L'Intelligence Artificielle en clair

Mécanismes Fondamentaux, Enjeux de Demain et Démonstrations Concrètes

Slides en Anglais, Explications en Français

Julien Guille, Apr. 2026

Julien Guille, 22/04/26, pour l'UFE

Julien Guille

IT Head of Agentic Engineering chez Nissan

- Formation d'ingénieur en Systèmes d'Information et Data Science.
- 20 ans d'expérience en IT (France, New York City, Japon), en banque d'investissement et automobile
- Chez Nissan depuis 6 ans : 4 ans en charge de la transformation digitale (DX); Aujourd'hui responsable de l'accélération logicielle pilotée par l'IA



Expertise

Transformation Digitale & AI — Stratégie, Change Management, Consulting, Innovation, Promotion

Développement de Produits Digitaux — Agile, Design Thinking, Product Management, Développement, UI/UX

Technologies Emergentes — Blockchain, Dataverse, etc.

Sylvain Pierre

IT Head of Agentic Engineering chez Nissan

- Fondateur et CEO du Le Wagon Tokyo
- Lance Le Wagon à Tokyo en 2016, après avoir cofondé et développé une entreprise de 300 collaborateurs au Vietnam
- En 9 ans : Communauté de 9 500 members; 1100+ développeurs web et experts Data Science formés

To Update



Programme de la conférence

Comprendre :

L'IA expliquée simplement. Les bases essentielles pour ne plus être perdu et comprendre ce dont tout le monde parle.

Julien. 45min

GenAI fundamentals, AI Ecosystem, AI Industry Landscape in Japan, What's next and How to Adapt

Explorer :

Démonstrations en direct et cas d'usage concrets pour illustrer le potentiel des outils actuels.

Sylvain. 25min

Créer une agence de voyage à la vitesse de l'éclair avec l'AI (Outils: Le Chat, Lovable, Make, NotebookLM)

Échanger :

Un temps dédié en fin de session pour répondre à vos questions et approfondir vos enjeux personnels ou professionnels.

Julien, Sylvain. 20min

Q&A, Sondage, Aller plus loin

01

GenAI Fundamentals

Julien Guille, Apr. 2026

AI Evolution Timeline

AI isn't new—recent advances have transformed it into a general-purpose technology

Ruled Based Systems
(1950s-1990s)

Symbolic systems, with deterministic reasoning



1950: Turing Test

Machine Learning
(1990s-2012)

Data driven learning: Probabilistic reasoning replaces hard rules



2009: Netflix Prize

Deep Learning
(2012-2017)

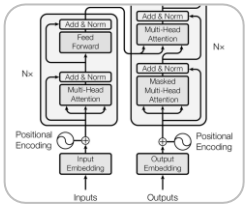
Scaled Neural Network: from feature engineering to auto data learning



2012: ImageNet / AlexNet

Generative AI
(2017-Present)

Large Language Models: learn and generate text using long-range context

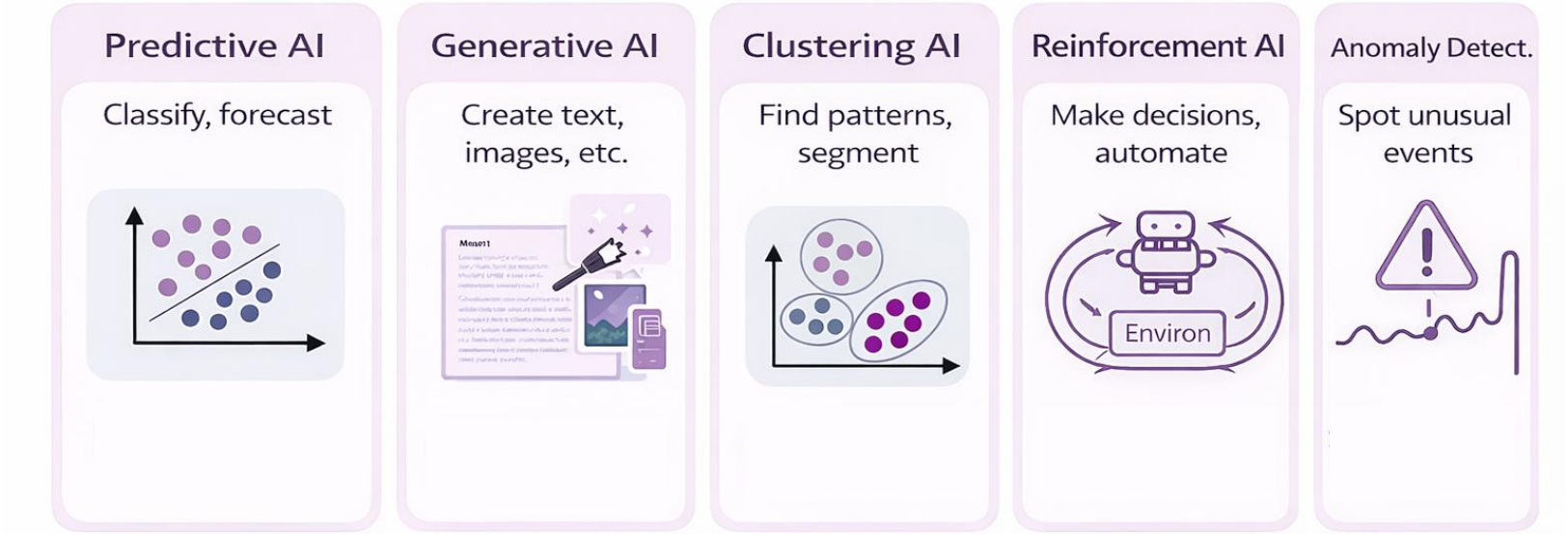


2017: Transformer

Note: Layers are in fact stacking, not replaced: Symbolic systems still exist, machine learning still dominates many use cases, deep learning powers modern AI

Types of AI

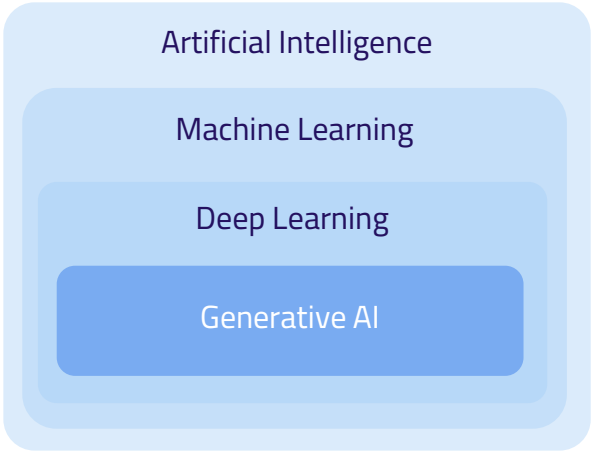
There are many kinds of models in AI. Generative AI is one of them!



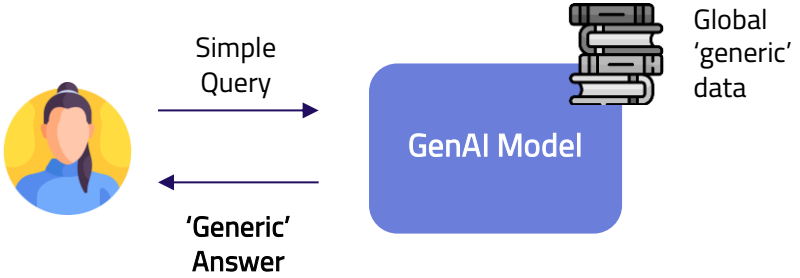
Key Concepts (1/2)

What is Generative AI

GenAI is a type of AI.
It doesn't replace other models (yet?)



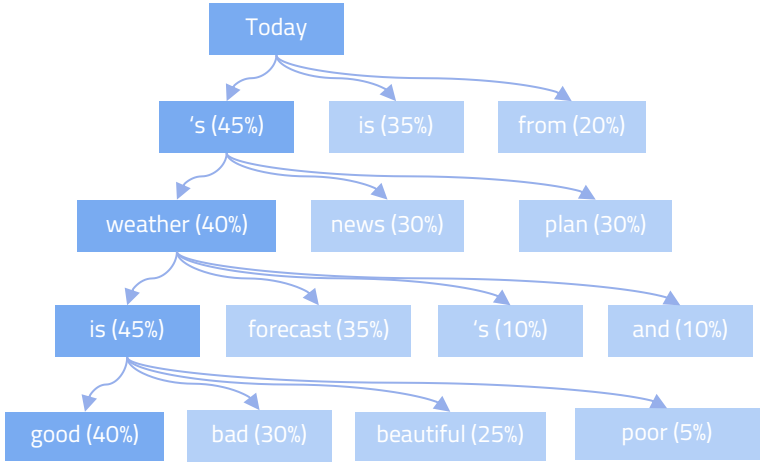
GenAI uses patterns from existing data to create new content, producing outputs that are similar yet unique.



Key Concepts (2/2)

How GenAI works and consequence on usage

GenAI models (here LLM*) **create new content by predicting the next token from learning on existing data**



Because of their probabilistic nature, models…

1. Cannot handle complex logic
2. Lack knowledge beyond training data
3. Have "hallucinations"

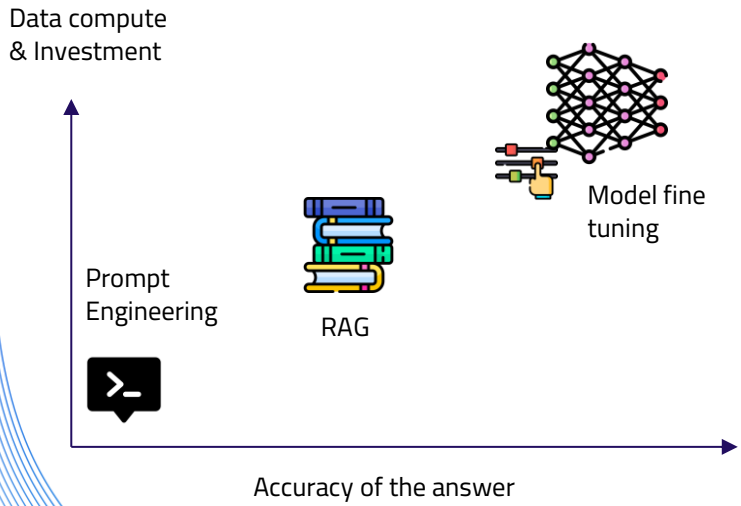
- Huge progress since Nov. 2022
- Core principles still apply
- **AI ≠ regular software; outputs can vary**

*Large Language Models

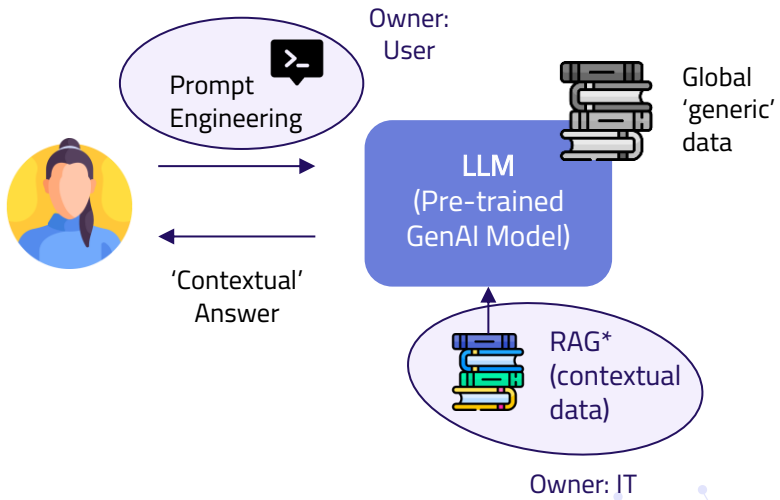
From Concepts to Prompting (1/2)

The Anatomy of a Contextual Response

Multiple solutions exist to make LLMs answer more accurately



Practical Implementation: Combining Prompt Engineering & RAG



*Retrieval Augmented Generation

From Concepts to Prompting (2/2)

Demystifying Prompt Engineering

The easiest way to work with GenAI:

1. Forget the jargons! ~~*0-shot, few-shots, chain of thoughts*~~
2. Consider AI as a super clever kid, but… knows nothing about you or your needs!



↓

Tell the AI the **context, task, how to produce the solution, output format**, etc.

Prompt Example, for a news generation on social network

You are an expert copyrighter, especially well versed into social network articles writing. I need your help to write articles for social networks that are professional ones like LinkedIn. Find below my requirements, in sections highlighted with hash marks (#).

Your approach

- You should first search on the web to find articles related to the one that is shared to you down below.
- This search should be done in multiple languages, and you should form your own understanding of the topic
- Based on your own understanding of the topic, you should check the views shared below and see whether they are aligned with what you could understand across all these articles. If not aligned, I want you to

When to use AI

THE GOLDEN RULE:
AI = ACCELERATOR, NOT AN AUTHORITY



1. GO: USE AI

When AI adds Speed or Leverage

- **Drafting:** Summaries, emails, translations
- **Pattern-based tasks:** Data, basic code
- **Idea generation:** Brainstorming & exploration
- **Productivity augmentation:** Assist, not decide



2. CAUTION: USE WITH AWARENESS

Manage Hidden Costs

- **Environmental:** High energy & water use
- **Cognitive:** Risk of reduced critical thinking
- **Dependency:** Validate outputs, check accuracy
- **Human-in-the-Loop:** Stay in control



3. STOP: DON'T USE AI

Avoid when Risk or Responsibility is High

- **High-stakes decisions:** Legal, medical, financial
- **Sensitive/Confidential** data
- **Precision-critical outputs:** Exact, verified facts
- **Situations requiring human judgment:** Ethics, emotion, strategy
- When the goal is to **LEARN** or **THINK**

02

AI Ecosystem

Julien Guille, Apr. 2026

Main Players

Globally, few organizations have funds and capabilities to build foundational models

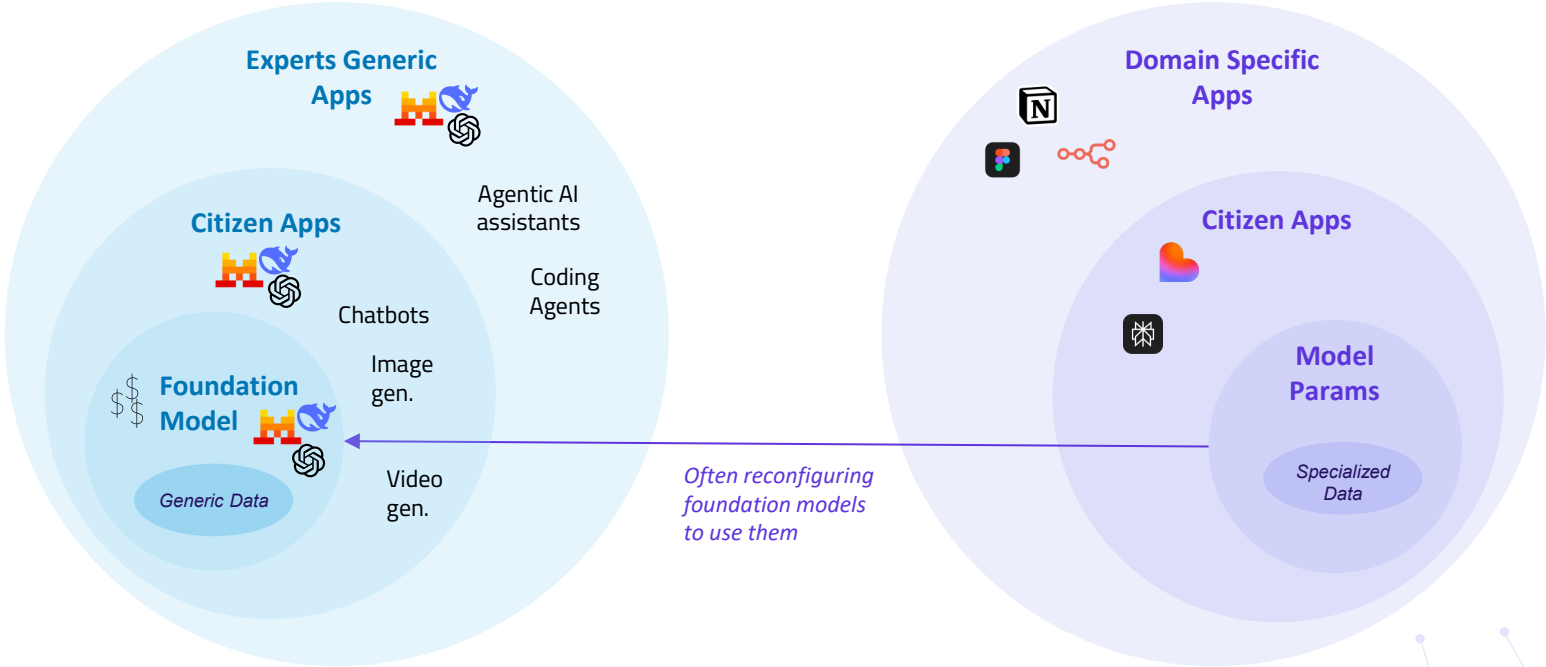


Developer / Lab	**OpenAI** (/Microsoft)	**Google** DeepMind	**Anthropic**	**Meta** FAIR / TBD Lab	**Mistral** AI	**DeepSeek**-AI
Models	GPT	Gemini	Claude	Llama	Mistral	DeepSeek
Main Consumer App	ChatGPT	Gemini, NotebookLM	Claude	Meta AI	Le Chat	DeepSeek

** A Foundation model is a large-scale, highly capable, general-purpose Artificial Intelligence (AI). A Frontier model is a subset of foundation model that represents the cutting edge of AI technology at any given moment*

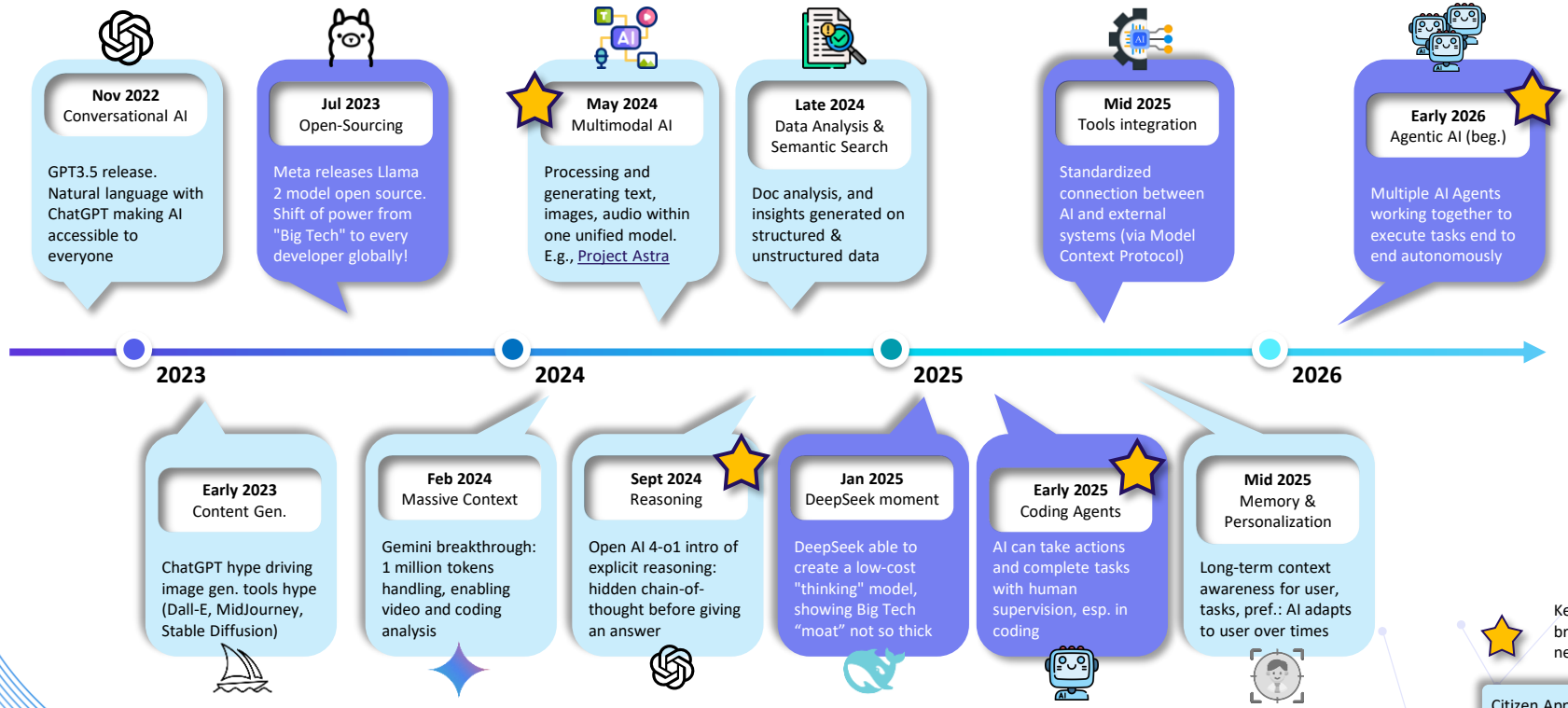
Broader GenAI Ecosystem

Main players develop the core, secondary players refine the vertical value



The evolution of Generative AI

Simplified timeline of key moments in the development of Generative AI



Julien Guille, Apr. 2026

Key Capabilities Breakthroughs

Multimodal

twelvelabs.io/blog/what-is-multimodal-ai

- **Natural interaction** with real world
- **Understands** and generates text, images, audio, video
- **Combines inputs**, e.g., image + question answer



AI Agents

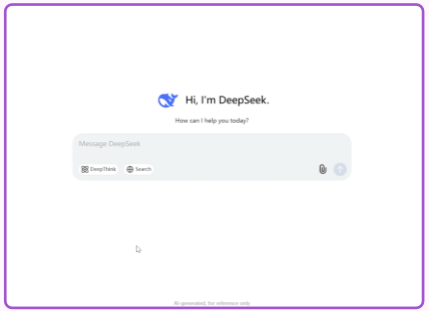
- **One entity doing tasks**
- Has a **goal, reasons, takes actions** leveraging **tools**.
- **Full Autonomy** is a concern (needs supervision)



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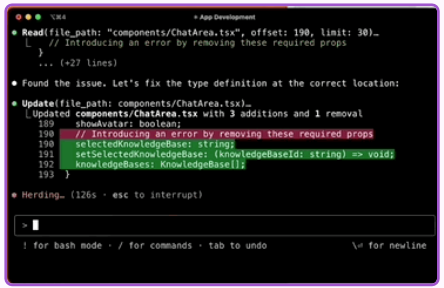
Reasoning

- Solves problems **step-by-step**
- Can **plan, analyze**, and **make decisions**
- Enables complex tasks (research, strategy, etc.)



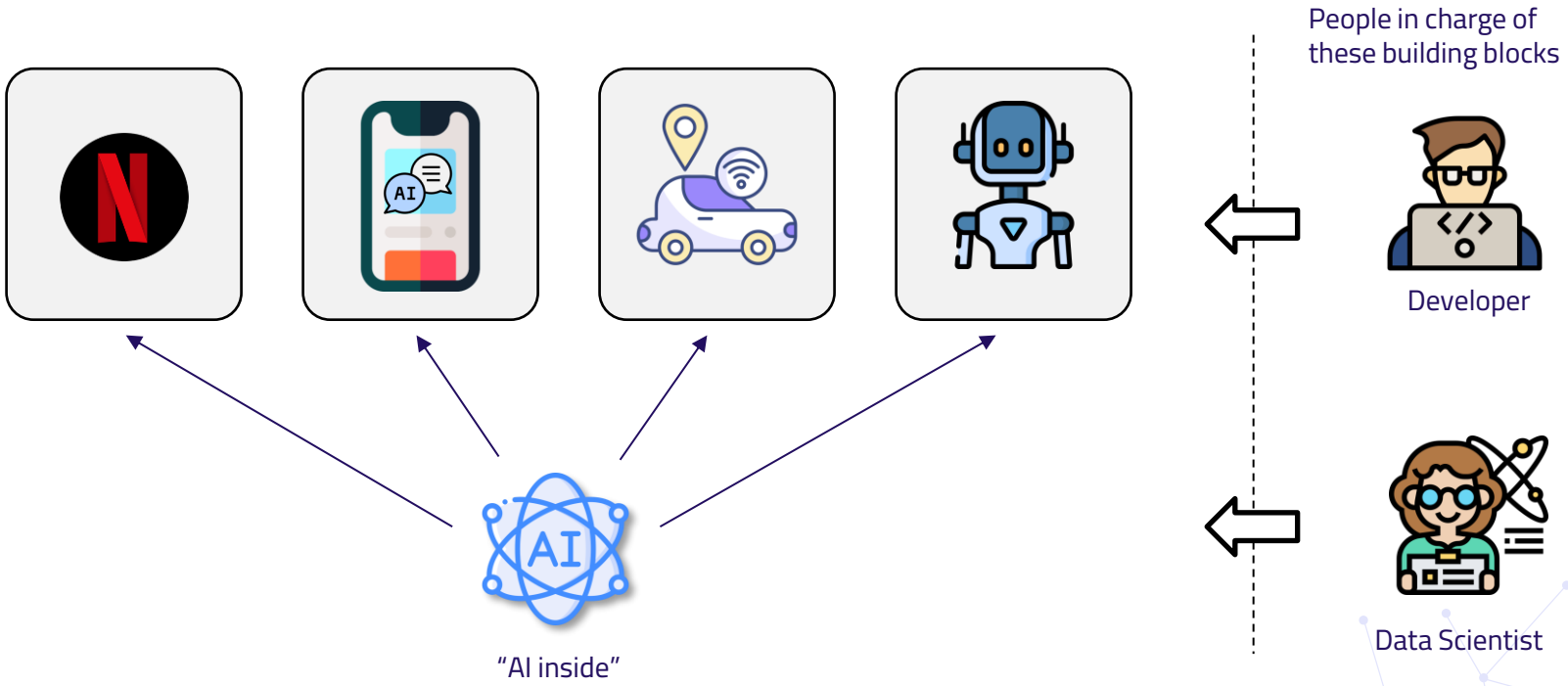
Agentic AI

- **System of agents with orchestration**
- Products still **limited**, massive potential.
- Major acceleration in some fields already, e.g., application dev.



Distinguishing the AI and the product

The AI is the brain of the digital product. AI is a mean (not an end) to improve the product output



Types of AI products (1/2)

Key Categories, for easy understanding; space evolving (very) fast

AI Assistants

Generates – Prompt-based AI that creates content or answers



Chatbots | Copilots | Content generation

What most people associate with GenAI

Embedded AI

Enhances – AI embedded in tools to enhance specific tasks

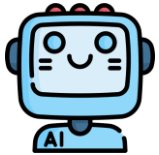


Design & creative | Recommendation & Personalization | Automation | Predictive & Forecasting

Familiar tools, faster outcomes

Agentic AI*

Acts – AI executes tasks and workflows (semi) autonomously



Coding agents | Agentic Frameworks | Robotics

High buzz & potential, still immature

** Includes AI agents. Agentic AI coordinates multiple AI agents and tools to execute end-to-end tasks with partial autonomy*

Types of AI products (2/2)

Tools are multiplying rapidly—and each is expanding its scope

AI Assistants

Generates – Prompt-based AI that creates content or answers

Chatbots | Copilots | Content generation

ChatGPT, Le Chat, Gemini, DeepSeek, Claude, NotebookLM, MS Copilot

Embedded AI

Enhances – AI embedded in tools to enhance specific tasks

Design & creative | Recommendation & Personalization | Automation | Predictive & Forecasting

Netflix, Photoshop, Notion, Figma, Perplexity, Sales Force, Make, n8n

Agentic AI*

Acts – AI executes tasks and workflows (semi) autonomously

Coding agents | Agentic Frameworks | Robotics

Lovable, Codex, Cursor, Claude Cowork, Manus, LangChain, Crew AI, OpenClaw

** Includes AI agents. Agentic AI coordinates multiple AI agents and tools to execute end-to-end tasks with partial autonomy*

Julien Guille, Apr. 2026

03

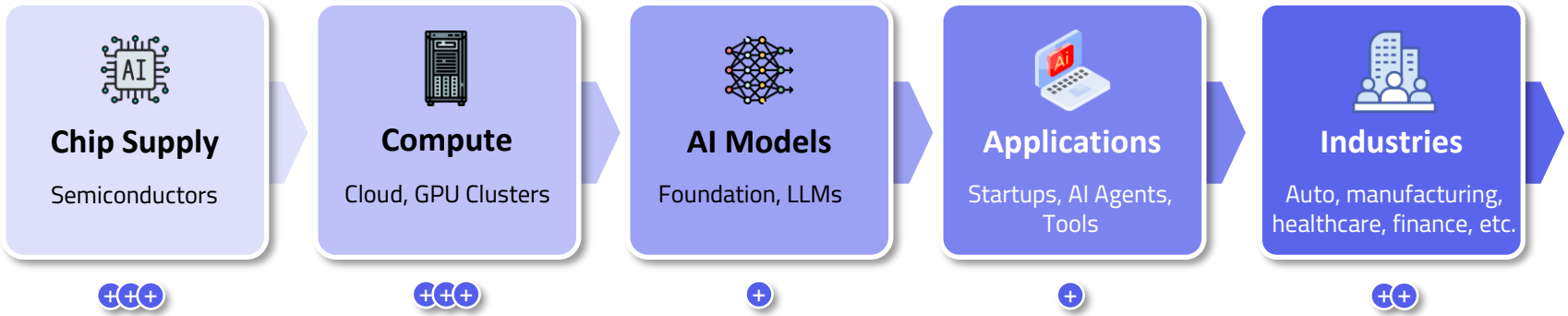
AI Industry Landscape in Japan

Julien Guille, Apr. 2026

Japan 2026 budget: ¥122T, 2025 real GDP: ~¥590T

Japan Public Investment in AI Value Chain

METI mostly focusing on AI infrastructure (Chips & Compute) with a 4x funding boost to ¥1.23T in 2026



Heaviest Funding

¥10T planned Invest't by 2030

Cummulative ¥2.35T approved for fab **Rapidus** in 2026

Alliances and funding with TSMC JP (fab), Fujitsu & IBM JP (chips dev)

Strong, 2nd priority

METI **¥72.5B subsidy** in AI supercomputer (Sakura internet: ¥50B, KDDI: ¥10B)

METI's NEDO support to **Fugaku NEXT**: 2030 target Zettascale[(2)] supercomputer

Moderate, lags US/China

METI envelop of **¥387.3B** forAI domestic foundation models, data infrastructure and "physical AI"

Early stage, less direct gov't spend

NEDO ¥100B fund to early-stage startups in AI/robotics

DX "IT Intro Subsidy" expanded to AI in 2026: SMEs' adoption cost covered up to 2/3

Moderate, targeted

METI/MLIT target: **30% global SDV mkt by 2030**, subsidies to AI-driven Auto drive

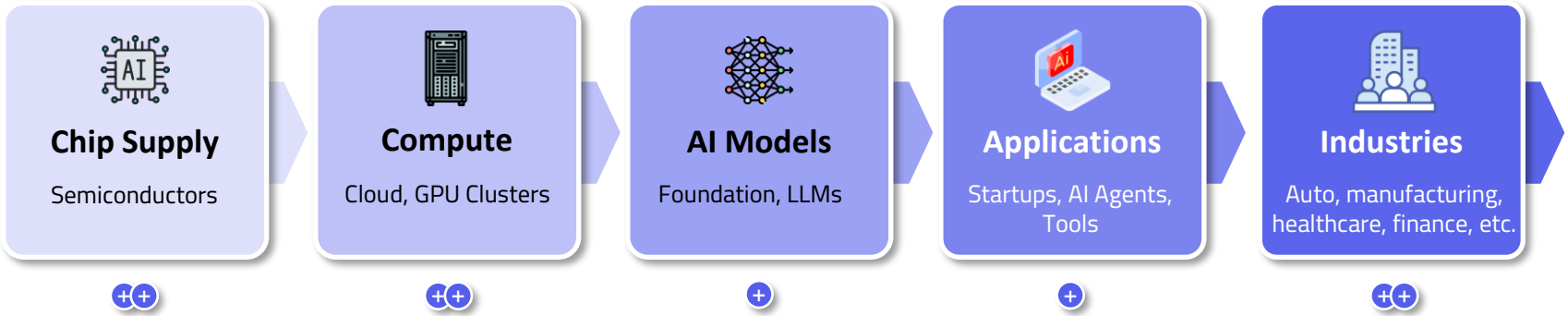
Julien Guille, Apr. 2026

NHK news, rapidus, METI, eenewseurope, Taipei Times

Japan 2026 budget: ¥122T, 2025 real GDP: ~¥590T

Japan Private Sector in AI Value Chain

World-class in hardware; subscale in software and adoption



Strong base, push on advanced logic

10% of global market in equipment (Tokyo Electron: ~¥2T revenue) and memory (Kioxia: ~¥1.7T)

0% market in AI chips, explaining push on Rapidus

Sovereignty and Asia strategic hub

~¥20T CAPEX committed over 5 years (US: ¥90T/y)

NTT: ¥8.9T to 2027, SoftBank: ¥6T+ via Stargate/OpenAI

Foreign hyperscalers in Japan: ¥5T (AWS, Microsoft, Oracle)

Telcos/IT giants allocating slice of massive CAPEX

No figure

Small globally, accelerating

2025 VC record (¥0.87T) driven by AI megadeals incl. **Sakana AI** (¥20B) and Mujin (¥35B)

Still small: ~3% of US, ~15% of China

Large but fragmented

~¥1.2T (2025) across all industries; **~5% of global AI market** vs. US ~¥7.5T, China ~¥5.6T (2024)*

Julien Guille, Apr. 2026

* Real figures hard to get: Grand View Research, Statista.com

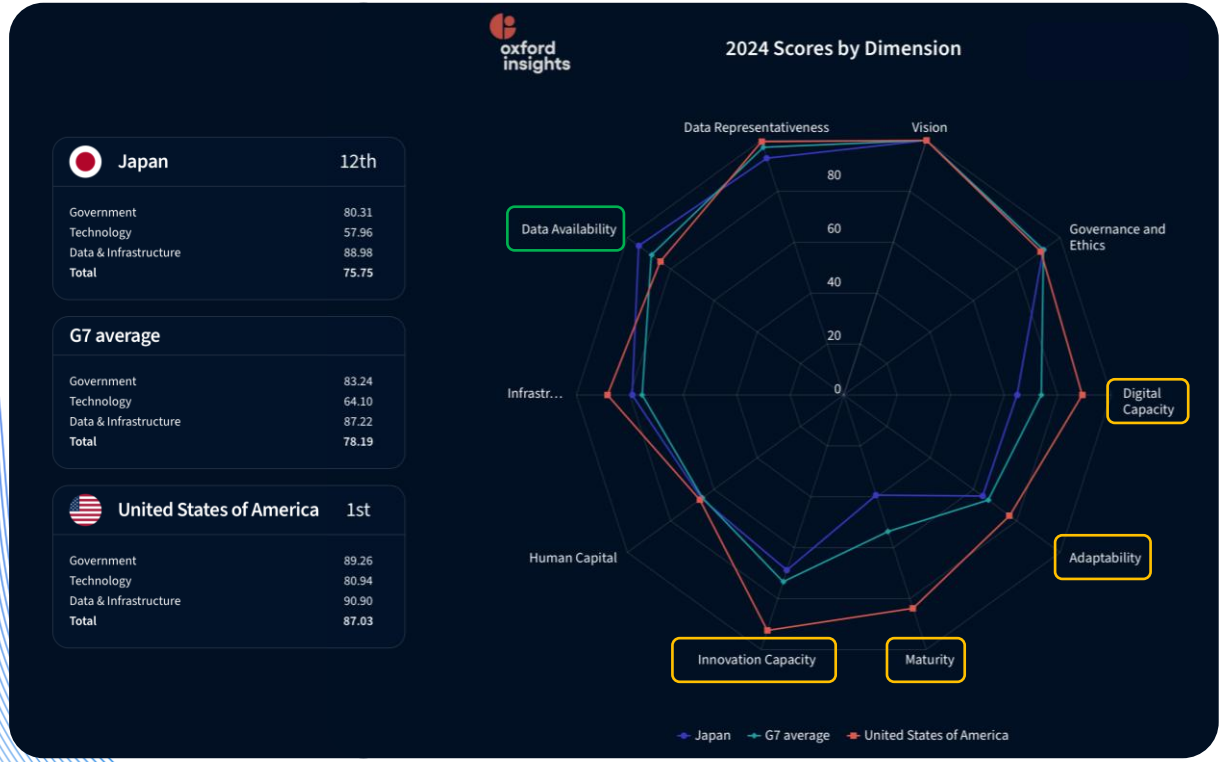
Japan vs Global Investment Strategy

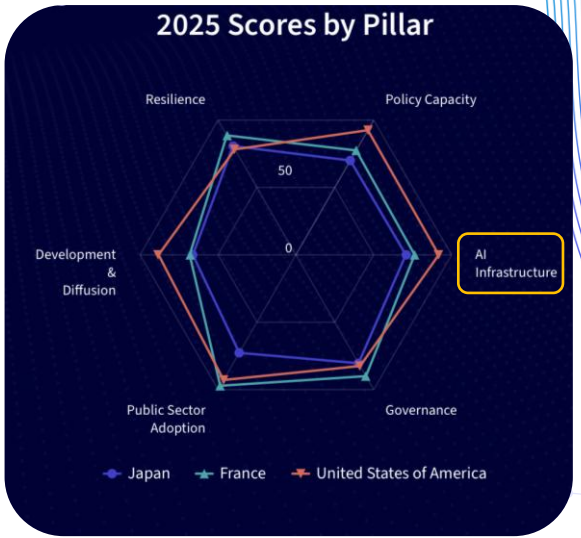
Distinct strategies reflect differing domestic strengths and geopolitical goals.
Japan is not underinvesting, but investing differently

Dimension	Japan	US	China
Public funding	High (chips + infra)	Moderate	Very high (state-driven)
Private funding	Moderate	Extremely high	High
Semiconductors	Strategic priority	Market-driven	Strategic priority
AI startups	Limited scale	Global leader	Strong domestic
Focus	Industrial + sovereignty	Frontier models + scale	Scale + control

Government AI Readiness Comparison

Limited progress between 2024 and 2025, Japan falling from 12th position to 14th. France is ranked #2





Oxford Insights (link) – Government AI Readiness Index

Usage of GenAI in Japan in Feb. 2025

Usage improving since 2024, but still very low compared to the rest of the world

GMO Research AI, Feb 2024-2025

Understanding the value

32% See the necessity

Active usage

(Occasional or more)

22.2% Personal

- *US 68.8%*
- *China 81.2%*

19.2% In business

- *Ireland 70%*
- *US 43%*
- *UK 41%*

MIC, Jul 2025 report, 2024 data

Business-focused AI Usage Types

Activity	% of Users	Impact
Improving work efficiency / document creation	43.50%	Low
Researching and verifying pro / tech knowledge	30.50%	Low
Proofreading and text summary	28.00%	Low
Acquiring specialized knowledge (incl. language)	25.60%	Low
Translation	16.30%	Low
Generating social media posts and content	10.60%	Minimal

Minimal: Convenience Tasks → **Low**: Personal Productivity → **Moderate**: Operational Efficiency → **High**: X-functional Automation → **Transformational**: Strategy & revenue impact

04

What’s next, and how to adapt

AI Is Transforming Jobs, Not Eliminating Them

Global data (2025) shows positive trend at macro level, while depicting disruption at individual level

+78M

net new jobs by 2030

170M created – 92M displaced (based on interview of execs of companies covering 1.18 billion workers)

WEF Future of Jobs 2025

4×

industry productivity growth

7% to 27% for AI-exposed ones (e.g., finance, software)
10% to 9% for non-exposed (e.g., mining, hospitality)

PwC AI Jobs Barometer 2025

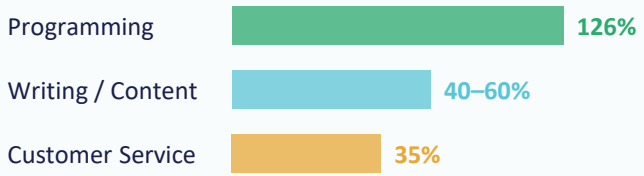
+56%

wage premium for AI skills

Up from 25% last year

PwC AI Jobs Barometer 2025

Productivity Gains by Task



86% of employers expect AI to transform their business by 2030 (WEF)
100% of industries now increasing AI usage (PwC)

Skills Requirements

- **Skills changing 66% faster** in AI-exposed jobs
- AI fluency demand: 1M → 7M workers in 2 years (McKinsey)
- **39% of existing skill sets will be outdated** by 2030 (WEF)
- Degree requirements dropping: AI-augmented jobs requiring degrees fell from 66% → 59%

Sources: WEF Future of Jobs Report 2025 · PwC 2025 Global AI Jobs Barometer · McKinsey Global Institute 2025

Julien Guille, Apr. 2026

Industries Impacts

Finish

1. Pharma / Health

AlphaFold → drug discovery pipelines

- **Actors:** Google DeepMind / Isomorphic Labs
- **Key date:** May 2024 (AlphaFold 3 release)
- **Title:** *AI compresses drug discovery timelines*
- **Subtitle:** From protein prediction to **end-to-end molecular design acceleration**
- **Nature:** ❌ Not GenAI (predictive)
- **Impact reality:** ✅ **High (already used in pharma workflows)**

2. Transportation / Manufacturing

Autonomy + robotics convergence

- **Actor:** Tesla
- **Key date:** Oct 2024 (Optimus Gen 2 + FSD updates showcased)
- **Title:** *Factories become AI-native systems*
- **Subtitle:** Convergence of **robotics, vision, and decision-making AI**
- **Nature:** ⚠️ Partial GenAI (mostly perception + control AI)
- **Impact reality:** ⚠️ **Medium (real progress, still not scaled)**

3. Gaming / Entertainment

AI-generated interactive characters (ACE)

- **Actor:** NVIDIA
- **Key date:** Jan 2024 (CES announcement, ongoing integrations 2024–2025)
- **Title:** *From scripted NPCs to generative characters*
- **Subtitle:** Real-time dialogue → **player-driven storytelling**
- **Nature:** ✅ GenAI (LLMs + voice + animation)
- **Impact reality:** ⚠️ **Early but credible (pilots, not mainstream yet)**

4. Creative / Media

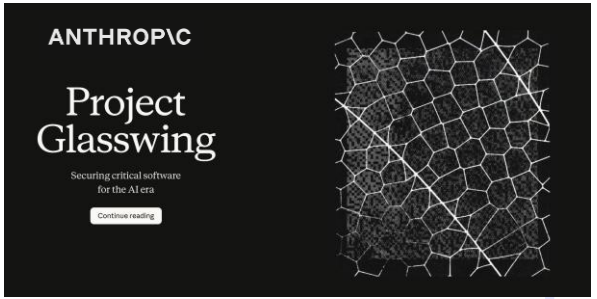
Text-to-video breakthrough (Sora)

- **Actor:** OpenAI
- **Key date:** Feb 2024 (Sora announced)
- **Title:** *Video production becomes prompt-driven*
- **Subtitle:** **Orders-of-magnitude cost reduction** in content creation
- **Nature:** ✅ Core GenAI
- **Impact reality:** ⚠️ **High potential, limited deployment (access controlled)**

5. Enterprise / Knowledge Work

AI copilots as default interface

- **Actor:** Microsoft
- **Key date:** Nov 2023 (Copilot launch), expanded through 2024–2025
- **Title:** *AI becomes the operating layer of work*
- **Subtitle:** Embedded across tools → **systematic productivity gains**
- **Nature:** ✅ GenAI
- **Impact reality:** ✅ **High (mass adoption, measurable usage)**

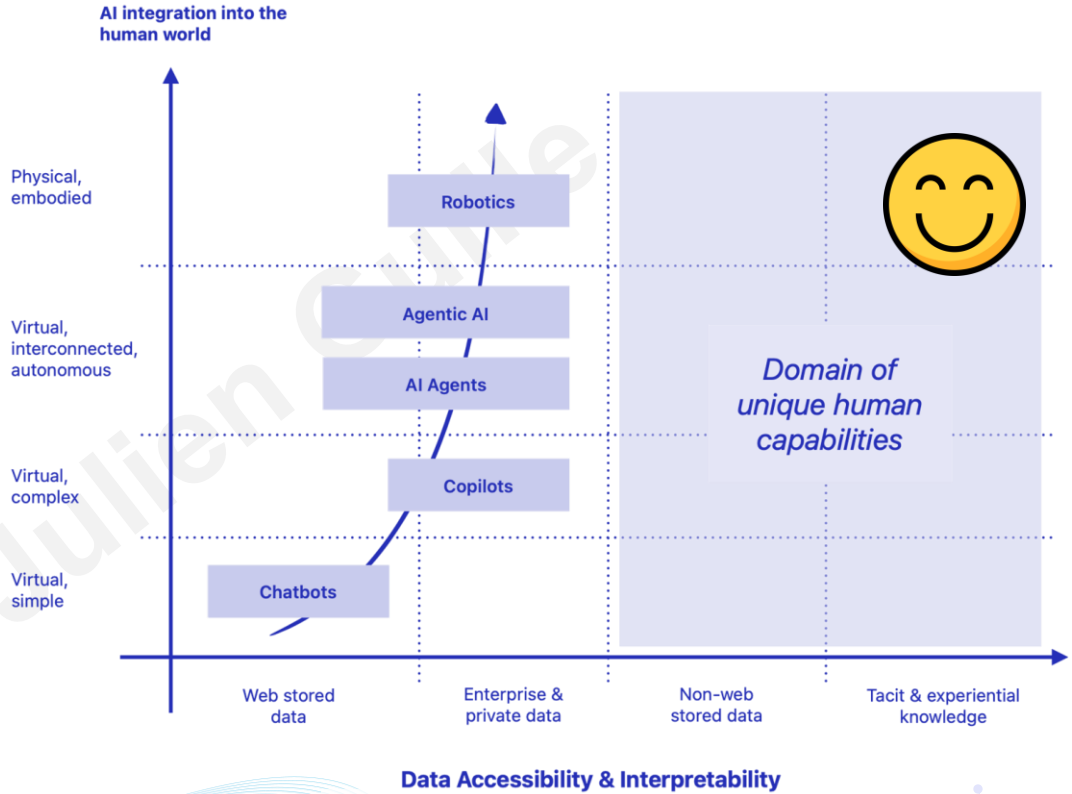


AI models have reached a level of coding capability where they can surpass all but the most skilled humans

AI's Cognitive Limits and the Human Advantage

AI will never enter in areas that are off the web and related to human intent

Trajectory of AI Integration and its Cognitive Boundaries



Julien Guille, Apr. 2026

Navigating the AI Shift

Four Principles to Adapt, Evolve, and Succeed

1 Build AI Literacy

Understand core AI **capabilities and limitations**. Learn **which tools** are available and **practice** integrating them into daily tasks.

2 Deepen & Broaden

Be "T-shaped"—Use deep expertise to validate AI outputs, and broad knowledge to **connect ideas across disciplines**

3 Cultivate Adaptability

Embrace continuous change. Stay fiercely **curious**, **experiment** often, and be willing to **unlearn** outdated ways of working

4 Focus on the Outcome

Focus on the WHAT, not the HOW. AI will handle the execution, one need to transition **from Builder to Director**

Julien Guille, Apr. 2026

05

Demos

Practical Demonstration

Building a travel business at lighting speed with AI

AI Assistants

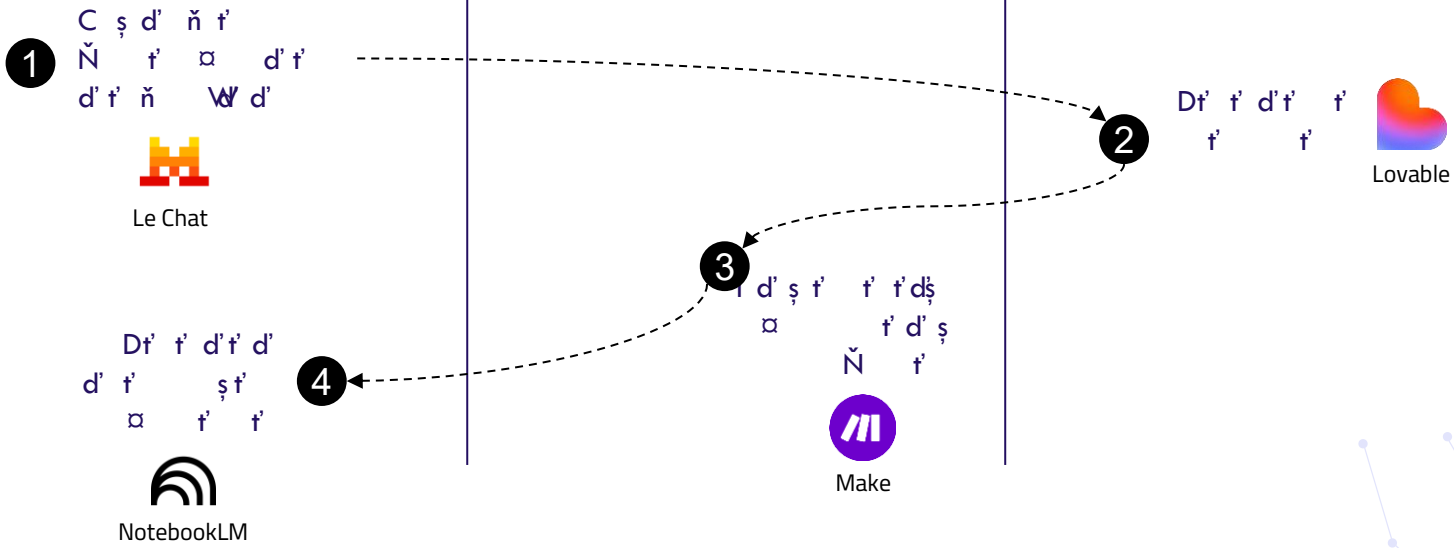
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Thank you!

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https://admin.sli.do/events

To Update

Julien Guille



Sylvain Pierre



Contact me for

Consulting & Advisory — Digital Transformation, AI

Speaking — Keynotes and forum interventions on digital transformation and GenAI — for enterprise and association audiences.

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Contact me for

Immersive Bootcamps @ Le Wagon Tokyo — Web Development, AI Software, Data Analytics, Data Science & AI

French Tech Connects — ??

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Appendix

Julien Guille

IT Head of Agentic Engineering chez Nissan

LinkedIn

Julien dirige l'accélération logicielle pilotée par l'IA chez Nissan, aidant l'entreprise à transformer sa manière de concevoir et de déployer des outils numériques intelligents. Fort d'une solide expérience en transformation digitale et en conduite du changement, il a également contribué à la mise en place de la stratégie digitale de Nissan et participe aujourd'hui activement à l'opérationnalisation de l'IA au sein du groupe.



Expertise

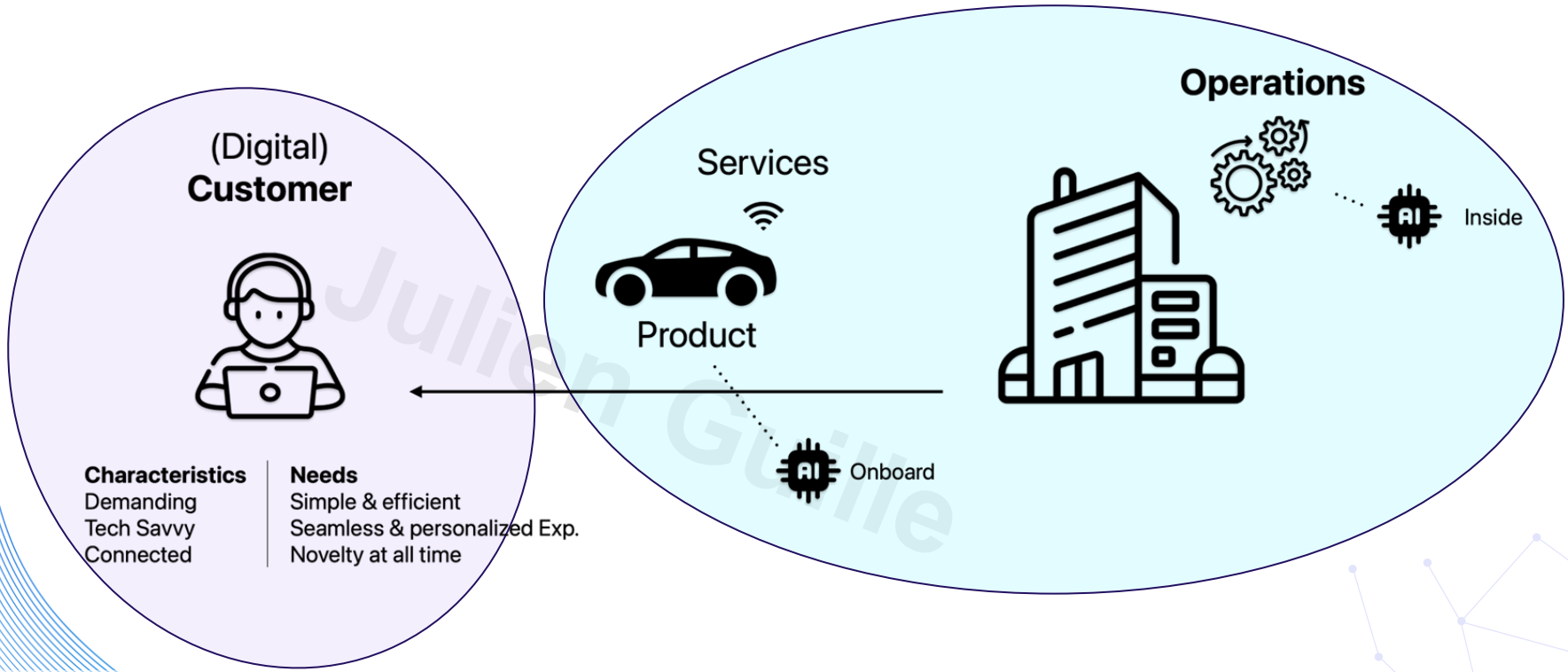
- **Transformation Digitale** (Stratégie, Change Mgt., Consulting, Innovation, Promotion, UI/UX)
- **Développement de Produits Digitaux** (Agile, Design Thinking, Product Mgt., Coding)
- **Technologies Emergentes** (Gen AI, Blockchain, Dataverse, etc.)

Approach to AI Rollout at Enterprise Level

Julien Guille, Apr. 2026

Core Principle 1: AI/Digital is a Means

An enterprise is a value chain delivering goods to customers. AI (part of DX*) is a means to enhance both

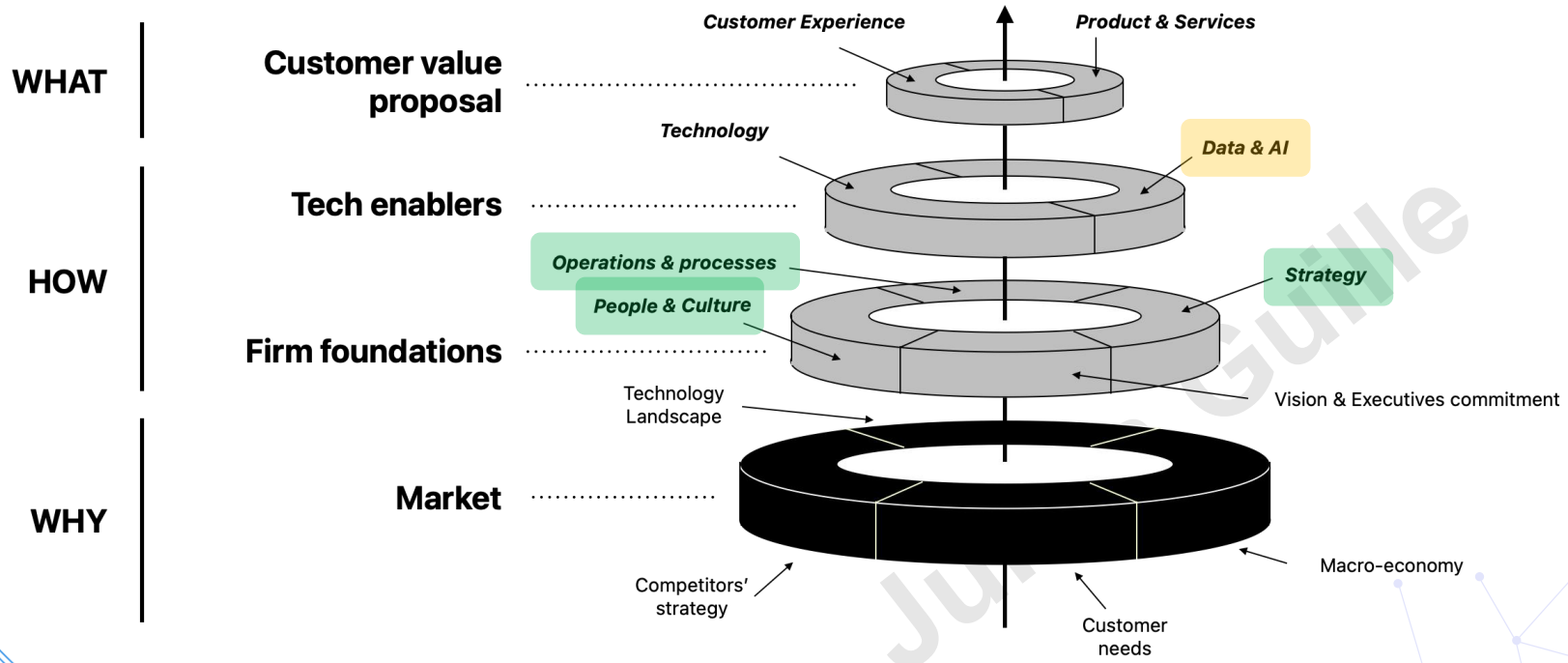


Julien Guille

** Digital Transformation*

Core Principle 2: AI is Part of a Whole

Key layers are to consider for transformation prior AI delivers strong value to the enterprise



Julien Guille

SDGs' wedding cake applied to Digital & AI Transformation

GenAI in Enterprise

Julien Guille, Apr. 2026

AI impact scale by usage, in Enterprise

	Minimal	Low	Moderate	High	Transformational
Description	**Convenience tasks**; very small business impact. Can often be replaced by web search	**Personal productivity**; limited org. effect.	**Operational efficiency**; repeatable time/quality gains for organization.	**Automation / acceleration of skilled work** with significant impact on performance and decision quality.	Enables **new products/models**; major **strategic** or revenue impact.
Examples	• Quick fact lookup • Casual creative writing • Fun content generation	• Memos & emails creation • Upskilling • Contextual translation	• Research & analytics • Ideation, strategy • Complex docs creation & proofreading	• Workflows automation • AI in core systems (ERP, CAD, dev tools)	• Hyper-personalized CX • E2E automation with no human in the loop
	AI Assistant & content gen			AI powered software	Agentic AI

Julien Guille

Consideration 1: Barriers to Adoption

IT & InfoSec readiness



- **Poor data** quality (fragmented & siloed)
- Info Security concerns
- Complex integration with **legacy systems**

Modern foundations needed, else "garbage in, garbage out"

Operational maturity



- High infrastructure & scaling costs
- Lack of AI governance & risk controls
- **Immature processes**

AI cannot solve systemic issues

Change readiness



- Weak AI strategy
- **Misaligned use cases**
- Low **adoption mindset** & lack of expertise

Not everything is AI needs AI, however AI must be understood

Consideration 2: AI readiness levels

Investment on solution types to rollout to be considered wisely by the leadership

	AI Assistant & content gen	AI powered software	Agentic AI
IT & InfoSec readiness	■■■□□	■■■□□	■■■■■
Operational maturity (processes & org.)	■■□□□	■■■■□	■■■■■
Change readiness (mindset & expertise)	■■■□□ Anyone	■■■■□ Esp. IT	■■■■■ Esp. IT

Estimated maturity levels required across key areas for deploying these AI solution types

Approach to AI rollout in Enterprise

★ Aspects often neglected in Enterprise

AI moves fast, but a methodical capability rebuild remains both possible and essential

1 Strategy & Foundations Establishment

AI/Digital Strategy ★	**Integrated with company strategy**, incl. Objectives, KPIs
Planning	Based on strategy, and to keep refining from pilots' learnings
Operating model ★	Teams' structure, **R&R, governance**, budget, etc.

+

Pilots	Cross-functional, **aggressive** & iterative, but **plan for scaling**
Tech foundations	LLMs access, InfoSec, **Data pipeline**, GenAI platform, IDP
Partnerships	Cloud providers, consultancies, academic labs

2 Organizational Readiness & Embedding

Talents ★	**Skills matrix** creation aligned to mkt, strategic IT insourcing, and continuous upskilling.
Culture	Embed **vision & values in daily decision-making**. AI promotion via concrete use cases.
Organization	**Tech-business integration** to break silos; capture of frontline ("gemba") insights
Operations ★	**Lean methodology** & AI process mining for automated bottleneck removal.
Tech & Data	**Org-wide GenAI & low-code deployment**; accelerated piloting & delivery pipelines.

3 Scaling

Talents	New roles aligned to skill matrix. Consider redefining them for **human-AI handoffs**.
Culture	**"Citizen Developer"** Mindset for BUs; innovation and failure as learning opportunity.
Organization	**Product-Centric Organization** shift: from project to long-term value delivery to customer
Operations	**Systemic Standardization**— toolkits of components to reuse (e.g., prompt library).
Tech & Data	Automated Governance— "governance-as-code" for real-time risk & cost control.

Julien Guille, Apr. 2026, McKinsey State of AI 2025, BCG: Scaling AI Pays Off, Gartner AI Roadmap & Maturity Model

The AI Adoption Dilemma

Balance between rapid experimentation and value realization, at scale

Nishanth Perathara
Associate Partner
Management Consulting, Tech Mahindra

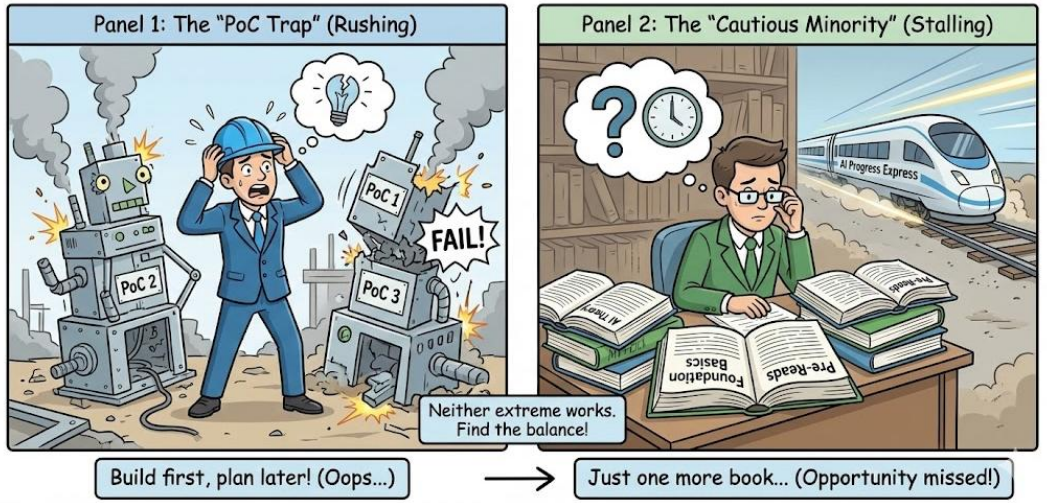
Recently we have had experience with **2 companies** that want to **first get a better understanding of AI** on their business and people before getting too far in

Typically they **start with lot of PoC** but then **fail a lot**.

Then they **realize that broader approach is needed**, so they seek advice on this

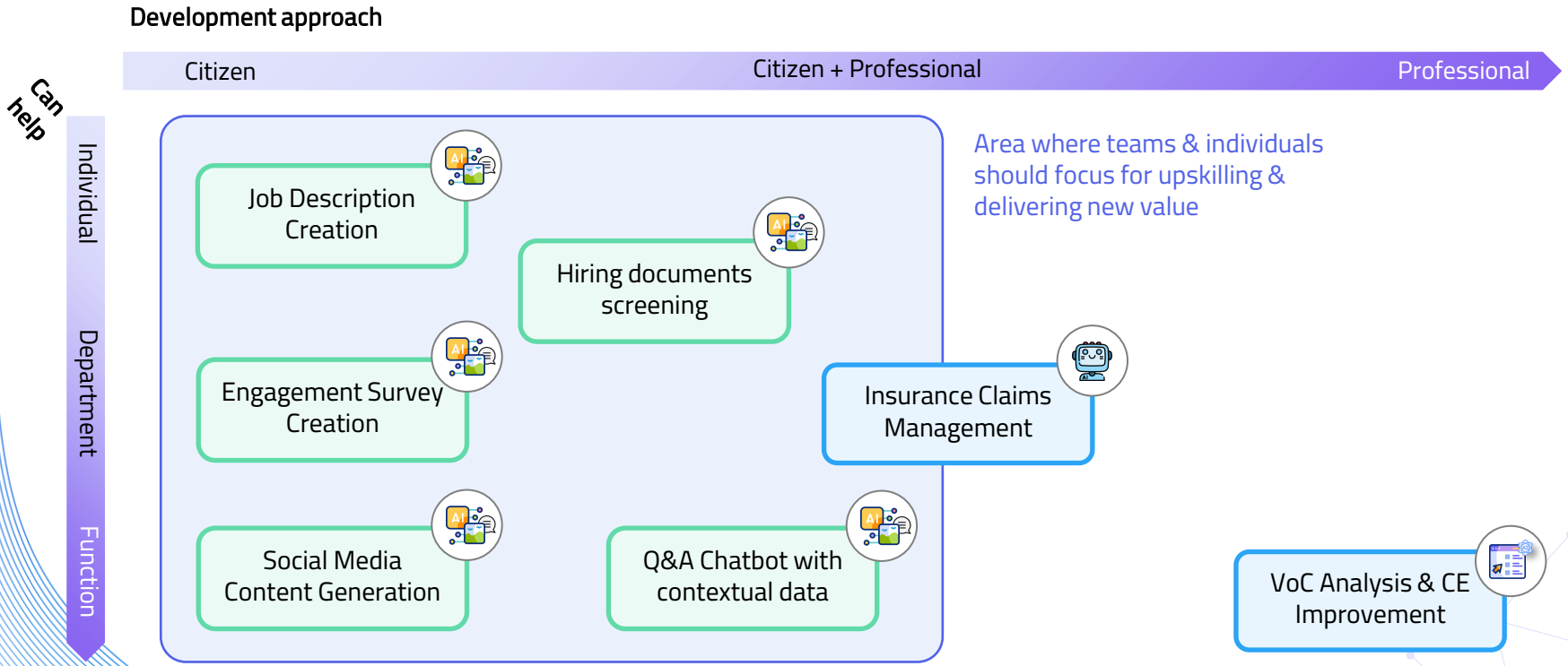
We talk about **what actually the business needs**. **Not everything needs an AI**, so we have broader conversations.

And then **help co-create that AI vision and strategy** that is more pragmatic and implementable.



GenAI Use Cases Across the Enterprise

Practical examples that enhance efficiency and support value creation



Strategic Priorities for Teams & Individuals

As companies transform, it is an opportunity for all to redefine values and focus on high-impact work

The state of AI in 2025 (McKinzey)*

Most organizations use AI, but are still early in scaling and realizing firm-level value

- Workforce impact expectation: **43% no change**, 32% a decrease, and 13% an increase.
- Rollout Objectives: 80% target **efficiency improvement** for now, innovation/growth later
- Adoption: 62% **still experimenting** / piloting

For teams



1. Establish AI/Digital promotion channels & champions
2. Audit processes; find opportunities to discard, simplify, digitalize
3. Collaborate with IT to solve strong ROI use cases faster

For team members



1. Make learning a habit; upskill on AI & Low-code platforms
2. Build on area AI won't enter**; explore & innovate always
3. Learn from others, grow together

** QuantumBlack AI by McKinzey, Nov. 2025. Link*

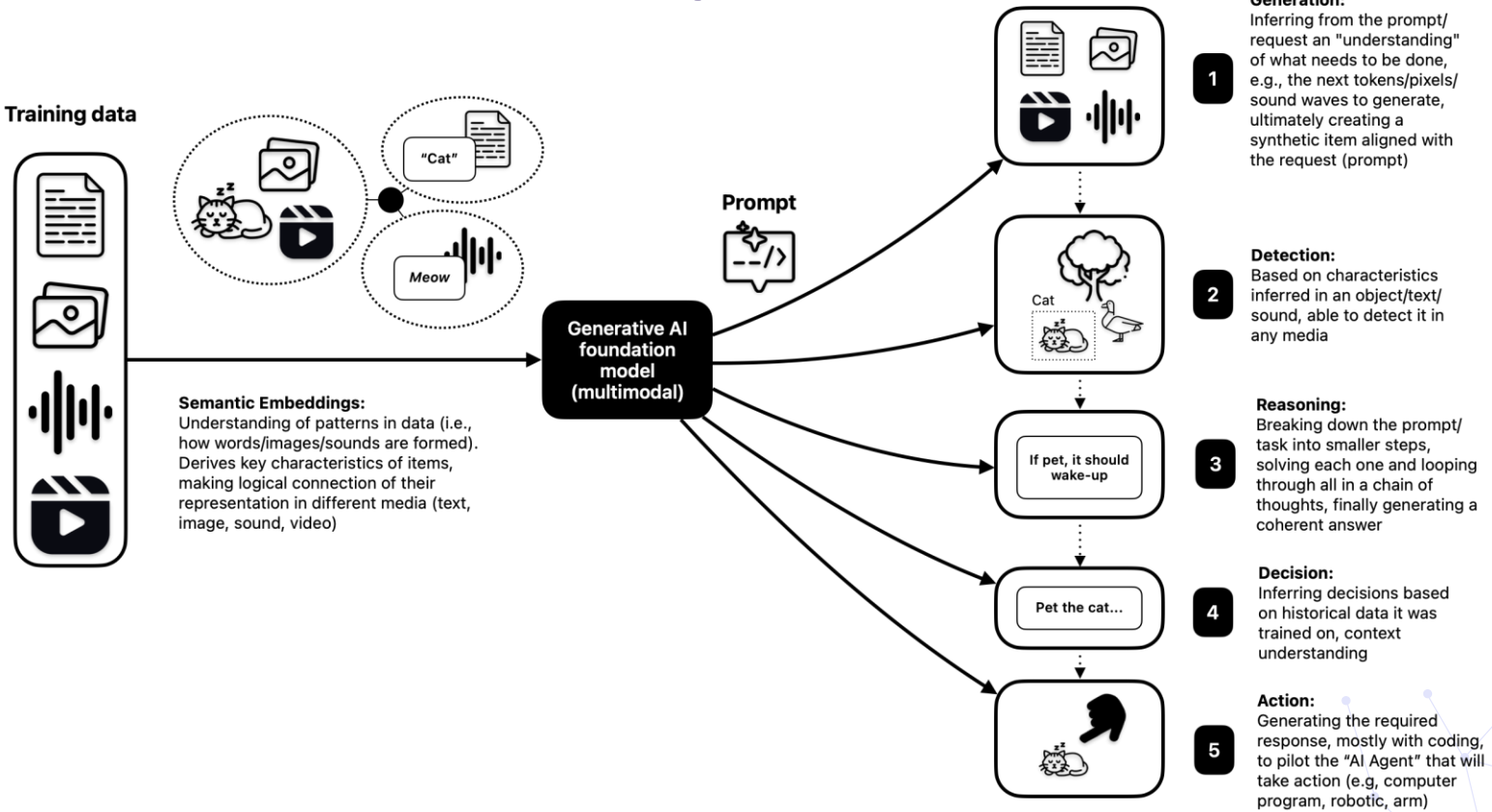
*** See appendix*

GenAI technical deep dives

Julien Guille, Apr. 2026

The Multimodal & Reasoning Shift

From Creation (**Generative AI**) to Decision-Making (**Agentic AI**)



Types of GenAI models

Generative AI models are primarily categorized by their architecture—the underlying engine that determines how they learn and create new data. While they all aim to generate original content, each type uses a different mathematical approach to reach that goal.

Model Type	Primary Objective	Best For...
Transformers	Predict the next token in a sequence based on context.	Text, code, and reasoning (LLMs).
Diffusion	Slowly turn random noise into a structured image.	High-quality images and video.
GANs	Two networks compete to create/detect realism.	Deepfakes, style transfer, and textures.
VAEs	Compress data and reconstruct new variations.	Image compression and signal de-noising.
NeRFs	Map 2D images into a 3D coordinate system.	3D scene reconstruction and digital twins.

Julien Guille, Apr. 2026

GenAI history & Market

Julien Guille, Apr. 2026

AI Evolution Timeline

AI isn't new—recent advances have transformed it into a general-purpose technology

Symbolic AI / Ruled Based Systems (1950s-1990s)

Deterministic reasoning

Logic, rules, expert systems



1950: Turing Test – Test whether a machine appears human in conversation

Statistical Machine Learning (1990s-2012)

Probabilistic reasoning replaces hard rules

Data-driven models (SVNs, decision trees, early neural networks)



2009: Netflix Prize – Team demonstrated power of data + model ensembles over algorithm novelty

Deep Learning Breakthrough (2012-2017)

Shift from feature engineering to auto learning data representation

Large-scale neural networks + GPUs + big data

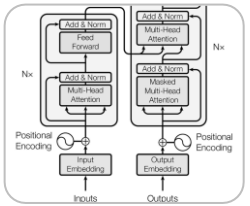


2022: ImageNet / AlexNet – Pioneering CNN architecture that revolutionized computer vision

Foundation Models & Generative AI (2017-Present)

Parallel processing at scale to model long-distance word relationships

Transformer & Self-attention → General purpose models



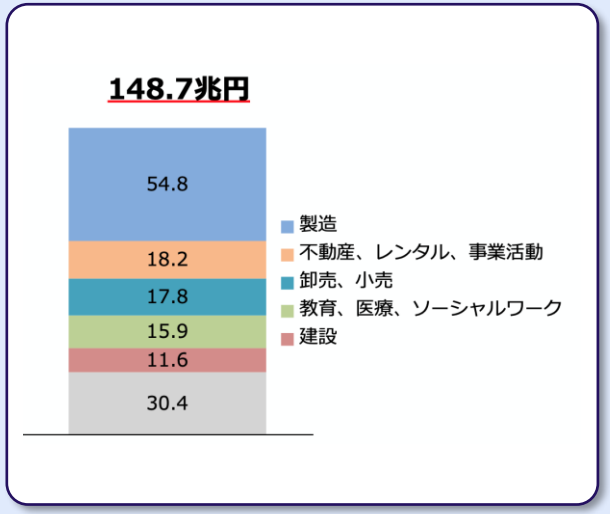
2017: Transformer – Google researcher introduction of self-attention in paper "Attention Is All You Need"

Note: Layers are in fact stacking, not replaced: Symbolic systems still exist, machine learning still dominates many use cases, deep learning powers modern AI

METI Support on GenAI

METI in its 2024 report strongly supports GenAI ("Toward the realization of Digital Society", link)

Potential domestic production raise thanks to AI: **+26.5% of GDP** according to METI



Goldman Sachs list of jobs that could be made more efficient by AI, and METI's interests

