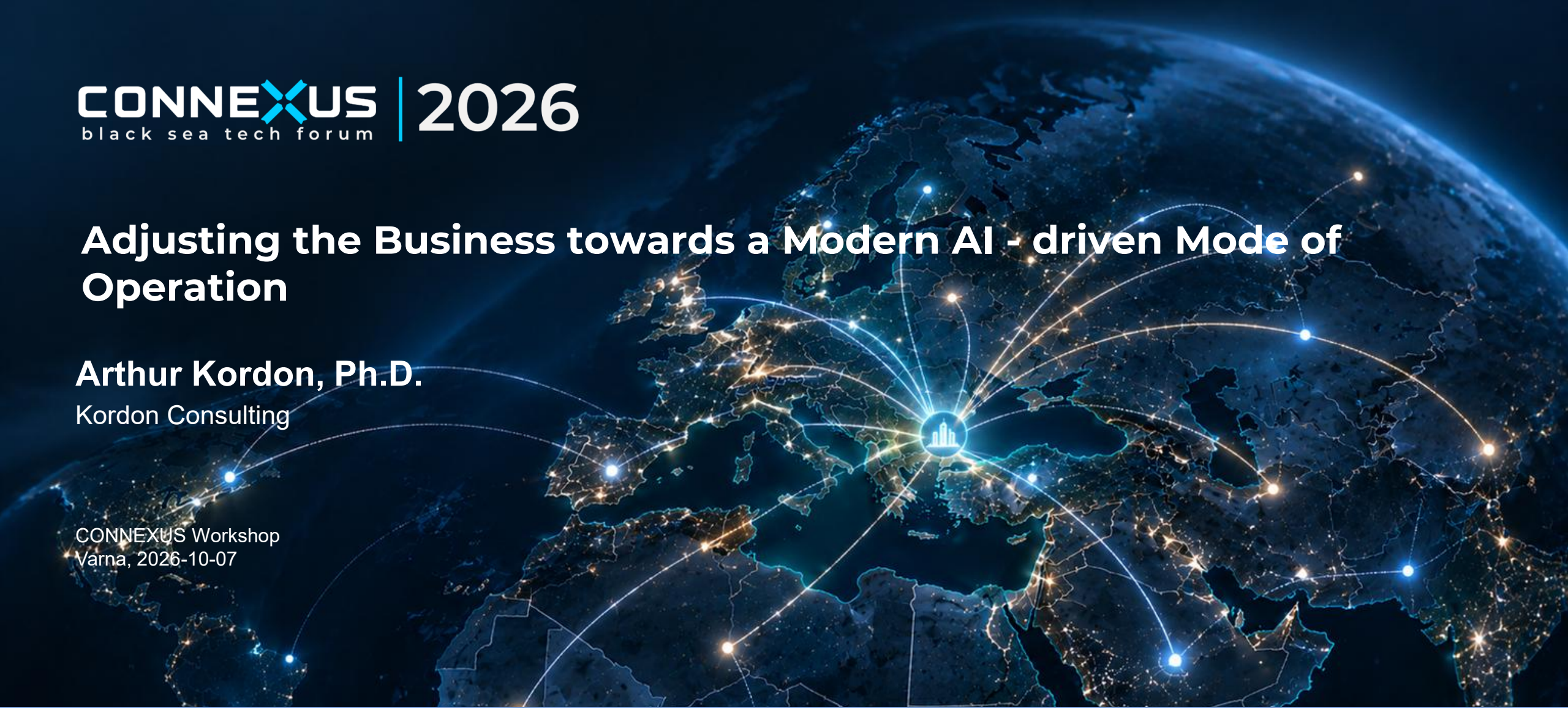
CONNEXUS black sea tech forum 2026

Adjusting the Business towards a Modern AI - driven Mode of Operation

Arthur Kordon, Ph.D.
Kordon Consulting

CONNEXUS Workshop
Varna, 2026-10-07



ICT CLUSTER VARNA

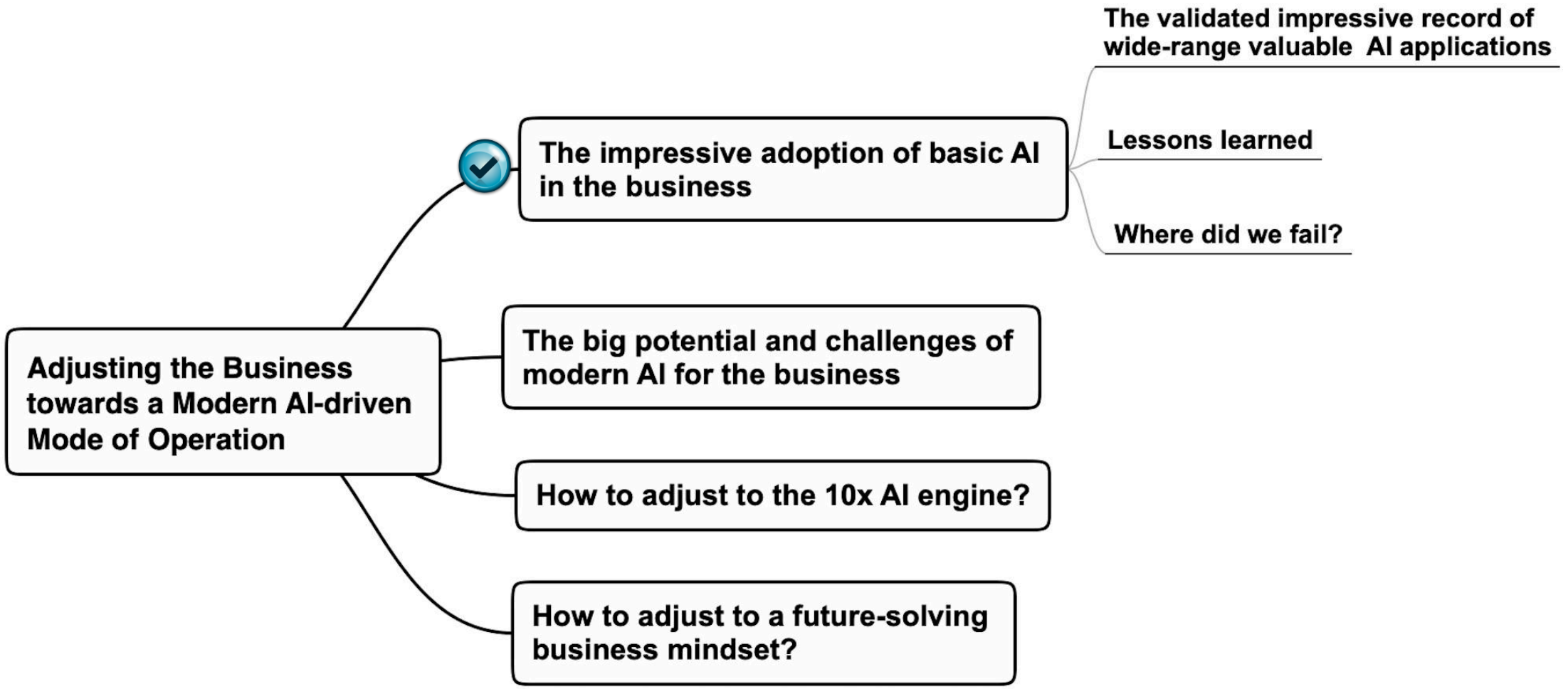
BSMEPA BULGARIAN SMALL AND MEDIUM ENTERPRISES PROMOTION AGENCY

BAPHA

BRAIN++ AI FACTORY

ARC FUND

Outline


Adjusting the Business towards a Modern AI-driven Mode of Operation
The impressive adoption of basic AI in the business
The validated impressive record of wide-range valuable AI applications
Lessons learned
Where did we fail?
The big potential and challenges of modern AI for the business
How to adjust to the 10x AI engine?
How to adjust to a future-solving business mindset?

Basic AI as a solution for cutting costs:

Predictive maintenance: Reducing paper machine breaks



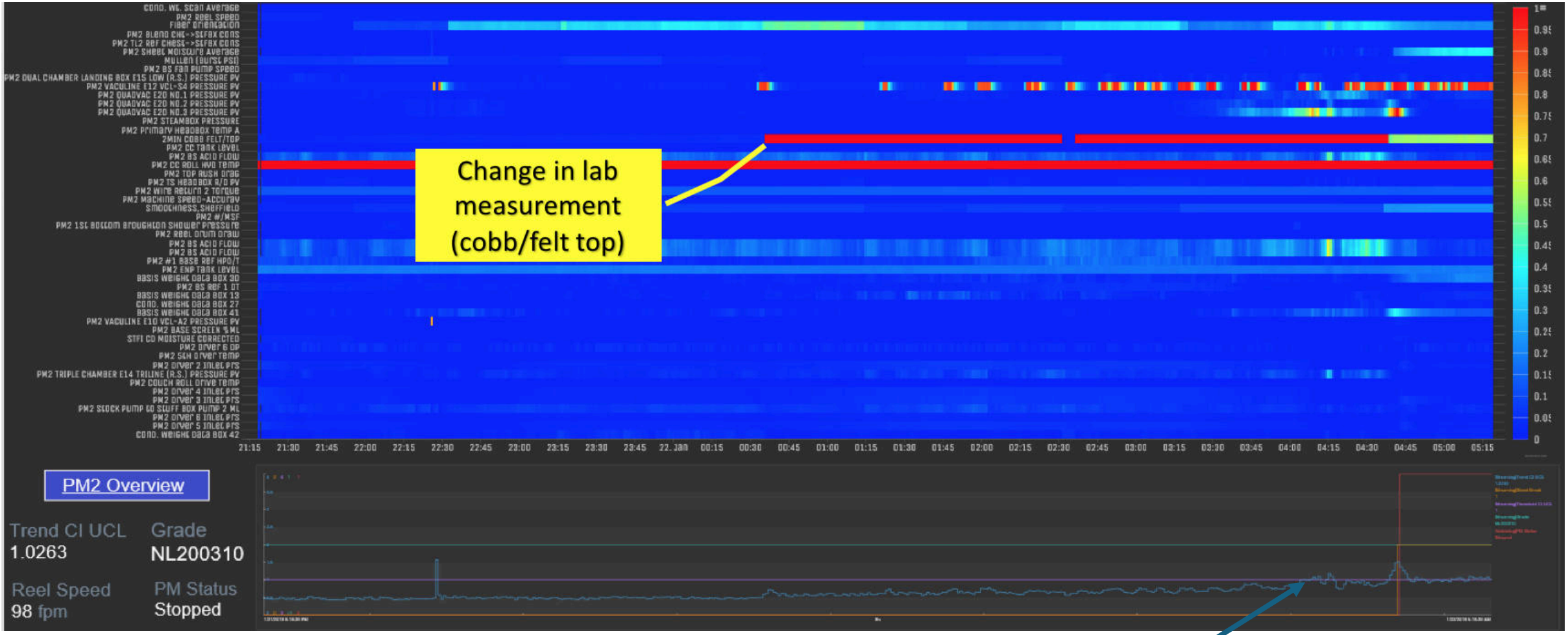
Paper machine

Paper machine breakdowns led to 1.6 hours average loss of production time per day, which amounts to $6–8 million per year for each production line.

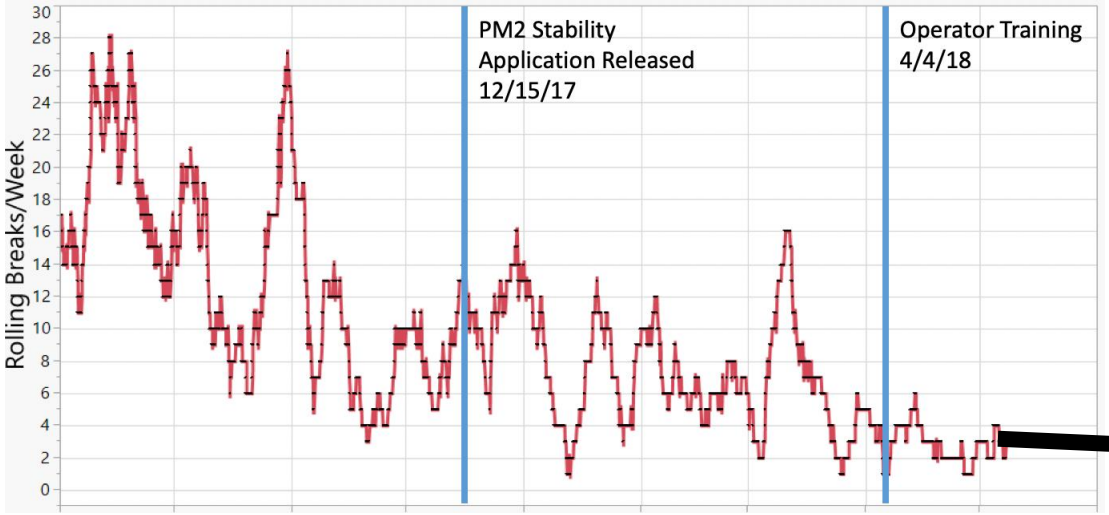


Stops after paper machine break

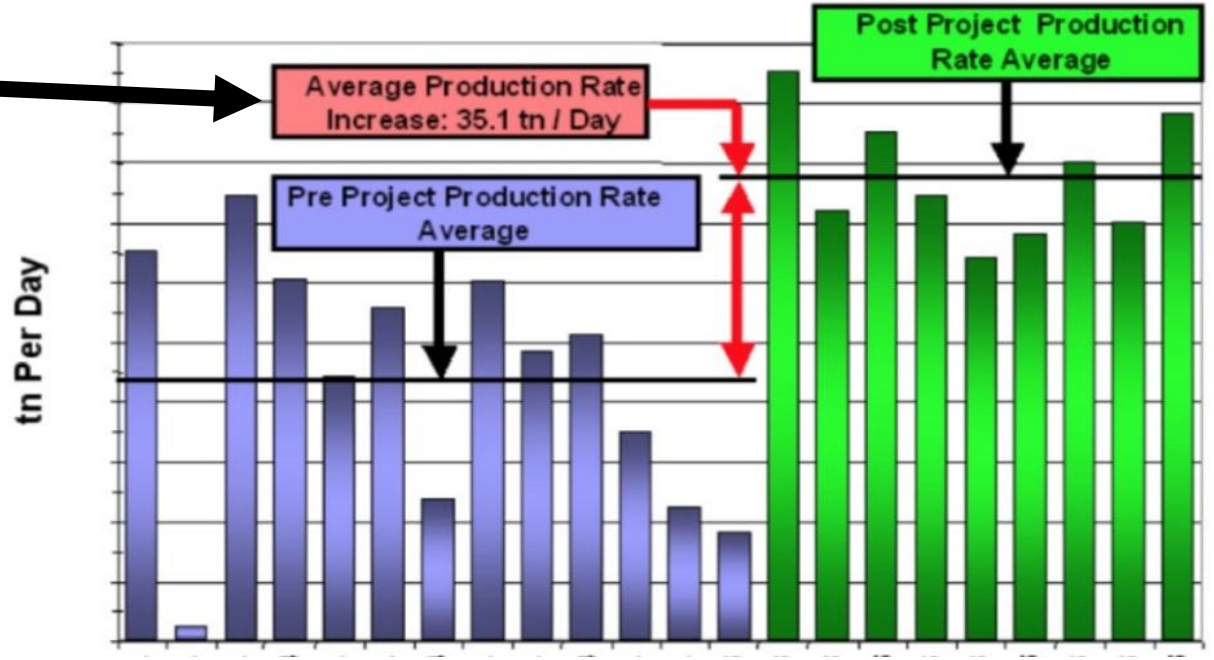
Predictive paper machine breaks: Real-time system operation



Loss reduction savings from predictive maintenance



Loss reduction savings of a paper machine due to reduced breaks by AI-based predictive maintenance



Predictive maintenance based on integration of statistics and autoencoder methods

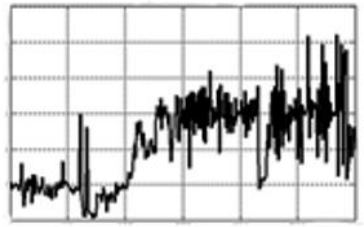
Basic AI as a solution for increasing productivity:

Intelligent Business Optimizer Solution in a large paper manufacturing company

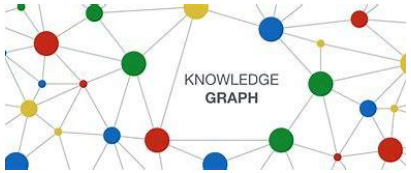
Business domain knowledge



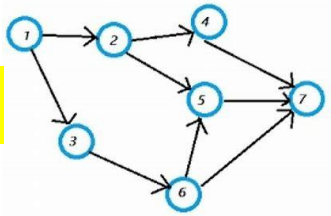
Business data



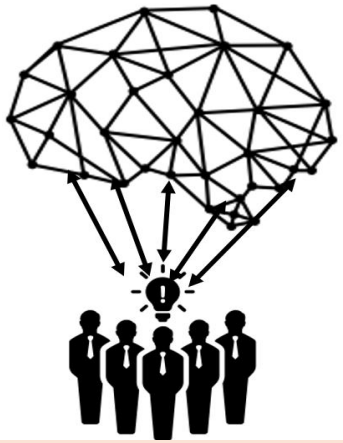
Knowledge graphs



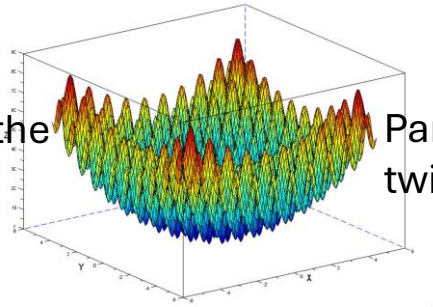
Causal models



Machine teaching



Digital brain of the Enterprise



Parallel digital twins

Intelligent Business Optimizer

Suggested optimal solution



Pilot project: how the Digital Brain of the Enterprise could combine subject matter experts' tacit knowledge with production data to make more intelligent and automated decisions.

The pilot study showed a 10X increase in touchless processing of customer order throughput. The system fixed some order management errors that used to take days to resolve in seconds.

Basic AI as a solution for growing the business

Accelerated new product development development

Fundamental Model Building

Theoretical Analysis

$$\frac{dT}{dt} = a\frac{\partial^2 T}{\partial z^2} - \frac{DH}{C_p r}\frac{dc}{dt}$$

Hypothesis Search



Fundamental model

$$y = a + [b\,x_1 + c\log(x_2)]\,e^{kx_3} + d\,x_5$$

Development time



Page of calendar

3 months

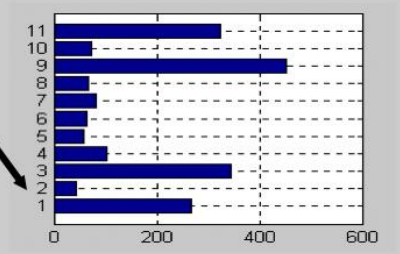
Structure-property data sets



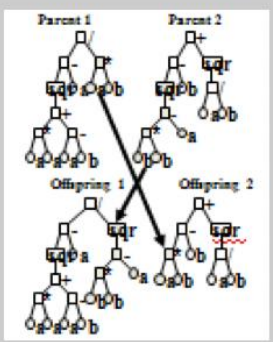
Fundamental Model Building + Symbolic Regression = Accelerated New Product Development

Symbolic Regression

Sensitivity Analysis

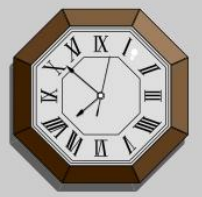


Simulated Evolution



Symbolic Regression Model

$$y = a + b\left(\frac{\sqrt{e^{\frac{-x_3}{\log(x_1 x_5^2)}}}}{e^{-x_3} + \log(x_2)} + \sqrt{x_1} + x_5\right) \quad (2)$$



10 hours

By using genetic programming, new product model development time is significantly shortened

Key Lessons from 33 Years Applying AI

- **Top management vision and consistent support are ABSOLUTELY needed for the success of AI applications**

- **Technology is changing fast, but key business problems remain persistently the SAME**

- **Including employees who use AI applications in the development and sharing of benefits is KEY to acceptance**

- **Deep expert knowledge, scientific and engineering principles CANNOT be replaced by voodoo coding**







Where did we fail?

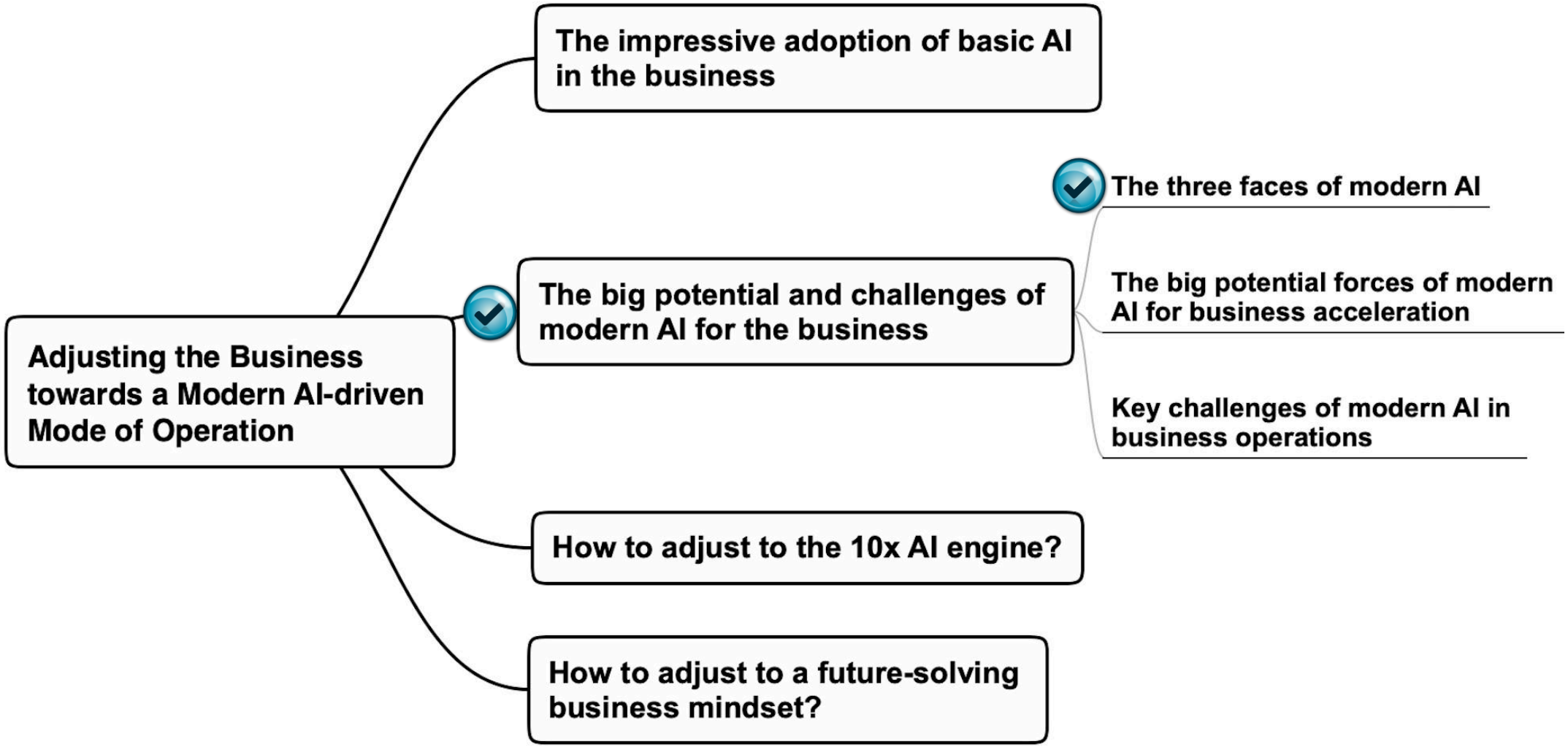
The total cost of ownership of an AI system in a business was relatively high

The skill set needed to develop and deploy AI business solutions was expensive to build, and the required labor force was scarce.

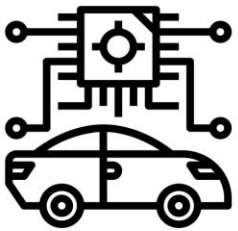
The AI-driven business solutions were non-standard, with an R&D component, and difficult to organize in a standard way.

Most business leaders were not effectively convinced to build the vision and take the risk of applying AI in their business.

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The big potential forces of modern AI for business acceleration
Key challenges of modern AI in business operations
How to adjust to the 10x AI engine?
How to adjust to a future-solving business mindset?

The three faces of modern AI



Basic AI

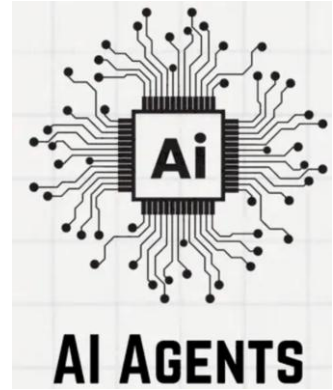
After 1956

Algorithms

Generative AI

After 2017

The masses

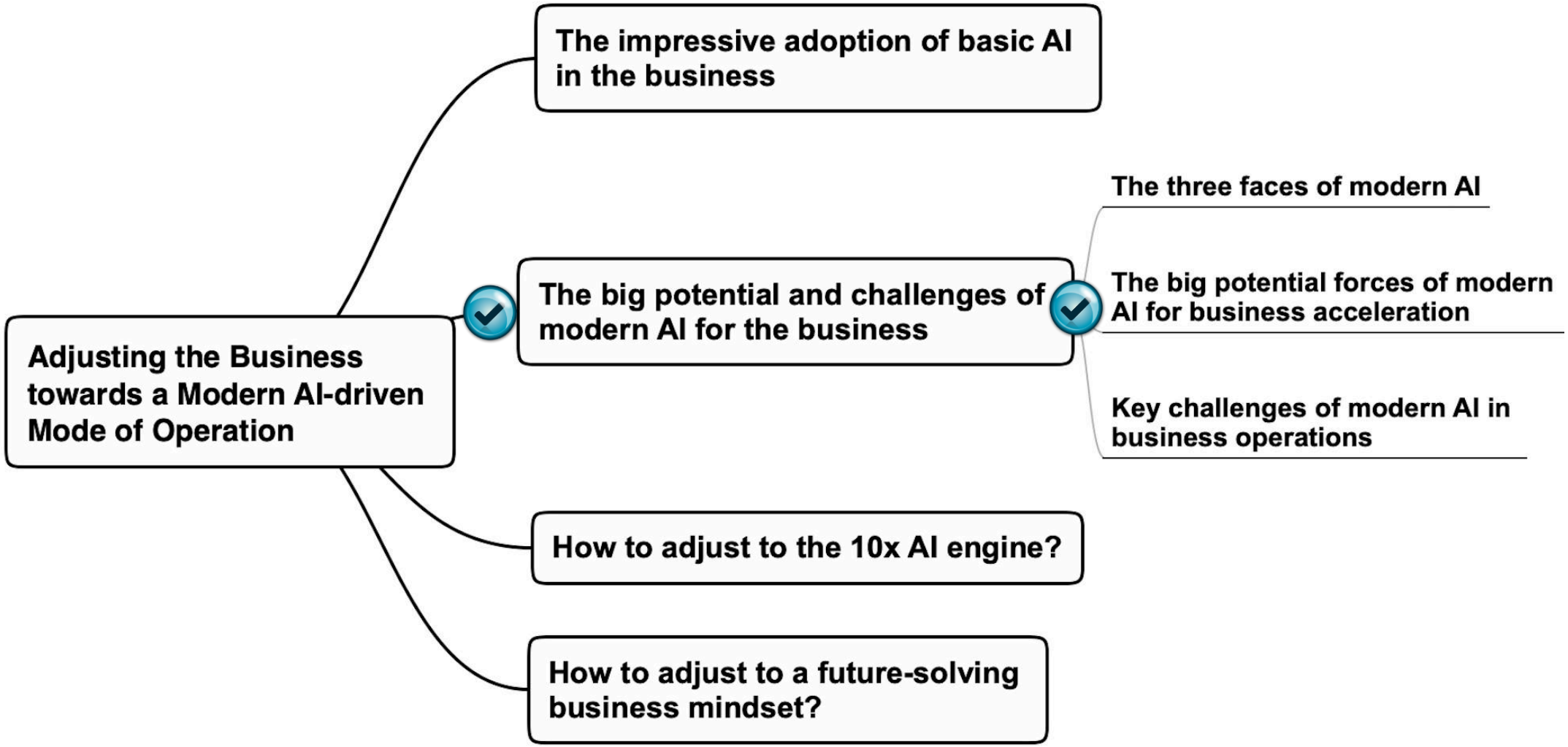


Agentic AI

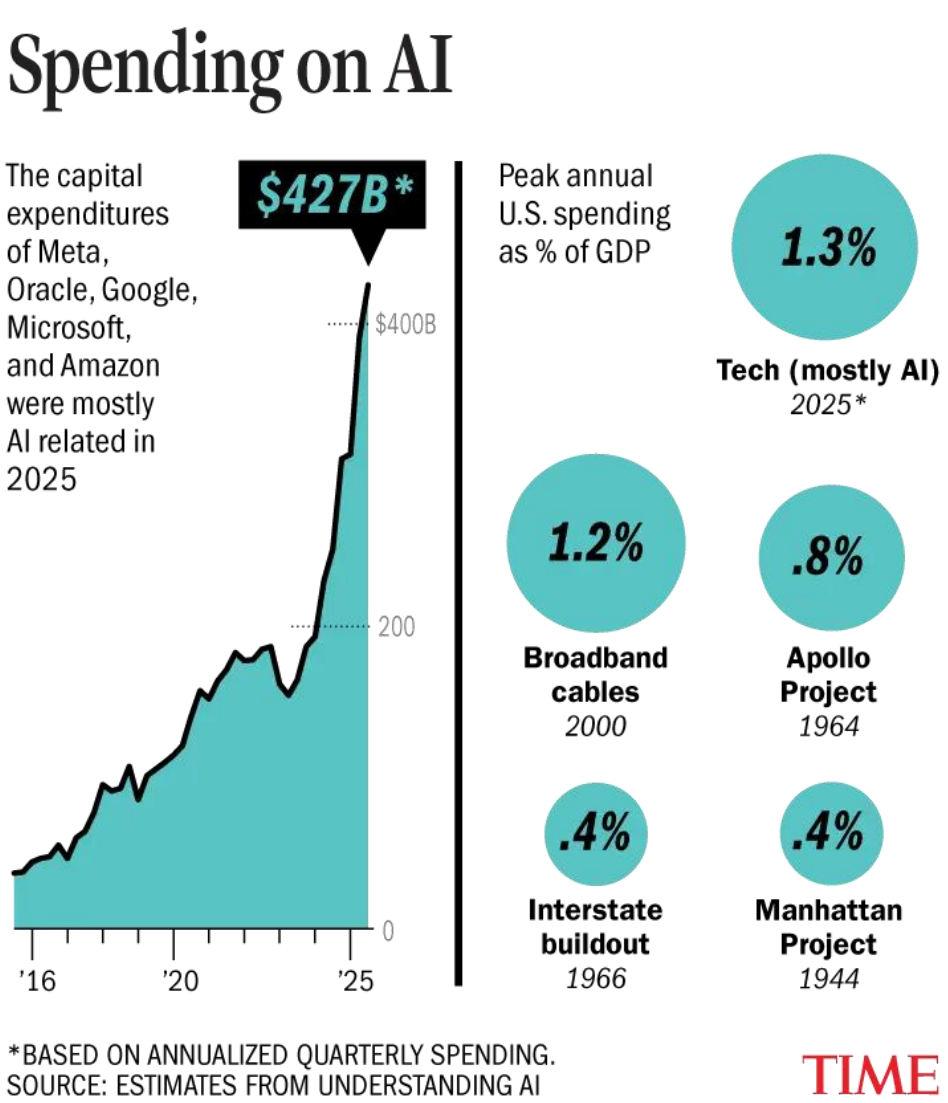
After 2024

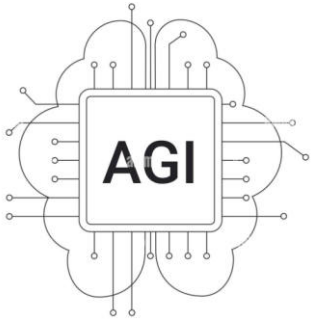
Autonomy

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The investors' exponential engine for funding AI OR The **Gold Rush** towards AGI

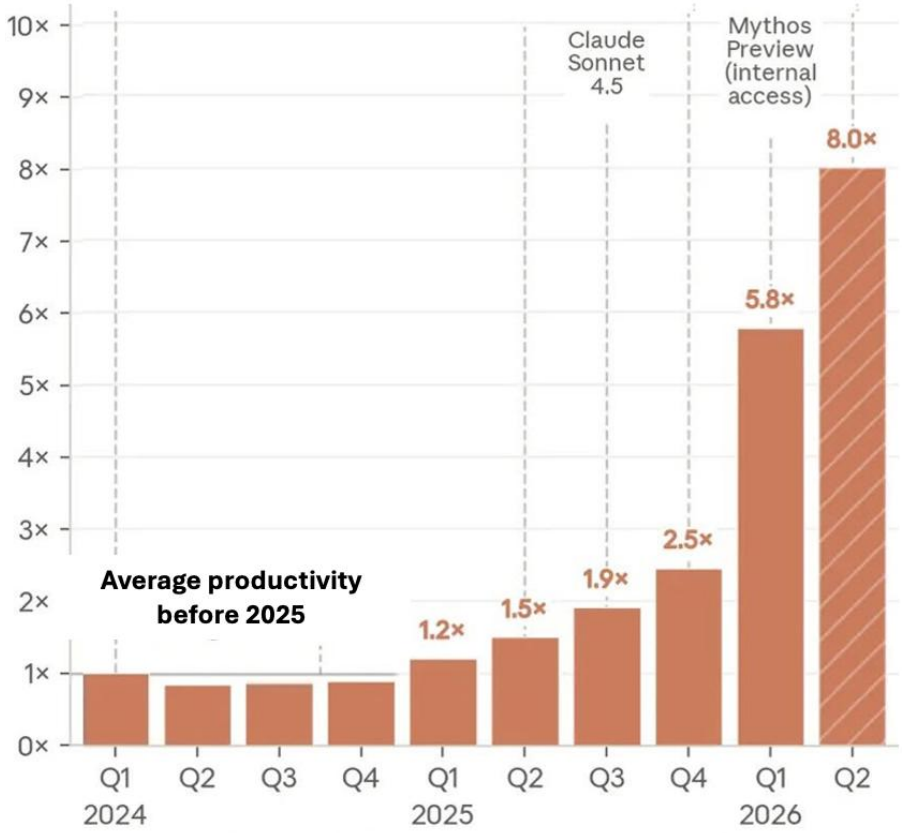




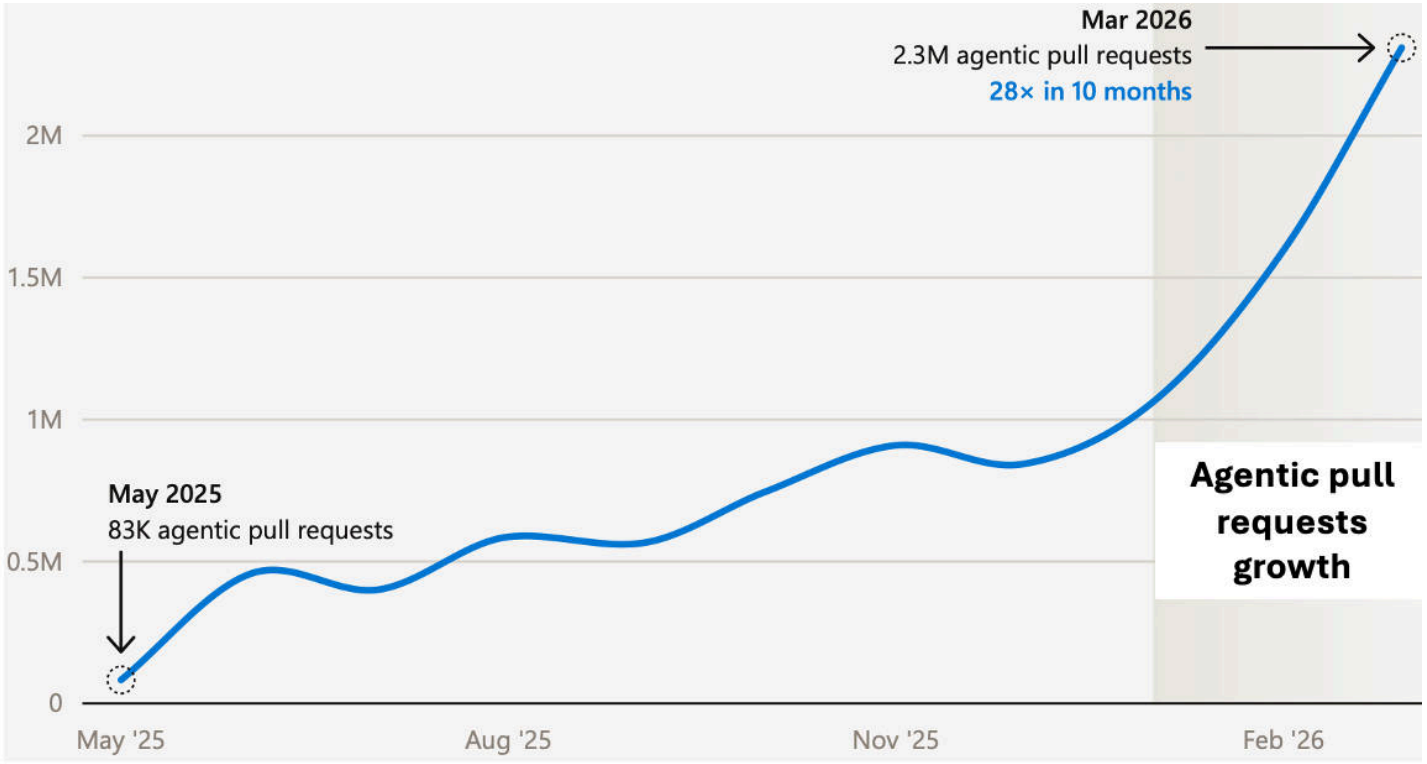




The technological exponential engine for accelerating AI productivity

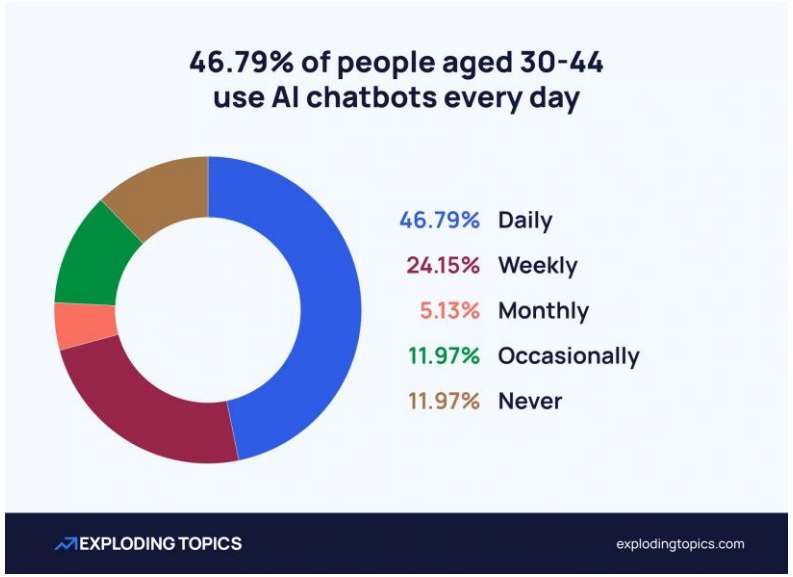


Automatic code generation productivity has increased 10x after 2025



AI agentic demand has exploded 28x in 10 months after May 2025 everywhere

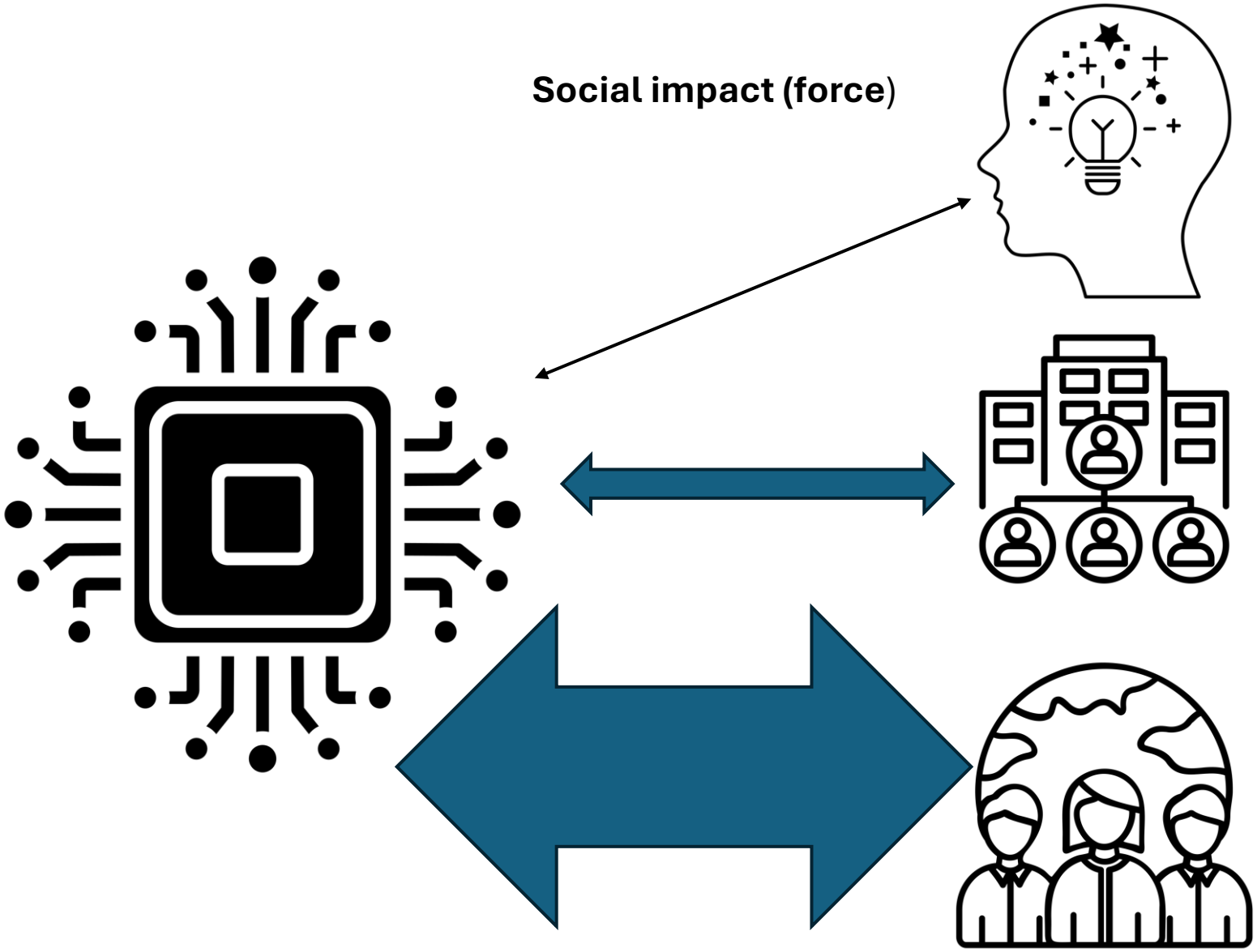
AI has been used by billions of people and millions of professionals on a daily basis



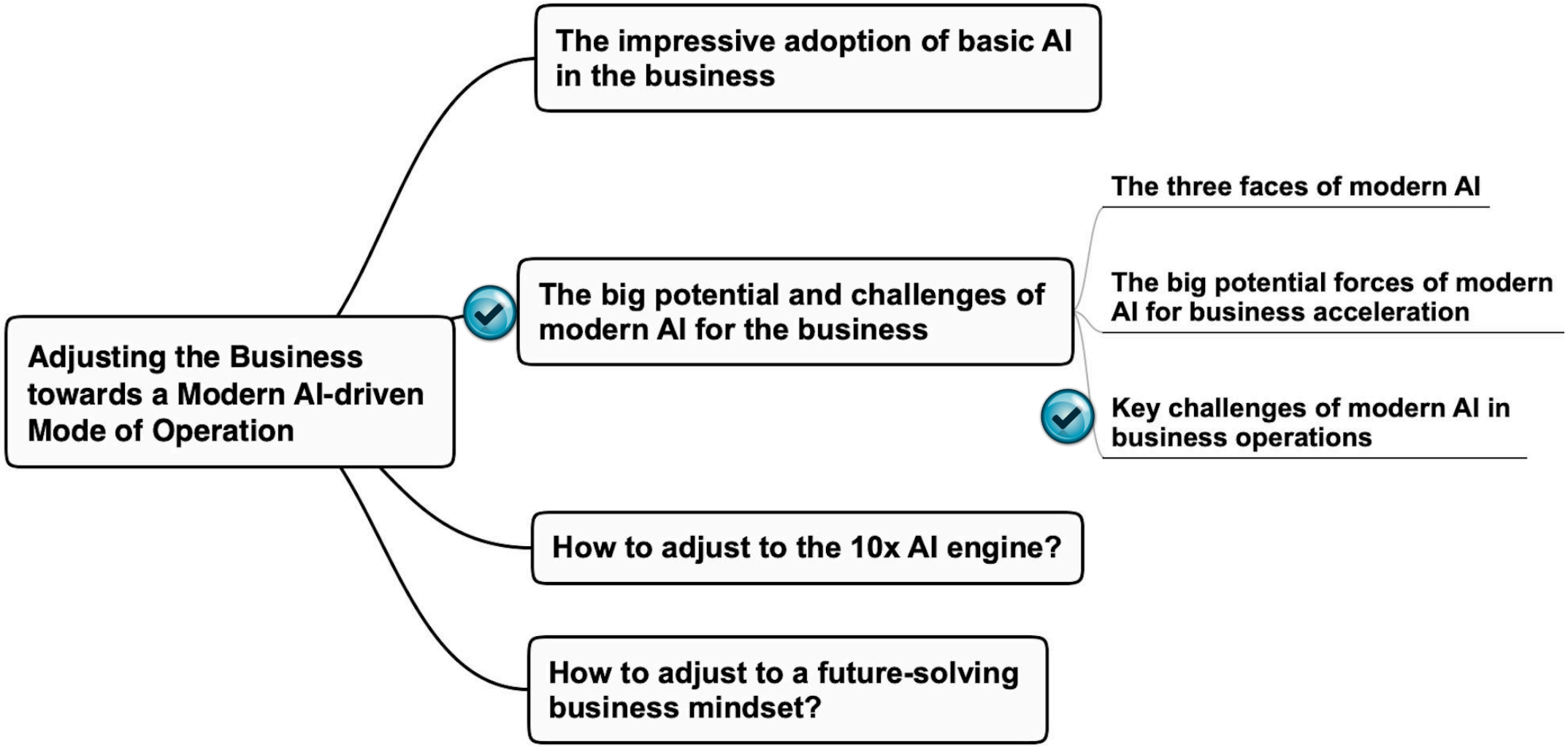


https://explodingtopics.com/blog/ai-usage-statistics

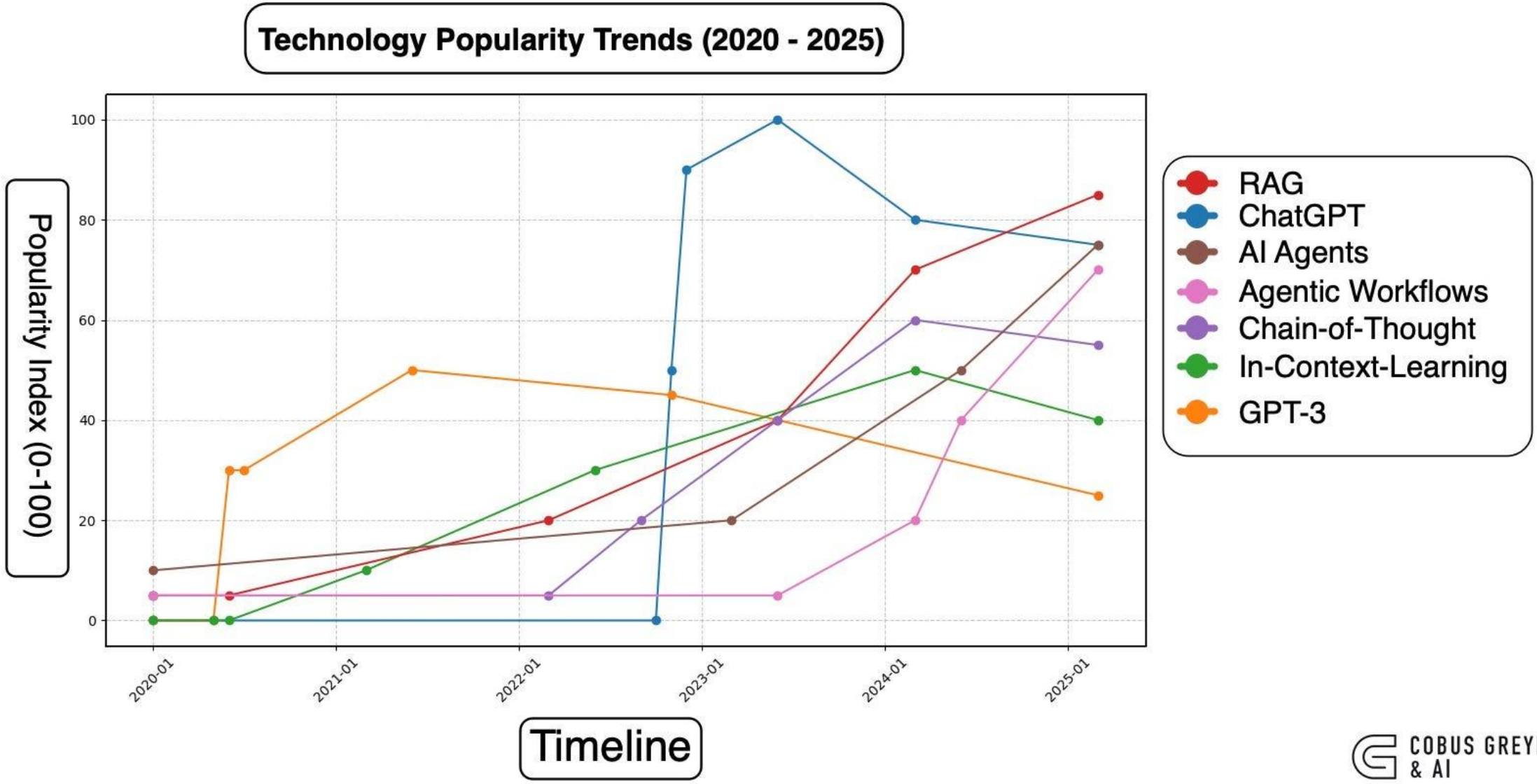
The social impact of AI applications has to be taken into account



Outline

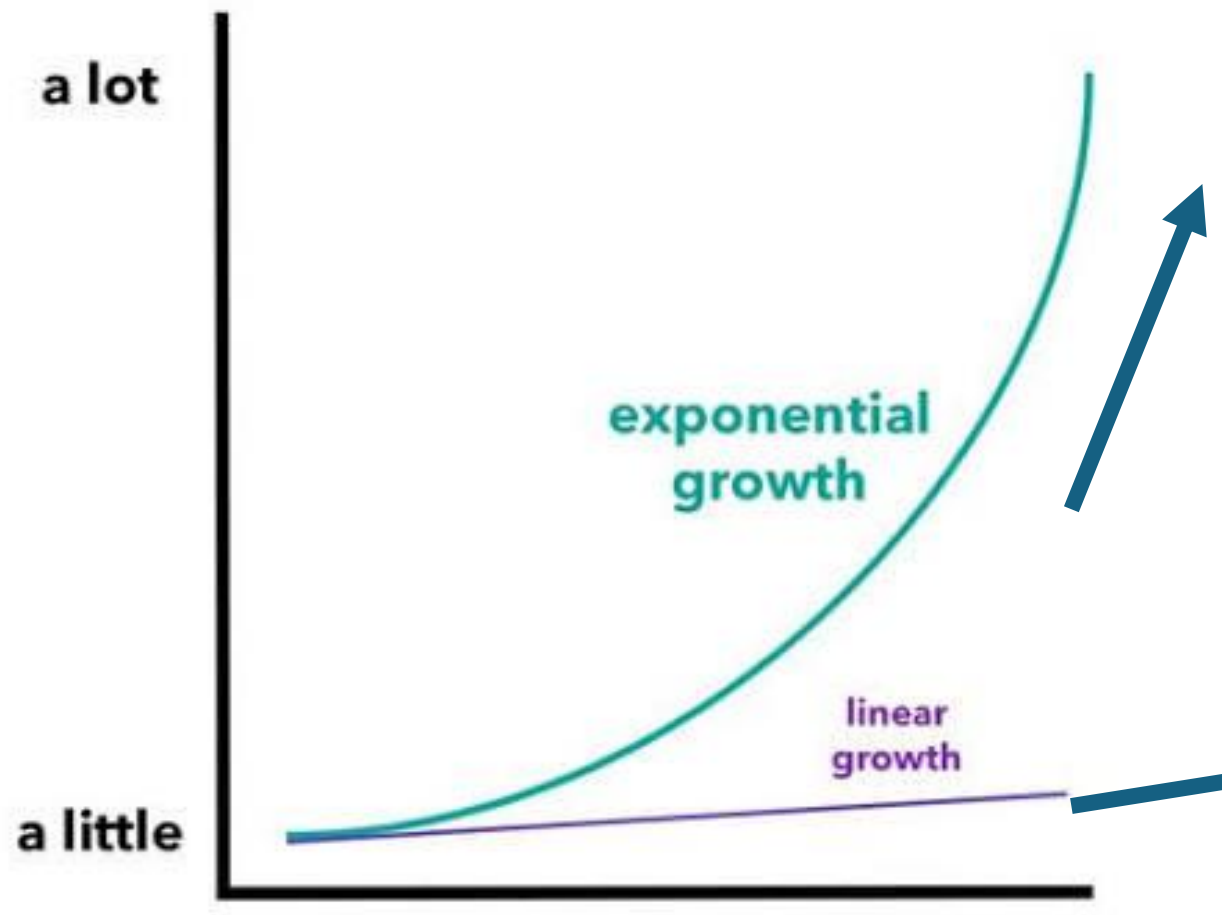

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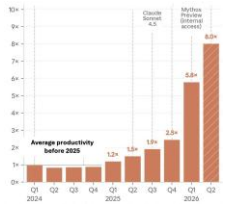
High dynamics of fundamental changes after 2020



COBUS GREYLING & AI

The speed of business change becomes the key competitive challenge



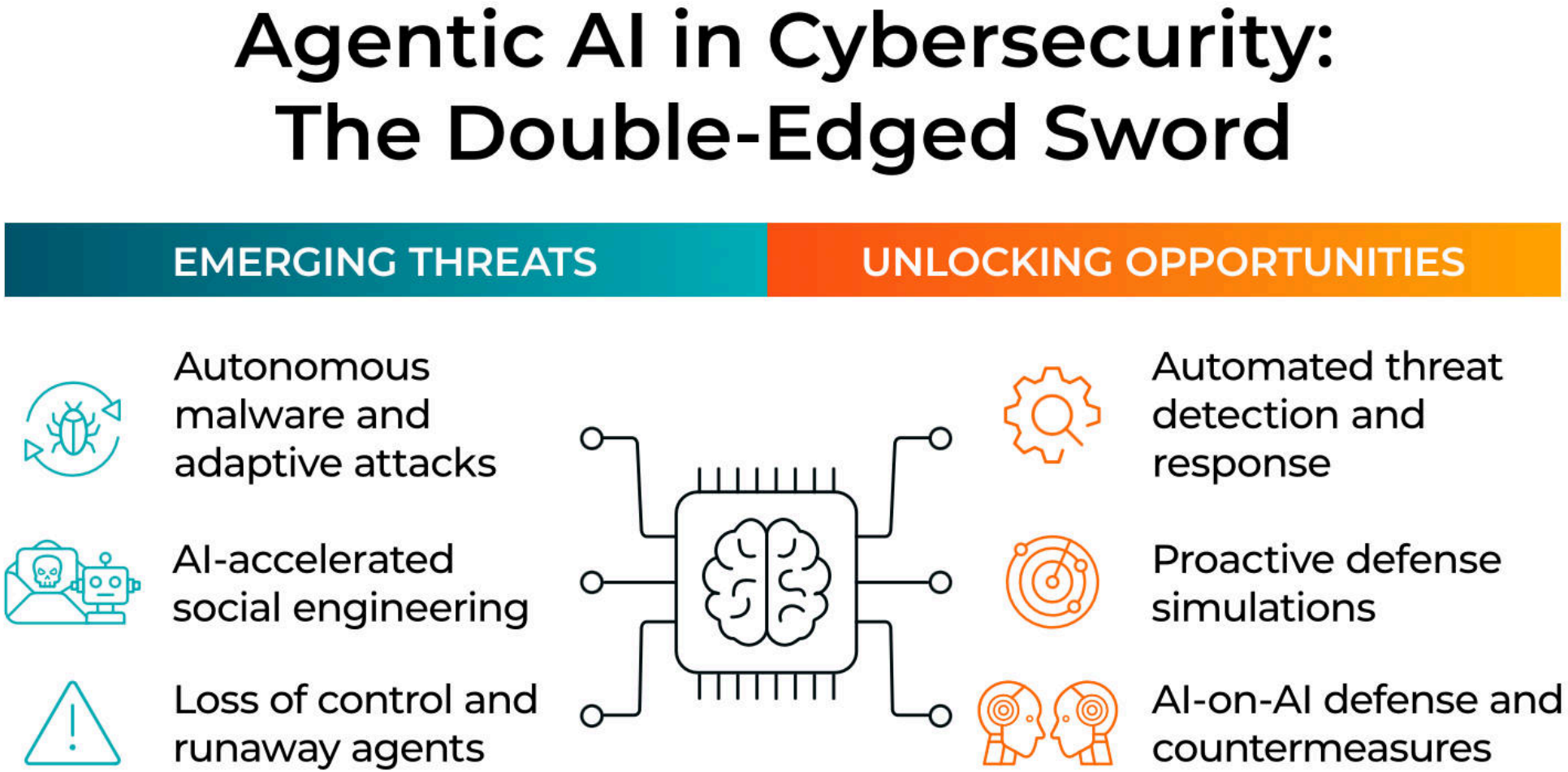


Acceleration



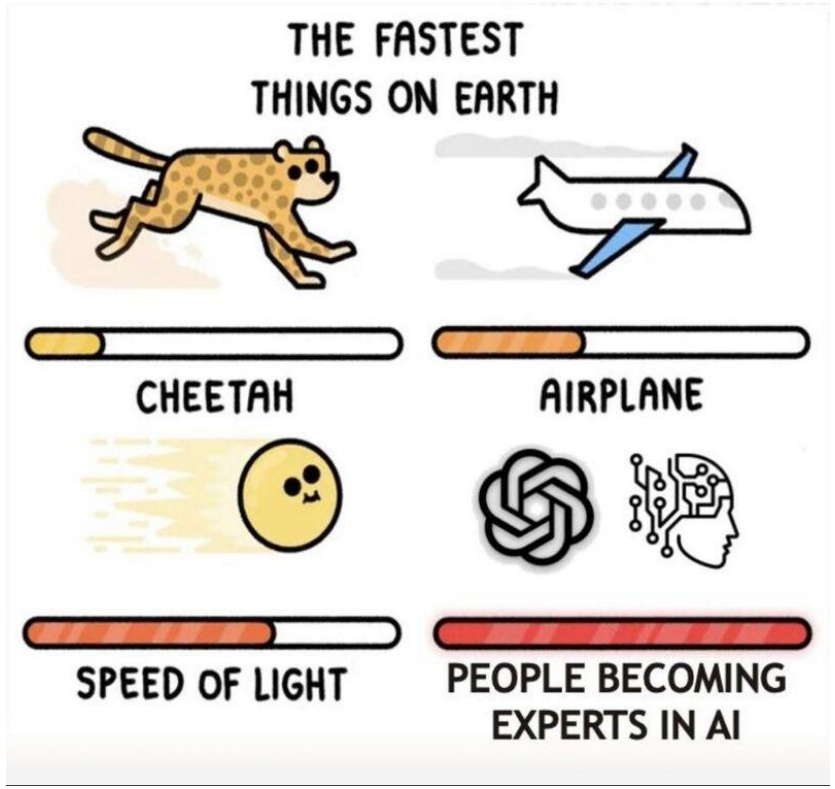
Hesitation

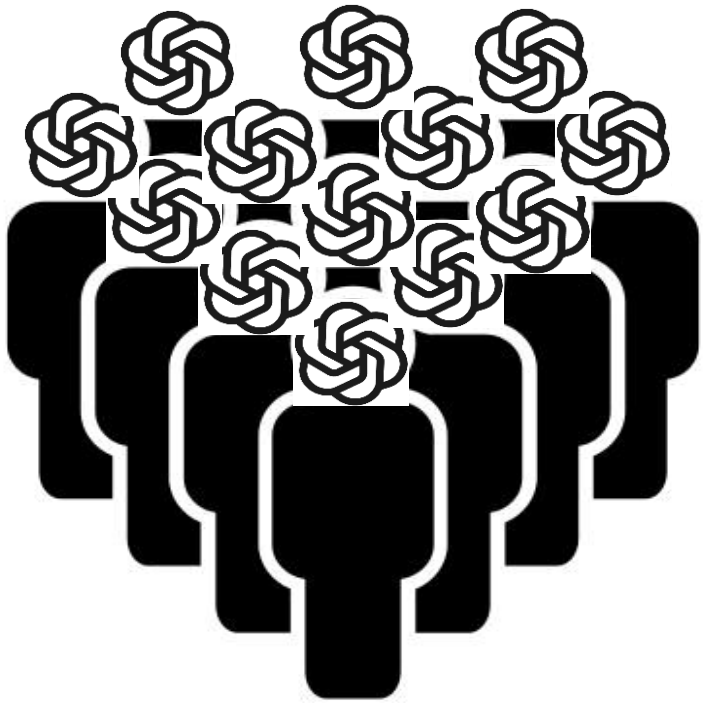
Agentic Cybersecurity challenge



Deep AI knowledge deficit

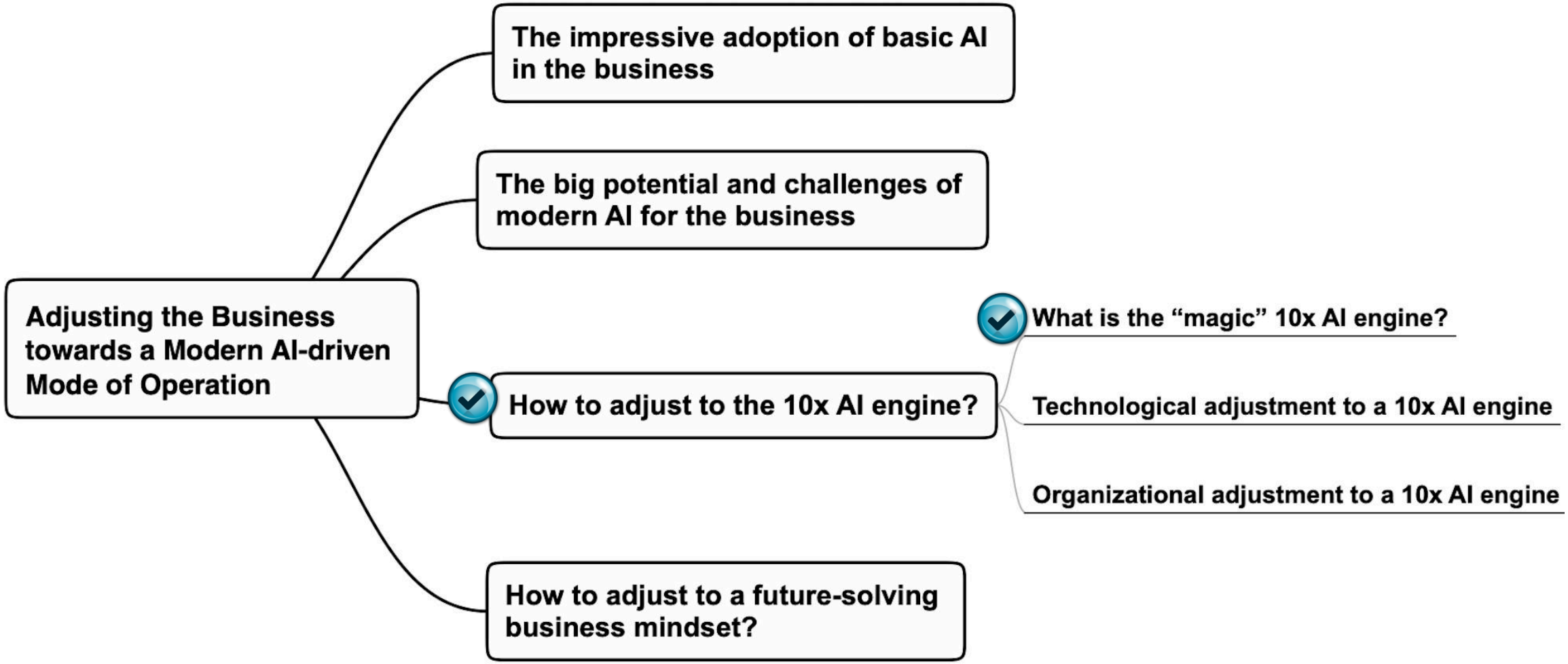
The dilution of deep AI knowledge





All we need is ChatGPT

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The 10x AI engine



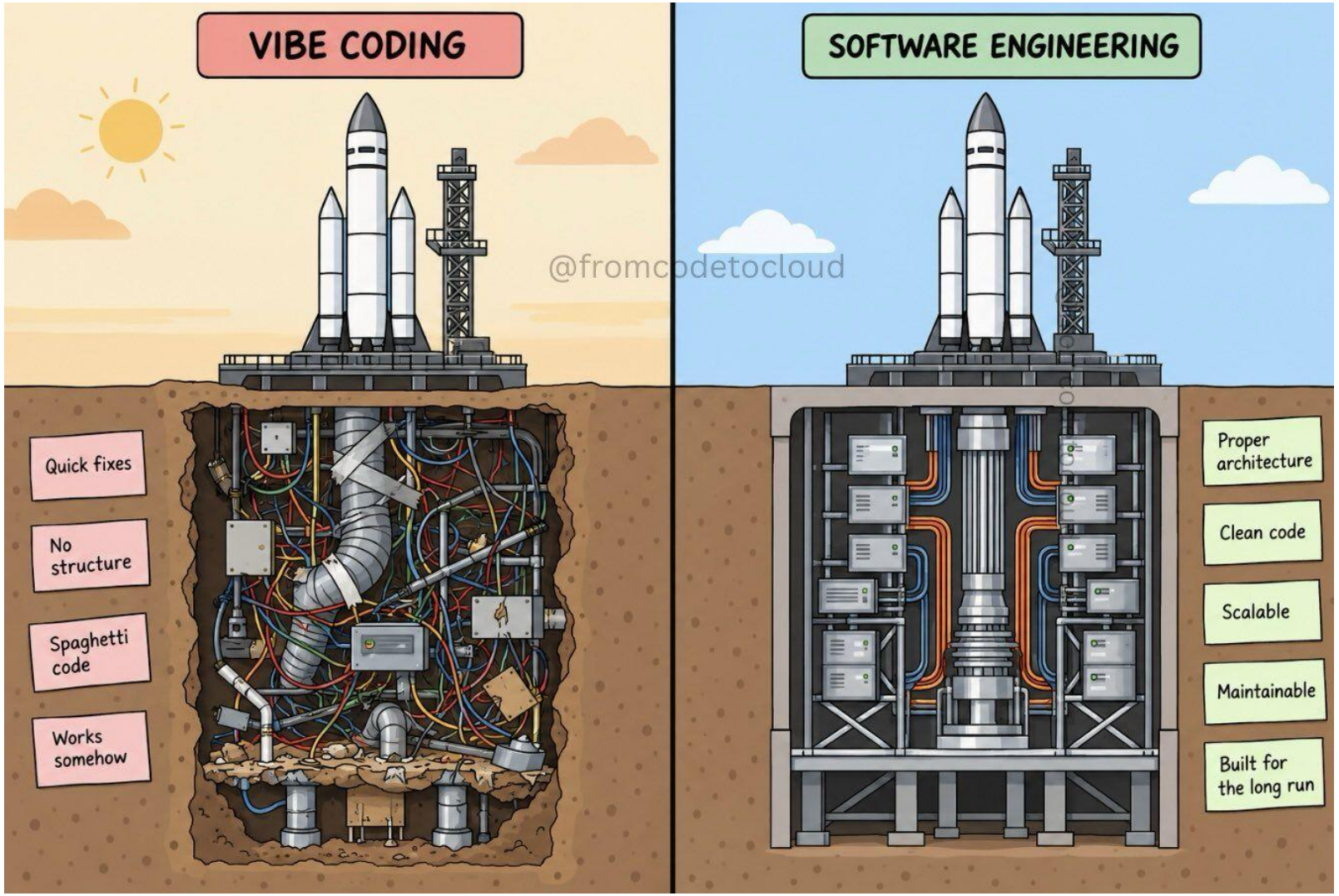
Investment compartment

AI-driven automatic code generation

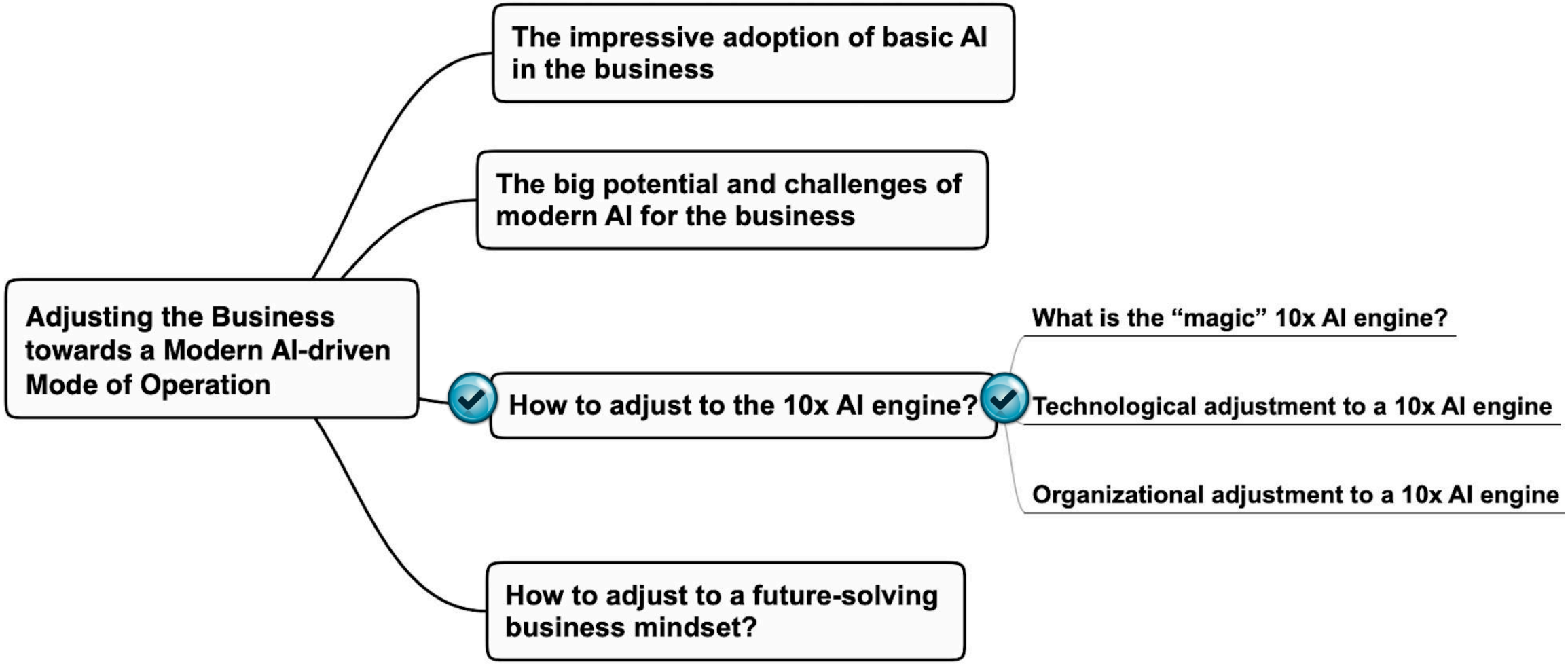
Agentic AI universal capability

GenAI mass-scale potential market

But designed in a **systemic way**



Outline

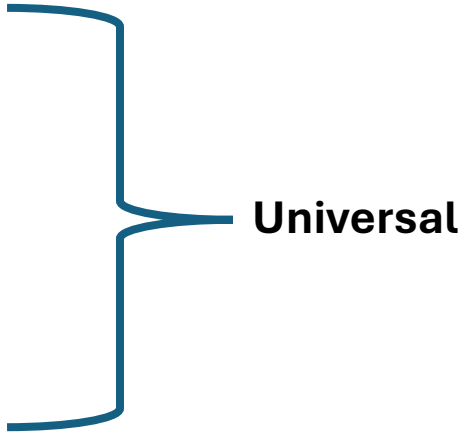

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Technological adjustment towards the 10x AI engine

AI-driven automatic code generation

Agentic AI universal capability

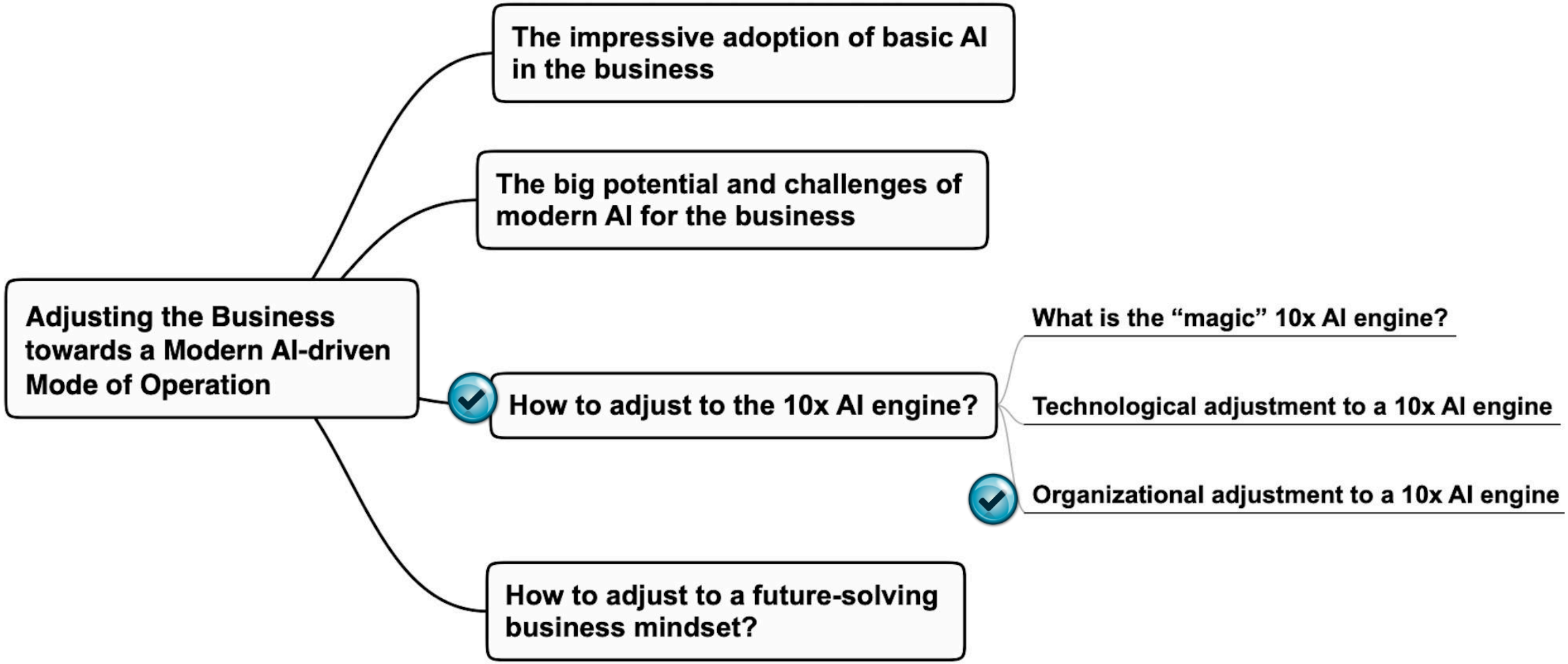
GenAI mass-scale potential market



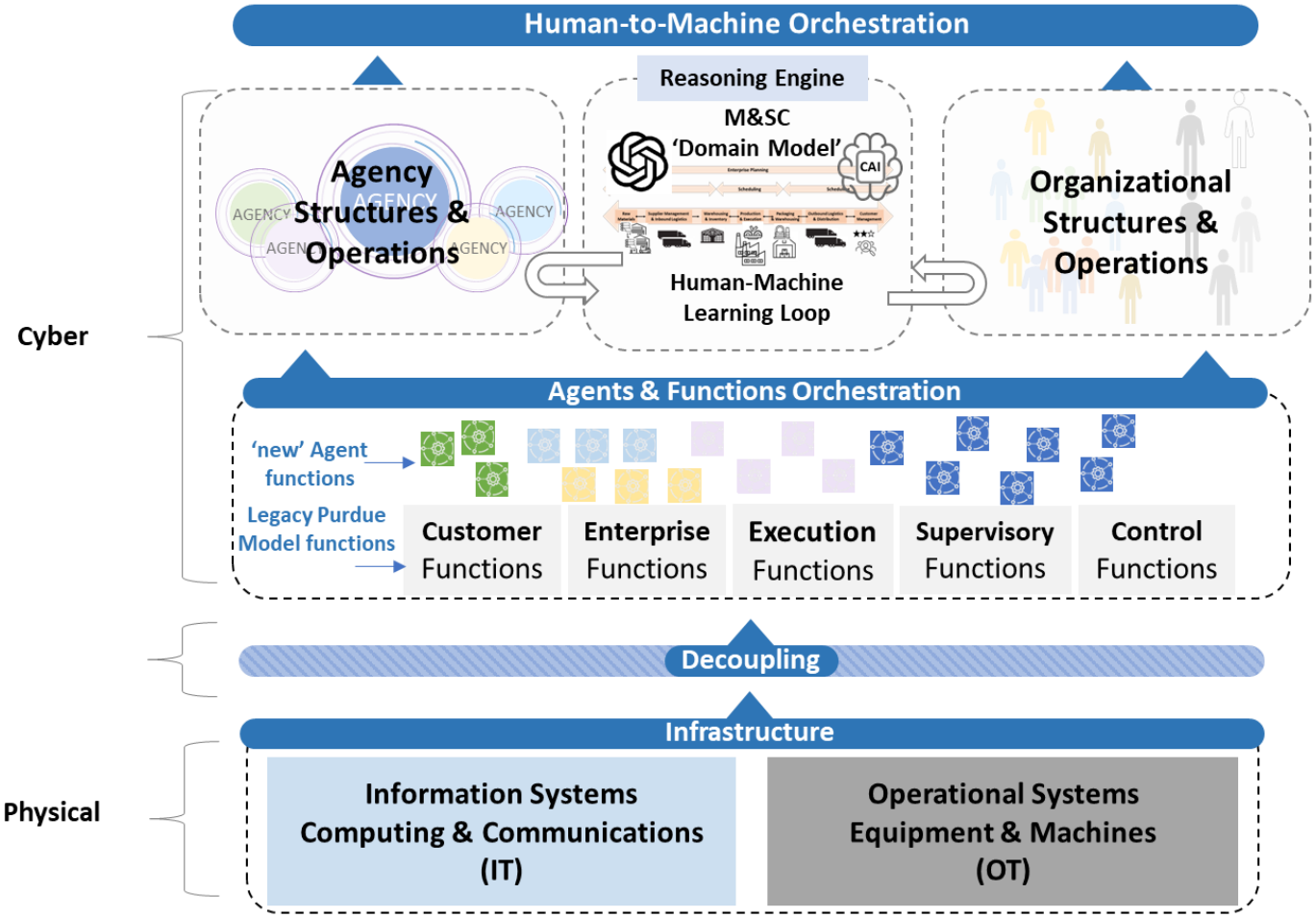
Business-specific software

Business-specific hardware

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Answering a key fundamental future business issue: How humans and AI agents will effectively work together



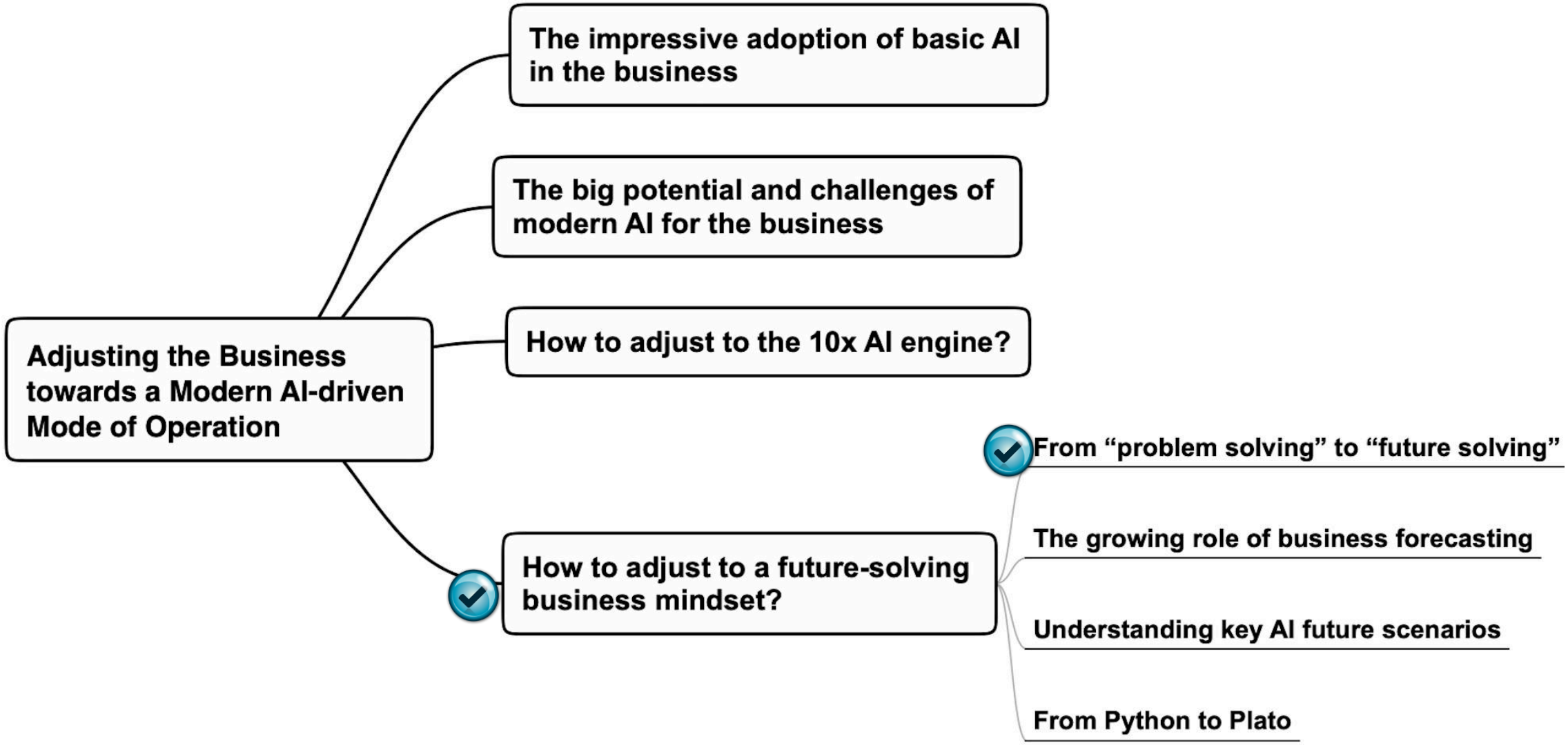
Georgia-Pacific

The recommended framework for future business Agentic AI applications is based on optimal orchestration between humans and agents, NOT on autonomous agentic control of the Enterprise

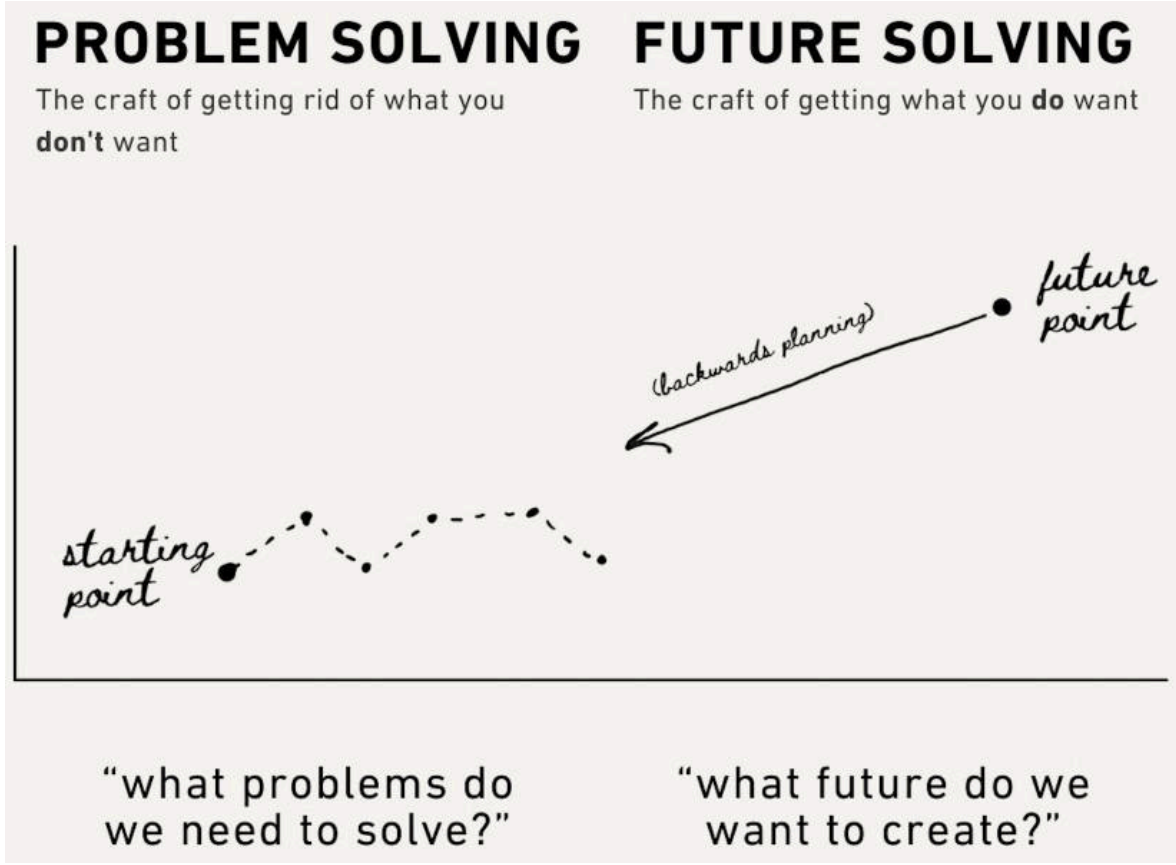
Recommended organizational adjustment steps for introducing the 10x AI engine

1. Understand the need for a 10x AI engine vision or survival strategy
2. Develop a fast first version of the vision
3. Build a consensus across the business, refine, and define the vision
4. Select a proper Proof of Concept (POC) use case to illustrate and validate the technical and organizational adjustments in the business
5. Begin brainstorming for the potential skill-set realignment and business structural changes
6. Organize and require fast training for the key technical components of the 10x AI engine (accelerated software project delivery and AI agent systems design)
7. Rearrange a business-specific accelerated work process, taking into account the new potential productivity gain of the 10x AI engine
8. It is recommended to use the advantage of AI agent simulations to explore, optimize, and define the best possible work process for your organization
9. Update and improve these steps as a continuous learning process

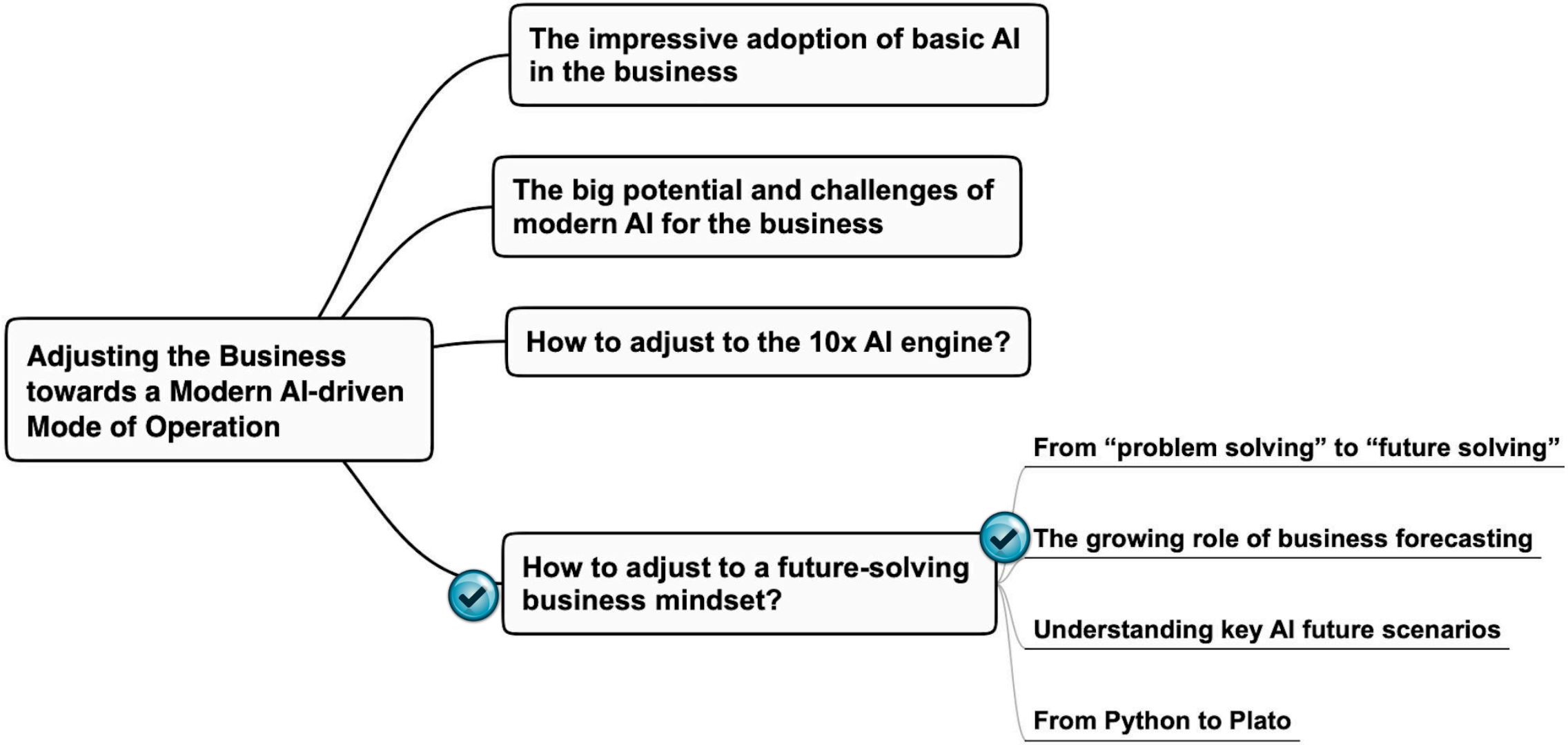
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From “problem solving” to “future solving”
The growing role of business forecasting
Understanding key AI future scenarios
From Python to Plato

Changing the PRINSIPLE of planning and forecasting: From Problem Solving to Future Solving



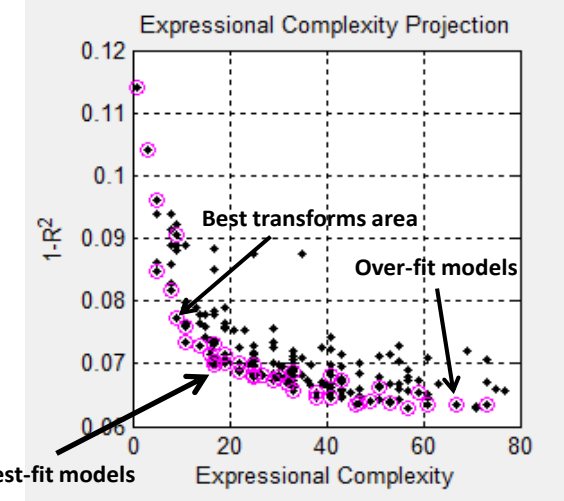
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Nonlinear Forecasting = Genetic Programming (GP) + ARIMAX

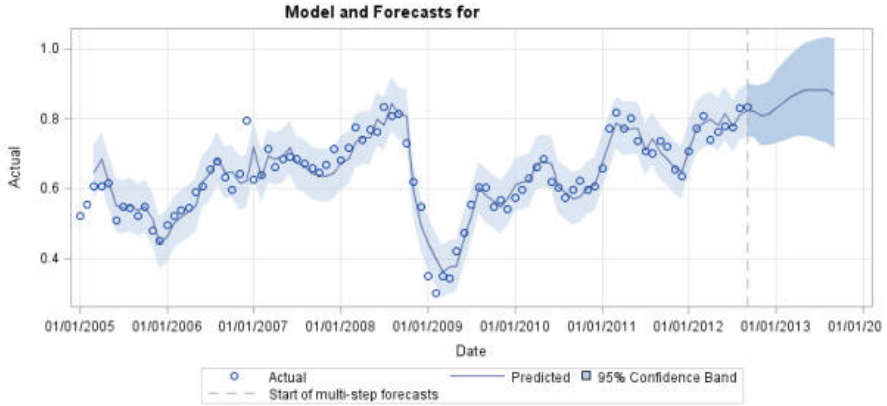
Genetic Programming

Variable selection
Nonlinear transforms



ARIMAX

Forecasting using nonlinear transforms



Simple transform example

$z(t) = x_2(t-2)*x_3(t-1)$

Nonlinear ARIMAX

$y(t) = a + b*y(t-1) + c*z(t) + d*e(t-1) + e(t)$

Most forecasting models predicted with ~ 10% error

1	2	3	4	5	6	Model Error
0.4%	0.7%	0.9%	1.1%	1.2%	0.5%	0.8%
1.1%	1.6%	1.5%	0.8%	1.0%	0.1%	1.0%
0.9%	2.4%	2.9%	2.5%	0.3%	2.3%	1.9%
0.8%	0.9%	1.5%	1.5%	2.9%	4.1%	2.0%
1.6%	2.6%	2.9%	2.2%	1.0%	1.5%	2.0%
3.0%	5.1%	7.7%	6.5%	5.8%	1.4%	4.9%
3.3%	4.4%	4.6%	5.4%	7.6%	5.8%	5.2%
8.0%	8.3%	1.2%	2.1%	5.7%	6.2%	5.2%
8.5%	9.9%	8.0%	8.6%	14.2%	20.6%	11.6%
4.0%	7.0%	11.6%	17.0%	22.4%	24.2%	14.4%
11.7%	12.7%	16.0%	20.8%	16.0%	24.9%	17.0%
6.0%	14.1%	18.5%	18.6%	19.5%	36.2%	18.8%
19.9%	18.4%	15.4%	16.0%	31.8%	39.3%	23.5%
39.1%	39.6%	41.1%	41.0%	38.6%	37.6%	39.5%
7.74%	**9.11%**	**9.56%**	**10.29%**	**11.99%**	**14.61%**	**10.55%**

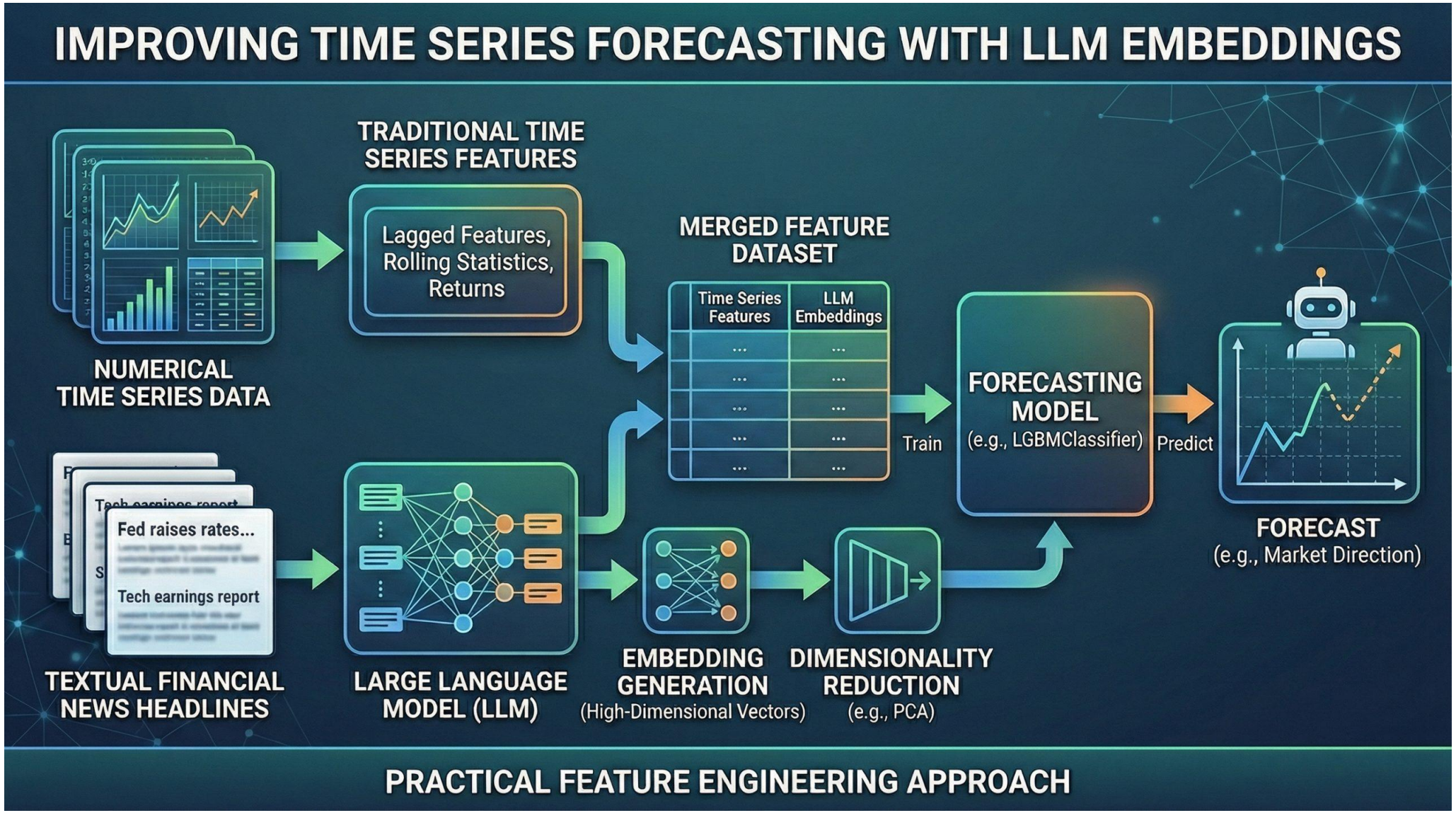
pred error < 5%
5% < pred error < 10%
10% < pred error < 15%
15% < pred error < 20%
pred error >20 %

Color code

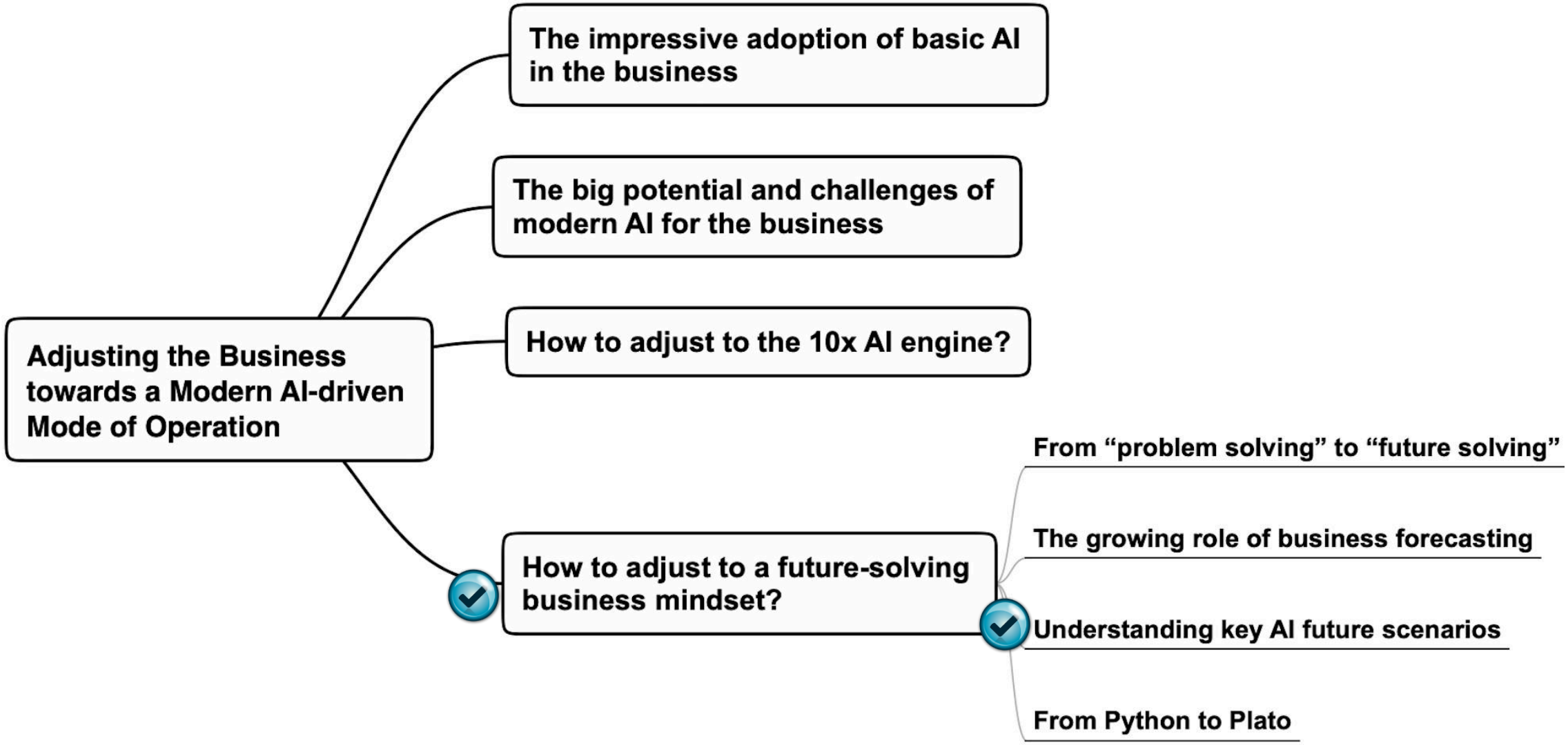
The average cost of raw materials is ~ $5 billion/year
Average savings of 2.5 % can save ~$125 million/year

Average Mean Absolute Percentage Errors for all prices for a month-ahead forecast

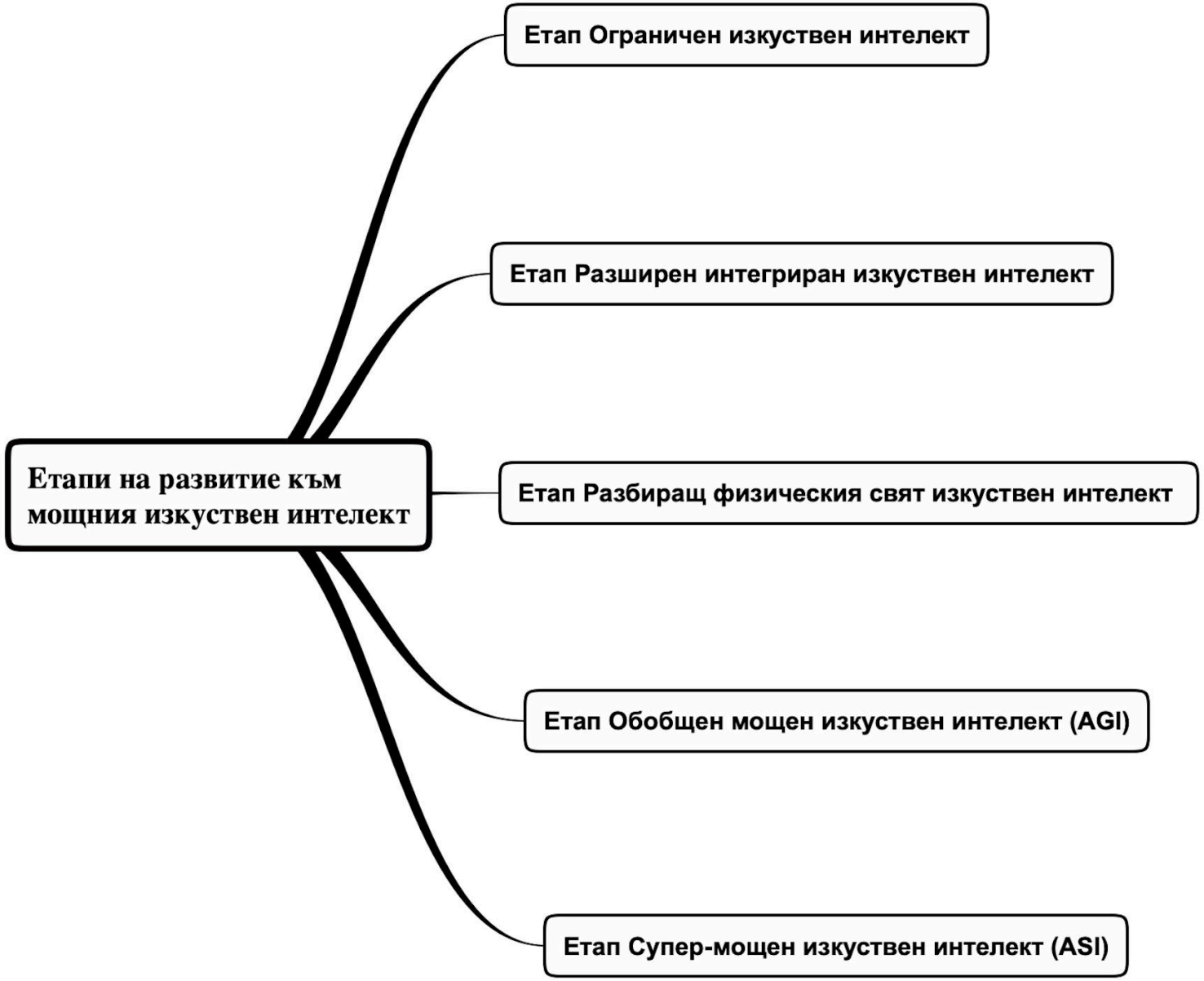
Modern business forecasting with LLM



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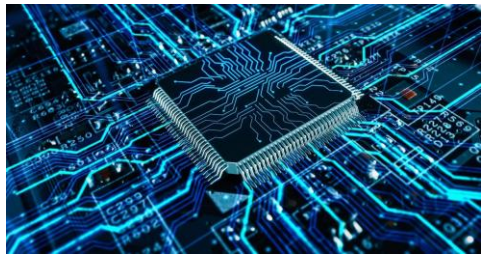
Прогресът към мощния изкуствен интелект

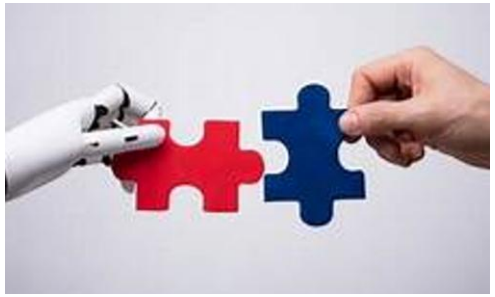


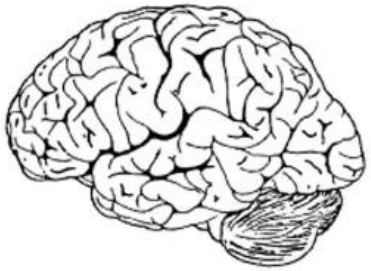
Основни еволюционни фази на развитие на ИИ

Еволюционни фази на ИИ	Системи с ограничен интелект Изпълняват конкретни задачи, без възможност сами да разширят функционалността си	⇒	Системи с обобщен интелект Изпълняват широк кръг от задачи и имат интелектуални способности, сравними с човешките	⇒	Системи със супер интелект Демонстрират по-високи интелектуални възможности от човешките
Период	Понастоящем		2040?		Скоро след системите с обобщен интелект
Характеристики	Превъзхождат хората в специфични повтарящи се дейности, като медицинска диагностика и финансови съвети		Състезават се с хората във всички начинания		Превъзхождат хората, помагат за постигане на социални цели или заплашват цивилизацията с унищожение
Последици	Подобряват работоспособноста		Отнемат работни места		Риск за човечеството

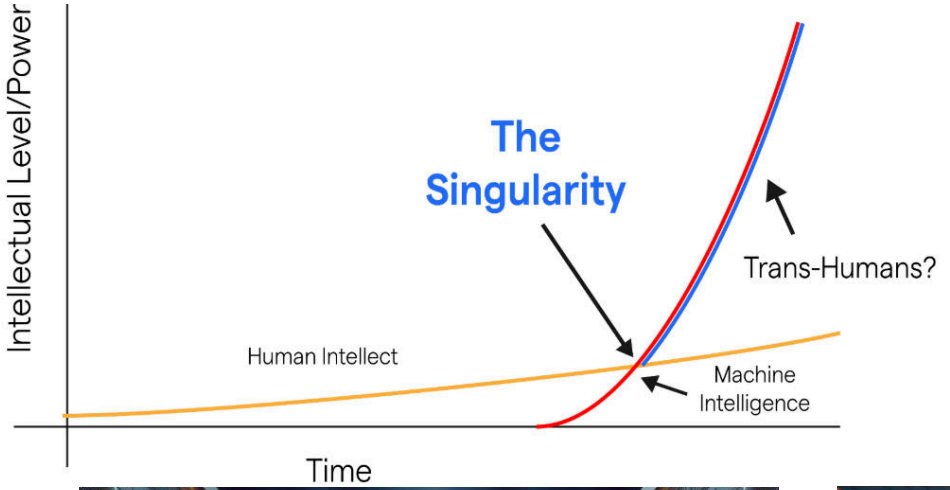
Key scenarios for the future







Hybrid intelligence





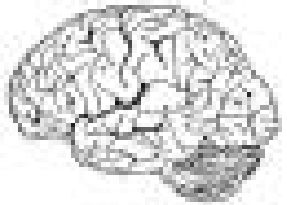
Technological singularity

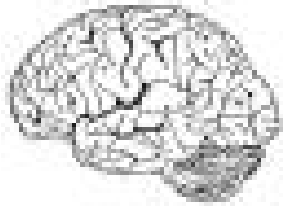


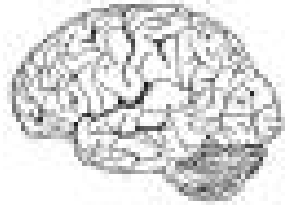


Uncontrolled artificial super intelligence

Hybrid intelligence as a social transformation strategy









Society level

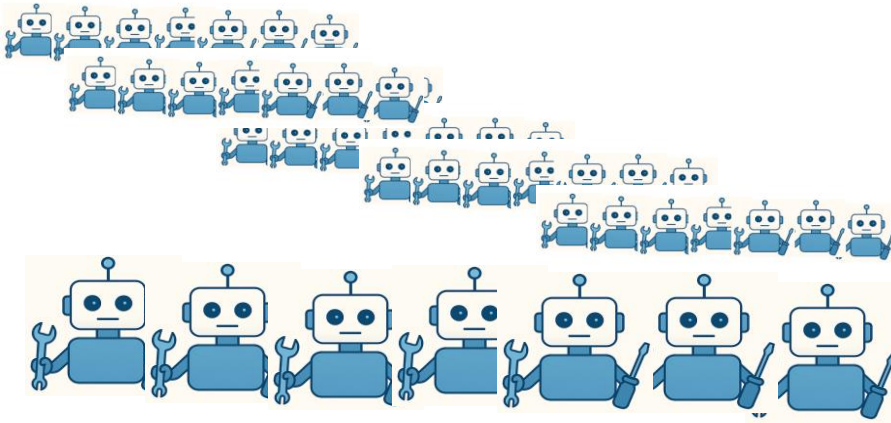
Organization level

Individual level

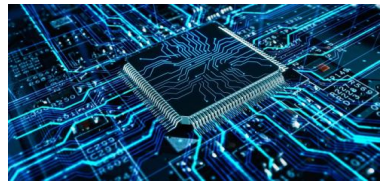










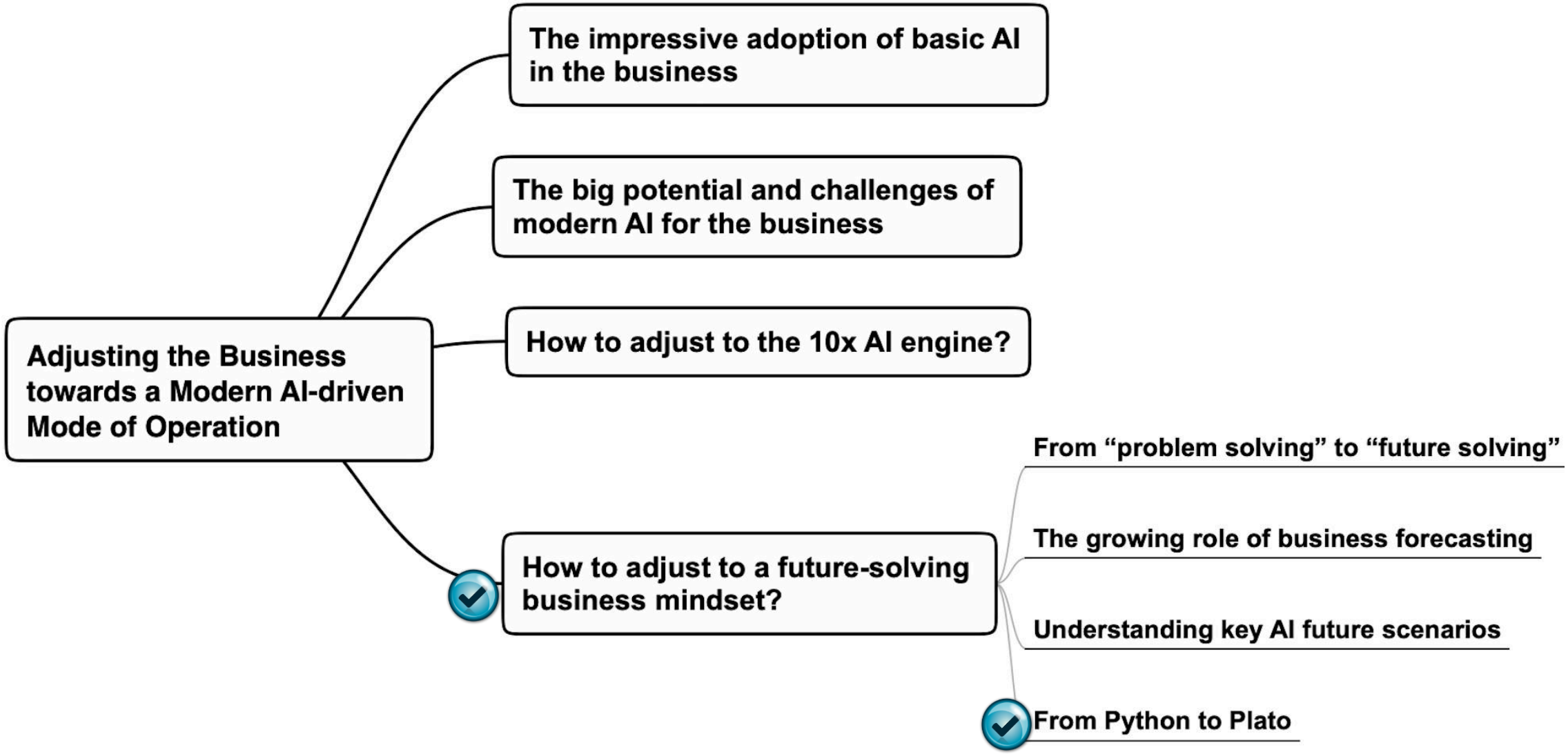


Human Intelligence

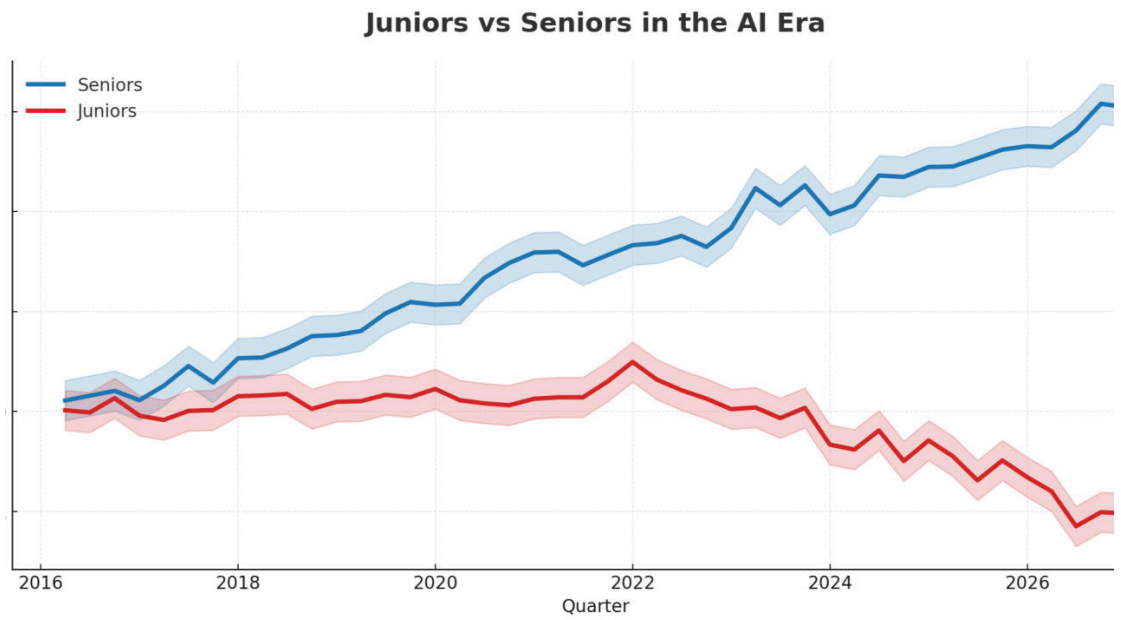
Hybrid Intelligence

Artificial Intelligence

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The decreasing value of a narrow skill set
The increasing value of a broad, diversified skill set

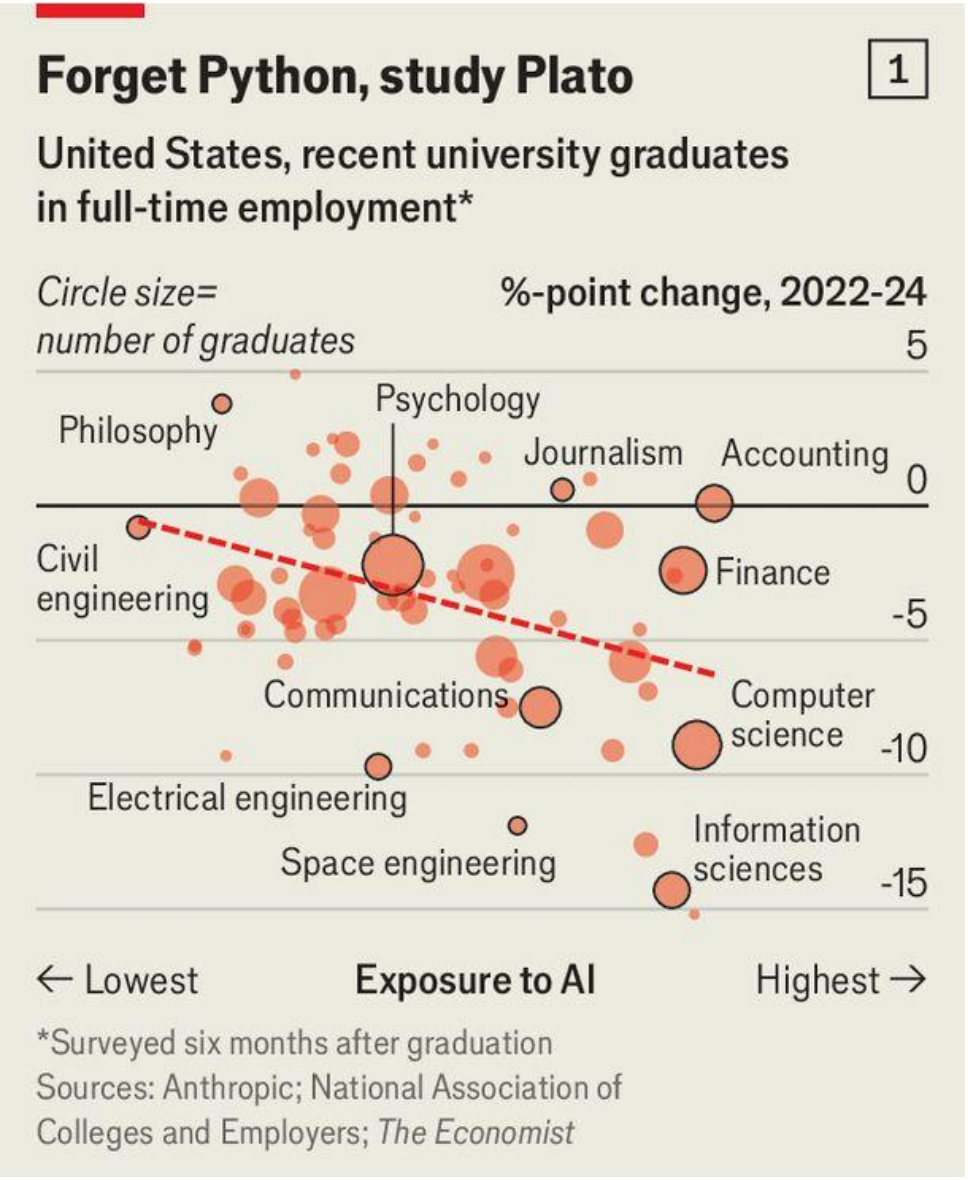


Future planning, AI dynamics assessment, 10x economics, etc.

Python, Java, JSON, etc.

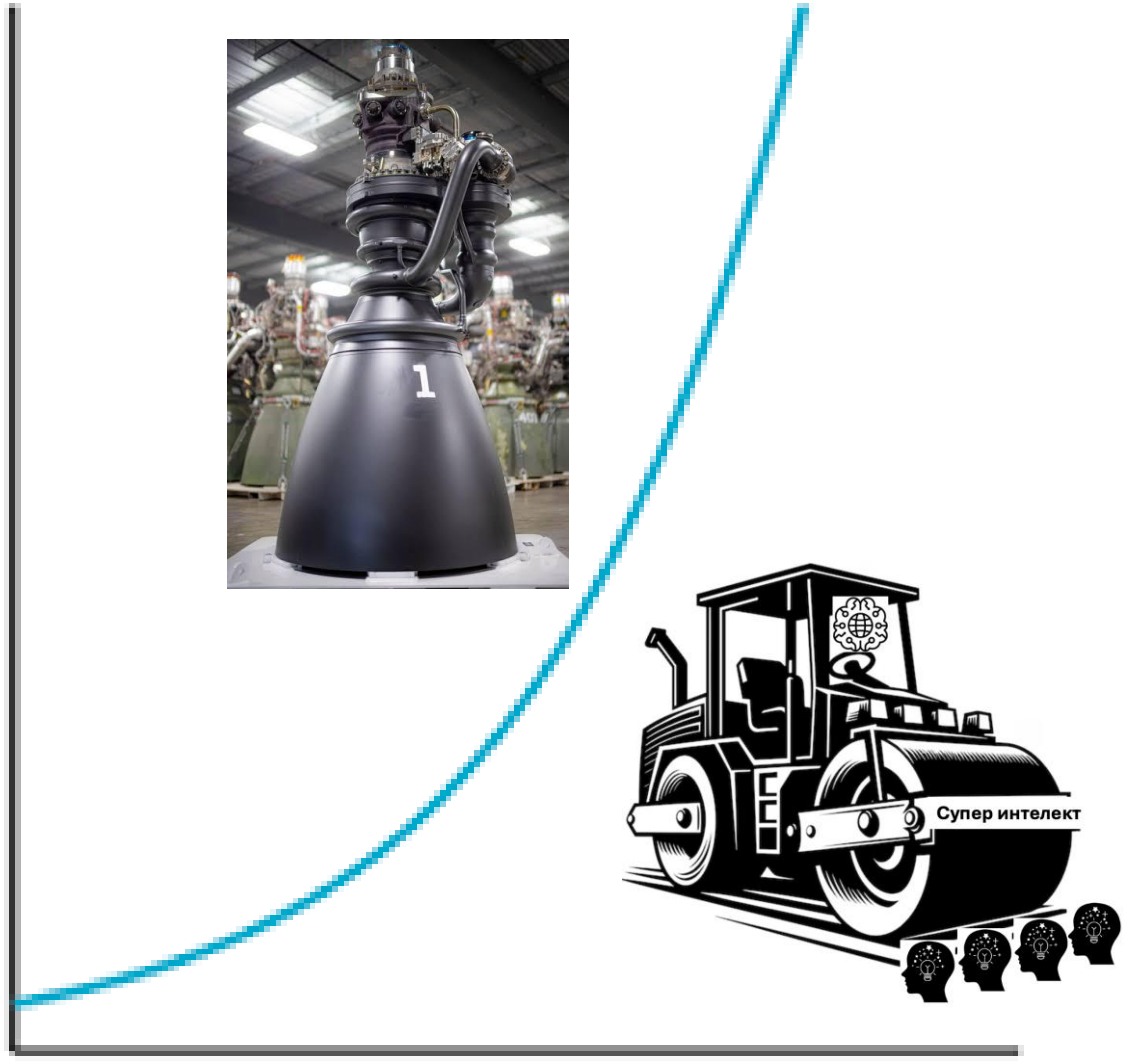
From Python to Plato





Final message: Make a decision **NOW**: the **10x AI engine** OR.....

The 10x AI engine



Questions: