

# PUBLIC SUBMISSION

**Received:** May 24, 2025  
**Tracking No.** mb1-v02x-4h42  
**Comments Due:** May 28,  
2025 **Submission Type:** API

**Docket:** NSF-2025-OGC-0001  
NITRD\_FRDOC\_0001

**Comment On:** NSF-2025-OGC-0001-0001  
Request for Information: Development of a 2025 National Artificial Intelligence Research and Development Strategic Plan

**Document:** NSF-2025-OGC-0001-DRAFT-0105  
Comment on FR Doc # 2025-07332

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## General Comment

Public Comment on the Development of a 2025 National Artificial Intelligence (AI) Research and Development Strategic Plan

Title: A Techno-Functional Framework for Generative AI Implementation: ROAR as a Strategic Enabler

Submitted by: Syed Salman Rabbani  
Date: 24.05.2025  
Statement:

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### Introduction

The accelerated adoption of Generative AI (Gen AI) technologies poses both an immense opportunity and a significant governance challenge for public and private institutions. While foundational models have evolved rapidly, a corresponding framework to guide institutional implementation is missing from many strategy discussions. As a practitioner and researcher, I propose the ROAR Framework (Relevance, Operating Model, Agility, Retrospective), designed to guide organizational leadership in responsibly and effectively integrating Gen AI technologies.

### Summary of the ROAR Framework

#### 1. Relevance:

Institutions must first determine the relevance of Gen AI to their mission. A literacy-driven, top-down assessment is necessary:

- Educate leadership (C-suite to middle management) on Gen AI use cases.
- Conduct cross-functional workshops to identify problem statements.
- Categorize use cases (content generation, automation, personalization, etc.).
- Align use cases with risk appetite, especially concerning privacy, security, and ethics.

#### 2. Operating Model:

A clear operating model addresses talent, process, and technology:

- People: Gen AI Engineers, Data Scientists, Cloud Engineers, and Product Owners form the backbone of agile, domain-specific teams.
- Process: Start from ideation > feasibility > architecture > implementation. Governance should include ethics, explainability, privacy, and regulatory compliance.
- Technology: Establish infrastructure (on-prem/cloud), data layers (structured, unstructured, vector DBs), and applications (LLMs, co-pilots, chatbots).

### 3. Agility:

Due to the rapid pace of Gen AI development:

- Begin with small, high-impact pilots.
- Encourage rapid POC development and fail-fast cycles.
- Build MVP0s to validate theoretical capabilities before full-scale MVP1 deployment.

### 4. Retrospective:

Evaluate impact before scaling:

- Measure ROI across productivity, cost, and customer value.
- Study performance of implemented use cases.
- Track evolving AI models, frameworks (e.g., AutoGen, LangGraph), and global regulations (e.g., EU AI Act, China CAC).
- Decide between in-house development and commercial partnerships based on complexity and scale.

### Recommendations for National AI R&D Strategy

- 1.Institutional Guidance: Federal agencies should provide a structured implementation playbook that incorporates techno-functional frameworks like ROAR.
- 2.Cross-sector Literacy: Invest in public sector and enterprise Gen AI literacy, especially among policymakers, program leaders, and IT managers.
- 3.Workforce Readiness: Support skill development across AI engineering, data governance, product ownership, and AI ethics.
- 4.Research Funding: Allocate funding for applied research in AI adoption models, governance mechanisms, and evaluation frameworks.
- 5.Model Governance: Encourage standards around explainability, auditability, and cultural bias detection in Gen AI systems.
- 6.Public Sector Use Cases: Prioritize implementation in key public domains (education, healthcare, internal operations) through pilot initiatives guided by scalable frameworks.

### Conclusion

As the U.S. shapes its 2025 AI R&D Strategic Plan, a balanced focus on foundational research and practical frameworks for implementation is essential. The ROAR framework offers a repeatable and scalable path for institutional Gen AI adoption. I encourage NITRD to incorporate such structured approaches into future guidance for federal and public sector organizations.

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## Attachments

Generative AI - 0 to 1 - Implementation Framework for Management

## **Generative AI – 0 to 1: Techno-Functional Framework for Management**

### **Abstract**

Generative AI has brought a revolution in the way day to day operations are conducted across personal and professional ecosystems. The professional and organizational impact of Gen AI seems to be exponentially growing with investments flowing on its name like wind and water. But the dilemma of an organization remains complex as to how to adopt Gen AI, how to implement it, when to implement it, should it be implemented. Until these answers are not there, any organizational management will be in dark and not able to glow with Gen AI's real & right capabilities.

Attributing to the nascent era of Gen AI with both benefits & pitfalls at scale, it is imperative that organizations move towards it with caution and principles. Hence, I am hereby proposing ROAR, a techno-functional framework which Management in organizations can follow to start and travel to maturity in Gen AI adoption. ROAR stands for Relevance, Operating Model, Agility, Retrospective.

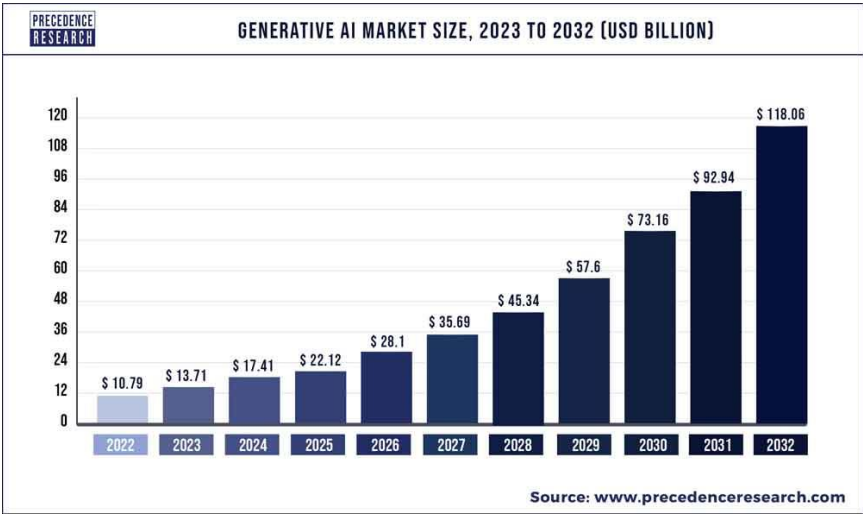
### **1. Introduction**

Generative AI, a.k.a Gen AI in short refer to the artificial intelligence models which can be used to generate content which can be text, images, audio, code, or video, by learning the patterns from large datasets. It has significantly impacted global industries with sizeable investment attraction. Let's take a look to some of the events and testimonies to Gen AI impact –

Timeframe	Events
2014	Introduction of Generative Adversarial Networks (GANs) by Ian Good fellow, enabling AI to generate realistic images.
2017	Development of the Transformer architecture, leading to advancements in natural language processing and models like BERT
2018	OpenAI's release of GPT-1, marking the beginning of transformer-based generative models.
2020	Launch of GPT-3 by OpenAI, demonstrating advanced text generation capabilities.
2022	Emergence of models like DALL-E and Stable Diffusion, enabling text-to-image generation
2023	<ul style="list-style-type: none"><li>OpenAI released GPT-4, a multimodal AI capable of processing both text and image inputs, marking a significant advancement in natural language understanding and generation.</li><li>Google unveiled Gemini, a multimodal large language model designed to challenge existing AI models like GPT-4. Gemini integrates capabilities across text, images, and other modalities, enhancing AI's versatility</li></ul>
2024	<ul style="list-style-type: none"><li>DeepSeek launched DeepSeek-V3, boasting 671 billion parameters. Remarkably, it was trained over approximately 55 days at a cost of \$5.58 million, utilizing significantly fewer resources than its competitors. Benchmark tests showed that V3 outperformed models like Llama 3.1 and Qwen 2.5, matching the performance of GPT-4o and Claude 3.5 Sonnet</li></ul>
2025	<ul style="list-style-type: none"><li>OpenAI unveiled "deep research," an agent leveraging the capabilities of OpenAI's o3 model to perform extensive web browsing, data analysis,</li></ul>

	and synthesis, delivering comprehensive reports within a short timeframe, enhancing AI's research capabilities
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### 1.1 Impact and Investments



**Market Growth** - The market size is expected to grow significantly from \$10.79 billion in 2022 to \$118.06 billion in 2032. This reflects a massive increase of over 10x in just a decade.

**Steady Acceleration** - The chart reflects not just steady growth but also accelerating growth — the year-over-year increase becomes more significant after 2027, indicating that the adoption and investment in generative AI are expected to gain even more momentum toward the end of the decade.

**Trend** - The consistent upward trajectory suggests that generative AI will become a major economic force in the coming years, driven by advancements in AI models, increased industry adoption, and wider commercial use case

#### Economic Impact

- **Global GDP Growth** - Estimates suggest that GenAI could boost global GDP by approximately 7% to 10%, translating to an increase of \$7 to \$10 trillion.
- **Annual Economic Value** - McKinsey projects that GenAI could add between \$2.6 trillion to \$4.4 trillion annually across multiple industries.

#### Industry Adoption

- **Marketing and Sales** - Approximately 28% of businesses are integrating GenAI into their marketing strategies to enhance customer engagement and personalize content.
- **Legal Services and Insurance** - Around 21% of companies in these sectors are utilizing GenAI for tasks such as document analysis and claims processing.

**Media and Entertainment** - The media industry has seen a 20% adoption rate, leveraging GenAI for content creation and audience analysis.

## Workforce Implications

- **Productivity Enhancement** Employees using GenAI report increased productivity and improved work-life balance.
- **Job Displacement Concerns** - There are warnings that AI could render millions of jobs obsolete, particularly in roles like cashiers and drivers, potentially leading to social unrest.

## Environmental Considerations

- **Energy Consumption** - The environmental footprint of GenAI, including energy-intensive data centres, poses sustainability challenges.

### 1.2 Rationale for need of an implementation framework

With the aforementioned impact, it is imperative that Management layer of organizations start thinking about how to embed Gen AI in their environment. But in order to do so, management needs a framework which they can follow to land in the right direction of Gen AI journey.

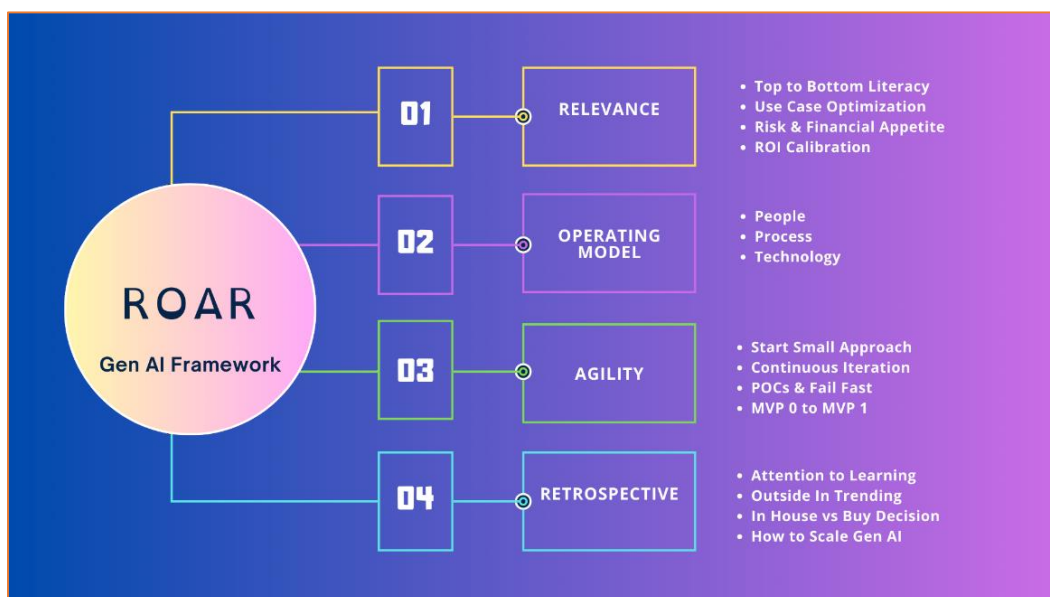
Majority organizations are doing lot of POCs or Proof of Concepts to learn Gen AI. POCs are basically meant to give insights into how Gen AI can be implemented with fundamental concept implementation by means of a working prototype.

However, a large portion of the Gen AI journey resides within the production ecosystem of Gen AI applications, meaning how to we actually bring Gen AI to life after the POC phase.

In the next section, I will share details of **ROAR framework** which I believe can become a guiding path for the technical and business leadership for Gen AI adoption.

## 2. ROAR – A techno-functional framework for leadership to implement Gen AI

ROAR stands for Relevance, Operating Model, Agility, Retrospective framework to guide the management & leadership in any organization agnostic of industry, size, geography, domain, use case to gauge applicability of Gen AI.



Let us do deep dive in the ROAR framework from a leadership & management's perspective

## 2.1 Relevance

The first step for the leaders is to determine the relevance of Gen AI to the organization, domain, department and even at team level. This means that there is a possibility that Gen AI may not be the right solution and lack relevance to the need of a particular business. It is possible that the problem statement which we are trying to solve, can be solved by traditional automation or software development or machine learning by tweaking of existing processes and Gen AI may be an overkill.

### Example

Non Gen AI Relevant	Fraud Prevention team wants to detect fraud transactions based on historical data. It is better suited use case for machine learning.
Gen AI Relevant	Marketing teams want to generate marketing content for social media.

So, how do we figure out the relevance?

- a. **Top to Bottom Literacy** – Education on Gen AI fundamentals and type of use cases it is applicable to.
  - There needs to be a Gen AI literacy exercise performed which shall cover top decision makers – CEO, CTO, COO, CFO, Business Leadership
  - The next level of literacy need is at Middle management layer – Project, Program, Product Management.
  - Finally, literally at the execution or the ground layer of engineers & analysts.
- b. **Use Case Optimization** – Identification of use cases, followed by Optimization
  - In this step, we need to organize use case collection workshops across business and tech community to gather problem statements which can be potentially solved with Gen AI.
  - Please don't go with solution mind set rather focus on problem statements, then think what could be the potential solution – Gen AI or non Gen AI.

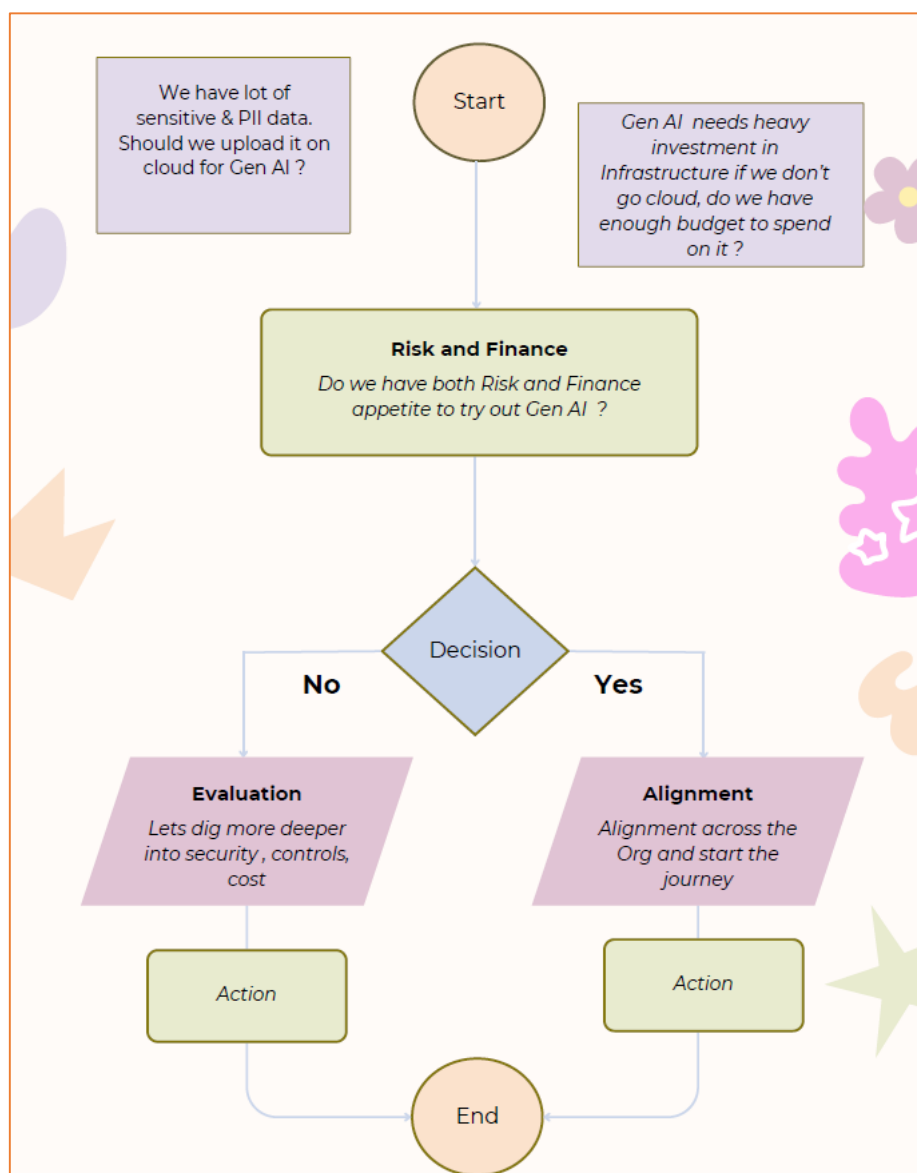
### Illustration

Use Case Category	Scenarios	Industry
Content Creation	Marketing copy, video generation, AI art	Media, Advertising, Gaming
Personalization	Product recommendations, email content	E-commerce, Streaming, Retail
Automation	Document processing, customer support	Finance, Healthcare, Telecom
Creative Assistance	Story generation, logo design	Entertainment, Gaming, Marketing
Knowledge Discovery	Financial analysis, market research	Finance, Healthcare, Legal
Simulation	Digital twins, game strategy	Manufacturing, Sports, Finance
AI Safety	Bias reduction, hallucination detection	Technology, Finance, Healthcare

- c. **Risk & Financial Appetite** – The organization should have Gen AI appetite in risk and financial aspects as it comes with both the dimensions.

- Gen AI has inherent pitfalls like hallucinations, misleading information, data privacy & security, biasness, model explainability, cyberattacks.
- So if your organization is sensitive about the data like PHI or PII, you need to be very cautious in adopting Gen AI with proper security guardrails and an appetite of accepting the risk in case things go south.
- Gen AI also comes with an investment as a function of infrastructure & talent. Hence, organization needs to be ready with a dedicated financial pool towards Gen AI initiatives, with an appetite to absorb failed efforts as well.

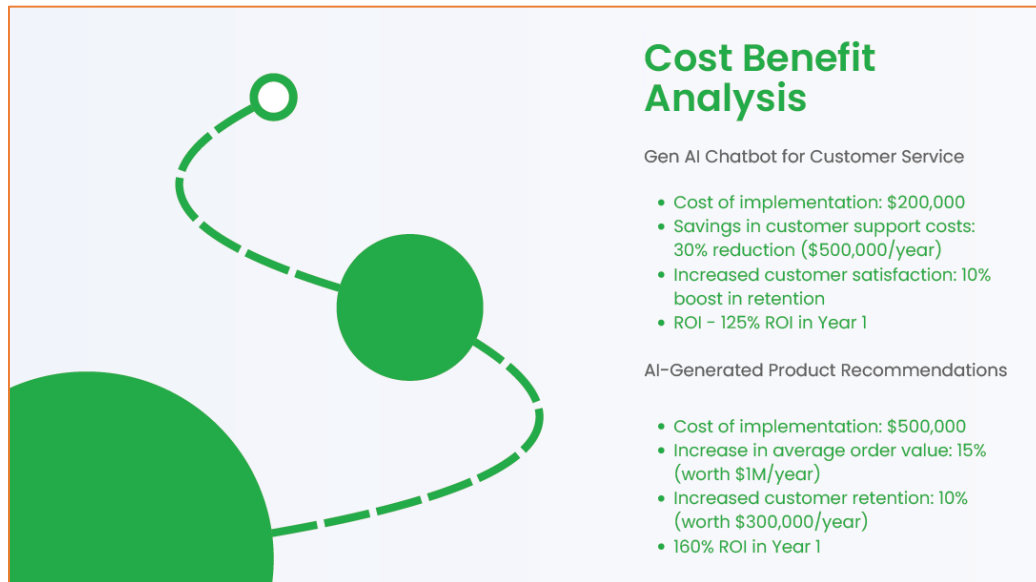
### Illustration – A financial Organization adopting Gen AI



- d. **ROI Calibrations** – Since now we have literacy, we know the use cases, and we have the appetite, we need to have ROI justification for starting the Gen AI journey.

- Cost Savings and Efficiency Gains
- Revenue Growth and New Market Opportunities
- Improved Customer Experience and Retention
- Competitive Advantage and Market Differentiation
- Faster Time to Market and Innovation

### Illustration – Hypothetical

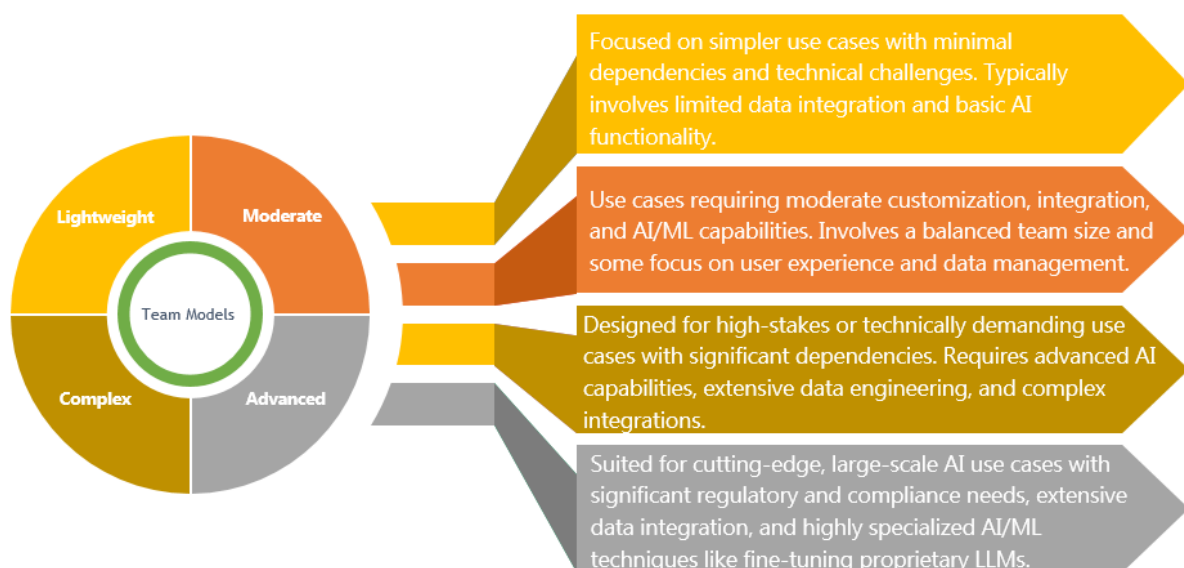


## 2.2 Operating Model

The second part of ROAR framework for Gen AI implementation is setting up an operating model across People, Process and Technology.

### People

This one refers to the talent usually and skill set we need to run Gen AI. Talent is the key to have successful Gen AI deliveries. Below is different kind of talent classification you will ideally need in the form of Agile teams.





## Critical Roles - Tech

Gen AI Engineer	Full Stack Engineer	Cloud Engineer	Data Engineer	Ops Engineer
Primarily works on the development, deployment, and scaling of AI models, with a specific focus on generative AI	Building and maintaining applications that utilize AI models, ensuring both the frontend and backend systems are working seamlessly together	Managing the infrastructure that supports AI applications, ensuring scalability, reliability, and security of the systems running the generative AI models	Managing and preparing data for use in generative AI models, ensuring data quality, availability, and integration from various sources.	Ensuring the smooth operation and uptime of AI systems in production, focusing on monitoring, performance, & troubleshooting

## Critical Roles – Business

Business SME	Gen AI Product Owner
An SME who is deep into the process and knows the requirement or problem statement	A Product Owner who understands the needs from Business SME and converts them into a Gen AI based specification document / Epics / User Stories or BRDs (in traditional world , almost dead now).

The Lightweight, Moderate, Complex and Advanced team structures are a must to assemble needed talent for Gen AI applications. But how do we assemble this team?



Use the aforementioned mix of talent, but bear in mind that some of it is based on retrospective which I will cover later.

## Process

The process dimension is a must to have in Gen AI implementation framework as it talks about we take a problem statement and converts it into a Gen AI use case.

I suggest the below framework –



1. Idea gathering for Gen AI use cases will include organizing workshops to have open discussions about business pain points.
2. Once there are ideas & themes around Gen AI, they need to be converted into feasibility study use cases to see if they have a solution path.
3. After we understand the solution path, a detailed architecture needs to be developed, to figure out various components needed to bring the use case to life.
4. Since Gen AI has pitfalls & security is paramount in terms of data, network, the architecture needs to follow the governance principles laid down by your organization (I will discuss this later).
5. Finally, an end to end execution plan needs to be developed to develop, test and deploy the use case in production.

- **Governance for Gen AI**

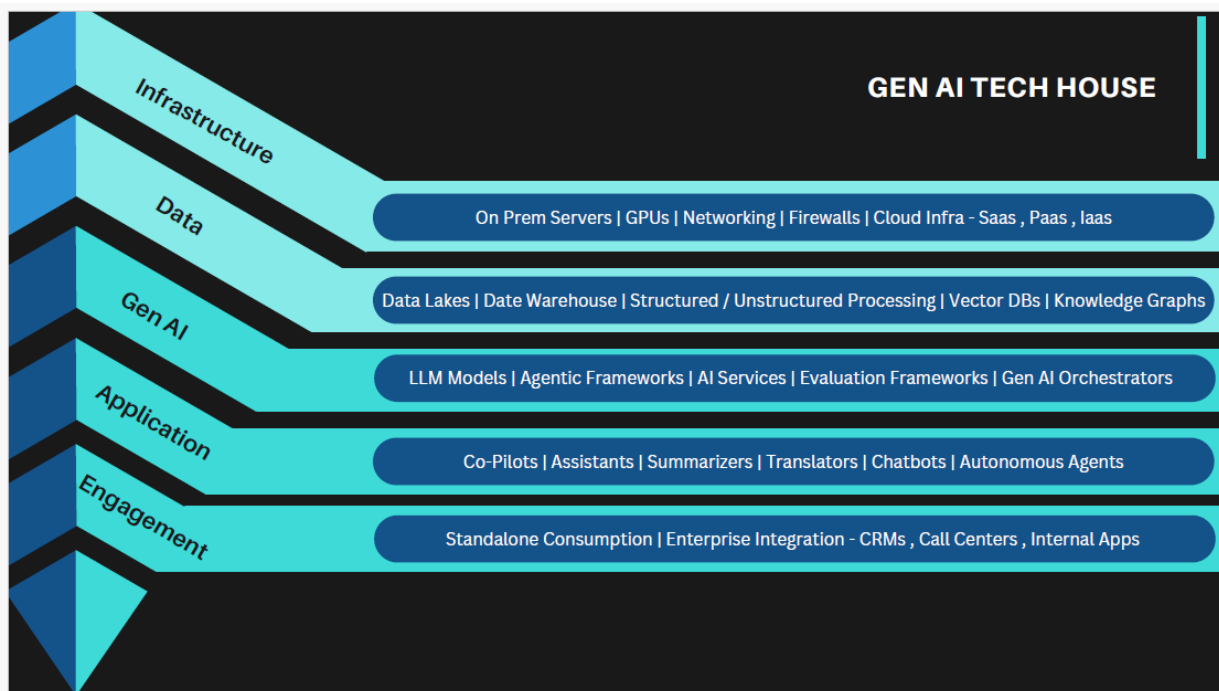
The Gen AI use cases need to follow a Governance framework which can be either developed from scratch or can be influenced from existing frameworks like those given by Microsoft, Google & AWS. But basically it should cover below dimensions –

Ethical AI Use	Data Privacy Security	Compliance / Regulation	Risk Management	Mode Explainability
Checks against Culture, Content, Language in Gen AI outputs	Data for training Gen AI to be used as per GDPR, CCPA / others	Compliance with Country , Organization regulations	End to end monitoring of Gen AI model's output & performance	Transparency into how the models are working & why are they working in a way

## Technology

One of the most important dimension to leverage Gen AI benefits is to focus on the right technology stack / components in the organization.

For a stable Gen AI Tech house, below is what I believe is required as the composition –



The above is a representation of a typical Gen AI tech house which management should be aware of. It outlines **infrastructure requirements** and **key components** needed to support the development, deployment, and use of Generative AI. It emphasizes the importance of robust data management (including both structured and unstructured data), the application of large language models (LLMs), and the integration of AI services into enterprise systems. The infrastructure layer, which includes both on-prem hardware and cloud services, is critical for supporting the computational demands of AI.

## Infrastructure Layer

This layer refers to the physical and cloud-based infrastructure needed to support Gen AI applications:

- **On-Prem Servers, GPUs, Networking, Firewalls:** Hardware and network infrastructure required for deploying AI models, especially for intensive tasks like training or running large models. GPUs are crucial for speeding up model inference.
- **Cloud Infrastructure (SaaS, PaaS, IaaS):** Describes the cloud services (Software as a Service, Platform as a Service, Infrastructure as a Service) that support the deployment, scalability, and management of Gen AI applications

## Data Layer

This section refers to the storage and management of data needed for Gen AI models. It includes:

- **Data Lakes & Data Warehouses:** These are used to store large volumes of both structured and unstructured data.
- **Structured / Unstructured Processing:** Describes how data can be processed and analysed regardless of its format (structured like databases or unstructured like text and images).
- **Vector Databases (Vector DBs):** These are specialized databases used for storing high-dimensional data, commonly used in machine learning and AI models, especially when dealing with embeddings or vectorised data.
- **Knowledge Graphs:** Graphs that store relationships between data points and are essential for building models that need to understand complex relationships (e.g., connections between entities).

## Gen AI Tech Layer

This layer covers the core Gen AI technologies:

- **LLM Models (Large Language Models):** Refers to powerful AI models like GPT, which generate and understand human language.
- **Agentic Frameworks:** Likely refers to frameworks that allow AI systems to act autonomously, making decisions or taking actions based on their inputs.
- **AI Services:** These could be tools or platforms that provide AI-driven capabilities (e.g., sentiment analysis, recommendation engines).
- **Evaluation Frameworks:** Systems to evaluate the performance of AI models, including their accuracy, fairness, and effectiveness.
- **Gen AI Orchestrators:** These might be tools or systems designed to manage and coordinate the deployment and execution of various AI models and tasks.

## Application Layer

This layer describes how Gen AI is applied to real-world tasks:

- **Co-Pilots, Assistants, Summarizers, Translators:** These are specific applications of Gen AI technology, including AI-driven tools that assist users (e.g., chatbots, summarization tools, and translation systems).
- **Chatbots & Autonomous Agents:** AI tools designed to interact with users in a conversational manner and carry out tasks autonomously.

## Engagement Layer

This layer focuses on how AI interacts with users or integrates into systems:

- **Standalone Consumption:** Refers to AI applications that can be used independently by end-users.
- **Enterprise Integration:** This includes how Gen AI can be integrated into larger enterprise systems like Customer Relationship Management (CRM) platforms, Call Centres, and Internal Applications. This integration allows Gen AI to enhance business operations and workflows.

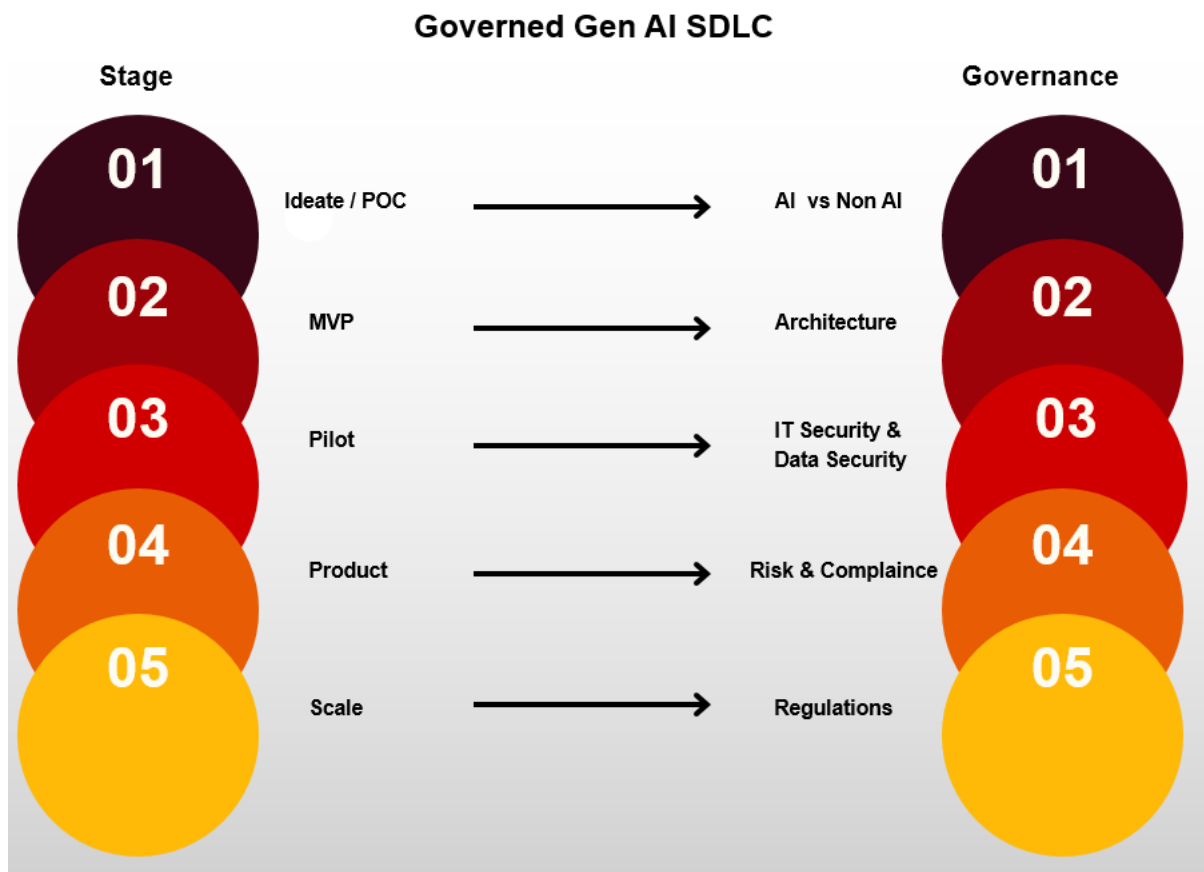
## Illustration

Layer	Category	Example
Infrastructure Layer	On-Prem Servers, GPUs, Networking	NVIDIA DGX H100 systems, Cisco AI Fabric
Infrastructure Layer	Cloud Infrastructure (SaaS, PaaS, IaaS)	AWS Bedrock, Azure OpenAI Service, Google Vertex AI
Data Layer	Data Lakes & Data Warehouses	Databricks Lakehouse, Snowflake Arctic
Data Layer	Structured / Unstructured Processing	Apache Spark, Amazon S3 Select
Data Layer	Vector Databases (Vector DBs)	Pinecone, Weaviate, Milvus
Data Layer	Knowledge Graphs	Neo4j, AWS Neptune, Microsoft Graph
Gen AI Tech Layer	LLM Models	GPT-4.5, Claude 3.5, Gemini 2.5 Pro
Gen AI Tech Layer	Agentic Frameworks	LangGraph, AutoGen, Phidata
Gen AI Tech Layer	AI Services	OpenAI API, Azure Cognitive Services
Gen AI Tech Layer	Evaluation Frameworks	TruLens, RAGAS, HELM (Stanford)
Gen AI Tech Layer	Gen AI Orchestrators	CrewAI, LangChain, Flowise
Application Layer	Co-Pilots, Assistants, Summarizers, Translators	GitHub Copilot, Google Gemini Workspace, Notion AI
Application Layer	Chatbots & Autonomous Agents	Meta AI Chat, Poe by Quora, xAI's Grok
Engagement Layer	Standalone Consumption	ChatGPT, Claude, Gemini App
Engagement Layer	Enterprise Integration	Salesforce Einstein GPT, SAP Joule, Microsoft Copilot for Dynamics 365

## Governance

Since Gen AI is a relatively nascent, it needs to be governed at multiple levels. Any POC, turned into an MVP needs to go through levels of guardrails.

Below is what we leverage for this critical aspect –



### Deep Dive –

- Ideate / POC Stage
  - At the Ideation or POC stage, the first guardrail to be implemented is the discretion and decision of can the problem statement be solved by –
    - Tweaking of existing process?
    - Traditional Software needs?
    - Modernizing legacy systems?
    - Are we force fitting AI / Gen AI into solutioning?

- MVP Stage
  - The MVP (Minimum Viable Product) stage is where we have moved beyond POC and a basic / fundamental AI / Gen AI solution.
  - At this stage, we need to follow strong industry approved Architecture principles –
    - Are we following latest industry trends for AI / Gen AI
      - Libraries, frameworks, LLMs
      - Data layer architecture
      - On Prem vs Cloud infrastructure
    - Does the architecture comply with Enterprise level architecture patterns?
    - Is the Architecture suitable for integration into legacy systems?
    - Does the architecture consider AI ethical & evaluation framework as part of implementation?
- Pilot
  - When we decide to take our MVP to Pilot stage with internal roll out to users, it is time to think and bake critical guardrails –
    - IT Security – The application should be passing all organization specific IT security checklist as a function of
      - Authentication
      - Authorization
      - API and Infrastructure Security
      - Model Security
      - Application Layer Security
      - Prompt Injection
    - Data Security – Is the data safe in transit, at rest and in use?
      - Data Collection
      - Data Storage
      - Data Residency
      - Data Anonymization
- Product
  - The next phase is to take Pilot to a full blown product stage.

## 2.3 Agility

The technology world is changing in lightning fast manner, and thus being Agile is the key. This truly holds true for the Gen AI case as it is everyday evolving technology with new concept being unearthed in an agile manner.

This means when we start the Gen AI journey, we should not do a Big Bang, rather take an iterative approach.

### **My proposal –**

- Smart Small Approach
  - Since we have figure out use cases, we know the prioritization, we now need to select 1-2 heavy impact use cases to be implemented, and not boil the ocean with multiple concurrent use cases.
  - Example

Employees need to search lot document for HR policies. An internal Chatbot with HR knowledge can bring significant operational efficiency.
- Continuous Iteration
  - We pick up the powerful use cases and start building them with in continuous iteration method, meaning thinking less, building more approach.
  - Example

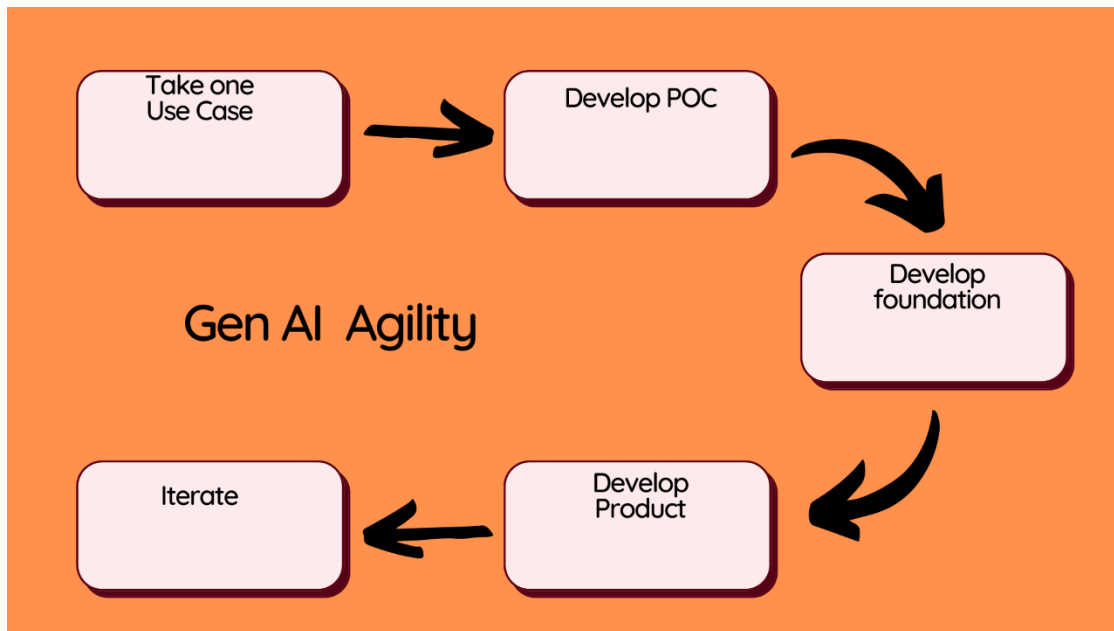
We take some FAQs for HR policies and start building the Chatbot POC without thinking much about the full blown solution.
- POCs & Fail Fast
  - Focus needs to be testing a hypothesis with a working solution as opposed to heavy documentation. We should fail quickly if we have to, by building Proof of Concept in fast paced manner.
  - Example

We spend let's say 2 weeks in quickly doing a POC and realize that what we are building might not bring lot of value, we drop it and document learning
- MVP 0 & MVP 1
  - Since the Gen AI is new field relatively, we need to first build MVP0s meaning foundational capabilities to test theoretical concepts. MVP0s will be used as pre-requisite to MVP 1.
  - Example

If we are successful in POC of HR Chatbot, we take it to Minimum Viable Product stage but by first developing an underlying framework for Chatbot which can serve as foundation for other chatbots.

Illustration





## 2.4 Retrospective

So assuming you have covered Relevance, Operating Model & Agility with few use cases being developed, it is time to perform an honest retrospective as this will be a decision maker on how to move forward in this journey.

And what do you here?

- **Attention to Learning**

- How much did you spend on the first set of use cases?
  - People effort, infra cost, Time taken
- How much did you earn on the first use cases?
  - In respect to the cost incurred -
    - Have we saved some hours?
    - Acquired more customers?
    - Retained some customers?
    - Employees became more efficient?
- Which capabilities worked well & which did not for internal / external users?
- Which use case is a fit candidate for scaling and which one we should stop?

- **Outside in Trends**

- We need to move with the world which means we need to understand what are the latest trends and technology outbreaks happening at a rapid pace.
- There needs to be a research team (lean in size) to constantly keep a tap and bring new ideas to the table for Gen AI.

- **Example –**
  - New LLMs being rolled out by different tech companies
  - New Gen AI frameworks being developed
  - New protocols – Mode Context Protocol (MCP), Agent to Agent (A2A)
  - New AI governance laws and protocols around the world

## Illustration

Category	Trending	Origin / Company	Date / Status
LLMs	Qwen 3	Alibaba	2nd week of April 2025
LLMs	Gemini 2.5 Pro	Google DeepMind	Available Mar 26, 2025
LLMs	Grok 3	xAI	Beta API launch in the coming weeks
Gen-AI Frameworks	AutoGen	Microsoft Research	Open-source multi-agent framework (2025)
Gen-AI Frameworks	PromptFlow	Azure AI Foundry	Released ~Mar 2025
Gen-AI Frameworks	Swarm	OpenAI (GitHub)	Educational agent-coordination framework
Gen-AI Frameworks	Phidata	Phidata	Open-source agents & workflow toolkit
Protocols	Model Context Protocol (MCP)	Anthropic	Published ~Dec 2024
Protocols	Agent-to-Agent (A2A)	Google Developers	Announced Apr 2025
AI Governance	Regulation (EU) 2024/1689 “AI Act”	European Union	Adopted 13 Jun 2024; enforcement starts Aug 2024
AI Governance	Labeling Requirements for GenAI	China CAC	Rules effective Sept 1, 2025
AI Governance	State-level AI bills	United States	2024 session: 45 jurisdictions proposed, 31 enacted
AI Governance	Bill No. 2338/2023 “AI Legal Framework”	Brazilian Senate	Approved 10 Dec 2024; now in Chamber of Deputies

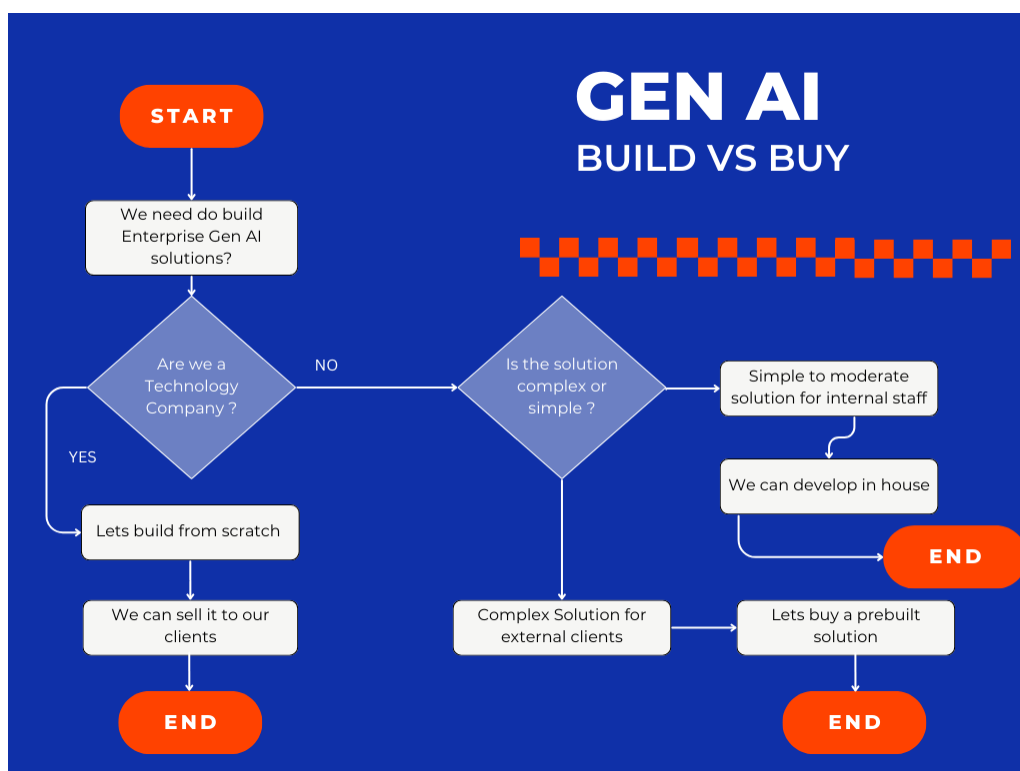
### • In House vs Buy Decision

- Since Gen AI is niche as a skill set & tech stack, we need to see whether or not it makes sense to build capabilities in house or buy from an external partner
- There are some capabilities for Gen AI which we can build in house but some are complex and it does not make sense to invest in house rather we should buy readymade solutions from the market.

○ **Example –**

- A bank or a healthcare company needs a voice bot solution for their external customer base.
- While the company may have a strong IT team, it might be worth to buy a product from a technology vendor and customize as per needs, since the external Chatbot could be complex in terms of technology, governance and performance.
- Whereas, if there is a need for an internal Chatbot for internal staff operational efficiency, the internal tech teams will be right fit to develop it.
- Some tech giants like Microsoft have already built amazing capabilities like Microsoft Co-Pilot capable of solving lot of Gen AI use cases, so if your company is sizable and can invest heavily, may be buying co-pilot product is a better approach.

**Illustration**



● **How to Scale Gen AI?**

- Building Gen AI POCs & MVPs could be relatively easier but scaling Gen AI solution can be challenging as a function of -
  - Tech Stack
  - Governance
  - AI Pitfalls

- Performance
  - Peer Pressure
  - Speed to market
- This means that we need to partner with right partners to help scale Gen AI solutions to enterprise wide & industry grade products.
  - Partner Spectrum may be including all or some of the below aspects –
    - **Gen AI Strategy Consultation**
      - To build business strategy for long term to gauge domain use case and ROI expectations.
      - Example - McKinsey, Gartner, PWC, Deloitte, others
    - **Gen AI Tech Build Up**
      - To lay down foundations needed for Gen AI like Infrastructure, Data, AI layer and applications.
      - Example – Google, AWS, Microsoft, others
    - **Gen AI Use Case Implementation**
      - To put the use cases to life with end to end implementation via SI or Software Implementation partner.
      - Example – Tech companies with solutions & capabilities

## Illustration

