

The background of the slide is a reproduction of Vincent van Gogh's painting 'Iris'. It features a dense field of blue and purple irises with green leaves and stems, set against a textured, yellowish-brown ground. The painting is visible on the left and right sides of the slide, framing a central white rounded rectangle.

Harnessing the Power of AI for Cost Estimation

Charles Orlando, CMO, Galorath Incorporated

The Third Wave in Cost Estimation is upon us

The First Wave:
Manual



The Second Wave:
Computerized



The Third Wave: AI



— Pre-1970s – 1980 – 1990 – 2000 – 2010 – Today —————>

Did you know? _____

92%

Did you know? _____

3 of 4

Did you know? _____

4 years

$\frac{3}{4}$



Many believe... (Faint, illegible text from the left page)

... (Faint, illegible text from the left page)

... (Faint, illegible text from the left page)

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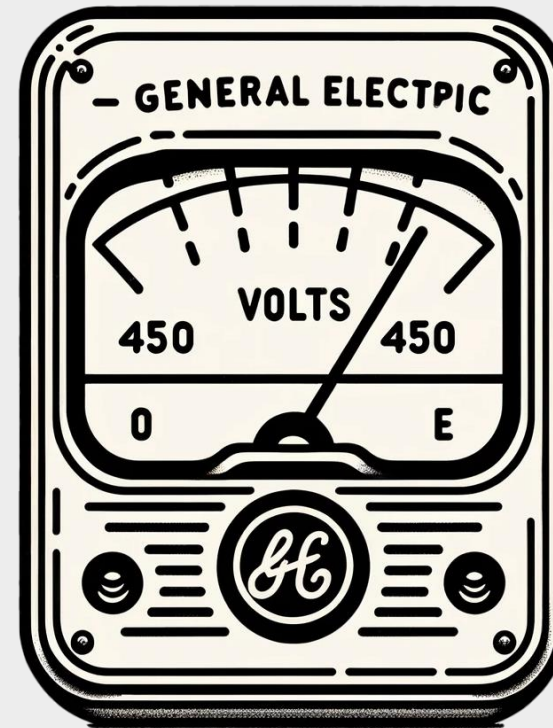
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False data, bad training,
or The Milgram Effect?



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From Fiction to Fact: Real AI Insights for Cost and Risk

Fact #1

60%

From Fiction to Fact:
Real AI Insights for Cost and Risk

Fact #2

Boring is best.

From Fiction to Fact: Real AI Insights for Cost and Risk

Fact #3

13%

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The Role of Prompt Engineering

Types of Prompts

Zero-Shot Prompting

PROMPT Detect if this statement contains sarcasm.

USER INPUT Oh, great. Another Monday morning. Exactly what I needed.

LLM RESPONSE Yes, this statement is likely sarcastic.

Types of Prompts

Few-Shot Prompting

PROMPT Detect if this statement contains sarcasm.

Examples:

I just love when my car runs out of gas when I'm late. (Sarcastic)

The temperature in London is 21° C. (Genuine)

USER INPUT Oh, great. Another Monday morning. Exactly what I needed.

LLM RESPONSE Yes, this statement is sarcastic.

Types of Prompts

Chain-of-Thought Prompting

PROMPT Break down the reasoning step-by-step to detect if the following statement contains sarcasm.

USER INPUT Oh, great. Another Monday morning. Exactly what I needed.

- LLM RESPONSE**
- “Okay, great” is positive but ironic in tone.
 - “Another Monday morning meeting” suggests annoyance.
 - “Exactly what I needed” is positive, but not in the combined context.
 - Conclusion: sarcasm detected.

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Advanced Prompt Engineering

ROLE

I want to use the SEER suite of models for estimation, so please act as an experienced SEER user and put all results in a SEER-compatible format, adhering to the MIL-STD-881f standard to Level 5.

HARDWARE

What is the WBS for a military attack helicopter, and what is the mass range (least, likely, and most) for each element in kg? Assume lightweight composites will be used where appropriate, and the speed will exceed 120 miles per hour. Identify the set of SEER KBASES that should be used for each item. Put this in table format.

SOFTWARE

Additionally, please provide a software size range for the avionics software and tie that into the WBS. Include sufficient armor to protect the pilot. Assume this will be built from scratch but will use up to 30% existing design and 70% software reuse. The software is in C++.

RISK

Finally, identify the major risks in the estimate and the five additional questions I should ask the Program Manager.

Project Type

SEER Platform

Custom & Saved

Your prompt	Now
Level of effort and the sche...	4:32 PM
Development Environment an...	Yesterday
The primary cost drivers in SE...	Sep 2
Effective Technology: This en...	Aug 31
The primary cost drivers in SE...	Aug 27
Development Environment...	Aug 25



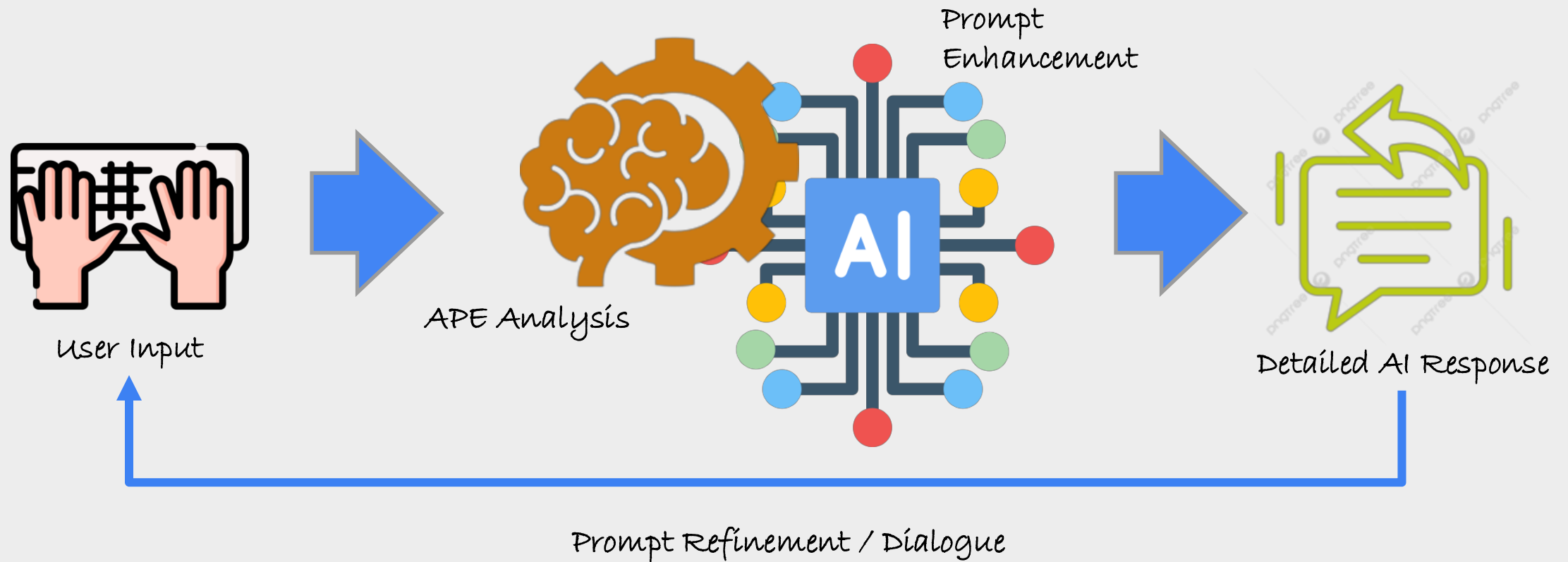
Hi! I'm SEERai. Ask me anything about SEER®, software sizing, hardware and manufacturing estimation, and risk management.



Type your question



The Evolution of Prompt Engineering: Automated Prompt Engineering (APE)



The Evolution of Prompt Engineering: Retrieval-Augmented Generation (RAG)

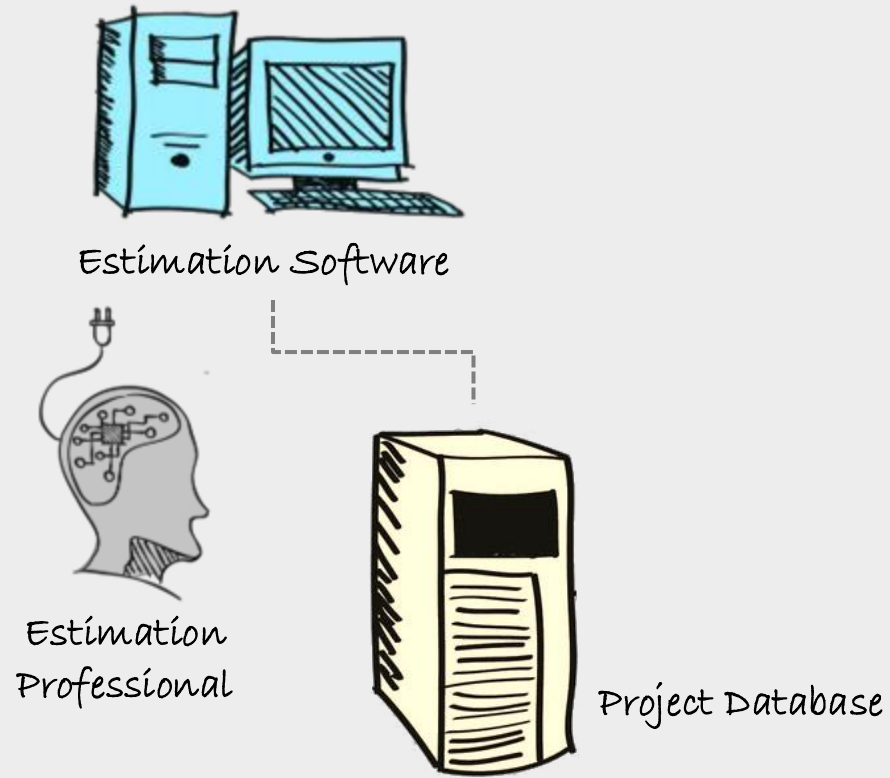
What is RAG?

- Enhances AI with real-time, internal data retrieval
- Access to dynamic, evolving data *without retraining*
- Efficient and cost-effective with secure data handling

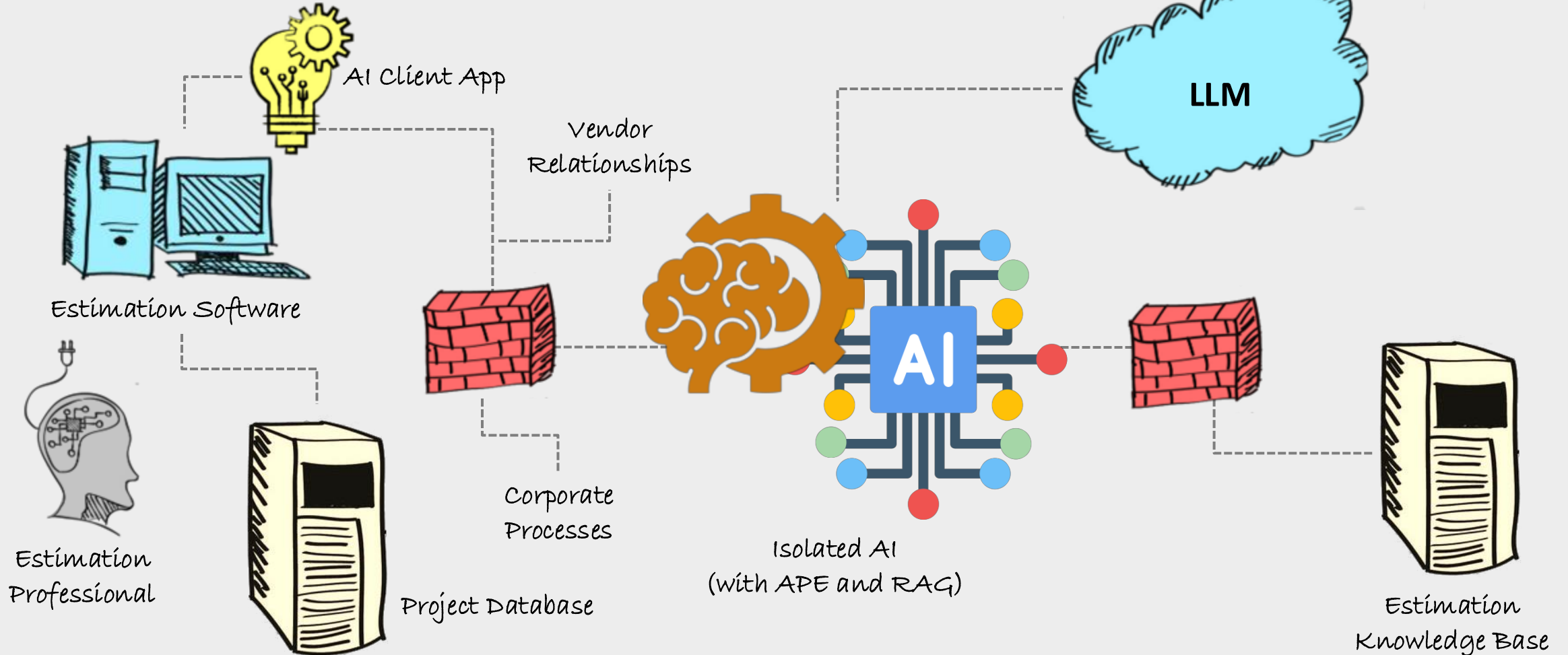
The background of the slide is a reproduction of the painting 'Iris' by Vincent van Gogh. It features a dense field of blue and purple irises with vibrant green leaves and stems, set against a textured, brownish ground. The painting is characterized by its short, rhythmic brushstrokes and rich color palette.

Let's put all this in context...

Connecting the Dots: The Future of AI-Driven Decision Making



Connecting the Dots: The Future of AI-Driven Decision Making



AI for Cost Estimation



Real-Time Estimation

Creating cost, schedule, project, and risk estimation and analysis with natural language.



Deskillling

Real-time training, knowledge transfer, and access to best practices for strategy and tactics.



Connecting Data, Processes, and Relationships

AI leveraging past data and projects to forecast future costs and risks with greater accuracy.



Full Automation with Human Oversight (HITL)

APE-driven cost estimation systems that require minimal manual input but still have critical human oversight.



Q&A

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