Agile 2 Academy LLC


Virtual Summit 2023

# Taking an Ecosystem View Instead of a Team View:

## Using Agile 2 Ideas

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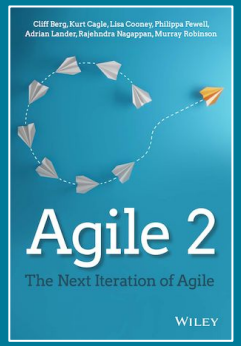


**Cliff Berg**

Agile 2 Academy
Managing Partner

*Founder of the Agile 2 movement*
*Co-Founder of an earlier successful tech startup*
*Former CTO, Author of six books*

# The rest of our leadership team

Stephen Villaescusa

- 40 years experience leading Continuous Improvement, Lean Six Sigma, and other transformation initiatives with hundreds of companies around the world.

Raj Nagappan

- PhD in Machine Learning
- Over 20 years experience in software engineering
- Co-developer of Agile 2
- A co-author of the Agile 2 book

Marcelle Bastianello

- Doctorate in organizational psychology
- Background in sustainability
- EMBA from Columbia Graduate School of Business
- BS in Physics
- Clinical experience

Agility is not a team property – it is an

***ecosystem*** property

# Google's Research on What Makes an Effective Team

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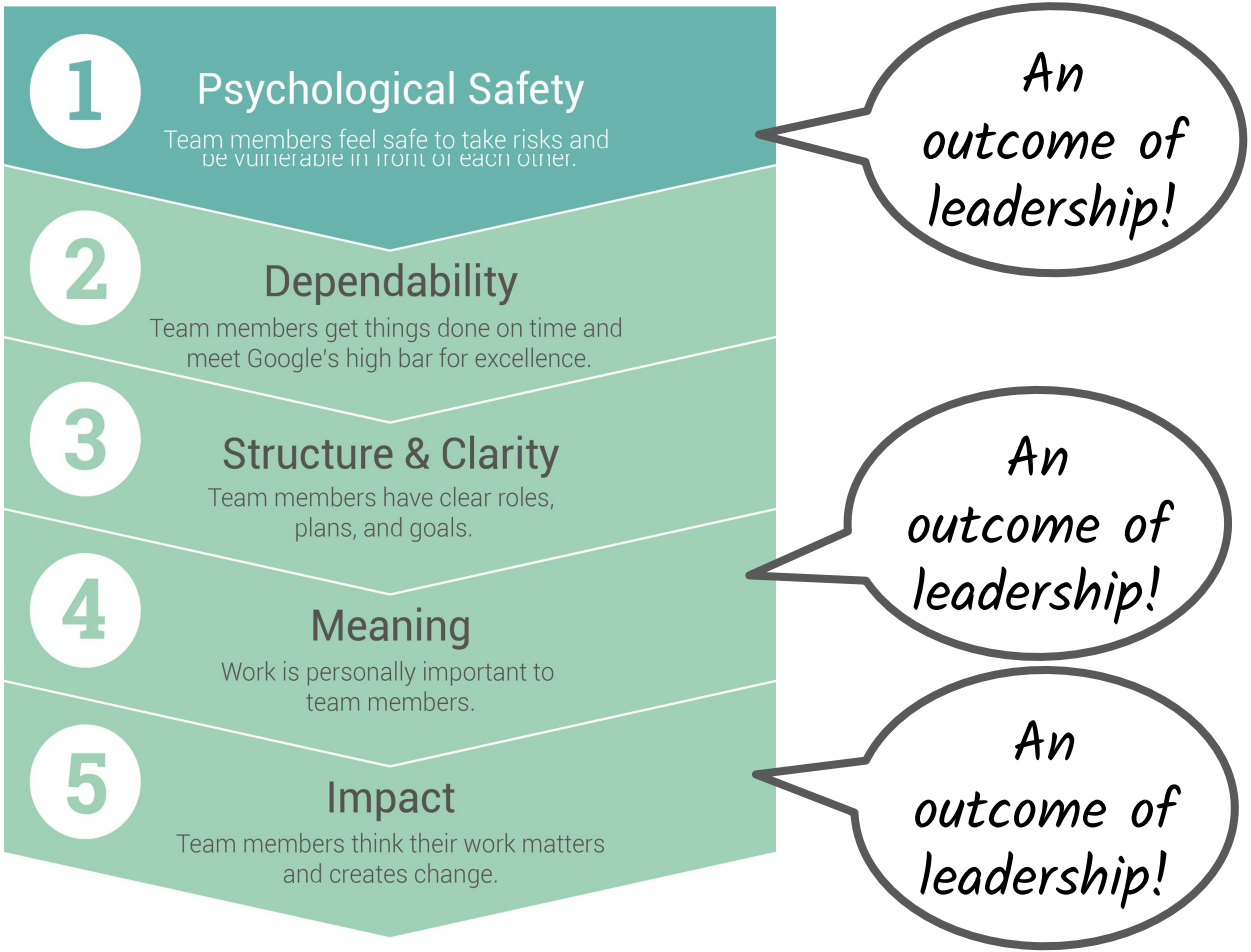

# Google's Research on What Makes an Effective Team


Strongly influenced by team relationships!

Key leadership roles need to be clear!

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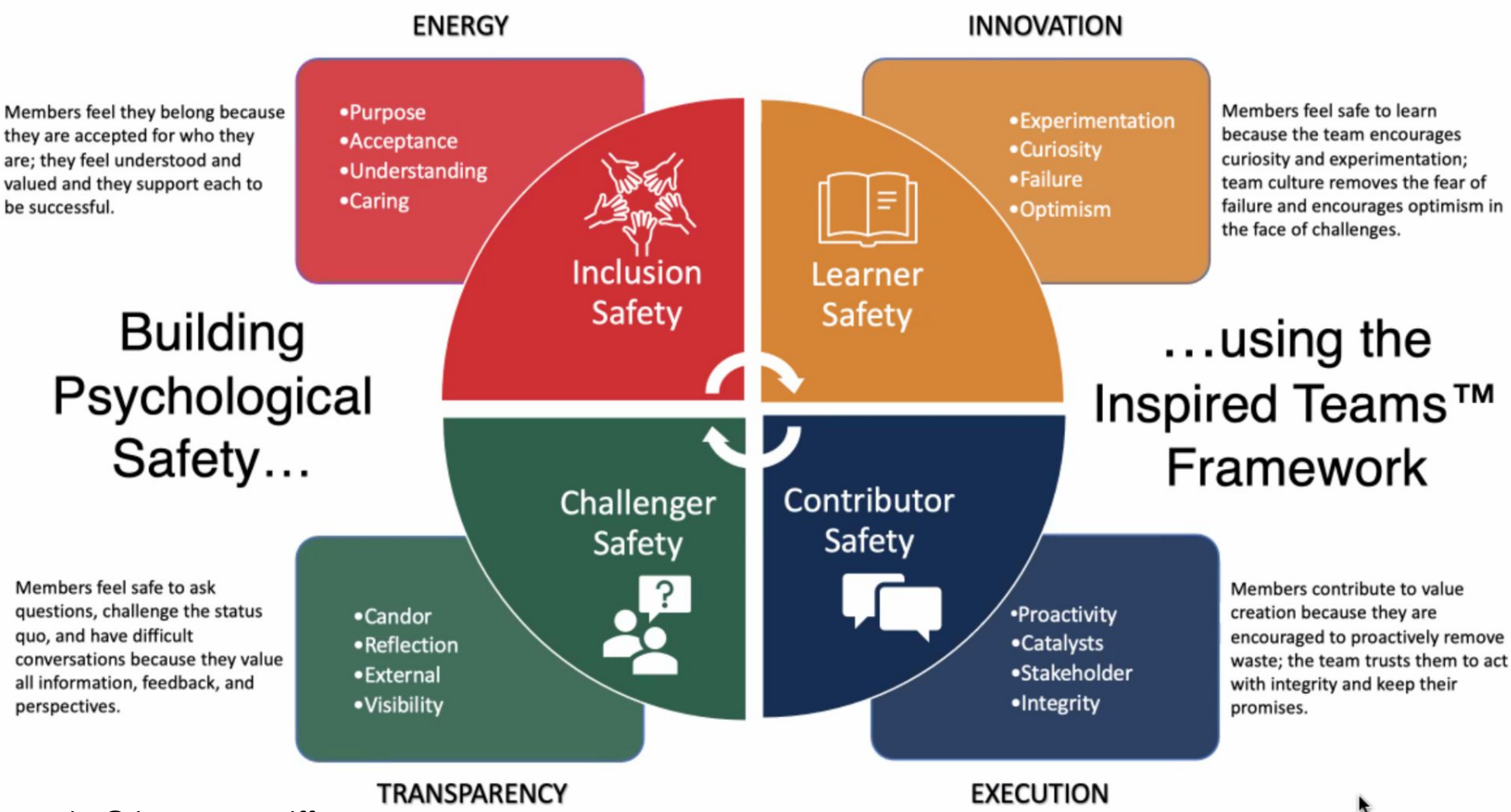
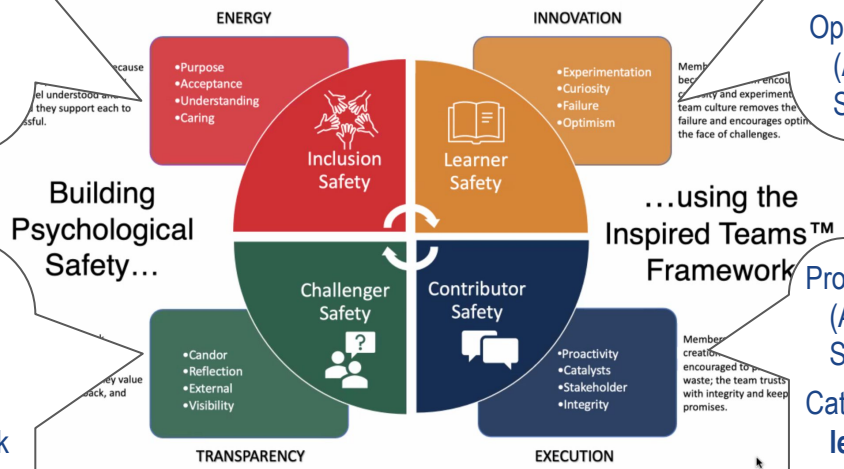


Purpose ← inspirational **leadership**

Acceptance ← Constructive culture (Affiliative)

Understanding ← Adaptive **leadership**; Constructive **culture** (Humanistic-Encouraging)

Caring ← Supportive leadership; Constructive **culture** (Humanistic-Encouraging)




Experimentation ← **Culture** of experimentation - not afraid to show the work in process. Constructive (Self-Actualizing) culture.

Curiosity ← Same as above.

Failure ← Same as above.

Optimism ← Constructive (Achievement-oriented and Self-Actualizing) **culture**.

Candor ← Participative **leadership**; Socratic/Appreciative **leadership**

Reflection ← **Culture**: **leadership** demonstrating interest in understanding root causes over quick solutions and "heroes".

External ← **Culture** of experimentation - not afraid to show the work in process.

Visibility ← Same as above.

Proactivity ← Constructive (Achievement-oriented and Self-Actualizing) **culture**.

Catalysts ← Achievement-oriented **leadership**.

Stakeholder ← Same as above.

Integrity ← Same as above.

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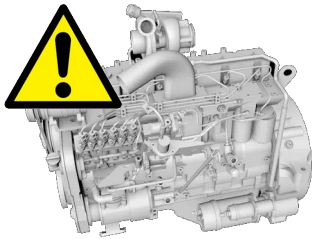
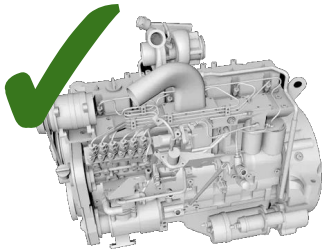
# Agility is not a team property – it is an ***ecosystem*** property

Agility arises (or not) from the organization's behavioral norms, not from workflow process

Uh - oh! That component won't work in our engine product!



We got that resolved right away!



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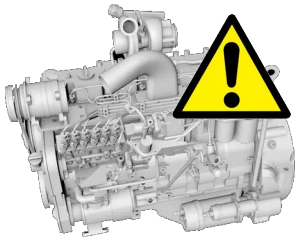
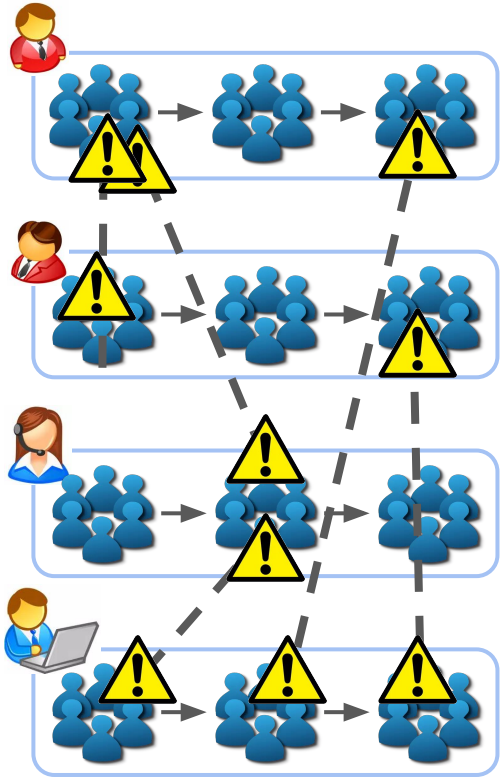
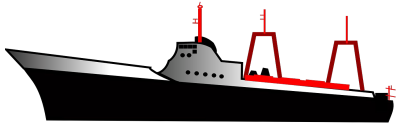
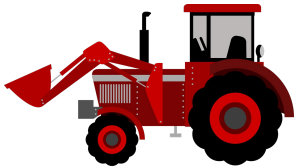
# Cross-Cutting Issues Due to Shared Components









The problematic behaviors are different from one organization to another

# ***Some*** Common Behaviors We Found

1. People are empowered, and are not micromanaged.
2. There are few a priori work processes.
3. Decision-making is discussion-based and issue-focused.
4. Work is goal-driven, not specification-driven.
5. People are expected to solve problems – not “do their job”.

There is much more.

# Case studies

# A large software product company

# A large software product company

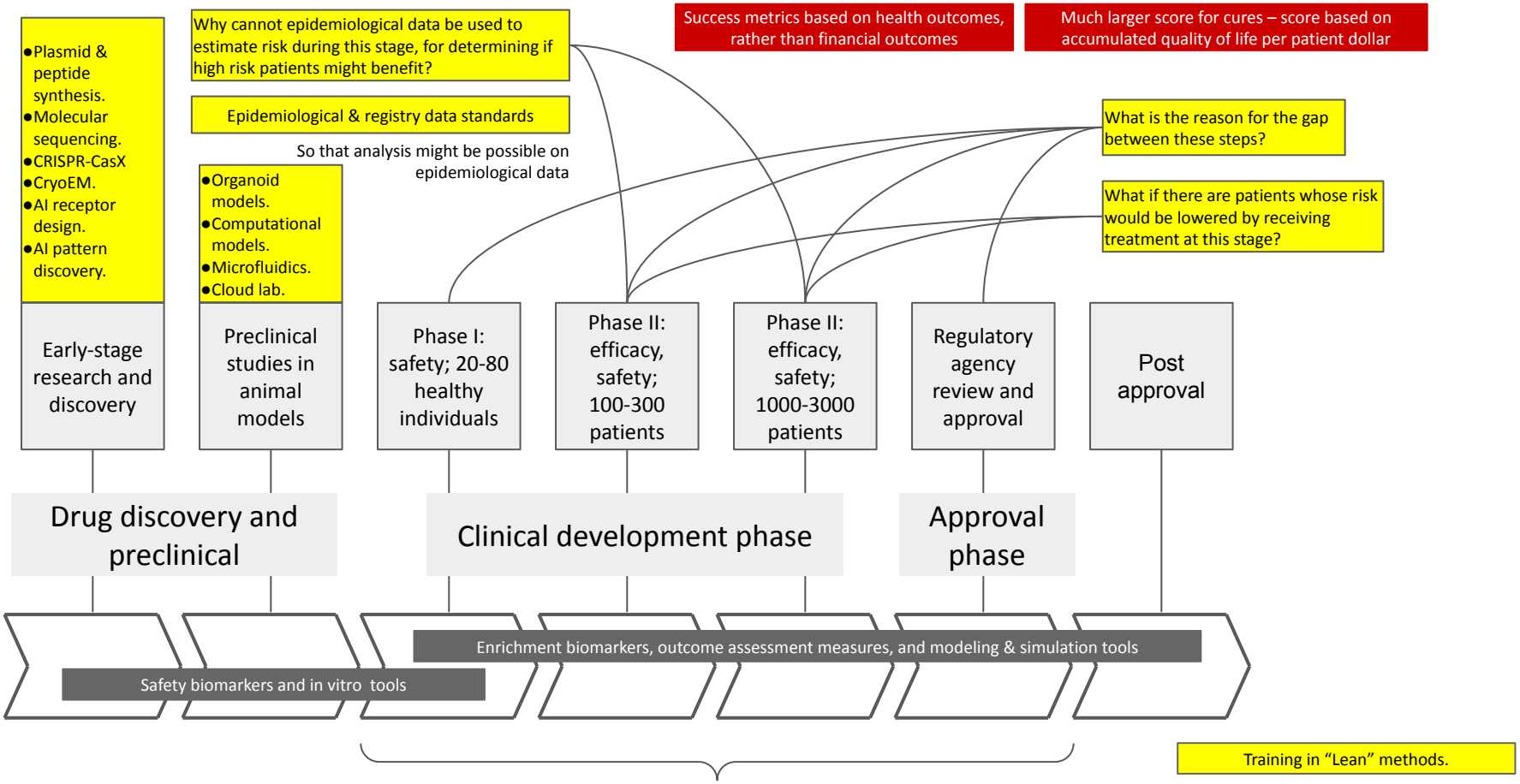
1. Surveyed their behaviors.
2. Diagnosis which identified behavioral issues.
3. Performed some important teaching to prepare people for focus groups.
4. Ran focus groups to explore solutions to the discovered issues.
5. Distilled the outcomes. One was recommendation to fold Agile roles into the leadership track.
6. Developing training program to support the change.

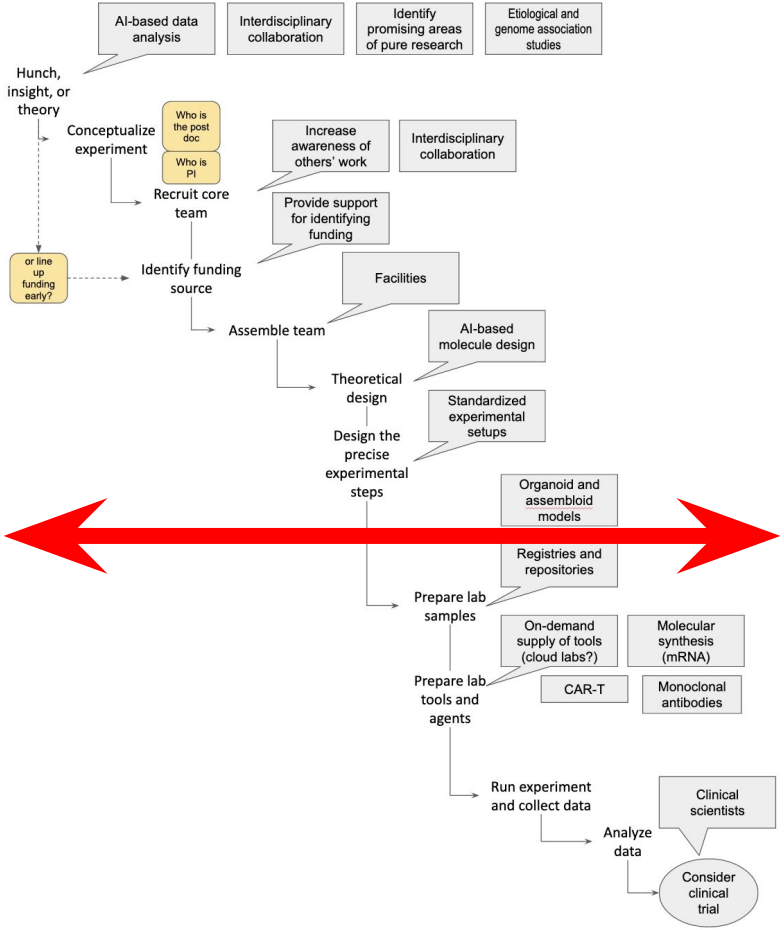
# A new biomedical research institute

# A new biomedical research institute

1. Remote discussions with the director and key scientists.
2. Travel to Johannesburg: discussions with ~80 scientists.
3. Diagnosis: identified key strategy areas/topics that are important for success.
4. Ran focus groups to vet those topics, and generate ideas and issues to be addressed.
5. Recommended key focus areas and strategies to begin.

# These two cases required very different practices






- New tech (capabilities)
- Culture and environment
- Internal collaborations
- External collaborations
- Institute-initiated funding

# What Leads to *Actual* Agility

- ✓ Positive leadership styles
- ✓ Shared leadership
- ✓ Learning advocacy, PeopleOps
- ✓ Effective (neurodiverse) collaboration
- ✓ Individual agency

**Agility-Promoting Behaviors**

Constructive Generative

**Healthy Culture**

- ✓ Measure
- ✓ Understand
- ✓ Change policies
- ✓ Learn new behaviors

Inspect and Adapt

- ✓ People Are Effective
- ✓ Good Decisions
- ✓ Responsiveness
- ✓ Great Outcomes

**Knowledge of Agility-Promoting Patterns for Solving Problems**

- ✓ Continuous learning
- ✓ Flow patterns:
  - Frequent integration
  - Feedback
  - Theory of Constraints
  - Rapid & frequent iteration

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# Key Strategy Areas

- Goals Grounded in Socio-Economic Analysis
- Selecting the Key Scientific and Health Goals
- Funding and Resource Acquisition
- Governance
- **Accelerating Value Streams**
- Career, Capacity, and Security
- Communication
- Intellectual Property
- Partnerships with the Private and Public Health System

# Key Strategy Areas

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- Create a Healthy Culture From the Start
- Train Leaders
- Help Researchers and Students Deal With Stress
- Accelerate Knowledge Transfer, Awareness, and Multi-Team Science Through Proactive Collaboration
- Foster Data Transparency
- Use a “Lean Startup” Model for Product Development

# What They Said

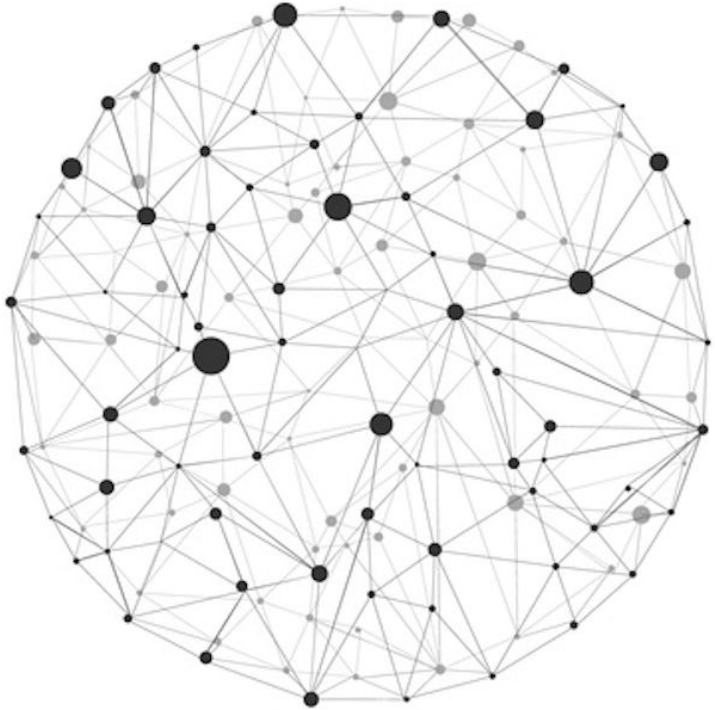
*"They have been staggeringly good, not only in preparing so that they are able to talk to our scientists, but in helping to strategize and figure out what matters. They have helped us to get onto a sure footing and see a clear path ahead.*

*"And, by applying deep experience in organizational design and implementation, including psychology, appreciative inquiry and the agile2 strategic approach, they provided innovative, customized and functional insights and directions that are immensely valuable and unparalleled in my nearly 35 years of starting and running organizations."*

# Again,

Agility is not about a process framework or practices

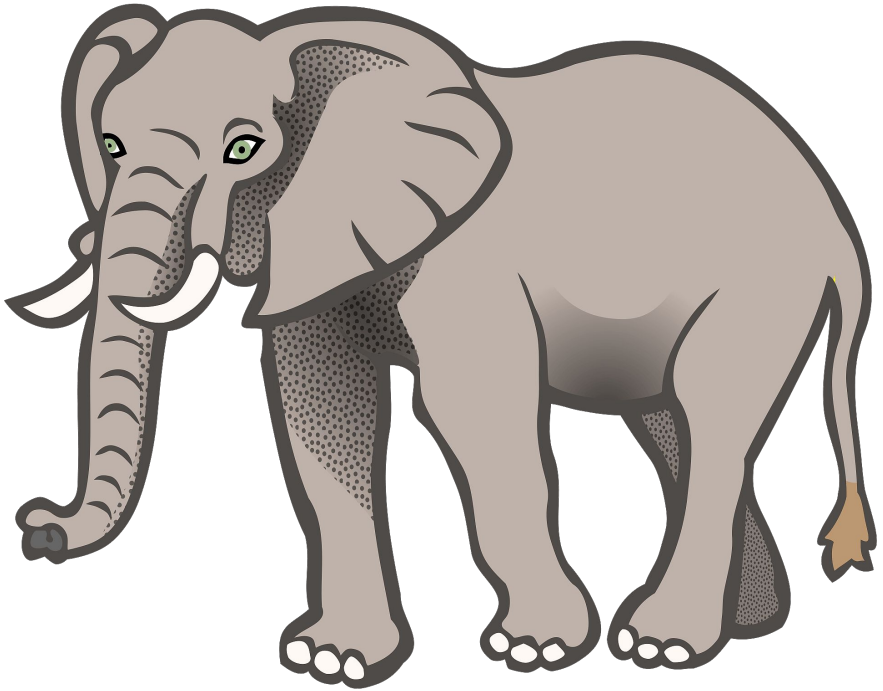
# It’s about the ecosystem.



# Specifically,

- ➔ Diagnosis: Learning about the work, and the issues that arise.
- ➔ Generation: Helping people to generate their own strategies.
- ➔ Culture: Establishing behavioral norms and expectations.
- ➔ Upskilling: Giving them the intellectual and behavioral skills that they will need to execute and course correct.

# The Elephant In the Room



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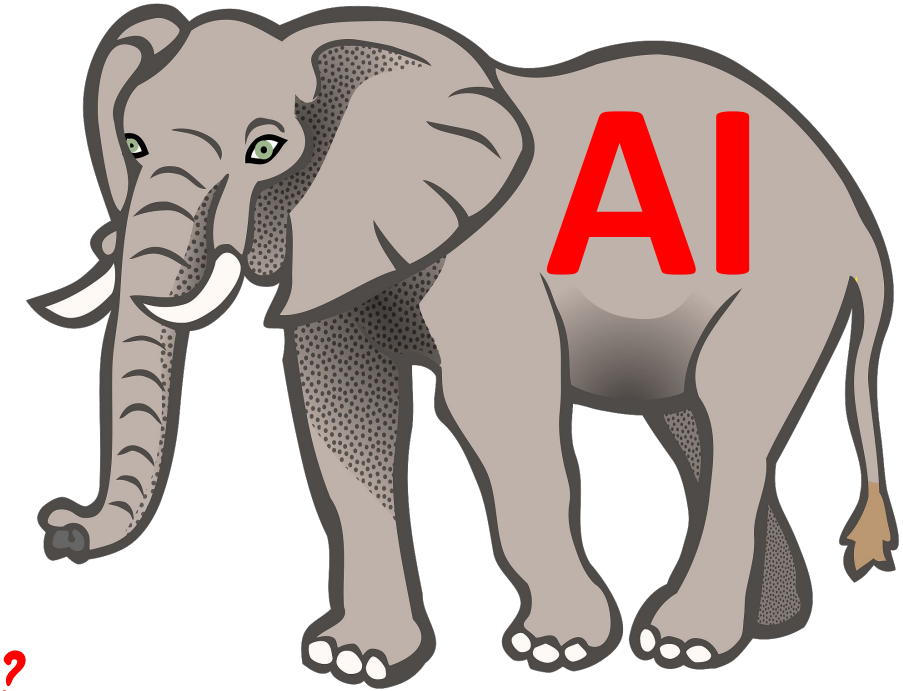



*How does that change things?*
*Do I still need to be agile?*

# Martin Casado of VC firm Andreessen Horowitz


**WSJ**: What do you make of the **speed at which a lot of companies are starting to already integrate it into their businesses**?

**MR. CASADO**:

I know of a few instances where it has been **bolted onto old businesses in ways that are actually quite useful**. A few people have figured that out.

And then for sure **we are seeing net new businesses**. This is one of the reasons why it's different now. We're seeing net new businesses with hundreds of millions in annual recurring revenue, **that drive just on the generative quality. It's not bolted onto an old thing**.

Wall Street Journal, March 19, 2023

https://www.wsj.com/articles/venture-capitalist-martin-casado-what-generative-ai-will-change-c3143190

# Sparks of Artificial General Intelligence: Early experiments with GPT-4

Sébastien Bubeck Varun Chandrasekaran Ronen Eldan Johannes Gehrke
Eric Horvitz Ece Kamar Peter Lee Yin Tat Lee Yuanzhi Li Scott Lundberg
Harsha Nori Hamid Palangi Marco Tulio Ribeiro Yi Zhang

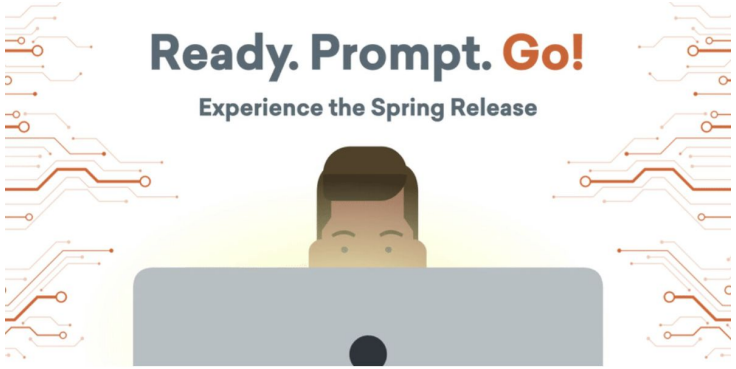
Microsoft Research

**Abstract**

Artificial intelligence (AI) researchers have been developing and refining large language models (LLMs) that exhibit remarkable capabilities across a variety of domains and tasks, challenging our understanding of learning and cognition. The latest model developed by OpenAI, GPT-4 [Ope23], was trained using an unprecedented scale of compute and data. In this paper, we report on our investigation of an early version of GPT-4, when it was still in active development by OpenAI. We contend that (this early version of) GPT-4 is part of a new cohort of LLMs (along with ChatGPT and Google's PaLM for example) that exhibit more general intelligence than previous AI models. We discuss the rising capabilities and implications of these models. We demonstrate that, beyond its mastery of language, GPT-4 can solve novel and difficult tasks that span mathematics, coding, vision, medicine, law, psychology and more, without needing any special prompting. Moreover, in all of these tasks, GPT-4's performance is strikingly close to human-level performance, and often vastly surpasses prior models such as ChatGPT. Given the breadth and depth of GPT-4's capabilities, we believe that it could reasonably be viewed as an early (yet still incomplete) version of an artificial general intelligence (AGI) system. In our exploration of GPT-4, we put special emphasis on discovering its limitations, and we discuss the challenges ahead for advancing towards deeper and more comprehensive versions of AGI, including the possible need for pursuing a new paradigm that moves beyond next-word prediction. We conclude with reflections on societal influences of the recent technological leap and future research directions.

April 13, 2023

https://arxiv.org/pdf/2303.12712.pdf




Hi Agile2.

We are so excited to announce our **Spring Release of Vyond**, with several new features and capabilities to make it smarter, faster, and more accessible.

We're also announcing Vyond Go - the industry's first AI-powered script and video generator. Vyond Go will change the way you make videos forever.

With an easy-to-use, text-based interface, users will be able to make engaging videos – from scratch – in minutes using the power of generative AI.

With Vyond Go, you can build a first draft of your video instantly, then use our simple text-based editor to quickly polish your video. Deploy your video as is or take it into Vyond Studio for fine-tuning.

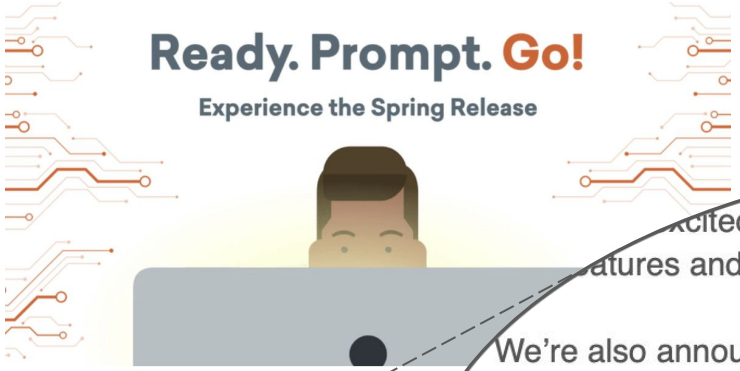
To learn more about Vyond Go along with the rest of our new Vyond Studio features - take a look at **our latest blog post**.

Happy creating,

The Vyond Team

How long has it been since ChatGPT became available?

I received this this past Wednesday.

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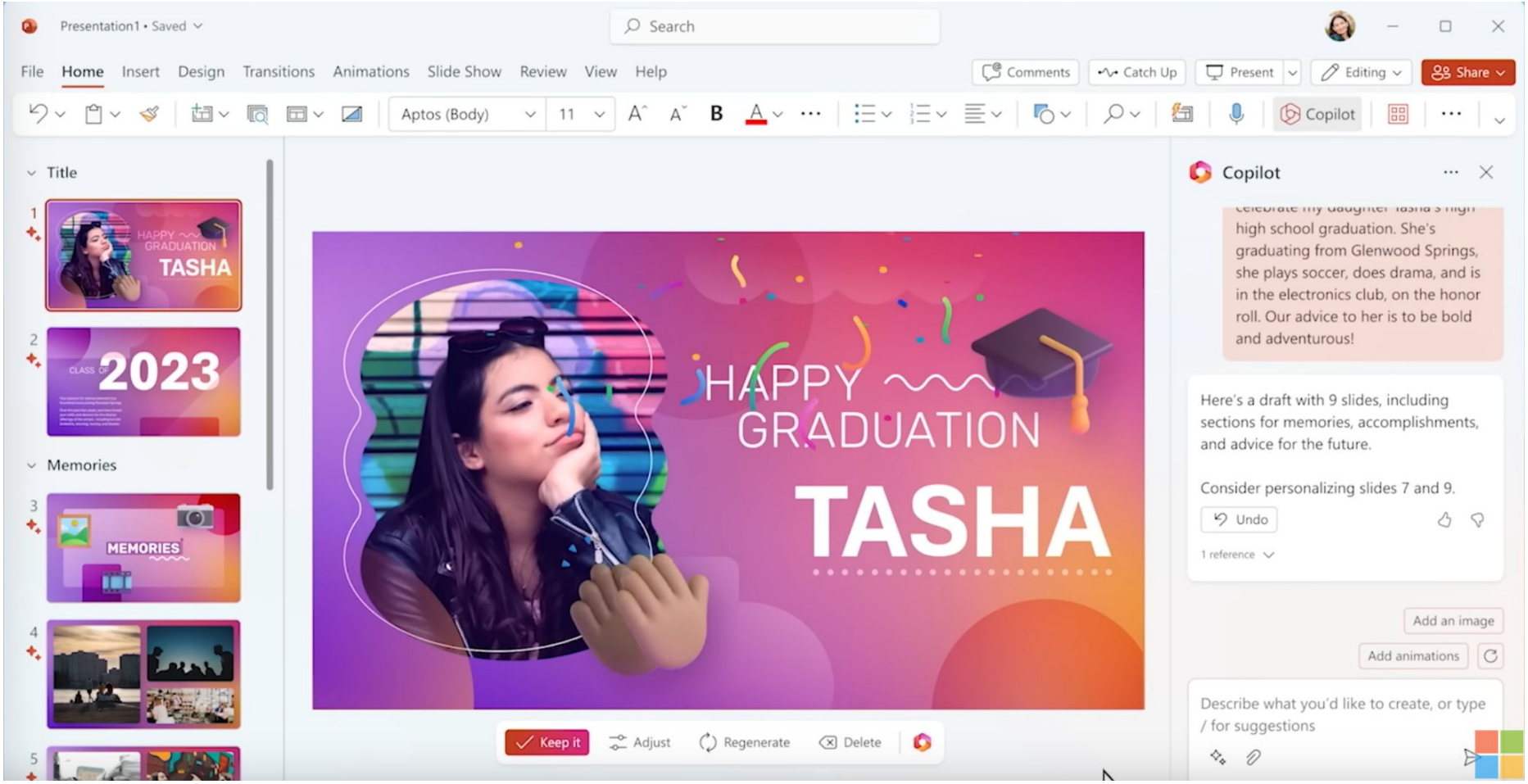
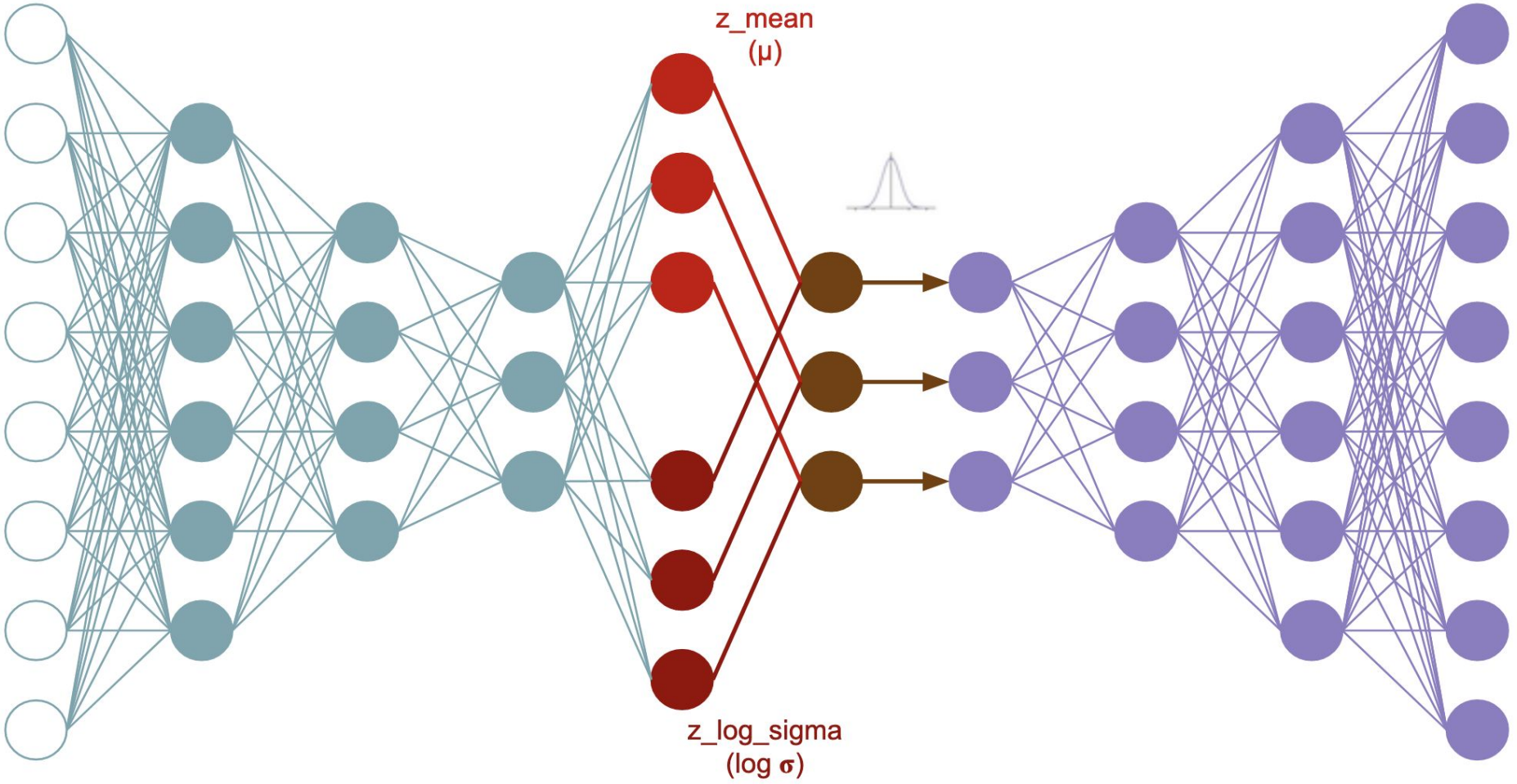
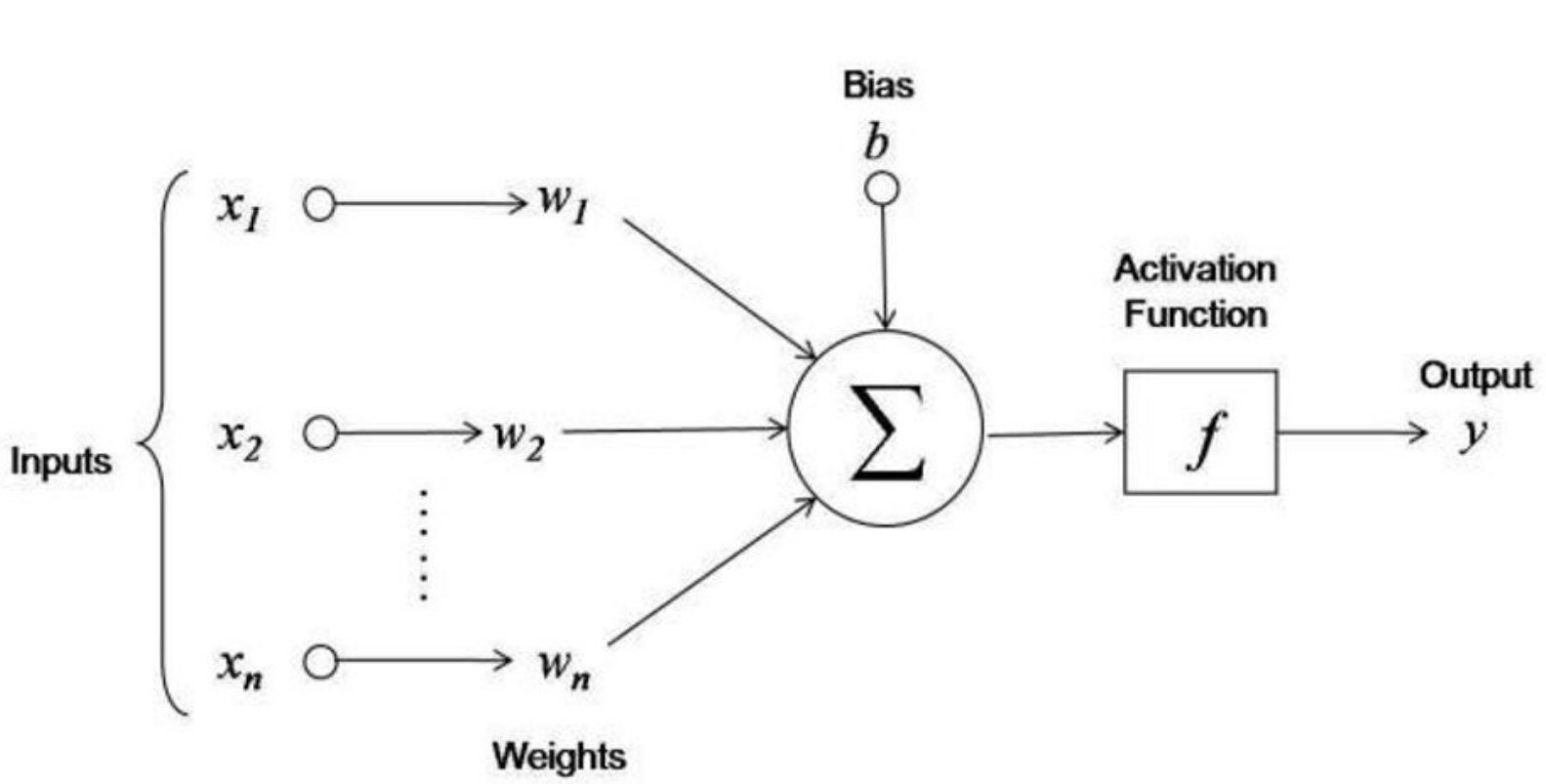


# Agility Matters – *Now More than Ever*

# Agility Matters – *Now More than Ever*

**AI is a new technology.**
**It's not programming.**


z_mean
(μ)
z_log_sigma
(log σ)



RBM is one of the most popular and widely-used energy models in machine learning, defined by the energy function $E(\boldsymbol{v}, \boldsymbol{h}; \boldsymbol{\theta}) = -\boldsymbol{v}^{\mathrm{T}}\boldsymbol{b} - \boldsymbol{v}^{\mathrm{T}}\boldsymbol{W}\boldsymbol{h} - \boldsymbol{h}^{\mathrm{T}}\boldsymbol{c}$, where $\boldsymbol{v} \in \{0,1\}^m$, $\boldsymbol{h} \in \{0,1\}^n$, and $\boldsymbol{\theta} = (\boldsymbol{W}, \boldsymbol{b}, \boldsymbol{c})$ are model parameters. The Gibbs sampler for RBM has a nice structure: let $\sigma(\boldsymbol{x}) = 1/(1+\exp(-\boldsymbol{x}))$ be the sigmoid function, and then $\mathbf{v}|\{\mathbf{h} = \boldsymbol{h}\} \sim \mathrm{Bernoulli}(\sigma(\boldsymbol{W}\boldsymbol{h} + \boldsymbol{b}))$ and $\mathbf{h}|\{\mathbf{v} = \boldsymbol{v}\} \sim \mathrm{Bernoulli}(\sigma(\boldsymbol{W}^{\mathrm{T}}\boldsymbol{v} + \boldsymbol{c}))$. The coupling method in Algorithm 1 directly works for RBM, but here we show an improved version that is tailored for RBM and is more efficient.

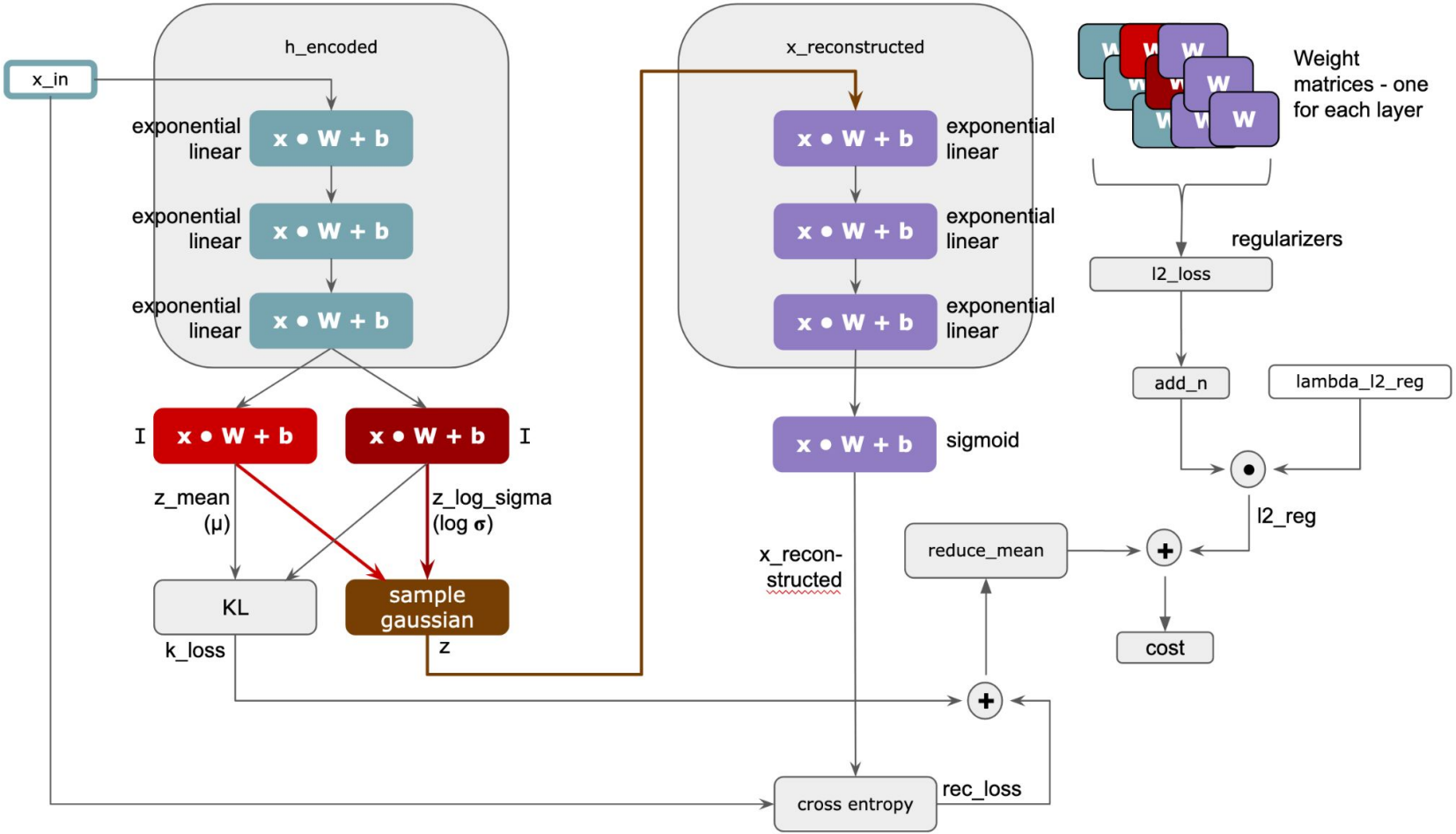
Let $\boldsymbol{u}, \boldsymbol{p} \in \mathbb{R}^r$, and the notation $\boldsymbol{y} = \mathbf{1}\{\boldsymbol{u} \le \boldsymbol{p}\}$ stands for a binary vector such that $y_i = 1$ if $u_i \le p_i$ and $y_i = 0$ otherwise. Also let $\mathcal{T}_v(\boldsymbol{v}|\boldsymbol{h}) = \prod_{i=1}^m p_i^{v_i}(1-p_i)^{1-v_i}$ denote the transition density from $\mathbf{h}$ to $\mathbf{v}$, where $\boldsymbol{p} = (p_1, \ldots, p_m)^{\mathrm{T}} = \sigma(\boldsymbol{W}\boldsymbol{h} + \boldsymbol{b})$. Then the specialized coupling method for RBM is given in Algorithm 3.

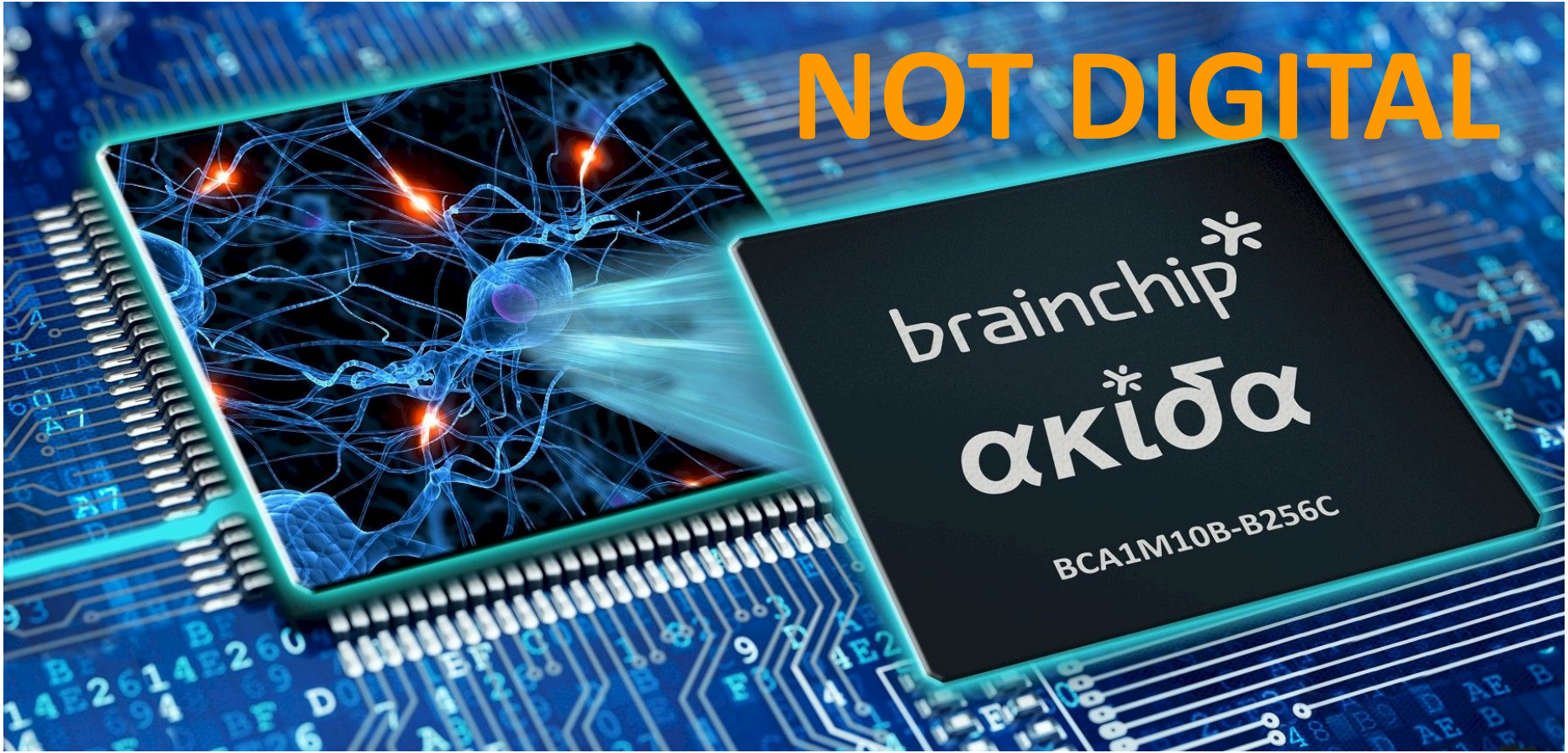
**Algorithm 3** Coupling method for RBM

**Input:** Model parameters $\boldsymbol{W}$, $\boldsymbol{b}$, $\boldsymbol{c}$, step-$t$ states $\xi_t = (\boldsymbol{v}_t, \boldsymbol{h}_t)$, $\eta_{t-1} = (\boldsymbol{v}'_{t-1}, \boldsymbol{h}'_{t-1})$

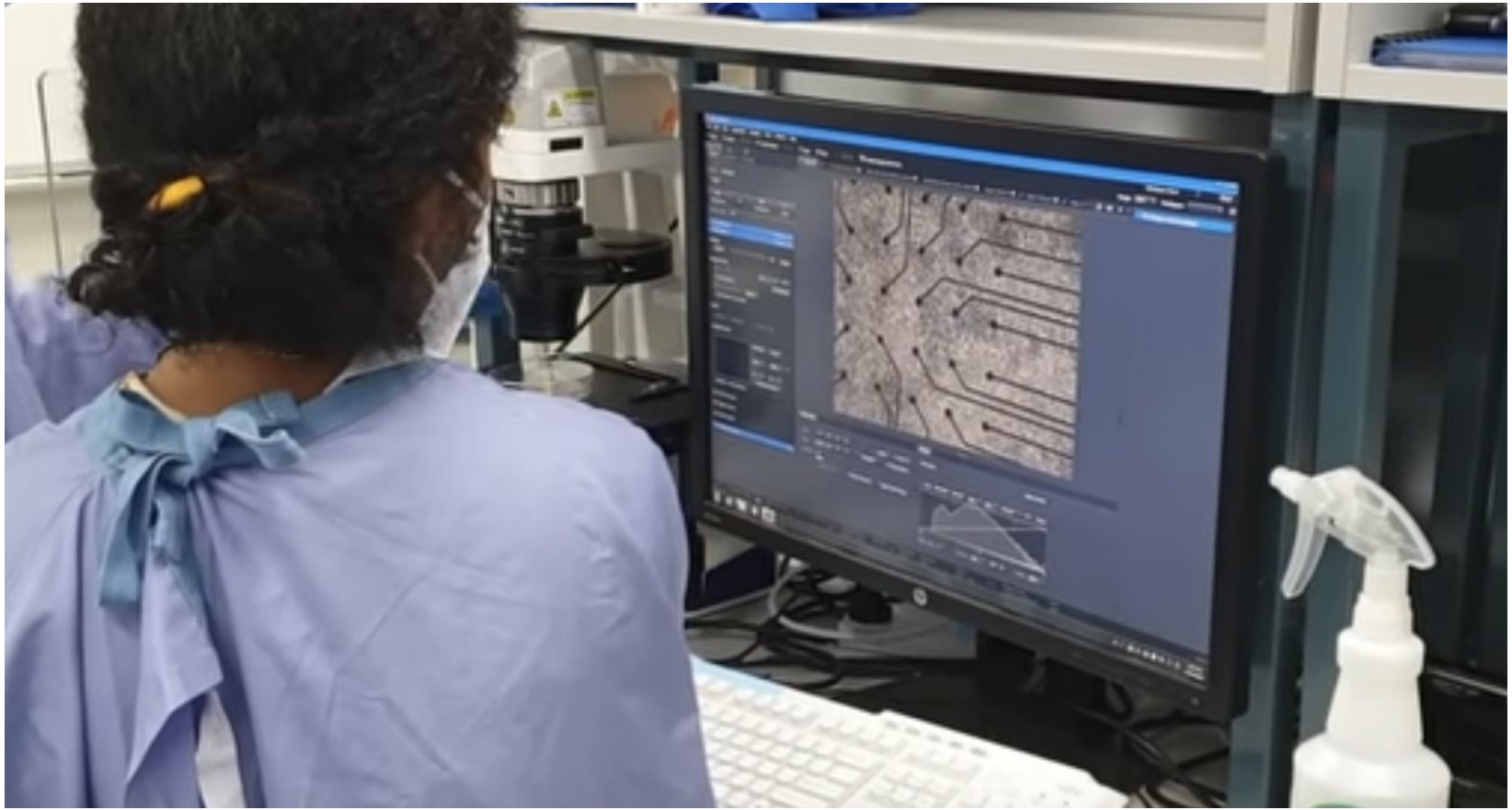
**Output:** New states $\xi_{t+1} = (\boldsymbol{v}_{t+1}, \boldsymbol{h}_{t+1})$, $\eta_t = (\boldsymbol{v}'_t, \boldsymbol{h}'_t)$

Sample $U_1 \sim \mathrm{Uniform}(0,1)$, $\boldsymbol{Z}_1 \sim \mathrm{Uniform}([0,1]^m)$, and set $\boldsymbol{v}_{t+1} = \mathbf{1}\{\boldsymbol{Z}_1 \le \sigma(\boldsymbol{W}\boldsymbol{h}_t + \boldsymbol{b})\}$
**if** $U_1 \le \mathcal{T}_v(\boldsymbol{v}_{t+1}|\boldsymbol{h}'_{t-1})/\mathcal{T}_v(\boldsymbol{v}_{t+1}|\boldsymbol{h}_t)$ **then**
  Set $\boldsymbol{v}'_t = \boldsymbol{v}_{t+1}$
**else**
  **repeat**
    Sample $U_2 \sim \mathrm{Uniform}(0,1)$, $U'_2 \sim \mathrm{Uniform}(0,1)$, $\boldsymbol{Z}_2 \sim \mathrm{Uniform}([0,1]^m)$
    **if** $\boldsymbol{v}_{t+1}$ has not been accepted **then**
      Propose $\boldsymbol{v}_{t+1} = \mathbf{1}\{\boldsymbol{Z}_2 \le \sigma(\boldsymbol{W}\boldsymbol{h}_t + \boldsymbol{b})\}$, accept if $U_2 > \mathcal{T}_v(\boldsymbol{v}_{t+1}|\boldsymbol{h}'_{t-1})/\mathcal{T}_v(\boldsymbol{v}_{t+1}|\boldsymbol{h}_t)$
    **end if**
    **if** $\boldsymbol{v}'_t$ has not been accepted **then**
      Propose $\boldsymbol{v}'_t = \mathbf{1}\{\boldsymbol{Z}_2 \le \sigma(\boldsymbol{W}\boldsymbol{h}'_{t-1} + \boldsymbol{b})\}$, accept if $U'_2 > \mathcal{T}_v(\boldsymbol{v}'_t|\boldsymbol{h}_t)/\mathcal{T}_v(\boldsymbol{v}'_t|\boldsymbol{h}'_{t-1})$
    **end if**
  **until** $\boldsymbol{v}_{t+1}$ and $\boldsymbol{v}'_t$ are both accepted
**end if**
Sample $\boldsymbol{Z}_3 \sim \mathrm{Uniform}([0,1]^n)$
Set $\boldsymbol{h}_{t+1} = \mathbf{1}\{\boldsymbol{Z}_3 \le \sigma(\boldsymbol{W}^{\mathrm{T}}\boldsymbol{v}_{t+1} + \boldsymbol{c})\}$, $\boldsymbol{h}'_t = \mathbf{1}\{\boldsymbol{Z}_3 \le \sigma(\boldsymbol{W}^{\mathrm{T}}\boldsymbol{v}'_t + \boldsymbol{c})\}$





# Real neurons



Neural networks are not digital.

They are not software.

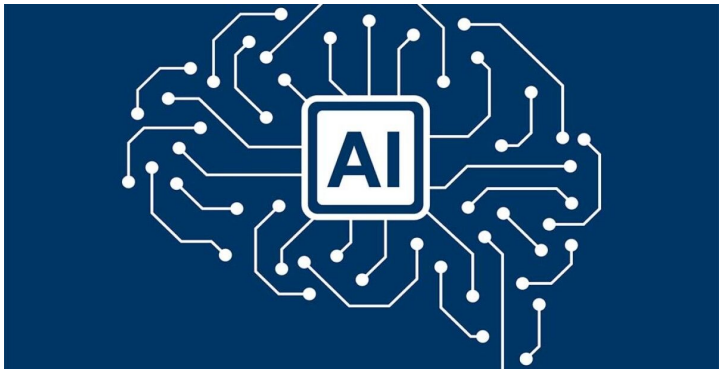
# Digital Transformation

OUTDATED

# This is a new era

The Digital Era

The AI Era



# Contact Us

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# Questions