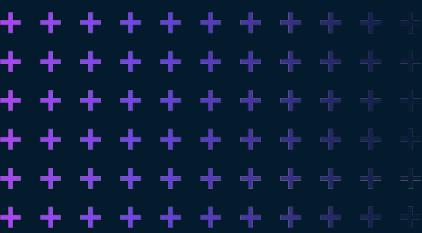




Welcome to the Workshop!

- 3 Day Series
 - Applying AI to **real business workflows**
- Today we'll cover some theory
 - We'll learn a bit more and **try some prompting strategies on Day 2**
- **No code** required, just structured thinking
 - (and a little bit of **trial and error**)
- On Day 3, you'll get in your project teams and **build your own AI-powered system**





Fundamentals of AI and Agentic AI



IS 365 - 10/8/2025



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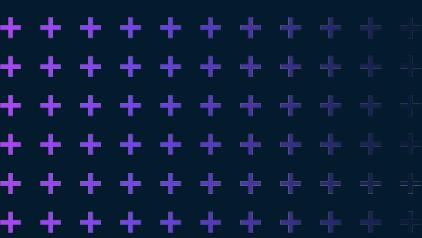
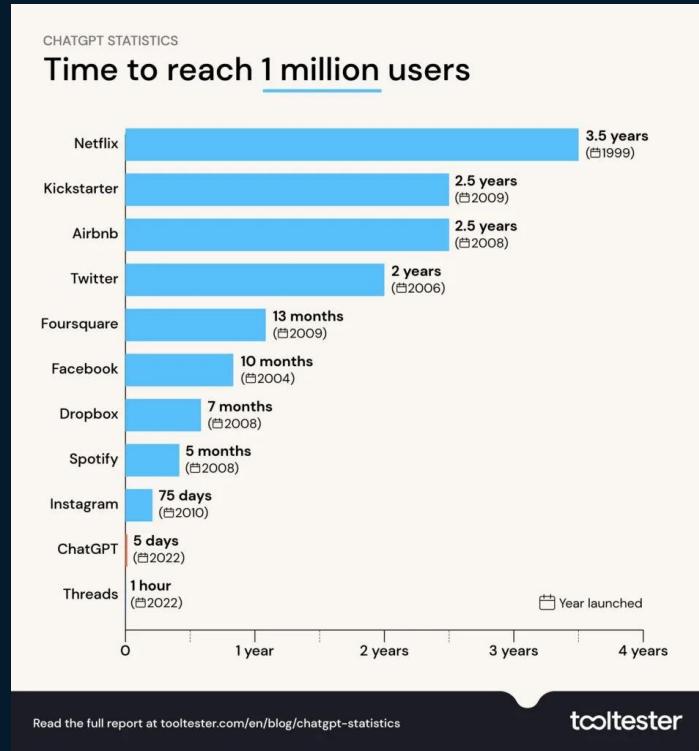
Setting the Stage

What will we be covering, and why now?

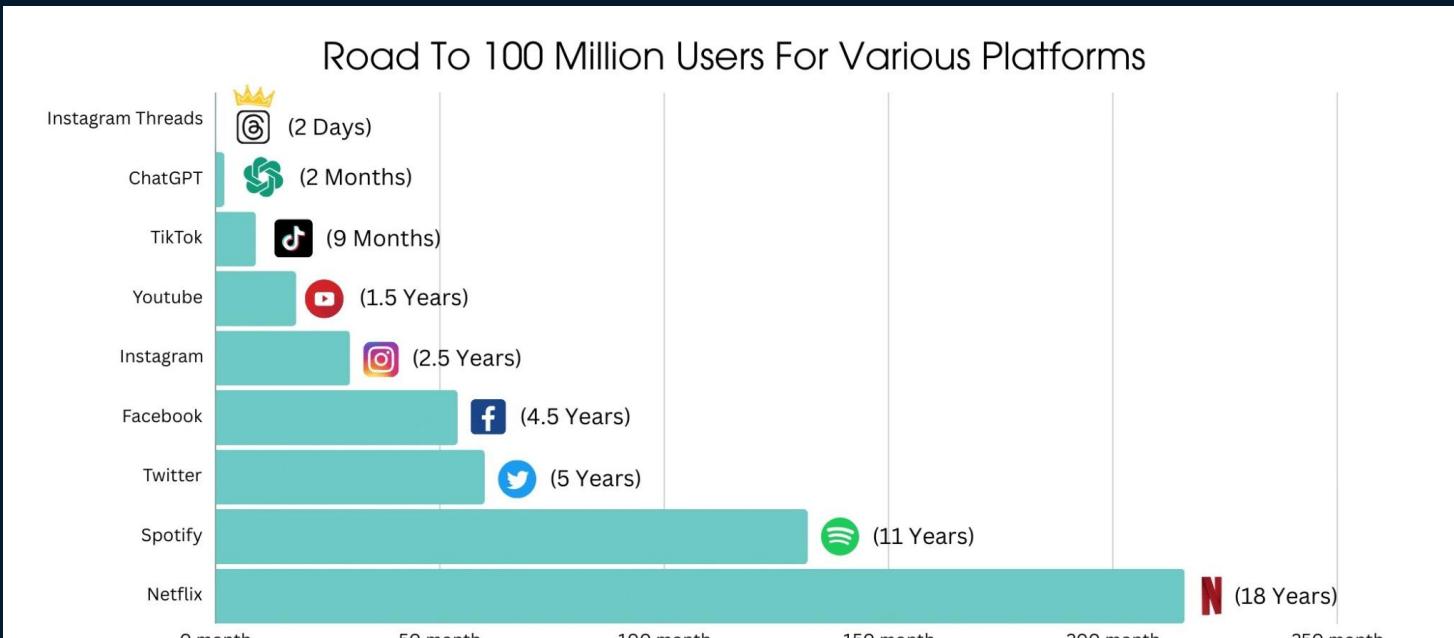




Why Now?



Why Now?



Why Now?

The Impact of Prompt Engineering on Small Businesses

`</>`

Over 1 in 4 small business owners (27%) said that prompt engineering is a very important skill for their business.

Importance of Prompt Engineering Skills for Business According to Owners

By Business Size

	Medium to large businesses	Small businesses
Very Important	54%	27%
Somewhat important	22%	29%
Not very important	18%	22%
Not important	5%	23%

Future Importance of Prompt Engineering Skills According to Small Business Owners

It will be an important skill to have long-term. 53%

It will become less important as AI evolves. 25%

Over 1 in 4 business owners (26%) have never used prompt engineering.



AI as Infrastructure



Customer Support

Chatbots & Automatic Routing



Product Planning

Review Summarizers, Customer Insights Analysis



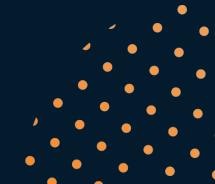
Sales Ops

Leads Scoring, Outreach Automation



Onboarding & HR

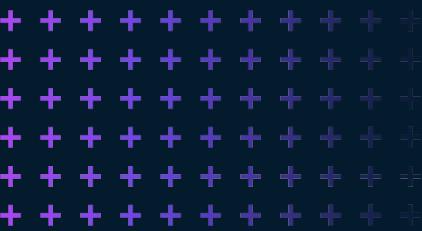
Policy Assistant + Training Guides





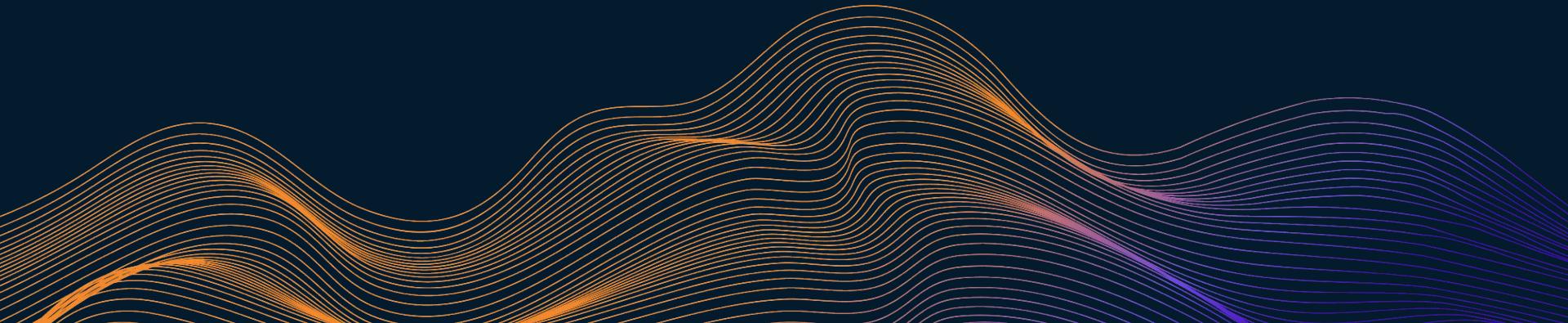
What You'll Be Doing

1. Pick a **role**
2. Choose a **knowledge source**
3. **Write + Refine** prompts to simulate agentic behavior
4. **Observe** outputs and **iterate**
5. Build a system with clear inputs and outputs



02

A Brief Timeline





2015-2021 - The Slow Burn

X
X
X
X

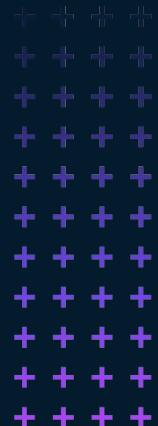
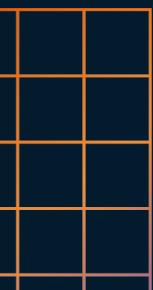
Nov 2015 - **Tensorflow** open sourced by Google

Jun 2017 - "**Attention is All You Need**" published

Jun 2018 - **GPT 1** introduced

Oct 2018 - **BERT** introduced

May 2020 - **GPT 3** introduced





2022 - Gen AI Emerges



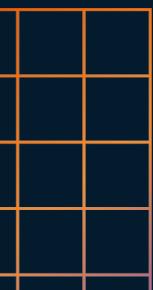
Jan 27 - **InstructGPT** released by OpenAI

Jan 28 - **Chain-of-Thought** paper published

Jun 11 - **Blake Lemoine** claims Google's LaMDA is sentient

Oct 7 - US introduces **export controls on semiconductors** to China

Nov 30 - **ChatGPT** released





2023 - Development Race

Feb 24 - **LLaMA** released by Meta



Mar 14 - **GPT 4** released

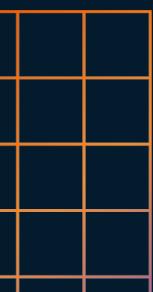
Mar 14 - **Claude** released by Anthropic



Apr 16 - **AutoGPT** open sourced on GitHub

May 30 - **Nvidia** reaches a valuation of **\$1 Trillion**

Nov 1 - **UK AI Summit**



Nov 17 - **Sam Altman** fired, and reinstated in **4 Days**



2024-2025 - AI Becomes Ubiquitous

*Mar 2024 - **Devin** released by Cognition Labs*



*May 2024 - **GPT 4o** released*

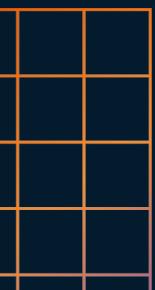


*May 2024 - **EU AI Act** enacted*

*Oct 2024 - **Claude 3** released by Anthropic*

*Jan 2025 - **Deepseek R1** open sourced*

*Jan 2025 - **Stargate Project** announced*



03

From Gen AI to Agentic AI



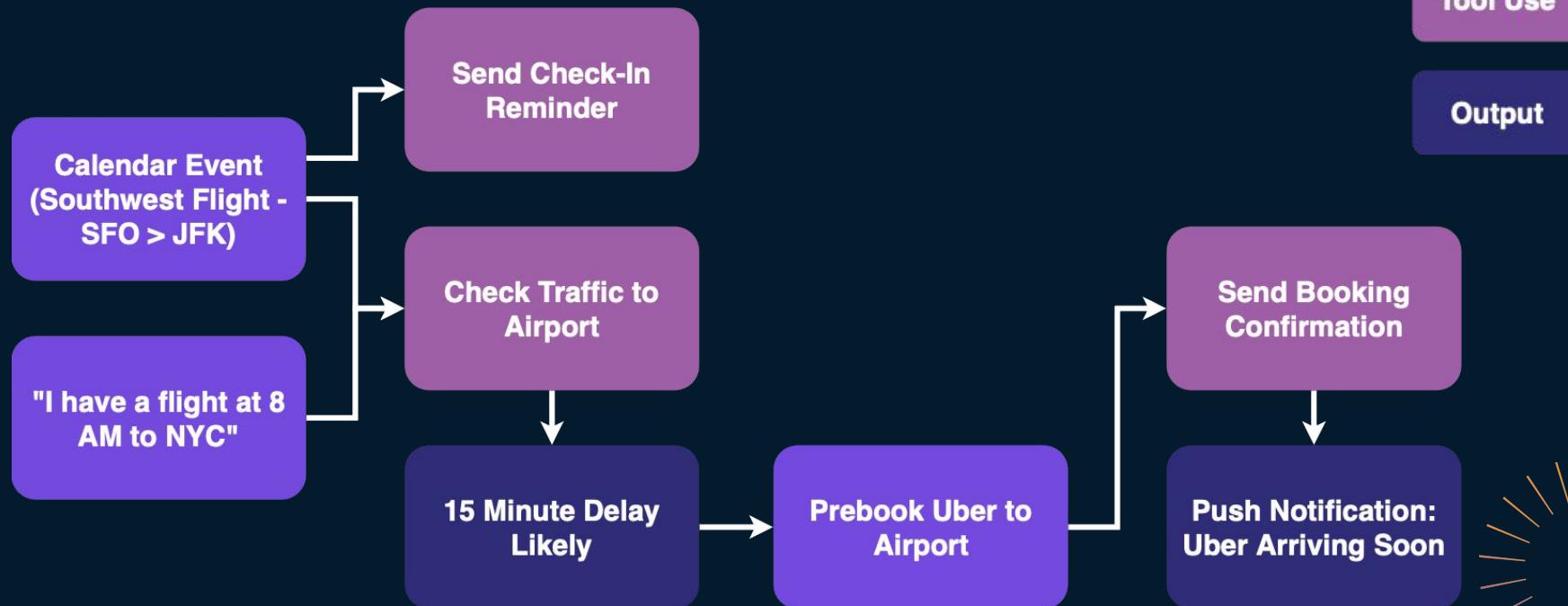
What is Agentic AI?

- Agentic AI describes AI systems that **autonomously** make decisions and **take actions**
- Agents are **proactive**, where GenAI is **reactive**
 - Ex: Getting to the Airport





Input



Tool Use

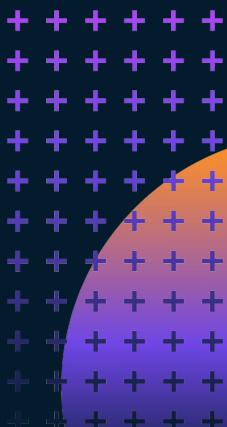
Output



Key Difference?

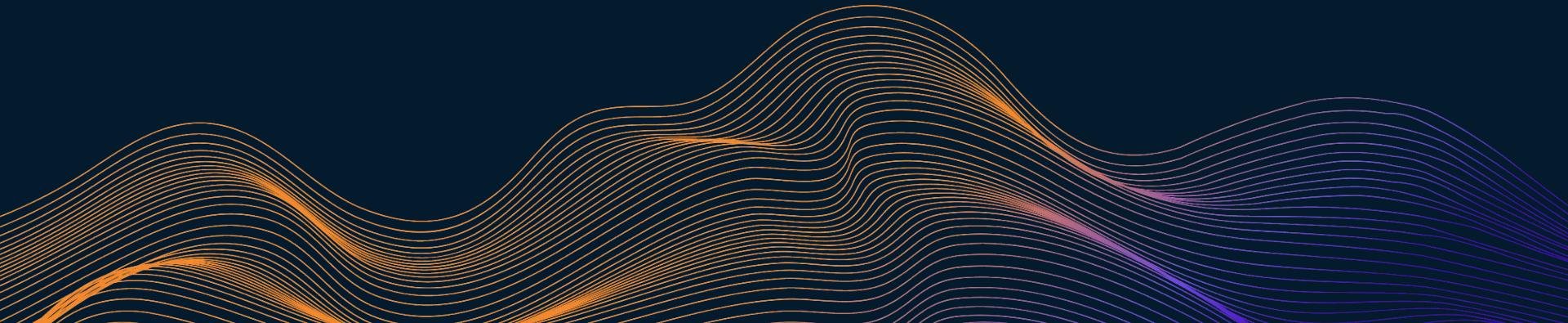
Gen AI can give me a smart answer

Agentic AI **took charge**, and got me to the airport



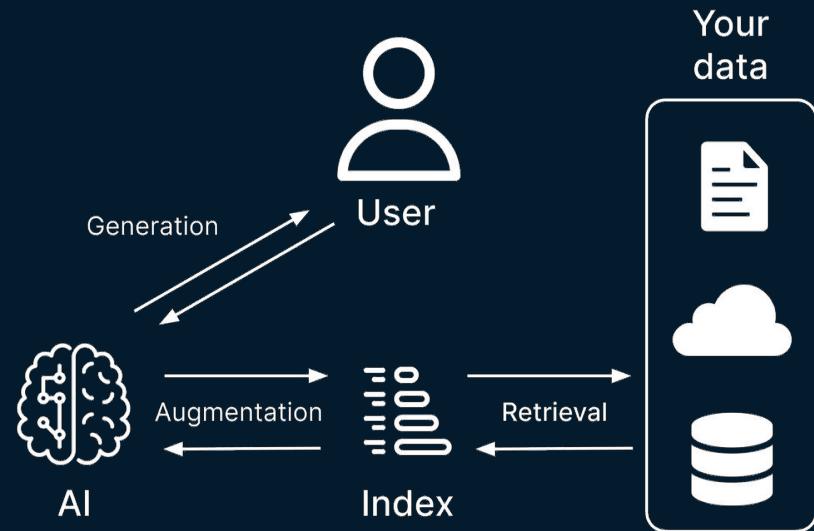
04

Fundamentals of Grounding & RAG



What is RAG?

- Adding external knowledge to **ground** an AI model's responses
- Instead of relying only on what the model "knows", we can give it:
 - Documents
 - Data
 - Or any other inputs
- Helps improve **accuracy, retention,** and **task specialization**





Why RAG?

- LLMs (Large Language Models) are trained on **huge, general purpose** datasets
 - They're not experts in any one domain
 - And they'll guess if unsure
- We can use RAG to:
 - Ground answers in real, topical information
 - Support specialized tasks
 - Keep outputs accurate and current



Risks of Hallucinations

- Hallucinations are having real-world costs:
 - Med-Gemini made up **parts of the brain**
 - Publishing a summer reading list with **10 of 15** books made up
 - Chatbot makes up policy, **Air Canada held liable**
 - Widespread **fabrication of case law** in legal briefs
 - **426** and counting!

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