





# How to create an AI-powered Company

Fabio Moioli





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Executive Search & Leadership Advisor with vast AI Expertise - Spencer Stuart - Forbes Technology Council | Faculty @Harvard BR, SingularityU, PoliMi GSoM, UniMi | TEDx | ex Microsoft Capgemini McKinsey Ericsson


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 NEWSLETTER ⋮




# Intelligences

Unveiling the Power of Artificial, Human, and Collective Intelligences

 By **Fabio Moioli**   
 Executive Search & Leadership Advisor with vast AI Exp...

Published monthly  
 44,130 subscribers

Published 1 month ago ⋮



# The rise of the chief artificial intelligence officer

The rise of the Chief Artificial Intelligence Officer



# An intro on AI today





# COMPUTER DEFEATS CHESS WORLD CHAMPION

1997



**ALPHA ZERO ALGORITHM DEFEATS GO WORLD CHAMPION**

**2016**



# 将进酒

君不见黄河之水天上来，奔流到海不复回。  
君不见高堂明镜悲白发，朝如青丝暮成雪。  
人生得意须尽欢，莫使金樽空对月。  
天生我材必有用，千金散尽还复来。  
烹羊宰牛且为乐，会须一饮三百杯。  
岑夫子，丹邱生，将进酒，杯莫停。

君歌一曲，请君为我倾耳听。

烹羊宰牛且为乐，会须一饮三百杯。

岑夫子，丹邱生，将进酒，杯莫停。

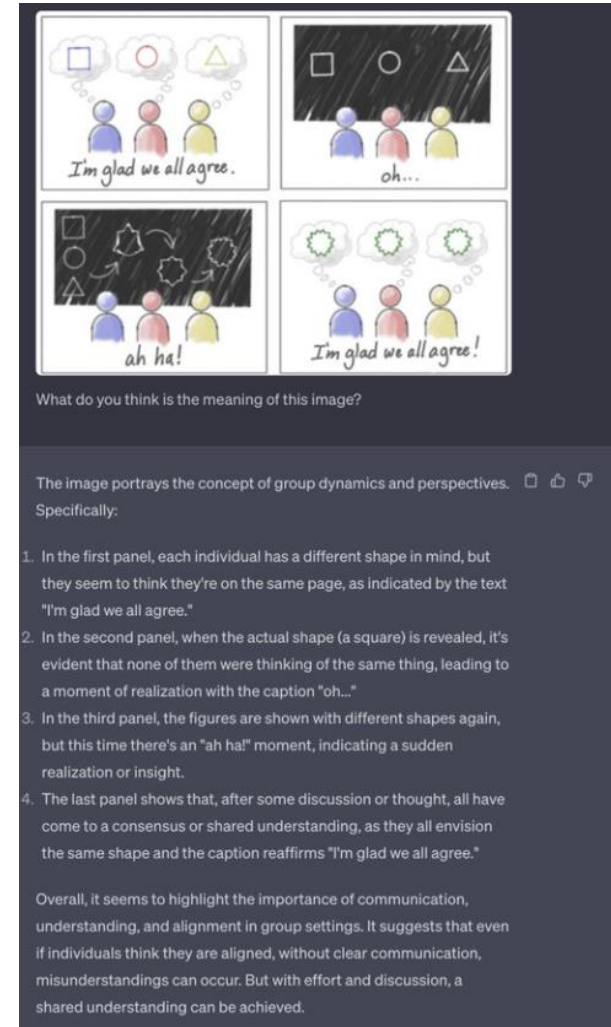
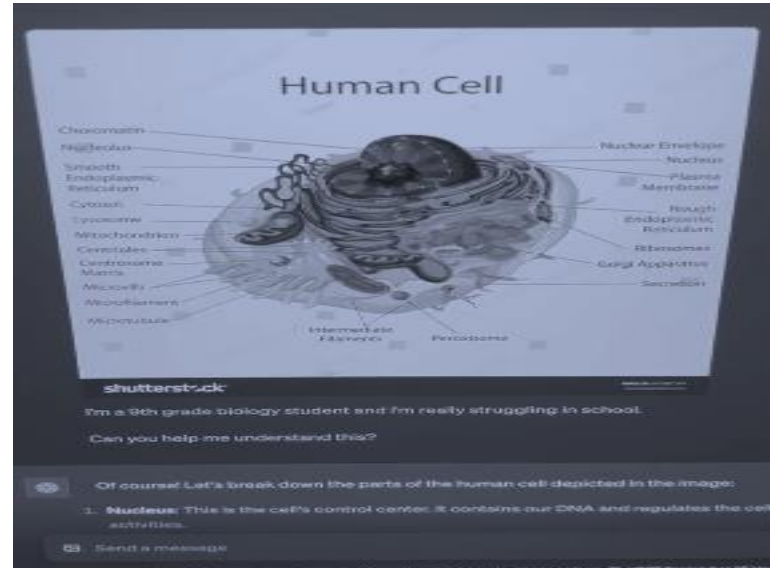
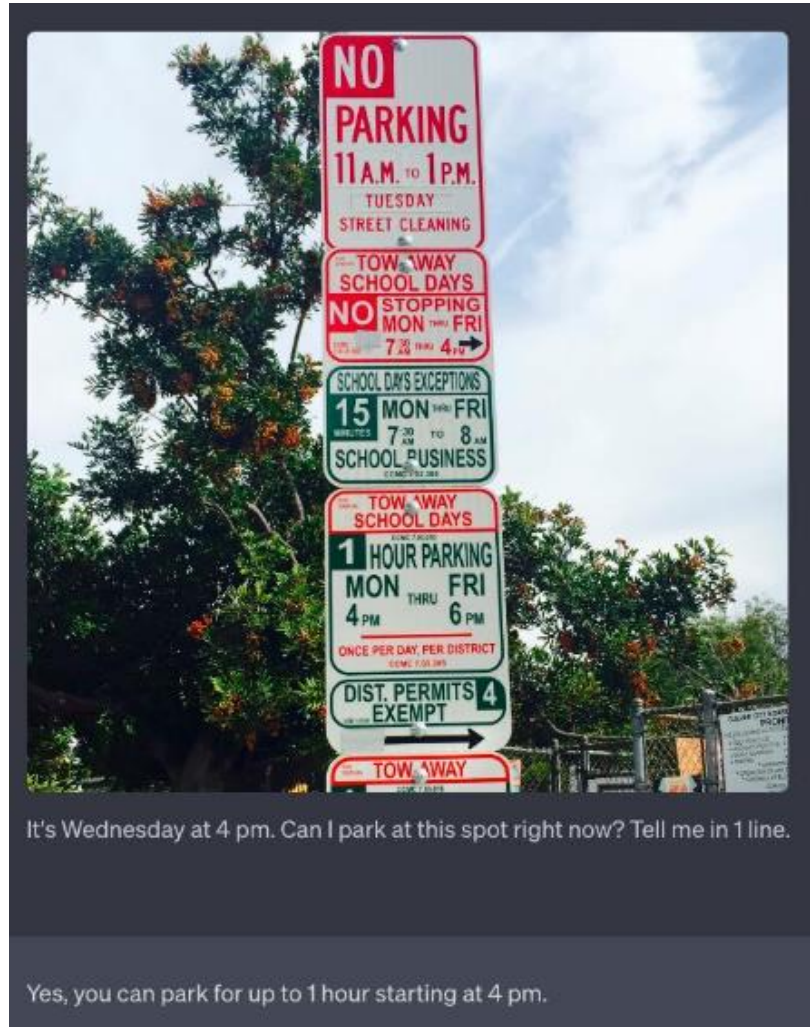
君歌一曲，请君为我倾耳听。



惟愿长醉不复醒。

十愿十千愿。

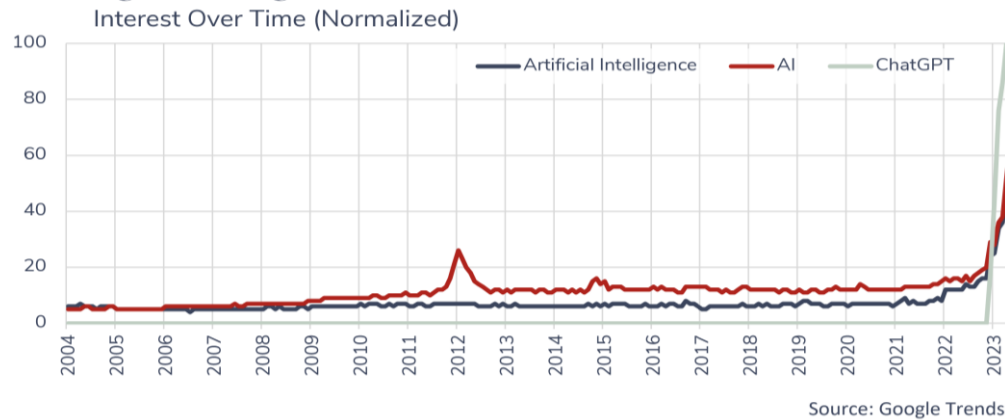
# Some examples from ChatGPT Multi-modal



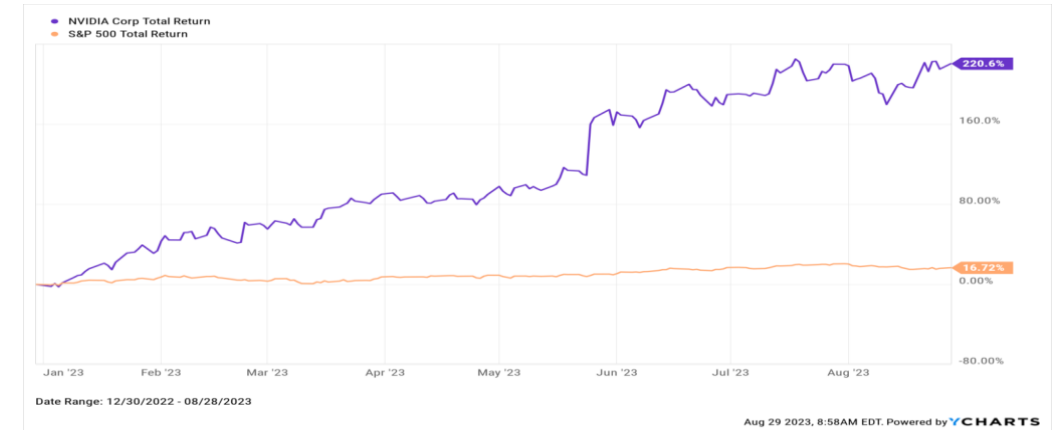


# From Niche to Norm: Artificial Intelligence's Market Expansion

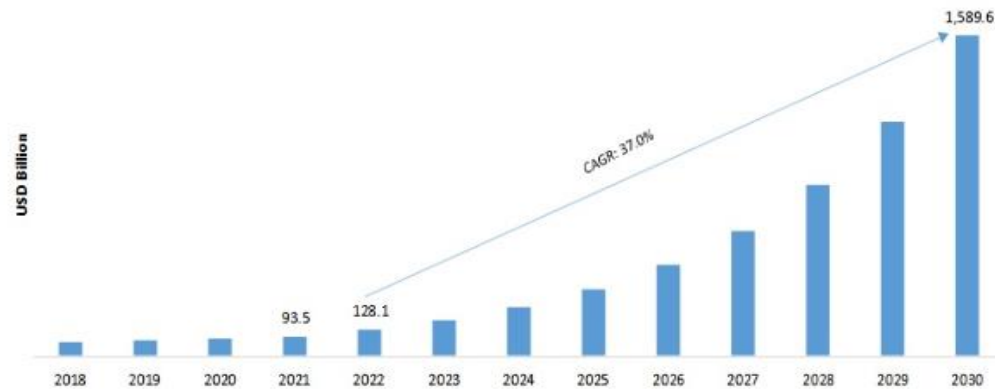
Google Search Data 2004-2024



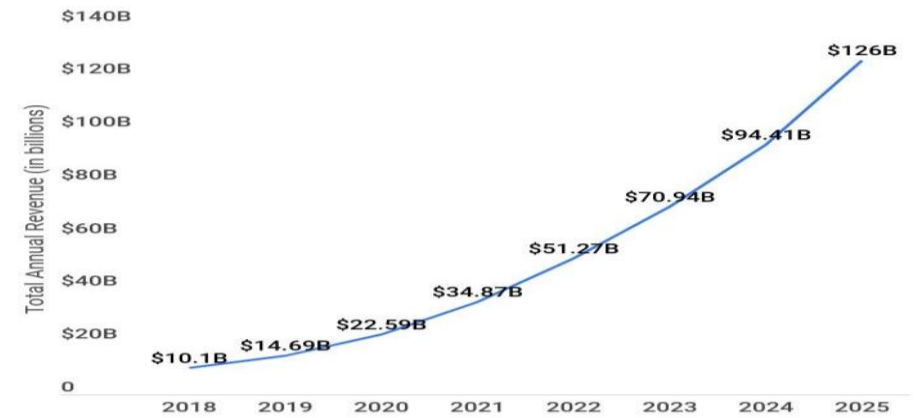
Nvidia and S&P 500 Stock Price



Artificial Intelligence Market Size Forecast 2018-2030\*



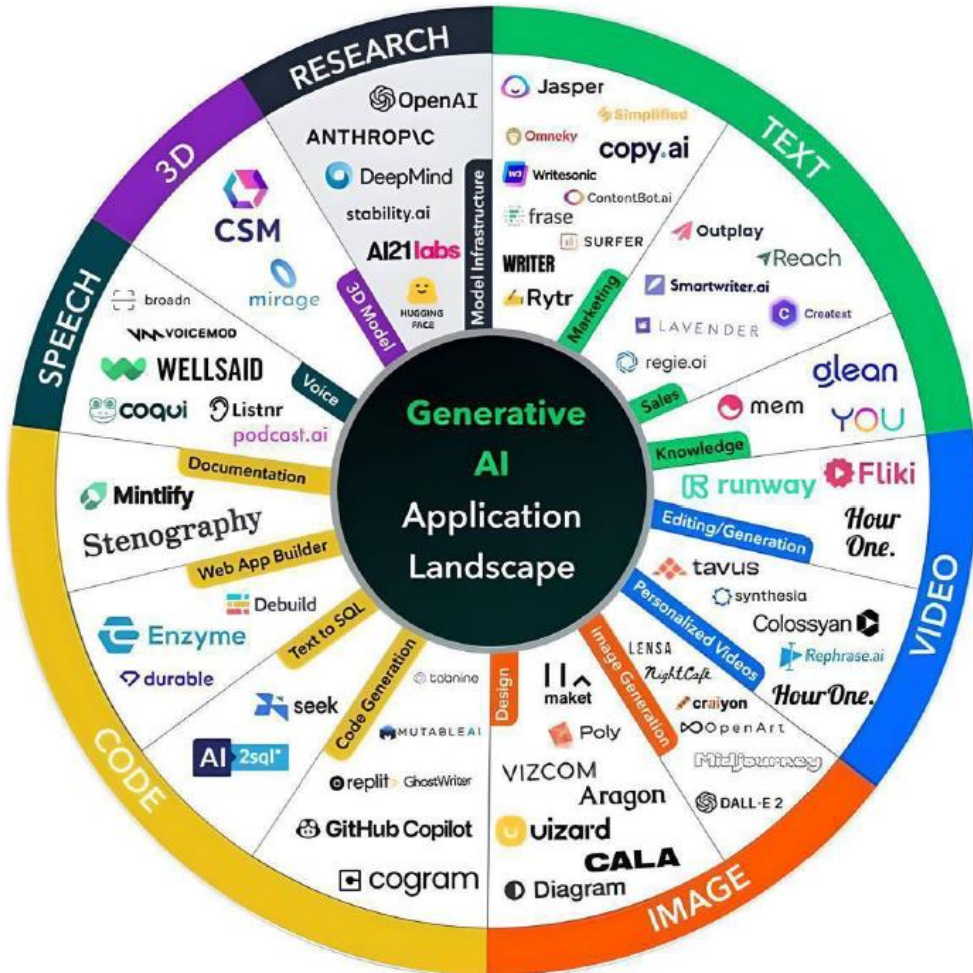
Projected Global AI Software Market Size 2018-2025\*\*



The present  
Actual Data

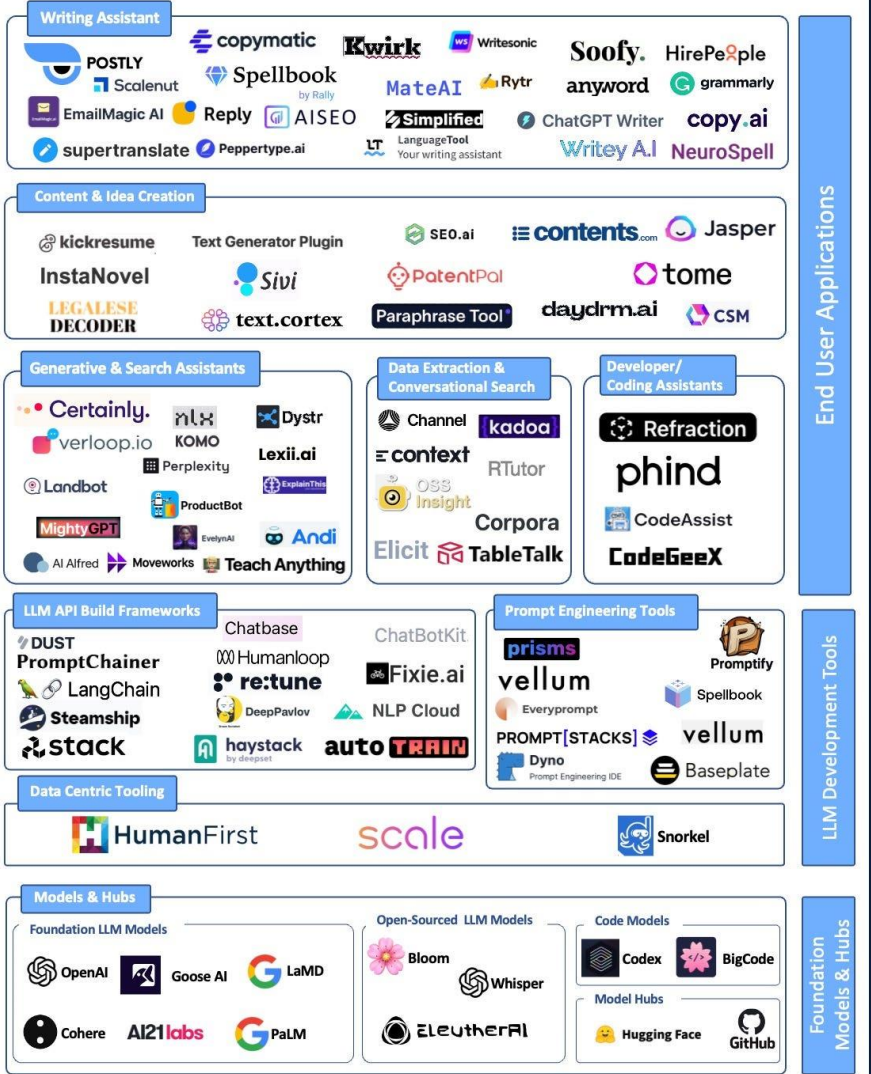
The future  
Easy to predict?

# AI Tools



TEXT  
 IMAGE  
 AUDIO  
 CODING  
 DATA ENTRY  
 PPT  
 MUSIC

## Foundation Large Language Model Stack



Cobus Greyling  
<https://www.linkedin.com/in/cobusgreyling>  
 Version 3.0

# Patterns for Agentic Applications



## Reflection

The LLM examines its own work to come up with ways to improve it



## Tools use

The LLM is given tools such as web search, code execution, or any other function to help it gather information, take action, or process data



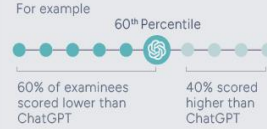
## Planning

The LLM comes up with, and executes, a multistep plan to achieve a goal (for example, writing an outline for an essay, then doing online research, then writing a draft, and so on)

# How Smart is ChatGPT?

OpenAI's latest large language model, GPT-4, is capable of human-level performance in many professional and academic exams.

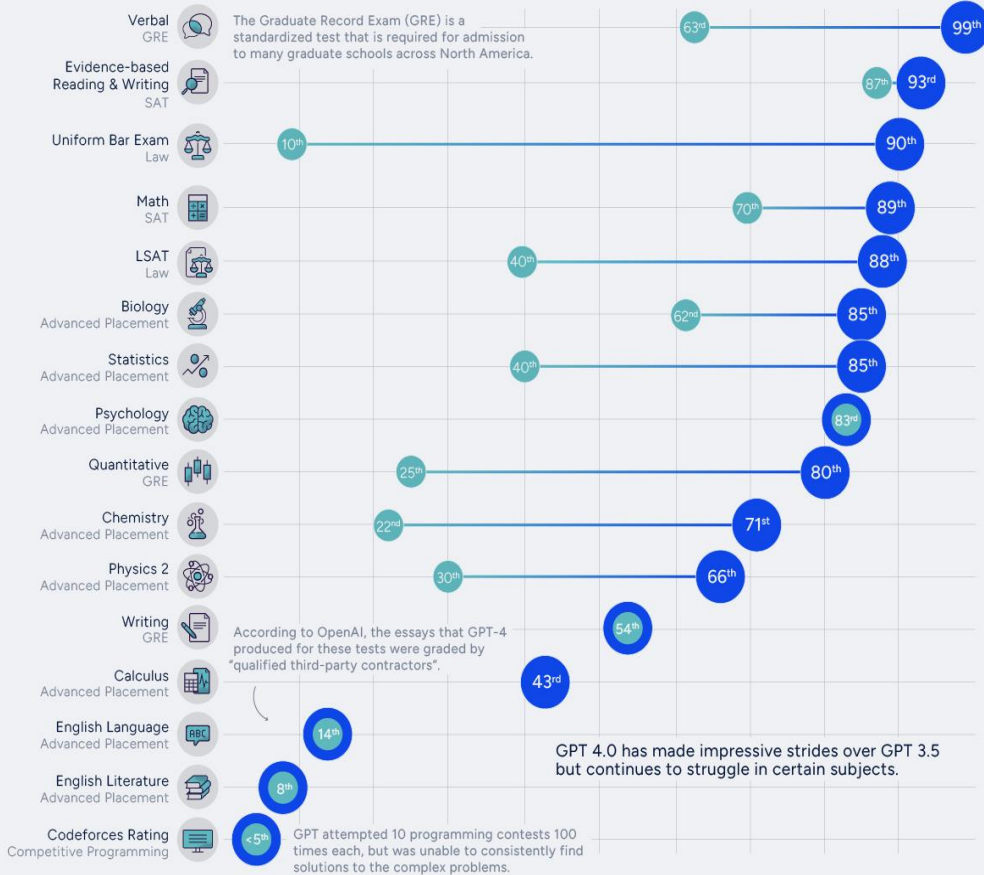
A percentile describes how an examinee's score ranks in comparison to others.



## Exam Results

● ChatGPT 3.5 ● ChatGPT 4.0

Percentile Rank 10<sup>th</sup> 20<sup>th</sup> 30<sup>th</sup> 40<sup>th</sup> 50<sup>th</sup> 60<sup>th</sup> 70<sup>th</sup> 80<sup>th</sup> 90<sup>th</sup>



Source: OpenAI (2023)  
Note: Percentiles are based on the most recently available score distributions for test takers of each exam type.



COLLABORATORS RESEARCH + WRITING Marcus Lu | DESIGN Rosey Eason

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The following table lists the results that we visualized in the graphic.

Category	Exam	GPT-4 Percentile	GPT-3.5 Percentile
Law	Uniform Bar Exam	90	10
Law	LSAT	88	40
SAT	Evidence-based Reading & Writing	93	87
SAT	Math	89	70
Graduate Record Examination (GRE)	Quantitative	80	25
Graduate Record Examination (GRE)	Verbal	99	63
Graduate Record Examination (GRE)	Writing	54	54
Advanced Placement (AP)	Biology	85	62
Advanced Placement (AP)	Calculus	43	0
Advanced Placement (AP)	Chemistry	71	22
Advanced Placement (AP)	Physics 2	66	30
Advanced Placement (AP)	Psychology	83	83
Advanced Placement (AP)	Statistics	85	40
Advanced Placement (AP)	English Language	14	14
Advanced Placement (AP)	English Literature	8	8
Competitive Programming	Codeforces Rating	<5	<5

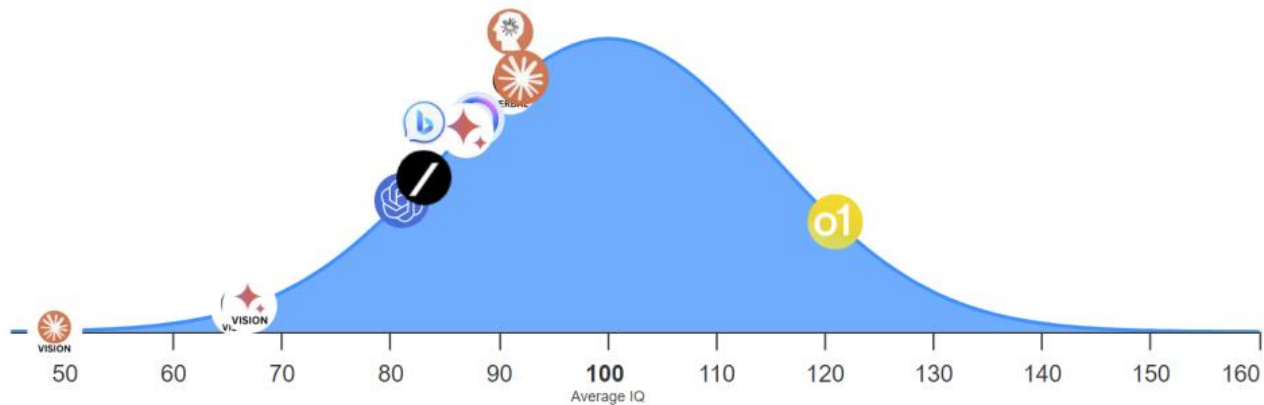
# Measuring o1 IQ in Mensa

This site quizzes 9 Verbal & 4 Vision AIs every week | Last Updated: 01:30AM EDT on September 16, 2024

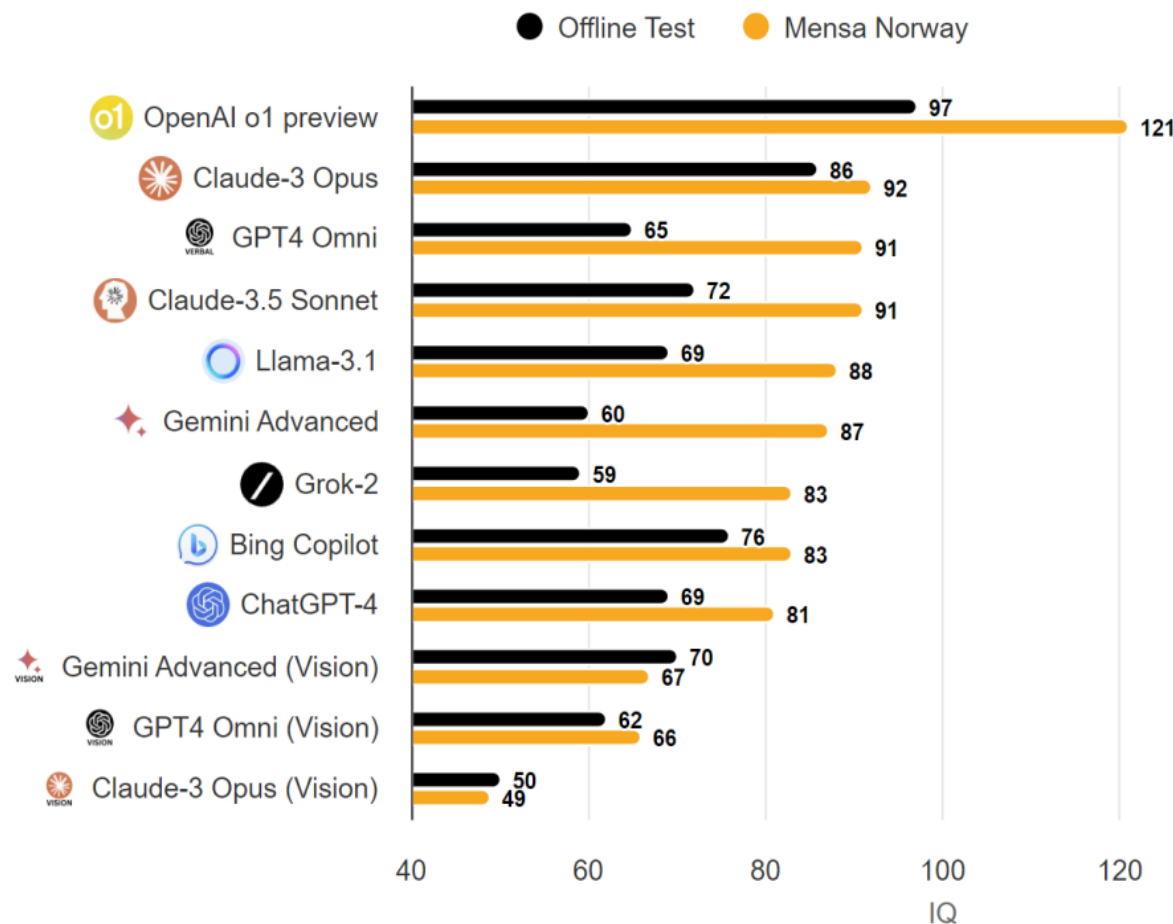
## IQ Test Results

Reset Show Offline Test Show Mensa Norway

Score reflects average of last 7 tests given



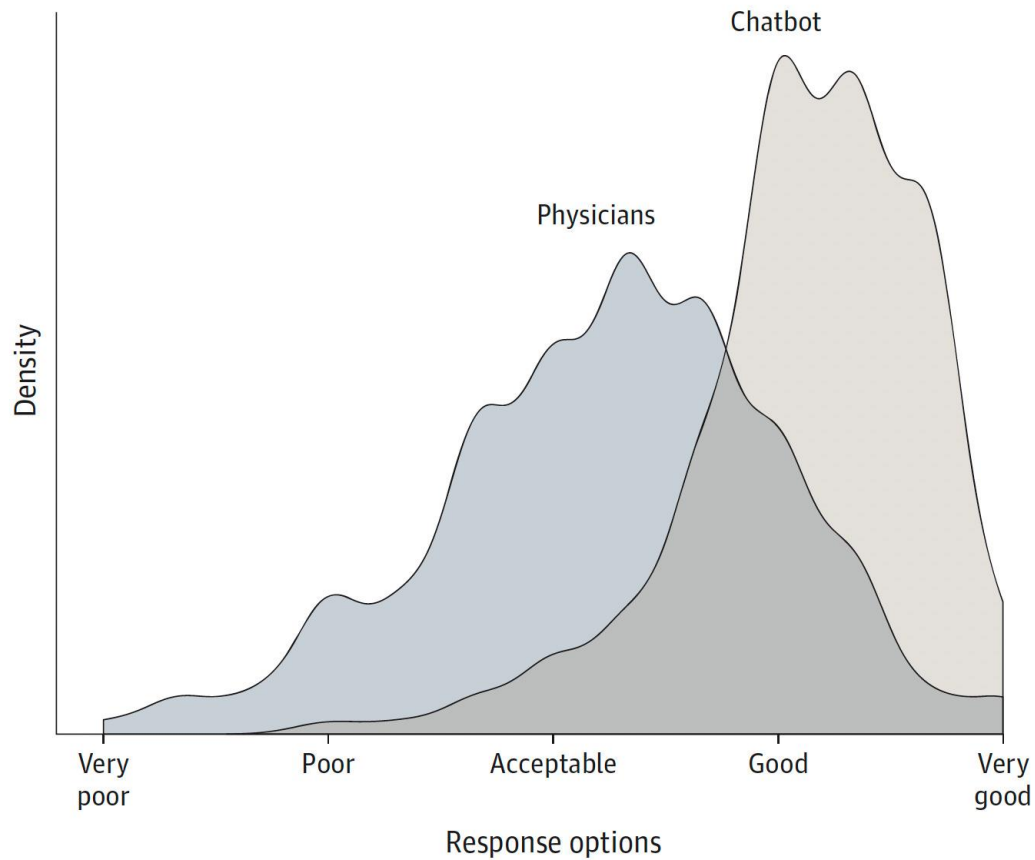
- |                          |                    |                        |
|--------------------------|--------------------|------------------------|
| OpenAI o1 preview        | GPT4 Omni (Vision) | GPT4 Omni              |
| ChatGPT-4                | Llama-3.1          | Grok-2                 |
| Gemini Advanced (Vision) | Gemini Advanced    | Bing Copilot           |
| Claude-3.5 Sonnet        | Claude-3 Opus      | Claude-3 Opus (Vision) |



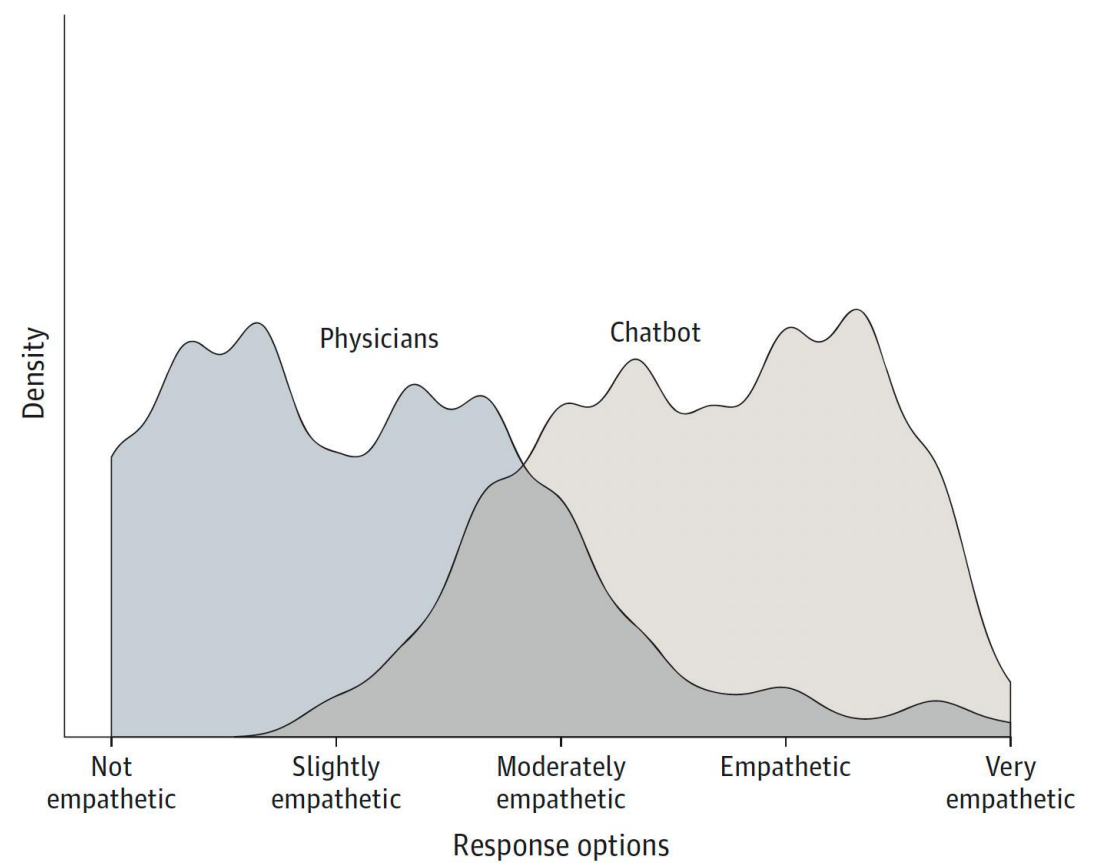
# Comparing Physician and Artificial Intelligence Chatbot Responses to Patient Questions

Figure. Distribution of Average Quality and Empathy Ratings for Chatbot and Physician Responses to Patient Questions

## A Quality ratings



## B Empathy ratings



# How to become an AI Company





# HOW TO CREATE AN AI-DRIVEN COMPANY



# HOW **not** TO CREATE AN AI – POWERED COMPANY



# HOW TO CREATE AN AI-POWERED COMPANY

Strategy

Organization

Processes

Culture

Technology

Skills

# HOW TO CREATE AN AI-POWERED COMPANY

Strategy

Organization

Processes

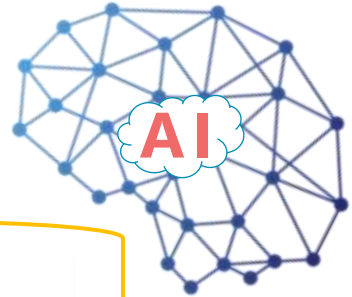
Culture

Technology

Skills

# Value creation in the 3rd Millenium Economy

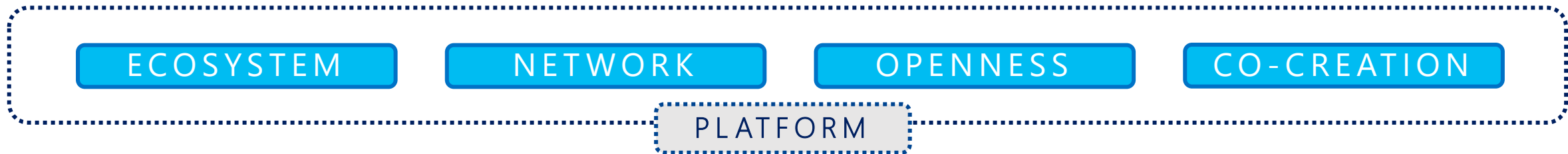
First, becoming AI-POWERED means associating your core strategy and competitiveness with the usage of data and AI. Your strategy must be underpinned by a thorough, up-to-date data acquisition strategy. After all, AI is intelligence derived from data. So, data should be your very first focus for becoming AI-POWERED



STAKEHOLDERS EXPERIENCE



[DATA]<sup>AI</sup>



# HOW TO CREATE AN AI-POWERED COMPANY

Strategy

Organization

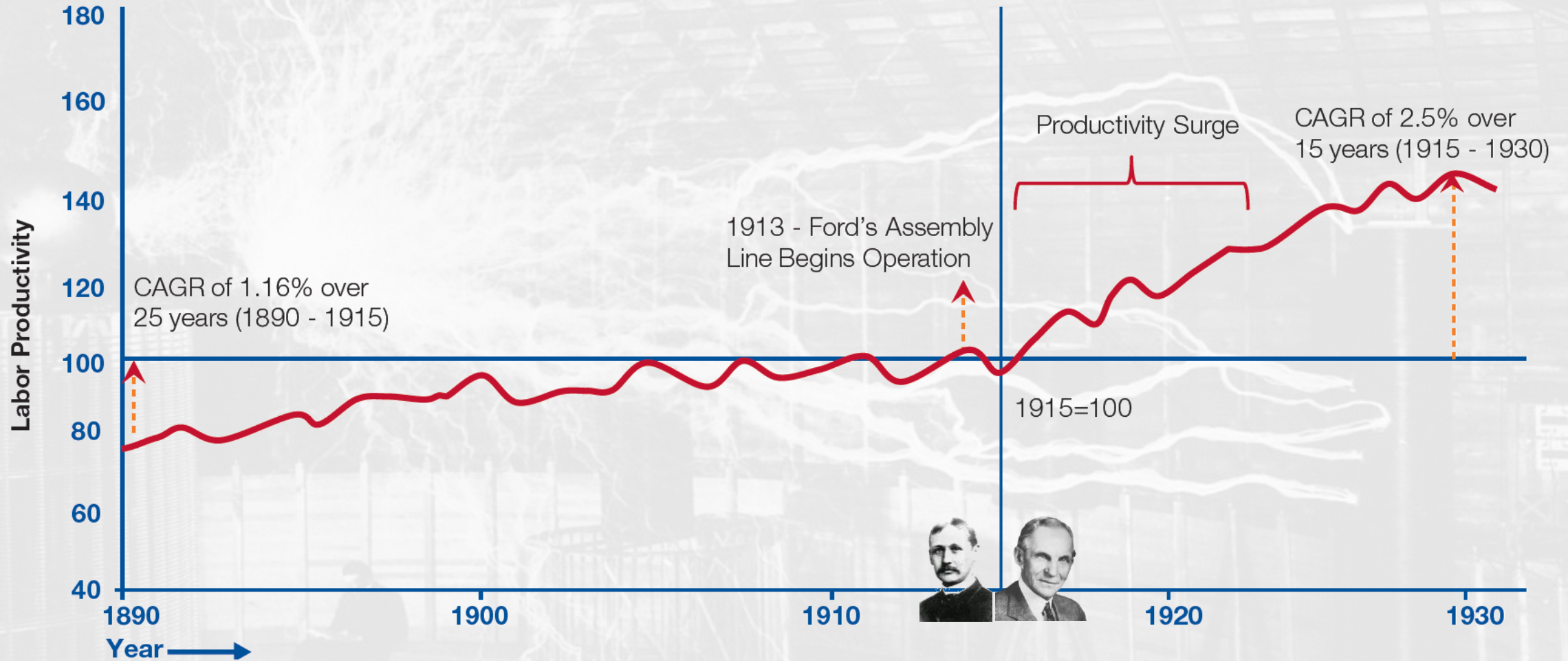
Processes

Culture

Technology

Skills

# AI – THE NEW ELECTRICITY



# HOW TO CREATE AN AI-POWERED COMPANY

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# HOW TO CREATE AN AI-POWERED COMPANY

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# As experts in talent placement, we see four keys to success for data & analytics leadership in Organizations



## More Engineering-centered Org

- » Sustained focus on acquiring top engineering talent
- » Data-POWERED transformations demand modern engineering more than analytical modelling
- » Insufficient engineering capabilities result in 80% of analysts' work being data clean-up
- » Adequate engineering capacity amplifies the impact of a few PhD mathematicians



## Organizational Product Focus

- » Product management in data/analytics enhances project prioritization and engagement
- » It ensures representation of various disciplines in all new analytical development, fostering business partners' ownership and engagement
- » Small scale POC and ad-hoc analysis remain important, but major wins rely on scalable data science products



## Data & AI Take the Lead on Organization Design

- » AI leaders define new work types and models, promote learning especially with GenAI and LLMs
- » They encourage change, reward experimentation and measured risk-taking
- » They are accountable for value creation and risk management
- » Effective leaders leverage the existing organization's culture



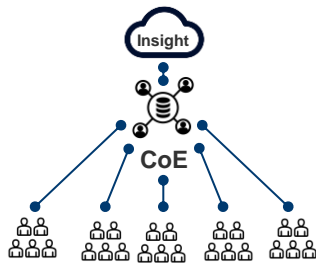
## Centralized/ Integrated Organizational Models

- » Successful companies balance centralized capability building and federated delivery
- » A central capacity is necessary for mature data science capabilities, aligning central teams with business lines and stakeholders
- » Data leaders' reporting lines are shifting towards business leaders on the ELT, moving away from technology

# What structure suits your AI team best?

## Centralized

Excel in efficiency and expertise concentration but lead to bottlenecks and knowledge siloing



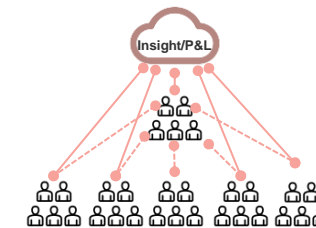
## Decentralized

Offer innovation and autonomy but can suffer from inconsistency and resource duplication



## Hybrid

Balance the benefits of centralized and decentralized structures but require careful management to avoid complexity and conflicts



### STRENGTH

**Efficiency:** A single, dedicated team to streamline AI project development and deployment across the organization. Ideal to drive excellence for mature capabilities

**Expertise Concentration:** Pools top talent, fostering specialized skills and deep AI expertise

**Standardization:** Ensures consistency in AI practices, facilitation of access and sharing of data and technologies across different departments

**Strategy:** Aids the efforts of BUs by offering synergies and advantages of scaling according to a strategic roadmap

### DRAWBACKS

**Bottlenecks:** Tends to be overwhelmed with requests from various BUs, leading to delays and limited accessibility

**Knowledge Siloing:** May result in isolate AI knowledge within the team, reducing broader organizational learning. May result in detachment from market trends.

**Autonomy:** Lack decision-making power and does not manage a new BU or responsibility for P&L

**Autonomy:** Each department with their own AI team enables tailored solutions and responsiveness to specific needs

**Innovation:** Lead to a variety of approaches and experiments with different AI technologies and methods

**Engagement:** The team often has developed naturally, and direct involvement can increase buy-in and interest in AI throughout the organization

**Inconsistency:** Varied levels of competence and approaches across teams can lead to disparities in AI project success.

**Resource Duplication:** May result in unnecessarily duplicate tools, platforms, and talent.

**Isolation:** Solutions developed often lack transferability and applicability across the organization. Result in a lack of priority alignment and no ownership of corporate agenda.

**Flexibility:** Combines centralized governance and strategy with departmental autonomy for implementation

**Resource Sharing:** Allows for efficient allocation of AI resources and expertise where they're most needed

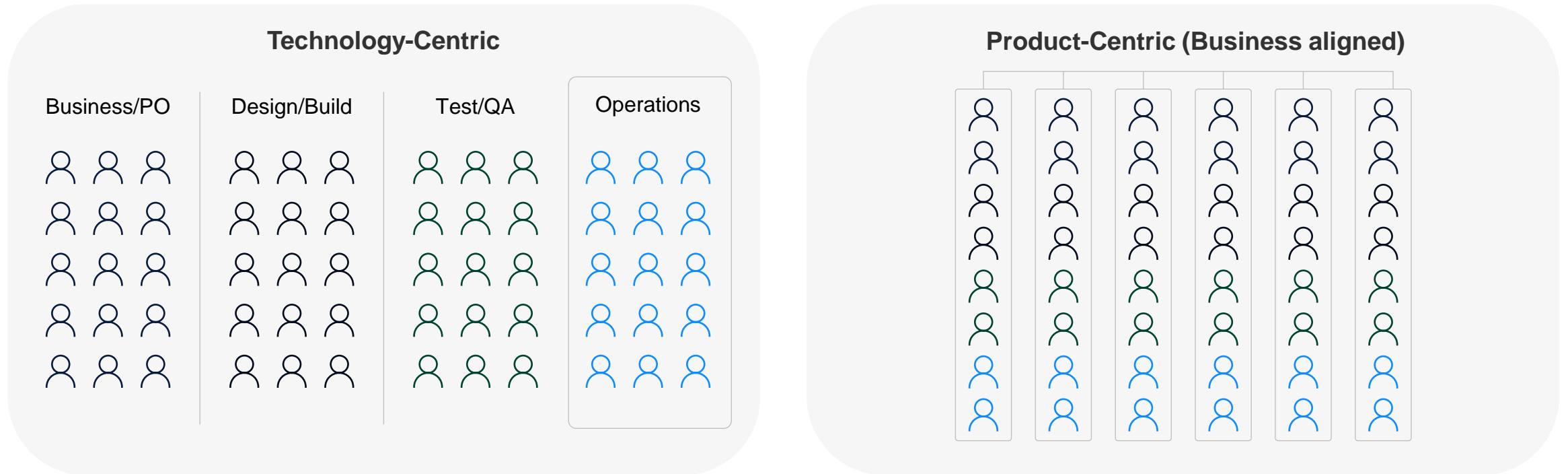
**Best Practices:** Allows for innovation and facilitate transformation. Benefits of being close to the market/customer includes cross-market and business empowerment

**Customer-centric:** Enables the genuine promotions of a customer-focused business and generation of external value

**Complex Coordination:** Requires intricate management to ensure cohesive functioning, efficient resource allocation and avoid conflicts between centralized and decentralized teams.

**Mixed Signals:** Can lead to confusion over authority and decision-making, with potential for duplicated efforts or conflicting priorities. Requires a clear definition and understanding of governance and responsibilities.

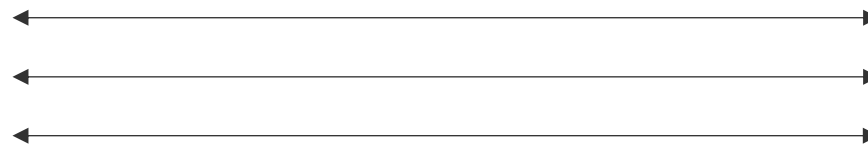
# Increasing shift from Technology-centric to Product-centric structure



Operational Effectiveness

Strictly-defined roles

Tower-based model



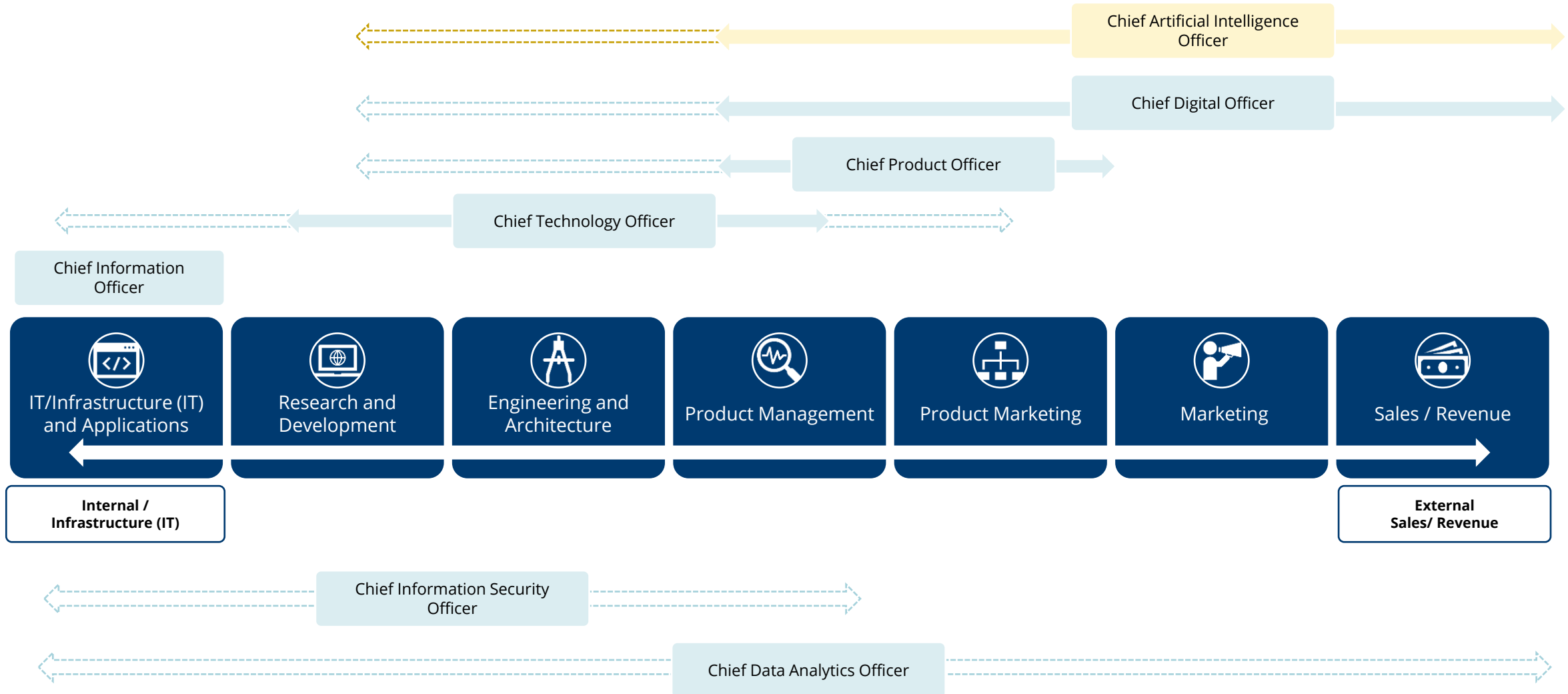
Change & Speedy Delivery

Self-organizing

Flat organization model

# Technology Leadership Spectrum

Where does **Chief Artificial Intelligence Officer** CAIO sit in the spectrum?



# HOW TO CREATE AN AI-POWERED COMPANY

Strategy

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Skills

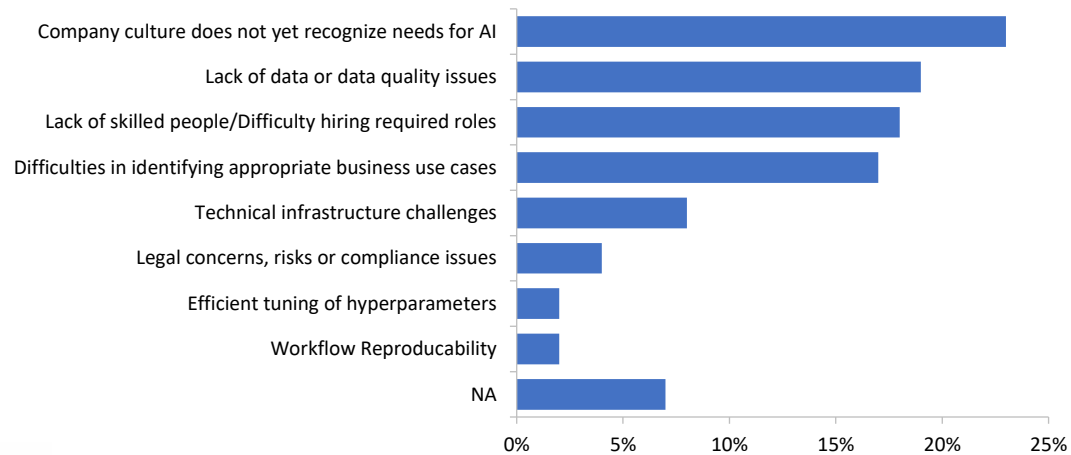
# Identifying Blockers...

## [Why Is It So Hard to Become a Data-POWERED Company? \(hbr.org\)](https://hbr.org)

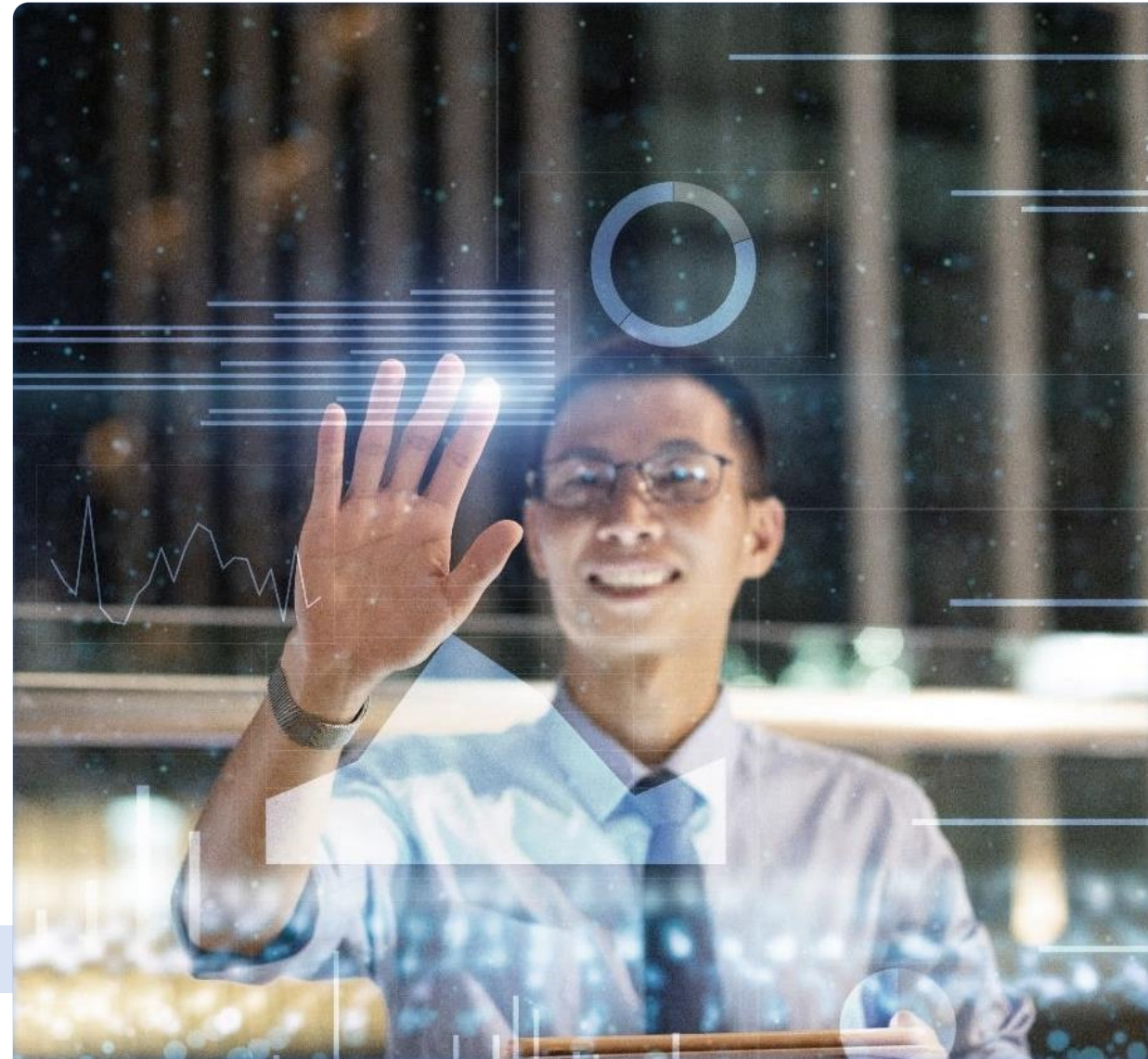
Over 90% of Fortune 1000 Senior Executives found culture changes were their biggest barriers to Digital Transformation.

92%

Struggle with Cultural Challenges relating to business processes, change management, communication, people skill sets, and resistance.



*AI Adoption in the Enterprise: How Companies are Planning and Prioritizing AI Projects*  
by **Ben Lorica** and **Paco Nathan**



# Organization Culture key traits



**EXECUTIVE  
OWNERSHIP**



**EMPOWERMENT**



**CULTURE OF  
LEARNING**



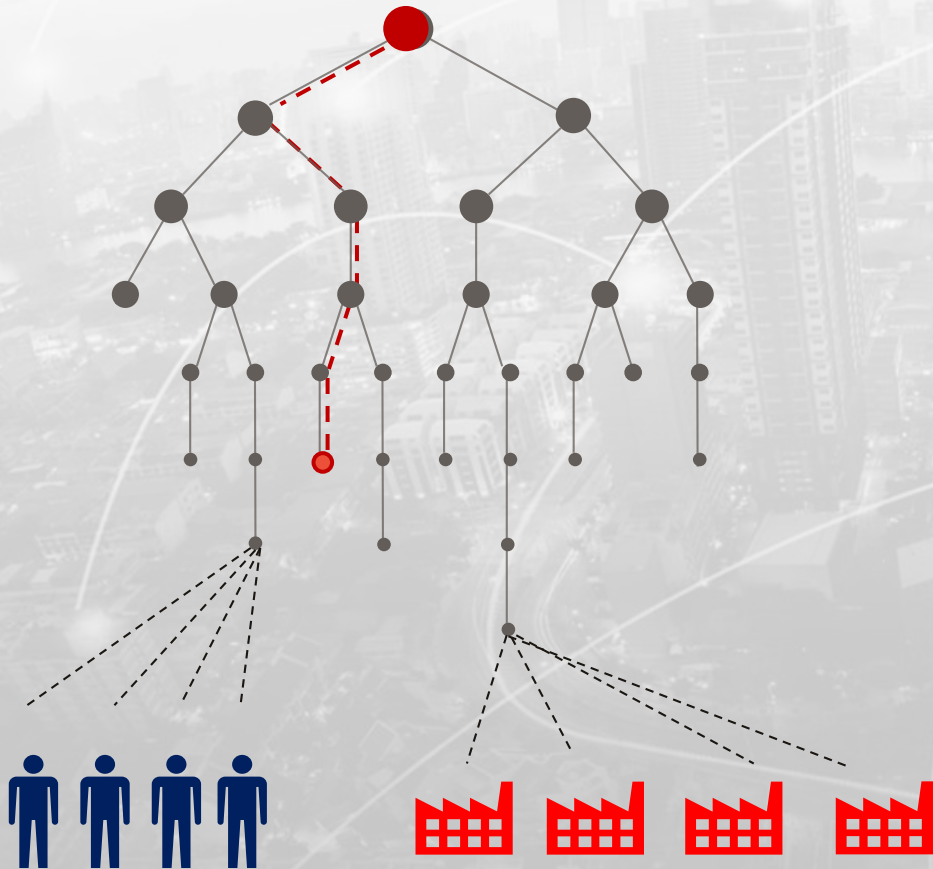
**COMMUNICATION**



**TIME IS NOW**

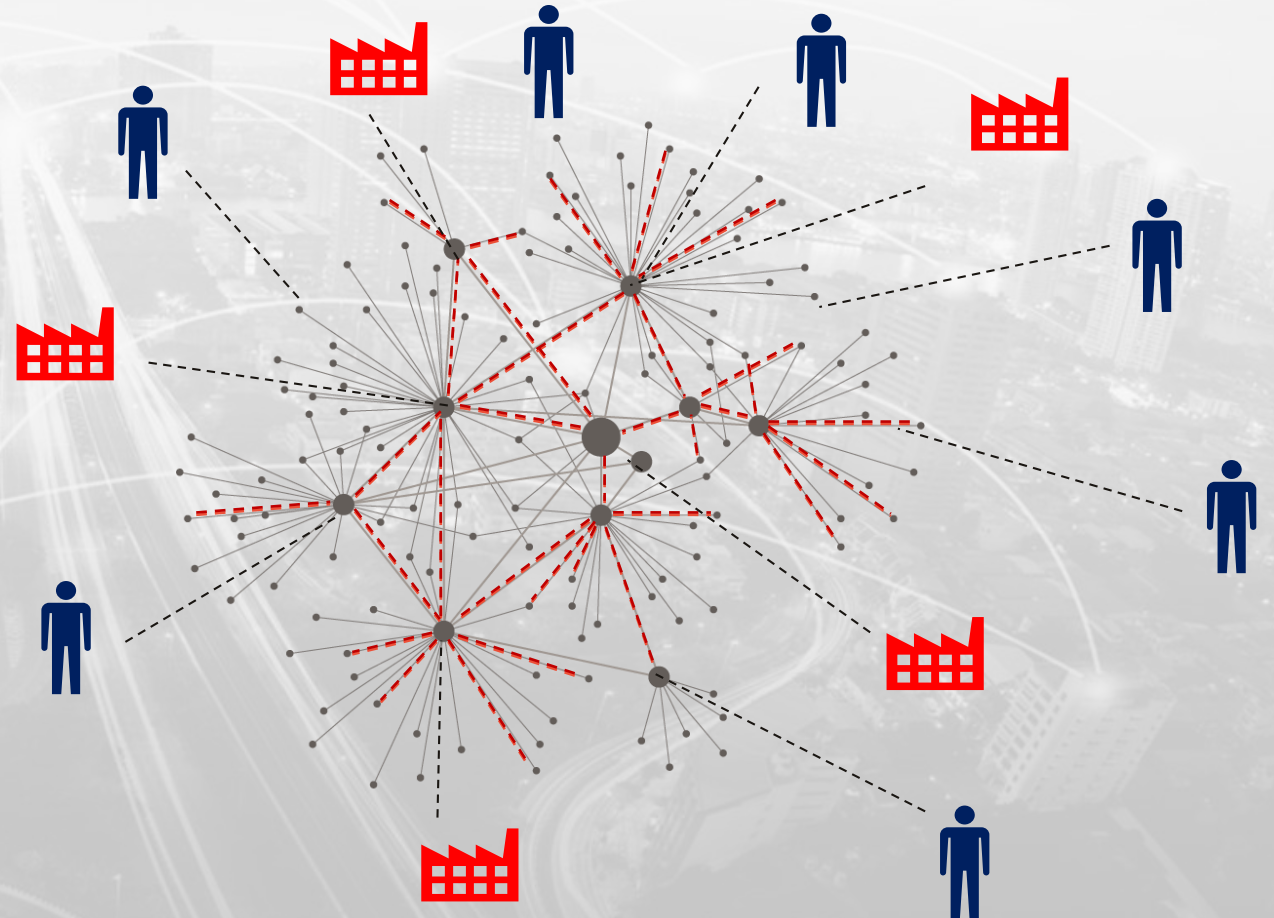


# AI POWERED COMPANIES - CULTURAL SHIFT



TRADITIONAL HIERARCHIES

COMMAND AND CONTROL

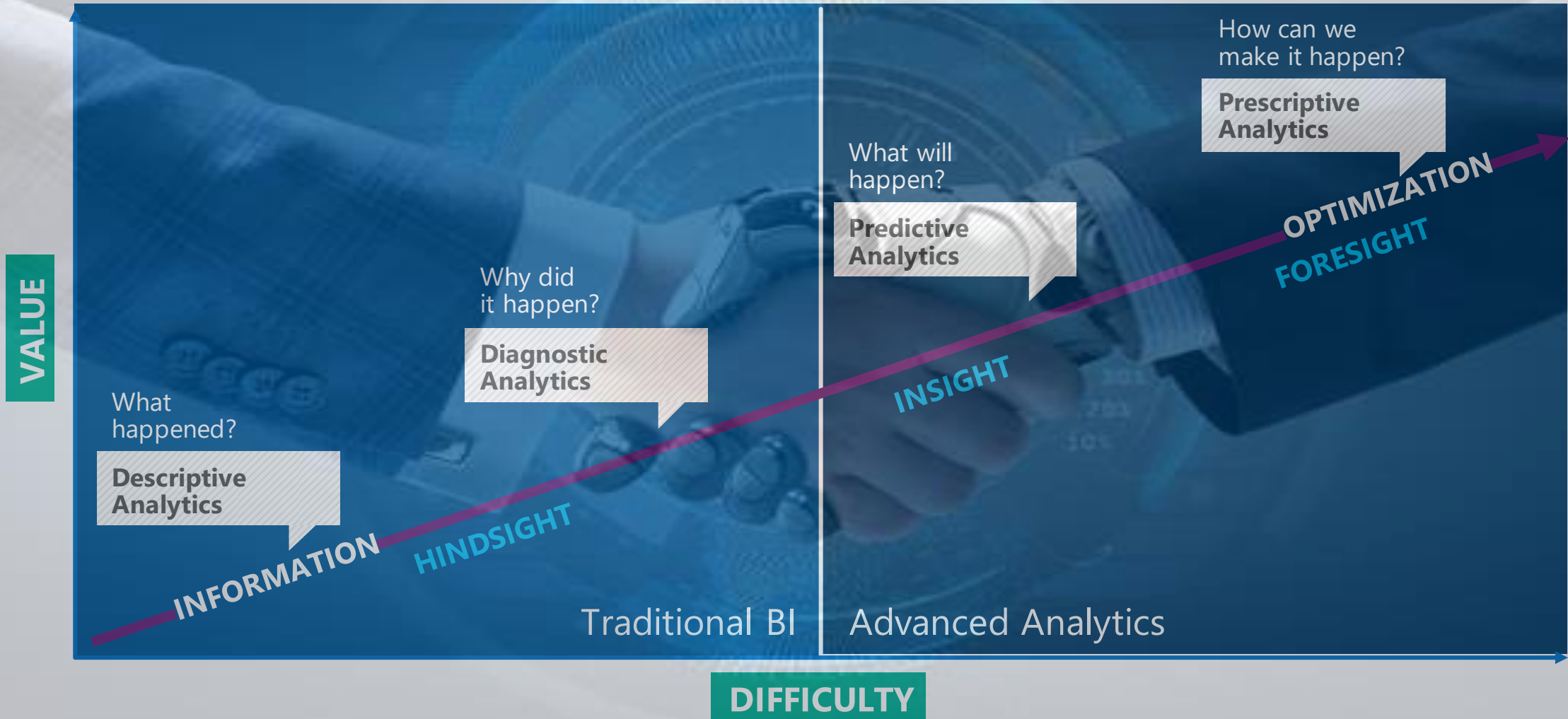


RESPONSIVE NETWORKS

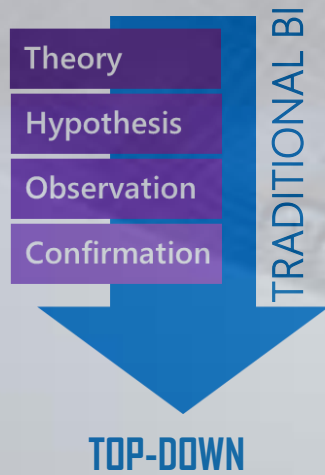
LEARN AND ADAPT



# The new AUGMENTED INTELLIGENCE powered by AI

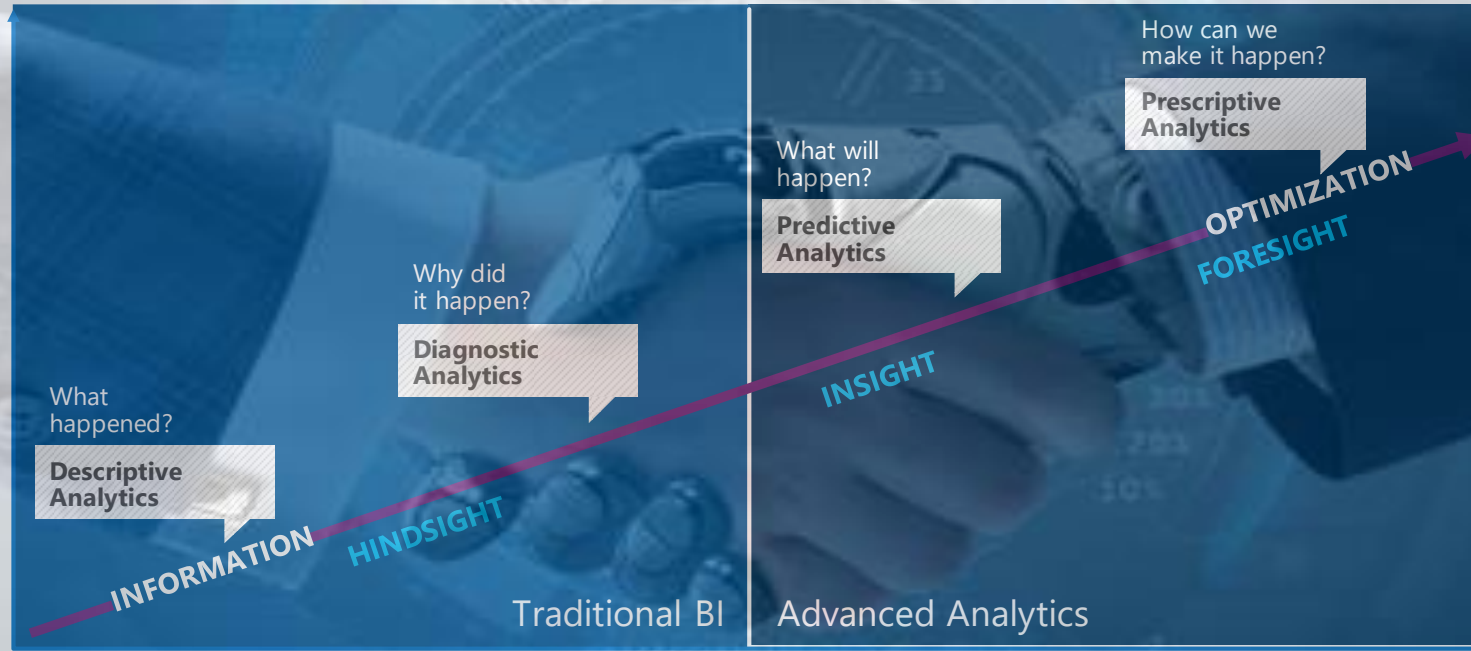


# The new AUGMENTED INTELLIGENCE powered by AI

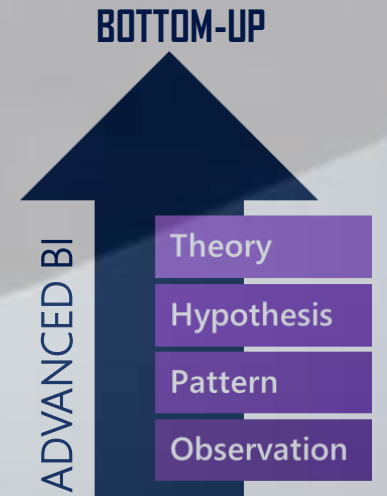


TRADITIONAL BI

VALUE



DIFFICULTY



ADVANCED BI

Paramount Pictures

**WRITERS GUILD**  
**ON**  
**STRIKE!**  
NO  
A.I. !!

**WRITERS GUILD**  
**ON**  
**STRIKE!**  
WE DESERVE  
A HOLLYWOOD  
ENDING

**WRITERS GUILD**  
**ON**  
**STRIKE!**  
Here's a pitch...  
PAY US

**WRITERS GUILD**  
**OF**  
**AMERICA**  
**ON**  
**STRIKE**

**ON**  
**STRIKE!**

**WRITERS GUILD**  
**OF**  
**AMERICA**  
**ON**  
**STRIKE!**

**WRITERS GUILD**  
**OF**  
**AMERICA**  
**ON**  
**STRIKE!**  
BANK

**WRITERS GUILD**  
**OF**  
**AMERICA**  
**ON**  
**STRIKE!**

**EXIT ONLY**

# HOW TO CREATE AN AI-POWERED COMPANY

Strategy

Organization

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# Data & Analytics leaders typically come from one of three primary backgrounds, but the best have expertise in more than one

## Head of Data Science/ML:

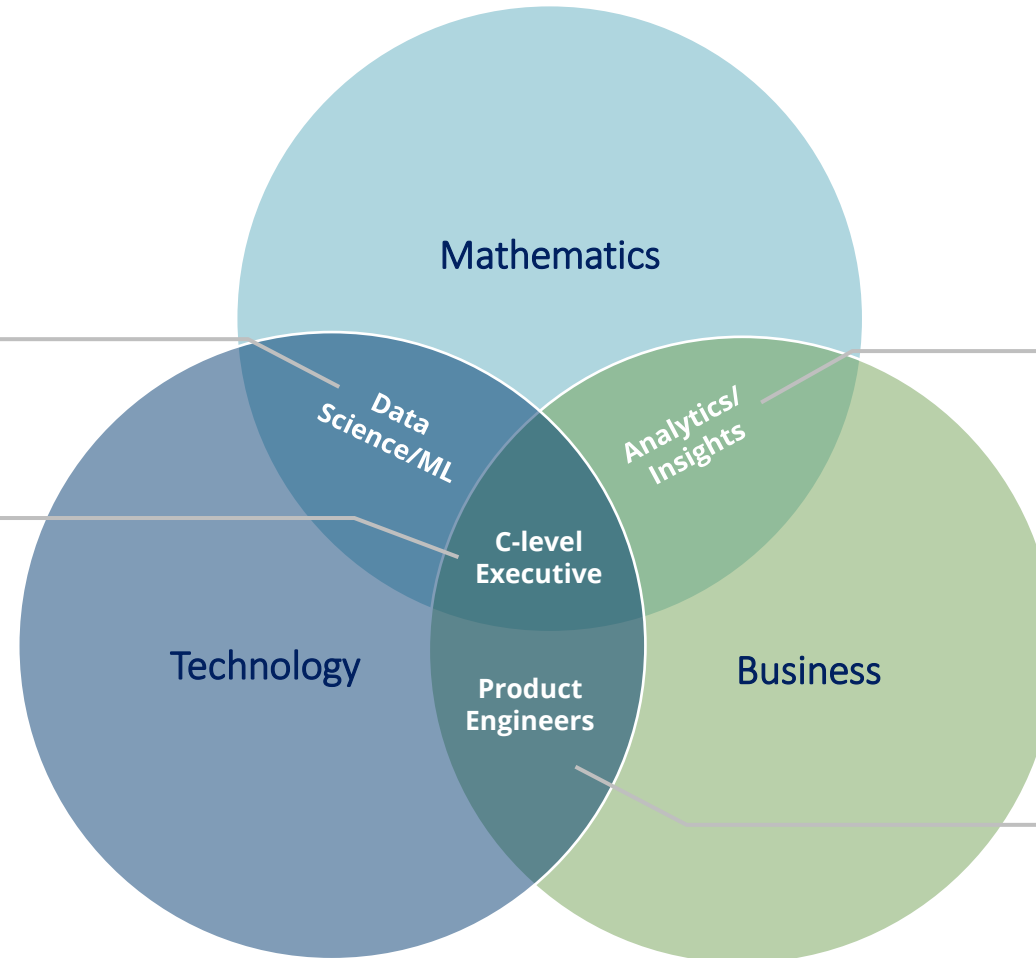
Builds the advanced models that enable complex data products and solutions.

## Head of Analytics/Insights:

Provides and applies meaningful business context to complex analytical capabilities.

## C-level Data/AI Executive:

Sets the enterprise strategy for data/analytics and AI. Builds teams and capabilities, unifies stakeholders and establishes data asset ownership for the enterprise.



## Head of Data Product/Engineering:

Translates strategic business goals into data platforms, products, and strategies.

# Data & Analytics Leadership Archetypes: Roles and Market Considerations

Engineering

Strategic

## Data Engineering

This leader **ensures critical data assets are captured, stored, and made** available to end-users in line with the creation of business value.

They must stay current with rapidly evolving platforms and tools

## Data Science & Machine-Learning AI

This role **develops, trains, and deploys models that predict, optimize, test, and action key decisions.**

They must combine deep technical skill-sets with business knowledge  
Capabilities must align with business goals

## Chief Data & Analytics Officer

This leader **champions data and machine intelligence** as a critical corporate asset. They **drive business transformation** across all domains.

This type of talent can be harder to find due to the combination of **senior executive leadership skills and relevant industry domain expertise** needed to succeed.

## Data Management & Governance

This executive **works with stakeholders to define data assets and establish privacy, policy, and quality standards** for the enterprise.

This talent pool is **becoming more technical** as modern approaches to data management rely more heavily on machine learning tool.

## Data Product

These leaders have a **commercial orientation and a deep knowledge of technical and analytical techniques** to develop a product strategy for monetizing assets.

They are often either deep product people learning data science or data scientists with a commercial orientation.

## Business Intelligence

This role **integrates and analyzes real-time data** from various sources for forward-looking business insights.

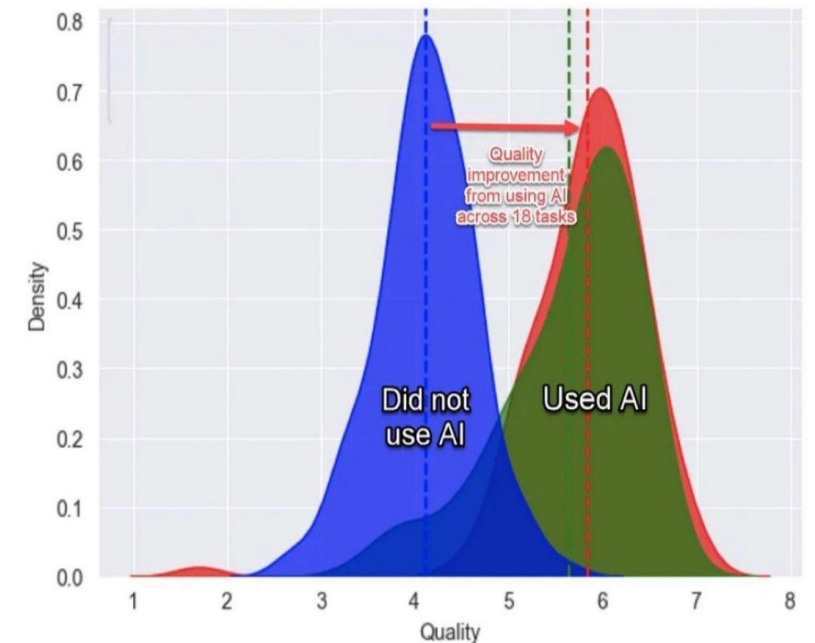
They can **leverage data science and A.I to inform business decision making**, without necessarily being a data scientist themselves

# Top performers will be AI-enabled workers

Harvard Business School Technology & Operations Mgt, 18 Sep 2023

Boston Consulting Group (BCG), one of the most prestigious consulting firms, is testing the impacts on AI on its employees: consultants using GPT-4 finished 12.2% more tasks, completed tasks 25.1% more quickly, and produced 40% higher quality results.

In our study conducted with Boston Consulting Group, a global management consulting firm, we examine the performance implications of AI on realistic, complex, and knowledge-intensive tasks. The pre-registered experiment involved 758 consultants comprising about 7% of the individual contributor-level consultants at the company. After establishing a performance baseline on a similar task, subjects were randomly assigned to one of three conditions: no AI access, GPT-4 AI access, or GPT-4 AI access with a prompt engineering overview. We suggest that the capabilities of AI create a “jagged technological frontier” where some tasks are easily done by AI, while others, though seemingly similar in difficulty level, are outside the current capability of AI. For each one of a set of 18 realistic consulting tasks within the frontier of AI capabilities, consultants using AI were significantly more productive (they completed 12.2% more tasks on average, and completed task 25.1% more quickly), and produced significantly higher quality results (more than 40% higher quality compared to a control group). Consultants across the skills distribution benefited significantly from having AI augmentation, with those below the average performance threshold increasing by 43% and those above increasing by 17% compared to their own scores. For a task selected to be outside the frontier, however, consultants using AI were 19 percentage points less likely to produce correct solutions compared to those without AI. Further, our analysis shows the emergence of two distinctive patterns of successful AI use by humans along a spectrum of human-AI integration. One set of consultants acted as “Centaur,” like the mythical halfhorse/half-human creature, dividing and delegating their solution-creation activities to the AI or to themselves. Another set of consultants acted more like “Cyborgs,” completely integrating their task flow with the AI and continually interacting with the technology.



Distribution of output quality across all the tasks. The blue group did not use AI, the green and red groups used AI, the red group got some additional training on how to use AI.

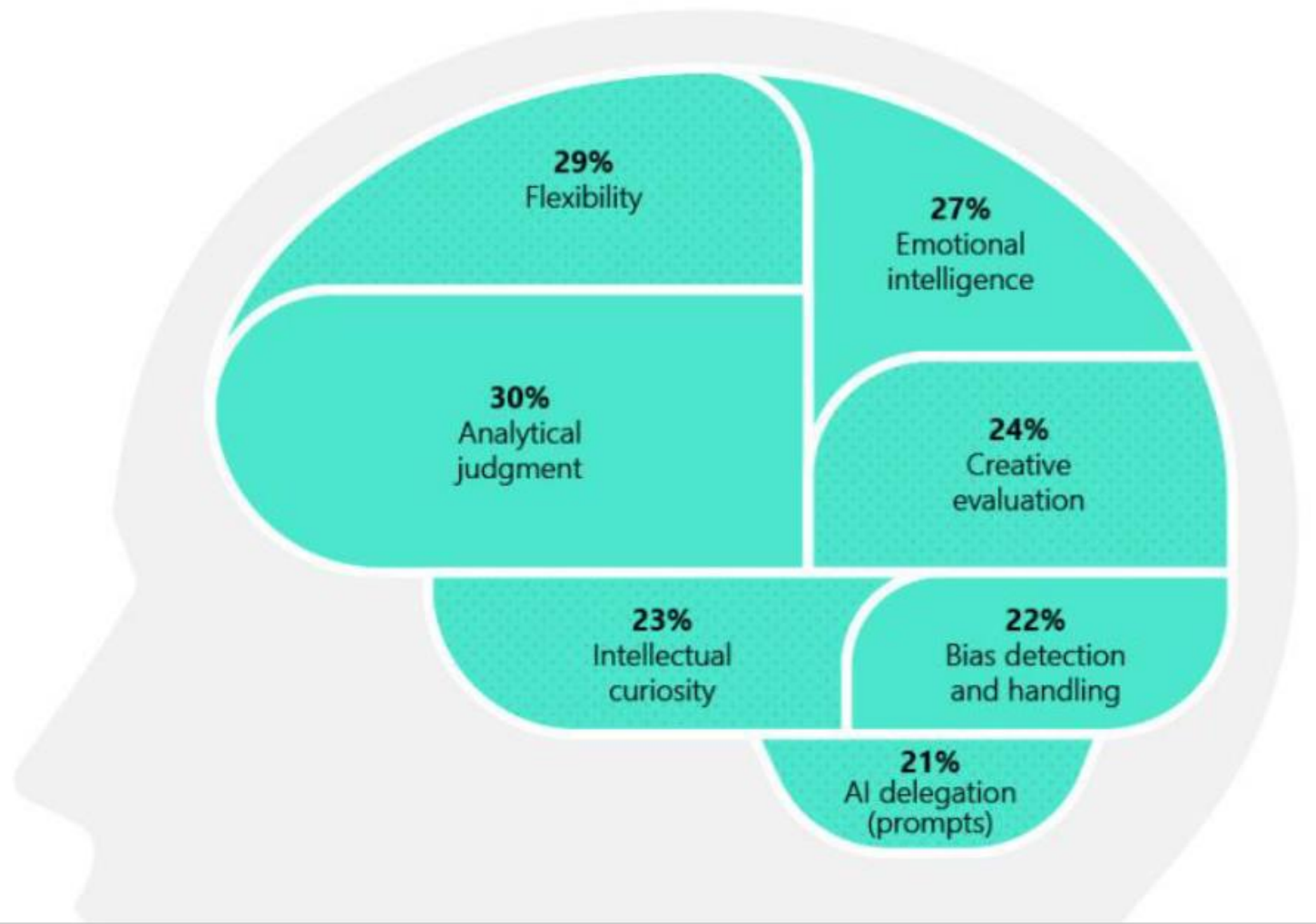
# The Indispensable Role of **Management** in the AI Era

As organizations continue to evolve, the focus should not be on removing layers but on **optimizing the collaborative potential between humans and machines.**

The **abilities of strong leaders and managers** to interpret, adapt, and execute will not only remain relevant but **will become the cornerstone skills for corporate success.**

As AI evolves, **understanding the needs and motivations of both employees and customers will be irreplaceable.**

<https://www.forbes.com/sites/forbestechcouncil/2023/09/22/the-indispensable-role-of-middle-management-in-the-ai-era>





# The Future of Work: two challenges “never” faced above

time

## The PASSING of the HORSE

THE silent horse power of this runabout is measurable, dependable and spontaneous. The horse power generated by supplies of hay and oats is variable, uncertain and irresponsible.

There is “Nothing to watch but the road” when you drive

### The Oldsmobile

“The best thing on wheels”

You see them everywhere—Doctors, Lawyers and Merchants find the Oldsmobile the most practical vehicle for business purposes. Ladies and children can readily understand its mechanism. Unvarying reliability proves it is built to run *and does it*.

Price \$65000

Selling agencies are established in all the larger cities, where you will be gladly accorded the privilege of trying the Oldsmobile on the road. Write for illustrated book to Dept. G.

Olds Motor Works

OFFICES, Detroit, Mich.  
FACTORIES—Detroit and  
Lansing



space



# HOW TO CREATE AN AI-POWERED COMPANY

Strategy

Organization

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Strategy

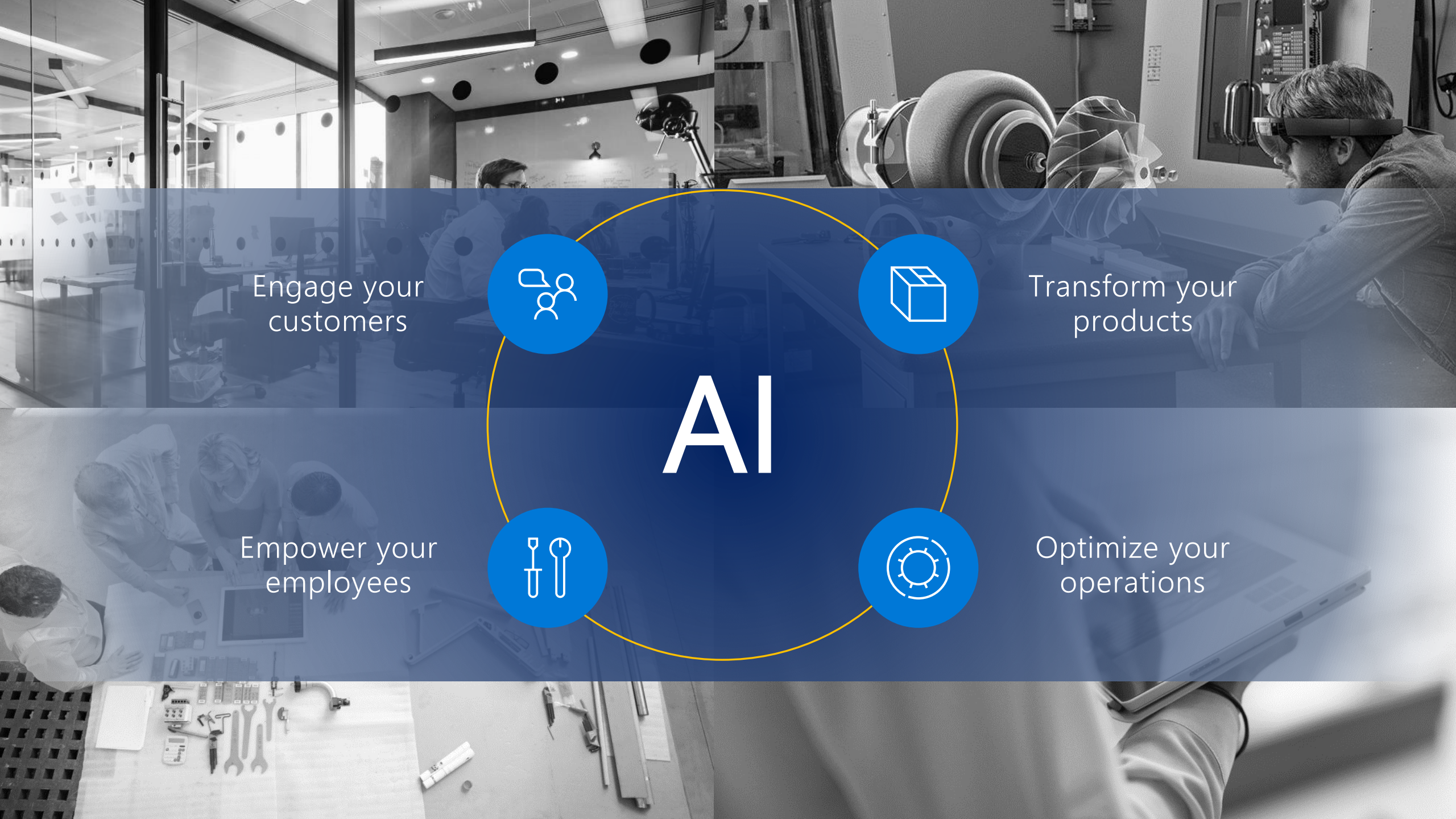
Organization

Processes

Culture

Technology

Skills



Engage your customers



Transform your products



Empower your employees



Optimize your operations



# AI

# The ethics of AI begins with **Strong Principles**



# Putting Responsible AI into practice: **A Holistic View**



- ✓ Create ethicist roles and ethics training
- ✓ Define principles and a code of ethics
- ✓ Implement a governance model
- ✓ Advocate from the top, at all layers

| The future





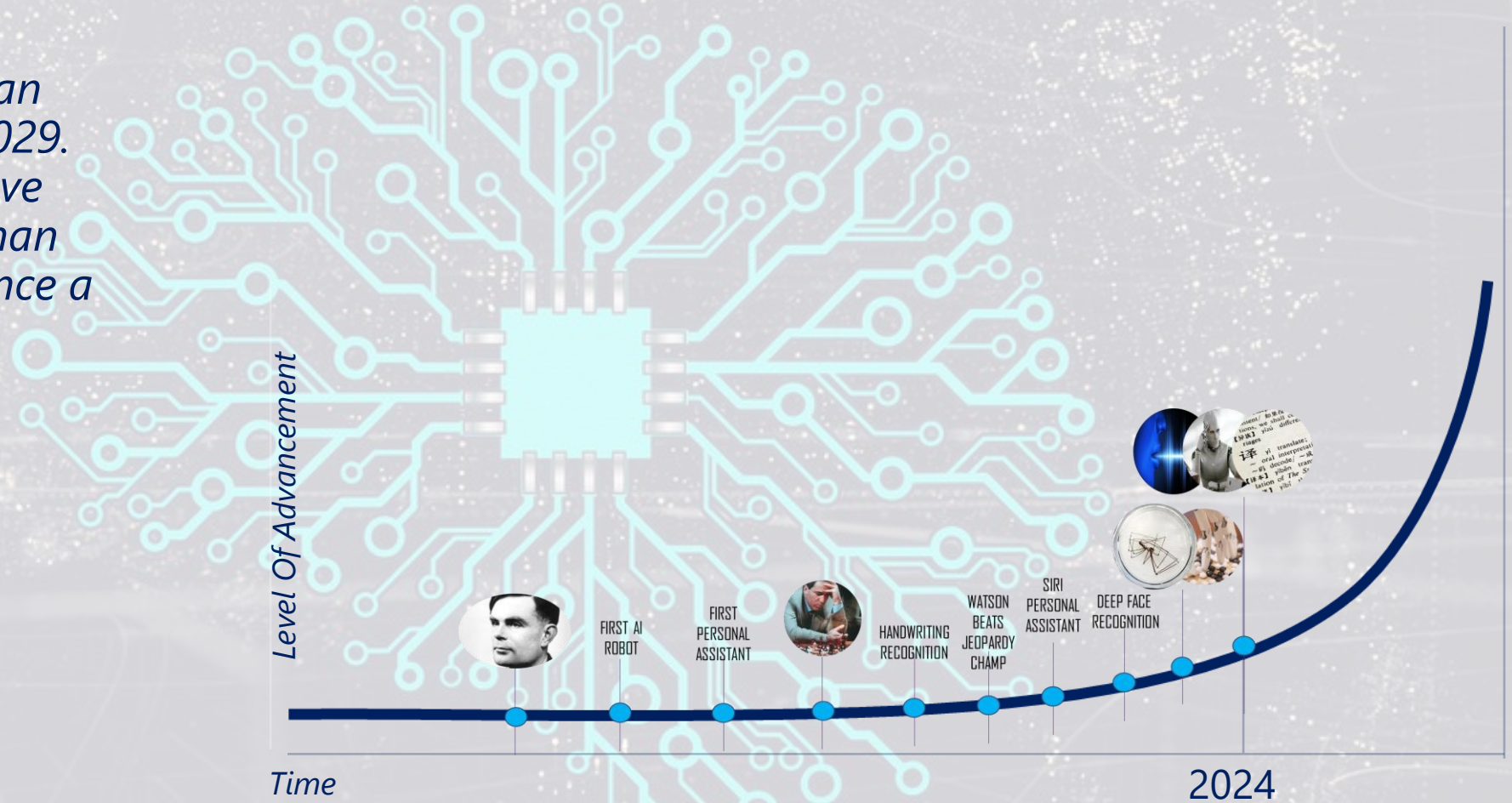
# LOOKING INTO THE NEAR FUTURE... ...of an Exponential Evolution

*"AI will reach human levels by around 2029. By 2045 we will have multiplied our human biological intelligence a billion-fold"*



**Ray Kurzweil**

*In February 2009, Kurzweil, announced the creation of the Singularity University training center for corporate executives and government officials.*



Why AI?

Why NOW?



EXTREME  
COMPUTING

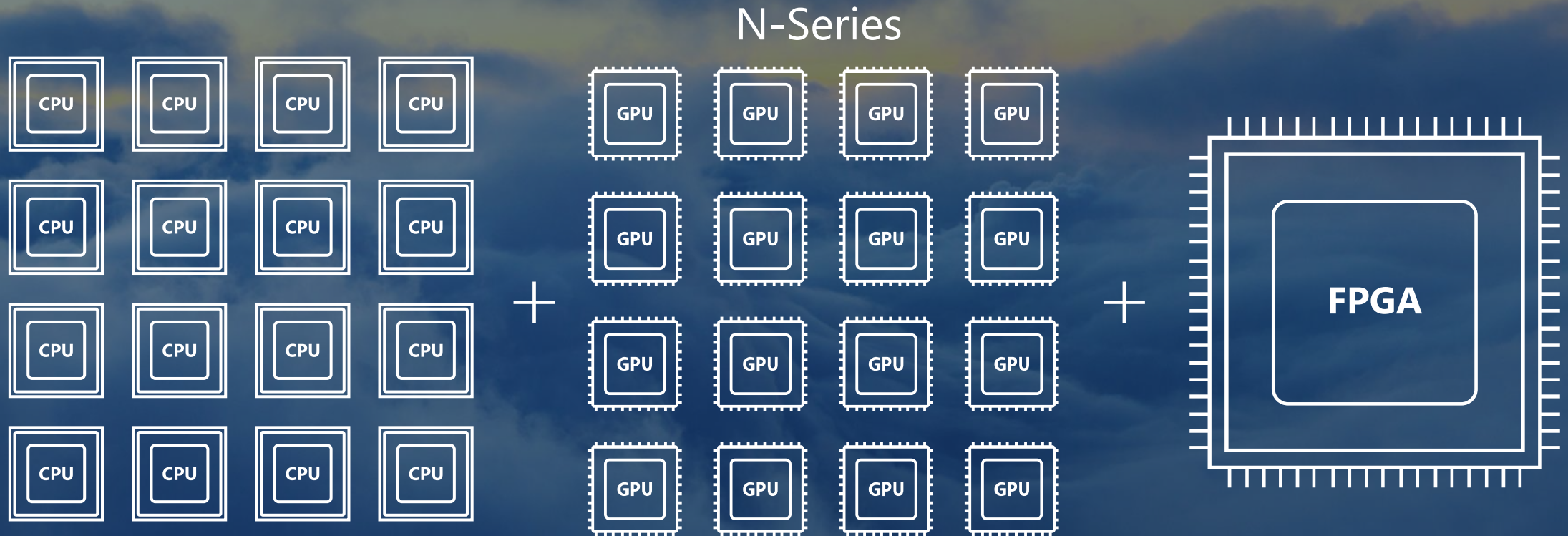


EXPONENTIAL  
DATA



ADVANCED  
ALGORITHMS

# COMPUTING POWER



The background features a complex, abstract pattern of glowing orange and red lines on a black field. These lines form a network of interconnected, irregular shapes, some resembling elongated, branching structures or a stylized, multi-pointed star. The lines vary in thickness and intensity, creating a sense of depth and movement.

# EXTREME COMPUTING

The background of the image is a complex, fractal-like pattern. It consists of numerous interconnected, irregular shapes and lines, primarily in shades of cyan and red, set against a dark, almost black background. The pattern has a sense of depth and complexity, with some areas appearing more dense and others more sparse. The overall effect is reminiscent of a microscopic view of a biological structure or a highly detailed mathematical fractal.

# QUANTUM COMPUTING

# EXPONENTIAL DATA





EFFORTS TO SHRINK COMPUTER MEMORY ARE HITTING PHYSICAL LIMITS  
THE PROBLEM WE ARE SOLVING IS THE EXPONENTIAL GROWTH OF STORED INFORMATION

# EXPONENTIAL ALGORITHMS

THE ERA OF NEURAL NETWORKS







**Which future?**





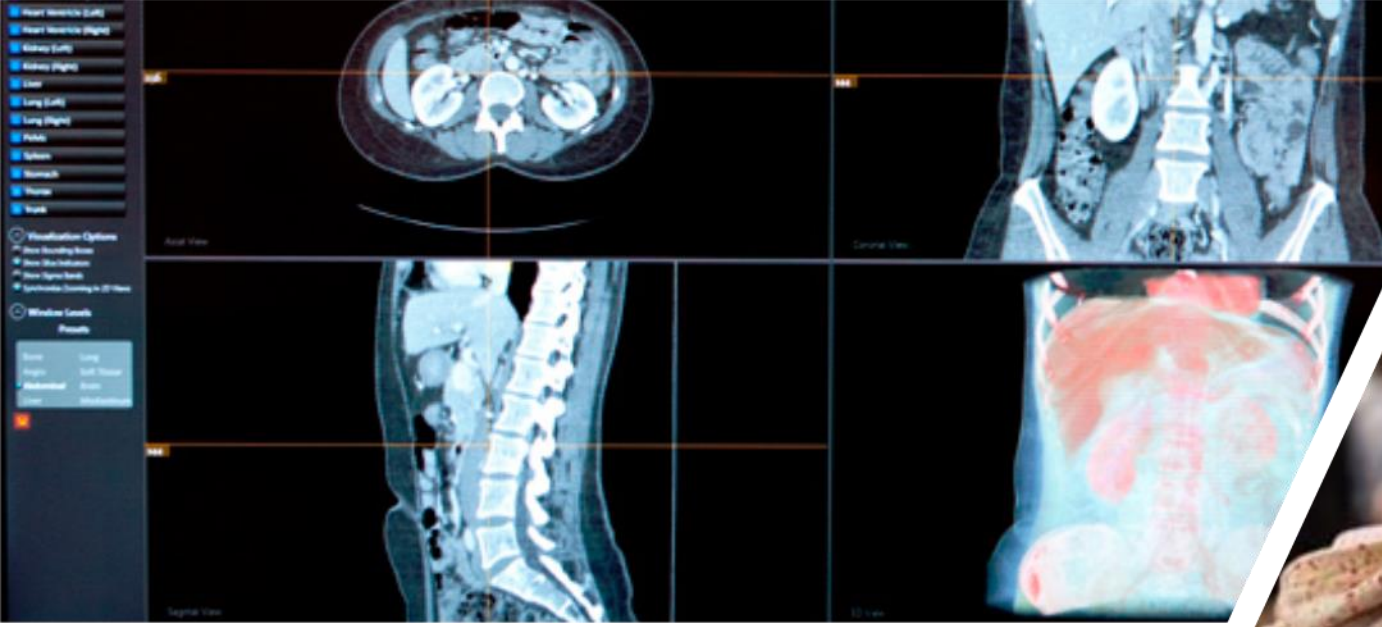




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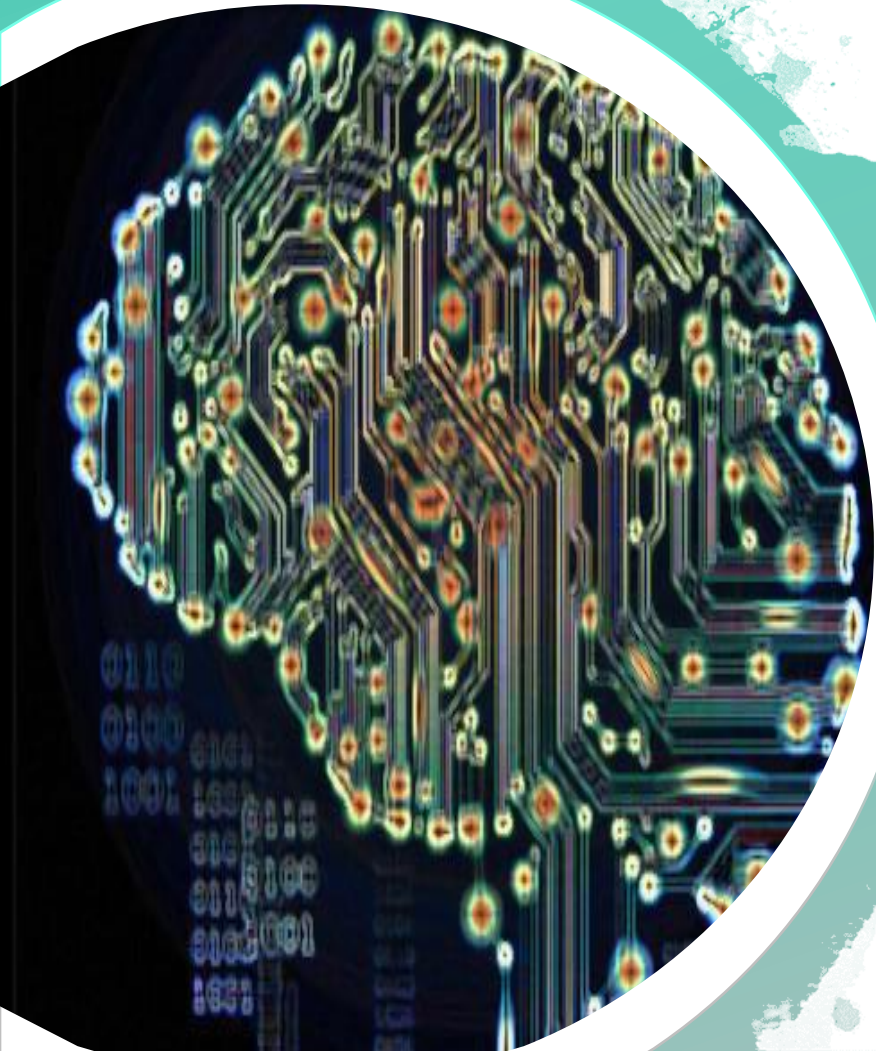
# TRAINING ALGORITHMS





# TOWARDS NEW COLLABORATION PARADIGMS

(Augmenting our Intelligences)



...and AS AI CAPABILITIES  
GROW WHAT MATTERS MOST  
WILL BE...





...and AS AI CAPABILITIES  
GROW WHAT MATTERS MOST  
WILL BE...



WITH  
GREAT POWER  
COMES  
GREAT RESPONSIBILITY



WITH  
GREAT RESPONSIBILITY  
COMES  
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