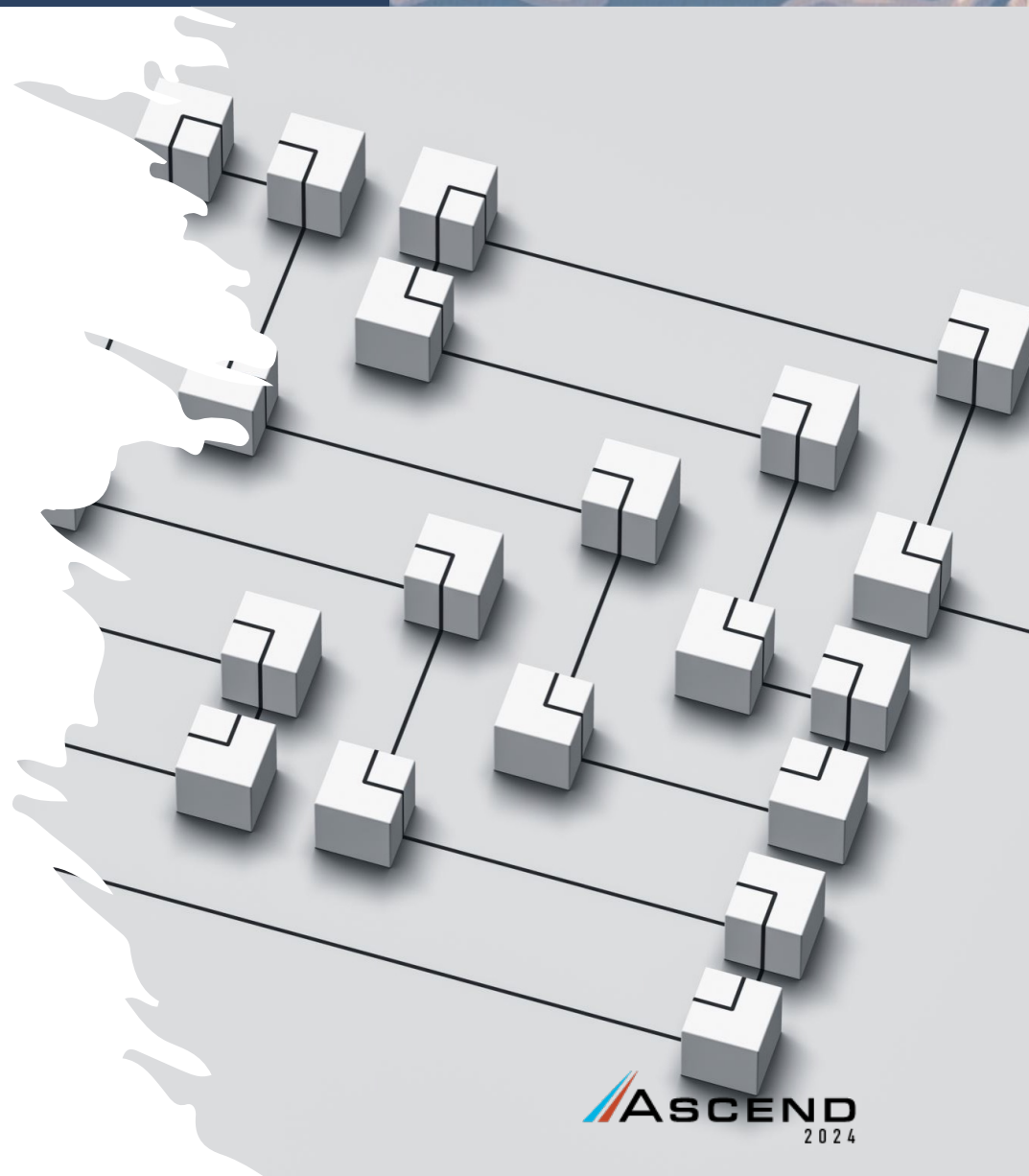
Figure 5. Primary technology strategies
When your organization begins deploying generative AI use cases, which is most likely to be its primary technology strategy? (Respondents selected one option.)



Source: MIT Technology Review Insights poll, 2023

Data Privacy and Security

- **Data as a Key Asset**: Data is a critical asset for most companies.
- **Risks of Generative AI**: Adopting Generative AI can expose company data, potentially leading to leaks.
- **Exposure through Large Language Models**: Sending data to Large Language Models may result in unintended data sharing.
- **Data Utilization for Model Training**: There's a risk of company data being used to train these models further.
- **Importance of Data Governance**: Understanding data flow and usage is essential.
- **Setting Protective Measures**: Establishing guardrails and policies is crucial for data protection.



Data Preparation

- **Data Quality and Accuracy**: The effectiveness of GenAI is directly linked to the quality and accuracy of the data it uses.
- **Data Privacy and Compliance**: Implementing stringent measures to protect sensitive data and ensure compliance with regulations (e.g., GDPR, CCPA) is critical.
- **Data Volume**: Managing large datasets can be costly and complex, requiring robust infrastructure and efficient processing.
- **Bias**: Ensure data is representative and unbiased to prevent the AI from generating biased outputs.
- **Integration**: Develop comprehensive ETL processes to integrate data from various sources, including legacy systems.
- **Maintenance**: Continuously update and maintain data to ensure the AI model remains effective and relevant.

Legal and Ethical Concerns

- Training dataset **copyright infringement** and fair use (Pending lawsuits)
- GenAI output **intellectual property** ownership
- GenAI can produce **inaccurate content, hallucination** (insurance)
- GenAI may **expose trade secrets and proprietary information** (Shadow AI)
- GenAI sprawling **without proper guardrails**
- LLM output **verifiability & predictability** as new model versions are deployed
- GenAI **does not perform calculations reliably**
- **Data governance** must be done at the source (Partitioning)
- GenAI Pre-Trained models **may be biased**
- **Regulations** are coming

Industry Missteps

Apple Says Destructive iPad Ad 'Missed the Mark'

– New York Times

Scarlett Johansson says a ChatGPT voice is 'eerily similar' to hers and OpenAI is halting its use

– AP News

Airline held liable for its chatbot giving passenger bad advice - what this means for travellers

– BBC

iTutorGroup's recruiting AI rejects applicants due to age

– CIO

Talent Acquisition

- **Shortage of Expertise**: There is a significant shortage of professionals with specialized skills in AI, creating a high demand for the limited talent pool.

- **High Turnover Risks**: The intense competition for AI professionals means that the significant investments in training and developing personnel are at risk due to high turnover rates.

- **Budget Stress**: The necessity for substantial training investments and the high salary demands of skilled AI professionals can place considerable stress on company budgets.

Generative AI Planning

Adoption Best Practices

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Opportunity

“By 2026, more than 80% of enterprises will have used generative AI APIs or models, and/or deployed GenAI-enabled applications in production environments, up from less than 5% in 2023.”

Gartner
“Hype Cycle for Generative AI, 2023”

GenAI Adoption Journey

Plan

- Strategy
- Governance
- Define Proof-of-Concept

Protect

- Deploy private virtual agent
- Implement guardrails

Enrich

- Ingest private data
- Deploy data protection

Leverage

- Add GenAI to solutions
- Build new GenAI solutions

Disrupt

- GenAI HyperAutomation
- GenAI Agents

The main challenges for executives are identifying where and how generative AI fits into existing and future business and operating models, how to experiment productively with GenAI use cases, and how to prepare for the longer-term disruptions and opportunities resulting from GenAI trends. - *Gartner*

Plan

Strategize

- Align with business goals
- Stakeholder alignment

Define Use Cases

- Workshops, Goals
- Bottom-Up Ideation
- Prioritize easy wins

Create and Measure Value

- Define Clear Objectives
- Measurable Results

Define Governance

- Understand Risks
- Establish policies
- Plan education
- Create transparency

Identify Technology

- Review and qualify the tools needed to build the solution or select GenAI as a Service

Pilot

- Start small
- Low cost, low commitment
- Gain experience
- Private instances

Create Culture

- Build AI skills within organization
- Train AI culture
- Reward safe experimentation

Plan – Bottom Up Ideation Example

Gandalf (GenAI) Internal Contest

- Nearly 100 entries
- 3 winners
- Cash prizes

Top ideas included ways to improve:

- Employee Experience: Hiring, onboarding, HR
- Customer Experience: Enhancing customer deliverables
- Sales Agility: Contract support, sales collateral, RFP responses
- Operational Efficiency: Troubleshooting, log analysis, correlation
- Productivity Gain: Documentation

Protect

Publish Rules

- Compliance and Regulations
- Ethical Use
- Data management

Implement Data Controls

- Enforce Data Privacy through controls and access lists
- Utilize private instances and connections

Educate

- Employee training on ethical use, privacy and security best practices

Create Transparency

- Establish Monitors
- Solicit feedback
- Communicate policies

Manage Vendor and Partner risk

- Due Diligence
- Regular business reviews

The transformational technology will require every member of an organization to be a risk professional. – *McKinsey & Company*

Enrich

Identify key data sources

- ERP systems
- SharePoint/File Repositories
- Ticketing
- iPaaS
- Contract Systems

Prepare Data and Security

- Standards for accuracy
- Validation process
- Privacy and guardrails
- Setup Access controls
- Implement Governance

Build ETL Process

- Control data quality
- Define transformations
- Error handling
- Version control

Skill Development

- Data augmentation to enhance data sets
- Feedback loops
- R&D to explore new techniques and methodologies

Leverage

Incorporate into Strategic Systems

- Identify Core Systems
- Customizations
- Automation

Promote Operation Efficiencies

- Process optimization
- Resource management
- Supply chain optimization
- Cost reduction

Employee Empowerment

- Upskill Training
- Hands-on workshops
- Certifications
- Access to more AI tools

Foster Community Feedback

- Feedback channels
- Innovation hubs
- Transparency
- Recognition

Analyze ROI and Iterate

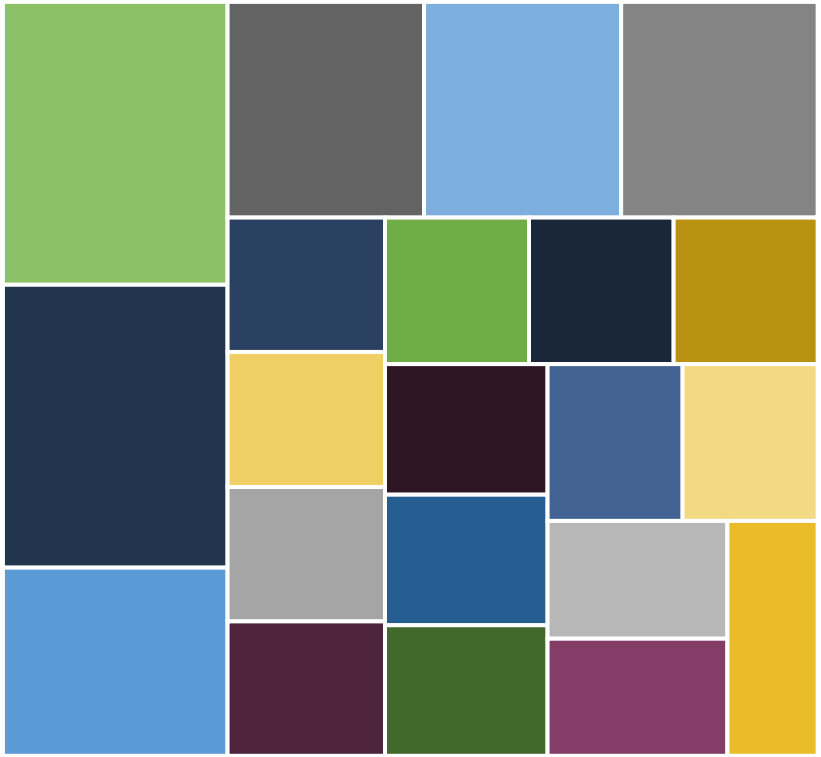
- Compare with Baseline Metrics defined
- Monitor and analyze performance impact
- Review challenges
- Create Performance Dashboards

Leverage

Continually expand your use cases as you gain feedback within your organization.

In the year since we introduced GenAI internally, Syntax has seen heavy use across our entire organization with more than 1,300 active users already generating over 250M tokens per month.

Usage by Team (Anonymized)



Disrupt

Hyperautomation

- Task automation
- Adaptive learning
- Real-time monitoring
- Autonomous decision-making

Agentic Workflows

- Multi-agent
- Reflection
- Tool Use
- Planning

Market Analysis

- Continuous Market Monitoring
- Ongoing evolution
- Unique opportunity identification
- Lifelong learning

Agentic Workflow Example

Topic Research Agent

- **Task**: Identify trending topics in company's industry
- **Action**: Use AI agent to perform web scraping and API calls
- **Output**: List of trending topics

Content Generation Agent

- **Task**: Generate blog post content based on identified trending topic
- **Action**: Use GenAI to create well-structured content
- **Output**: Draft of blog post

Editing and Proofreading Agent

- **Task**: Proofread and edit for grammar, coherence, style
- **Action**: Use AI-powered grammar and style checker
- **Output**: Polished blog post

SEO Optimization Agent

- **Task**: Optimize the content for search engines
- **Action**: use an AI SEO tool to insert keywords, meta descriptions, and ensure proper headings.
- **Output**: SEO-optimized blog post

Publishing Agent

- **Task**: Publish blog post to company's website
- **Action**: Use web automation to authenticate with content management system (CMS) and post the blog entry
- **Output**: Published blog post

Distribution Agent

- **Task**: Distribute blog post across various social media channels
- **Action**: use social media automation tools to share post on multiple social media platforms
- **Output**: Social media posts linking back to blog

Monitoring and Feedback Agent

- **Task**: Monitor the performance of the blog post and gather feedback
- **Action**: Use analytics tools to track views, shares and comments
- **Output**: Performance report and feedback for future content generation

GenAI Security (Syntax Example)

Vortex
AI SECURITY BOT

Enhanced security

Boosts our security with advanced threat detection and rapid response, ensuring prompt protection against potential threats

Simplified Ops

Streamlines alert handling, reducing manual effort and boosting productivity

Threat Intel

Consolidates threat data from top sources

Cost-effective Sec Ops

Streamlines security operations, cutting costs through automation.

NEXUS
AI SECURITY BOT

Threat hunting

Proactively hunts threats using learned attack patterns.

Threat landscape updates

Provides regular attack reports, offering insights into current threats

Enhanced Bi-Weekly

- >95% reduction in response time
- Minutes to seconds for ransomware containment
- >80% reduction in labor time
- >95% reduction in false positives

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Summary

- Create your strategy
- Safeguard your data
- Solicit ideas from all sources
- Define your goals
- Create an AI culture

- Start with Pilot
- Focus on lower risk deliverables
- Establish AI community
- Foster safe experimentation
- Monitor usage and performance
- Continually learn
- Create transparency

- Enhance with automation and agents
- Expand to more strategic use cases
- Monitor GenAI and industry markets
- Iterative evolution
- Seek new opportunities

Profit!

Vision ***Value***

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Thank You For Attending!

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