AI & Automation

BY FURAT ABDULLE & JANE WAITHIRA

Black Girls in Tech Summit

The Shift: Power, Progress & Possibility 2025

About us

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Data & AI Consultant for Enablement
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Digital Humanities, M.A.
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Cloud Native Developer
AI Dev in SAP Cloud Infrastructure

BSc. Telecommunications and
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Quiz Time

Get to
know each other &
what you know about
Automation!

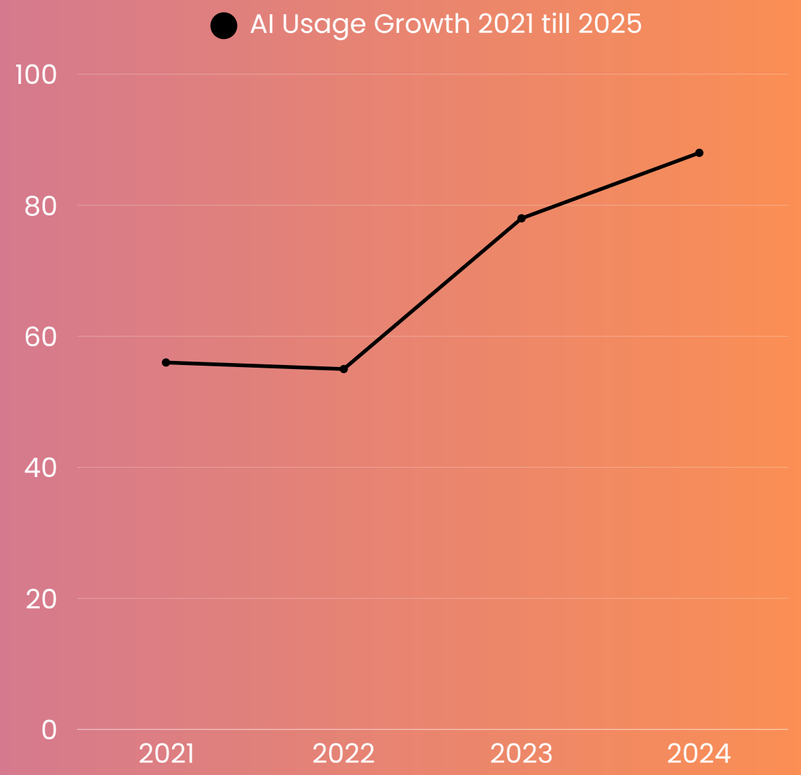
Questions

Scan the QR to play the AI quiz.
Game on!

Or go to mentimeter.com and use the code **1663 6817**

The Shift is now

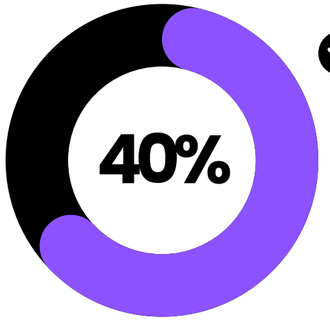
AI is no longer a niche tool. It's a general-purpose technology reshaping how every sector operates, from finance and healthcare to media and public services. The shift starts here.



The New Skill Economy

56% Jobs requiring AI skills pay a **56% global wage** premium over similar roles without AI skills.

21% Skills over degrees in AI hiring



Exposure & displacement risk

Around 40% of jobs globally are expected to be "affected" by AI (tasks changed or automated).

Skill shift & exposure relation

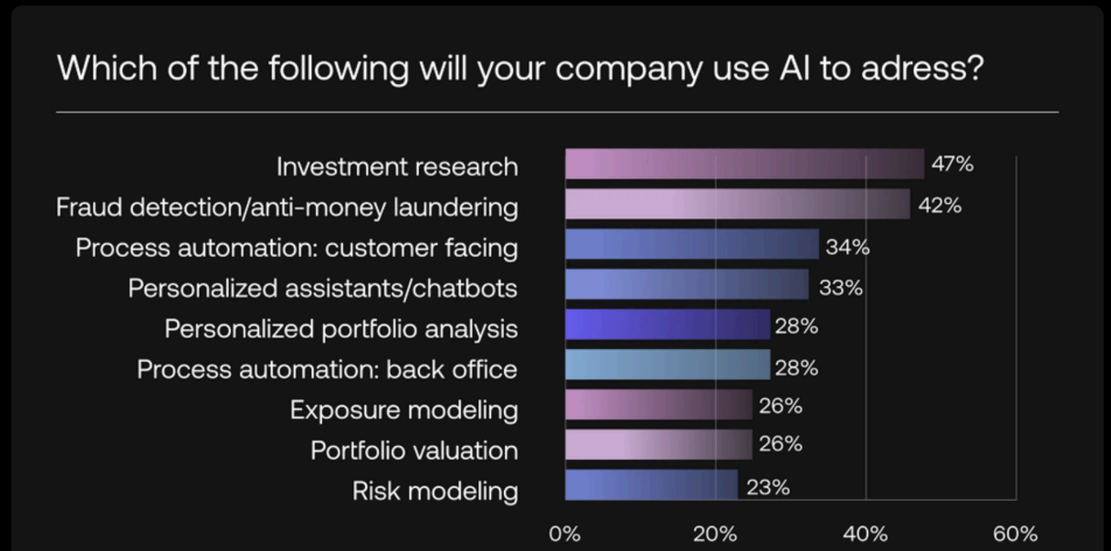
Job-postings requiring AI-skills across 14 OECD countries:
~34% require machine-learning skills
~21% generic AI skills
~14% neural-networks skills.

$638.2 Million
Market Size of AI in 2025

AI in Finance

AI in Finance: Use cases

There are numerous applications for AI in Finance, with more likely to emerge in the next few years. For this guide, we will focus on the key data-centric areas identified in our 2023 Zeitgeist AI Readiness Report:



Source: https://scale.com/guides/ai-in-finance

Intelligent Document & Process Automation

- Automates KYC and onboarding
- Extracts data from documents
- Speeds up work and reduces errors

Conversational Banking & Personalized Service

- Uses LLMs for chatbots/assistants
- Delivers personalized insights
- Enhances customer experience

Fraud Detection & Risk Monitoring

- Detects anomalies in real time
- Automates AML and fraud checks
- Cuts financial losses

ESG & Regulatory Intelligence

- Gathers ESG and compliance data
- Automates reporting and analysis
- Increases transparency

Predictive Analytics & Credit Scoring

- Predicts credit and default risk
- Combines financial & behavioral data
- Improves decision accuracy

Potential value (annualy)

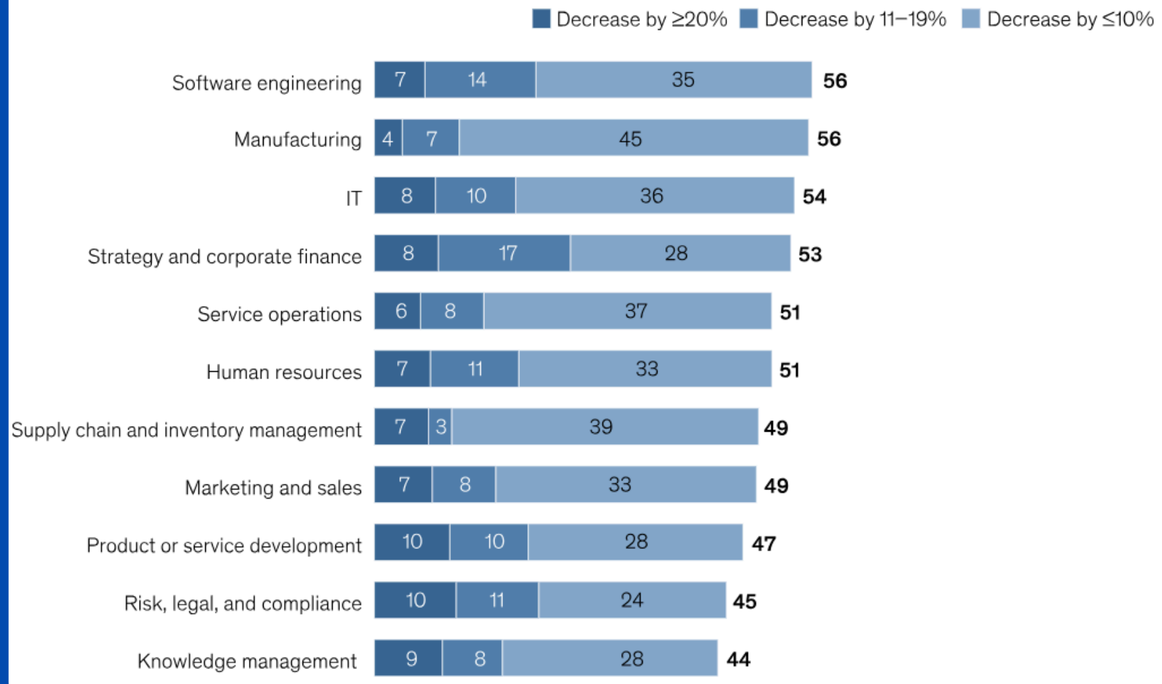
$ 1 Trillion

Source: https://www.mckinsey.com/industries/financial-services/our-insights/ai-bank-of-the-future-can-banks-meet-the-ai-challenge

AI in Tech

Respondents most commonly report cost benefits from AI activities in software engineering, manufacturing, and IT.

Cost decrease within business units from AI use, past 12 months, by function,[1] % of respondents



Software development & engineering productivity

- Code Generation
- Auto Testing
- Dev Copilots

Cybersecurity & Risk Intelligence

- Threat Detection
- Anomaly Analysis
- Automated Response

IT Operations & Infrastructure

- Predictive Maintenance
- Self-Healing Systems
- Cloud Optimization

Governance & Responsible AI

- Bias Auditing
- Model Monitoring
- Explainable AI

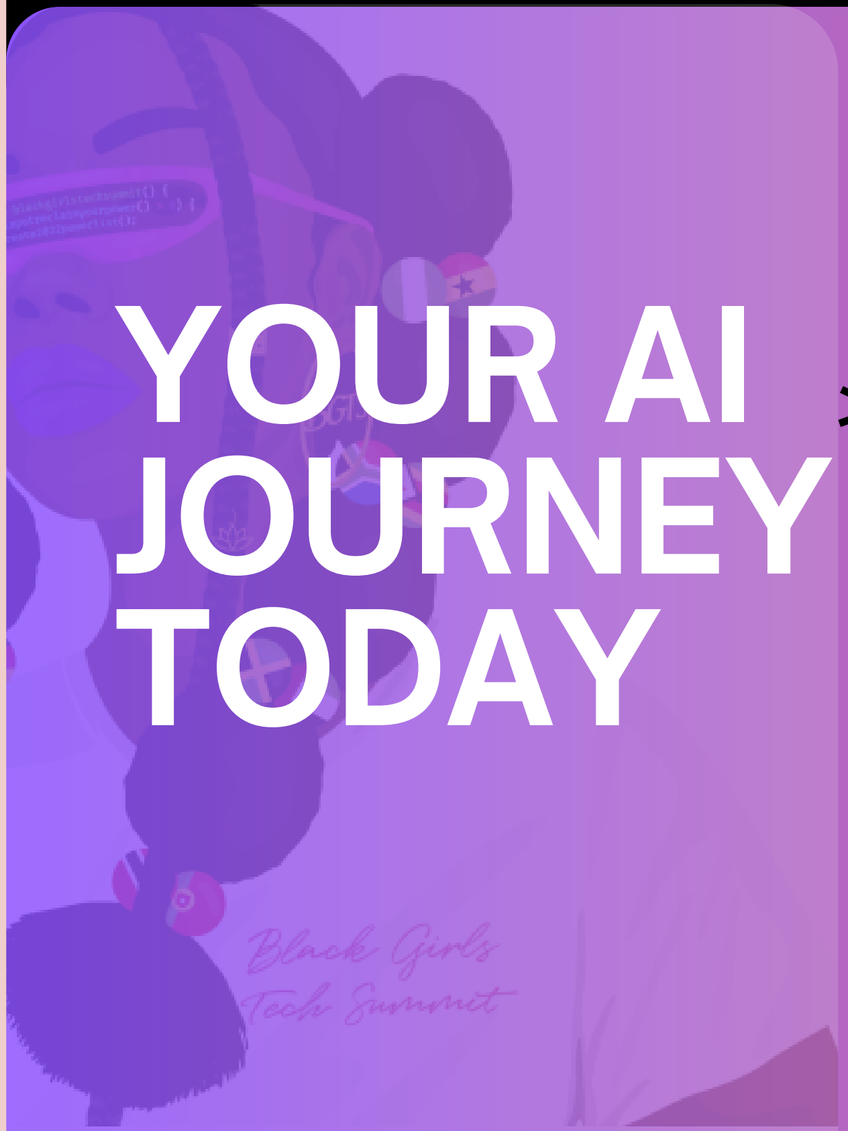
Product Innovation & Platform Strategy

- Generative Design
- AI Prototyping
- Rapid Deployment

Potential value (annually)

6.1-7.9 Trillion

Source: https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai, November 2025



YOUR AI JOURNEY TODAY

01

✨ DISCOVER - What AI & Automation Really Are

- Understanding Discourse on AGI, ANI or ASI
- Layers of AI & Types of Automation

02

🛠️ PRACTICE - Your Use Cases

- Simple Automation Example
- Personal Automation Challenge

03

🚀 LAUNCH - Your Demo & Learning Path

- Building with Vibe Coding & Low-Code No Code
- Types of AI Roles for Your Career

Understanding Discourse & Definition on AI

Artificial Narrow AI

is AI that's **smart at one task**, but only that task.

Artificial General Intelligence

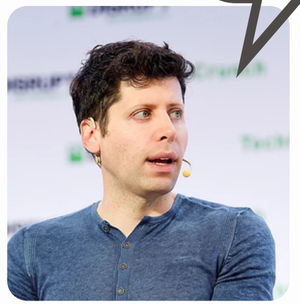
is AI that could **learn and think** across many tasks like a human.

Artificial Super Intelligence 'Not achieved'

is AI that would **surpass human intelligence** in every way.

"To me, trying to build **AGI is an inherently unsafe practice** [...] We build what we want to build, and we need to remember that," Gebru said. Source

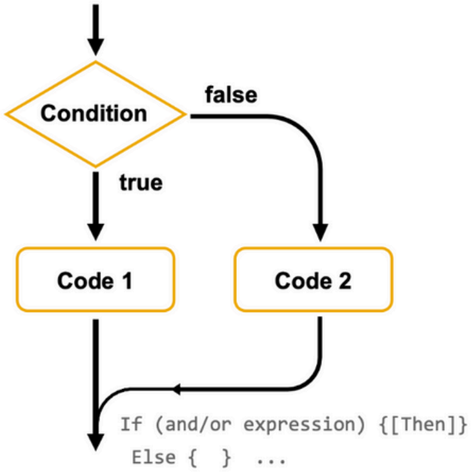
"AI will probably **most likely lead to the end of the world**, but in the meantime, there'll be great companies." Source



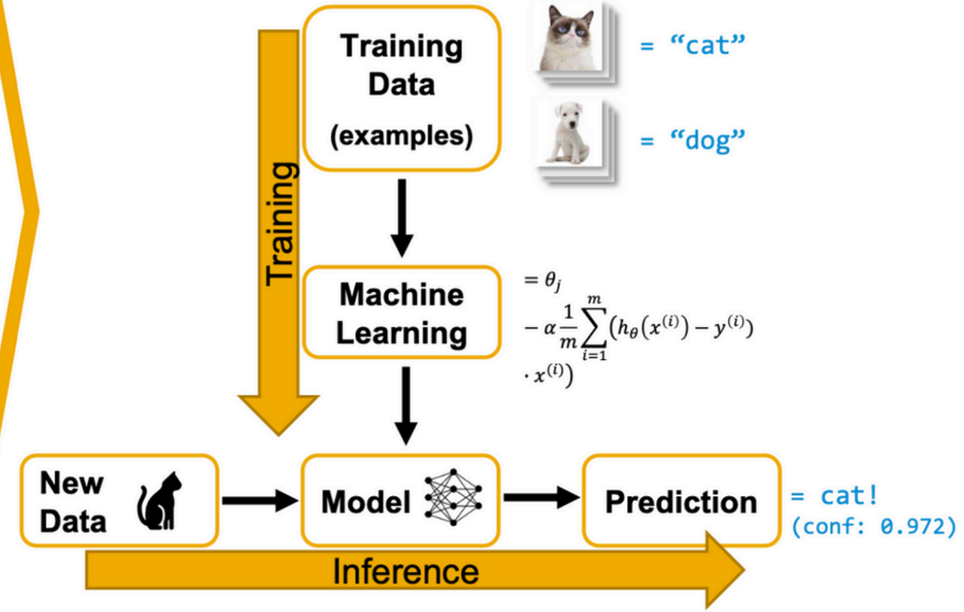
Who is real?

How does Intelligence Manifest in Machines?

Symbolic AI: explicitly represent knowledge e.g. through rules, expert systems, and deterministic programming

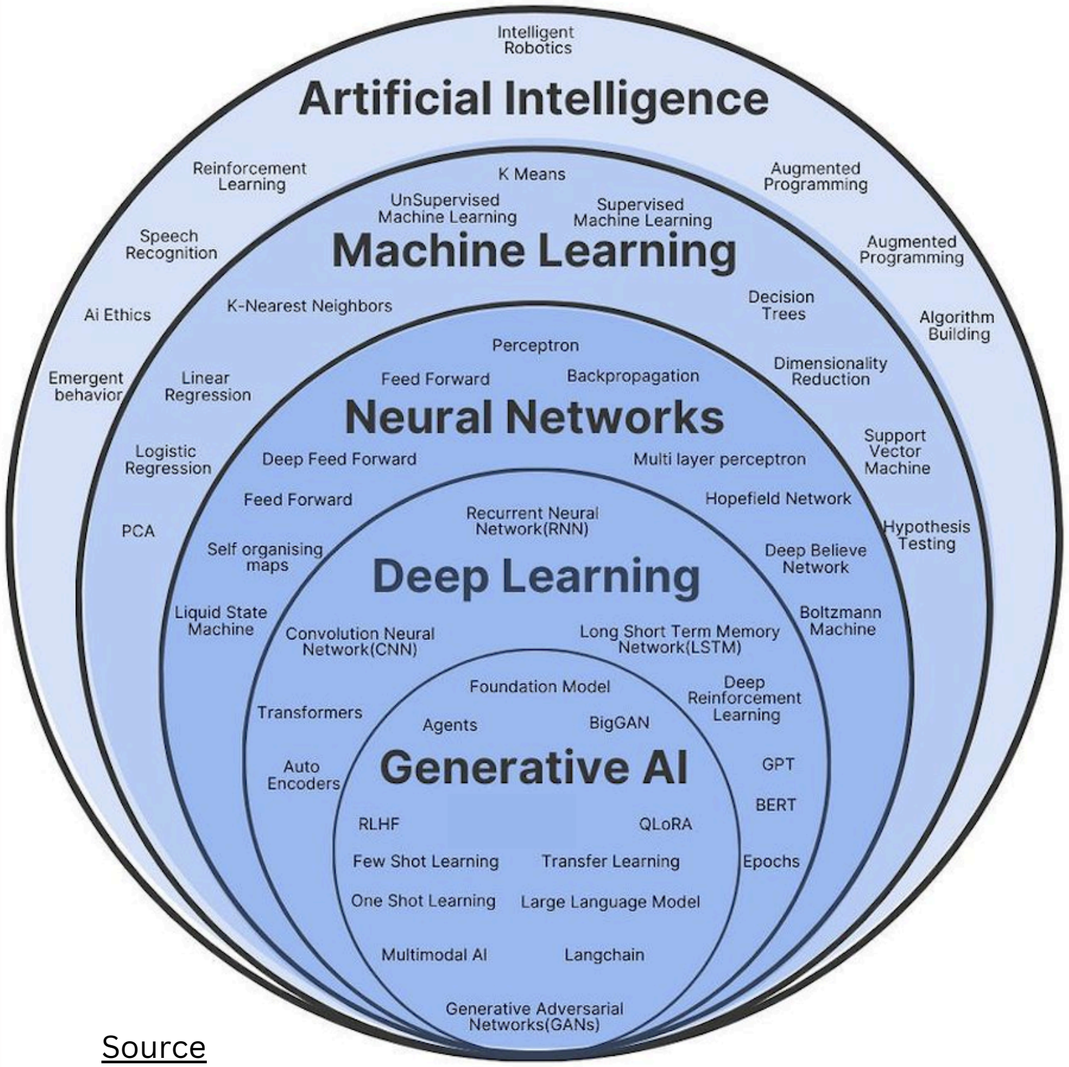


Probabilistic machine learning: learn from examples in the data without being explicitly programmed



Artificial Intelligence - Intelligence exhibited by non-biological systems

Understanding Layers of AI



Source

All Current Systems = Artificial Narrow Intelligence (ANI)

All of these belong to Artificial Narrow Intelligence (ANI) specialized systems without general reasoning.

Machine Learning (ML)
Algorithms that learn patterns from data
e.g. **Netflix Recommender**

Deep Learning (DL)
Multi-layer neural networks
e.g. **Apple Face ID**

Large Language Models (LLMs)
Transformer-based DL for text
e.g. **ChatGPT**

Diffusion Models
Generative Deep Learning for images
e.g. **Midjourney**

Multimodal Foundation Models
Unified Deep Learning across text, image, audio
e.g. **Gemini 1.5 Pro**

Understanding Types of Automation

Automation performs several tasks automatically based on predefined rules.

Task Automation

Your tools perform single-step actions based on predefined rules.

- E.g., Gmail filters, Excel formulas

Workflow Automation (No-Code)

Apps are connected to pass data and trigger actions automatically.

- E.g., when you fill a form, Slack sends a message and Google Drive stores the response.

Scripted or API Automation

Custom code or API calls link platforms and automate end-to-end processes.

- E.g., a script emails your daily report or creates backups when a file is uploaded.

Robotic Process Automation (RPA)

Bots mimic human computer actions; clicking, copying, entering data.

- E.g., a bot opens invoices, extracts values into Excel, and saves the file.

AI-assisted automation

AI systems suggest or even build automations from natural-language prompts.

Every tool has its own logic, but the formula is always the same:

Trigger → Action → Data Flow → Outcome

Once you learn that, you can use any automation platform.

Courses & Learning opportunity on automation

- Coursera, Udemy, Microsoft Power Automate, UIPATH Academy

PERSONAL AUTOMATION CHALLENGE

Challenge 1

Goal: Pick ONE area where AI or Automation could solve a real problem you face.

- 5 Minutes to Ideate individually based on personal experience

Tips 💡

1. Define clear tasks with specific goals
2. Think of everyday tool that you use
3. How would you execute?

Your Idea

The execution

Vibe coding is useful for prototyping

“Vibe coding” is a development approach where developers **use natural language** prompts to have an AI or LLM generate code instead of writing it manually.

Define intention

State what your prototype should prove, such as a user flow, feature, or concept. Keep it outcome-oriented, not technical.

Choose tool

Select an AI-vibe platform that supports fast front-end or logic generation. Focus on tools that let you export or test code directly.

Prompt generate & iterate

Describe your feature in plain English. AI generates the base code or design scaffold, and you refine it through repeated prompting and testing.

Launch and validate

Launch a functional prototype or MVP. Collect feedback on usability, speed, and purpose rather than perfection.

Scale with Engineers

Once validated, decide whether to scale with dev team or pivot. Use the prototype as a shared artifact to guide real development.

Prompt Engineering

Prompt engineering means crafting specific instructions to guide AI models.

- You tell the AI **who** it is, **what** to do, and **how** to respond.
- Good prompts turn vague guesses into useful answers.

Understanding Prompts

The **quality** of your prompt shapes the quality of AI **output**.

Building Effective Prompts

- **Be specific:** define task, format, and audience.
- **Add constraints** (tone, style, length, examples).
- **Test and iterate:** refine based on the response.

Strategic Prompting

- **Combine frameworks** for depth (e.g., RTCO + Chain of Thought).
- Use **systematic roles**: "You are a data analyst / coach / designer."
- **Chain prompts**: ask → refine → expand for complex outputs.

Hallucination Explained

Hallucination = confident but false answer.

Reduce by:

- Asking for sources or citations.
- Providing context and data.
- Verifying with trusted references.

Frameworks

- **KISS:** Keep It Short & Specific.
- **RTOC:** Role + Task + Output + Context.
- **Chain of Thought:** Explain its reasoning.
- **Example-driven:** Show what "good" looks like.

https://www.ibm.com/think/topics/prompt-engineering

Vibe Coding Meets Low-Code-No-Code

Challenge 2

Goal: Create a quick web-app prototype using Base44, Lovable, or Canva AI.

- Form a 2-3 group & choose your tool.
- 10 Minutes to ideate & build.
- Present your app.

Tips 💡

1. Login is required!
2. Use Your Idea from Challenge 1
3. Write a short prompt describing the problem your app solves and what features it needs.

Base 44

AI app builder that turns natural-language prompts into complete apps with **frontend, backend, and hosting.**

Lovable

Vibe-coding tool that converts plain-English prompts into **editable full-stack web apps.**

Canva

AI feature that transforms text-based **design ideas into usable code or interactive components**.

Sharing Time

Which idea did you turn into something real?

DEMO YOUR APP

Present your ideas and how you built it.

What did you learn?

AI Coding is better for real cases

In essence, AI coding uses AI as an engineering multiplier, while vibe coding uses it as a creative shortcut. Both have value, but only one scales beyond the prototype.

Reliability

AI coding produces **maintainable, testable, and version-controlled code** — not just quick prototypes.

Scalability

It focuses on architecture and performance, enabling production-grade systems rather than one-off experiments.

Collaboration

Engineers use AI as a co-developer inside established workflows (Git, CI/CD), ensuring team consistency and traceability.

Efficiency

AI accelerates repetitive tasks like boilerplate generation or debugging, freeing time for higher-level logic and design.

Sustainability

AI coding aligns with long-term software lifecycle goals, updates, documentation, and integration, while vibe coding often ends at the demo phase.

No-Code / Low-Code Web App Builders

Base44 AI-powered platform that turns **prompts and data into working web apps with backend logic and dynamic components**, ideal for rapid MVPs.

Lovable Natural-language app builder that converts plain-English i**deas into deployable front-ends webapps** using AI-generated React code.

Framer AI-driven **design tool for generating and hosting fully responsive websites**, production-ready from a single prompt.

Use for

Prototyping, MVPs, small products, or visual proofs of concept.

Use for

Production-grade apps, collaborative projects, or integrating AI into real development workflows.

AI Assisted Coding

CURSOR AI-assisted IDE for code generation

Bolt AI front-end builder from prompt to React app

replit Collaborative AI coding workspace

GitHub Copilot AI code completion by GitHub + OpenAI

TYPES OF AI ROLES

AI Strategist

How can AI create measurable **value for people, organizations, and systems**?

Focus:

- Vision, business models, product strategy, transformation, leadership.

AI Builder

How do we **technically make AI systems work, scale, and perform responsibly**?

Focus:

- Focus: Engineering, automation, and model development

AI Creative

How can AI **amplify or assist imagination, storytelling, and creative expression**?

Focus:

- Creative direction, generative design, storytelling, and experience design.

AI ETHICIST

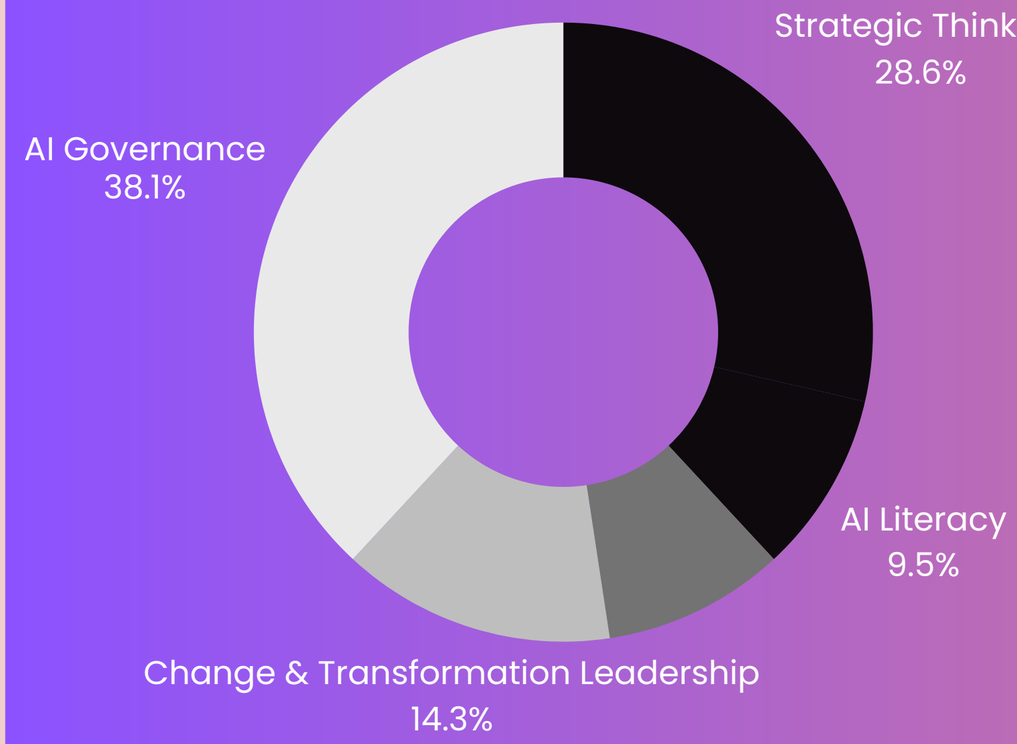
How can we ensure AI is created and used transparently, justly with accountablity?

Focus:

- Governance, risk, fairness, and the societal impact of AI systems.

AI Strategist

RELEVANT SKILLS



IBM AI Product Manager Professional

Comprehensive 10-course program teaching AI-driven product strategy and lifecycle management; ~3 months, US $59/month (Coursera).

AI Product Management Specialization

Focuses on AI use-case design, data ethics, and roadmap building; ~4 months, US $49/month (Coursera).

AI Product Management Certification

Intensive executive-style program on managing AI-enabled products; ~12 hours, US $1,995 (Product School).

Transform Your Business with Microsoft AI

Learn how to define an AI vision, identify use cases, and drive adoption across the enterprise; 3–4 hours, free. Microsoft Learn

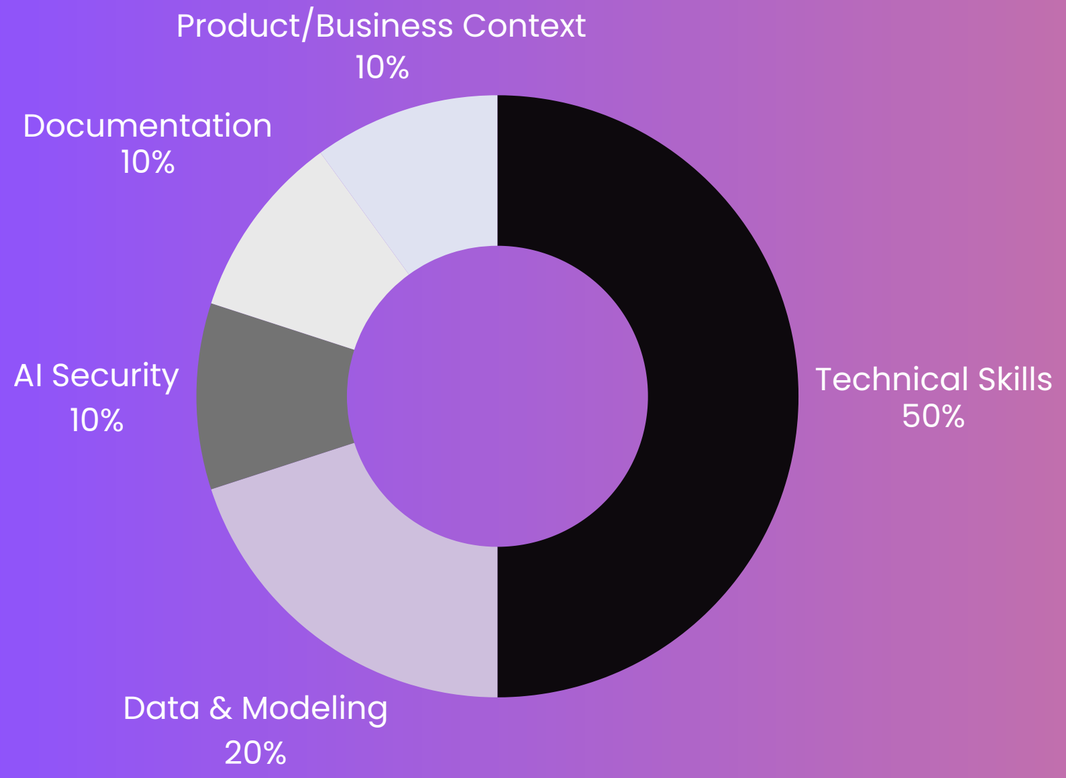
How to Build an Effective AI Strategy

Strategic framework from Google for assessing readinessand business alignment; self-paced reading + toolkit, free Google Cloud

Yearly Salary
~80–100k
Source

AI Builder

RELEVANT SKILLS



Microsoft Certified: Azure AI Engineer Associate

Official Microsoft certification for building and deploying AI solutions; exam 120 min, US $165 (Microsoft Learn).

AI Engineering with Python, PyTorch & TensorFlow

Hands-on training in ML pipelines and deep learning; 3–6 months, US $49/month (Coursera).

Machine Learning & AI Learning Path

Cloud-based ML and generative AI track with badges; self-paced, free–US $49/month (Google Cloud Skills Boost).

Become an AI Engineer Program

Project-driven program teaching end-to-end AI development; 4–6 months, €3 k–6 k (Turing College).

DeepLearning.AI Deep Learning Specialization

Teaches building, evaluating, and deploying deep neural networks; 4 weeks, US $49/month (Coursera).

Yearly Salary
~90–110k
Source

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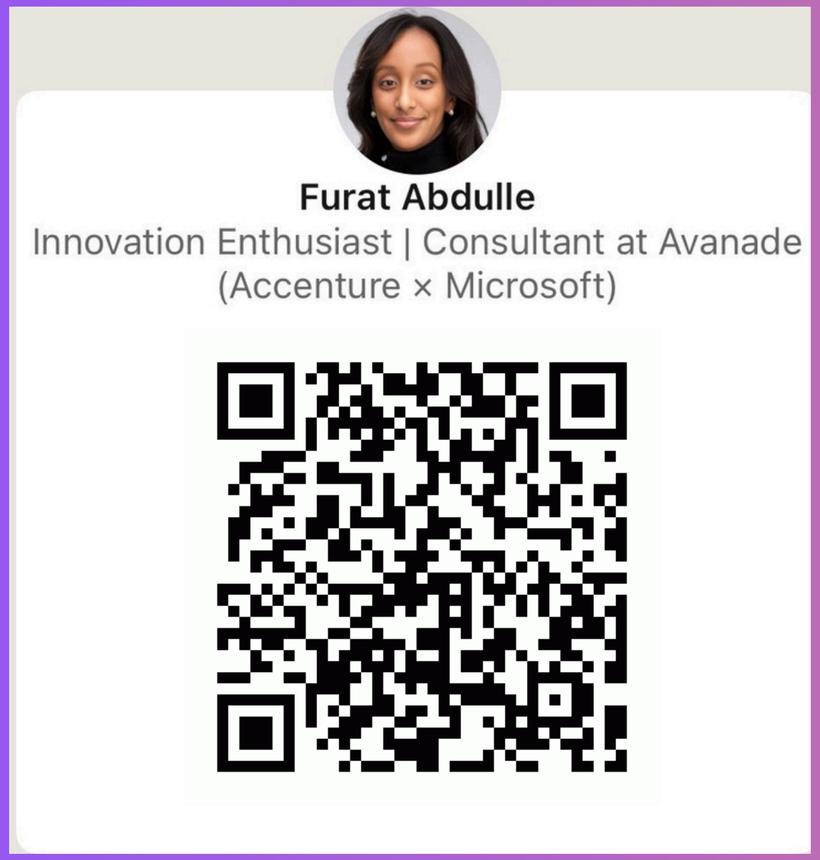

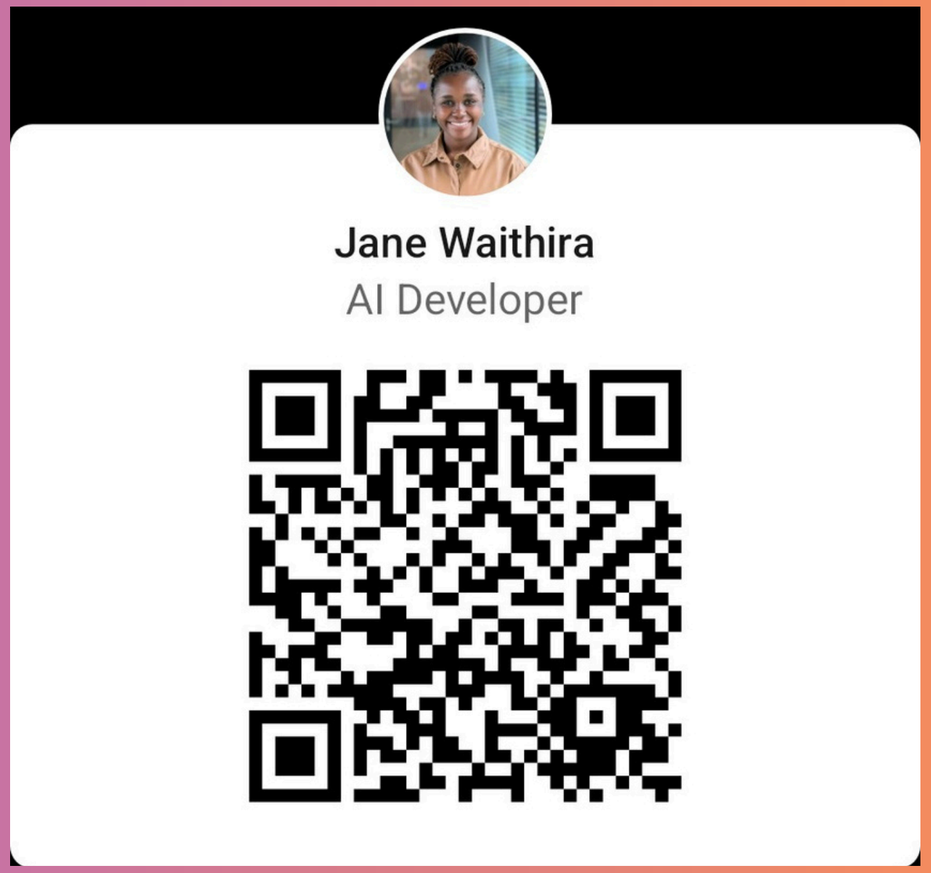

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